

HP Business Service Management

for the Windows and Linux operating systems

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Using Business Process Insight

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Table of Contents

Welcome to This Guide

This guide describes how to configure and work with Business Process Insight and provides information about the management tasks that you need to complete for the ongoing set up and maintenance of your Business Process Insight (BPI) solution.

This chapter includes:

- ▶ How This Guide Is Organized on page 11
- ▶ Who Should Read This Guide on page 12
- ▶ How Do I Find the Information That I Need? on page 13
- ▶ Additional Online Resources on page 15
- ▶ Documentation Updates on page 16

How This Guide Is Organized

The guide contains the following:

Chapter 1, "Introducing Business Process Insight."

Provides an overview of using BPI with Business Service Management to visualize the health and performance of the Business Processes that are running over an IT infrastructure.

Part I BPI Administration

Describes the BPI Administration options: Modeler, Monitor Definer, Process Repository Explorer, Process Intervention, and Notification.

Part II BPI Application Reports

Describes the BPI Reports: BPI Application Scorecard, BPI Application Health, Business Process Summary Report, BPI Monitors Over Time Report, and Business Process Activity Summary Report.

Who Should Read This Guide

This guide is intended for the following users of HP Business Process Insight:

- ▶ HP Business Process Insight administrators
- ▶ HP Business Process Insight application administrators
- ▶ HP Business Process Insight end users

Readers of this guide should be knowledgeable about navigating and using enterprise applications, and be familiar with HP Business Service Management and enterprise monitoring and management concepts.

How Do I Find the Information That I Need?

This guide is part of the HP Business Service Management Documentation Library. This Documentation Library provides a single-point of access for all Business Service Management documentation.

You can access the Documentation Library by doing the following:



- In Business Service Management, select **Help > Documentation Library**.
- From a Business Service Management Gateway Server machine, select **Start > Programs > HP Business Service Management > Documentation**.



Topic Types

Within this guide, each subject area is organized into topics. A topic contains a distinct module of information for a subject. The topics are generally classified according to the type of information they contain.

This structure is designed to create easier access to specific information by dividing the documentation into the different types of information you may need at different times.

Three main topic types are in use: **Concepts**, **Tasks**, and **Reference**. The topic types are differentiated visually using icons.

Topic Type	Description	Usage
Concepts 	Background, descriptive, or conceptual information.	Learn general information about what a feature does.
Tasks 	<p>Instructional Tasks. Step-by-step guidance to help you work with the application and accomplish your goals. Some task steps include examples, using sample data.</p> <p>Task steps can be with or without numbering:</p> <ul style="list-style-type: none"> ▶ Numbered steps. Tasks that are performed by following each step in consecutive order. ▶ Non-numbered steps. A list of self-contained operations that you can perform in any order. 	<ul style="list-style-type: none"> ▶ Learn about the overall workflow of a task. ▶ Follow the steps listed in a numbered task to complete a task. ▶ Perform independent operations by completing steps in a non-numbered task.
	<p>Use-case Scenario Tasks. Examples of how to perform a task for a specific situation.</p>	Learn how a task could be performed in a realistic scenario.

Topic Type	Description	Usage
 Reference	General Reference. Detailed lists and explanations of reference-oriented material.	Look up a specific piece of reference information relevant to a particular context.
	User Interface Reference. Specialized reference topics that describe a particular user interface in detail. Selecting Help on this page from the Help menu in the product generally open the user interface topics.	Look up specific information about what to enter or how to use one or more specific user interface elements, such as a window, dialog box, or wizard.
 Troubleshooting and Limitations	Troubleshooting and Limitations. Specialized reference topics that describe commonly encountered problems and their solutions, and list limitations of a feature or product area.	Increase your awareness of important issues before working with a feature, or if you encounter usability problems in the software.

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HP Software Support accesses the HP Software Support Web site. This site enables you to browse the Self-solve knowledge base. You can also post to and search user discussion forums, submit support requests, download patches and updated documentation, and more. Choose **Help > HP Software Support**. The URL for this Web site is www.hp.com/go/hpssoftwaresupport.

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1

Introducing Business Process Insight

This chapter includes:

Concepts

- ▶ BPI Within Business Service Management Overview on page 18
- ▶ What is a Business Process? on page 21
- ▶ What is a BPI Process? on page 22
- ▶ Business Events on page 27
- ▶ IT Processes on page 28
- ▶ Summary of Defining Models for Your Business Processes on page 29
- ▶ Instances of Business Processes on page 30
- ▶ Operational and Business Data on page 32
- ▶ Business Scenario for a Stock Control System and BPI on page 34
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Tasks

- ▶ How to Manage User Permissions on page 45

Reference

- ▶ Configuration Items Stored in the RTSM on page 48

Concepts

BPI Within Business Service Management Overview

BPI is a Business Service Management Application that enables you to make better business decisions by improving the quality of the business information available to you. BPI provides you with visibility into the health and performance of the Business Processes that are running over your IT infrastructure. Using this information, you can assess the financial and business impact of delays or blockages in a process due to an IT performance problem or other incident such as an IT outage.

BPI achieves this by linking and relating the information held for your business and its IT infrastructure. It takes information, in the form of events, from both business applications and from the IT infrastructure, and presents these events in business terms; for example, rate of loss of orders, backlogs accumulating, value of these backlogs and potential impact on key customers. In other words, BPI enables you to visualize and then track the state, or health, of Business Processes within your organization.

Specifically you can use BPI to:

- ▶ Model Business Processes and then measure key business data associated with these processes; for example, value of order.
- ▶ Correlate each Activity in the Business Process with the IT infrastructure on which it depends and provide IT with the visibility to show its contribution to the business.

To achieve this, BPI uses business data events and IT infrastructure events to monitor the status of all the Business Processes that you have modeled. As a result, when a problem occurs within the IT infrastructure, BPI reports on the instances of the processes that are being monitored and that are impacted; for example, BPI might report on the number of orders that are affected for a specific customer, for all customers or for a group of customers (gold, silver, bronze-level customers).

The key business data associated with the process are then used to determine the business impact of the problem. Business impact typically takes the form of financial impact, but it can also be the number of key customers affected, or the number of urgent orders affected, and so on.

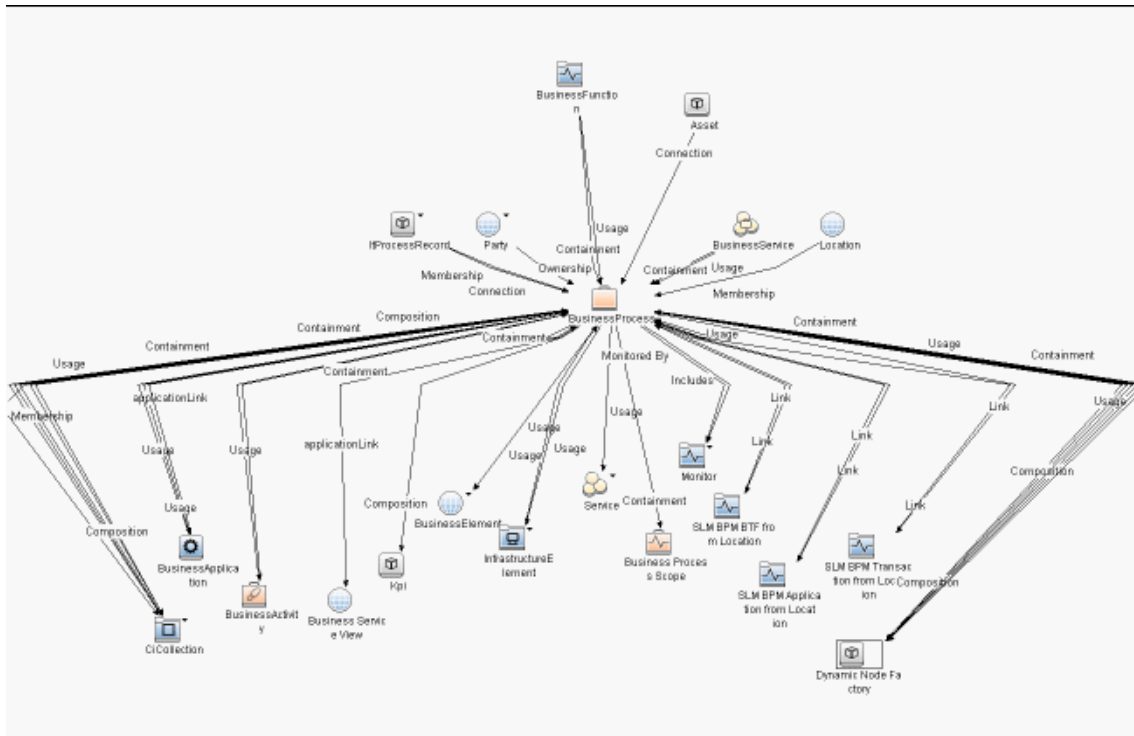
You then use Service Health to do the following:

- ▶ Proactively monitor your service level agreements (SLAs).

Service Health enables you to see which SLAs are at risk and enables you to navigate to see which specific configuration item (CI) is potentially causing you to breach a service contract. For more information about the BPI CIs see “Configuration Items Stored in the RTSM” on page 48.

- ▶ Calculate whether the measurements of an SLA are within the limits set out in a service level agreement (as defined in Service Level Management).
- ▶ Calculate whether an SLA is in breach of contract, or might be in breach in the near future.

The following diagram shows the structure of the BPI Business Process models as CIs within the RTSM (Run-Time Service Model).



Each of the elements in this diagram is represented as a CI within the RTSM. The BPI application sends data samples for the Business Process CIs that you define and these data samples are then displayed on the Business Process Diagram in Service Health and in the Business Process Application.

Enabling/Disabling BPI Through BSM Server Deployment

When BSM is deployed, you can enable the applications that you require through the BSM Server Deployment page. You must enable Business Process Insight through the BSM Server Deployment page from Loc to be able to access the BPI application from both the Applications and Admin menus. To access the BSM Server Deployment page, select **Admin > Platform > Setup and Maintenance > Server Deployment**.

If you disable BPI through the BSM Server Deployment page, even if the BPI license is installed, BPI cannot be accessed. For details on using the BPI Server Deployment, see *Platform Administration*.

Note: If you enable/disable Business Process Insight through the BSM Server Deployment page, the BSM Gateway and Processing Servers should be restarted, for this change to take effect.

What is a Business Process?

Business Processes are a set of Business Activities within your business; for example, Business Activities for a telecom service provider might include line provisioning, customer billing and equipment repairs. These Business Activities might not always be obvious, and they might not be formally recognized, but they always exist within a business. A Business Process (or a set of Business Activities) typically includes all the activities of the business.

For an insurance company, business activities might include setting up a new policy for a customer and processing an insurance claim. In addition to these line-of-Business Processes, a Business Process can also be an internal administration process, such as HR processes, payroll, and so on.

Business Processes are not necessarily exclusive to one company; many Business Processes involve customers and suppliers. Business Processes can be automated, using Business Process management software; however, only a fraction of Business Processes are fully automated. Most Business Processes are manual and some exist only in the behavior of the organization, that is, they are not formally documented.

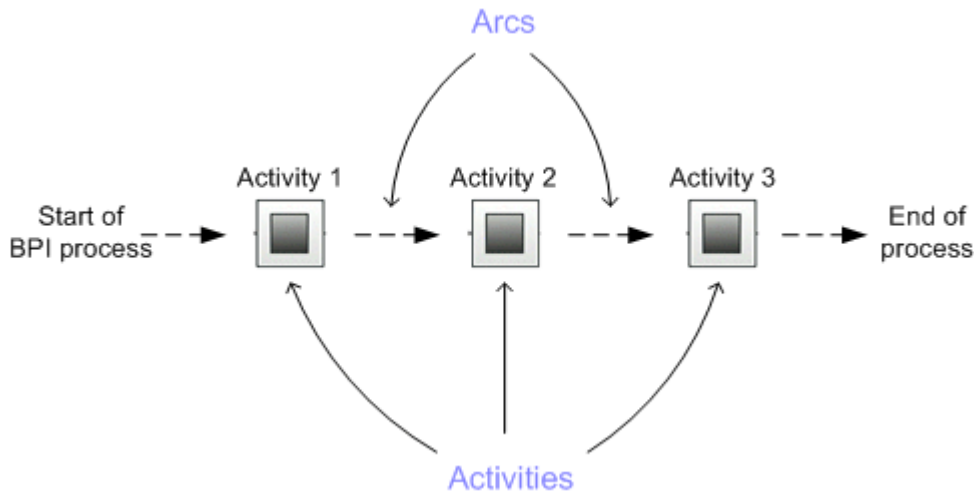
What is a BPI Process?

A process (for BPI tracking purposes) does not need to include all the activities in a Business Process; it need contain only those activities that you need to understand to determine that your business is functioning optimally. As an example, a vehicle dashboard presents a summary of the key activities that you need to be aware of for the vehicle; it does not present all the information about all the vehicle operations.

The business activities that you need to model within BPI for your business are those required to obtain meaningful impact data about the health of your business. The fewer business activities that you track, the easier the BPI processes are to create and manage and visualize.

Structure of a BPI Process

Within BPI, a process is presented as a series of Activities and connections, which are called Arcs. The Activities represent the business activities and the arcs connect the Activities to show the expected direction of flow within the process; this is shown in the following diagram.



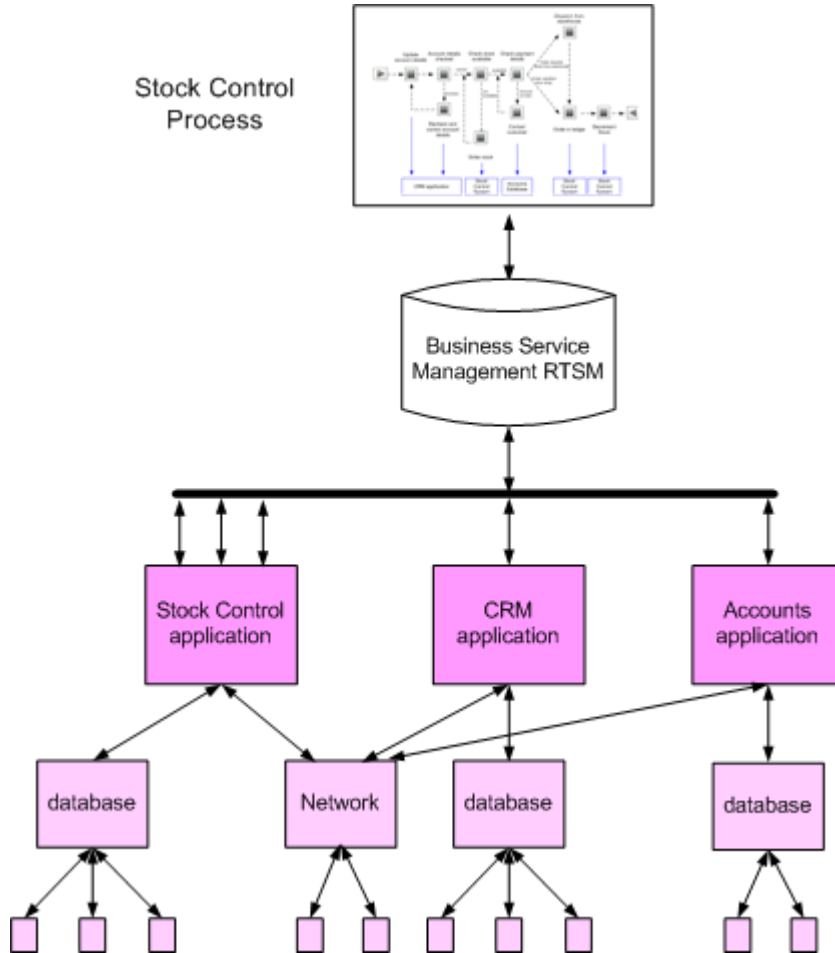
An activity in a Business Process might represent one or more business activities, according to how much detail of the Business Process you are modeling to track it.

BPI enables you to represent a business process in a graphical form. This permits you to show the logical structure of the elements of the process. The graphical representation also provides visual information relating to the progression of the process.

Using the graphical processes enables you to more easily connect business activities into a logical sequence using as few activities as possible. However, make sure that your structure of the process model is sufficient to report the impact of problems in the process.

Example BPI Process

The following diagram is an example of a Business Process for an organization that provides building materials primarily for professionals, but it also has a store where the public can purchase building supplies. This diagram shows the hierarchy of the IT operational resources and how they relate to the applications that provide the resources.



The organization is structured as a front office, middle office and back office:

► **Front office** — includes the following:

- Web site for online access
- Shop
- Call center

An ISP hosts the Web site and the shop has a dial-up connection through a point-of-sale checkout. The Call Center is out sourced.

► **Middle office** — where orders are processed and validated.

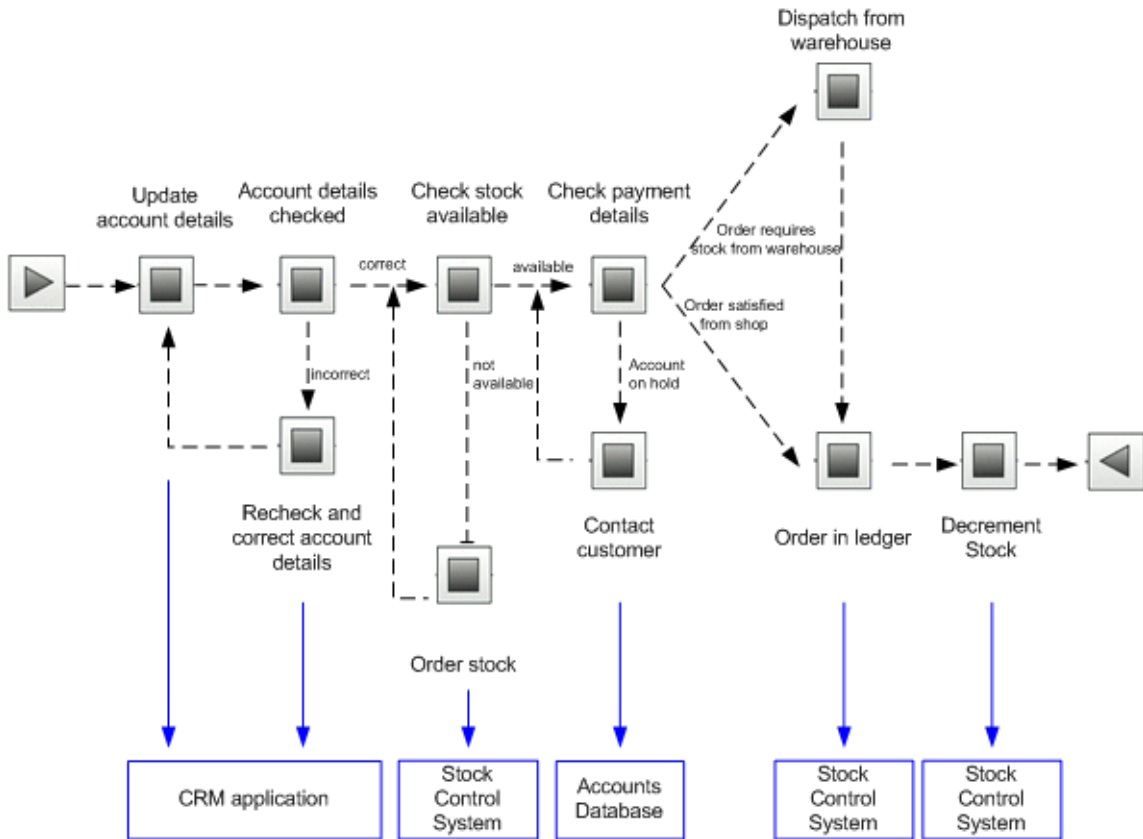
► **Back office** — where billing and the execution of the orders occur.

In this example, the middle and back office operational systems are managed using HP Business Service Management.

Also, in this example, the Stock Control System is used at several points in the Business Process and the Stock Control process diagram shows this interaction.

The following diagram shows the significant activities of the Business Process represented graphically in a BPI process. This is how they might appear within the BPI Modeler, which is the graphical tool for creating BPI processes.

As mentioned earlier, you do not need to include all the Activities in the Business Process. The Activities that you include are those that relate to the key business activities that need to be tracked.



The process shown in this diagram uses underlying business applications and also includes IT operational resources. Some of the business applications might be operationally tracked and therefore represented as IT operational resource CIs within Business Service Management.

There might also be other business applications that are not being operationally tracked, but are still providing business application data for BPI. In this example, information about the health of the Stock Control System is used at several points in the BPI Business Process and the diagram below shows this dependency. Within the BPI Modeler, these resources are properties of the Activities in the process.

Business Events

To integrate, or import, business event data from your business applications, you use the BPI adapter technology. This technology enables you to generate business events from sources such as files and databases, and business applications including PeopleSoft and JMS. These adapters enable business data to be accepted as the source data for BPI business events, which are received through the BPI Business Event Handler component.

In the context of BPI, an event is the notification of some change to the underlying system that is being monitored and where this state change causes a subsequent change in state of the modeled Process instances. This might be directly through the data within the event or through some transformation of the data.

The following section describes a business event component for BPI.

Business Events and openadaptor

The Business Event Handler is based on the openadaptor technology and **openadaptor** is the underlying mechanism for receiving business events. **openadaptor** is an open-source Java/XML-based software platform, which provides business system integration with little or no programming. **openadaptor** provides many ready-built interface components including adapters to capture business events from sources such as files, databases, JMS, LDAP, Tibco and MQ Series.

BPI also provides file and database adapters for use specifically with BPI; however, **openadaptor** is an open source product and easily configurable; therefore, you can extend the number of adapters for use with BPI as required.

For more information about **openadaptor** refer to:

<http://www.openadaptor.org/>

BPI uses a specific version of the **openadaptor** platform, and the version used is available as part of the BPI software.

IT Processes

Within many organizations the IT processes and transactions are often hidden within the environment in which they have been automated. The processes might have started as fully documented process models, but as they are adapted to the needs of the organizations, the processes change and the related documentation becomes out of date. Using BPI helps you visualize IT processes that are hidden within the organizational structure and then set measurements on the IT operational resources that make up the processes to report on the status of the operation of these resources.

You model your IT operational resources within BSM (as CIs) and then use BPI to link the CIs to process Activities. BPI can then obtain status information relating to these operational resources for Business Processes that you have modeled within BPI.

TransactionVision

BPI can also use the transaction models produced by TransactionVision as input for a Business Process model. TransactionVision tracks and measures individual transactions as they progress through your organization. TransactionVision provides the link between low-level systems and network monitoring, and high-level Business Process monitoring to link your IT objectives with your business objectives.

TransactionVision does not assume that a model exists to describe all possible transaction flows. TransactionVision monitors transactions and discovers the transaction paths as it observes them being executed across the organization. You do not need to configure TransactionVision with information describing how you think your transactions flow; TransactionVision tells you how they flow based on observing real transactions as they are processed. You do have to configure TransactionVision to send the required transaction events to BPI. For details, see "How to Send Events to BPI" in chapter 15 of *Using Transaction Management*.

The discovered transaction events are then available for use by BPI, as input for Business Process modeling.

Summary of Defining Models for Your Business Processes

By defining models for your Business Processes and mapping these models to the underlying IT operational resources modeled within Business Service Management, you can be notified when Activities in the process are impacted by a failure in the underlying infrastructure.

There are significant benefits to visualizing your Business Processes and relating resources to these processes; for example, you can identify the impact a resource failure has on the process and how other Activities in the process might also be impacted.

However, understanding only the impact of resource status changes does not enable you to answer questions such as:

- ▶ What is the financial impact of the resource failure?
- ▶ How many transactions are waiting to be processed at a particular point in the process?

To answer these types of question, you also need business data from your business applications, plus you need the BPI system to maintain data on individual instances of the Business Processes.

Using rules, filters and database queries, BPI can provide monitor data based on each instance and groups of instances. This, plus the business data that BPI receives through business events, enables BPI to present business-related information related to how your business is impacted by a failure in an IT operational resource, or how your Business Processes are running with respect to the objectives set on health indicators (HIs).

Instances of Business Processes

To get more detail from your business systems, you need to model the individual instances of the process and see how these are being impacted. A process instance is a specific occurrence of a particular process that you have defined, for example, a specific customer transaction, or a specific flight arrival.

To model instances of your processes, you need to define data objects. A data object usually represents a known object within your organization; for example, an order, an employee record or flight details, or indeed it might also be an aggregation of a number of properties. In the case of TransactionVision, these data objects are created automatically when the transaction events that you have identified are imported.

The data captured from the business events, which are being processed by your BPI system, can be used directly to change the status of a Business Process, or can be used to update the status of the data objects that you have defined. In the latter case, rules are used to evaluate how the Business Process is progressing, based on the changing status of the data object.

You can also add Business Process Monitors to the instance-level information and use them to provide business measurements to indicate the health of the process instances that you are tracking.

Using the data collected for the defined Business Process Monitors, BPI can present the state of the business back to the business manager. The data is presented according to the instances of the processes being tracked and the data collected. You can also use BPI to indicate to IT how they are meeting the needs of the business, for example, you can use the Business Process Insight Application Health page to show information about how many orders are waiting to be processed, or information about the value of orders that are waiting to have payment details checked.

You can also use the instance information that is recorded by BPI as follows:

- ▶ View historical data recorded from BPI data using the Business Process Insight Application Reports page.

- ▶ Monitor SLA violations using the reporting feature of the Service Level Management Application.
- ▶ Create your own portlets using MyBSM.

As a result of modeling these process instances and setting Business Process spans, the business manager can see the impact of the critical business events on the Business Processes.

Modeling Business Processes

The most effective way to model a Business Process is to base it around the primary documents and Business Processes in your organization, for example, orders or insurance claim applications. As part of defining the process you need to identify the following:

- ▶ Data that will be used to drive the process.

These are the data that define the conditions under which a business task is deemed to have started and to have finished, and used to progress the process.

You can also use data directly from your Business Events to start, stop and progress your Business Process.

- ▶ Data required to answer the business questions that you want to track.

These data are obtained from your underlying business applications and can be thought of in terms of the data required for the business measurements that you want to report on for the process.

- ▶ Data required to characterize process instances.

In addition to data that can be used to infer process Activity state, or that is used in calculations against business criteria, you might also want to include Data properties that will be useful later when you want to distinguish between Business Process instances. As an example, you might want to group data by a specific location; in this case, the data relating to the location is not used to determine whether a process Activity has started or completed. It is also not used to calculate any sort of business metric; however, it is useful to have the location as a category in analyzing business performance.

- ▶ Events, which are required to obtain the data to drive the process and answer the business questions.

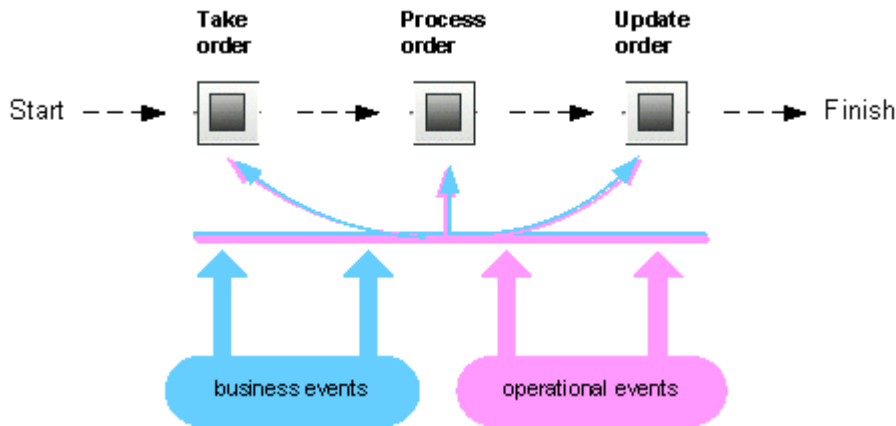
Events are defined in cooperation with the IT personnel who own the IT infrastructure and who you work with to obtain the data that you need.

- ▶ Key Business Process Monitors that you want to measure for your Business Processes.

Operational and Business Data

This section discusses the types of data used by BPI in more detail.

The following diagram shows how the Activities in a process can be related to the IT operational resources of your business, and that these resources, when combined with the business data and events received through the Business Event Handler, become the basis for tracking the health of your Business Processes.



The BPI system also manages the data required for the process (the data models), as Data definitions. In the Stock Control example, it maintains information about the account business data and within that, information about value, customer name, and customer type data.

BPI does not need to know about all the data related to a process, just enough to give a business manager information about the business impact of the affected Business Processes. For example, in the Stock Control process (see the diagram in “Example BPI Process” on page 24), the account business data might also contain data relating to customer address and customer preferences, but this data is not required for process tracking purposes, so it does not need to be defined or tracked within BPI.

The following is a summary of the two types of events received into the BPI system:

- ▶ Events that carry the data to move the process through its Activities. These are the business events.

You configure the business events that you need for the business applications that can access (or hold) the data required for the Business Process.

- ▶ Events that report business impact information related to the IT infrastructure; these are the operational events, which are linked to the Business Process CIs.

You need to model business events for your solution. The events from underlying business applications can provide the business data focus.

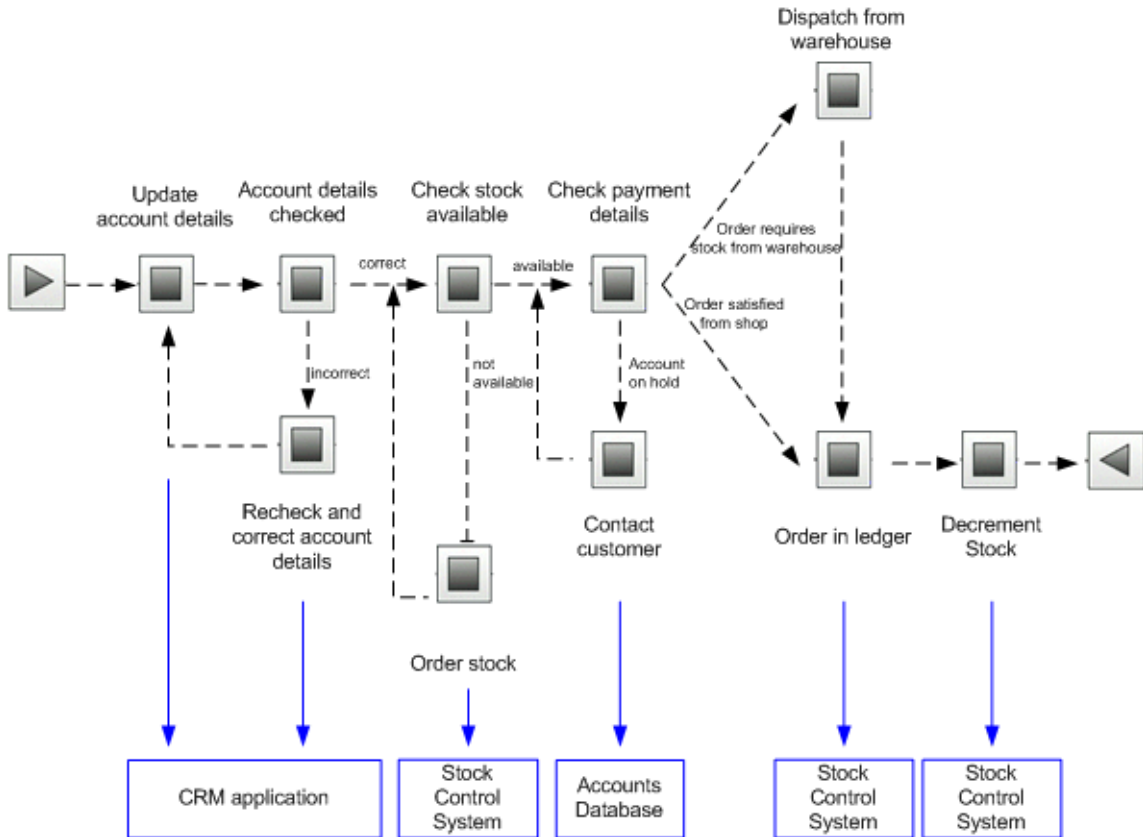
The data from these underlying systems is defined as part of the Business Process and the resultant information used for reports and analysis.

A methodology, described later in this guide, takes you through the Activities that help you define and then refine your Business Process and its data.

Business Scenario for a Stock Control System and BPI

Continuing with the example of the Stock Control system, the following describes the scenario in more detail and shows how BPI can be used, by the business manager, to indicate the business impact of failures reported through Business Service Management.

The scenario describes what happens when the stock control system fails - the business can accept orders, but it is unable to confirm that it can fulfill them. As can be seen from the Business Process diagram below, the Stock Control System is accessed at the start of the Business Process, to check the stock when the order is placed, and at the end of the Business Process, when the stock is dispatched.



The business also has a Gold Customer scheme whereby key customers are guaranteed their deliveries within a specified time, or significant penalties in the way of discounts are incurred.

Using the BPI Application, the business manager receives information about the following:

- Impact of the IT operational resource failures
- Impact of the business service failures

Using both these sets of information, the business manager now has the Business Process data that can be used to better understand the business impact of a failure. As an example, the business manager could define a Business Process Monitor that records how long it takes a specific instance of a process to move between two activities in the process. The Business Process Insight Application shows this monitor information in terms of statistical information relating to the process instances and their progress. The business manager can view the information in tabular and graphical form according to their requirements.

In addition to monitors, the business manager can request for annotations to be added to the processes as they are displayed on the Process Diagram on the Application Health page. These annotations can show information such as the current value of orders waiting to be processed.

The business manager also has the option to define instance thresholds for the Business Process Monitors and have BPI generate instance threshold violations when the instance thresholds agreements are not achieved. The instance threshold violations can inform them of critical business events, due to event such as the failure of the stock control system. On receipt of a violation, the business manager uses the BPI Application Health page or My BSM portal (whatever their usual reporting tool might be) to query the BPI system and obtain more information.

As an example, they could determine the following:

- ▶ There are 200 customer orders waiting to be processed and 10 of these customers are Gold Account Customers.
- ▶ The impact of the current rate of orders, for example, given historical information about the rate of orders, the current number of 200 is likely to be 1,000 within a couple of hours, and 20,000 by the end of the day.
- ▶ Using historical information, the stock float should be good for today and tomorrow and most orders can be dispatched without incurring any delay.
- ▶ If required, temporary manual stock control can be put in place using the business data provided by the BPI system.
- ▶ Information about the stock levels

The stock counters configured in the BPI system can be used temporarily whilst the stock control system is offline, so the business manager has an ongoing count of the stock and can monitor the situation. The business manager also knows the levels of stock in the shop, so they have the option to fulfill orders from the stock held at the shop if necessary.

The business manager is now in a position to make a business decision to prioritize the orders such that the Gold Customers and the high value orders are processed first. If any of the stock levels start to get low, the business manager can suspend the transactions, or inform customers that there might be some delay. They can also order additional stock manually based on the BPI data presented to them.

The introduction of BPI means that the business manager now understands the business impact of the stock control failure and as a result can:

- ▶ Continue to process from stock in shop and redirect that stock to Web orders if necessary.
- ▶ Use the BPI data to manage the stock float manually.

- ▶ Aggregate shop and warehouse stock as required.
- ▶ Monitor the Gold account customers and minimize the penalty payments.

The business events that provide this information come through the BPI Business Event Handler components and the operational events are defined in the RTSM as IT operational resource CIs.

What BPI Provides

BPI provides the modeling tools that enable you to build a Business Process and associate key business services, data and events with the process. As part of defining the process, you need to consider what business measurements you are likely to want to take. Later, you can add Business Process Monitors to these processes to record these business measurements.

Using Business Process Monitor information, BPI can notify the business manager when significant events occur and when Business Process Monitor instance thresholds are violated; this notification can be done through email, through the Notification Server, through the BPI Application or through a My BSM portlet. In addition, you can create reports using the Business Process Insight Application Reports pages.

Business managers can also receive the BPI impact reports through their own reporting tools, if they choose to. BPI writes all its Business Process Monitor data to database tables, which are designed and structured to maximize the effectiveness of user and application queries.

BPI enables you to:

- ▶ Track instances of Business Processes defined and deployed within the BPI Modeler.
- ▶ Monitor the Business Processes and Business Process Activities using the instance-based data samples, which are sent by the BPI Server to BSM.
- ▶ Create monitors for your Business Processes and Business Process Activities using the Monitor Definer.

- ▶ View the health of your Business Processes, Business Process Activities and Business Process Monitors according to objectives that you set using the Business Process Insight or Service Health.
- ▶ View reports based on the history of the Business Process using the Business Process Insight Application.
- ▶ View details of the Business Process instances, Activity instances and instance threshold instances using the Business Process Insight Application.
- ▶ Configure notification emails, HPOM messages and scripts for process instance violations using the Notification Administration.
- ▶ Use the BPI Server Administration Console to manage the BPI Server components.

The individual components of the BPI Server system, and their purpose, are more fully described in the “BPI Server Architecture” chapter in the *Business Process Insight Server Administration Guide*.

BPI is intended to help you raise the visibility of your Business Processes and better understand integration points between your Business Processes and the IT infrastructure. This provides you with improved business data and also enables you to make business decisions, based on this data, in a more timely manner. For example, understanding the business impact if a particular resource is made unavailable. This might not be direct financial loss, but other losses, such as reputation, regulation breaches, poor delivery times and so on.

Business disruptions such as these, and hundreds more that happen on a daily basis, unexpectedly and negatively impact the normal business operations of many companies. For example, if you are providing a resource and there is a sudden increase in the volume of traffic, perhaps due to a marketing promotion, it could have an impact on the network. The response time for customers might be seriously compromised, which in turn can cause anger, ill-will, and some customers taking their business elsewhere. This is not a failure in any of the underlying systems and applications, but a failure in the capacity of the system that has an impact on your customers.

Using BPI Within Business Service Management

When you install HP Business Service Management (BSM), some BPI components are also installed, namely the BPI Modeler and the Process Repository. A Process Repository Database is also created as part of the BSM installation. In this configuration, you can create Business Processes and link the Activities in the Business Process to CIs that represent IT operational resources. This then enables you to monitor the health of the Business Process and the Activities in the process relative to the IT operational resources on which they depend.

When you install the BPI Server, the BPI Application is added as a new component to the BSM Gateway Server that you have configured within the BPI Server Administration Console. As a result, a new Process Repository is installed on the BPI Server system and the existing Process Repository on the BSM Gateway Server is disabled. Communication to the Process Repository Database is now from the BPI Server system and the data in the Repository Database is synchronized with the RTSM.

The addition of the BPI application enables you to monitor the health of your Business Process and its Activities as before; in addition, it enables you to:

- ▶ Map business events to Activities in your Business Process to enable you to monitor the business impact when there are problems with the Business Process.
- ▶ Monitor instances of your Business Process in near-real time.
- ▶ Determine how effective your Business Process is by defining Business Process Monitors that measure thresholds that you define.
- ▶ View and report on the status of the health of your Business Processes.
- ▶ View detailed information about each process instance in the Business Process, the Business Process Activities and the thresholds defined for the instances.
- ▶ Model your business's IT processes and your supporting business applications services. It also provides the tools to help you prioritize problems, based on business impact and service level compliance.

- ▶ Report on the status of operational services and how they impact your Business Processes.
- ▶ Set service level objectives (SLOs) for the BPI configuration items (CIs), which are managed within Business Service Management.
- ▶ Configure alerts, within the Business Service Management SLM component, based on the SLOs that have been set on the BPI CIs.
- ▶ Enable reports to be generated, based on the BPI CIs.
- ▶ Use MyBSM components for views of the BPI Process and Monitor data.

The following sections describe in more detail how you can use the features of BPI within BSM for designing, managing and tracking your Business Processes:

- ▶ “Design-Time Integration” on page 40
- ▶ “Run-Time Integration” on page 41
- ▶ “Data Samples” on page 41
- ▶ “SLM and Reporting” on page 43

Design-Time Integration

You design and subsequently deploy your Business Processes and process Activities using the BPI Modeler. The features of the Modeler that are available to you when designing processes depends on whether you have:

- ▶ Installed the BPI Server.
- ▶ Enabled or disabled tracking individual process instances when defining your process.

Note: If you do not have the BPI Server installed, then you do not have the option to enable individual process instance tracking within the Modeler; the option is disabled.

For details about using the BPI Modeler without and with the BPI Server installed, see:

- ▶ “Modeling with Tracking Individual Process Instances Disabled” on page 70
- ▶ “Modeling with Tracking Individual Process Instances Enabled” on page 71

Run-Time Integration

When you have defined and deployed your Business Processes and Business Process Monitors, you can then track and monitor the health of your Business Process relative to the status of the IT operational resources on which the process Activities depend and on the values of the data being captured by the Business Event Handler.

For details about using the Monitor Definer without and with the BPI Server installed, see:

- ▶ “Monitoring - Tracking Individual Process Instances is Disabled” on page 196
- ▶ “Monitoring - Tracking Individual Process Instances is Enabled” on page 197

Data Samples

A data sample, in Business Service Management terms, is application-specific data sent from an application, in this case, BPI. In the case of BPI, these data samples can be used by Business Service Management to show key performance indicators (KPIs), relating to the imported Business Process Business Activity and Business Process Monitor definitions. The data samples are taken from the values of specific values in the BPI Instance database. Data samples are sent from the BPI Server to the Gateway server that you configure within the BPI Server Administration Console. For details on KPIs, see “Health Indicators, KPIs, and KPI Domains” in *Using Service Health*.

Samples are sent on a per group basis to BSM.

BPI sends data samples to Business Service Management by configuring the Data Sample settings in the BPI Server Admin Console. Sending data samples to Business Service Management enables you to use the BPI application to report and view the health of the Business Processes that you create. For details on configuring the Data Sample settings, see “Component Configuration - HP Business Service Management Settings” in the *Business Process Insight Server Administration Guide*.

All the BPI data samples are mapped to the following KPIs within Business Service Management:

KPI	Description
backlog (600)	The data sample for this KPI is taken from the active value of the Business Process, Business Process Activity, or Business Process Monitors.
business impact (602)	This KPI shows the overall health of the Business Activities in the Business Process within Business Service Management. It is based on the number of blocked, at risk and healthy instances reported in the Business Process Insight data samples. This KPI applies to processes only.
business performance (631)	The data sample for this KPI is taken from the duration of a Business Process, Business Activity, or Business Process Monitor.
value (1311)	The data sample for this KPI is taken from the Process Activity and Process Monitor values.
volume (1050)	The data sample for this KPI is taken from the throughput value (Volume) as calculated as part of the Business Process, Business Activity, or Business Process Monitor statistics.

These data samples include as much information as is possible to give the KPI context. In the case of the business health for a Business Process, the health of the specific Business Process is reported. When reporting the overall health, any Groups that you have defined in the Monitor Definer are ignored, it is the overall monitor statistic that is reported.

The time interval between data samples can be configured using the Data Sample send interval (seconds) parameter in the BPI Server Administration Console.

If you have not modified the BSM configuration, Service Health is configured to show KPIs (Backlog, Volume, Value, Business Performance, and Business Impact) based on the process value from your process definition.

You can add or modify a KPI that you want to show within Service Health. To add or modify a KPI:

- ▶ Select **Admin > Service Health > View Management > Ci Indicators**
- ▶ In the CI Types panel, navigate to the Business Process Activity that you want to modify.

There are a range of KPIs that are available for you to configure as objectives for your Business Processes.

SLM and Reporting

The data samples sent to Business Service Management are written to an offline data repository.

The Business Service Management Service Level Management (SLM) component uses the data stored in the offline data repository as a source for building Service Level Agreements and setting Service Level Objectives, and for creating reports.

In terms of Service Level Management, you can:

- ▶ Enable service level objectives (SLOs) to be set for the BPI configuration items (CIs), which are managed within Business Service Management.
- ▶ Configure alerts, within the Business Service Management SLM component, based on the SLOs that have been set on the BPI CIs.

For information about setting Service Level Objectives, see *Using Service Level Management*.

In terms of reporting, you can configure the Business Service Management Report Administration component to generate reports based on the BPI CIs.

Refer to the Business Service Management documentation related to custom reporting and alerting for more information.

Tasks

How to Manage User Permissions

User permissions determine what operations a user can perform in the Business Process Insight application and administration pages. User or group permissions can be set by assigning a predefined role or by granting individual permissions on specific resources. The predefined roles relevant to Business Process Insight are described in the subsections below.

BSM enables you to fine tune user permissions by applying permissions at the resource level. All of the resources on which permissions can be applied have been identified and categorized in a hierarchical tree, representing the BSM platform. You can restrict which BPI processes BSM users can view in the BPI application. BPI-specific resources are described in the subsections below.

The user's permissions in a particular session within BSM are determined by the user's login and authentication. User permissions are set up and maintained on the User Management Administration page at **Admin > Platform > Users and Permissions > User Management**. For information about the related workflow, see *Platform Administration*. Permission changes go into effect the next time the user logs in.

The following sections describe the BPI and BSM permissions:

- ▶ “Business Process Insight Roles and Operations” on page 46
- ▶ “BSM Predefined Roles Relevant to Business Process Insight” on page 47

Business Process Insight Roles and Operations

Within the Business Process Insight context, the following roles and associated operations are available:

Role	Operations that can be granted
BPIAdministrator	Full Control of all BPI processes.
BPIUser	View all deployed BPI processes.
BPIRestrictedViewUser	<p>View only those deployed BPI processes to which View permission has been granted.</p> <p>To grant permission to view a process:</p> <ol style="list-style-type: none"> 1 Select Admin > Platform > Users and Permissions > User Management. 2 Select a group or user in the groups and users pane and select the Permissions tab. 3 Under Context, select Business Process Insight. 4 Open the Process Definitions folder to see the list of BPI processes. 5 Select the required process, and then select the Operations tab. 6 Check the View check box and click Apply Permissions to confirm. <p>You must grant View permission for each process that you want the user to be able to view in the BPI Application.</p> <p>NOTE: BPIAdministrator and BPIUser roles by definition already have View permissions for all processes.</p>
Inherit	Enabled for selected Resources. When enabled, select the check box for the operation to be inherited to all the child resources within the selected resource.

Due to the sensitive nature of User Data and to minimize the possibility of accidentally granting access, only the (BSM) Administrator has User Data access (Full Control permission).

BSM Predefined Roles Relevant to Business Process Insight

Users and groups can be created and used to manage access to Business Process Insight resources. However, BSM has these built-in roles that are relevant to BPI.

Role	Operation
Superuser	Full Control on all BPI resources listed in the previous table.
Administrator	Add on the application resource and Full Control on any application instances added.
System Modifier	View and Change on all BPI resources listed in the previous table.
System Viewer	View on all BPI resources listed in the previous table.

Reference

Configuration Items Stored in the RTSM

The following table describes the BPI data that is stored in the RTSM as a result of the synchronization. This sharing of information between BPI and Business Service Management enables Business Service Management to access the BPI data from the RTSM. The BPI data is stored in the RTSM as a configuration item (CI) of several types. For more information about CI types, see “CI Type Manager” in the *Modeling Guide*.

Following are the BPI CI types:

CI Type	Description
BusinessProcess (business_process)	<p>Stores the Process Name and Process Description as entered using the BPI Modeler.</p> <p>A business_process CI is created for each Business Process in BPI.</p> <p>Data samples are sent to BSM for each business_process CI.</p> <p>business_process CIs are logical CIs.</p>
BusinessActivity (business_activity)	<p>Stores the Activity Name and Description as entered using the BPI Modeler.</p> <p>A bpi_activity CI is created for each Activity in all Business Processes.</p> <p>Data samples are sent to BSM for each business_activity CI.</p> <p>bpi_activity CIs are logical CIs.</p>

CI Type	Description
Business Process Scope (business_process_scope)	<p>Stores the Monitor Name, Description, Type, Units, Collection Interval, Threshold Operator, Server Name and Instance Threshold limits (where specified) as defined with BPI.</p> <p>Monitor data samples are sent for each Business Process Monitor.</p> <p>The value for the bpi_monitor_type attribute defined on this CI identifies the Business Process Monitor type. It can have one of the following values:</p> <ul style="list-style-type: none"> ▶ Duration ▶ Value ▶ Custom

As with any synchronization, or sharing of data, there must be a master copy of the data to synchronize from. In this case, the BPI Server holds the master copy of the data. This means that any changes to the data within the Business Service Management UI Framework are overwritten by BPI when the data models are synchronized. If you delete a CI in the RTSM, it is created again when the data models are synchronized.

Data synchronization occurs as a result of any one of the following:

- ▶ Business Process is deployed, redeployed, or undeployed.
- ▶ Business Process Monitor definition is created, modified or deleted.
- ▶ Related configuration changes are made within the BPI Server Administration Console.
- ▶ Synchronization is forced using the **Synchronize with the RTSM** option in **Admin > Business Process Insight > Process Intervention**.

As part of the synchronization process, BPI creates mapping tables, which are used to provide the references between the BPI data and the corresponding CI within the RTSM. The BPI unique identifiers for the data (GUIDs) are mapped to the RTSM GUIDs for the BPI-related CIs. This enables BPI to send data samples to Business Service Management as well as manage the synchronization process.

Viewing BPI CIs Within BSM

To see the CIs defined within Business Service Management:

- 1 Select **Applications > Service Health > Service Health**.
- 2 In the 360° tab, select **Business Processes** from the Hierarchy drop-down list.

This is the list within Business Service Management that groups together all BPI Business Processes.

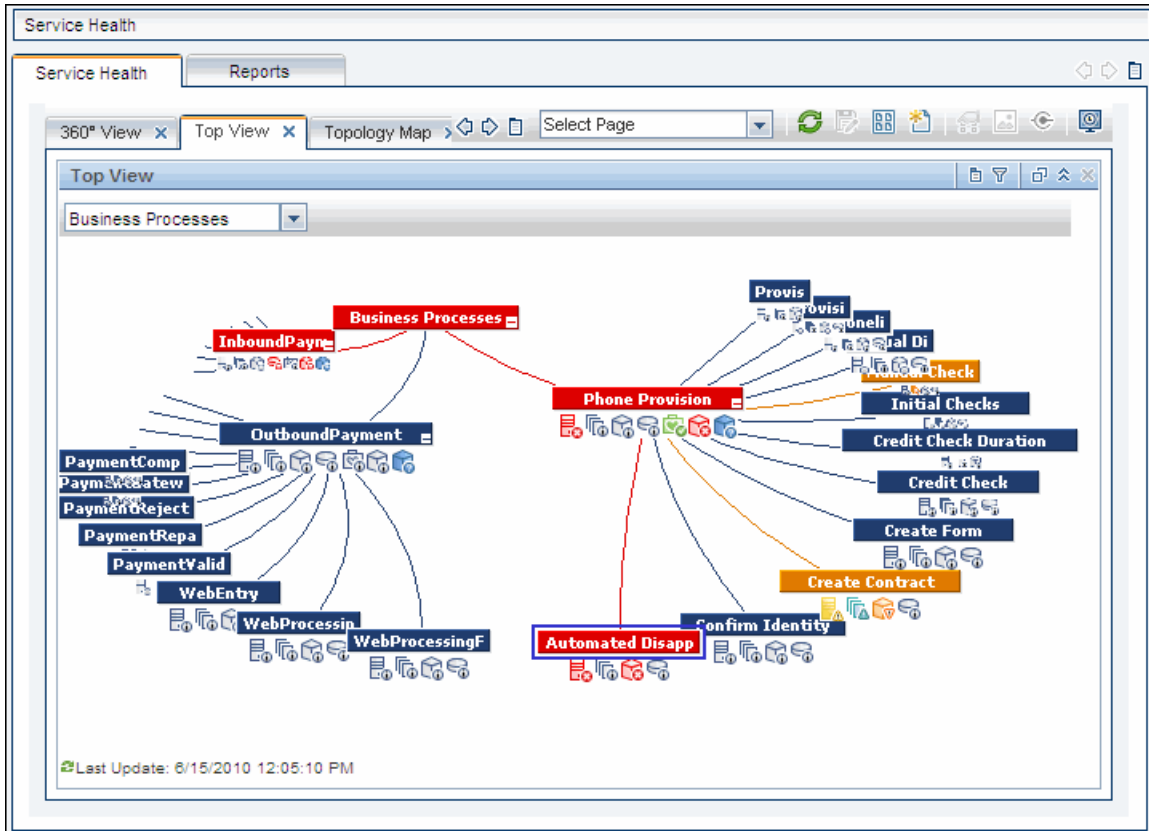
- 3 Select a Business Process listed under **Business Processes**, for example, **Phone Provision**.

The Phone Provision Business Process and its Activities are listed.

- 4 Select the **Top View** tab.

The root view for the Phone Provision CI and the dependent Activity CIs are shown in the graphical view.

The following figure shows the Business Process named **Phone Provision** and its associated Activities within Service Health.



In this example, you can see that there are also other processes deployed and you also see these other processes within the Business Processes.

Part I

BPI Administration

2

General Administration

This chapter includes:

Concepts

- ▶ BPI Administration Overview on page 56

Tasks

- ▶ How to Administer BPI on page 58

Concepts

BPI Administration Overview

This section provides an overview of the key features of the BPI Administration pages and explains how to use BPI to track and monitor your Business Processes.

The BPI Administration pages enable you to track all the Business Processes, Business Process Monitors and Monitor Thresholds that you have defined and deployed, including their associated data. You can also track the status of the IT operational resources that the Business Process relies on.

The BPI Administration pages can be accessed from the following menu option:

Admin > Business Process Insight

Note: The Business Process Insight Administration pages are available when you have enabled BPI on the BSM Server Deployment page, installed a valid BPI license and the BPI Server. If you have **not** installed a BPI license, you can still access the Modeler with limited functionality. For more details on what limited functionality is available, see “Modeler Capabilities” on page 67.

The BPI Administration pages enable you to:

- ▶ Map business events to Activities in your Business Process to enable you to monitor the business impact when there are problems with the Business Process.
- ▶ Monitor instances of your Business Process in near-real time.
- ▶ Determine how effective your Business Process is by defining Business Process Monitors that measure thresholds that you define.
- ▶ Model your business's IT processes and your supporting business applications services. It also provides the tools to help you prioritize problems, based on business impact and service level compliance.

Tasks

How to Administer BPI

The following steps describe how to administer BPI.

- ▶ “Create the Business Process Definitions, Data Definitions and Event Definitions” on page 58
- ▶ “Define Business Process Monitors and Monitor Instance Threshold Definitions for Deployed Processes” on page 59
- ▶ “View, Print, and Manage the Contents of the Process Repository Schema” on page 59
- ▶ “Use the Process Intervention Client to Manage Process Instances and Data Instances” on page 59
- ▶ “Configure the Notifications that You Want to Generate” on page 59

1 Create the Business Process Definitions, Data Definitions and Event Definitions

You use the Modeler to create your Business Process definitions, Data definitions and Event definitions. The Modeler is a graphical editing tool and provides a unified interface for all the definition types that you are creating.

The Modeler has two modes of operation, according to whether you have a valid BPI license and have installed the BPI Server. For more information, see Chapter 3, “Modeler Management” and the *Business Process Insight Integration Training Guide - Modeling Processes*.

2 Define Business Process Monitors and Monitor Instance Threshold Definitions for Deployed Processes

You use the Monitor Definer to define Business Process Monitors and Monitor instance Threshold definitions for deployed processes.

These Monitors and instance Thresholds are then used to gather statistical information, and instance thresholds relating to the health of your Business Processes. The results are shown using the BPI Application pages. For more information, see Chapter 4, “Monitor Definer,” the *Business Process Insight Integration Training Guide - Defining Business Monitors*, and the Monitor Definer online Help.

3 View, Print, and Manage the Contents of the Process Repository Schema

Use the Repository Explorer to view, print and manipulate the contents of the Process Repository schema. The Process Repository schema is a set of database tables that hold the data for the Business Processes that you have defined and modeled using the BPI Modeler. For details, see Chapter 5, “Process Repository Explorer.”

4 Use the Process Intervention Client to Manage Process Instances and Data Instances

In specific circumstances, you can use the Process Intervention Client to access processes that you have deployed to modify or delete Process instances and their associated Data instances. For details see Chapter 6, “Process Intervention.”

5 Configure the Notifications that You Want to Generate

Use the Notification option to configure the notifications that you want to be generated for the Business Processes that you have deployed and the Business Process Monitors and Monitor instance Thresholds that you have defined. For details see Chapter 7, “Notification.”

After the Notification Server is configured, it can then notify you of the process impact, out-of-sequence and monitor threshold violations that are generated by the Business Impact Engine.

3

Modeler Management

This chapter includes:

Concepts

- ▶ Modeler Overview on page 63
- ▶ Modeler Capabilities on page 67
- ▶ BPI Modeling Implementation on page 68
- ▶ Components of a Business Process on page 74
- ▶ Process Repository on page 88
- ▶ Progression Rules on page 92

Tasks

- ▶ How to Model Your Business on page 101
- ▶ How to Create a Process Diagram on page 102
- ▶ How to Define Activity Properties on page 107
- ▶ How to Define Data Definitions on page 111
- ▶ How to Define Event Definitions on page 114
- ▶ How to Deploy Business Processes on page 115
- ▶ How to Copy Definitions on page 118
- ▶ How to Delete and Restore Definitions on page 120
- ▶ How to Import and Export Definitions on page 121

Reference

- ▶ Coercion Rules on page 127
- ▶ Data Types in the BPI Instance Database on page 131

Chapter 3 • Modeler Management

- ▶ Expression Grammar in Process, Data, and Event Definitions on page 132
- ▶ BPI Modeler User Interface on page 146

Concepts

Modeler Overview

The BPI Modeler is a BPI component that you use to create your Business Process definitions, Data definitions and Event definitions. It is a graphical interface that provides the canvas that you use to define these definitions. When you are satisfied that the business models are complete, you can deploy them to the Business Impact Engine. You can also import BPEL definitions into the Modeler and use them as the starting point for your business Processes (see “Import BPEL Processes” on page 124).

The definitions are held in the Process Repository. The BPI Process Repository is fully described in “Process Repository” on page 88. The BPI Modeler provides a graphical view for accessing the definition data held in the Process Repository.

The BPI Modeler is installed when you install Business Service Management and is accessed from **Admin > Business Process Insight > Modeling tab > BPI Modeler**.

To use the full capabilities of the Modeler, you need to enable BPI on the BSM Server Deployment page, install a valid BPI license and the BPI Server. Without the license and BPI Server, you can model Business Processes and map process Activities to IT operational resource CIs; however, you cannot create process models that enable you to monitor individual process instances within Business Service Management. All options are visible within the Modeler interface, but some options are unavailable unless you have installed the BPI license and Server. For more details, see “Modeler Capabilities” on page 67.

Note: BPI must be enabled on the BSM Server Deployment page to access the Modeler. If BPI is disabled, the Business Process Insight Application is deactivated. For information about accessing and enabling/disabling BPI on the Server Deployment page, see “Using BPI Within Business Service Management” on page 39.

This section includes the following topics:

- ▶ “Using Multiple BPI Modelers” on page 65
- ▶ “BPI Modeler Log File” on page 65
- ▶ “Exporting and Importing” on page 66
- ▶ “Business Process Monitors” on page 67

Using Multiple BPI Modelers

There can be more than one BPI Modeler connected to the Process Repository at any one time. However, the Process Repository only supports one person making changes to a particular process definition at any one time. If there are multiple users connected to the Process Repository, and making changes to definitions through the Modeler, the last person to save their changes overwrites any changes made to the same definitions by other users. For more information, see “Process Repository” on page 88.

The BPI Modeler has an option to enable you to export business processes, including their dependencies (Data definitions and Event definitions) as an XML file. This enables you to create business processes on one BPI Server for testing and then move or import the processes to a production system when they are fully verified. For more details, see “How to Import and Export Definitions” on page 121.

BPI Modeler Log File

There is a Modeler log file located on the machine where the Browser is running in the user directory as follows:

<user_dir>\.hp_bpi

The following log files are the most significant files:

hpbpi_modeller0_0.log

This log file is the most useful.

hpbpi_modeller_m.log

This log file is less informative, but does contain communication errors, if they occur.

In addition, there are Modeler related log messages contained in the Process Repository log file. If the BPI Server is installed, the Process Repository log file is located as follows:

bpi-install-dir\data\log\bia_model_repository0_0.log

If the BPI Server is not installed, the Process Repository log file is located as follows:

bsm-install-dir\log\bpi_process_repository

The log files are text files that you can open using a text editor. Use the log files to identify problems with your BPI system.

You can also modify your Java settings to show the Java console while the Modeler is running. You should do this only if you are trying to isolate a problem. You can access the Java Console options as follows:

Start > Programs > Settings > Java > Advanced > Java Console

Exporting and Importing

The BPI Modeler has an option to enable you to export and import Business Processes, including their dependencies (any Data and Event definitions) to a .zip file that contains XML files. This enables you to create Business Processes using one Modeler for testing and then move the processes to a production system when they are fully verified. You can also export and import any Business Process Monitor definitions that you have defined for your processes as described in “Export and Import Monitor Definitions” on page 206.

You can also export a process definition to make a copy of the process, or import definitions, including BPEL definitions using the import option.

You use the **File > Import Definitions** and **File > Export Definition** menu options from the BPI Modeler to export and import your Business Process definitions.

Make sure that you have a naming policy for Process, Data and Event definitions across your organization to minimize the possibility of a name clash when the Business Processes are imported for deployment to the Business Impact Engine. You have the option to rename your definitions when you import them; however, you might prefer to have a standard naming scheme.

Business Process Monitors

A Business Process Monitor is a business measurement that is meaningful to your business and is an additional indication of the health (in business terms) of the processes that you are tracking.

You create Business Process Monitors for your processes using the Monitor Definer. The Monitor Definer is a Web-based interface that you access as follows:

Admin > Business Process Insight > Monitor Definer

Full details about the Monitor Definer and using it can be found in the Monitor Definer online Help and *Business Process Insight Integration Training Guide - Defining Business Process Monitors*. See also, Chapter 4, “Monitor Definer.”

Modeler Capabilities

After BPI has been enabled in Server Deployment, the Modeler can be used in the following two ways:

Partial Modeler Capabilities

Without a BPI license (and whether the BPI Server is installed), you can create and model Business Processes and map process Activities to IT infrastructure CIs. However, the ability to create and modify Event and Data definitions is disabled. Tracking individual instances of the Business Process is not permitted and some options related to this in the Modeler interface are not enabled. You can delete any previously created data and event definitions, but editing the same or adding any new data or event definitions is not supported.

Note: If BPI is not licensed, you can delete any previously created data and event definitions, but editing the same or adding any new data or event definitions is not supported.

Full Modeler Capabilities

To use the full capabilities of the Modeler, you need BPI enabled on the BSM Server Deployment page, a valid BPI license installed, and the BPI Server installed and integrated with BSM. (Application licenses are installed through the Business Service Management License Management page at **Admin > Platform > Setup and Maintenance > License Management**. For licensing information, see the "Licenses" chapter in *Platform Administration*.)

When you can access the Modeler's full functionality, you can create and edit Business Process definitions, Data definitions and Event definitions. And when your definitions are complete, you can use the Modeler to deploy them to the Business Impact Engine.

In addition, you can import Business Process Execution Language (BPEL) into the Modeler and use the BPEL definition as the start point of your Process definition.

A local repository cache in the BPI Modeler holds Process definitions, including Data and Event definitions until they are saved in the Process Repository schema as a set of database tables. Definitions might also need to be redeployed. The tables are managed by the Process Repository, which is described in "Process Repository" on page 88.

BPI Modeling Implementation

You can consider your BPI implementation for modeling Business Processes as having three different stages:

- ▶ Design-time modeling — Enables you to design and develop your Business Processes using the BPI Modeler. You can create, delete and modify Process, Data and Event definitions, and link Process Activities to IT operational resources using the BPI Modeler, but until these definitions are deployed to the Business Impact Engine they cannot be monitored. For details, see "Design-Time Modeling" on page 69.
- ▶ Deployment — Deploys the Business Process to the Business Impact Engine. For details, see "Deploying Definitions" on page 73.

- ▶ Run-time integration — Progresses the definitions that you have developed and deployed by the events received through the Business Events Handler, and enables you to track and monitor the health of your Business Process. For details, see “Run-Time Integration” on page 195.

The BPI Modeler does not play any part in the run-time aspect of the BPI system. However, any changes that are made to definitions that are deployed, result in new and revised processes being available for tracking.

Design-Time Modeling

You design and subsequently deploy your Business Processes and process Activities using the BPI Modeler. The Modeler is a design-time tool, therefore any changes that you make do not affect a run-time system until you have deployed the changed definitions.

The features of the Modeler that are available to you when designing processes depend on whether you have:

- ▶ Installed a valid BPI application license and the BPI Server.
- ▶ Enabled the BPI option on the BSM Server Deployment page on the BSM user interface. For more information, see “Using BPI Within Business Service Management” on page 39.
- ▶ Enabled or disabled tracking individual process instances when defining your process.

Note: If BPI is not licensed, you do not have the option to enable individual process instance tracking within the Modeler; the option is disabled.

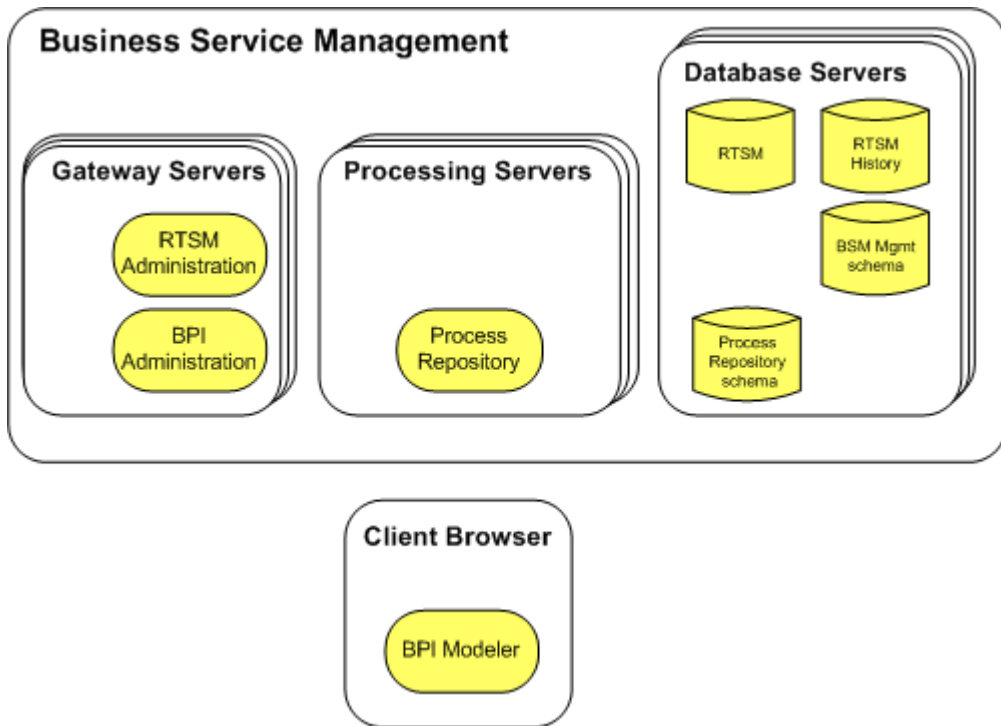
This section includes the following topics:

- ▶ Modeling with Tracking Individual Process Instances Disabled on page 70
- ▶ Modeling with Tracking Individual Process Instances Enabled on page 71

Modeling with Tracking Individual Process Instances Disabled

This section describes the concepts for modeling Business Processes, including mapping IT operational resources to process Activities when the BPI application is not licensed or you have not enabled individual process instance tracking.

The following diagram shows design-time process instance tracking disabled.



The following steps describe the communication between Business Service Management components as shown in the diagram above:

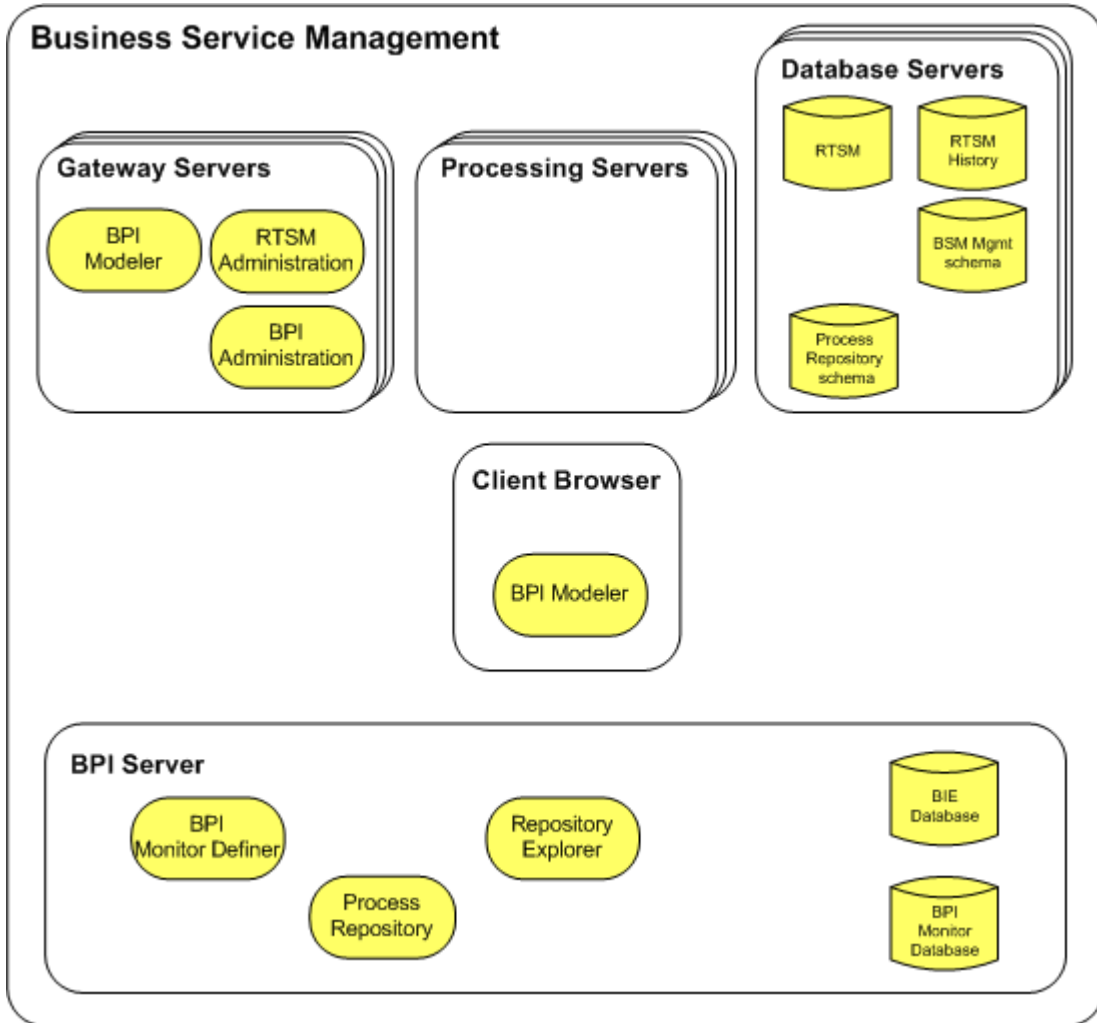
- You create your Business Processes using the Modeler. When you deploy the Business Processes, the Modeler completes its consistency checking on the Business Process.

- The Processing Server forwards the RMI command to the Process Repository, which manages how the process models are stored in the Process Repository Schema, including synchronizing the models with the RTSM.
- As part of creating your Business Processes, you can map IT operational resources, which are defined as CIs within the RTSM by applications such as SiteScope, to the Business Process Activities. BSM can then evaluate the status of the IT operational resource CIs for later presentation within the Business Process Diagram in Service Health.

Modeling with Tracking Individual Process Instances Enabled

This section describes the steps for modeling Business Processes when the BPI application is licensed and the BPI Server is installed, and you have enabled individual process instance tracking. These steps extend the modeling steps described in “Modeling with Tracking Individual Process Instances Disabled” on page 70.

The following diagram shows design-time process instance tracking enabled.



The following steps describe the communication between Business Service Management components when you have chosen to model processes to track and monitor individual process instances, as shown in the diagram above. You can model Business Processes and map IT operational resource CIs to the process Activities as described in “Modeling with Tracking Individual Process Instances Disabled” on page 70.

In addition, you can model processes to track individual process instances as follows:

- ▶ Create your Business Process using the BPI Modeler and select the option to **Track individual process instances**.
- ▶ Create the Data Definitions, Progression Rules, Event Definitions and Event Subscriptions for your Business Processes.
- ▶ Deploy the Business Process, at which point the Modeler completes its consistency checking on the Business Process. The Modeler sends the definition to the Gateway Server (or load balancer) using RMI over HTTP and the Gateway Server sends the Model definitions to the Process Repository on the BPI Server using RMI.
- ▶ Use the Process Repository to manage how the process models and their components are stored and synchronized in the Process Repository Schema; this includes creating the Java class files and the Process Instance tables in the BPI Instance database.
- ▶ Define Monitors and instance thresholds for the Business Process when the Business Process is successfully deployed. These definitions are stored in the BPI Instance database and are synchronized with the RTSM.

Deploying Definitions

When you have completed the development phase of your Process definition, you can deploy the process to the Business Impact Engine. The Engine then creates instances of the process and tracks these instances according to the events that are received from the underlying systems and the status of any associated IT operational resources.

You can also deploy individual definitions, for example, you can deploy an Event definition. In this case, the Event definition is deployed and if necessary all the Event definition's parent definitions are deployed, plus all the Data definitions that depend on the Event definition. If you deployed a Data definition, the BPI Modeler deploys that Data definition, plus any (as yet undeployed) Event definitions that the Data definition is subscribed to, and similarly the parent Process definition.

For instructions on deploying definitions, see “How to Deploy Business Processes” on page 115.

Running Deployed Processes

You can consider your BPI implementation as having three different stages. The design-time or modeling stage, the deployment stage and the run-time stage.

The run-time stage is where the definitions that you have developed and deployed are progressed by the events received through the Business Events Handler. It is also where the business manager tracks their Business Process, or processes, through the BPI Application.

The BPI Modeler does not play any part in the run-time aspect of the BPI system. However, any changes that are made to definitions and that are deployed result in new and revised processes being available for tracking.

Redeploying Definitions

The BPI Modeler redeploys definitions where there have been changes, it does not redeploy definitions that are unchanged and already deployed.

When you redeploy a Process definition through the BPI Modeler, any existing process and data instances are preserved and migrated to the new definition.

You can remove definitions from your BPI system using the Intervention Client. For details, see Chapter 6, “Process Intervention.”

Components of a Business Process

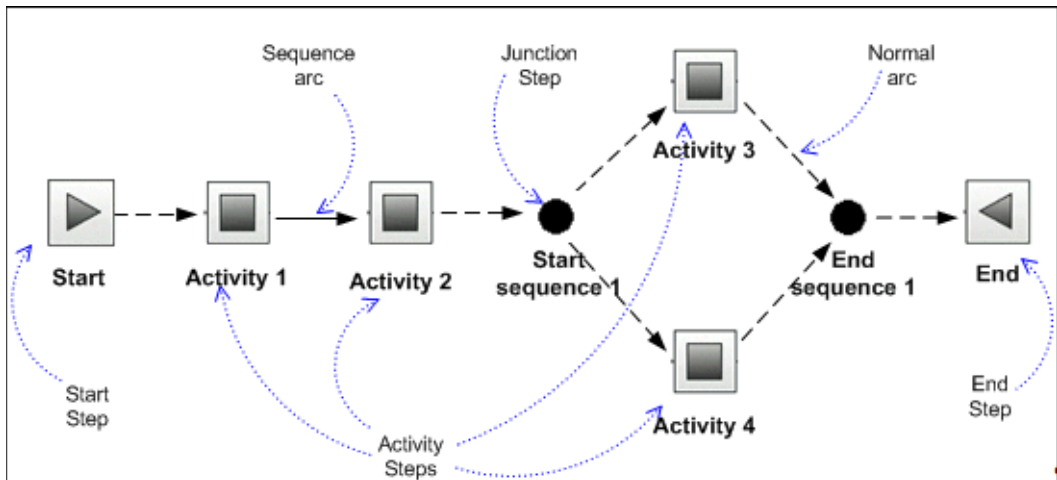
The Business Process represents the key business activities that you want to track from your Business Processes. A Business Process consists of the following main components:

- ▶ “Process Definitions” on page 75
- ▶ “Data Definitions” on page 84
- ▶ “Event Definitions” on page 87

Process Definitions

Process definitions are the graphical representations of the key business activities that you want to track within your business. In the context of BPI, a Business Process is presented as a series of steps and connections. The connections are referred to as **arcs**. The steps are referred to as **Activities**. The Activities represent the business activities and the arcs are used to show the direction of the process. There are Start Activities, End Activities, Business Activities and Junction Activities. The graphical Process definitions are created through the Process Editor tab (see “Process Definition Page” on page 170).

The components of the Process definition model are shown in the following diagram.



The following sections describe the Process definition components:

- “Activities” on page 76
- “Arcs” on page 80

Activities

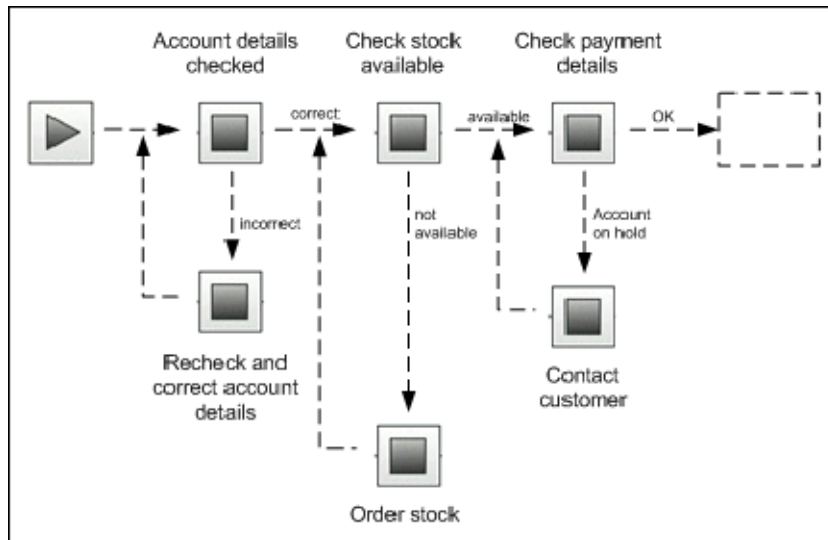
Each Activity type has a particular set of characteristics, but in general terms an Activity is a component of a process and identifies one or more key activities in the Business Process that you want to track.

An Activity in a Business Process might represent one or more business activities, according to how much detail of the Business Process you are modeling in order for the Business Process that it represents can be tracked. Typically, when tracking a Business Process, you only need to identify the key (or critical) business activities, you do not need to model the whole process.

Activities also provide a visualization of the process (as a Process Diagram) for development purposes and later on for tracking purposes, where the Process Diagram is presented through the BPI Application. In particular, a Junction Activity provides a structure to your Process diagram, indicating logically related activities. Junction Activities are added to imported BPEL to clearly show the start and end of structural elements of within the BPEL process.

Example of a Stock Processing Business Process Model

The following diagram shows an example of part of a stock processing Business Process model.



In the example, if the stock control system is unavailable for any reason, the process is unable to move beyond the Check Stock Available Activity. In this case, the process is stalled until the Stock Control System is available again. The BPI Application can show the process diagram and the impact of the Stock Control system being unavailable.

It is through this visualization that you can present and measure the effects of an incident in an underlying system on the process. Using this information you can then assign, or reassign, resources to target the areas that provide maximum business benefit.

Business Activity

This activity is a normal activity within the process that gets activated and deactivated according to its start and complete conditions. The start and complete conditions are the rules that you define to progress a process.

If a Business Activity is expected to be active for a period of time, while an activity within the Business Process occurs, set different start and complete conditions for the activity; for example, in the case of checking account details.

If the Business Activity is instantaneous, and deactivated as soon as it is activated, you need only set one of a start or a complete condition for the Business Activity; for example, in the case of reducing a stock total. In this case, the Business Impact Engine maps the start condition to the complete condition and vice versa. When the start and the complete conditions are the same, a Business Activity has a duration of zero (0) milliseconds when evaluated by the Business Impact Engine.

Business Activities can, but do not have to, have arcs entering and leaving them.

Start Activity

This is a normal starting point for a process. The start condition for the Start Activity must be based on the Data definition for the process, which is set through the Related Data option for the Process definition.

You can choose to log a warning if one (or more) attempt is made to start a process for a second time. This is where the start conditions for the Start Activity are met more than once. If you select this option, and a second Start Activity is activated after the process has started, the Business Impact Engine issues a warning as the process is not progressing as expected.

This might be the case where an instance of the process has been created by a different Start Activity, or by a Business Activity with the following flag set:

OK to start the process if not already started

If the Start Activity is instantaneous, set the start and complete conditions as described for the Business Activity as the Business Impact Engine treats the Activities in the same way. If your Business Process expects that the activity related to the Start Activity is not a transient activity, set different start and complete conditions for the Activity.

Start Activities cannot have arcs leading into them. Start Activities can, but do not have to, have arcs leaving them.

End Activity

This is a normal end point for a process. When an End Activity meets its complete condition the whole process is deemed to have completed, and the Business Impact Engine is free to stop tracking it.

However, it is possible that out-of-sequence events can still arrive after this point, so the Business Impact Engine marks the process as completed, but continues to track it for out-of-sequence events.

If the End Activity is transient, set the Start and Complete conditions as described for the Business Activity. The Business Impact Engine treats the Activities in the same way. If your Business Process requires that the End Activity is active for a period of time, set a different start and complete conditions for the Activity.

If a process has parallel paths, these paths should be merged before the End Activity. If the paths are not merged, the process ends when an End Activity is first activated, which might not be the intended behavior.

End Activities can, but do not have to have arcs entering them; however, they must not have arcs leaving them.

Junction Activity

A Junction Activity is used to visually define the structure of the process. Junction Activities can be used to show the start point and the end point of specific structural elements within a process. You can also use Junction Activities to make your process diagrams more self-explanatory; for example, to indicate parallel paths or split paths and where the decision points are.

A Junction Activity does not have any Start and Complete conditions, nor can you link a Junction Activity to a CI.

When you import a BPEL process, the Modeler creates a Junction Activity for the start of each BPEL structural element, and another Junction Activity at the end of each structural element. The Activities that represent the activities for the process are placed within the Junction Activities.

Junction Activities cannot have a Checked-Sequence arc either entering them, or leaving them.

Arcs

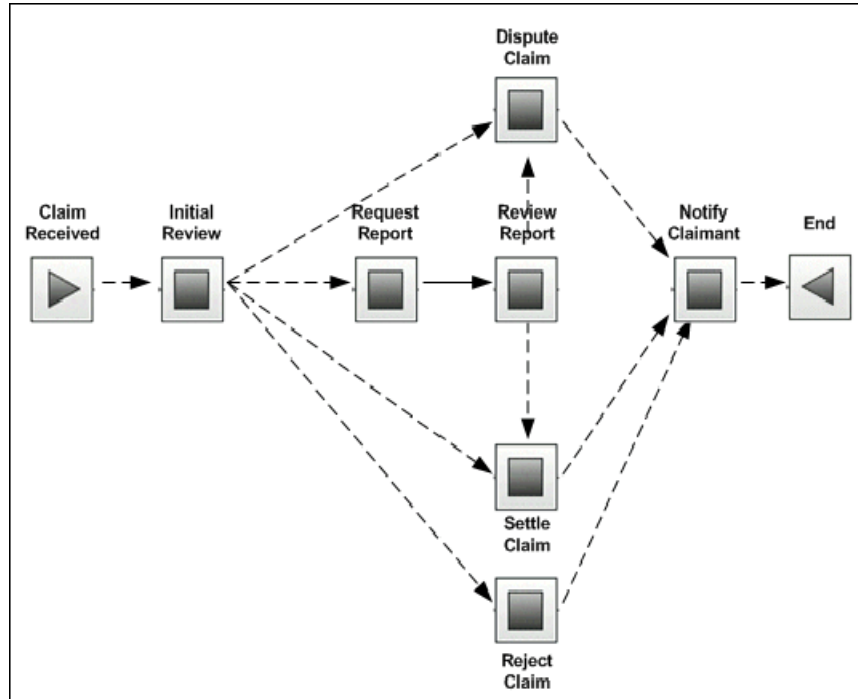
Activities in a process are visually linked using arcs. Arcs are used to indicate the direction of your process and the expected order that Activities are to be executed. The fact that the Activities in your process are connected with arcs does not imply any sequence or processing order, but it does imply an expected order. Arcs do not influence how the process is progressed; they are not enforced; however, Arcs are used to determine the status of a process, for example, whether it is blocked or impeded. If you do not include arcs in your process, BPI is unable to make as accurate a judgment of the process state as it can when arcs are included.

This means that in most cases the arcs do not have a functional impact on the behavior of the process and could be omitted (although the recommendation is to include them to make it easier to view the process). If you want to make sure that your process does progress from one Activity to the next as shown by the arcs in the process, make sure that the end condition for one Activity is the same as the start condition for the next Activity in the sequence.

The exception to this is the Check-Sequence arc. If you want to be informed when Activities in your process are executed in an unexpected order, you can create an arc type of Check Sequence (see “Check Sequence Arc” on page 82).

You can have many Arcs from Business Activities, indicating that there is more than one route through the process.

In the following example there is more than one path from the Initial Review Activity through the process. Also note that there is a Check Sequence arc (see “Check Sequence Arc” on page 82) defined between the Request Report Activity and the Review Report Activity. The Check-Sequence arc is shown as a solid line.



Check Sequence Arc

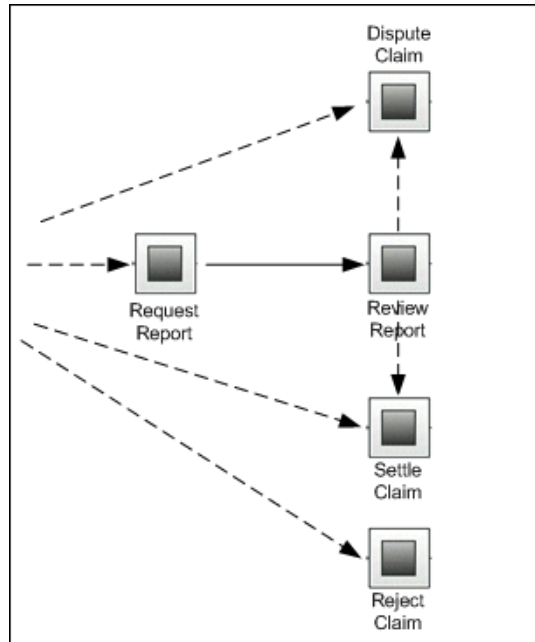
A Check Sequence Arc is represented as a solid line between two Activities and causes the Business Impact Engine to raise a violation if the Activities, which are connected by the arc, are not activated in the correct order. The connect order is determined by the direction of the arc between the Activities. You change the properties of an arc by right-clicking the mouse on the arc that you want to modify.

When either the start condition or the end condition for an Activity is executed, the Business Impact Engine validates whether the complete condition for the previous Activity has also been executed. If the complete condition for the previous Activity has not been executed, and a Check Sequence arc has been defined, a violation is raised.

Violations that result from a Check Sequence arc being activated are sent to you through the BPI Notification Server, which is described in Chapter 7, “Notification.”

An example of using Checked Arcs might be where you want to ensure that an insurance report is not reviewed until it has been requested.

In the following diagram, a violation is raised by the Business Impact Engine if the Review Report Activity end condition is executed before the complete condition for Request Report is executed. In this case, you want to make sure that the report is definitely requested before sending it for review.



You are advised to set Check-Sequence Arcs with care, as events can legitimately be received out of sequence by the BPI system (and are subsequently resolved when the complete set of events are received).

Using Check-Sequence Arcs might result in the sequence arcs being triggered excessively for cases where events are legitimately received out-of-order. Out-of-order events are most likely to be received in a recovery situation, following a system failure.

Note: You cannot use a Check-Sequence Arc with a Junction Activity. Junction Activities do not represent activities within the Business process, they are there to represent the logical structure of the process. It is therefore not appropriate to have a Check-Sequence Arc entering or leaving a Junction Activity.

Data Definitions

Data definitions are the representations of the data models for the processes that you have defined and are held in the Engine as Business Data Objects. As an example, in your Business Process there might be a Data definition for a customer, for an order, or for an insurance claim. You create Data definitions to progress a process, using progression rules (see “Progression Rules” on page 92), or to create Business Process Monitors (see Chapter 4, “Monitor Definer”).

Data definitions can also represent business impact data, for example, the value of an object, and how many of a particular type of object are waiting to be processed. This information is used when presenting the impact data to the business manager through the BPI Application; for example, total value of a particular customer's orders that are impacted.

You create the Data definitions in the Data Definition Editor, described in “Data Definition Page” on page 181.

Process Progression

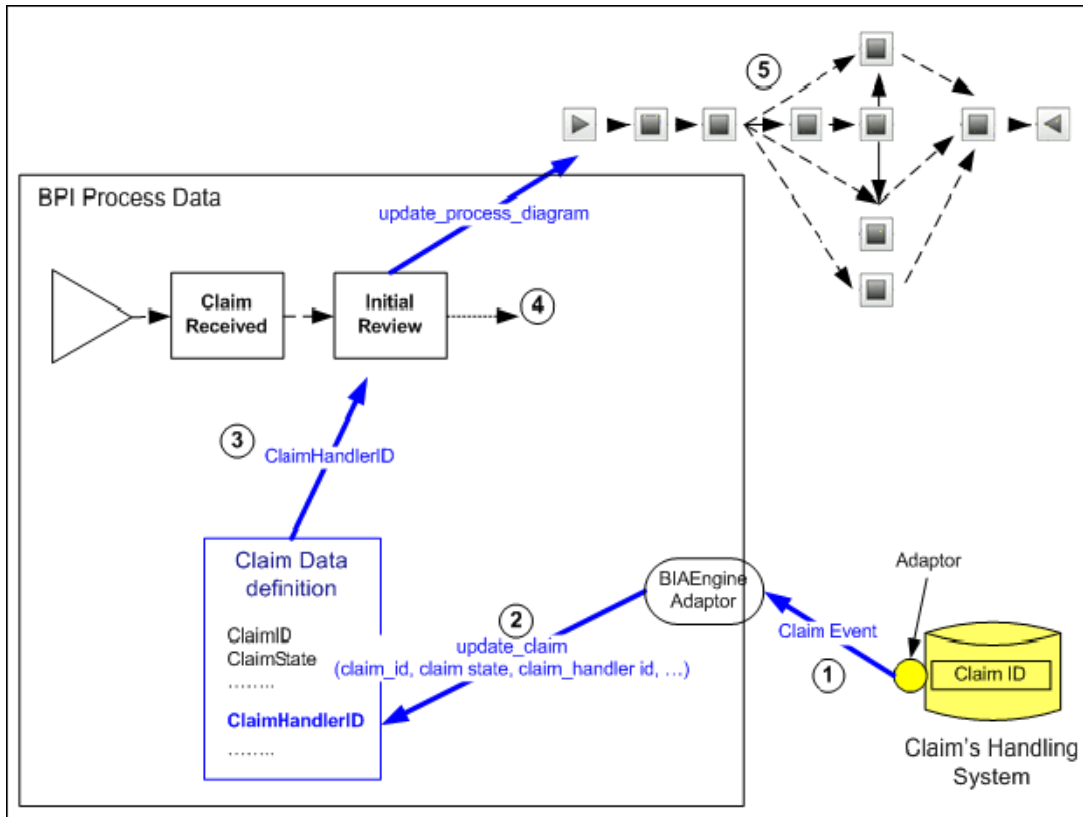
As part of modeling your process, you define the data that is used to drive it. This is the business data used to show the status of Business Activities at particular points in the process. It also includes IT operational resource information; the operational resource information enables the business manager to understand the business impact when an IT operational resource that the process relies on fails.

The Business Impact Engine receives business events as a result of changes to data or states in the underlying applications through the Event Handler. The Business Impact Engine then uses the data in these events to update the Data definitions that are defined in the Modeler.

Within the Modeler, the Data definitions are subscribed to incoming events. The Business Impact Engine then uses this subscription information to update attributes of instances of the Data definitions and then publish new internal events. An internal event is one that is specific to the BPI components and not directly related to any external activities.

The internal events are used to create or progress the process instances, based on start and complete conditions that are defined for each Activity in the process.

The following diagram shows an example of an event, which is providing the Claim Handler identifier for a particular claim, being received from a Claim's Handling System.



The event shown in the above diagram is signaling a change of state to an instance of Claim data.

- ▶ In Activity 1, the Claim Event from the Claim Handling System is intercepted by the adaptor that you have developed using the BPI Event Handler component. The Claim Event data is used to create an update_claim event within the BPI system.
- ▶ In Activity 2, the Claim Data definition, which is subscribed to the update_claim event, receives the event. The event details are mapped to the Claim Data instance, including the ClaimHandlerID property, which is derived from the claim_handler property of the update_claim event.

- In Activity 3, the ClaimHandlerID property of a specific claim instance has changed. The Claim Data definition publishes a business event signaling this change. This event is called the Instance_Modified event and is an internal business event generated by the BPI components. It informs other BPI components of a change in the data that is being tracked.

The Claims process subscribes to this business event and the event is used to signal progress within the Business Process, for example the Initial Review Activity has finished and a new Activity is starting. In this case, the Instance_Modified event contains the ClaimState property with a value of Reject, which in turn progresses the process instance to the Activity Reject Claim. (Claim State was also updated from the update_claim event.)

- In Activity 4, the BPI Application makes its periodic check of the database to determine if there are any changes in states for the process instances it is tracking.
- In Activity 5, the BPI Application refreshes the process instance details that are being presented, to show the progression of the process to the Reject Claim Activity, as a result of the Claim data being updated.

Event Definitions

The Event definitions are the business events that provide the data to update the properties of the Data definition and indirectly progress the Business Process. This data is used to populate the Data definitions that you have created for your process.

These business events provide the Business Impact Engine with business data from business applications. This business data is then used by the BPI Application to add impact information, in the form of annotations, to the Business Processes and by the Monitor Engine to generate the required Business Process monitor. As an example, the BPI Application Health Page might show the monetary value of an Activity not being available for a period of time, or it might show how many transactions are queued and awaiting processing at a particular Activity in the Business Process, both as annotations on the Business Process.

Events are received by the Business Impact Engine through the Business Event Handler.

You can also use the BPI Event Importer to import transaction events directly from TransactionVision. For details of integrating BPI with TransactionVision, see “Connecting BPI With TransactionVision” in the *Business Process Insight Server Administration Guide*.

You create the Event definitions in the Event Definitions Editor, as described in “Edit Definition Page” on page 189.

Process Repository

The Repository schema and the Process Repository are the server-based components that manage the data as it is entered through the Modeler. The details that you enter using the BPI Modeler are held in the BPI Process Repository, which is a series of tables defined in the BPI database. The BPI Modeler is the graphical tool for creating and viewing the model data held in the Process Repository. These components manage the model definitions in the database and ensure that the details are consistent and deployable.

If the Process Repository finds inconsistencies, it reports them using the **Todo List** within the Modeler. The **Todo List** is associated with each definition type. The **Todo List** reports on the consistency of the definition and keeps track of all the outstanding issues and tasks required to ensure that the definition is consistent and complete. A definition cannot be deployed unless it is consistent.

Note: There can be only one BPI Modeler connected to a BPI Server (specifically the BPI Process Repository) at any one time; otherwise, when more than one change is made at the same time, only the last change is saved.

If you want to relate the Activities in the Business Processes that you create to the status of the underlying operational services in your organization, you can use Business Service Management to map the Business Processes and Activity CIs that are created from the process, and Activities that you define in the Modeler.

The deployer component of the Process Repository deploys the different definitions to their destinations as follows:

- ▶ Process definitions, including any imported BPEL definitions, are deployed to the Business Impact Engine as compiled Java code.
- ▶ Data definitions are deployed to the Business Impact Engine as compiled Java code.
- ▶ Event definitions are deployed to the Business Event Handler to be mapped to events from underlying business applications.

In addition, there is a Repository Explorer, which is a Web-based interface that you can use to view and manage some aspects of the data stored in the Repository Database. For more information, see Chapter 5, “Process Repository Explorer”.

Databases

When you install Business Service Management, you configure the Process Repository schema for BPI. This schema is used to maintain the data for the Process Definitions that you create using the BPI Modeler.

If you subsequently install the BPI Server, you configure the BPI Server schema. This schema is used to maintain the data relating to of all the Process and Data instances that BPI is tracking, plus Business Process Monitor instances and their related instance threshold data. In addition, the Process Repository schema is extended to maintain data for the Data and Event that you create using the BPI Modeler.

The BPI Server schema is also used to maintain status information relating to all the Process and Data instances that it is tracking, plus Business Process Monitor instances and their related statistical and threshold data.

BPI CIs for Business Process CI types are stored in the RTSM.

Note: When creating Event definitions for BPI, make sure that the data you are defining for the Business Events is within the range permitted by the database that you are using.

Repository Explorer

The Repository Explorer is a Web-based application that enables you to view, print and manipulate the contents of the Process Repository. The Process Repository holds the data for the Business Processes that you have defined and deployed using the BPI Modeler.

Specifically, the Repository Explorer enables you to:

- ▶ Browse and print definitions.
- ▶ Export the latest versions of a definition.
- ▶ Export the latest version of all definitions.
- ▶ Remove definitions and move them to the Recycled folder.
- ▶ Restore a definition that has been deleted using the BPI Modeler or Repository Explorer.
- ▶ Permanently remove deleted definitions from the Recycled folder.
- ▶ Undeploy and permanently remove definitions that have completed from the Recycled folder.

For more details of the features of the Repository Explorer, see Chapter 5, “Process Repository Explorer.”

Setting Modeler Options

Use the Modeler Options dialog to change the configuration of the BPI Modeler. To access, select **File > Options**.

You can also click **Options** on the BPI Modeler logon dialog to change the Modeler configuration.

Use **Options** to set the details related to the background grid within the Process Definition Editor. Using the snap to grid option enables you to align the Activities in your process more accurately and reduces the possibility of moving Activities to bring them into alignment, which could require you to redeploy the process.

There are three settings that you can edit:

► Snap to grid

Select the check box to activate the Snap to Grid option.

► Show grid

Select the check box to show the grid lines on the Process Editor page.

► Grid size (pixels)

Enter the number of pixels for the grid size that you want to use. The changes take effect immediately, but do not impact the location of the existing Activities on the Process diagram.

Progression Rules

In order for a Business Process to progress, you need to define rules that indicate the conditions under which an Activity starts and completes. These rules are called progression rules.

BPI is a monitoring application that accepts events from business applications and records the time at which these events satisfy progression rules that you specify. Each Activity in a process has properties that describe the Activity and the conditions for this process progression — these are the **Start** and **Complete** conditions for the Activities.

The progression rules are evaluated every time a new Event is received into the BPI system and the Data definition, which is related to the process, is updated. Specifically, the start and complete conditions specify the conditions for an Activity being started and completed (or activated and deactivated). It is these conditions that provide the information to progress the process.

This section includes:

- ▶ “Start and Complete Conditions for an Activity” on page 92
- ▶ “Styles of Progression Rules” on page 94
- ▶ “Using TransactionVision Events in the Modeler” on page 98

Start and Complete Conditions for an Activity

The start and complete conditions are based on the properties of the Data definition that you have related to the process. The instances of these Data definitions are populated by the Event data. You cannot create the start and complete conditions for an Activity until you have identified the Data definition to be used by the process, as the properties of this Data definition are used as input for the start and complete conditions.

Note: You cannot create the start and complete conditions for an Activity until you have entered the Related data definition for the process.

The behavior of the Activities in the process varies according to the start and complete conditions that you define:

- ▶ If the start and complete conditions for an Activity are the same, the Activity is entered and exited instantaneously. This is typically the behavior you expect for a Start or an End Activity.
- ▶ If the start condition differs from the complete condition, then typically there is time spent on the Business Activity that the Activity represents. This behavior is more typical of a Business Activity.
- ▶ If the Activity does not have either a start or a complete condition set, there is no Business Activity for the Activity; however, if the Activity has a CI assigned to it, you can track the IT operational resource status for that Activity in the process.

The rules for the start and complete conditions are not evaluated in any specific order, so no assumptions can be made about the position of the Activity within the process relative to how the progression rules are evaluated.

You also have the option of defining progression rules, which are based directly from the properties of a Business Event; these are referred to as Event-driven progression rules.

There is a grammar that must be used for the start and complete conditions, and the data used to evaluate these conditions is obtained from the Data definition related to the process. The grammar for the process progression is explained in detail in “Grammar” on page 133. More examples of using the grammar are provided in the *Business Process Insight Integration Training Guide - Modeling Processes*.

Styles of Progression Rules

There is a grammar for defining progression rules, which is described in detail in “Grammar” on page 133. However, the BPI Modeler also has some preset styles of progression rules, which are useful for some of the more common start and complete conditions. These are:

- “Complete on First Assignment” on page 94
- “Complete on Transition” on page 94
- “Start and Complete on TransactionVision Events” on page 97
- “Start and Complete on Transitions” on page 96
- “Advanced Conditions” on page 97

For start and complete conditions that cannot be expressed using the preset styles, you need to use the Advanced Condition style. Expressions that are testing for more than one value for a property need to be entered through the Advanced Condition style. This style is where you enter the start and complete conditions using the full grammar.

Examples of defining these conditions are given in the *Business Process Insight Integration Training Guide - Modeling Processes*.

Complete on First Assignment

This style of progression rule signals the Activity as **Complete** when you assign a value to the Data property defined in the Property drop-down list.

Complete on Transition

This style of progression rule enables you to select a data property (from the Property drop-down list) and specify the transition from one value to another. The transition values are entered in the From: and the To: fields. The activity for the Business Activity is signaled as **Complete** when a single data property changes from one value to another value.

If you want to enter string values in the **From:** and **To:** fields, you need to enter the string value within double quotes, for example: "string-value".

You can also use the keyword **null** in either the **From:** or **To:** fields. **Null** represents the property having no assigned value (the status of the property before a value is assigned). Whereas an empty (blank) **From:** or **To:** field represents any value as long as there has been a transition.

The following are examples of this style of progression rule:

Example 1

The following example shows the values that you enter if you want to the process to progress from the Activity when the property `MyOrder` changes from a null value to any value:

```
Property: MyOrder
From:     null
To:
```

Example 2

The following example shows the values that you enter if you want the process to progress from the Activity when the property `MyOrder` changes from any value to a null value:

```
Property: MyOrder
From:
To:       null
```

Example 3

The following example shows the values that you enter if you want the process to progress from the Activity when the property `MyOrder` changes from a null value to the string value "Received":

```
Property: MyOrder
From:     null
To:       "Received"
```

Example 4

The following example shows the values that you enter if you want the process to progress from the Activity when the property `MyOrder` changes from the string value "Received"; to one of: "Processed", "Fixed" or "Solved".

```
Property: MyOrder
From:     "Received"
To:       "Processed", "Fixed", "Solved"
```

Start and Complete on Transitions

In this style, the activity for the Activity is signaled as start and complete when a data property changes from one value to another. This can be the same data property, or two different data properties. One data property change is for the Activity start condition and the other data property change is for the Activity complete condition.

This style of progression rule enables you to select different properties and transition criteria as the basis for the Activity's start and complete conditions.

You select a data property (from the Property drop-down list) and specify the transition from one value to another. You select the property that you want to use to signal when the Activity starts, and a property that you want to use to signal when the Activity completes. This can be the same data property or two different properties.

If you want to enter string values in the **From:** and **To:** fields, you need to enter the string value within double quotes, for example: "string-value".

You can also use the keyword **null** in either the **From:** or **To:** fields. **null** indicates that the property has no assigned value (the status of the property before a value is assigned). An empty (blank) **From:** or **To:** field represents any value as long as there has been a transition.

The following are examples of this style of progression rule:

Example 1

The following example shows the values that you enter as Start and Complete Transitions if you want the Activity to start when MyOrder transitions from null to any value, and complete when ShipID transitions from null to any value:

```
"Start Transition
Property: MyOrder
From:    null
To:
" Complete Transition
Property: ShipID
From:    null
To:
```


Example 2

The following example shows the values that you enter as Start and Complete Transitions if you want the Activity to start when Priority transitions from 0 to the value 1, and complete when Priority transitions from 1 to any of the values 5, 6, 7 or 8:

```
"Start Transition
Property: Priority
From:    0
To:      1
"Complete Transition
Property: Priority
From:    1
To:      5,6,7,8
```

Start and Complete on TransactionVision Events

If the arrival of a particular event is all that is needed to progress a Business Process, then this information can be obtained directly from the business event. Using this option, you can select from a list of previously defined business events, and progress your Business Process Activities based on the arrival of a particular Business Event.

This style of progression rule can be used in any scenario and not only with TransactionVision.

You can also add progression rules that progress based on data within the Business Event; this is done using the Advanced Conditions option as described in the Integration Training Guide - Modeling Processes.

Advanced Conditions

In this style, you can enter start and complete conditions of your choice. This gives you complete flexibility and control to enter more complex start and complete conditions. You use this condition if your progression rule cannot be represented by the other styles. Specifically for expressions where you are testing for more than one value of a property.

You need to use the Advanced conditions option if your Activity start or complete condition is dependent on the values in two or more data properties. Using this condition, you can enter start and complete conditions of your choice. This gives you complete flexibility and control to enter more complex start and complete conditions.

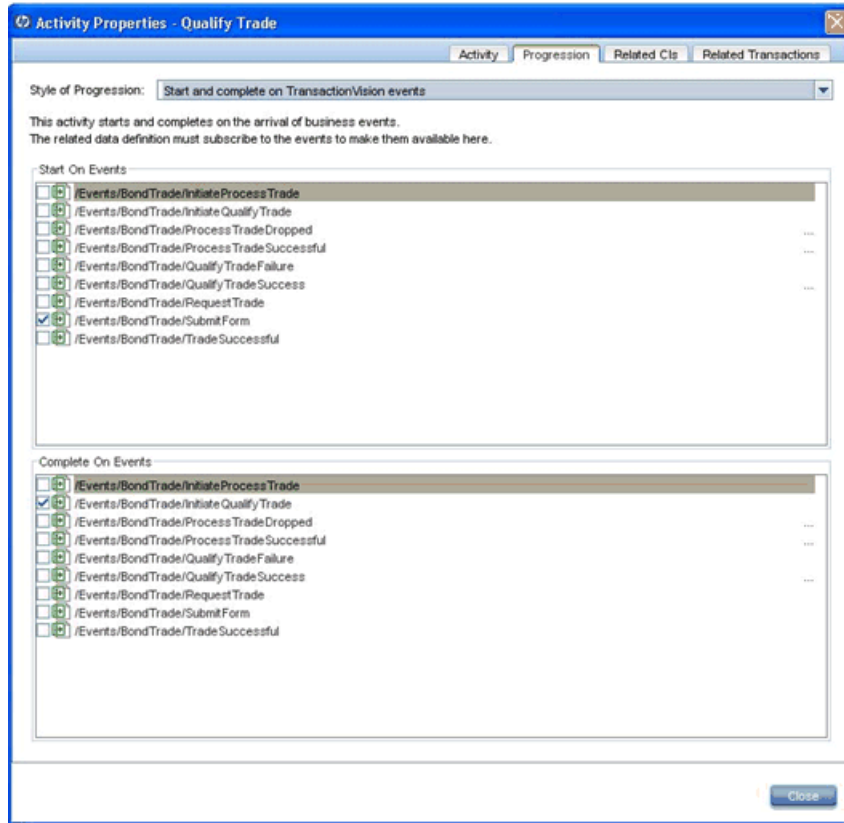
Using TransactionVision Events in the Modeler

You can use the Transaction Management editor to define BPI rules and the events that are to be sent to BPI. After the events are defined using the Transaction Management editor, they are automatically exported to BPI, and the Event definitions are available in the BPI Modeler. For details on connecting BPI with TransactionVision, see “Connecting BPI With TransactionVision” the *Business Process Insight Server Administration Guide*.

The events from TransactionVision that are available in the Modeler can be used in any of the Business Processes by updating the Data definition of the Business Process to subscribe to these events.

You can then use these events with any Activity in the Business Process to configure the Activity's progression rules.

The following figure shows using the TransactionVision events in the progression rules of the Activity Properties dialog:



You can relate Business Transactions to an Activity using any of the tabs in the Activity Properties dialog (right-click on an Activity in the Process Editor). The **Related Transactions** tab displays a filtered list of only the TransactionVision Business Transactions that are originating the events to which the data object subscribes. TransactionVision event subscriptions are created in the same way as you would set up any other event subscriptions.

If alternatively, you want a more comprehensive list of the Business Transactions (Business Transactions could be created by TransactionVision, Real User Monitor or Diagnostics) in the RTSM, use the **Related CIs** tab.

For more details on each tab, see “Activity Properties Dialog” on page 147.

Linking Activities to TransactionVision

When events from TransactionVision are used in an Activity's event progression rules, the Business Transactions that originated the event are automatically linked to the Activity.

If the TransactionVision events are not used in the Activity's progression rules, but the Data definition of a Business Process has been updated to subscribe to the events, you can manually link the associated Business Transactions to one or more Activities of the Business Process. For instructions on linking Activities to business transactions, see “How to Define Activity Properties” on page 107.

A single Activity can be linked with one or more Business Transactions. Conversely, you can link a Business Transaction to one or more Activities.

The relationship between the Activity and the linked Business Transaction CI is persisted in the RTSM. These relationships are displayed on the Health page. For details, see Chapter 10, “BPI Application Health.”

Tasks

How to Model Your Business

There is a methodology for how you model your business to determine the answers to business impact questions. The methodology also provides guidelines for creating processes and identifying the Data and the Event definitions required to provide business information that you need.

Following is a suggested order in which to carry out the tasks of designing a Business Process model using the Modeler.

To design a Business Process model:

1 Graphically design your high-level Business Process Model

Identify the Business Processes you want to track for business impact, and use the BPI Modeler to graphically design your high-level Business Process model, which is called a Process Diagram.

2 Define the data to be maintained for each process instance

Define the data attributes that you want to maintain for each process instance. Define the data that you need to store in the business model to ensure that you get the correct business impact information.

3 Define the progression rules

Define how a process instance progresses as the data attributes change state during the life of the process instance.

4 Define the data events

Define the events that you expect to receive from the underlying application systems. Define the name of each event and its data content.

You then need some consultation with the applications people to see if these events can be generated as you expect. For more details on how to generate these actual events see the *BPI Integration Training Guide - Business Events*.

5 Deploy the process and test it

Use the BPI Modeler to deploy the process definition into the Business Impact Engine. You can use tools such as the Process Simulator (contributed utility in the **contrib** directory) and the BPI Application to test out the behavior of your process, before connecting in the actual application system adapters to generate the real data events. For details on the contributed utility, see the *HP Business Process Insight - Using the HP BPI Process Simulator Guide*, located in the **contrib** directory as **procsim.pdf**.

6 Define how you want the impact information presented to you

This is just a suggested order for defining processes. You might find that your preference is to interchange steps 3 and 4, and define the events before defining the progression rules. It does not matter. Each person can develop the order that best suits them. But you can use the above steps as your starting point.

Be aware that this process is iterative. You will revisit steps (perhaps multiple times) as you discover more about your process and as you determine more about the data that comes from the underlying application systems.

How to Create a Process Diagram

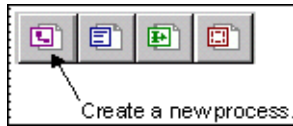
You create your Process Diagram using the Process Editor, which is in the Process Definition page. The Process Editor provides the canvas for creating your process definitions. For more details about the Process Editor see “Process Definition Page” on page 170.

Following are the tasks to create a graphical representation of a Business Process, called a Process Diagram:

- “Create a New Process” on page 103
- “Add Activities” on page 103
- “Add Arcs” on page 104
- “Optionally, Add Check Sequence Arcs” on page 105
- “Define Related Data” on page 106

Create a New Process

- 1 In the Navigator pane, select **File > New > Process** or click the Create a new process icon.




The Process Definition page opens with the **Identity** tab.

- 2 Assign the process a name and (optionally) a description. For example, you might name the process **Orders**.
 - ▶ A Process Name must be unique (within the list of Process definitions) and must be between 1 and 40 characters.
 - ▶ The Process description is an optional free-form field that you can use to document details of the definition that you want to record.

Add Activities


To add a Start Activity:

- 1 Click the Process Editor tab and click the Start Activity icon .


The cursor changes to a move cursor and remains this way so that you can continue to move Activities until you have placed them all.

- 2 Move the cursor to the location where you want to place this Start Activity, and single click.


To add Business Activities:

- 1 Click the Business Activity  icon.
- 2 Move the cursor to the location where you want to place the first Business Activity and single click.
- 3 Move to the location you want to place the second Activity and single click.

To add an End Activity:


- 1 Click the End Activity  icon.
- 2 Move the cursor to the location where you want to place the End Activity and single click.

To stop adding Activities:

- Click the Select mode  icon.
Your cursor returns to a selection cursor.

To move Activities:

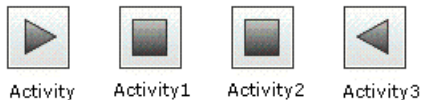
- 1 Click the Select mode icon.
- 2 Move the cursor to the edge of the Activity - but not within the center section of the Activity.

The cursor changes to a cross with arrow heads  icon.

As you move the cursor over the Activity, the center of the Activity is highlighted, but do not place the cursor over the highlighted center part. The central part of the Activity is used for drawing an arc (see “Add Arcs” on page 104).


- 3 Click-and-hold down the mouse while you drag the Activity to its new location.
- 4 Release the mouse when the Activity is in the location you want.

Example of Placed Activities



Add Arcs

Complete the following steps to add Arcs:

- 1 Click the Select mode  icon to connect the Activities with arcs.
- 2 Display the process that you want to create through the Process Editor.

- 3** Hold the mouse pointer over the center of the Activity that is the start point for your Arc; the shape of the cursor changes from an arrow to a cross.
- 4** Left-click in the center of the Activity and drag the pointer to destination Activity for your arc. An arc is then created between the two Activities. The arc is shown as a broken line and has an arrow head to show the direction of the process.
- 5** Save the process.
- 6** If you are adding arcs to a previously deployed Business Process, redeploy the process.

Example of Placed Activities with Arcs



Complete the following steps to delete an Arc:

- 1** Display the process that you want to modify through the Process Editor.
- 2** Left-click the Arc that you want to delete.
The Arc changes color when it is selected.
- 3** Select **Delete** from the menu.
- 4** Save and redeploy the process.

Optionally, Add Check Sequence Arcs

Complete the following steps to create a Check-Sequence arc:

- 1** Add a regular Arc.
- 2** Right-click on the newly created Arc.
A menu list is displayed, which includes a Check Sequence option.

- 3 Select **Check Sequence** and the arc changes to a solid line to show that it is a Check Sequence arc.

You can change a regular Arc to be a Check-Sequence Arc and a Check-Sequence arc to be a regular arc by right-clicking on the arc between two Activities and toggling the menu item on and off.

Define Related Data

The properties for Related Data enable you to relate the Data definition that you have defined to this process. You need to supply details of the Data definition whose content is used to progress this process. If you do not relate a Data definition to the process, there are no properties to select from when entering progression rules. For detailed descriptions of each option, see “Process Definition Page” on page 170.

To define related data:

- 1 Select whether you want to track individual process instances.
- 2 Select the Data definition that you want to relate to the process from the drop-down list of Data definitions that have been defined through the BPI Modeler.
- 3 Enter the name that you want to give to the relationship and is referenced within the start and complete conditions. The Relationship name must be between 1 and 40 characters and must begin with an alpha character and thereafter can contain only alphanumeric characters and the underscore character.
- 4 Select the Identity property from a drop-down list containing all of the properties of the related Data definition. You must select one of these to be used to identify different instances of the process and it can be any property of the Data definition.
- 5 Select the property that you want to define as the Process Value property from the drop-down list. This list contains all of the Process Value properties of the related Data definition. You can select only numeric properties to be Process Value properties; non-numeric properties are not available for selection.

6 Optionally select a Group.

The Group Property list contains all of the properties of the related Data definition, but only the string properties can be selected. Select the property that you want to use as the Group Property from the drop-down list. A Group Property drop-down list appears on the client pages with your pre-defined groups already collecting data (for example, East Coast, West Coast, and so on). If the Group Property was not set, or set to **None**, the Group Property drop-down list does not display in any of the client pages.

How to Define Activity Properties

You define Activity properties in the Activity Properties dialog.

1 Right-click on the Business Process Activity you want to define and select **Properties**.

The Activity Properties dialog opens.

2 Select the following tabs to define the Activity's properties:

- “Activity Tab” on page 107.
- “Progression Tab” on page 108.
- “Related CIs Tab” on page 109.
- “Related Transactions Tab” on page 110.

Activity Tab

To add the Activity name, complete the following steps:

1 Enter the Activity **Name** and (optionally) a description. For example, you might name the Activity, **Review Report**.

- An Activity Name must be between 1 and 40 characters.
- The Activity description is an optional free-form field that you can use to document details of the definition that you want to record.

2 Select the **Type of Activity** in the Activity drop-down list: Start Activity, Business Activity, End Activity or Junction Activity.

- 3 Optionally, select a file name from the drop-down list of an image that you want to be displayed in place of the standard Process Activity image.

The drop-down list provides the file names of images that you placed in the BSM Gateway Server and the BPI Server. For complete details, see, “How to Customize Your Process Diagram” on page 403.

Progression Tab

From this tab, you define the Progression Rules to progress the Business Process. For details, see “Progression Rules” on page 92.

To add Advanced start and complete conditions to an Activity, complete the following steps:

- 1 From the Progression Rules tab, select the **Advanced conditions** style of progression rule.
- 2 Click the ellipses next to the box labeled **Start Condition**. You are presented with an Activity Start Condition dialog.
- 3 Enter the expression for the start condition for the Activity.

You can use the tree structure to navigate to the Data properties that you want to include in the expression to save time and typing errors. Use the grammar rules to construct your expressions. The grammar rules are described in Reference Information for Business Process Insight. Add the Data definitions into the Entry window using the **Paste** button.

- 4 Click **OK** to add the start condition to the Activity.
- 5 Click the ellipses next to the box labeled Complete Condition. You are presented with a Activity Complete Condition dialog.
- 6 Enter the expression for the complete condition for the Activity.
- 7 Click **OK** to add the complete condition to the Activity.

You can see how the various styles of progression rules are specified by first entering parts of the rule using a simpler rule option and then selecting the Advanced option. This gives you a starting point for your more complex rule.

When entering property values for progression rules in the BPI Modeler be aware that the Oracle Server does not distinguish between a zero-length string and a string with a value that has not been assigned (null string). This means that if you want to test a zero length string within a start or complete condition, you are advised to use a single blank space (" "), and not an empty string ("").

Related CIs Tab

This is where you can link the Activity in the Business Process to IT Operational Resource Configuration Items (CIs) within the RTSM.

To link Activities to IT Operational Resource CIs, complete the following steps:

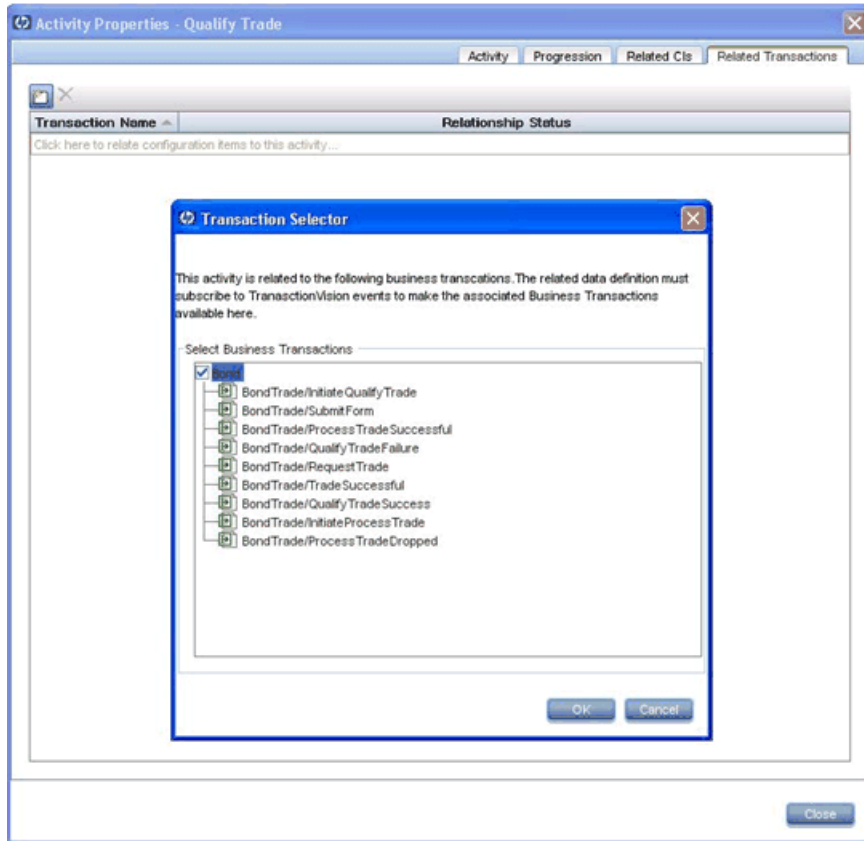
- 1** From the Related CIs tab, browse or search for one or more CIs you want to relate to the Activity.
- 2** Move one or more CIs to be linked, to the right pane using the right arrow.
- 3** Deploy or redeploy (if already deployed), the Business Process to commit these CI dependencies to the RTSM.

Related Transactions Tab

From the Related Transaction tab, the Business Transactions that originated from the TransactionVision event are listed.

To link Activities to Business Transactions, complete the following steps:

- 1 Open the Transaction Selector dialog by clicking the Transaction Selector icon.



- 2 Select the Business Transaction and click **OK**.

The Business Transaction is now linked to the Activity.

- 3 Follow steps 1 - 3 to link other Activities to Business Transactions.

How to Define Data Definitions

The following steps describe how to define the Data definition that is related to the Process definition:

- “Add a New Data Definition” on page 111
- “Define Data Properties” on page 112
- “Define Subscriptions” on page 112

Add a New Data Definition

1 Select **File > New > Data**.

The right-hand pane displays a new Data Definition page and a new Data definition entry is added to the tree view in the left-hand Navigator pane.

Note: If the menu option for creating a new Data definition is not available, you need to install the Server component of HP Business Process Insight and a valid BPI license. Without this Server component and license, you can model Business Processes and map process Activities to IT operational resource CIs. However, you cannot create process models that enable you to monitor individual process instances within Business Service Management. This includes creating Data definitions. All options are visible within the Modeler interface, but some options cannot be set or modified unless you have installed the BPI Server component of Business Service Management.

- #### 2 In the **Identity** tab, enter the Name and (optionally) Description of the Data definition. For details, see “Data Definition Page” on page 181.

Define Data Properties

Click the **Properties** tab to define the data properties/attributes that make up this Data definition.

You can create and delete properties, or you can copy details of a property from another Data or Event definition. For descriptions of the Data properties, see “Data Definition Page” on page 181.

Define Subscriptions


A Business Data definition needs to include references to the Events that it subscribes to in order that the properties of the Data definition can be updated from the data in the event.


To create an Event Subscription for a Data definition, you first need to create the Event definition that the Data definition will subscribe to. This event includes the data that you expect to obtain from underlying business applications. You now need to configure how these events update, or populate, the Data definitions that you have defined. It is possible that one event is used to update more than one Data definition, so it is not an automatic one-to-one mapping between an Event and Data definition.

The events that you define also need to be associated with the appropriate Data definition (or Data definitions) - this is achieved through the Subscriptions tab. When an event is received into the BPI system, the values of the properties of the event are used to populate the properties of the Data definition and subsequently progress the process based on the progression rules.

When you select the Subscriptions tab for a specific Data Definition, the names and descriptions of all the subscriptions currently assigned to the Data Definition are listed. From this page, you can create and delete subscriptions and you can also view the properties of a subscription to create or modify it.

To create a subscription:

- 1 Click in a new row of the subscription table, or click the **Insert a new row into a table**  icon. This opens the Event Subscription dialog. Use this dialog to create the properties of the subscription.

If you want to edit an existing subscription, select **Edit > Properties** (or click the **Properties**  icon above the subscription table) to open the Event Subscription dialog. Use this dialog to modify the properties of the subscription.

Note: When entering property values for subscriptions be aware that the Oracle Server does not distinguish between a zero-length string and a string with a value that has not been assigned (null string). This means that if you want to test a zero length string within a subscription, you are advised to use a single blank space (" "), and not an empty string ("").

- 2 Add the following information to create an Event subscription for a Data definition:
 - **Event**

This is the name of the Event that the Data definition is subscribing to.
 - **Description**

This is an optional free-form description of the subscription.
 - **Event is for a specific instance of this data object**

This specifies whether the Event data updates a specific instance of this Data definition, or whether the Event updates many instances of this Data definition. Typically, the Event is for a specific instance of the Data definition. When this option is selected, additional data is also required. For detailed descriptions of the additional data, see “Subscriptions Tab” on page 185.

How to Define Event Definitions

When creating Event definitions for BPI, make sure that the data you are defining for the Business Events is within the range permitted by the database that you are using.

The following steps describe how to define the Event definition that is related to the Process definition:

- “Add a New Event definition” on page 114
- “Define Event properties” on page 114

Add a New Event definition

- 1 Select **File > Event**.

A new Event definition is opened in the right-hand pane with a default event name.

- 2 Enter the name and an optional description of the Event definition through this dialog.

This is a unique name (within the list of Event definitions) and must be between 1 and 40 characters.

Define Event properties

You enter the details of the individual properties of the Event through this dialog.

- 1 Enter a unique **Name** for the property. An Event property name must be between 1 and 40 characters. The name must start with an alpha character, roman numeral, currency symbol or underscore (_); thereafter the name can consist of the same set of characters, plus numeric characters. Property names must not contain spaces.
- 2 Enter the **Type**, which can be a string, double, integer, currency, date, long and Boolean.

How to Deploy Business Processes

Before deployment, you have either created a new definition in the repository that the Business Impact Engine does not know exists, or have created a new undeployed revision of a definition by making changes to it.

The following steps describe how to deploy and undeploy Business Process definitions:

- “Deploy Definitions” on page 115
- “Undeploy Definitions from the BPI Modeler” on page 116

Deploy Definitions

To deploy the Process, Data and Event definitions to the Business Impact Engine, complete the following steps:

- 1** Open the Modeler.
- 2** Select the Process from the left-hand Navigator pane.
- 3** Select **File > Deploy**.

You are prompted to save all currently unsaved changes, if you have not saved them already. Click **Yes**.

The Deploy dialog opens, which lists the definitions that are to be deployed as a result of issuing this command.

If you have previously deployed the process, the Deploy dialog lists the definitions that are to be deployed. The dialog also indicates that a previous version of the process is already deployed. In this case, you need to select one of the following options for deployment:

- **Replace the existing definition.**

This replaces the definition and retains all the instances of the definition. Any statistical information collected for the instance is also retained.

► **Deploy the definition with a different name.**

This enables you to deploy the definition using a different name, and therefore preserving the instance information for the existing definition. If you select this option, select **Next** to make a copy of the definition.

The Modeler checks the state of all the definitions that you selected to deploy. A dialog box appears to prompt you to confirm that you want to deploy all currently undeployed changes to the Business Process and all its dependencies.

4 Click **Deploy** to confirm your request and continue with deployment.

The process and all its dependencies (Data and Event definitions) are deployed to the Business Impact Engine and appropriate CIs are created in the RTSM. A dialog lists all the definitions that are deployed.

5 Click **Close** when the Deployer indicates that it has finished deploying the definitions.

You have now deployed the process and its dependencies.

The process (and all other deployed definitions) change status in the Navigator pane, indicated by the icon.

Undeploy Definitions from the BPI Modeler

There are circumstances where you might want to undeploy one or more of your Business Processes. In addition, you might need to undeploy individual definitions from the BPI Process Repository; for example, you might need to undeploy Event definitions when an Event becomes out of date.

Note: If you undeploy a definition, existing instances using the definitions are still running in the Business Impact Engine until completion, or until the Instance Cleaner deletes them. New instances of any undeployed definitions are no longer created. The definition is removed by the Model Cleaner as described in the "Modifying the BIE Model Cleaner Settings" in the *Business Process Insight Server Administration Guide*.

You can undeploy a definition that is referenced by another definition, so you need to make sure that you maintain consistency within your Business Processes.

To undeploy a Process, Data or Event definition complete the following steps:

- 1** Open the Modeler.
- 2** Select the definition that you want to undeploy from the Navigator pane.
- 3** Select **File > Undeploy**.

The Undeploy dialog opens with a list of the definitions to be undeployed.

- 4** Click the **Undeploy** button to continue.

The **Deployed?** status of the definition changes from **Yes** to **No**, but can be deployed.

The Summary Window in the BPI Modeler now shows the revised status of the definition, which is the time the definition was last saved.

If you have modified a definition, it is shown as not being deployed; however, an earlier version is deployed. If you want to know what the deployed status of definitions is (as opposed to a development status), use the Repository Explorer, see Chapter 5, “Process Repository Explorer”.

You can also use the Process Intervention Client to show you the status of the definitions, as described in Chapter 6, “Process Intervention.”

How to Copy Definitions

The following steps describe how to copy definitions:

- “Copy Process Definitions” on page 118
- “Copy Properties Between Data and Event Definitions” on page 119

Copy Process Definitions

To make a copy of an existing Process definition, complete the following steps:

- 1** Complete steps 1 to 5 from the steps in “Export Process Definitions” on page 122 to export the Process definition.
- 2** Select **File > Import Definitions**.
- 3** Select the exported Process definition that you are copying and click **Next**.
You are presented with an Import Definitions dialog, which presents a number of import options and actions. The default action is Import Original Definition; however, in this case, you want to make a copy of the definition. To do this, you need to select the Create new copy of definition action from the drop-down Import Action list provided. You can also choose to exclude specific data or event definitions from the copy that you are making.
- 4** Configure the Import Action on the Import Definitions dialog to make the required copy of the definitions that make up the Process definition that you are copying.
- 5** Double-click the name of each definition in the New Name column of the dialog and enter a new and unique name for each definition that you are copying. Make sure that you rename the Process, Data and Event definitions.
- 6** Click **Import** to import the new copy of the Process definition. The new copy of the Process definition appears in the Navigator Pane.

Copy Properties Between Data and Event Definitions

Using this option enables you to create properties in your Data definition that match the properties of an Event definition that it subscribes to. Similarly, it can be used to create properties of an Event definition that match those in a Data definition.

Using the copy function saves the need to define identical properties for your Data and Event definitions multiple times.

To copy properties from one definition to another definition, complete the following steps:

- 1** Open the definition whose properties you want to define.

The properties that you select in the following steps are copied to this definition.

- 2** Select the **Properties** tab for the definition.

- 3** Select the **Copy Properties** option from the Tools menu.

You are presented with a **Copy Properties** dialog that has a tree definition of all the Data and Event definitions currently defined.

- 4** Select the definition whose properties you want to copy.

You cannot copy a property that already exists in the selected definition.

- 5** Select the properties within the definition that you want to copy. You can use the **Select All** option to select all the properties.

- 6** Click **OK** and the selected properties are copied to the definition that you opened in step 1.

You have now copied properties from one definition to another definition.

How to Delete and Restore Definitions

You delete and restore definitions using the Process Repository. For more details, see Chapter 5, “Process Repository Explorer.”

Delete a Definition

You can select and delete any definition from the Navigator pane.

To delete a definition:

- 1 Select the definition that you want to delete from the Navigator pane.
- 2 Select **Edit > Delete**.

The BPI Modeler displays a message asking you to confirm that you want to go ahead with the Delete action. The message also informs you if the definition your are attempting to delete is currently deployed.

- 3 Click **Yes** to continue with the Delete action.

The definition is removed from the Navigator pane in the Modeler and is added to the Recycled folder, which can be viewed from within the Repository Explorer. If the definition was deployed within the Modeler it is set to be undeployed when it is moved to the Recycled folder.

- 4 Click **No** if you want to abort the Delete action.

The definition has now been removed from the Modeler. You can restore the definition at a later date if you want.

Note: You must also modify any other definitions that reference the definition that you have deleted and redeploy the processes if appropriate.

Restore a Definition

When you delete a definition from the BPI Modeler, it is moved to the Recycled folder, which can be viewed from the Repository Explorer.

You can restore the definition back to the Modeler from the Recycled folder using the Repository Explorer at any time, assuming you have not permanently deleted the definition from the Recycled folder.

For more details and instructions on restoring definitions, see “How to Use Repository Explorer to Complete Tasks” on page 215.

How to Import and Export Definitions

The following steps describe how to import and export definitions:

- “Export Definitions to Recover Unsaved Changes” on page 121
- “Export Process Definitions” on page 122
- “Import Process and BPEL Definitions” on page 123
- “Import BPEL Processes” on page 124

Export Definitions to Recover Unsaved Changes

If the BPI Modeler loses its connection to the Process Repository for any reason; for example, the BPI Server has been shutdown to reconfigure a component, you cannot continue and modify your Process definitions.

If you have made changes to your definitions, but not saved the changes, you have the opportunity to export these changes to a recovery file before closing the BPI Modeler.

Note: If you close the BPI Modeler without exporting your unsaved changes, the changes are lost.

As soon as the BPI Modeler realizes that it has lost its connection to the Process Repository, it presents a dialog for you to enter the name of the file where you want to save your modifications. The next time that you start the BPI Modeler and the Modeler successfully connects to the Process Repository, you are presented with a dialog that enables you to select the file where you saved your changes to import them back into the Process Repository.

If the BPI Modeler loses its connection to the Process Repository, and all your definitions are up-to-date, you are informed that the BPI Modeler must exit, and that no data is lost.

When you have exported the unsaved modifications, the file that is created is the same as the files created using the **Export** option and you can import the file at a later time if required or preferred.

The file used to store the definitions for recovery purposes is not deleted after the recovery process is complete. It is therefore available in the future if you wanted to import your modifications again for any reason.

Export Process Definitions

Use the **File > Export Definition** option to export the Business Processes to an XML .zip archive file. When you have exported the file, you can copy the file to the system where the BPI Modeler that you want to import the file to is installed. Finally, use the **Import** option to import the Process definitions as described in section “Import Process and BPEL Definitions” on page 123.

To export a definition, complete the following steps:

- 1** Select the definition that you want to export from the Navigator pane.
- 2** Click **File > Export Definition**.
- 3** Specify the directory and file name where you want to create the .zip file for the definition.
- 4** Click **Export**.
- 5** Close the Export Definition dialog.
- 6** Copy the file to the target system.

- 7 Click **File > Import Definitions** in the Modeler on the target system to import the definition. When the Process definitions are successfully imported they are shown as being undeployed in the BPI Modeler.
- 8 Make any necessary amendments to the definition.
- 9 Click **File > Deploy** to deploy the definition to the target BPI Server system.

Import Process and BPEL Definitions

You can use the BPI Modeler to import Process definitions and Business Process Execution Language (BPEL) definitions. You import a zip archive file containing a previously exported definition from the Modeler, or a BPEL process file. In order for the Modeler to recognize the files, the zip archive file must have a file extension of .zip, and the BPEL process file a file extension of .bpel. If your BPEL process file has a .xml file extension, you can rename it to .bpel before importing it into the Modeler.

To import a previously exported Process, Data or Event definition, or to import a BPEL file, complete the following steps:

- 1 Select **File > Import Definitions**.

The Import Definitions dialog opens.

- 2 Navigate, or browse, to the location of the previously exported definition file you want to import and click **Open**.

The file must be either a zip archive file or a BPEL process file.

- If you import a zip archive file, the content of the Description field that you entered in the Modeler to describe the process is displayed as the Description.
- If you import a BPEL process files, the name of the process is displayed in the Description field. If this information is not available in the file to be imported a suitable message is displayed instead, for example: This BPEL file contains an un-named process.

3 Click **Next** to move to the next option.

The next step that is displayed in the Import Wizard depends on the type of file you are attempting to import: a zip archive file containing a previously exported definition, or a BPEL definition file.

You are presented with a dialog that lists the content of the definition file that you are importing.

From this dialog, you can:

- ▶ import a listed definition and overwrite any existing definition of the same type that has the same name.
- ▶ create a new copy of a listed definition or rename an existing definition. For this option, you provide a new name for the definition in the **Save As** column.
- ▶ choose not to import a listed definition.

When you have tailored your import requirements, click **Import**.

4 Click **Close** to complete the import.

When the Process definitions are successfully imported they are shown as being undeployed in the BPI Modeler. You now need to deploy the imported Processes and their dependencies to the target BPI Server system.

Import BPEL Processes

You can use the BPI Modeler to import Business Process Execution Language (BPEL) definitions.

You import the structure of a BPEL definition using the BPI Modeler; however, you cannot import the associated BPEL logic. When you have imported the BPEL definition, you can use the structure as the basis of a Business Process, which you can then modify to suit your reporting and tracking requirements. You also need to create the Data and Event definitions required to track the imported BPEL definition.

Details of importing BPEL definitions, and the options available for tailoring the definitions when importing them are provided in *Business Process Insight Integration Training Guide - Importing BPEL*.

If you are importing a BPEL process file, you are presented with an Import Definitions dialog that presents a number of options that you can use to determine how the BPEL file is imported and also how the resulting process is presented within the BPI Modeler.

To import BPEL processes, complete these actions as follows:

1 Replace existing Process definition:

You can either create a new Process definition using the imported BPEL, or you can replace a process that already exists within the Process Repository. To do this, either select the option to create a new Process definition, or select the name of the Process definition that you want to replace.

The default option presented is to create a new process. This means that if you import a BPEL process more than once, you create multiple copies of the process, all with the same name. If you have modified the Name Generator file to specify your own naming convention, then the option to create a new process is the option you need. You can also select a process from the drop-down list provided, but you need to make sure you are not overwriting a different process definition.

2 Include optional parts of the process?

BPEL provides a wide range of features, not all of which are appropriate for monitoring purposes. You have the option to remove some of these functions when the BPEL is imported into the Modeler. Specifically, you can include, or remove, fault handlers and compensation handlers from the imported BPEL. Select or clear the check boxes as appropriate for your requirements.

3 Name generator file:

The name generator file is optional, but when specified is used as a source for building the name of the process and the names of the Activities as the BPEL process is imported into the Modeler. If no name generator file is specified, a default name is assigned to each Activity and to the process. For details of how to use a name generator file for building Activity names see the *Business Process Insight Integration Training Guide - Importing BPEL*.

4 Process diagram layout.

You can influence how the BPEL diagram is displayed on the Modeler canvas when it is imported. This is done by modifying the values of the layout attributes as follows:

- a** Grid cell size: The size (in pixels) of the cell border used for each Activity on the process diagram. If you have particularly long Activity names, you might need to increase the grid cell size to prevent the Activity names overlapping other Activities.
 - b** Gaps between Activities: The size (in pixels) of the gap between the Activities on the process diagram.
 - c** Page border: The size (in pixels) of the border that is created around the process diagram. If you intend to expand the process diagram, you are advised to create a reasonably sized border for the additional Activities. The additional space is added to the left-hand side and right-hand side of the diagram and to the top and bottom of the diagram.
 - d** Minimum page size: The minimum size (in pixels) of the canvas for your Process diagram. If you set these values to be very low, the page size for your canvas will be the same size as the Process diagram; therefore, if your Process diagram consists of only one Activity, the size of the canvas remains the same. In this case, you might not leave sufficient room to add to or modify your Process diagram.
- 5** Click **Import** to import the new copy of the definition.

The new copy of the definition appears in the Navigator Pane and the import is complete.

Reference

Coercion Rules

This section describes the rules for how properties are coerced when evaluating binding, filter and assignment expressions. This is an enforced evaluation by the BPI Modeler, based on the rules described in this section.

Valid data types for use within BPI are:

- ▶ String
- ▶ Numeric, which can be one of:
 - ▶ Integer
 - ▶ Long
 - ▶ Double
 - ▶ Currency
- ▶ Boolean
- ▶ Date

Assignments

The following table shows how assignments are coerced:

Data Type	Assigned from...
String	Any type
Numeric	Any other numeric value (with possible truncation if assignment is to an integer), or from Strings provided that the string is numeric. If the assignment does not produce a valid number, you receive an error similar to the following in the Business Impact Engine log file: Cannot assign value <i>prop-name</i> to property <i>prop-name</i> as it is not a compatible type.
Boolean	Other Boolean values, or from Strings provided that the string is either true or false . If the assignment does not produce a valid Boolean expression, you receive an error similar to the following in the Business Impact Engine log file: Cannot assign value <i>prop-name</i> to property <i>prop-name</i> as it is not a compatible type.
Date	Other Dates or a Numeric value (treated as number of milliseconds since 1970).

Expressions

The following table shows how values within expressions are coerced.

Operator	Behavior
Arithmetic: + - * / %	Supported between Numeric properties or values that can be coerced to numeric using the assignment rules described in “Assignments” on page 128.
Comparison: < <= = != > >=	The comparison operators can be used to provide the following: <ul style="list-style-type: none"> ▶ Numeric comparison between Numeric properties or values that can be coerced to numeric using the assignment rules described in “Assignments” on page 128. ▶ Date comparison between Date properties. ▶ Alphabetic comparison (locale-specific) between String properties or values that can be coerced to Strings using the using the assignment rules described in “Assignments” on page 128 (including Boolean). The result of a comparison is always a Boolean value.
String tests: starts() ends() contains() in()	Performs a test on a String property. Note that these tests cannot be applied to non-string properties.

Operator	Behavior
Logical: !(Not) && (And) (Or)	Supported between Boolean properties or values that can be coerced to Boolean using the assignment rules described in “Assignments” on page 128.
Conditional value if, then, else: ?:	First operand must be Boolean or be coerced to Boolean, other operands can be any type; however they must be the same each other.

Using null Within an Expression

The BPI Modeler permits only the equals and not-equals tests with the null constant. However, there might be expressions using other operators involving values that are null when these expressions are executed. For example, how is the following expression evaluated when **index** is **null**?

`index + 1`

The following table shows the rules that apply when comparing data items within an expression where one data item contains a **null** value.

Operator	Comparison
== !=	Returns TRUE if the other operand is (or is not) null .
All other comparison operators	Always return FALSE . For example the following expressions both return FALSE if index is null : <ul style="list-style-type: none"> ▶ index > 10 ▶ index <= 10
Arithmetic operators	Arithmetic operators for expressions containing a null value always return null as the result, for example: index + 1 returns null if index is equal to null

Note: The **null** constant is case sensitive and when used in Java expressions, should always be lowercase.

Data Types in the BPI Instance Database

When handled as instances by the Business Impact Engine, these data types are stored in the BPI Instance database as shown in the following table:

Descriptive Data Type	SQL Server Data Type	Oracle Data Type	Description
string	nvarchar	varchar2	Variable length character field
date	datetime	date	Fixed-length data and time field
integer	int	number(10)	Single-length integer
long	bigint	number(20)	Double-length integer
text	text	clob	Variable-length single-byte character data
float	float	float	Real Number
currency	decimal	number	Decimal number with a fixed number of decimal places
variable-length text	ntext	clob	Variable-length text up to 1GM (ntext) and 4GB (clob)
variable-length binary	image	blob	Variable-length binary file up to 2GB (image) and 4GB (blob)

Expression Grammar in Process, Data, and Event Definitions

This section lists the rules for the grammar that can be used for Business Process progression rules and expressions, and expressions within Business Process Monitor filter definitions.

The progression rules and expressions are within the BPI Modeler for the start and complete conditions for Activities, and for filter expressions for Data definitions when subscribing to events.

Business Process Monitor filter expressions are used within the Monitor Definer to optionally specify the conditions for collecting statistical data for the Business Process Monitors.

The grammar used for expressions is similar to Java expressions. The following sections describe the grammar and its construct. Further examples of using this grammar are provided in the *Business Process Insight Integration Training Guide - Modeling Processes*.

- “Grammar” on page 133
- “Example Expressions” on page 134
- “Function Return Values” on page 138
- “Process Progression Rules” on page 139
- “Case Sensitivity for Expressions” on page 145

Grammar

The following is an informal description of the grammar, showing how expressions can be constructed. Note that this construct is subject to specific limitations according to how it is being used. Examples of using the grammar are provided in the following sections.

expression =>

property-value = expression

| **expression + expression**

| **expression - expression**

| **expression * expression**

| **expression / expression**

| **expression % expression**

| **- expression**

| **expression && expression**

| **expression || expression**

| **! expression**

| **expression == expression**

| **expression > expression**

| **expression >= expression**

| **expression < expression**

| **expression <= expression**

| **expression != expression**

| **(expression)**

| **expression ? expression : expression**

| **value**

value =>

constant_value

| **property_value**

| **function_return_value**

See “Function Return Values” on page 138 for possible values for **function_return_value**.

constant_value =>

```
string_constant  
|integer_constant  
|real_constant  
|true  
|false  
|null
```

```
property_value =>  
    root_object.relationship_name.property_name
```

where:

► **root_object** is this or event.

If no **root_object** is specified, the expression assumes this.

► **relationship_name** can be included zero or more times, depending on how the property relates to the root object.

Possible **property_value** expressions are:

- **this.property**
- **this.data.property**
- **event.property**
- **property**

Example Expressions

You cannot enter an expression that is contained in parentheses and follow it with one or more function calls. For example, the following expression is not accepted by the BPI Modeler:

```
(this.property).after() > 3;
```

The following shows the same example in a form that is acceptable to the BPI Modeler:

```
this.property.after() > 3;
```

The following table shows some examples of the Progression Rules that you can use:

Progression Rule Example	Description
this.data.created();	<p>This is an example of an expression that starts the process. It evaluates to true when the Data instance that fulfills the condition is created. This expression enables the start condition for the Activity to be met when a business event is received that creates an instance of the related data definition for the Activity.</p> <p>You can also use .terminated() to test a data instance status.</p>
this.data.Call_Status.changed();	<p>This expression tests whether a data property has changed. The expression evaluates to true if the data property has changed as a result of a data event being received.</p>

Progression Rule Example	Description
<pre>this.data.Call_Status.before() == "Assigned";</pre>	<p>This expression tests the value of a data property when a data event is received. Using .before() enables you to test the old value of the data property, following a change in the value of a data property, when a new data event is received.</p> <p>This expression evaluates only if the data property does change when the new data event is received. If the new data event does not change the value of the data property, then the expression evaluates to false. It is also the case that where the new data event does not change the value of the data property, any expression containing the rule .before() within an expression evaluates to false; as a result, the following expressions are equivalent:</p> <ul style="list-style-type: none"> ▶ this.data.Call_Status.before() == "Assigned"; ▶ this.data.Call_Status.changed() && this.data.Call_Status.before() == "Assigned";

Progression Rule Example	Description
<pre>this.data.Call_Priority.after > 3;</pre>	<p>This expression tests whether a data property has changed when a data event is received. Using .after() enables you to test the existing value of a data property, following a change in the value of the data property, against a new data event property value.</p> <p>This expression evaluates only if the data property does change when the new data event is received. If the new data event does not change the value of the data property, then the expression evaluates to false. It is also the case that where the new data event does not change the value of the data property, any expression containing the rule .after() within an expression always evaluates to false; as a result, the following expressions are equivalent:</p> <ul style="list-style-type: none"> ▶ this.data.Call_Priority.after() > 3; ▶ this.data.Call_Priority.changed() && this.data.Call_Priority.after() > 3;
<pre>this.data.property1.after().contains(" AbC");</pre>	<p>This expression tests whether the data property contains a specified string; note that this expression can be used only with string properties. The expression evaluates to true if property1 has changed and the value after the change contains the characters AbC; the test is case sensitive.</p> <p>You can also use the following expressions to test the content of data properties that are of type string:</p> <ul style="list-style-type: none"> ▶ . starts() ▶ . ends()

Progression Rule Example	Description
<code>this.data.property2.after().in(1, 2,3);</code>	This expression enables you to test whether a data property is set to any one of a set of listed values. You can use this expression for all data property types. The expression evaluates to true if the numeric property property2 has changed value and is now set to one of the numeric values 1, 2 or 3.
<code>onEvent("Start Credit Check");</code>	This expression enables you to test that a specific business event (Start Credit Check) is processed by the data event.
<code>onEvent("Order Updated") && event.Status== "Credit Check Done";</code>	This expression enables you to test that a specific business event (Order Updated) is processed by the data event and for the value of a specific property (Status) within the event.

Function Return Values

The following sections describe the data and string values that can be returned from the value expression.

These functions can be used in filter expressions, binding expressions, progression rules and assignment actions.

Functions for Dates and Times

The following functions convert expressions into milliseconds:

- **hours** (*number*)
- **minutes** (*number*)
- **seconds** (*number*)
- **days** (*number*)

These functions convert **number** to the equivalent number of milliseconds (which are the Business Impact Engine time units).

Functions for Identifying String Values

The following functions take a string parameter and return a Boolean result.

➤ **string_property.contains(*value*)**

Returns true if *value* is found in the property value.

➤ **string_property.starts(*value*)**

Returns **true** if the property value starts with *value*.

➤ **string_property.ends(*value*)**

Returns **true** if the property value ends with *value*.

Functions for All Property Types

The following function takes one or more parameters and returns a Boolean result:

property.in(*value,value,...*)

This expression returns **True** if the value of property is one of the listed set of values (*value,value,...*), and **False** if it is not.

Process Progression Rules

The grammar for process progression rules is slightly different from the simple expression grammar, as it is used to describe deltas or changes to Data definition properties.

There are four styles of progression rule provided in BPI as follows:

- Complete on first assignment
- Complete on transition
- Start and complete on transitions
- Advanced conditions

The Advanced conditions style of progression rule requires you to enter the methods for the progression rules directly as described in section “Methods for Progression Rules” on page 142.

For the remaining progression styles, you do not need to enter the methods, you just select the style of the progression rule that you want for the Activity. Ultimately, each style uses a subset, or selection of the methods described in section “Methods for Progression Rules” on page 142. You can see these methods if you define a progression rule using one of the styles and then change the style to Advanced conditions to view the methods created for the style.

More detailed information about using these progression rules in your processes is provided in the *Business Process Insight Integration Training Guide - Modeling Processes*.

The methods used for the progression rule styles are listed in the following table.

Style	Methods Used	Comments
Complete on first assignment	before()==null	This style of progression rule uses the method listed to determine when the property value changes from Null to any other value.

Style	Methods Used	Comments
Complete on transition	Complete Condition: before().in() and after().in()	This style of progression rule uses the methods listed to determine when the Activity complete condition is met. It does this by testing the original and modified value of a property against one or more values in the rule. Use of the in() method enables you to enter a selection of values that can be tested. If you do not enter a value, any value for the property can satisfy the condition.
Start and complete on transitions	Start Condition: before().in() and after().in() Complete Condition: before().in() and after().in()	This style of progression rule uses the methods listed to determine when the Activity start and Activity complete conditions are met. It does this by testing the original and modified value of a property against one or more values in the rule. Use of the in() method enables you to enter a selection of values that can be tested. If you do not enter a value, any value for the property can satisfy the condition.

Methods for Progression Rules

To express progression rules using the Advanced Conditions option in the BPI Modeler, there are methods for Data definitions and their properties. A method represents the value relating to the data object or property at a point in time.

The methods are described in the following table and apply only to a property in a process progression rules.

Method	Description
<code>this.data.property.changed()</code>	This function is used to test when the property value changes. When the property value changes it returns a result of True .
<code>this.data.property.before() == "prop-value"</code>	This evaluates to the value of the property before a change and is executed only when the property values changes. It is implicit in this expression that the property value was as stated by prop-value and is now no longer that value. The type returned is the same as the type of the property.
<code>this.data.property.after() == "prop-value"</code>	This evaluates to the value of the property after a change and is executed only when the property value changes. It is implicit in this expression that the property value was a value other than prop-value and is now prop-value . The type returned is the same as the type of the property.
<code>this.data.created()</code>	This evaluates to true when the data definition is created. This method is executed only when a new Data definition is created. The method returns a Boolean result.

Method	Description
<code>this.data.property.in(<i>"prop-value1"</i>, <i>"prop-value2"</i>, ...)</code>	<p>This evaluates to true when the value of the property is set to any of the listed values.</p> <p>The method returns a Boolean result.</p>
<code>this.data.terminated()</code>	<p>This evaluates to true when the data definition is terminated, specifically when the Data definition received an event that is flagged as terminating it. This is specified in the Event Subscription dialog for the Data Definition; Terminate this instance of the Data Definition after handling the event.</p> <p>The method returns a Boolean result.</p>
<code>onEvent(<i>"event-name"</i>)</code>	<p>This evaluates to true when the specified event is processed by the Data definition. It evaluates to false if the event does not match.</p>

Example of Complete Condition for Start Activity When Data Definition is Created

The following shows an example of the expression that you use when you want a process instance to be started when a Data definition for the process is created. In this case, a new process instance is started only when the start and complete conditions for the start Activity in the process are met, for example:

```
this.order.created();
```

where:

- **this** is the reference to the process, in this case the Order process.
- **order** is the Data definition.
- **created()** is a method that evaluates to true when the order Data definition is created.

Example Start Condition for Start Activity When Data Definition Modified

The following shows an example of the expression that you use when you want a process instance to be started when the Data definition for the process is modified. In this case a process instance is started not when the Data definition is created but when there is a change to the Data definition property.

```
this.order.priority.before() == null && this.order.priority.after() <= 3;
```

where:

- ▶ **this** is the reference to the process, in this case the Order process.
- ▶ **order** is the primary Data definition.
- ▶ **priority** is an integer property.
- ▶ **before()** is a method, which returns the value of the property before the change.
- ▶ **null** indicates that the property was not initialized before the change.
- ▶ **after()** is a method, which returns the value of the property after the change.

Example Start Condition using a Method on a Method

The following example is similar to the example above; however, shows an example of the expression that you use when you want a process instance to be started when the Data definition for the process is modified and the Data definitions contains a specific string.

```
this.order.customer_id.after().contains("X");
```

where:

- ▶ **this** is the reference to the process, in this case the Order process.
- ▶ **order** is the primary Data definition.
- ▶ **customer_id** is a string property that is a unique identifier for the customer.

- **after()** is a method, which returns the value of the property after the change.
- **contains()** is a string function, which returns a Boolean result depending on whether the string “X” is present in the **customer_id**.

Example Start Condition for an Activity Based on Event Properties

The following example shows an expression where a you want a process Activity to be started when the business event Order Updated is received and the business events contains a Status attribute of Credit Check Done.

```
onEvent("Order Updated") && event.Status == "Credit Check Done";
```

Case Sensitivity for Expressions

This section describes case sensitivity for expression properties and for expressions containing string constants.

Expression Properties

Properties and methods in expressions are case sensitive, which means the following expressions are not equivalent within your BPI system:

```
this.order.priority.before() == null && this.order.priority.after() <= 3;
```

```
this.Order.Priority.before() == null && this.Order.Priority.after() <= 3;
```

Expressions with String Constants

Expressions containing string constants are case sensitive, which means the following expressions are not equivalent within your BPI system:

```
this.order.status.after() == "a";
```

```
this.order.status.after() == "A";
```

Subtracting Dates in Filter or Binding Expressions

When you create a filter or binding expression where you want to subtract dates, you need to make sure you create expressions using the following format:

`(this.dateProp + days (2) + hours (12) > event.dataProp`

In this example, the duration is added to one date and tested against the second date to achieve the required result.

You cannot use expressions such as the following:

`(event.dateProp - this.dateProp) > days (2) + hours (12)`

This expression tests whether the difference between two dates is greater than two days and 12 hours.

BPI Modeler User Interface

This section describes:

- ▶ Activity Properties Dialog on page 147
- ▶ Modeler Page on page 154
- ▶ Process Definition Page on page 170
- ▶ Data Definition Page on page 181
- ▶ Edit Definition Page on page 189

Activity Properties Dialog

This dialog enables you to define the attributes for each Activity.

To access	From the BPI Modeler > click a Process definition to open the Process Definition page > click the Process Editor tab > right-click on the Activity you want to define
Important information	The form of the Activity Properties dialog depends on whether you have selected the option to Track individual process instances when defining the Related Data for the Business Process (see “Related Data Tab” on page 177). If you have cleared the option to track individual instances, you cannot modify the properties of the Activity and the options for progressing the process from this Activity are set and cannot be modified.
Relevant tasks	“How to Define Activity Properties” on page 107
See also	Chapter 12, “Annotations for Process Diagrams”

Activity Tab

This is where you provide details of the Activity name and text to describe the Activity.

User interface elements are described below:

UI Elements	Description
Name	Name of the Activity, for example, Review Report , and must be between 1 and 40 characters.
Description	Optional description of the Activity.
Type of Activity	One of the following: <ul style="list-style-type: none"> ➤ Start Activity ➤ Business Activity ➤ End Activity ➤ Junction Activity

UI Elements	Description
Image	<p>You can specify a file name of an image that you want to be displayed in place of the standard Process Activity image. A drop-down list provides the file names of images that you placed in the following directories:</p> <ul style="list-style-type: none"> ▶ On the BSM Gateway Server: BSM-install-dir\AppServer\webapps\bpi.war\custom images ▶ On the BPI Server: BPI-install-dir\nonOV\jakarta-tomcat-5.0.19\webapps\hpbpi-bpd\customimages and BPI-install-dir\nonOV\jakarta-tomcat-5.0.19\webapps\ovbpimetricdefiner\customimages <p>NOTE: Keep the following in mind when customizing the images of the Activity icons:</p> <ul style="list-style-type: none"> ▶ If you have defined images in the annotation.xml file, the Health and Process Instance pages show those images, but the Modeler does not. ▶ If you have different images selected in the Modeler, those images take precedence over the images in the annotation.xml file. ▶ The following image file types are supported: .jpeg, .jpg, .gif, and .png. <p>For more information about customizing the Activity icons and the annotation.xml file, see Chapter 12, “Annotations for Process Diagrams.”</p>

UI Elements	Description
<check boxes>	<p>There are up to two check boxes offering additional options according to the Type of Activity. The number of check boxes depends on the Activity types and the options are:</p> <ul style="list-style-type: none"> <p>▶ OK to Start the Process if not Already Started</p> <p>When this option is selected, BPI starts a process instance when the start conditions for the Activity are met even if the start conditions for the Start Activity have not been met.</p> <p>This represents an abnormal start to the process; however, there might be a situation where events arrive out of sequence in cases where different applications are generating the events, which are then used at different Activities.</p> <p>▶ Log a Warning if the Process has not Already Started</p> <p>This option is available only if you have selected the check box for OK to Start the Process if not Already Started. Select this option if you want the Business Impact Engine to log a warning message if the Process starts when it meets the start condition for the Activity. You want to be alerted to the fact that this is happening as it is an abnormal situation.</p>

Progression Tab

This is where you enter the Start and Complete Conditions for the Activity.

When entering property values for Progression Rules in the BPI Modeler be aware that the Oracle Server does not distinguish between a zero-length string and a string with a value that has not been assigned (null string). This means that if you want to test a zero length string within a start or complete condition, you are advised to use a single blank space (" "), and not an empty string ("").

User interface elements are described below:

UI Elements	Description
Style of Progression	<p>If you have chosen not to enable tracking of process instances, the progression rule is set and cannot be modified.</p> <p>If you have selected the option to track individual process instances, there are a number of styles of progression rules that you can select from and the data required to complete them varies according to the style that you select. Each style requires you to enter progressively more details of the rules that you want to specify, with the final style requiring you to enter complete conditions using the grammar described in the “Expression Grammar in Process, Data, and Event Definitions” on page 132.</p> <p>Following are the styles of progression from which you can select (for detailed descriptions of each rule), see “Progression Rules” on page 92):</p> <ul style="list-style-type: none"> ➤ Start and complete on TransactionVision events ➤ Complete on first assignment ➤ Complete on transition ➤ Start and complete on transitions ➤ Advanced conditions
Start Condition	<p>Click the ellipses to the right of the Start Condition area to open the Activity Start Condition dialog.</p> <p>You can use the tree structure to navigate to the Data properties that you want to include in the expression to save time and typing errors. Use the grammar rules to construct your expressions. The grammar rules are described in “Expression Grammar in Process, Data, and Event Definitions” on page 132. Add the Data definitions into the Entry window using the Paste button.</p>
Complete Condition	<p>Click the ellipses to the right of the Complete Condition area to open the Activity Complete Condition dialog.</p> <p>Add the expression for the complete condition for the Activity.</p>

Related CIs Tab

This is where you can link the Activity in the Business Process to Configuration Items (CIs) within the RTSM.

If the Business Process has not been deployed, you are presented with a CI selection dialog for the Business Activity. When you have selected a CI, it is added to the list of CIs that this Activity is linked to.

Use this dialog to link a selected CI to a Business Process Activity so that you can model and populate CI dependencies between Business Process Activities and existing IT operational resource CIs in the RTSM, using the Modeler.

If the Business Process has not yet been deployed, CIs can be selected for Business Process Activities, but the CI links are not synchronized to the RTSM until the Business Process is deployed. If the Business Process has been deployed, the CI links are synchronized with the RTSM as soon as the Business Process changes are saved.

You can use CI Selector to select views and to locate CIs. You can select a view and browse through the list of CIs (**Browse Views**), or you can search for a CI (**Search**) if you do not know in which view the CI is included.

User interface elements are described below:



UI Elements	Description
<p>Browse Views</p>	<p>Tab in the left pane where you can browse CIs in RTSM and associate CIs that represent dependent IT operation resources with Business Process Activities. These CIs are already populated in the RTSM by the person responsible to IT operations. This is done either manually or through automated means, such as discovery.</p> <p>Within the Browse Views select CIs as follows:</p> <ul style="list-style-type: none"> ▶ Click the drop-down list to select a View from the alphabetical list presented, for BPI CIs select Business Processes. ▶ Open a Business Process to display the list of CIs provided. ▶ Select one or more CIs and click the right arrow to place the CIs in the right panel. <p>You can only select CIs within the current Browse view.</p>
<p>Search</p>	<p>Tab in the left pane where you can search for one or more CIs in the views or the RTSM, search for all occurrences of a CI, or filter the list of CIs that is displayed.</p> <p>The Search CIs option enables you to find the CI you need. You can set up searches based on any combination of the filter criteria based on CI Type and CI Name.</p> <p>When searching for CIs by name, you enter a string, or partial string in the CI Name list box. The search returns all CIs that contain the entered string somewhere in the name (within the boundaries of the other search criteria that you define).</p> <p>When using this search option, note the following:</p> <ul style="list-style-type: none"> ▶ The search by CI name option is not case sensitive. ▶ You can search just for the name by using the first few letters of the name or first part of the name. Wildcards do not work.

UI Elements	Description
Search (continued)	<ul style="list-style-type: none"> ▶ You can search just for the CI type by entering the type, such as <code>business_activity</code>. If there are more than one CIs beginning with that name or of that CI type, a list displays in the left panel. ▶ You can select one or more CIs and click the right arrow to put the CIs in the Related CIs right panel.
Related CIs right panel	Lists the CIs that are linked to the Business Process Activity, by CI Name, CI Type, and Relationship Source.

Related Transactions Tab

This is where you can link the Activity in the Business Process to Business Transactions. A single Activity can be linked with one or more Business Transactions. Conversely, you can link a Business Transaction to one or more Activities. The relationship between the Activity and the linked Business Transaction CI is persisted in the RTSM. These relationships are displayed on the Health page.

User interface elements are described below:

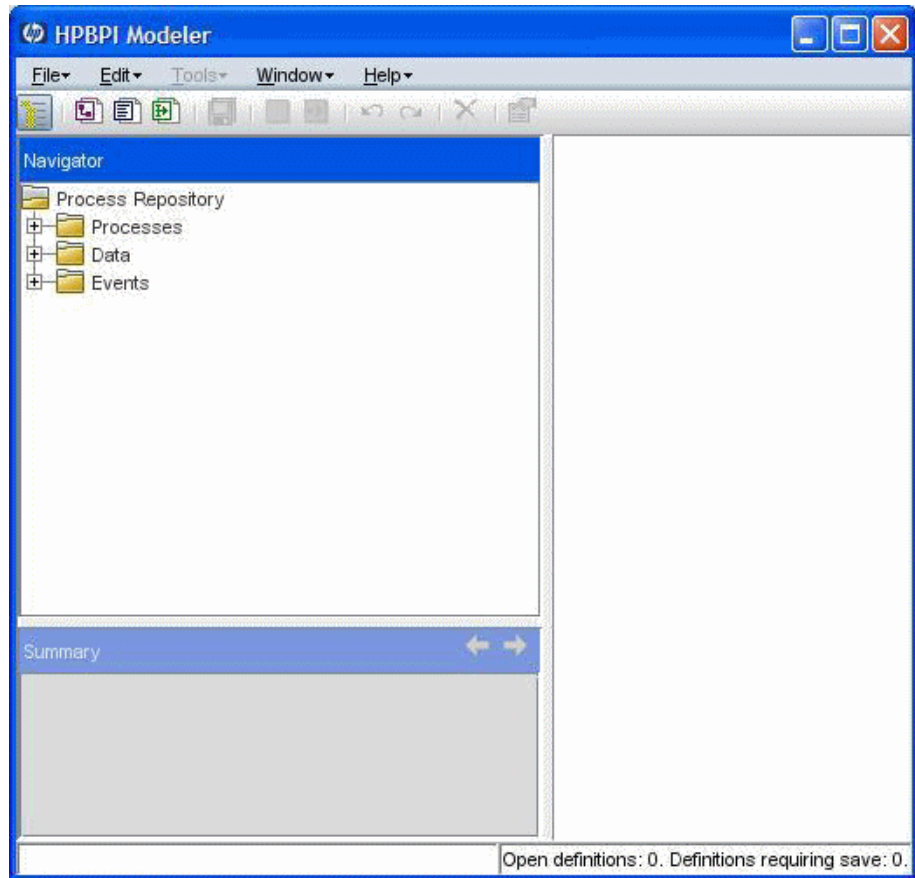
UI Elements	Description
	<p>Click to insert a new row into the table to add a Business Transaction.</p> <p>The related transactions are only available if BPI is connected with TransactionVision. For details, see “Connecting BPI With TransactionVision” in the <i>Business Process Insight Server Administration Guide</i>.</p>
	Click to delete the selected Business Transaction.

Modeler Page

This page enables you to create and manage your Process, Data and Event definitions.

Note: The performance of the Modeler can be impacted by having too many definitions open simultaneously. If you find the BPI Modeler is not responding in a timely manner, try closing some of the definition windows that you have open. You can see how many definitions are currently open using the Windows menu option, or the Status bar, described below.

Following is an example of the Modeler when it is first opened:



<p>To access</p>	<p>Admin > Business Process Insight> Modeling tab > BPI Modeler</p> <p>Wait for the Modeler to launch as a Java Web Start application. You might be asked to confirm that you want to download the files to open the Modeler within your web page. If required, confirm that you want the download to proceed.</p>
<p>Important information</p>	<p>The interface is slightly different for each of the different definitions; however, the overall layout is the same.</p> <p>To create a Business Process that you can track within BPI, you need to understand more about defining Process, Data and Event definitions using the BPI Modeler, see “Components of a Business Process” on page 74.</p> <p>If you have installed the BPI Server component, you also need to make sure that the Process Repository component is started on the BPI Server system and the Infrastructure settings are completed for BPI (access the infrastructure settings from: Admin > Platform > Setup and Maintenance > Infrastructure settings > Business Process Insight).</p> <p>Use the BPI Server Administration Console on the BPI Server system to start the Process Repository as described in “Starting and Stopping the BPI Server Components” in the Business Process Insight Server Administration Guide.</p> <p>NOTE: If you logout of BSM and leave the Modeler running, the Modeler no longer has access to the Process Repository. In this case, when you next try to use the Modeler, you are prompted to save any currently unsaved changes to the models that you have been editing and the Modeler closes.</p>

Relevant tasks	<ul style="list-style-type: none"> ➤ “How to Model Your Business” on page 101 ➤ “How to Create a Process Diagram” on page 102
See also	<ul style="list-style-type: none"> ➤ “Modeler Capabilities” on page 67 ➤ “BPI Modeling Implementation” on page 68 ➤ “Process Repository” on page 88 ➤ “Progression Rules” on page 92 ➤ “Coercion Rules” on page 127 ➤ “Expression Grammar in Process, Data, and Event Definitions” on page 132

The BPI Modeler consists of the following:

- “Editor Pane” on page 157
- “Navigator Pane” on page 158
- “Summary Pane” on page 160
- “Status Bar” on page 161
- “Todo List” on page 161
- “Menu Options” on page 163
- “Import Definition Dialog” on page 168

Editor Pane

The top right-hand pane of the BPI Modeler interface contains the Editor pane. The content (or tabs available) on this pane varies according to the definition that you have selected in the Navigator pane.

The Editor panes are:

- Process Definition, which consists of the following tabbed pages (see “Process Definition Page” on page 170):
 - Identity
 - Process Editor
 - Related Data

- ▶ Data Definition, which consists of the following tabbed pages (see “Data Definition Page” on page 181):
- ▶ Identity
 - ▶ Properties
 - ▶ Subscriptions
- ▶ Events Definition, which consists of the following tabbed pages (see “Edit Definition Page” on page 189):
 - ▶ Identity
 - ▶ Properties

Navigator Pane

The top left-hand pane of the BPI Modeler interface is called the Navigator pane. This pane shows a tree view of your Process, Data and Event definitions. At the root of the Navigation tree is the Process Repository, which is where the definitions listed in the Navigation tree are stored.

The Navigation pane has a Summary pane beneath it and whenever you change selection in the navigation tree, the content of the Summary pane changes. The Summary pane provides details of the selected object.










There is a menu option that toggles the Navigator pane (and the Summary pane) between their normal and collapsed sizes. You can also change the size of the Navigator pane using the vertical split bar between the left and the right-hand panes. When collapsed, the navigation and summary panes disappear, and the vertical split bar is pushed to the left. Manually dragging the split to the far left will have the same effect as toggling the Show Navigator option on the Window menu.

Each definition in the Navigator tree has an icon to identify its type and also is color-coded to indicate its deployment status. The following are the possible states for deployment:

- ▶ Yes deployed - the latest version of the process model definition has been deployed.

- ▶ No not deployed - the latest version is not the same as the deployed version and potentially needs deploying.
- ▶ No, has Todo list errors - the definition cannot be deployed until the errors are corrected.

User interface elements are described below:

UI Element	Description
	Show/hide Navigator. Toggles between showing and hiding the Navigator and Summary panes.
	Create a new process definition. Enables you to create a new Process definition. When created, a new definition is added to the Navigator tree with a default name ready for modification.
	Create a new data definition. Enables you to create a new Data definition. When created, a new definition is added to the Navigator tree with a default name ready for modification.
	Create a new event definition. Enables you to create a new Event definition. When created, a new definition is added to the Navigator tree with a default name ready for modification.
	Deploy to the Engine or the Event Layer. Attempts to deploy the definition that you have selected, plus any other definitions on which the definition depends.
	Undeploy to the Engine or the Event Layer. Attempts to undeploy the definition that you have selected.
	Undo. Reverses the last action that you completed using this option.
	Redo. Reverses the action of the last Undo Delete command.
	Properties. Enables you to define the properties of the selected definition.

Summary Pane

Lower-left-hand pane, which provides details of the Processes, Data or Event definition selected in the Navigator frame. The Summary pane keeps these details in view when you are editing definitions on the right-hand frame. The content of this frame matches what is selected in the Navigator pane and not what is being displayed in the right-hand frame.

This pane also shows the dependencies between the definitions and enables you to quickly move between the definitions (using hyperlinks) to better understand how the definitions relate to each other.

The Summary operates in a similar way to a web page, for example, it has hyperlinks for the dependencies and consumers of the definition.

The following information is available through the Summary pane:

Summary Details	Description
Type	This is an indication of whether the selection is for a Process, Event or Data definition.
Name	The name that has been assigned to the definition.
Deployment state	An indication of the current deployment status of the definition.
Description	The free-form description of the definition, where it is provided.
Last saved date and time	The date and time that this definition was last saved.
Used by	A list of the definitions that have this definition as a dependency. There are hyperlinks to each definition in this list.
Uses	A list of definitions that are dependencies of the selected definition. There are hyperlinks to each definition in this list.

The hyperlinks for Used by and Uses provide the base name of the related definition, in addition there are tool tips that include the group of the related model, plus any other relevant information. Clicking the hyperlink selects that definition in the Navigator tree, and as a result the new definition is also shown in the Summary pane. Select Shift and click the hyperlink and the definition is opened in the Editor pane, or if it is currently open, displays it in the Editor pane.

To aid navigation, there are back and forward buttons to the Summary pane, shown as arrows. These behave like Web browser back and forward buttons. Pressing the back arrow takes you one back down the stack of the definitions that you have selected.

You can change the relative sizes of the Navigator pane and the Summary pane by using the split bar between them.

Status Bar

There is a status bar at the bottom of the BPI Modeler window. The status bar includes a panel to show you the following:

- ▶ Number of definitions that you have open and have modified
- ▶ Total number of definitions you have open
- ▶ Number of deployed processes

The Status Bar also notifies you of anomalies, for example, when there are errors importing a Business Process definition.

Todo List

There is a Todo List associated with each definition type. The Todo List reports on the consistency of the definition and keeps track of all the outstanding issues and tasks required to ensure that the definition is consistent and complete.

Note: A definition cannot be deployed unless it is internally consistent.

The Todo List is located on the right-hand side of the BPI Modeler window below the Definition pane and represents the to-do actions related to the definition that appears in the Definition Pane.

You can sort on Severity, Location or Description by clicking the appropriate column header.

There is a caption that shows the highest level of problem in the Todo List, for example, if a definition has errors it will show the error icon. This caption also includes summary counts for all of the Todo List severity warnings.

You can use the split bar to shrink the Todo List; however, the caption is always displayed, that is, you can hide the Todo List, but not the summary information shown in the caption.

The Todo List user interface elements are described below:

UI Elements	Description
Severity	This indicates the severity of the action and can be either an error or a warning. You can deploy a definition that contains warnings, but you cannot deploy a definition that contains errors.
Location	This indicates the definition type where the problem exists, for example Process definition.
Description	This is a description of the problem.

Menu Options

The following menu options are available through the BPI Modeler. Note that some menu options are enabled in specific contexts. These contexts are indicated in the table describing each menu option.

File Menu

Menu	Context	Description
New	Always enabled.	Enables you to create a new Process, Data, or Event definition. When created, a new definition is added to the Navigator tree with a default name ready for modification.
Open	Enabled when you select a definition that is not currently open in the right-hand pane, or if an already opened editor is accessed.	Opens the currently selected definition from the Navigator pane and displays the identity data for the definition.
Close Active Editor	One or more Process, Data or Event editors is open for modification.	Closes the editor for the currently open definition in the right-hand pane. This is the editor that has input focus. You are prompted to save any unsaved modifications.
Close All Editors	One or more Process, Data or Event editors is open for modification.	Closes all the open definition editors. You are prompted to save any unsaved modifications.
Save	One or more Process, Data or Event editors is open for modification.	Attempts to save changes to the currently selected definition.

Menu	Context	Description
Save All	One or more Process, Data or Event editors is open for modification	Attempts to save changes to all definitions.
Deploy	You have selected a currently undeployed definition.	Attempts to deploy the definition that you have selected, plus any other definitions on which the definition depends.
Undeploy	You have selected a currently deployed definition.	Attempts to undeploy the definition that you have selected.
Import Definitions	Always enabled.	Opens a dialog that enables you to specify a zip file that you have previously exported using the Export Definition menu option. For details, see “Import Definition Dialog” on page 168.
Export Definition	You have selected a Process, Data or Event definition.	Attempts to export to a zip file the selected Process, Data or Event definition.
Options	Always enabled.	Opens a dialog that enables you to configure the name of the system where the BPI Server is installed and the snap to grid parameters.
Exit	Always enabled.	Closes the BPI Modeler. If there are unsaved changes, you are prompted to save them.

Edit Menu

Menu	Context	Description
Undo	Always enabled.	Reverses the last action that you completed using this option.
Redo	Enabled following an Undo Action.	Reverses the action of the last Undo Delete command.
Delete	Enabled when a definition is selected that can be deleted.	Deletes the currently selected definition or property.
Properties	Enabled when an object is selected that has properties.	Shows the properties of the selected definition.

Tools Menu

The Tools menu has different options according to the context of the right-hand pane.

If you have the **Process Editor** tab for a Process definition selected, the following options are available from the Tools menu (see “Process Editor Tab” on page 171):

Menu	Context	Description
Select	Process Editor tab selected in right-hand pane.	Changes the mode of editing the Process Diagram to Select.
Start Activity	Process Editor tab selected in right-hand pane.	Changes the mode of editing the Process Diagram to Start Activity.
Business Activity	Process Editor tab selected in right-hand pane.	Changes the mode of editing the Process Diagram to Business Activity.

Menu	Context	Description
End Activity	Process Editor tab selected in right-hand pane.	Changes the mode of editing the Process Diagram to End Activity.
Junction Activity	Process Editor tab selected in right-hand pane.	Changes the mode of editing the Process Diagram to Junction Activity.
Check Sequence	Arc selected on Process diagram.	Toggles the properties of the arc between a Check Sequence arc and a regular arc.

If you have the **Properties** tab for a **Data** or **Event** definition selected, the following options are available from the Tools menu:

Menu	Context	Description
Insert New Row	Properties tab selected for Data and Event definitions.	Inserts a new row in the properties table for the definition.
Copy Properties	Property selected in Data or Event definition table.	Open the Copy Properties dialog where you can copy properties of Data and Event definitions.
Junction Activity	Process Editor tab selected in right-hand pane.	Changes the mode of editing the Process Diagram to Junction Activity.
Check Sequence	Arc selected on Process diagram.	Toggles the properties of the arc between a Check Sequence arc and a regular arc.

If you have the Subscriptions tab for the Data definition selected, the following option is available from the Tools menu (see “Subscriptions Tab” on page 185):

Menu	Context	Description
Insert New Row	Subscriptions tab selected for Data definition.	Opens the Event Subscriptions dialog.

Window Menu

Menu	Context	Description
Show Navigator	Always enabled.	Toggles between showing and hiding the Navigator and Summary panes.
Navigator	Always enabled.	Takes input focus to the Navigator tree.
Summary	Always enabled.	Takes input focus to the Summary Pane.
<List of open editors>	You have selected one or more definitions for editing.	Lists the definitions that are currently open for editing and that are saved as a result of selecting Save All from the Edit menu.

Import Definition Dialog

If you are importing a zip archive for a definition file, when you have selected the zip archive to import, you are presented with an Import Definitions dialog, which contains a number of columns, one of which is an Import Action column.

Some import actions show additional drop-down menu items when you select them and some of the import actions cannot be modified. The actions that you can complete depend on the type of definition that you are importing and also whether a copy of the definition already exists on the machine where you are importing the definitions file.

When you have completed setting the options for importing the definitions, click Import to import the new copy of the definition.

When importing a zip file containing one or more Process definitions, the BPI Modeler checks to ensure that there are no name clashes with existing Process, Data or Event definitions. If there are clashes, you can decide whether to overwrite, rename or ignore the definition.

If you are importing a newer version of an existing Process definition, the imported process overwrites the existing process.

When the import has completed successfully, the new copy of the definition appears in the Navigator Pane and the import is complete.

The options for the Import Action are as follows:

UI Elements	Description
Import Action drop-down	<p>The following options are available from a drop-down menu for all Data, Process and Event definitions. Configure the action as required for the definition:</p> <ul style="list-style-type: none"> ▶ Import original definition — Use this option to import the Process, Data or Event definition directly with no change to its name and without modification. ▶ Create a new copy of the definition — Use this option to make a copy of the Process, Data or Event definition. The new copy is then unrelated (has a new unique identifier) to the definition that was exported. ▶ Exclude from import — Use this option to remove the Process, Data or Event definition from the imported Business Process and not import it into the Process Repository.
Cannot be imported	<p>This is a non-editable action. This definition is not recognized as a definition type that the Modeler can import. Make sure you are importing only a definition type that can be created within the Modeler and that the definitions are not Business Process Monitor or Monitor Threshold definitions.</p>
Overwrite existing definition	<p>A definition with this name already exists and will be overwritten when this definition is imported. Rename the definition if you do not want the existing definition to be overwritten</p>
Import definition unchanged	<p>Import the definition with the same identity (unique identifier) as the originally exported definition. Rename the definition if you do not want the definition to have the same identity.</p>
Keep existing definition	<p>A definition with this name already exists and will be left unchanged.</p>

Process Definition Page

This page enables you to define the Process definition and create a Process Diagram.

To access	Use one of the following: <ul style="list-style-type: none"> ➤ From the BPI Modeler > File > New > Process ➤ From the BPI Modeler Navigator pane > double-click an existing Process definition
Important information	Use the Process Definition editor to create and modify your Process definitions. You can have multiple editors open for Processes, Data and Events. You can see your active editors by selecting the Window menu option.
Relevant tasks	<ul style="list-style-type: none"> ➤ “How to Model Your Business” on page 101 ➤ “How to Create a Process Diagram” on page 102 ➤ “How to Define Activity Properties” on page 107
See also	“Process Definitions” on page 75

The Process Definition Page consists of the following tabs:

- “Identity Tab” on page 170
- “Process Editor Tab” on page 171
- “Related Data Tab” on page 177

Identity Tab



This is used to define the name and optional description of the Process definition.


- A Process **Name** must be unique (within the list of Process definitions) and must be between 1 and 40 characters.
- The Process **Description** is an optional free-form field that you can use to document details of the definition that you want to record.


Process Editor Tab


The Process Editor provides the canvas for creating your Process Diagram. When you click the Process Editor tab, you can see that additional icons are enabled on the Toolbar described below. Using these icons, or the menu options (see “Menu Options” on page 163), you can start creating your processes.


User interface elements are described below:



UI Elements	Context	Description
	The Process Editor is the active window.	<p>Select Mode. Move you out of editing mode and into select mode. This enables you to select objects on your canvas, or draw arcs between activities.</p>
	The Process Editor is the active window	<p>Start Activity. This is a normal starting point for a process.</p> <p>To add a Start Activity on your Process diagram, select Start Activity from the Tools menu option, or click the Add start Activities icon on the toolbar.</p> <p>You can have more than one Start Activity in your process, or no Start Activity; you can configure a Business Activity to start a process if the process is not already started. The Start Activity aids the visual layout of the process.</p>

UI Elements	Context	Description
 (continued)	.	<p>You can choose to log a warning if an attempt is made to start a process a second time; this is where the start condition for the Start Activity is met more than once. If you select this option, and a second Start Activity is activated after the process has started, the Business Impact Engine issues a warning as the process is not progressing as expected. This is the case where an instance of the process has been created by a different Start Activity, or a Business Activity with the following flag set:</p> <p style="text-align: center;">OK to start the process if not already started</p> <p>If the Start Activity is instantaneous, and deactivated as soon as it is activated, you need only set one of a start or a complete condition for the Activity. The Business Impact Engine then maps the start condition to the complete condition and vice versa. When the start and complete conditions are the same, the Start Activity has a duration of zero (0) milliseconds when evaluated by the Business Impact Engine. If your Business Process expects that the activity related to the Start Activity is not instantaneous, set different start and completed conditions for the Activity.</p> <p>Start Activities cannot have arcs leading into them. Start Activities can, but do not have to, have arcs leaving them.</p>

UI Elements	Context	Description
	<p>The Process Editor is the active window.</p>	<p>Business Activity. This Activity is a normal activity within the process that gets activated and deactivated according to its start and complete conditions.</p> <p>To add a Business Activity to your Process diagram, select Business Activity from the Tools menu option, or click the Add Business Activity icon on the toolbar. You can have more than one Business Activity in your Process diagram.</p> <p>If the Business Process is such that the Business Activity is active for a period of time while the activity occurs, set different start and complete conditions for the Activity.</p> <p>If the Business Activity is instantaneous, and deactivated as soon as it is activated, you need only set one of a start or a complete condition for the Business Activity. The Business Impact Engine then maps the entry criteria to the exit criteria and vice versa. When the start and complete conditions are the same, the Business Activity has a duration of zero (0) milliseconds when evaluated by the Business Impact Engine.</p>

UI Elements	Context	Description
 (continued)	The Process Editor is the active window.	<p>End Activity. This is a normal end point for a process.</p> <p>To add an End Activity on your Process diagram, select End Activity from the Tools menu option, or click the Add End Activities icon on the toolbar. You can have more than one End Activity in your process. You can also omit the End Activity, although this is not recommended as the End Activity is used by the Business Impact Engine to indicate that a process instance has completed. If you omit the End Activity, process instances never complete.</p> <p>When an End Activity meets its complete condition, the whole process is deemed to have completed, and the Engine is free to stop tracking it. However, it is possible that out-of-sequence events can still arrive after this point, so the Engine marks the process as completed, but continues to track it for out-of-sequence events.</p>

UI Elements	Context	Description
 (continued)		<p>If the End Activity is instantaneous, and deactivated as soon as it is activated, you need only set one of a start or a complete condition for the Activity. The Business Impact Engine then maps the start condition to the complete condition and vice versa. When the start and complete conditions are the same, the End Activity has a duration of zero (0) milliseconds when evaluated by the Business Impact Engine. If your Business Process expects that the activity related to the End Activity is not instantaneous, set different start and complete conditions for the Activity.</p> <p>If a process has parallel paths, these paths should be merged before the End Activity. If the paths are not merged, the process ends when the End Activity is first activated, which might not be the intended behavior.</p> <p>End Activities must not have arcs leaving them.</p>

UI Elements	Context	Description
	<p>The Process Editor is the active window and you have selected at least one object.</p>	<p>Delete. Deletes the currently selected object from the canvas.</p>
	<p>At least two Activities exist in a Process definition.</p>	<p>Arc. Arcs are used to indicate the direction of process between Activities in the Process diagram and show the expected order that Activities are to be executed. An Arc with a solid line indicates an Arc type of Check Sequence (see “Check Sequence Arc” on page 82).</p> <p>To add an Arc on your Process diagram, hold the pointer over the center of an Activity; you see it changes color and shows you properties of the Activity. Use the mouse to left-click in the center of the Activity and drag the pointer to another Activity. An arc is created between the two Activities. The arc has an arrow head to show the direction of the process.</p> <p>An Arc with a dotted line is an unchecked Arc and shows the direction of the process, but does not have any effect on how the process is progressed.</p> <p>If you want to be informed when Activities in your process are executed in an unexpected order, you can create an arc type of Check Sequence.</p>

Related Data Tab

The properties for Related Data enable you to relate the Data definition that you have defined to the associated Process definition.

If you see the following message in the Related Data pane, you are unable to set the Related Data properties until you have purchased an HP Business Process Insight license that enables you to use the full capacity of the Modeler. When you have installed the license, you can define the Related Data and other components of your business process.

Setting the data related to a Business Process is only available with an HP Business Process Insight license. HP Business Process Insight permits you to measure the availability, performance and effectiveness of your key business processes, and view individual business process instances in BSM.

The Data definition that you want to use as the Related Data property identifies the Data Definition that the process is based on. In the case of an Insurance Claim process, this would usually be a Data Definition that identifies the details of the claim. In the case of a Stock Control process, it might be the Data Definition that details the customer order data. A business event that triggers the creation of a Data definition is usually the event that also triggers the process to be created.

In most cases, the life cycle of a process instance is related to a business condition, for example the existence of a particular order, or the existence of a particular insurance claim. In this case, changes to the Claim (or Order) Data definition can cause a process instance to be created; for example, the assignment of a new Claim number could trigger the start of a new instance of the Claim process. There are some cases where the life cycle of a data instance outlives the process instance; for example, where the Data definition is Customer and the Process Definition is an Order. In addition, the Data definition must be linked to the Process Definition by the identifier of the specific instance of the Data definition. This ensures that the process instance is progressed using the correct data.

You enter details of the related data using the Related Data dialog. You need to supply details of the Data definition whose content is used to progress this process. If you do not relate a Data definition to the process, there are no properties to select from when entering progression rules

User interface elements are described below:

UI Elements	Description
<p>Track individual process instances</p>	<p>If have installed the BPI Server, you can choose to select or clear the Track individual process instances as required. You can create a business process with this option set (or not set) and change it at a later time if you want to. You cannot have two business processes with the same name, one with this parameter set and one with the parameter cleared.</p> <p>If you create business process with instance tracking cleared, and subsequently modify the process to enable instance tracking, you need to redeploy the process.</p> <p>NOTE: Unless you have installed the BPI Server, this option is permanently cleared. As a result, you are unable to define business processed that track individual process instances. In addition, when this option is cleared, many other Modeler features, which are also related to defining processes for tracking instances, are unavailable. You can view these options, but you are unable to edit them.</p>
<p>Data definition</p>	<p>This is the Data definition that you want to relate to the process. You can select from a drop-down list of Data definitions that have been defined through the BPI Modeler.</p>
<p>Relationship Name</p>	<p>This is the name that you want to give to the relationship and is referenced within the start and complete conditions. The Relationship name must be between 1 and 40 characters and must begin with an alpha character and thereafter can contain only alphanumeric characters and the underscore character.</p>

UI Elements	Description
Identity Property	<p>The Identity property is used by the BPI Application and shown with each instance of the process. Process instances are ordered by the property entered in this field within the BPI Application.</p> <p>Select the Identity property from a drop-down list containing all of the properties of the related Data definition. You must select one of these to be used to identify different instances of the process and it can be any property of the Data definition.</p>
Process Value Property	<p>The Process Value property is used from within the BPI Application for display and tracking purposes; it is displayed with each process instance. The Process Value property is also used when defining Business Monitors and Thresholds using the Monitor Definer. As an example, you might have as a Process Value property the current value of outstanding transactions and this value is then displayed for each process instance.</p> <p>Select the property that you want to define as the Process Value property from the drop-down list. This list contains all of the Process Value properties of the related Data definition. You can select only numeric properties to be Process Value properties; non-numeric properties are not available for selection.</p>

UI Elements	Description
<p>Group Property</p>	<p>The Group property enables you to define a group by attribute for which statistics are maintained. The various client pages (Health page dialogs, Process and Monitor instances pages) then permit you to view only instances relating to a selected group, as well as view the combined information.</p> <p>During the modeling process, you can optionally select a Group. The Group Property list contains all of the properties of the related Data definition, but only the string properties can be selected.</p> <p>Select the property that you want to use as the Group Property from the drop-down list. A Group Property drop-down list appears on the various client pages with your pre-defined groups already collecting data (for example, East Coast, West Coast, and so on). If the Group Property was not set, or set to None, the Group Property drop-down list does not display in any of the client pages.</p> <p>If you had defined groups in the Modeler, but set the Group Property to None, and you later decide you want to collect data by groups on the client pages, you can reset the Group Property value in the Modeler and redeploy the Business Process. Changes to the Group Property require redeployment of the process model.</p> <p>You can limit the number of groups that can be specified to optimize BPI's performance, in the BPI Server Admin Console. For details on setting the group limit, see the "Component Configuration - Business Impact Engine (BIE)" section in the <i>Business Process Insight Server Administration Guide</i>. If the number of groups specified in the Group property field exceeds the group limit, the data for the groups listed beyond the exceeded number are combined into a group called Other.</p>

Data Definition Page

This page enables you to define and modify Data definitions for your process. You can also delete a Data definition.

To access	Use one of the following: <ul style="list-style-type: none"> ➤ From the BPI Modeler > File > New > Data ➤ From the BPI Modeler Navigator pane > double-click an existing Data definition
Important information	The Data Definition Editor is enabled for Business Processes that are created with instance tracking enabled. If you have not enabled instance tracking for a Process Definition, you cannot create Data definitions for the Process.
Relevant tasks	<ul style="list-style-type: none"> ➤ “How to Model Your Business” on page 101 ➤ “How to Define Data Definitions” on page 111
See also	“Data Definitions” on page 84

Identity Tab




This is used to define the name and optional description of the Data definition.

- A Data definition **Name** must be unique (within the list of Data definitions) and must be between 1 and 40 characters. The name of the Data definition can include slash "/" characters to provide a logical grouping — for example, **Orders/My Data**.
- The Data definition **Description** is an optional free-form field that you can use to document details of the definition that you want to record.

Properties Tab

Enables you to define the data properties/attributes that make up this Data definition. You can create and delete properties, or you can copy details of a property from another Data or Event definition.

User interface elements are described below:

UI Elements	Description
	Insert a new row into a table. Adds a new property row in which you can create a new property.
	Delete. Deletes the selected property.
	Copy properties from another definition. Opens the Copy Properties dialog from which you can select a property from another definition to be inserted as a property for the current Data definition.
Name	Data property names must be between 1 and 40 characters. The name must start with an alpha character, roman numeral, currency symbol or underscore (_); thereafter the name can consist of the same set of characters, plus numeric characters. Property names must not contain spaces.




UI Elements	Description
Type	<p>This can be one of the following:</p> <ul style="list-style-type: none"> ▶ String This says that the property contains a string value. If you specify a string data type then you must also specify the maximum length that this string can be. You specify this length in the Constraint column for this property. ▶ Double This says that the property contains a double value. You do not need to specify any constraint for this data type. ▶ Integer This says that the property contains an integer value. You do not need to specify any constraint for this data type. ▶ Currency This says that the property contains a currency (money) value. As far as the actual data inside this field, it can be any of the supported numeric types - Integer, Long or Double. In the Constraint column for this property you must then specify the type of currency that this field contains. You specify the currency by typing in a valid ISO 4217 currency code. For example: EUR - Euro USD - American dollars AUD - Australian dollars GBP - British Pounds ▶ Date This says that the property contains a date value. You do not need to specify any constraint for this data type.

UI Elements	Description
Type (continued)	<p>► Long This says that the property contains a long value. You do not need to specify any constraint for this data type.</p> <p>► Boolean This says that the property contains a string value containing the word true (in any case - upper, lower or mixed). Any other value is taken to represent false. You do not need to specify any constraint for this data type.</p>
Constraint	The constraint is linked to the data type and is relevant only to string and currency data types. For a string data type, the constraint specifies the maximum length of the string. For a currency data type, this column specifies the ISO 4217 currency code, for example, USD, EUR and GBP.
Unique	This is a flag indicating whether the property value is unique, that is, whether two or more, instances of the Data definition can have the same value. Check the Unique column if the property value is unique for all instances of the Data definition. An example of where a property value is marked as unique might be for an order number, customer identifier or insurance claim identifier. If you have two (or more) properties that are marked as unique, any one of the properties can uniquely identify the instance.
Description	Optional for your own documentation purposes.

Subscriptions Tab

This is used to create references to the Events that it subscribes to in order that the properties of the Data definition can be updated from the data in the event. For details, see “Define Subscriptions” on page 112.

User interface elements are described below:

UI Elements	Description
	Insert a new row into a table. Opens the Event Subscription dialog where you create the properties of the subscription.
	Delete. Deletes the selected Event definition.
	Properties. Opens the Event Subscription dialog, showing the properties for the selected Event definition. For details, see “Event Subscription Dialog” on page 185 below. You can also select Edit > Properties to open the Event Subscription dialog.

Event Subscription Dialog

User interface elements are described below:

UI Elements	Description
Event	Name of the Event that the Data definition is subscribing to.
Description	Optional free-form description of the subscription.

UI Elements	Description
<p>Event is for a specific instance of this data object</p>	<p>This specifies whether the Event data updates a specific instance of this Data definition, or whether the Event updates many instances of this Data definition.</p> <p>If the Event is providing data for a unique customer identifier, the Event is for a specific instance, and you need to define details of how the instance is identified.</p> <p>If the Event contains more general information, for example, pricing information, or currency information, there might be many Data definitions that subscribe to it. In this case, the Event is not for a specific instance of this Data definition.</p> <p>Typically, the event is for a specific instance of the Data definition. When this option is selected, the following additional data is also required:</p> <ul style="list-style-type: none"> ▶ Unique Property of this Data Definition This is the name of a property of the Data Definition property used to match a specific Event property to ensure that a unique instance of a Data definition is identified. The property used to match the definitions should be a property that has already been defined as unique within the Data definition. ▶ Property of Event This is the property of the Event that is used to match against the unique property of the Data definition. ▶ In order to handle the event, should the data instance already exist? A Process definition does not necessarily start at a Start Activity. You can start an instance of a process at any Business Activity using this option. The options are: <ul style="list-style-type: none"> An instance can already exist. Create if necessary. An instance should already exist. Log a warning if one does not. Create if necessary. An instance must first be created by another event. Retry this event later on.

UI Elements	Description
<p>Event is for a specific instance of this data object (continued)</p>	<p>An instance must already exist. Discard the event if one does not.</p> <p>An instance should not exist yet. Log a warning if one does. Create if necessary.</p> <p>An instance must not exist yet. Discard the event and log an error if one does. Create if necessary.</p> <p>► Filter events for data definitions</p> <p>This is how you further filter the Event data that is used to update the instance of the Data definition; the Filter Expression is optional. For example, you might want to filter based on customer type (Gold, Silver or Bronze customer and so on).</p> <p>To enter a filter expression, click the ellipses next to the option to open the Event Filter Expression dialog and enter the expression for the filter. You can use the tree structure to navigate to the properties that you want to include in the expression to save time and typing errors. Use the grammar rules to construct your expressions. The grammar rules are described fully in the Using Business Process Insight Guide.</p> <p>► Actions</p> <p>These are the actions that you want to set when the Event is received. These are typically the actions required to update the properties of the Data definition with the data from the Event. The actions are completed in sequence, so the order in which you enter the actions is important. You can use the equals (=) button as a short cut to assign each property of the event to the equivalent property in the Data definition. This is useful where the names and types of properties in the Data and Event definition are the same.</p>

UI Elements	Description
<p>Event is for a specific instance of this data object (continued)</p>	<p>Note that if you have a number of actions and there is an error in one of the actions, the erroneous action fails and subsequent actions are then ignored. All actions up to the failure are completed. An example of when an action might fail is when it is attempting to coerce a string to an integer, when the string contains characters.</p> <p>Do not include semicolons as part of an action expression for Event subscriptions as a semicolon is always assumed to be an expression separator. Make sure that you use semicolons only to separate the expressions for the Data Definition Event Subscription actions.</p> <p>► Terminate the instance of the data definition after handling the event</p> <p>Use this option when the event subscription is for the event that completes the process instance. When this event is received, you want it to terminate the data instance, otherwise the data instance remains in the BPI system. The data instance is marked as Complete and is deleted from the Engine at some point in the future and according to when the Database Instance Cleaner utility is configured to run.</p> <p>Make sure that the data instance is not being used by multiple processes when setting this option, otherwise the data instance might be terminated before all the process instances are complete.</p> <p>You are advised always to have at least one event subscription that terminates the data instance if possible. If you do not have an event subscription that terminates the data instance, the data instance remains in the BPI Instance database marked as Active.</p>

Todo List

Lower part of the Data Definition page that appears when a definition is being viewed or modified. The Todo List maintains a list of all the tasks that need to be completed before the definition can be deployed. For details, see “Todo List” on page 161.

Edit Definition Page

The Event Definition page is where you create and modify business Event definitions for your process. These are the business events that provide the data to update the properties of the Data definition and indirectly progress the Business Process. This data is used to populate the Data definitions that you have created for your process and consists of an Identity and a Properties dialog, which are described below.

To access	Use one of the following: <ul style="list-style-type: none"> ➤ From the BPI Modeler > File > New > Event ➤ From the BPI Modeler Navigator pane > double-click an existing Event definition
Important information	<ul style="list-style-type: none"> ➤ When creating Event definitions for BPI, make sure that the data you are defining for the Business Events is within the range permitted by the database that you are using. ➤ If the menu option for creating a new Event definition is not available, you need to install the Server component of HP Business Process Insight. Without this Server component, you can model Business Processes and map process Activities to IT operational resource CIs; however, you cannot create process models that enable you to monitor individual process instances within Business Service Management. This includes creating Event definitions. All options are visible within the Modeler interface, but some options are cannot be set or modified unless you have installed the BPI Server component of Business Service Management

<p>Important Information (continued)</p>	<ul style="list-style-type: none"> ▶ If the menu option for creating a new Event definition is not available, you need to install the Server component of HP Business Process Insight. Without this Server component, you can model Business Processes and map process Activities to IT operational resource CIs; however, you cannot create process models that enable you to monitor individual process instances within Business Service Management. This includes creating Event definitions. All options are visible within the Modeler interface, but some options are cannot be set or modified unless you have installed the BPI Server component of Business Service Management ▶ The Event Definition Editor is enabled for Business Processes that are created with instance tracking enabled. If you have not enabled instance tracking for a Process Definition, you cannot create Event Definitions for the Process. For details, see “Related Data Tab” on page 177
<p>Relevant tasks</p>	<p>“How to Define Event Definitions” on page 114</p>
<p>See also</p>	<p>“Event Definitions” on page 87</p>

Identity Tab

This is used to define the name and optional description of the Event definition.

- ▶ **Name** — This is a unique name (within the list of Event definitions) and must be between 1 and 40 characters.




Within **openadaptor**, you can create hierarchies of Event names under groups; however, using the BPI Modeler, you can enter only Event names. If you are using groups within **openadaptor**, you can include the groups in the Event definition name. The group is extracted from the Event name (all the characters up to the final backslash). The Event name is then all the characters following the final backslash. You can have between 1 and 40 characters before the final backslash and between 1 and 40 characters after the final backslash.

- ▶ **Description** — Optional free-form field that you can use to document details of the definition that you want to record.

Properties Tab

You enter the details of the individual properties of the Event through this Properties pane.

The Properties user interface elements are described below:

UI Elements	Description
	Insert a new row into a table. Adds a new property row in which you can create a new property.
	Delete. Deletes the selected property.
	Copy properties from another definition. Opens the Copy Properties dialog from which you can select a property from another definition to be inserted as a property for the current Data definition.
Name	Name for the property. An Event property names must be between 1 and 40 characters. The name must start with an alpha character, roman numeral, currency symbol or underscore (_); thereafter the name can consist of the same set of characters, plus numeric characters. Property names must not contain spaces.
Type	This can be a string, double, integer, currency, date, long or Boolean.
Constraint	The constraint is linked to the Type and is relevant only to strings and currency Types. For a string the constraint specifies the maximum length of the string. For currency, this column specifies the ISO 4217 currency code, for example, USD, EUR and GBP.
Description	Optional for your own documentation purposes.

4

Monitor Definer

This chapter includes:

Concepts

- ▶ Business Process Monitor Definer Overview on page 194
- ▶ Run-Time Integration on page 195
- ▶ BPI Database on page 199
- ▶ Monitor Engine on page 201
- ▶ Collection Interval on page 203
- ▶ BPI Monitor Definer Log Files on page 203

Tasks

- ▶ How to Manage the BPI Monitor Definer on page 205

Concepts

Business Process Monitor Definer Overview

This section describes tasks that are specific to the management of your Monitor definitions using the Monitor Definer.

Note: You cannot open or use the Monitor Definer, unless you have installed the BPI Server. The Monitor Definer options appear when the BPI Server is installed and the connectivity between the BPI Server and the BSM Gateway Server has been configured and the BPI Server components are started. This configuration is described in the "Component Configuration - HP Business Service Management Settings" section of the *Business Process Insight Server Administration Guide*.

The Monitor Definer is a Web-based UI that enables you to define Business Process Monitors and monitor instance threshold definitions for deployed processes.

A Business Process Monitor is a business measurement that has a specific meaning within your business and can be used to record information about the Business Process that you are monitoring. Monitor instance thresholds are set on individual monitor instances. When monitor instance thresholds are violated, instance threshold violations are generated and can be reported through the Business Process Insight Application Health pages. You can also configure the Notification Server to send violation messages when a monitor instance threshold is violated.

Within BPI, the tool for defining Business Processes is separated from the tool for defining Business Process Monitors for these processes. You use the BPI Modeler to define your Business Processes and you use the Monitor Definer to define the Business Process Monitors and monitor thresholds for these Business Processes. You define Business Process Monitors for a Business Process after the process has been deployed; this provides more flexibility for defining and modifying Business Process Monitors without the need to redeploy your Business Processes.

Run-Time Integration

When you have defined and deployed your Business Processes and Business Process monitors, you can then track and monitor the health of your Business Process relative to the status of the IT operational resources on which the process Activities depend and on the values of the data being captured by the Business Event Handler.

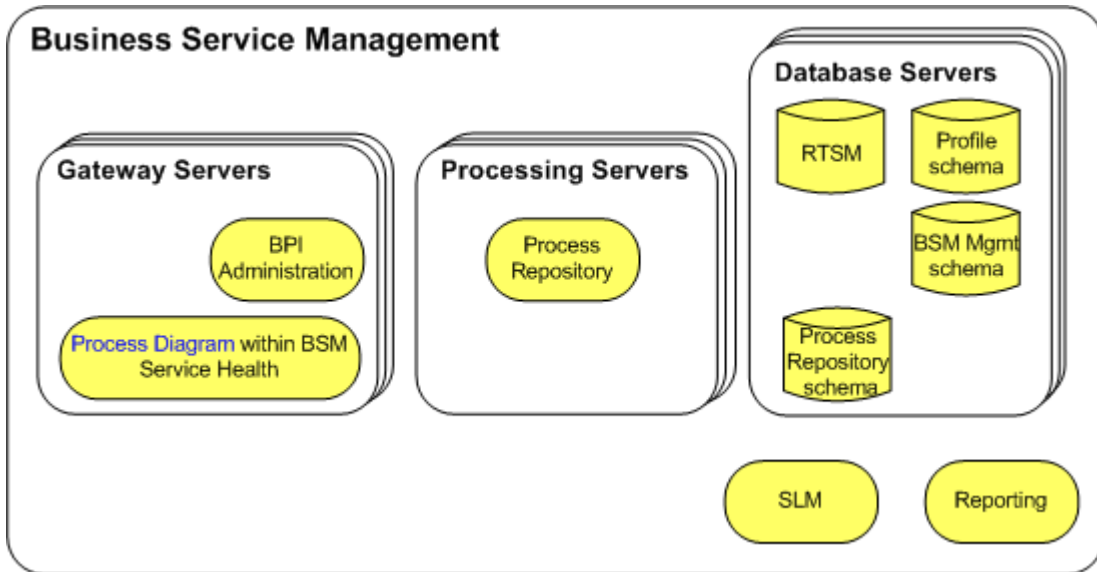
The run-time integration progresses the deployed definitions by the events received through the Business Events Handler. It is through the run-time integration that the business manager tracks the Business Process, or processes, through the BPI Application.

You can use the Monitor Definer without the BPI Server, but to use the full capabilities of the Monitor Definer, you need to install the BPI Server component of Business Process Insight. The following sections list the Monitor Definer capabilities without and with the BPI Server:

- ▶ “Monitoring - Tracking Individual Process Instances is Disabled” on page 196
- ▶ “Monitoring - Tracking Individual Process Instances is Enabled” on page 197

Monitoring - Tracking Individual Process Instances is Disabled

The following diagram shows the components involved for displaying the monitoring data when you do not have the BPI Server installed or you have not enabled tracking of individual process instances.



The following is a list of the key steps involved for monitoring your Business Processes:

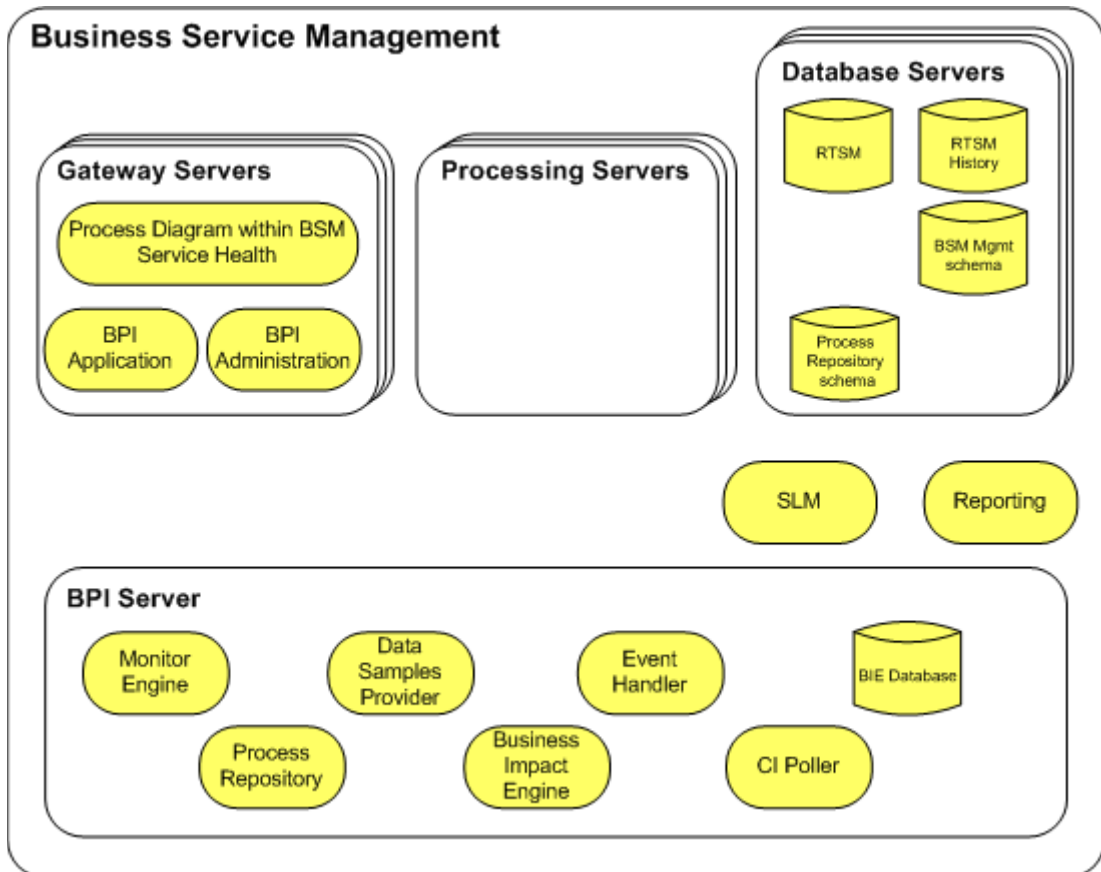
- ▶ Data collectors, such as SiteScope make their data samples available through the Profile database. This data is then available for Reporting and SLM.
- ▶ The data samples collected from other applications are also used for the IT operational resource CIs, which can be mapped to Business Activities.
- ▶ You need to set health indicator objectives on your IT operational resource CIs to be able to monitor status changes.

- BSM calculates the status of the dependencies for the mapped IT operational resource CIs and makes the results available to the Service Health.

Service Health combines these results with the process definition model information (obtained from the Process Repository) and the results are displayed on the Business Process Diagram within Service Health.

Monitoring - Tracking Individual Process Instances is Enabled

The following diagram shows the components involved for displaying the monitoring data when you have the BPI Server installed and you have enabled tracking of individual process instances.



The following is a list of the key steps involved for monitoring your Business Processes. These steps are in addition to those described in “Monitoring - Tracking Individual Process Instances is Disabled” on page 196:

- ▶ In addition to the IT operational resource CIs that are monitored and reported for your Business Processes, BPI receives business events through the Business Event Handler.
- ▶ The business data relating to individual process instances is stored in the BPI Instance database.
- ▶ At the same time as each new Monitor definition is created in the BPI database tables, a Business Process Scope CI is created in the RTSM.
- ▶ Changes to process instance data that impact the Business Process Monitors that you have defined are sent to the Monitor Engine, which in turn updates the relevant tables in the BPI Instance database.
- ▶ The BPI Server periodically sends a set of data samples to the Business Service Management Gateway Server. This period can be configured from the BPI Server Administration Console; see “Component Configuration - HP Business Service Management Settings” in the *Business Process Insight Server Administration Guide*.

The data samples are held on the BPI Server for a configurable length of time, until the Business Service Management acknowledges receipt. If a data sample cannot be delivered in the required time, it is deleted. The values of these data samples are used to evaluate KPIs within the Business Service Management environment.

These data samples can also be used for reporting and SLM.

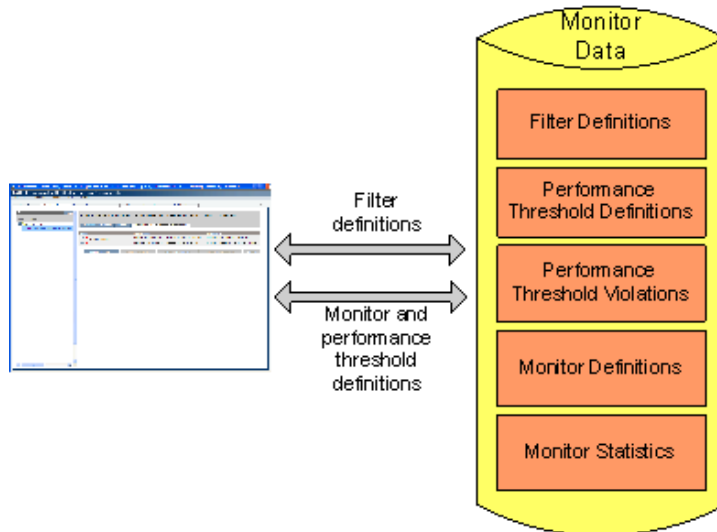
- ▶ The BPI Server polls for the status of CIs to obtain details of the status of the IT operational resources that the process Activities are linked to. This period can be configured from the BPI Server Administration Console on the BPI Server. For more information, see “Component Configuration - HP Business Service Management Settings” in the *Business Process Insight Server Administration Guide*.
- ▶ The business event data and monitor data for the process instances is made available to other BSM components and displayed through the BPI Application Reports, described in more detail in Chapter 8, “Introduction to BPI Application Reports”.

Ongoing changes made to the Processes and Monitors in the BPI database tables are automatically synchronized with the RTSM.

BPI Database

You can also use filters to further target the statistical data that you want to collect. This has the added benefit of reducing the amount of data stored in the database and therefore maintaining the BPI system performance.

The following diagram shows the Business Process Monitor Definer relative to the Business Monitor data stored in the BPI database.



You can define monitors for:

- Single Activities
- Multiple Activities
- Whole process

These monitors can be duration based or Process Value based. In addition, you can define a custom monitor.

Data are collected based on this configuration, and instance thresholds can be defined to report on individual process instances.

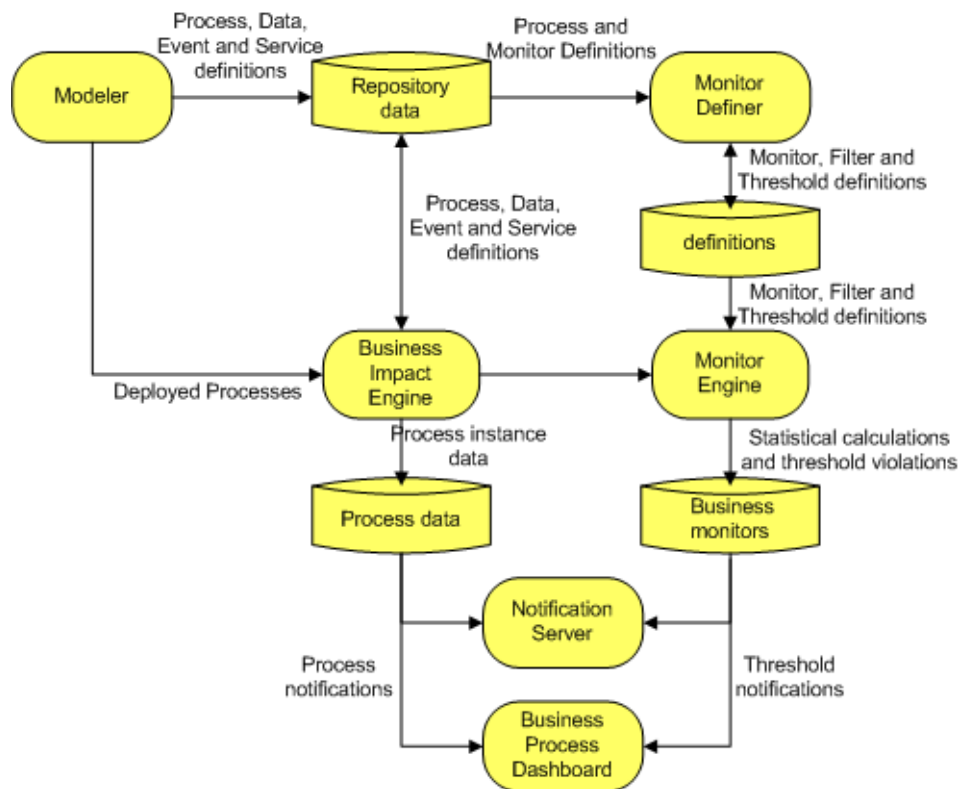
You can also use the Monitor Definer to export Monitor and instance threshold definitions to an XML file, and subsequently import these definitions.

How the Business Process Monitors definer interworks with the Monitor Engine is described in “Monitor Engine” on page 201.

Monitor Engine

The Monitor Engine is the component of the BPI Server that analyzes and provides the statistical results from the Business Process Monitor and monitor instance threshold data that you define. The Monitor Engine takes data about the individual instances from the Business Impact Engine and combines this data with the data you enter through the Monitor Definer to collect and report on the required information about the process.

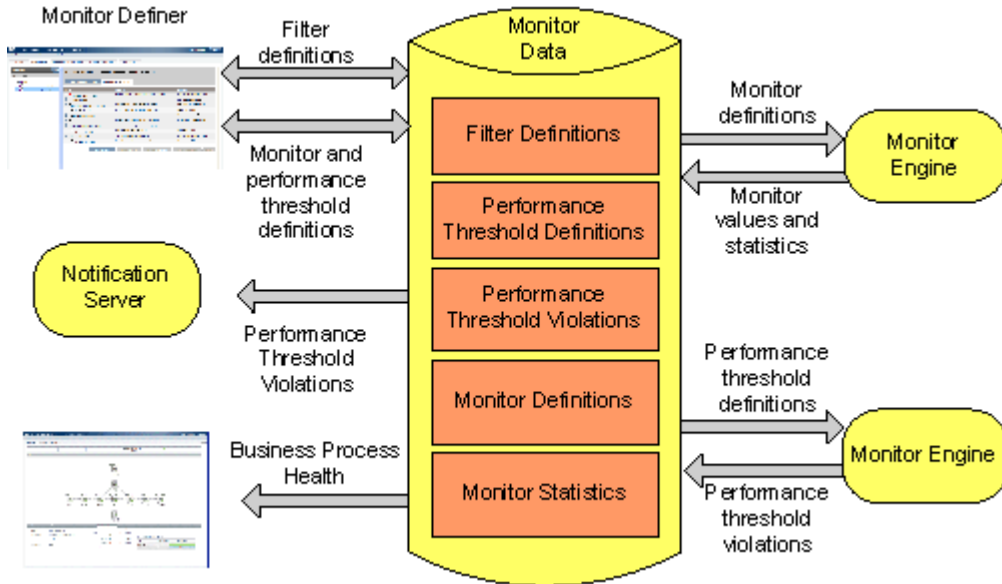
The following diagram shows the relationship between the process impact data and the monitor data that you define.



The Business Process Monitors and monitor thresholds are configured through the Business Process Monitor Definer; see “Business Process Monitor Definer Overview” on page 194.

The Monitor Engine maintains business data for the Business Processes that are deployed according to the Business Process Monitors that you have defined. It also maintains statistical information about the monitor thresholds that are defined.

The following diagram shows how the monitor data is used by the Monitor Engine to report statistics and instance threshold violations to other BPI components.



The statistics that the Monitor Engine calculates are stored in BPI database tables and are used by the Business Process Insight Application Health pages. The database tables also hold information used to determine if any monitor thresholds have been violated. These violations are reported through the Health pages and can also be reported through the Notification Server or other HPOM applications.

Managing the Monitor Engine parameters is described in the "Component Configuration - Monitor Engine" section of the *Business Process Insight Server Administration Guide*, and the architecture for the Monitor Engine and Monitor Definer is described in the "BPI Server Architecture" section of the *Business Process Insight Server Administration Guide*.

Collection Interval

When you install the BPI Server and configure the integration between BPI and Business Service Management Gateway Server, you configure the Data Samples settings. One of the properties of these settings is Data samples send interval (minutes); this is the time interval used to send data samples to Business Service Management. The value for the Data samples send interval becomes the value for the Collection Interval within BPI and you can no longer modify the value for Collection Interval within the Monitor Definer.

If you import a previously exported Business Process Monitor.zip archive file, the value for the imported Collection Interval is imported and recorded; however, when the integration with Business Service Management is enabled, the value for Collection Interval is not used. The value is imported in order that it is available for use if the integration with Business Service Management is subsequently disabled. The value used for the Collection Interval, in the case of importing to a system where the Business Service Management integration is enabled, is the value set for the Data samples send interval.

BPI Monitor Definer Log Files

There are two sets of log files that you need to be familiar with when managing your Business Process Monitors:

► Monitor Engine log files

The Monitor Engine log files are managed in the same way as other BPI Server components and are described in the "Component Configuration - Logging" section of the *Business Process Insight Server Administration Guide*.

► Monitor Definer log files

The Monitor Definer logs messages to the BPI Servlet Engine log file. These messages in the Servlet Engine log file are prefixed with the string Monitor Definer. The Servlet Engine is considered as a component of the BPI Server. The Servlet Engine log file is described in the "Component Configuration - Logging" section of the *Business Process Insight Server Administration Guide*.

Warning Messages in Log Files

Each time a Business Monitor is created with an associated Monitor Threshold or Group, a warning is generated in the Business Process Engine log file. This warning is added by Hibernate and can be ignored; there is not a problem with the Business Monitor.

Tasks

How to Manage the BPI Monitor Definer

The following are the management tasks that you can complete using the BPI Monitor Definer.

- “Open the Monitor Definer” on page 205
- “Export and Import Monitor Definitions” on page 206

For details about creating and modifying monitors, see the Monitor Definer online Help.

Open the Monitor Definer

Before trying to start the BPI Modeler, make sure that the Process Repository component is started on the BPI Server system. Use the BPI Server Administration Console to start the Process Repository as described in the "Starting and Stopping the BPI Server Components" section of the *Business Process Insight Server Administration Guide*.

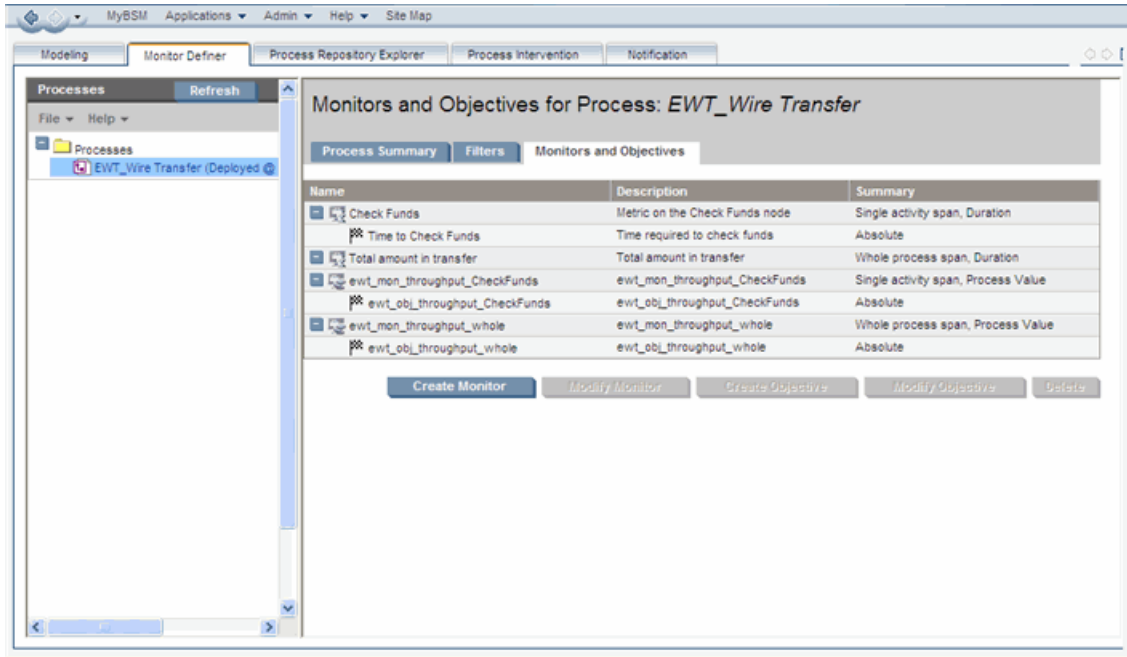
To open the BPI Monitor Definer:

- 1** Select **Admin > Business Process Insight**.

You are presented with a tabbed page that includes a tab for Monitor Definer.

- 2** Click the tab for the Monitor Definer and you are presented with a page listing any processes that are deployed and any monitors defined for these processes.

Following is an example of the layout of the Monitor Definer when you open it.



Export and Import Monitor Definitions

The BPI Monitor Definer has options that enable you to export and subsequently import the Business Process Monitors, monitor thresholds and filters defined for a selected Business Process. You might want to export a Business Process Monitor definition to enable you to create Business Process Monitors for testing and then move these monitors to a production system when they are fully verified.

These definitions can be exported to a .zip archive file, which contains XML files describing the definitions. The .zip archive contains a copy of the monitor definition and some (but not all) information about the parent Process definition. The information relating to the Process definition is that required to uniquely identify the Process definition that the Business Process Monitor applies to. The .zip archive file does not contain all the information relating to files that you might have created for custom Business Process Monitors; it contains the custom monitor definition, but you need to separately manage and export any SQL you have created for the custom monitor definitions.

Be aware that the .zip archive created from the Monitor Definer is not the same as the .zip archive created from the BPI Modeler. You cannot interchange the .zip archives between the two applications, you must import the archive created from the appropriate application. This is because the .zip archive from the Monitor Definer contains sufficient information about the Business Process to enable the Monitor Definer to import the monitor; it does not contain a full definition of the Business Process.

Note: You cannot import a monitor definition until the process definition that the monitor applies to is deployed to the Business Impact Engine. Refer to section “Exporting and Importing” on page 66 for details of exporting and importing process definitions.

Exporting a Business Process Monitor

To export one or more Business Process Monitors, use the Export or Export All options from the File menu in the Monitor Definer Navigation frame.

When you select a Business Process Monitor to export, all the associated monitor instance threshold and filters are also exported. The export is based around the identifier of the Business Process that the Business Process Monitor is linked to. All the information, including monitor thresholds and filters, is exported to XML files, which are then packaged into an overall .zip archive file. The .zip file can then be copied to the destination system to be imported.

When you export a Business Process Monitor, you also need to make a copy of any additional files that you might have created that are associated with the Business Process Monitor; for example, you might have defined a custom monitor. In the case of a custom monitor, you need to make sure that you have a copy of any SQL files that you have created for the custom monitor.

The name of the exported file is based on the Process name, machine name and time that the monitor is exported, so that a unique name is provided for the .zip archive file. If any of the elements of this constructed file name contain non-ASCII characters, the elements are excluded from the file name. This is because Internet Explorer permits only .zip archive file names that contain ASCII characters.

Importing a Business Process Monitor

Before importing a Business Process Monitor, you must have already imported and deployed the Business Process to which the Business Process Monitor is linked.

In addition, if you have defined custom monitors, and you are moving the definitions to a new machine, make sure that you also copy any files that you have created for the custom monitor to the new machine. For example, you might have created SQL files for your custom monitor and this SQL file is not exported as part of the .zip file. If you do not copy the files relating to any custom monitors before importing the Monitor definition and creating the appropriate stored procedures, the import fails.

To import the Business Process Monitor, complete the following steps:

1 Select **File > Import** on the Monitor Definer navigation frame:

The right-hand pane provides a browse button that you can use to navigate to the file where the file that you want to import is located.

2 Select the file that you want to import and click **Open**.

3 Click the **Import Definitions** button.

The Monitor Definer provides a summary of the monitor definitions contained in the zip file and how they will be applied to the processes that are currently defined on your system. You need to check that the monitor definitions in the zip file are being applied to the correct process definitions before importing the file. As an example, you need to make sure that you have not renamed a process since a monitor definition was exported.

4 Select the checkbox next to each set of Business Process Monitors that you want to import from the zip archive file.**5** Click **Import Definitions**.

The Monitor Definer displays a feedback message indicating whether it successfully imported the selected monitor definition.

6 Click **OK** and the Monitor Definer returns to the Monitors and Thresholds page for the process.

If you import monitor definitions which are named identically to monitor definitions that are already defined within the Monitor Definer, they are imported and renamed (appended with a number), to make them unique. Instance threshold names are not changed as they need only be unique for the Monitor definition that they apply to.

5

Process Repository Explorer

This chapter includes:

Concepts

- ▶ Process Repository Explorer Overview on page 212

Tasks

- ▶ How to Use Repository Explorer to Complete Tasks on page 215

Reference

- ▶ Process Repository Explorer User Interface on page 220

Concepts

Process Repository Explorer Overview

The Repository Explorer is a Web-based interface that enables you to view, print and manage the contents of the Process Repository Database. The Repository Database is a set of database tables that hold the data for the Business Processes that you have defined using the BPI Modeler.

Note: You cannot open or use the Process Repository Explorer unless you have installed the BPI Server. The Process Repository Explorer options appear when the BPI Server is installed and the connectivity between the BPI Server and the Business Service Management Gateway Server has been configured. This configuration is described in the "Configuring the BPI Server to Connect to a Gateway Server or Load Balancer" section in the *Business Process Insight Server Administration Guide*.

The data presented by the Repository Explorer contains a super-set of information. It shows definitions that were once deployed, are currently deployed, and definitions that have been edited and not yet deployed.

This is because you might have modified the process within the BPI Modeler, but not yet redeployed the process.

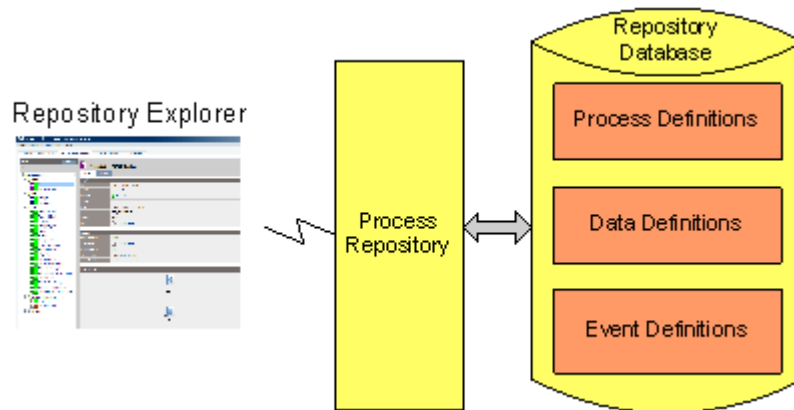
Using the BPI Modeler, you can create, modify and subsequently deploy a definition. When you have deployed the definition, you might then go on and revise the definition and significantly change it. This means that, unless you have exported the version of the definition that you previously deployed, you no longer have a copy of it within the BPI Modeler. You can therefore be in the position of having a deployed process, but no copy of the source for the process. For information about creating definitions using the BPI Modeler, see Chapter 3, "Modeler Management."

The Repository Explorer enables you to always access the source to versions of processes that you have created and deployed.

Using the Repository Explorer you can:

- See whether a process is defined for instance tracking or not.
- View all the details of your currently deployed processes in a tabular form.
- Browse and print definitions.
- Export the latest version of a deployed definition, or latest versions of all deployed definitions.
- Import previously exported definitions.
- Remove definitions and move them to the Recycled folder within the Repository Explorer. And permanently remove deleted definitions from the Recycled folder.
- Restore a definition that has been deleted, but not permanently removed, using the BPI Modeler or Repository Explorer.
- Undeploy and permanently remove definitions that have completed from the Recycled folder.

The Repository Explorer is a view on the Process Repository data, which is created using the BPI Modeler and stored in the Process Repository database tables. You can browse and manage the data using the Repository Server as shown below.



Process Repository Explorer Log Files

The Repository Explorer uses the Repository Server to access its data and the Repository Server logging is recorded under Process Repository in the BPI Server Administration Console. For details of the logging settings that are used for BPI components, see “Component Configuration - Logging” in the *Business Process Insight Server Administration Guide*.

In addition, you can find log messages for the Repository Explorer in the Servlet Engine log file.

Tasks

How to Use Repository Explorer to Complete Tasks

The following are the tasks that you can complete using the Repository Explorer:

- “Open the Repository Explorer” on page 215
- “Browse Definitions” on page 216
- “Print Definitions” on page 216
- “Delete Definitions” on page 216
- “Export Process Definitions” on page 216
- “Undeploy a Process Definition” on page 219
- “Restore a Definition” on page 219

Open the Repository Explorer

Before trying to use the BPI Repository Explorer, make sure that the Process Repository and Servlet Engine components are started on the BPI Server system. Use the BPI Server Administration Console to start these components, as described in the "Starting and Stopping the BPI Server Components" section of the *Business Process Insight Server Administration Guide*.

To open the BPI Repository Explorer, complete the following steps:

- 1** Make sure that the Process Repository and Servlet Engine components are started.
- 2** Select **Admin > Business Process Insight**.

Browse Definitions

Using the Repository Explorer, you can easily browse the current and earlier revisions of a definition to quickly see how they were defined. You need to be able to do this as the BPI Modeler is optimized for editing and not for browsing and therefore does not present the information relating to Process, Data and Event definitions in an easy-to-view way.

Print Definitions

You can also print definitions using the print option at the top right-hand corner of the UI. This print option enables you to print the contents of the right-hand pane in the Details view.

Delete Definitions

You can delete any definition using the Repository Explorer, provided it is not the current version of the definition that has instances currently running in the Business Impact Engine.

To delete a definition:

- 1 Select the definition that you want to delete from the Navigator Frame (see “Navigator Frame” on page 221).
- 2 Click the History tab (see “History Tab” on page 225).
- 3 Select the check box for the definition, or definitions that you want to delete.
- 4 Click **Delete**.

Export Process Definitions

The Repository Explorer can be used to export any revision of a definition from the Process Repository.

Note: This definition is compatible with the Modeler and not the Monitor Definer; it does not contain any Business Process Monitor information.

You might have multiple versions of a definition where you have deployed the Process definition multiple times. You can also export the latest version of a definition using the BPI Modeler; however, you cannot export earlier revisions of a definition using the Modeler, you can do this only through the Repository Explorer.

In addition to exporting individual versions of a definition, you can also choose to export the latest revision of all definitions from the Process Repository; you might want to do this to move all the latest definitions to another BPI Server.

You can export single definitions or all definitions:

- ▶ **single definitions**, see “Exporting a Single Definition” on page 217.

You might want to do this to take a copy of the latest revision of the definitions. The latest version of the definition is exported to a .zip file. Exporting the definitions through the Repository Explorer, or the BPI Modeler, also ensures that the definitions are consistent within themselves as the definition and all its dependencies are exported.

- ▶ **all definitions**, see “Exporting All Definitions” on page 218.

You might want to do this to move the definitions from one BPI Server to another BPI Server, for example, from a development system to a staging system. The latest versions of all the definitions within the Process Repository are exported to a .zip file, including all the dependencies.

Exporting a Single Definition

To export a definition, complete the following steps:

- 1** Select the definition that you want to export from the left-hand Navigator pane.
- 2** Select **File > Export** in the Navigation pane.
- 3** Select the **History** tab in the right-hand pane.
- 4** Select the revision of the definition that you want to export from the list.
- 5** Click the **Export** button in the right-hand pane.

The right-hand pane lists the definition that will be exported.

- 6 Click the **Download** button to continue to export the definition.

You are presented with your browser's **File Download** dialog.

- 7 Select **Save**, to save the definition as a .zip file.

The **Save As** dialog displays, where you can specify a file name and directory location for the .zip file.

- 8 Enter the details of the file name and click **Save**.

The file is saved and a **Download complete** dialog is displayed.

- 9 Click **Close** and the export is complete.

Exporting All Definitions

To export all definitions, complete the following steps:

- 1 Select **File > Export All** in the Navigation pane.

The right-hand pane lists the definitions that will be exported.

- 2 Click the **Download** button to continue to export the definition.

You are presented with your browser's **File Download** dialog.

- 3 Select **Save**, to save the definition as a .zip file.

The **Save As** dialog displays, where you can specify a file name and directory location for the .zip file.

- 4 Enter the details of the file name and click **Save**.

The file is saved and a **Download complete** dialog is displayed.

- 5 Click **Close** and the export is complete.

Undeploy a Process Definition

You cannot use the Repository Explorer to undeploy a specific definition. You must use the BPI Modeler to do this. You can use the **Cleanup Recycled** option within the Repository Explorer to undeploy and delete all current revisions of definitions held in the **Recycled** folder; see “Navigator Frame” on page 221.

Be aware that undeploying an Event definition, which is referenced by a Data definition that has current active instances, means that these data instances might not be able to progress. If this is the case, you can use the Process Intervention Client to delete the individual Data definition instances.

Restore a Definition

The Repository Explorer can be used to restore definitions that have been deleted using the BPI Modeler. These definitions are listed in the Recycled folder on the Navigator frame.

You can access the **Restore** option from the **File** menu on the Navigator frame. The steps for restoring a previously deleted definition are as follows:

- 1** Select the definition that you want to restore from the Recycled folder.
- 2** Select **File > Restore** in the Navigator frame.

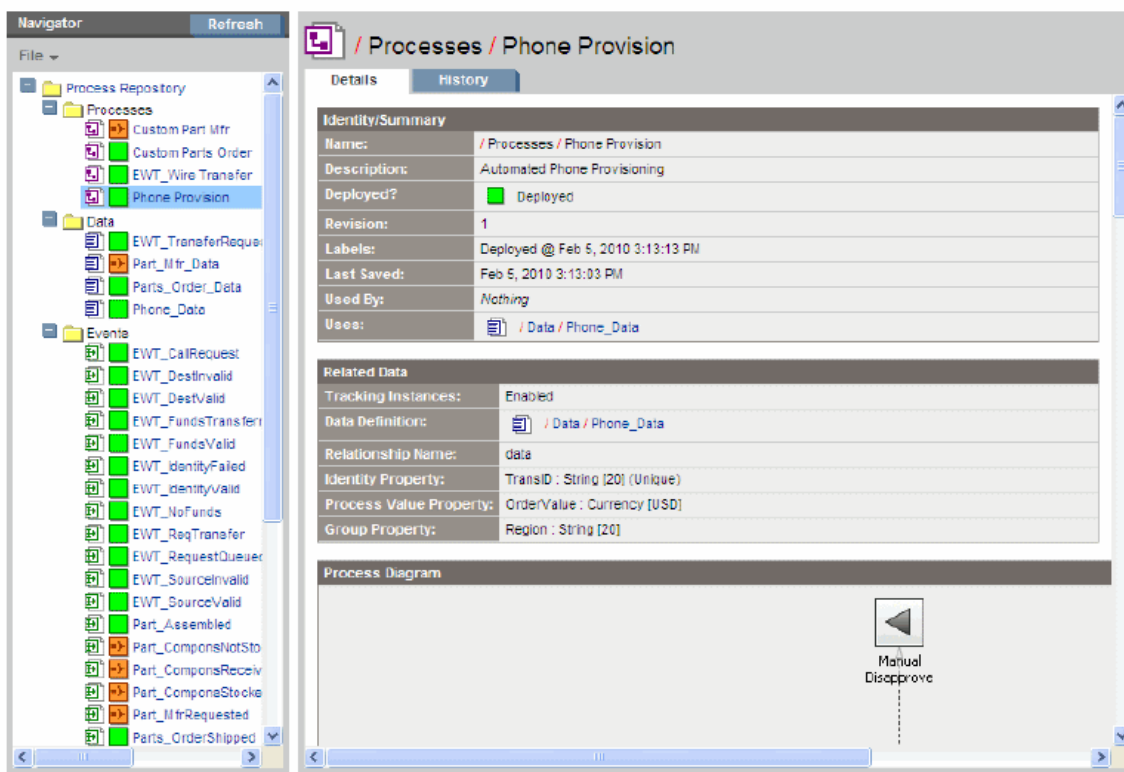
The definition is restored to the Process Repository and is removed from the Recycled folder in the Repository Explorer. The restored definition appears under the appropriate definition list in the Repository Explorer.

Reference

Process Repository Explorer User Interface

The Process Repository Explorer page enables you to view, print and manage the contents of the Process Repository Database.

Following is an example of the layout of the BPI Repository Explorer.



The screenshot displays the Process Repository Explorer interface. On the left is a 'Navigator' pane with a 'Refresh' button and a tree view of the repository structure. The main area shows the details for the process '/ Processes / Phone Provision'.

Navigator:

- Process Repository
 - Processes
 - Custom Part Mfr
 - Custom Parts Order
 - EWT_Wire Transfer
 - Phone Provision
 - Data
 - EWT_TransferRequest
 - Part_Mfr_Data
 - Parts_Order_Data
 - Phone_Data
 - Events
 - EWT_CallRequest
 - EWT_DestInvalid
 - EWT_DestValid
 - EWT_FundsTransfer
 - EWT_FundsValid
 - EWT_IdentityFailed
 - EWT_IdentityValid
 - EWT_NoFunds
 - EWT_ReqTransfer
 - EWT_RequestQueue
 - EWT_SourceInvalid
 - EWT_SourceValid
 - Part_Assembled
 - Part_ComponentsNotSto
 - Part_ComponentsReceiv
 - Part_ComponentsSto
 - Part_MfrRequested
 - Parts_OrderShipped

Process Details: / Processes / Phone Provision

Identity/Summary

Name:	/ Processes / Phone Provision
Description:	Automated Phone Provisioning
Deployed?	<input checked="" type="checkbox"/> Deployed
Revision:	1
Labels:	Deployed @ Feb 5, 2010 3:13:13 PM
Last Saved:	Feb 5, 2010 3:13:03 PM
Used By:	Nothing
Uses:	/ Data / Phone_Data

Related Data

Tracking Instances:	Enabled
Data Definition:	/ Data / Phone_Data
Relationship Name:	data
Identity Property:	TransID : String [20] (Unique)
Process Value Property:	OrderValue : Currency [USD]
Group Property:	Region : String [20]

Process Diagram

Manual Disapprove

To access	Admin > Business Process Insight > Process Repository Explorer
Relevant tasks	“How to Use Repository Explorer to Complete Tasks” on page 215
See also	“Process Repository Explorer Overview” on page 212

The Repository Explorer consists of the following main areas:

- “Navigator Frame” on page 221
- “Details Tab” on page 223
- “History Tab” on page 225

Navigator Frame

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<folders>	<p>Process, Data and Event definitions have been created in the BPI Modeler.</p> <p>The deployment status (deployed or undeployed) of each definition is displayed using the same icons used within the BPI Modeler. For details on the Modeler, see Chapter 3, “Modeler Management.”</p> <p>Recycled folder, which lists definitions that have been deleted from the BPI Modeler. When you delete a definition using the BPI Modeler, the definition is moved to this Recycled folder, which is accessible only from the Repository Explorer.</p>

UI Elements	Description
File	<p>The menu includes the following options:</p> <ul style="list-style-type: none"> ▶ Export. Enables you to export the selected definition to a zip file. For details see “Export Process Definitions” on page 216. ▶ Export All. Enables you to export the latest revision of all the definitions in the Navigator frame to a zip file. For details see “Export Process Definitions” on page 216. ▶ Restore. This option is available when you select a definition from the Recycled folder. It restores the definition back to its original location in the Process Repository, at the point where it was deleted in the BPI Modeler. For details see “Restore a Definition” on page 219. ▶ Cleanup Recycled. This option deletes all definitions in the Recycled folder and undeploys definitions that are deployed. If a definition is still in use by the Business Impact Engine, it is not deleted or undeployed. When all instances of these definitions have completed, these entries can then also be removed using the Cleanup Recycled option and the entries no longer appear in the interfaces. The instances of definitions are deleted by the Business Impact Engine using the Engine Instance Cleaner. <p>Note: When you select a definition in the Navigator frame, the right-hand frame opens at the Details tab as described in “Details Tab” on page 223. You can select the History tab described in “History Tab” on page 225.</p>
Refresh	Click to refresh the Navigator frame to be up-to-date with the latest definitions that have been recently entered into the Process Repository using the BPI Modeler.

Details Tab

The **Details** tab provides details of the definition that you have selected in the Navigator frame. Much of the information listed under the **Details** tab can be determined from the BPI Modeler. However, the Repository Explorer provides the information in a structured form, which makes it easier to reference and print.

The information listed under the **Details** tab varies according to the type of definition selected in the Navigator frame: Process, Data, or Events. For more information, see Chapter 3, “Modeler Management.”

Following is an overview of all the sections under the **Details** tab for all the definitions:

UI Elements	Description
Activities	<p>This section appears only for a Process definition and lists details of the individual Activities that make up the Process definition, including:</p> <ul style="list-style-type: none"> ▶ Name of the Activity: shown next to the icon for the Activity. ▶ Type of Activity: Start, End, Junction or Business Activity. ▶ Start Condition: associated progression rule. ▶ Complete Condition: associated progression rule. ▶ Image File: File name of the image selected for the Activity's icon. ▶ Related CIs: List of any CIs that the Activity is linked to.
Checked Arcs	<p>This section appears only for a Process definition and lists details of the arcs that have been defined as Checked Arcs for the Process definition. For details, see “Check Sequence Arc” on page 82.</p>

UI Elements	Description
Identity/Summary	<p>This section appears for all the definitions and lists an overview, or summary, of the definition. This includes information that you have entered relating to the definition using the BPI Modeler, and information relating to the revision of the definition.</p> <p>This section also lists the revision number of the definition and details of the other definitions that the selected definition uses and is used by.</p>
Process Diagram	<p>This section appears only for a Process definition and shows the Process Diagram of the selected process. It is the same Process Diagram as shown in the BPI Modeler.</p>
Properties	<p>This section appears for Data and Event definitions and lists details of the properties that have been defined for the selected definition.</p>
Related Data	<p>This section appears only for a Process definition and lists details of the Data definition that has been defined as the Related Data definition for the selected Process definition. This section includes whether the option to track instances has been enabled for the selected process and whether there is a Group property for collecting data by group.</p>

UI Elements	Description
Subscriptions	<p>This section appears only for a Data definition and lists details of the Event subscriptions related to the Data definition and includes:</p> <ul style="list-style-type: none"> ▶ Name of the subscription, which is shown adjacent to the icon for the subscription. ▶ Subscription Description: Description as entered in the Modeler. ▶ Event Binding Expression: Binding specified to associate a specific event property from the Business Event to the corresponding Data Definition key property. ▶ Creation Option: Conditions under which you have requested that the Event definition can be created. ▶ Filter Expression: Additional filtering that you can define to be applied to the incoming business event. ▶ Actions: Action that you have specified for extracting the required properties from the Business Event in order that they can be placed into the Data Definition.
ToDo List	<p>This section appears for all the definitions and lists the content of the current to-do list for the selected definition.</p>

History Tab

The History tab provides a page tabulating the details of the revision history related to the selected definition in the Revision History table.

These details include:

- ▶ Revision number
- ▶ Deployment status
- ▶ Name of process as defined in the Modeler
- ▶ Date the revision was last saved
- ▶ Description (from the Description field in the definition)
- ▶ Labels, which is the date and time that the revision was deployed.

Each entry in the table has a check box which you can select (and clear). When you select the check box for one, or more, of the definitions in the table, the **Export** and **Delete** options are made available. The **Export** option is available only if you select a single entry. If you select more than one definition, or do not select any definitions, the **Export** option is not available.

If you want to export a definition on the Revision History table, select the definition, click the **Export** button and then follow the instructions that are presented to you by the Repository Explorer.

There is also a delete option available for each revision of the definition. You cannot delete a definition that is currently being processed by the Business Impact Engine, if you do try to delete such a definition, the Repository Explorer issues a warning message and does not permit the delete action to progress.

You can select any version of a definition to delete, including the current version of a definition. In the case of the current definition, the Repository Explorer issues a warning message for you to confirm the delete action and then continues.

Caution: You cannot recover any definition that is deleted using the Repository Explorer.

6

Process Intervention

This chapter includes:

Concepts

- ▶ Process Intervention Overview on page 228
- ▶ Why Use the Process Intervention Client on page 229

Tasks

- ▶ How to Use the Process Intervention Client on page 232

Reference

- ▶ Process Intervention User Interface on page 239

Concepts

Process Intervention Overview

This section describes how you can make changes to your Business Process data, and delete completed instances of Process and Data definitions using the Process Intervention Client.

You might want to modify or delete deployed Process instances to resolve problems with the process, or its data. This is usually required after a period of new development or where progression rules are not behaving as expected; for example, you might need to:

- ▶ Manually progress and delete Process instances.
- ▶ Update and delete Data definition instances.

You use the Process Intervention Client to remove individual Process instances or Data instances from the BPI Instance database. If you want to delete several completed or active instances on a regular basis you should use the Engine Instance Cleaner parameters as described in the "Deleting Completed Instances from the Database" chapter of the *Business Process Insight Server Administration Guide*.

Note: When you remove process and Data instances from the BPI Instance database, they are not removed from the BPI Profile database, which contains aggregated data for reports. If the Profile database becomes too large, you can use the Partition and Purging Manager as described in "Partitioning and Purging Historical Data from Profile Databases" in *Platform Administration*.

Why Use the Process Intervention Client

When you use the Process Intervention Client to delete or modify definitions and instances, you have identified an anomaly using the Business Process Insight Application, and are therefore using the Process Intervention Client to solve a specific problem. In this case, you have the identifier of the definition that you want to modify and you can enter this identifier directly on the search page to access the definition that you want to modify. Alternatively, you can use the Process Intervention Client's filtering capability to search for the instance that you want.

You need to be aware of the following when using the Process Intervention Client:

- ▶ When selecting the option to delete a Process and associated Data definition, make sure that the Data definition is not also a dependency for other Process definitions. If the Process Intervention Client detects that by deleting the Data definition other deployed processes are affected, it presents you with a page that lists all the processes that also depend on the Data definition, where appropriate.
- ▶ When you select the option to delete a Data instance, or a Process instance including all its Data instances, you can potentially leave other Process instances in an indeterminate state.

This is a similar scenario to the previous bullet describing Process and Data definitions; however, in the case of instances, the Business Impact Engine cannot determine any relationships between the Data instance that is being deleted and other Process instances that might have a dependency on it.

If you do delete a Data instance and there are Process instances that depend on it, the process can no longer progress.

If you want to delete a significant number of Process instances or Data instances, the quickest way to achieve this is to delete the Process definition or Data definition; however, this deletes all instances of the Process and Data definitions, including any active instances. You can then redeploy the Process and Data definitions using the BPI Modeler.

The following are some examples of why you might want to use the Process Intervention Client:

- ▶ Where a Process instance has progressed through a process, but one or more Activities that should be complete still appear as active.

You can use the Process Intervention Client to change the state of the active Business Activities to **Complete**. Activities can get into this state if you have manually progressed a Process instance, for example, when an application that usually provides the service is not available and you have substituted another application to complete the Activity.

- ▶ When the start and complete conditions for an Activity are incorrect and therefore cannot be satisfied. In this case, you might want to delete all instances of the process and any associated process data.
- ▶ Where you want to progress a specific Process instance to its completion, for example, there might be an order processing instance waiting for an automated system to enter credit card information, and the automated system is not operational. In this case, you can modify a Data instance to add credit card information manually and progress the order for a customer.
- ▶ To remove erroneous processes to tidy up your system. You might need to do this if you have been developing new processes and want to remove older versions, which are no longer required.
- ▶ Where you want to search for all Process instances over a certain age and remove them. You can also do this using the instance cleaner parameters tools (see the "Deleting Completed Instances from the Database" chapter of the *Business Process Insight Server Administration Guide*). However, you might not want to remove all the Process instances, just for one specific process.
- ▶ To delete an orphaned Data definition that is not linked to a Process definition, or perhaps where the Data definition was linked to a Process that has been deleted.
- ▶ To test your BPI system. You might want to delete all the active Data definitions to reset the system.
- ▶ To reset the totals and averages for Process and Data definitions. You might want to do this periodically (daily, weekly, monthly) so you can see the totals and averages in terms of a known period.

- To manually synchronize the BPI CIs with the RTSM for reasons such as:
 - An earlier synchronization failed when you deployed a definition using the Modeler, and you want to invoke another one immediately and not wait for the background synchronization to run.
 - CIs have been deleted from the RTSM in error and you want to reinstate them. In this case, the synchronization adds, removes and updates CIs for the latest installation of BPI (including upgrades). If you have previously installed BPI and then removed it without undeploying definitions, these definitions are not synchronized.

Using the **Synchronize with the RTSM** option to delete all existing BPI CIs from the RTSM provides the option to remove all BPI-related CIs regardless of who or what created them. The delete action is completed before the synchronization is started. This option is useful if you want to clean out CIs that have been created by prior BPI installations.

Note: If you want to clean up your development system, it is recommended that you use the Process Intervention Client to remove the definitions and all their instances from the Business Impact Engine and then redeploy the process or processes that you want to use.

Tasks

How to Use the Process Intervention Client

The following are the tasks that you can complete using the Process Intervention Client.

- ▶ “Delete Process or Data Definitions and Clear Data” on page 232
- ▶ “Delete Instances” on page 233
- ▶ “Modify the Data within a Data Instance” on page 233
- ▶ “Search for Specific Instances” on page 234
- ▶ “Edit the Status of the Activities in the Process Diagram” on page 236
- ▶ “Synchronize with the RTSM” on page 238

Before completing any of these tasks, you are advised to read “Why Use the Process Intervention Client” on page 229, which provides information about the possible impacts of making these changes.

Delete Process or Data Definitions and Clear Data

To delete or clear Process or Data definitions:

- 1** Open the Process Intervention page.
- 2** Select the **Process Definitions** or **Data Definitions** option as appropriate.
- 3** Select the Process or Data definition you want to edit.
- 4** If you select the Process definition, choose one or more of the following options and click **OK** (for descriptions of these options, see “Process Definition Page” on page 240):

Delete Process and Monitor Definitions and instances

Delete Process, Monitor and Data Definitions and all related instances

Clear Average Time and Total Instance Count (Process and Activities)

- 5** If you select the Data definition, choose one or more of the following options and click **OK** (for descriptions of these options, see “Data Definitions Page” on page 246):

Delete Data Definitions and instances

Delete Average Time and Total Instance Count

To delete individual instances and not the Process or Data definition, see the next section, “Delete Instances” on page 233.

Delete Instances

To delete instances of a Process or Data definition:

- 1** Open the Process Intervention page.
- 2** Select the **Process Definitions** or **Data Definitions** option as appropriate.
- 3** Select the Process or Data definition you want to edit.
- 4** Click the **Search** link to open the <Process or Data> Instance Search dialog.

For information about completing the search criteria, see “Search for Specific Instances” on page 234.

- 5** Enter the search criteria or leave the form blank and click the **Search** button to initiate the filter.

The <Process or Data> Instance List displays.

- 6** To delete specific instances, select one or more instances, then click **Delete**.
- 7** To delete all instances, click **Select All**, then click **Delete**.

Modify the Data within a Data Instance

To modify the data in a Data instance:

- 1** Open the Process Intervention page.
- 2** Select the **Data Definitions** option.
- 3** Select the Data definition you want to edit.

- 4 Click the **Search** link to open the Data Instance Search dialog.

For information about completing the search criteria, see “Search for Specific Instances” on page 234.

- 5 Enter the search criteria or leave the form blank and click the **Search** button to initiate the filter.

The Data Instance List displays.

- 6 Select the instance that you want to modify and click the **Edit** button at the bottom of the page.

The Data Instance details dialog displays with the criteria for the selected instance in an editable form.

- 7 Modify the instance as follows:

- To change the criteria for one or more fields, edit the text, click the **Amend** check box next to each field you are changing, then click **OK**.
- To set the criteria for one or more fields to **Null**, click the **Null** check box and the **Amend** check box next to each field you are changing, then click **OK**.

Note: You must check the Amend check box for the criteria to be changed in the BPI Instance database. Otherwise, clicking OK does not change the criteria.

- To clear changes you made before clicking **OK**, click the **Reset** button. After you click **OK**, the instance is changed in the database.

- 8 You can continue and make changes to other instances in the same way, or click **Cancel** to return to the Process Intervention page.

Search for Specific Instances

To search for a specific instance of a Process or Data definition:

- 1 Open the Process Intervention page.
- 2 Select the **Process Definitions** or **Data Definitions** option as appropriate.

3 Click the **Search** link for the selected definition.

The <Process or Data> Instance Search dialog displays. The search dialog varies according to whether you are searching for a Process or a Data instance.

4 Enter the criteria for the search as appropriate.

- ▶ For a Process instance, you can enter a Process instance identifier directly, or you can filter for instances according to the following criteria:
 - ▶ Process instances with a specific identifier and value for the Process Value parameter.
 - ▶ Process instances within specified time periods.
 - ▶ Process instances with a particular status, for example: **Active** or **Completed**.
- ▶ For a Data instance, the criteria on the form directly reflects the attributes in the Data properties of the Data definition in the Modeler. You can filter for instances according to the attributes set in the Modeler.

For example, if the **Type** attribute is set for a Data instance as an Integer, the **Type** field displays on the form where you would enter a numeric value.

5 Click the **Search** button to initiate the search. If you want to return to the previous screen click **Cancel**.

You can leave the search criteria blank, in which case Process Intervention returns all the instances for the selected definition.

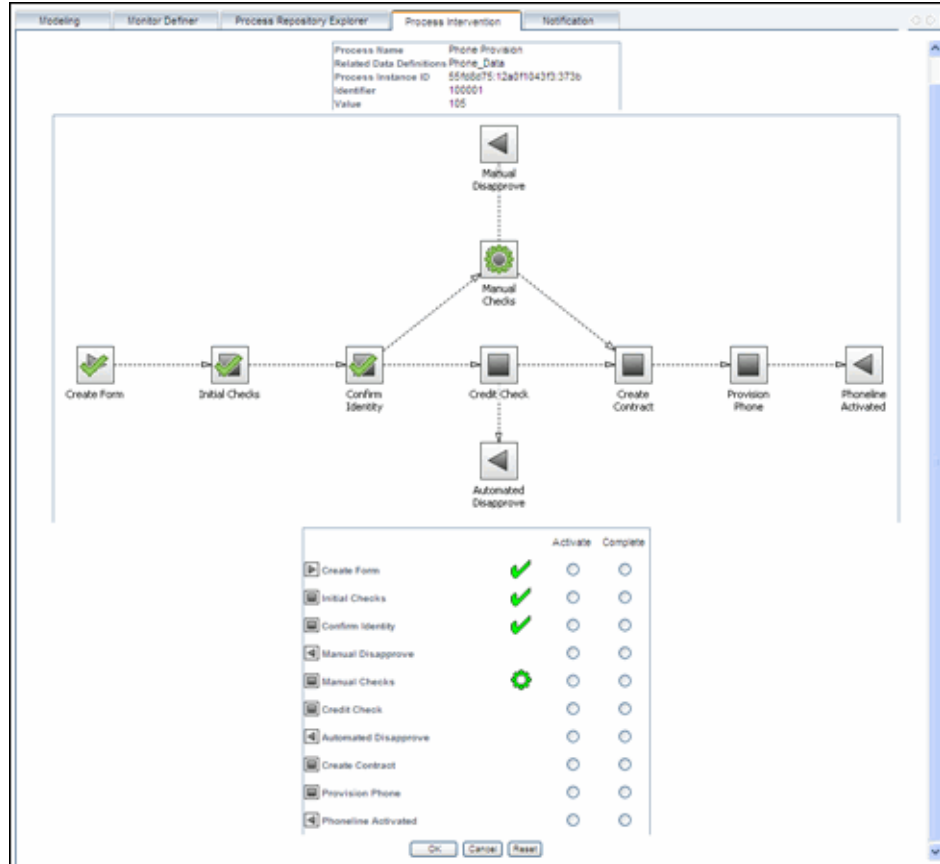
Edit the Status of the Activities in the Process Diagram

The Process Diagram shows the status (such as **Activated** or **Completed**) of each Activity in the Process definition. You can progress Process instances from this option by manually activating or completing Activities in the process.

To edit the status of Activities in the Process Diagram, complete the following steps:

- 1** Open the Process Intervention page.
- 2** Select the **Process Definitions** option.
- 3** Click the **Search** link to open the Process Instance Search dialog.
For information about completing the search criteria, see “Search for Specific Instances” on page 234.
- 4** Enter the search criteria or leave the form blank and click the **Search** button to initiate the filter.
The Process Instance List displays.
- 5** Select the instance that you want to modify in the Process Diagram and click **Edit**.

The Process Diagram displays the status of each Activity as shown in the following example:



- 6** You can **Activate** or **Complete** the Activity by clicking in the appropriate button next to the Activity. This change overrides the BPI Instance database.

The check mark indicates that the Activity instance has completed at least once.

The cog wheel indicates that the Activity instance has been activated (started).

You can click the **Reset** button to clear changes before you click **OK**.

- 7 Click **OK** and any changes you made are shown on the Process Diagram.
- 8 You can continue and make changes to other instances in the same way, or click **Cancel** to return to the Process Intervention page.

Synchronize with the RTSM

To synchronize the BPI definitions with those held in the RTSM, complete the following steps:

- 1 Open the Process Intervention page.
- 2 Select the **Synchronize with the RTSM** option.

You have the option to delete all existing BPI CIs from the RTSM before synchronizing. This is useful if there are CIs in the RTSM that have been created by previous installations and processes were not undeployed before BPI was uninstalled.
- 3 Select the check box if you want to delete all existing BPI CIs, clear the check box if you do not want to delete them.
- 4 Click the **Synchronize** button to begin the synchronization.

Reference

Process Intervention User Interface

This section describes:

- ▶ Process Definition Page on page 240
- ▶ Data Definitions Page on page 246
- ▶ Synchronize with the RTSM on page 249

Process Definition Page

The Process Definition page enables you to delete and modify deployed Process, Monitor or Data definitions and instances from the BPI Instance database.

Note: To open or use the Process Intervention page, you must have installed the BPI Server and configured the connectivity between the BPI Server and the Business Service Management Gateway Server. This configuration is described in the "Component Configuration - HP Business Service Management Settings" section of the *Business Process Insight Server Administration Guide*.

To access	Admin > Business Process Insight > Process Intervention Tab > Process Definitions
Important information	<p>For details on the affects of deleting or modifying Process definitions or Process instances, see "Why Use the Process Intervention Client" on page 229.</p> <p>The Process definitions within the Modeler are not impacted by the actions of the Process Intervention Client, so you can redeploy the Process. However, Activated and Completed instances of the Process are potentially impacted by changes made through the Process Intervention Client.</p>
Relevant tasks	"How to Use the Process Intervention Client" on page 232

Process Definition List

The following table describes the user interface elements of the Process Definition List (unlabeled UI elements are shown in angle brackets).

UI Elements	Description
Delete Process and Monitor Definitions and instances	Deletes all Process and Monitor definitions and their associated instances from the BPI Instance database.
Delete Process, Monitor and Data Definitions and all related instances	Deletes all Process, Monitor, and Data definitions and their associated instances from the BPI Instance database.
Clear Average Time and Total Instance Count (Process and Activities)	Resets the total instance count shown in the Process Diagram. It also resets the average duration which is not currently displayed in the UI.
Search	Opens the Process Instance Search window where you can filter for specific Process instances or see all of them. For details, see “Process Instance Search” on page 242.

Process Instance Search

The Process Instance search criteria, described in the following table, correlates with the Process definition's Related Data properties, set in the Modeler. For details, see Chapter 3, "Modeler Management."

The following table describes the user interface elements of the Process Instance Search dialog.

UI Elements	Description
Identifier	<p>Unique number that identifies the Process instance. For more details on the identifier, see "Instances Dialog Settings for a Business Process" on page 338.</p> <p>This identifier can also be seen when drilling down to the Process Instances Dialog from the Health page, see "Process Instances Dialog" on page 336</p> <p>The identifier is set in the Modeler's Process Editor. For details, see Chapter 3, "Modeler Management."</p>
Value	<p>The content of the Value attribute for the listed Process instance.</p> <p>Value is based on the Process Value property of the Business Process. The Process Value is configured when you create the Business Process in the Modeler. The value is typically assigned from a Business Event when the process is Active.</p>
Start Time	The time that the Process instance fulfilled the Start Condition for the Start Activity.
End Time	The time that the Process instance fulfilled the End Condition for the End Activity, if applicable.

UI Elements	Description
Status	<p>The status of the Process instances that you want to list. Select the value Any to list all Process instances in all states.</p> <p>Select one of the following;</p> <ul style="list-style-type: none"> ➤ Any ➤ Healthy ➤ At Risk ➤ Blocked ➤ Completed <p>See “Process Status” on page 315 for descriptions of the status values.</p>
Process Instance ID	Unique identifier for the Process instance.
Search button	<p>Opens the Process Instance List. For details, see “Process Instance List” on page 244.</p> <ul style="list-style-type: none"> ➤ If search criteria was entered, the list shows only the Process instances that match the search criteria. ➤ If the search criteria is left blank, the list shows all Process instances for the selected Process definition; see “Process Instance List” on page 244. <p>For instructions on setting the search criteria, see “Search for Specific Instances” on page 234.</p>
Clear Form	Clears all changes before clicking OK .

Process Instance List

The Process Instance List shows in tabular form, all the Process instances that matched the search criteria, and the attributes for each instance.

The following table describes the user interface elements of the Process Instance List (unlabeled UI elements are shown in angle brackets).

UI Elements	Description
Edit	Displays the Process Diagram, which shows the status of each Activity in the Process, and enables you to edit the Activity status. For details, see “Process Instance Diagram” on page 244.
Delete	Removes one or more selected Process instances from the BPI Instance database.
Select All	Selects all the Process instances in the list.
Unselect All	Unselects all the selected Process instances.



Process Instance Diagram

The Process Instance Diagram shows the status of each Activity in the process, for example, whether it is in the **Activated** (Started) or **Completed** state. You can progress Process instances from the Process Diagram by manually activating or completing Activities in the process..

To access: Select **Admin > Business Process Insight > Process Intervention Tab > Process Definitions** > click the **Search** link > enter search criteria or leave blank > click the **Search** button > select an instance > click **Edit**.

For an example of the Process Instance Diagram, see step 5 in “Edit the Status of the Activities in the Process Diagram” on page 236.

The following table describes the user interface elements of the Process Instance Diagram (unlabeled UI elements are shown in angle brackets).

UI Elements	Description
	Indicates that the Activity instance has completed at least once.
	Indicates that the Activity instance is started.
<no icon>	Indicates that the Activity instance is not started or completed.
OK button	Applies the changes you made to the Activity states and refreshes the diagram, showing the changed state.
Reset button	Removes any options you selected before clicking OK .
Activate	Manually activates the corresponding Activity.
Complete	Manually completes the corresponding Activity.

Data Definitions Page

The Data Definition page enables you to modify or delete deployed Process instances and their associated Data instances from the BPI Instance database.

To access	Admin > Business Process Insight > Process Intervention Tab > Data Definitions
Important information	<p>For details on the affects of deleting or modifying Data definitions or Data instances, see “Why Use the Process Intervention Client” on page 229.</p> <p>The Data definitions within the Modeler are not impacted by the actions of the Process Intervention Client, so you can redeploy the Data definition. However all active instances of the Data definition, and possibly the associated Process definition, are impacted by changes made through the Process Intervention Client.</p> <p>NOTE: If you make changes to the values of Data properties within a Process, the progression rules associated with the Data properties are evaluated and the Process progresses, based on the new values.</p>
Relevant tasks	“How to Use the Process Intervention Client” on page 232

Data Definition List

The Data Definition list provides a list of Data Definitions that are currently deployed in the Business Impact Engine.

The following table describes the user interface elements of the Process Definition List (unlabeled UI elements are shown in angle brackets).

UI Elements	Description
Delete Data Definition and instances	Deletes all Process and Monitor definitions and their associated instances from the BPI Instance database.
Clear Average Time and Total Instance Count	This clears (or removes) the values for TotalInstances and AvgTime from the Data objects table in the BPI Instance database. The <i>Business Process Insight Server Administration Guide</i> provides lists of all the database tables defined for BPI.
Search	Opens the Data Instance Search window where you can filter for specific Data instances or see all of them. For details, see “Data Instance Search” on page 248.

Data Instance Search

You can select the **Search** link to identify specific instances of the Data definition. For details, see “Search for Specific Instances” on page 234.

The following table describes the user interface elements of the Data Instance Search window (unlabeled UI elements are shown in angle brackets).

UI Elements	Description
<search criteria>	Fields that directly reflect the attributes in the Data properties tab of the Modeler for the specified Data definition.
Search button	<p>Opens the Data Instance List. For details, see “Data Instance List” on page 248.</p> <p>If search criteria was entered, the list shows only the Data instances that match the search criteria.</p> <p>If the search criteria is left blank, the list shows all Data instances for the selected Data definition.</p> <p>For instructions on setting the search criteria, see “Search for Specific Instances” on page 234.</p>
Clear Form	Clears all search criteria.

Data Instance List

The Data Instance List shows in tabular form, all the Data instances that matched the search criteria, and the attributes for each instance.

The following table describes the user interface elements of the Data Definition List (unlabeled UI elements are shown in angle brackets).

UI Elements	Description
Edit	Displays the Data Instance Search window with the selected instance’s criteria filled in.
Delete	Removes one or more selected Data instances from the BPI Instance database.

UI Elements	Description
Select All	Selects all the Data instances in the list.
Unselect All	Unselects all the selected Data instances.

Synchronize with the RTSM

The Synchronize with the RTSM page enables you to invoke a manual synchronization between BPI CIs and the RTSM.

To access	Admin > Business Process Insight > Process Intervention Tab > Synchronize with the RTSM
Important information	For details on synchronizing the BPI CIs with the RTSM, see “Why Use the Process Intervention Client” on page 229.
Relevant tasks	“How to Use the Process Intervention Client” on page 232

7

Notification

This chapter includes:

Concepts

- ▶ Notification Server Overview on page 252

Tasks

- ▶ How to Perform Notification Server Administration Tasks on page 256

Reference

- ▶ Methods for All Violations on page 275
- ▶ Methods Specific to Process Impact Violations on page 276
- ▶ Methods Specific to Out-of-Sequence Violations on page 278
- ▶ Methods Specific to Monitor and Instance Threshold Violations on page 279
- ▶ Environment Variables for Scripts on page 283

Concepts

Notification Server Overview

This section describes the BPI Notification Server pages and how to use them to configure the Notification Server to process subscriptions for notifications such as process impact and monitor instance threshold violations.

Note: You cannot open or use the Notification pages, unless you have installed the BPI Server. The Notification options appear when the BPI Server is installed and the connectivity between the BPI Server and the BSM Gateway Server has been configured. This configuration is described in the "Component Configuration - HP Business Service Management Settings" section of the *Business Process Insight Server Administration Guide*.

The chapter also describes how to configure the Notification Server email templates and scripts, which can then be used to deliver notifications that are received by the Notification Server.

The Notification Server is the BPI component responsible for sending email notifications and HP Operations Manager messages for events. These messages provide details of the process impact, monitor instance threshold and out-of-sequence events. You can receive these notifications through your email client or through an HP BTO Software client according to your requirements.

You also have the option to execute a script when an impact event is received; for example, the script might update a file, or send an SMS message.

The Notification component can be considered to be in two parts:

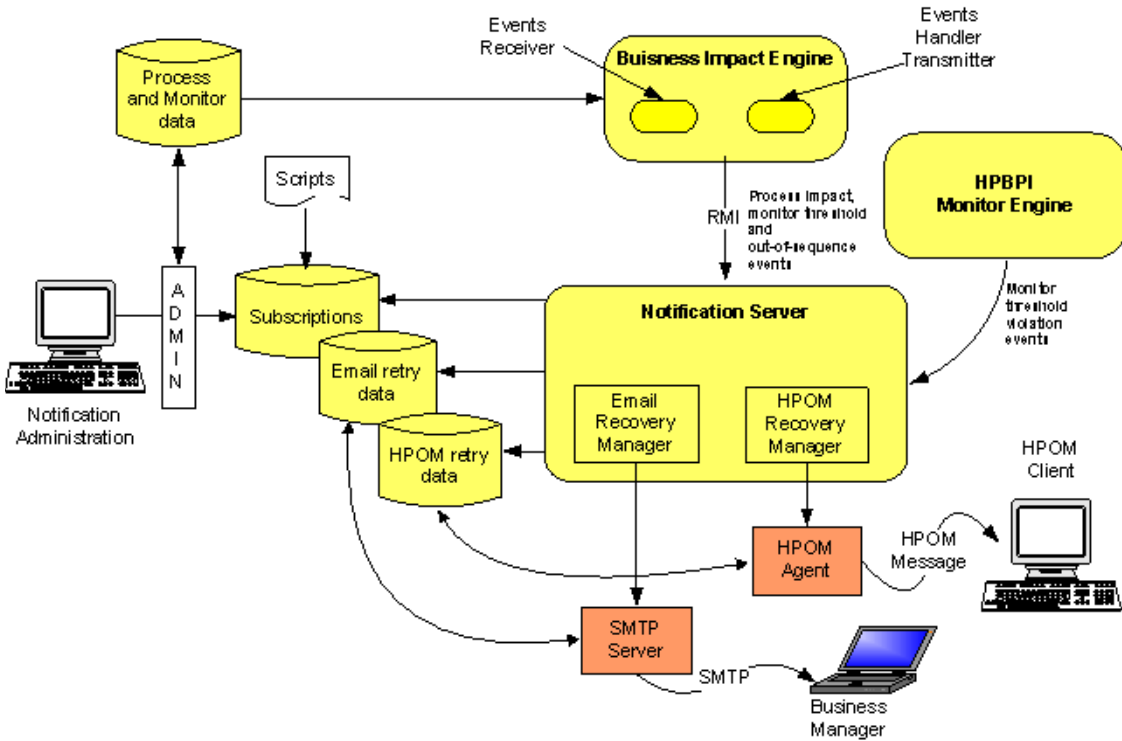
- ▶ **Server**, which is responsible for receiving the impact events from the Business Impact Engine and converting them into the appropriate email messages and HP Operations Manager Messages for delivery. For more details, see “Notification Server Component” on page 253.
- ▶ **Notification Server administration console**, which enables you to create subscriptions for users to receive email notifications. It also enables you to create subscriptions for HP Operations Manager messages and scripts. For more details, see “How to Perform Notification Server Administration Tasks” on page 256.

Notification Server Component

The Notification Server is a component of the BPI Server and is responsible for notifying you of the process-impact, out-of-sequence and monitor-threshold violations that you have configured through the Notification option for the Business Process Insight Application. The tasks for using the Notification options are described in “How to Perform Notification Server Administration Tasks” on page 256.

Notifications can be sent either through an SMTP server to an email client, or as an HPOM message to an HPOM Server. There is a retry mechanism for both types of notifications if either the SMTP server or HP Operations Manager is not available for any reason. Notifications are queued and retried after a configurable interval.

The following diagram shows the architecture of the Notification Server and its relationship to other BPI Server components.



Business violations are created by the Notification Server as a result of receiving:

- ▶ Process-impact and out-of-sequence notification events from the business object manager through the Business Event Handler Transmitter.
- ▶ Monitor instance threshold violation notification events from the Monitor Engine.

The Notification Server sends these events as business violations to you, based on a set of filters. These are filters that you create and that specify the impact events for which you want notification. You can filter email notifications based on event name, event type and the name of the Business Process.

In addition to sending violations when an event is received, the Notification Server can also run any script (.bat file) that you have created. Creating scripts is described in section “Creating Script Files” on page 272.

Email Notification Messages

The email notifications contain impact information about:

- ▶ Business Processes that you are monitoring.
- ▶ Out-of-sequence events.
Out-of-sequence events are those events that you have chosen to monitor using the **Check sequence** option, which is an option on the BPI Modeler.
- ▶ Monitor instance threshold violations.

There is a default template for these email notifications; however, you can change the layout of the email messages that are sent by the Notification Server. You can also configure the templates for the email notifications and add properties from the business violations into the messages and configure how many email notifications that you receive for a particular monitor instance threshold violation.

The default templates are provided as part of the BPI installation and instructions for creating your own templates and configuring monitor thresholds are provided in Chapter 4, “Monitor Definer.”

The following are the template types that you can use to change the format of your messages, if required:

- ▶ Velocity, which is a Java-based template Engine.
- ▶ XSLT, which transforms one XML document into another text document.

It does not matter which tool you use, it is entirely dependent on your own preferences.

Tasks

How to Perform Notification Server Administration Tasks

The following are the tasks that you can complete when using the Notification option:

- ▶ “Managing Email Subscriptions” on page 256
- ▶ “Managing HP Operations Manager Message Subscriptions” on page 260
- ▶ “Managing Script Subscription” on page 263
- ▶ “Creating Notification Server Templates” on page 265
- ▶ “Creating Script Files” on page 272

Managing Email Subscriptions

This section includes creating subscriber accounts to:

- ▶ Receive specific process impact events that are generated by the BPI Server.
- ▶ Receive specific monitor instance threshold events that are generated by the BPI Server.
- ▶ Receive specific out-of-sequence events that are generated by the BPI Server.

To configure the Notification Server:

- 1** Make sure the Servlet Engine component is started using the BPI Server Administration Console, which is located on the system where the BPI Server is running.
- 2** On the system where Business Service Management is running, select **Admin > Business Process Insight**.

A tabbed page displays, which includes a tab for **Notification**.

- 3** Click the tab for Notification and you are presented with a page requesting you to select from Email Subscriptions, Script Subscriptions or HPOM Message Subscriptions.
- 4** Select **Email Subscriptions**.
- 5** Click the **New User** button to add a new user.
The User Information screen displays.
- 6** On the User Information screen:
 - a** Enter a User Name.
This is a name that you want to assign to the user; it can be any name that identifies the user subscription.
 - b** Enter an Email Address.
This is the email address for the user named in the previous step. This must be a valid email account.
 - c** Click **OK**.
The new user now has an account on the Notification Server and is listed in the User List with the other users.

You now have the option to:

- Add another new user as described in the above steps.
- Subscribe the new user account to the events that you want it to receive. To do this refer to section “Configuring the Events Received by Notification Server Users” on page 258.
- Return to the main menu, where you can add more email subscriptions or add HP Operations Manager message subscriptions.
- Delete an entry in the User List. To do this select the checkbox next to the User Name entry that you want to delete and then click the Delete button.

Configuring the Events Received by Notification Server Users

When you have added the user accounts for the users to receive notifications, you then need to configure these user accounts to subscribe to BPI events that you want them to receive. To do this, select the Subscriptions link on the Users List screen, under the Email Subscriptions column, for the user that you want to configure. This link takes you to the Process Subscriptions list for that user.

1 Click the New Subscription button.

You are taken to the EMail Subscription Details screen where you can add the email subscription details.

2 Select the Event Name and the Process Name for your new event subscription:

► Event Name:

You can select from: Process Impacted events, Process Monitor Threshold Violation Events, Process Out Of Sequence events, or All events. If you select All you subscribe to all types of event.

► Process Name:

You can select all process names to report on, or you can choose a specific process that is deployed to the Business Impact Engine. There is a drop down list provided, which lists all the deployed processes for you to select from, including the All option.

Click Next.

3 If you selected Process Monitor Threshold Violation Events, continue at step 5.

4 If you selected All, Process Impacted or Process Out Of Sequence as the Event name, you are prompted to select the Minimum Severity Level and the Template for your new subscription:

► Minimum Severity Level:

This is the minimum severity level for which you want to receive email notifications; for example, if you select Critical you will receive email notifications only for violations that are critical. If you select Minor, you receive email notifications for Minor, Warning, Major and Critical violations.

► **Template:**

Select the template that is appropriate to your Event Name, for example, you might have created your own template for the event.

- If you have selected Process Impacted as the Event Name, choose the **EMAIL-ProcessImpactedDefault.vm** template.
- If you have selected Process Monitor Threshold as the Event Name, choose the **EMAIL-MonitorThresholdDefault.vm** template.
- If you have selected Process Out of Sequence, choose the **EMAIL-OutOfSequenceDefault.vm** template.
- If you have selected All for the Event Name, choose the **EMAIL-GenericDefault.vm** template, as it provides the most detailed information.

Note: If you create two subscriptions for the same event type, each with different templates, BPI uses the template from the more restrictive subscription to format the violation. For example, if you create a subscription for all process impact events using one template and a subscription for a specific process impact event using a different template; the template for the specific process impact event is the one used to format the violation.

5 If you selected Process Monitor Threshold Violation Events, you are prompted for the following information, in addition to that requested in step 4:

- Monitor Name
- Monitor Threshold Name

6 Click **OK** to commit the subscription to the administration database.

The new Event Subscription is now added to the list of Process Subscriptions for the user.

You now have the option to:

- ▶ Add another subscription as described above.
- ▶ Delete an entry in the subscription list. To do this select the checkbox next to the entry that you want to delete and then click the **Delete** button.
- ▶ Logout of the Notification Server Administration Console. You do this by closing the Web Browser Window where the console is running.

Managing HP Operations Manager Message Subscriptions

The Notification Server uses Velocity and XSLT templates to create HP Operations Manager messages before forwarding the message to the HP Operations Manager agent.

The HP Operations Manager agent then applies one or more templates to filter out unwanted messages and to make any additional changes to the HP Operations Manager message format.

Before configuring BPI to send events to HP Operations Manager, ensure that the HP Operations Manager Agent and Message Interface template are installed and set up on the system where the BPI Server, including the Notification Server are installed.

Complete the following steps to configure the Notification Server to send HP Operations Manager message notifications to the HP Operations Manager Agent for process impact, out-of-sequence or monitor instance threshold notification events:

- 1** Make sure the **Servlet Engine** component is started using the BPI Server Administration Console, which is located on the system where the BPI Server is running.
- 2** On the system where Business Service Management is running, select **Admin > Business Process Insight**.

A tabbed page displays, which includes a tab for **Notification**.

- 3** Click the tab for **Notification** and you are presented with a page requesting you to select from **Email Subscriptions**, **Script Subscriptions** or **HPOM Message Subscriptions**.

4 Select **HPOM Message Subscriptions**.**5** Click the **New Subscription** button.

You are presented with an HPOM Subscription Details screen where you can enter the subscription details for the HP Operations Manager messages.

6 From the New Event Subscription screen, select the Event Name and the Process Name for your new event subscription:**►** Event Name

You can select to filter for Process Impacted events, Process Monitor Threshold events, Process Out Of Sequence events, or All events. If you select All, you receive HP Operations Manager impact violations for all BPI notification events.

► Process Name

You can select all process names to report on, or you can choose a specific process that you have defined. There is a drop down list provided, which lists all the deployed processes for you to select from, including the All option.

7 Click **Next**.**8** If you selected **Process Monitor Threshold Violation Events**, continue at step 10.**9** If you selected **All, Process Impacted or Process Out Of Sequence** as the Event name, you are prompted to select the Minimum Severity Level and the Template for your new subscription:**►** Minimum Severity Level:

This is the minimum severity level for which you want to receive email notifications; for example, if you select Critical you will receive email notifications only for violations that are critical. If you select Minor, you receive email notifications for Minor, Warning, Major and Critical violations.

► **Template:**

Select the template that is appropriate to your Event Name, for example you might have created a custom template:

- If you have selected **Process Impacted** as the Event Name, choose the **OVO-ProcessImpactDefault.vm** template.
- If you have selected **Process Monitor Threshold** as the Event Name, choose the **OVO-MonitorThresholdDefault.vm** template.
- If you have selected **Process Out of Sequence**, choose the template for the **OVO-OutOfSequence.vm** for the template.
- If you have selected **All** for the Event Name, choose the **OVO-GenericDefault.vm** template, as it provides the most detailed information.

Note: If you create two subscriptions for the same HP Operations Manager message subscription, each with different templates, BPI uses the template from the more restrictive subscription to format the violation. For example, if you create a subscription for all process impact events using one template and a subscription for a specific process impact event using a different template; the template for the specific process impact event is the one used to format the violation.

10 If you selected Process Monitor Threshold Violation Events, you are prompted for the following information, in addition to that requested in step 9:

- Monitor Name
- Monitor Threshold Name

11 Click **OK** to commit the subscription to the Notification Server Administration database.

The new HP Operations Manager Message Subscription is now added to the list of HP Operations Manager Subscriptions.

You now have the option to:

- Add another HP Operations Manager Message Subscription as described above.
- Delete an entry in the HP Operations Manager Message Subscription list. To do this select the checkbox next the entry that you want to delete and then click the **Delete** button.

You can configure the template set used by HP Operations Manager and you can filter the events received through HP Operations Manager by customizing the HP Operations Manager Message Interface template. Details of how to do this are provided in the HP Operations Manager documentation.

Managing Script Subscription

You can configure the Notification Server to run a script when it receives specific notification events. Section “Creating Script Files” on page 272 describes how you can create these scripts and provides details of the variables that you can include in your scripts to report details of the violation as required.

This section describes how to configure the Notification Server to run the scripts for specific notifications that it processes for process impact, out-of-sequence or monitor instance threshold notification events:

- 1** Make sure the Servlet Engine component is started using the BPI Server Administration Console, which is located on the system where the BPI Server is running.
- 2** On the system where Business Service Management is running, select **Admin > Business Process Insight**.

A tabbed page displays, which includes a tab for **Notification**.

- 3** Click the tab for Notification and you are presented with a page requesting you to select from Email Subscriptions, Script Subscriptions or HPOM Message Subscriptions.
- 4** Select **Script Subscriptions**.

5 Click the **New Subscription** button.

You are presented with a **New Subscription** screen where you can enter the subscription details for the script.

6 From the **New Script Subscription** screen, enter the following details:

➤ **Event Name**

You can select to filter for **Process Impacted** events, **Process Monitor Threshold** events, **Process Out Of Sequence** events, or **All** events. If you select **All**, you receive HP Operations Manager impact violations for all BPI notification events.

➤ **Process Name**

You can select all process names to report on, or you can choose a specific process that you have defined. There is a drop down list provided, which lists all the deployed processes for you to select from, including the **All** option.

7 Click **Next**.

If there are no scripts defined, the following error is displayed and you cannot continue:

No scripts currently available for selection.

See “**Creating Script Files**” on page 272 for details of creating scripts.

8 If you selected **Process Monitor Threshold Violation Events**, continue at step 10.

9 If you selected **All**, **Process Impacted** or **Process Out Of Sequence** as the Event name, you are prompted to select the **Minimum Severity Level** and the **Template** for your new subscription:

➤ **Minimum Severity Level:**

This is the minimum severity level for which you want to receive email notifications; for example, if you select **Critical** you will receive email notifications only for violations that are critical. If you select **Minor**, you receive email notifications for **Minor**, **Warning**, **Major** and **Critical** violations.

➤ Script Name:

Select the script that you want the Notification Server to run when it received a notification event for the specified event and process. All the scripts that you have defined and saved in the notify-scripts are presented in the drop-down list for you to select from.

10 If you selected **Process Monitor Threshold Violation Events**, you are prompted for the following information, in addition to that requested in step 9:

- Monitor Name
- Monitor Threshold Name

11 Click **OK** to commit the subscription to the administration database.

The new Script Subscription is added to the list of Script Message Subscriptions.

You now have the option to:

- Add another New Script Subscription as described above.
- Delete an entry in the Script Subscription list. To do this select the checkbox next the entry that you want to delete and then click the **Delete** button.

Creating Notification Server Templates

The Notification Server uses templates to format email messages and messages sent to HP Operations Manager. The templates contain instructions on how to format event information, for example, event name and event time. You might want customize an email template if you want to generate email messages for different locales.

This section describes how BPI uses these templates and some guidance in how you can modify them. You need to be familiar with either XSLT, or Velocity to make the changes; XSLT is a standard for transforming XML documents. It is up to you which format you choose.

The Notification Server uses the Apache Velocity template engine to process Velocity templates. There is a user guide available with the template engine that provides details of creating and using Velocity templates. Details of Velocity templates, including a user guide for creating them, can be found at the following location:

<http://velocity.apache.org/>

You configure the template used for each event when you create the event subscription through the Notification pages. The Notification Server then uses the template that you have defined to format all notifications related to the specified event.

Creating an Email Template

You create a custom email template for a specific event. These custom email templates must have a file name that starts with the string EMAIL- and a file extension of .vm for Velocity templates and .xsl for XSLT templates.

The Notification Server reads the custom templates from the following directory:

bpi-install-dir\data\conf\bia\notify-templates\flows

If you want to modify these templates, make a copy of the appropriate example template from the files in the following directory:

bpi-install-dir\examples\bia\NotifSvrTemplates

Make sure that you add your template to the correct directory as the Notification pages presents the templates in the context of the selection, based on the contents of the above directories.

You also need to make sure that you copy the template from the `examples` directory to the `data` directory as the `examples` directory is updated and files replaced if you reinstall BPI.

The Notification Server uses an email template to create XML that describes an email. Then the notification server uses the XML to create an email.

The email XML is very simple; it contains a subject, content type, and body. The actual schema is described in the file `email.xsd`, which is located at:

bpi-install-dir\misc\bia

The Notification Server applies the Velocity or XSLT templates that you define to a violation from the Business Impact Engine. From this the Notification Server can create an email XML document based on your templates.

Creating an HP Operations Manager Template

The Notification Server uses a template to create XML that describes the HP Operations Manager message. It then uses this XML to create an HP Operations Manager message.

You configure the templates that are used to send HP Operations Manager messages through the Notification pages.

Custom HP Operations Manager template files must start with the string `OVO-` and a file extension of `.vm` for Velocity templates and `.xsl` for XSLT templates. Store custom templates in the following directory:

bpi-install-dir\data\conf\bia\notify-templates\flows

The following is an example of an HP Operations Manager message XML document:

```
<?xml version="1.0" encoding="UTF-8"?>
<OVOMessage xmlns:xsi="http://www.w3.org/2001/XMLSchema
  instance"xsi:noNamespaceSchemaLocation="ovomessage.xsd" >
<Severity>critical</Severity>
<Application>HPBPI application</Application>
<Object>PROCESS_IMPACTED or PROCESS_OUT_OF_SEQUENCE</
Object>
<MessageGroup>NOTIFICATIONS</MessageGroup>
<MessageText>A PROCESS_OUT_OF_SEQUENCE violation occurred at
7.10pm.</MessageText>
<Option>example_option_variable_1=this is an example option value</Option>
<Option>example_option_variable_2=this is another example option value</
Option>
</OVOMessage>
```

The example XML document contains an element for each message attribute:

- ▶ Message severity
- ▶ Application
- ▶ Object
- ▶ Message group
- ▶ Message text

Optionally, the XML document, can contain message options. An option has the form *variable=value*. The notification server applies Velocity and XSLT templates to an violation from the Business Impact Engine to create an HP Operations Manager message XML document.

The schema for the message is available at the following location:

bpi-install-dir\misc\bia\ovomessage.xsd

Creating a Velocity Template

This section describes the list of the BPI notification methods that have been defined for use within your Velocity template. A variable in the Velocity context contains information from an Business Impact Engine event.

A Velocity template is a file that contains the XML describing an email or HP Operations Manager message.

In addition to text, the file can contain Velocity formatting directives. The following is an example of an email Velocity template:

```
<?xml version="1.0" encoding="UTF-8"?>
<Email xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'
  xsi:noNamespaceSchemaLocation='email.xsd'>
<Subject>
$alert.getSeverity() $alert.getEventName() Alert
</Subject>
<ContentType>text/plain</ContentType>
<Body>
A "$alert.getEventName()" alert has occurred.
```

```
Severity: $alert.getSeverity()
Event Group: $alert.getEventGroup()
```

```

Event Name: $alert.getEventName()
Event Time: $alert.getEventTime()
Process Name: $alert.getFlowName()
Process Guid: $alert.getFlowGuid()
</Body>
</Email

```

A formatting directive starts with a hash (#) or a dollar (\$); these formatting directives are described more fully in the *Velocity Users' Guide*. A formatting directive is used to insert event information into the XML document. In the case of BPI this event information is provided through the alert variables.

The `$alert` variable contains information from a Business Impact Engine event, for example, the service name for the event. The `$alert` variable contains methods such as `getFlowName()` and `getServiceName()`, which can be used to insert the event flow name and the event service name into the XML. (`getServiceName()` inserts the service name).

Note: If the Velocity templates that you create contain non-ASCII characters, you must encode and save the template as UTF8. This UTF8 needs to be created without a byte order mark (BOM). BOMs are added automatically by some Windows editors; for example, Notepad and Wordpad. Choose an editor that enables you to exclude the BOM.

If you include a BOM in your template encoding, it is not recognized as an XML file.

When the Notification Server generates an email notification message, it adds data to the message, where the display language is determined by the locale of the BPI Server. If your email recipients are not in the same locale as the BPI Server, you can use the Velocity templates to specify the locale for the language used for the email notifications. This enables you to provide email notifications in several languages if required.

The `java.Locale()` class is used to identify the language string used within the alert methods. The definition for the `Locale()` class can be found at the following URL:

<http://java.sun.com/j2se/1.4.2/docs/api/java/util/Locale.html>

The `Locale()` class takes a parameter comprising the language code and the country code as described in the definition for the `Locale()` class; for example: `ko_KR` for Korea and `en_CA` English-speaking Canadian.

For details on the methods, see “Methods for All Violations” on page 275, “Methods Specific to Process Impact Violations” on page 276, “Methods Specific to Out-of-Sequence Violations” on page 278, or “Methods Specific to Out-of-Sequence Violations” on page 278.

XSLT Templates

An XSLT template is a file containing XML that transforms event XML into email or HP Operations Manager message XML. An example of an email XSLT template is shown below.

```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
version="1.0"
  xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:etype="http://www.hp.com/openview/bia/eventtype"
  xmlns:edata="http://www.hp.com/openview/bia/eventdata">
  <xsl:output method="xml"
  indent="no" />

  <xsl:template match="/">
  <Email xsi:noNamespaceSchemaLocation='email.xsd'>
  <Subject>
  <xsl:apply-templates select="//env:Body/*/etype:Severity/*"/><xsl:text> </
  xsl:text><xsl:value-of select="//etype:EventName" /> Alert</Subject>
  <ContentType>text/plain</ContentType>
  <Body>
  A "<xsl:value-of select="//etype:EventName" />" alert has occurred.

  Severity: <xsl:apply-templates select="//env:Body/*/etype:Severity/*"/>
  Event Group: <xsl:value-of select="//etype:EventGroup" />
  Event Name: <xsl:value-of select="//etype:EventName" />
  Event Time: <xsl:value-of select="//etype:EventTime" /><xsl:text>
  </xsl:text>
  <xsl:for-each select="//edata:DataItem" >
  <xsl:choose>
  <xsl:when test="edata:Name = 'RootCause'" >
  <xsl:text>Root Cause: </xsl:text>
  <xsl:for-each select="//edata:Value/Services/Service" >
  <xsl:text>-&gt;</xsl:text><xsl:value-of select="Label" />
```

```

</xsl:for-each>
</xsl:when>
<xsl:otherwise>
<xsl:value-of select="edata:Name" /><xsl:text>: </xsl:text><xsl:value-of
select="edata:Value" />
</xsl:otherwise>
</xsl:choose>
<xsl:text>
</xsl:text>
</xsl:for-each>
</Body>
</Email>
</xsl:template>

<xsl:template match="etype:Critical" >
<xsl:text>Critical</xsl:text>
</xsl:template>

<xsl:template match="etype:Major" >
<xsl:text>Major</xsl:text>
</xsl:template>

<xsl:template match="etype:Minor" >
<xsl:text>Minor</xsl:text>
</xsl:template>

<xsl:template match="etype:Warning" >
<xsl:text>Warning</xsl:text>
</xsl:template>

<xsl:template match="etype:Normal" >
<xsl:text>Normal</xsl:text>
</xsl:template>

</xsl:stylesheet>

```

The style sheet is applied to the event sent by the Business Impact Engine. The style sheet contains email XML text as well as XSL elements. XSL elements format information from the form of the event and insert it into the email XML.

The schemas for the event are located in the files `eventtype.xsd` and `eventdata.xsd` in the following directory:

bpi-install-dir/misc/bia

The message header contains a business event type, which is described in `eventtype.xsd`. The message body contains a business event type followed by business event data; Business event data is described in `eventdata.xsd`.

Creating Script Files

You can define a script, which is a Windows `.bat` file, to be run when a notification event is received by the Notification Server; for example, this script might send an SMS message to a recipient directly (bypassing the email server), or it might update an entry in a database or spreadsheet.

You can create a script to complete any action that you want, and you can also include any of the environment variables that have been defined for use within your scripts. These environment variables identify configuration information relating to the BPI data available for notifications and are defined in section “Environment Variables for Scripts” on page 283.

These environment variables are included in your scripts using the following notation:

`%env_name%`

where `%env_name%` is an environment variable name, for example, `%OVBPI_FLOWNAME%`.

For details on the environment variables, see “Environment Variables for Scripts” on page 283.

The following examples show how you can create a script and configure the Notification Server to run the script when a specific notification event is received.

Example Script to Write a String to a File

The following is an example of the steps that you need to complete to configure the Notification Server to write the string Hello World to a file on receipt of a specific process impact event:

- 1 Create the script that you want to be executed when the notification event is received, for example:

```
echo "hello world" >>c:\notif.txt
```

This script writes the string "hello world" to the file notif.txt in the root of your c: drive.

- 2 Save the script to the following location with a unique file name and a .bat file extension:

```
bpi-install-dir/data/conf/bia/notify-scripts
```

The Notification Server looks in this directory for scripts and presents these scripts to you through the Web Administration Console for the Notification Server when you are configuring subscriptions. Note that if the script that you create does not have a .bat file extension, it is ignored.

- 3 Follow the instructions in “Managing Script Subscription” on page 263 to create a subscription for the script selecting Process Impacted as the Event Name and the name of the process for the Process Name.

If you have the Web Administration for the Notification Server administration open at the New Event Subscription page, you might need to click the Refresh option on your Web Browser. This refreshes the page and adds the new script to the list.

Example Script to Write Process Name and Blocked Instances to a File

The following is an example of the steps that you need to complete to configure the Notification Server to take the process name and the number of blocked instances from the event data and write the information to a file on receipt of a specific process impact event:

- 1 Create the script that you want to be executed when the notification event is received, for example:

```
echo %OVBPI_FLOWNAME%,  
%OVBPI_NOOFBLOCKEDINSTANCES%>>c:\notif2.txt
```

This script writes the values of the process name and the number of blocked instances to the file `notif2.txt` in the root of your `c:` drive.

- 2 Save the script to the following location with a unique file name:

```
bpi-install-dir\data/conf\bia\notify-scripts
```

The Notification Server looks in this directory for scripts and presents these scripts to you through the Web Administration Console for the Notification Server when you are configuring subscriptions.

- 3 Follow the instructions in section “Managing Script Subscription” on page 263 to create a subscription for the script selecting `Process Impacted` as the Event Name and the name of the process for the Process Name.

If you have the Web Administration for the Notification Server administration open at the New Event Subscription page, you might need to click the **Refresh** option on your Web Browser. This refreshes the page and adds the new script to the list.

Reference

Methods for All Violations

The following table lists the alert methods that can be used for all violations: Process Impact, Process Out-Of-Sequence, Business Monitor and Monitor instance threshold.

Alert Method Names	Alert Method Description
<code>\$alert.getVersion()</code>	Returns a STRING containing the version number for the BPI event.
<code>\$alert.getSeverity(<i>locale</i>)</code>	Returns a STRING containing the severity of the BPI event. Possible values are Critical, Major, Minor, Warning, and Normal. The language used for these values is determined by the locale for the BPI Server or, if specified, the locale of the country and language specified in <i>locale</i> , for example: <ul style="list-style-type: none"> ▶ <code>\$alert.getSeverity("ja")</code>, for a Japanese locale ▶ <code>\$alert.getSeverity("ko")</code>, for a Korean locale The value returned is also used to determine the color of the text in the email notification.
<code>\$alert.getEventGroup()</code>	Returns a STRING containing the name of the event group for the BPI event, that is, NOTIFICATIONS.
<code>\$alert.getEventName()</code>	Returns a STRING containing the name of the BPI event, that is, PROCESS_IMPACTED, PROCESS_MONITOR_THRESHOLD_VIOLATION or PROCESS_OUT_OF_SEQUENCE
<code>\$alert.getEventTime(<i>locale</i>)</code>	Returns a STRING containing the time of the BPI event, formatted using the locale for the BPI Server or, if specified, the <i>locale</i> of the country and language specified in <i>locale</i> .

Alert Method Names	Alert Method Description
<code>\$alert.getEventDataListSize()</code>	Returns the number of event data items in the BPI event.
<code>\$alert.getEventDataNames()</code>	Returns an ARRAYLIST of the names of the event data items in the BPI event.
<code>\$alert.getEventDataByName(<i>Stringname, locale</i>)</code>	Returns a STRING containing the value of the data item with the given name using the locale for the BPI Server or, if specified, the locale of the country and language specified in <i>locale</i> .
<code>\$alert.getEventDataByIndex(<i>index, locale</i>)</code>	Returns a STRING containing the value of the data item located at the supplied index using the locale for the BPI Server or, if specified, the locale of the country and language specified in <i>locale</i> .

Methods Specific to Process Impact Violations

The following table lists the alert methods that can be used for Process Impact violations. Using any of these methods for other violations results in a message containing erroneous data.

Alert Method Name	Alert Method Description
<code>\$alert.getFlowName()</code>	Returns a STRING containing the process name for the BPI event.
<code>\$alert.getFlowGuid()</code>	Returns a STRING containing GUID for the process definition in the BPI event.
<code>\$alert.getServiceName()</code>	Returns a STRING containing the name of the service for the BPI event.
<code>\$alert.getServiceGuid()</code>	Returns a STRING containing the service GUID for the BPI event.

Alert Method Name	Alert Method Description
\$alert.getFlowNodeString()	Returns a <code>STRING</code> containing Activity names for the BPI event. An example of a string returned by this method is: Bill Customer, Check Stock, Remove Item.
\$alert.getFlowNodeList()	Returns an <code>ARRAYLIST</code> of Activity names in the BPI event. You can use the methods defined in the <code>ArrayList</code> class. For example, you can access the first element of an array list named <code>flowNodeList</code> using <code>\$flowNodeList.get(0)</code> .
\$alert.getFlowNodeListSize()	Returns the number of elements in the process Activity list in the BPI event.
\$alert.getRootCause()	Returns a <code>STRING</code> containing the labels of the root cause services in the BPI event. (Note that this string cannot be localized.) An example of a string returned by this method is: Oracle Financial System- <code>&gt;</code> Oracle System Europe- <code>&gt;</code> Network Resources.
\$alert.getFlowNodeStatusList()	Returns an <code>ARRAYLIST</code> of the status of the Activities in the BPI event. You can use the methods defined in the <code>ArrayList</code> class. For example, you can access the first element of an array list named <code>flowNodeStatusList</code> using <code>\$flowNodeStatusList.get(0)</code> .

Alert Method Name	Alert Method Description
<code>\$alert.getFlowNodeStatusString(<i>locale</i>)</code>	<p>Returns a STRING containing the labels for the Activity status in the BPI event. For example, Critical, Major, Minor, Warning and Normal. These status correspond to the HP Operations Manager severity levels.</p> <p>The language used for these values is determined by the locale for the BPI Server or, if specified, the locale of the country and language specified in locale, for example:</p> <ul style="list-style-type: none"> ▶ <code>\$alert.getFlowNodeStatusString("ja")</code>, for a Japanese locale ▶ <code>\$alert.getFlowNodeStatusString("ko")</code>, for a Korean locale
<code>\$alert.getFlowNodeStatusListSize()</code>	Returns the number of elements in the process Activity status list in the BPI event.

Methods Specific to Out-of-Sequence Violations

The following table lists the methods for out-of-sequence events only. Using any of these methods for other violations results in a message containing erroneous data.

Alert Method Name	Alert Method Description
<code>\$alert.getFlowName()</code>	Returns a STRING containing the process name for the BPI event.
<code>\$alert.getFlowGuid()</code>	Returns a STRING containing GUID for the process definition in the BPI event.
<code>\$alert.getFlowInstanceGuid()</code>	Returns a STRING containing GUID for the process instance in the BPI event.

Alert Method Name	Alert Method Description
\$alert.getSourceNode()	Returns a STRING containing the name of the Activity that is the source Activity for the out-of sequence violation.
\$alert.getDestinationNode()	Returns a STRING containing the name of the Activity that is the destination Activity for the out-of sequence violation.
\$alert.getFlowIdentifier()	Returns a STRING containing the identifier for the impacted process instance.

Methods Specific to Monitor and Instance Threshold Violations

The following table lists the monitor and instance threshold violation notification events only. Using any of these methods for other violations results in a message containing erroneous data.

Alert Method Name	Alert Method Description
\$alert.getThresholdAlertGuid()	Returns a STRING containing the internal unique identifier (GUID) of the instance threshold violation event raised for a specific instance threshold violation.
<p>The following methods are duration periods that correspond to the Threshold violation notification polling interval (seconds) as set in the BPI Server Administration Console for Monitor Engine threshold violation notification settings.</p> <p>It is called the actual period because it can differ from the requested configuration interval according to the other priorities that the machine, and the JVM, have at the times the requests to start and stop tracking are made.</p>	
getThresholdAlertNotificationPeriodDurationHours()	Returns a STRING containing the duration of actual notification period in terms of hours.

Alert Method Name	Alert Method Description
<code>getThresholdAlertNotificationPeriodDurationHours(<i>locale</i>)</code>	Returns a STRING containing the duration of actual notification period in terms of hours, using the locale for the BPI Server or, if specified, the locale of the country and language specified in <i>locale</i> .
<code>getThresholdAlertNotificationPeriodDurationMinutes()</code>	Returns a STRING containing the duration of actual notification period in terms of minutes.
<code>getThresholdAlertNotificationPeriodDurationMinutes(<i>locale</i>)</code>	Returns a STRING containing the duration of actual notification period in terms of minutes, using the locale for the BPI Server or, if specified, the locale of the country and language specified in <i>locale</i> .
<code>getThresholdAlertNotificationPeriodDurationSeconds()</code>	Returns a STRING containing the duration of actual notification period in terms of seconds.
<code>getThresholdAlertNotificationPeriodDurationSeconds(<i>locale</i>)</code>	Returns a STRING containing the duration of actual notification period in terms of seconds, using the locale for the BPI Server or, if specified, the locale of the country and language specified in <i>locale</i> .
<code>\$alert.getThresholdAlertNotificationPeriodStart()</code>	Returns a STRING containing the start time of the Threshold violation notification period. Start time is the time from and including the time specified.
<code>\$alert.getThresholdAlertNotificationPeriodEnd()</code>	Returns a STRING containing the end time of the Threshold violation notification period. End time is the time up to but not including the time specified.
<code>\$alert.getThresholdAlertStatusChangeTime()</code>	Returns a STRING containing the time that the Metric_Fact_Alerts table was updated with the instance threshold alert notification.
<code>\$alert.getThresholdAlertRaisedTime()</code>	Returns a STRING containing the time that the event notification was sent to the Notification Server.

Alert Method Name	Alert Method Description
\$alert.getThresholdGuid()	Returns a STRING containing the internal unique identifier (GUID) for the monitor instance threshold defined for the Business Process Monitor in the BPI event.
\$alert.getThresholdMessage()	Returns a STRING containing the monitor instance threshold message in the BPI event. This is the message that you have defined to be displayed when the event is triggered.
\$alert.getThresholdName()	Returns a STRING containing monitor instance threshold name in the BPI event.
\$alert.getThresholdNumberNotificationsInPeriod()	Returns a STRING containing the total number of notifications sent for the instance threshold in the Threshold violation notification polling interval.
\$alert.getThresholdNumberAlertsInPeriod()	Returns a STRING containing the total number of instance threshold violations generated for the instance threshold in the Threshold violation notification polling interval. The number of instance threshold violations generated might be different to the number of notifications sent, depending on how you have configured the instance threshold violation notification settings.
\$alert.getThresholdNumberNormalAlertsInPeriod()	Returns a STRING containing the total number of Normal instance threshold violations generated for the instance threshold in the Threshold violation notification polling interval. This number is a subset of <code>getThresholdNumberAlertsInPeriod()</code> .

Alert Method Name	Alert Method Description
<p>\$alert.getThresholdNumberWarningAlertsInPeriod()</p>	<p>Returns a STRING containing the total number of Warning instance threshold violations generated for the instance threshold in the Threshold violation notification polling interval.</p> <p>This number is a subset of getThresholdNumberAlertsInPeriod().</p>
<p>\$alert.getThresholdNumberMinorAlertsInPeriod()</p>	<p>Returns a STRING containing the total number of Minor instance threshold violations generated for the instance threshold in the Threshold violation notification polling interval.</p> <p>This number is a subset of getThresholdNumberAlertsInPeriod().</p>
<p>\$alert.getThresholdNumberMajorAlertsInPeriod()</p>	<p>Returns a STRING containing the total number of Major instance threshold violations generated for the instance threshold in the Threshold violation notification polling interval.</p> <p>This number is a subset of getThresholdNumberAlertsInPeriod().</p>
<p>\$alert.getThresholdNumberCriticalAlertsInPeriod()</p>	<p>Returns a STRING containing the total number of Critical instance threshold violations generated for the instance threshold in the Threshold violation notification polling interval.</p> <p>This number is a subset of getThresholdNumberAlertsInPeriod().</p>
<p>\$alert.getFlowMetricGuid()</p>	<p>Returns a STRING containing the Business Process Monitor GUID in the BPI event.</p>
<p>\$alert.getFlowMetricName()</p>	<p>Returns a STRING containing the Business Process Monitor name in the BPI event.</p>
<p>\$alert.getFlowMetricValue()</p>	<p>Returns a STRING containing the Business Process Monitor value in the BPI event.</p>

Environment Variables for Scripts

The following tables list the environment variables that can be used within your scripts to report data on process impact, process out-of-sequence and monitor instance threshold violations.

The following table lists the environment variables that are available for all BPI violations.

Variable	Description
OVBPI_EVENTGROUP	Name of the event group, which is always NOTIFICATIONS.
OVBPI_EVENTNAME	Name of the event: PROCESS_IMPACTED, PROCESS_MONITOR_THRESHOLD_VIOLATION or PROCESS_OUT_OF_SEQUENCE.
OVBPI_SEVERITY	Severity of the BPI event. Possible values are Normal, Warning, Minor, Major or Critical

The following table lists the environment variables available for process impact violations. Using these environment variables for other alerts results in erroneous data being returned.

Variable	Description
OVBPI_FLOWGUID	Internal unique identifier (GUID) for the process definition in the BPI event.
OVBPI_FLOWNAME	Name of the process in the BPI event
OVBPI_NOOFBLOCKEDINSTANCES	Number of blocked process instances at the time of the PROCESS_IMPACTED event. A blocked instance is an instance of the process that is active at an Activity and cannot proceed as there is a problem in an underlying operational service.

Variable	Description
OVBPI_NOOFIMPEDEDINSTANCES	Number of at risk process instances at the time of the PROCESS_IMPACTED event. An at risk instance is where one or more process instance has the potential to be blocked in the future.
OVBPI_SERVICEGUID	Internal unique identifier (GUID) for the service in the BPI PROCESS_IMPACTED event.
OVBPI_SERVICENAME	Name for the service in the BPI PROCESS_IMPACTED event.
OVBPI_ROOTCAUSE	Label of the root cause service, or services, in the BPI PROCESS_IMPACTED event.

The following table lists the environment variables available for instance threshold violations. Using these environment variables for other violations results in erroneous data being returned.

Variable	Description
OVBPI_FLOWGUID	Internal unique identifier (GUID) for the process definition in the BPI PROCESS_MONITOR_THRESHOLD_VIOLATION event.
OVBPI_FLOWIDENTIFIER	Identifier for the process instance in the PROCESS_MONITOR_THRESHOLD_VIOLATION event. This property contains a value only if the instance threshold violation is an instance violation, for example, Absolute duration. It does not contain a value if the property is for a statistical violation, for example, a Backlog count. This is the property that you have nominated to be the identifier for the process.

Variable	Description
OVBPI_FLOWINSTANCEGUID	Internal unique identifier (GUID) for the process instance in the PROCESS_MONITOR_THRESHOLD_VIOLATION event. This property contains a value only if the instance threshold violation is an instance violation, for example, Absolute duration. It does not contain a value if the property is for a statistical violations, for example, a Backlog count.
OVBPI_FLOWMETRICGUID	Internal unique identifier (GUID) for the process monitor in the PROCESS_MONITOR_THRESHOLD_VIOLATION event.
OVBPI_FLOWMETRICNAME	Name of the process monitor in the BPI PROCESS_MONITOR_THRESHOLD_VIOLATION event.
OVBPI_FLOWMETRICVALUE	Value of the process monitor in the BPI PROCESS_MONITOR_THRESHOLD_VIOLATION event.
OVBPI_FLOWNAME	Name of the process in the BPI PROCESS_MONITOR_THRESHOLD_VIOLATION event.
OVBPI_THRESHOLDALERTGUID	Internal unique identifier of the instance threshold identified in the BPI PROCESS_MONITOR_THRESHOLD_VIOLATION event.
OVBPI_THRESHOLDMESSAGE	Message defined for the BPI PROCESS_MONITOR_THRESHOLD_VIOLATION event. This is the message that you have defined to be displayed when the event is triggered.
OVBPI_THRESHOLDNAME	Name of the monitor instance threshold in the PROCESS_MONITOR_THRESHOLD_VIOLATION event.

The following table lists the environment variables for the Out-of-Sequence violations. Using these environment variables for other violations results in erroneous data being returned.

Variable	Description
OVBPI_FLOWIDENTIFIER	Identifier for the process instance in the BPI event. This the property that you have nominated to be the identifier for the process.
OVBPI_FLOWINSTANCEGUID	Internal unique identifier (GUID) for the process instance in the BPI event.
OVBPI_SOURCENODE	Name of the Activity that is the source Activity for the out-of-sequence violation.
OVBPI_DESTINATIONNODE	Name of the Activity that is the destination Activity for the out-of-sequence violation.

Part II

BPI Application Reports

8

Introduction to BPI Application Reports

This chapter includes:

Concepts

- ▶ BPI Application Reports Overview on page 290

Tasks

- ▶ How to Use the Reports to View and Analyze Data on page 292

Concepts

BPI Application Reports Overview

This section summarizes all the BPI reports you can view on the BPI Application pages.

BPI enables you to view the overall status of your Business Processes and Business Process Monitors, including any links that you might have to IT operational resources.

The BPI Application pages can be accessed from the following menu option:

Applications > Business Process Insight

Note: The Business Process Insight Application reports and their data are available only when you have installed the BPI license, BPI Server, and configured the Server to send data samples to the Gateway Server.

The BPI Application Reports provide:

- ▶ Overall view of the health and status of the Business Processes that you have deployed in your BPI system, including the status of any Business Process Monitors.
- ▶ Overall view of the status of the IT operational resources that you have linked your Business Process Activities to.
- ▶ Details of the individual process instances and their progression through the Activities in the process.
- ▶ Details of the active process instances at individual Activities in the process.
- ▶ Details of any thresholds that have been violated.
- ▶ Details of the transactions that you have linked your Business Process Activities to within TransactionVision.

- Graphical representation of your monitor data, which can be displayed in terms of times, where appropriate.
- View of the aggregated Monitor data, which can include minimums, maximums and standard deviations.
- Ability to configure the types of graphs and the period over which the monitor data should be presented.
- Ability to search for specific process instances.

Tasks

How to Use the Reports to View and Analyze Data

The following are the tasks that you can complete to use the reports to view and analyze data.

This task includes the following:

- “Use the reports to view data” on page 292
- “Customize the Business Process Diagrams and use annotations – optional” on page 293

Note: Three main reports enable you to track and monitor your Business Processes. In addition, you can also use the Business Process Diagram, which is available from the **Application > Service Health** menu. For details on using the Business Process Diagram in Service Health, see Chapter 13, “BPI Components in MyBSM.”

Use the reports to view data

- To view all the Business Processes that are currently selected to be monitored use the Scorecard. The Scorecard displays the current values of the configured KPIs; see Chapter 9, “BPI Application Scorecard.”

The **Value** is based on the Process Value property of the Business Process. The Process Value is assigned when you create the Business Process in the Modeler.

- To view a graphical representation of a selected Business Process in the form of the process diagram, use the Health tab. The process diagram is annotated with information of the overall Business Process in both business and operational terms, and the individual Activities in the process.

In addition, there are links to more details of the various components of your Business Process; see Chapter 10, “BPI Application Health.”

- To view data for Business Processes and Business Process Activities, use the following reports in the BPI Application:
 - “Business Process Summary Report” on page 373
 - “BPI Monitors Over Time Report” on page 384
 - “Business Activity Summary Report” on page 388

The Reports are described in Chapter 11, “BPI Application Reports.”

Customize the Business Process Diagrams and use annotations – optional

You can customize your Business Process diagrams and define annotations specific to your processes. Some level of annotation is provided by default; however, you can modify the form of these annotations for your Process Diagrams. These customizations are described in Chapter 12, “Annotations for Process Diagrams.”

9

BPI Application Scorecard

This chapter includes:

Concepts

- BPI Application Scorecard Overview on page 296
- Understanding KPI Statuses on page 297

Tasks

- How the Scorecard Builds its Display on page 298

Reference

- BPI Application Scorecard User Interface on page 301

Concepts

BPI Application Scorecard Overview

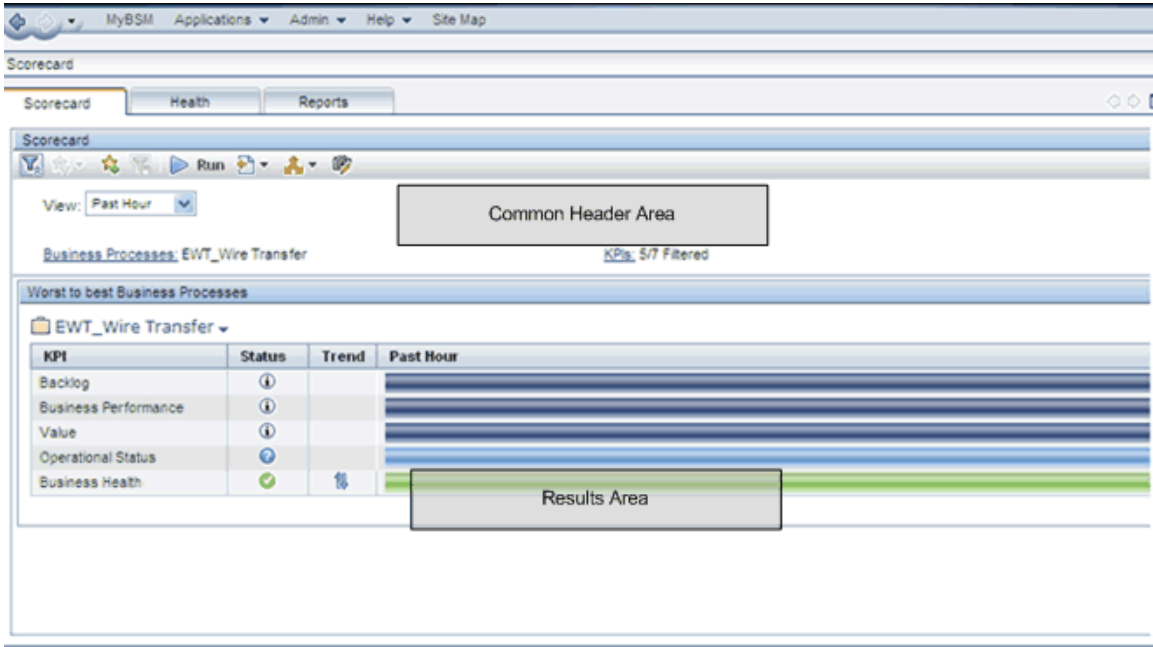
This section provides an overview of the key features of the BPI Application Scorecard pages and explains how to use the Scorecard pages to provide summary information for your Business Processes.

The Scorecard presents a type of report and enables you to display the real time status, trend, and changes-over-time data for the selected BPI Business Processes and Business Activities. These are organized by best and worst statuses.

The Scorecard is divided into the following areas:

- ▶ The common header, which enables you to tailor the content of the main body of the page; see section “Common Header” on page 302.
- ▶ The main body of the page, where the selected Business Process data is presented; see section “Results Area” on page 304.

Following is an example of the BPI Scorecard and these two areas:



Understanding KPI Statuses

When a KPI is not relevant to the Business Process, the Status column displays [NA], the Trend column is empty, and the over time bar does not exist.

When a KPI is relevant for the Business Process but has a **No Data** status, the Status column displays a grey icon, the Trend column is empty, and the relevant part of the over time bar is grey.

When the Business Processes are listed in one column only, the KPIs that are not relevant for the Business Process are not displayed and each table includes as many rows of KPIs as needed.

For details on KPIs, see “Health Indicators, KPIs, and KPI Domains” in *Using Service Health*.

Tasks

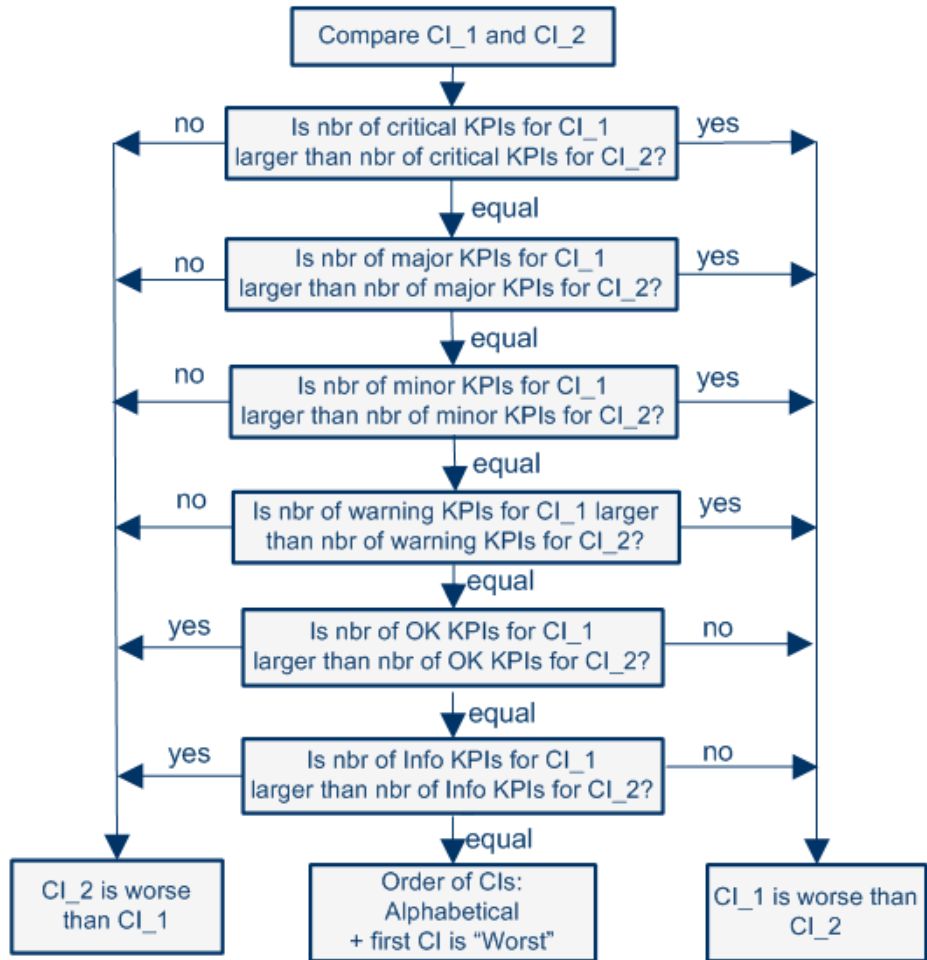
How the Scorecard Builds its Display

This task describes how the Scorecard builds its display in the following steps:

- ▶ “Sorting Mechanism” on page 299
- ▶ “Splitting Mechanism” on page 300

Sorting Mechanism

The Scorecard pages sort and display selected Business Processes and their KPI's statuses from worst to best. The sorting mechanism compares the selected Business Process CIs in pairs as shown in the following diagram.



If a pair of Business Process CIs have the same number of KPIs with a specific status, the sorting mechanism compares the number of KPIs with the next better status using the critical, major, minor and warning statuses in this order. The Business Process with the highest number of those KPIs is then given a lower grade than the other Business Processes.

If a pair of Business Process CIs have the same number of warning KPIs, then the mechanism compares the number of KPIs with **OK** status. The CI with the highest number of KPIs with the **OK** status is given a higher grade than the other CI. The same sorting is used for the Info status.

KPIs without data are not used in the comparison.

If a pair of Business Process CIs have exactly the same numbers of KPIs at each status level, the page sorts the CIs alphabetically (from A to Z) and the first CI in the alphabetical list, is given the lower grade.

Splitting Mechanism

When all Business Process CIs have a grade, the CIs are sorted into the Worst and Best columns. If you select four or more Business Process CIs, the Scorecard page is divided into two columns where:

- ▶ The Worst column displays the worst half of the CIs (lower grades) ordered from worst (first row) to best (last row).
- ▶ The Best column displays the best half of the CIs (higher grades) ordered from best (first row) to worst (last row).

Business Process CIs with no **data** KPIs always appear at the bottom of each Worst/Best column. The splitting mechanism removes them from the list before it lists the other CIs in the proper order and distributes these CIs between the Worst and Best columns. The CIs with no **data** KPIs are then sorted in alphabetical order and distributed between the Worst and Best columns and put at the bottom of each column.

The Worst column includes one more Business Process CIs if you select an odd number of CIs.

A single column displays the Business Process CIs ordered from worst to best from top to bottom when you select less than four CIs.

Reference

BPI Application Scorecard User Interface

This section includes (in alphabetical order):

- ▶ Common Header on page 302
- ▶ Results Area on page 304



Common Header

The common header of the Scorecard enables you to select the criteria that you want to use for presenting Scorecard results.

To access	Applications > Business Process Insight > Scorecard
Important information	<p>The Scorecard sorts and displays the ordered Business Processes and their KPIs statuses for the selected time period; for details, see section “How the Scorecard Builds its Display” on page 298.</p> <p>The Scorecard page is available only when you have configured the Business Process Insight Server to be integrated with BSM and configured to send data samples and configured a Profile database.</p>
Relevant tasks	“How the Scorecard Builds its Display” on page 298
See also	“BPI Application Scorecard Overview” on page 296

The following user interface elements are included (unlabeled UI elements are shown in angle brackets):

UI Element	Description
<Common report settings>	For details, see “Common Report Elements” in <i>Reports</i> .
Business Processes	<p>Click to open the Business Processes dialog where you can select the Business Process that you want to display.</p> <p>If one Business Process is selected, its name is displayed to the right of the link. If more than one Business Process is selected, (n/m) Filtered is displayed to the right of the link, where n represents the number of selected Business Processes and m represents the total available for selection.</p>


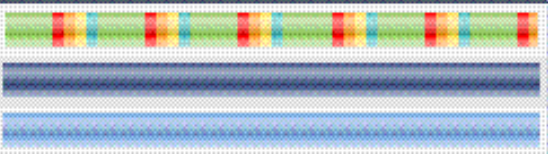
UI Element	Description
KPIs	<p>Enables you to select the KPIs that you want to display on the filtered results area for each Business Process. All KPIs that have been configured for the Business Process CI and any child CIs are available for selection. Select one or more KPIs and click OK.</p> <p>If more than one KPI is selected, (n/m) Filtered is displayed to the right of the link, where n represents the number of selected KPIs and m represents the total available for selection</p>
View	<p>Enables you to select the viewing period used for the over-time bar in the results area. Select the viewing period from the drop-down selection box and click the Apply button to apply the changes to the page.</p>

Results Area

The Results area shows the results of the selections made from the Common Area (see “Common Header” on page 302). The Results area enables you to display the real time status, trend, and over time data of the Business Process. The results are organized by worst to best statuses.

To access	Applications > Business Process Insight > Scorecard
Important information	<p>The Scorecard page sorts and displays the ordered Business Processes and their KPIs statuses for the selected time period; for details, see “How the Scorecard Builds its Display” on page 298.</p> <p>The Scorecard page is available only when you have configured:</p> <ul style="list-style-type: none"> ➤ BPI Server to be integrated with BSM ➤ BPI Server to send data samples to the BSM Gateway ➤ Profile database <p>All the data sample information sent by the BPI Server is displayed using the following KPIs:</p> <ul style="list-style-type: none"> ➤ Backlog ➤ Business Health ➤ Business Impact ➤ Duration ➤ Value ➤ Volume
Relevant tasks	“How the Scorecard Builds its Display” on page 298
See also	“BPI Application Scorecard Overview” on page 296

The following elements are included (unlabeled interface elements are shown in angle brackets):

UI Element	Description
	<p>Click the button to the right of the Business Process to display the available menu options. The context menu options are described in <i>Using Service Health</i>.</p>
<Business Process Name>	<p>The name of the Business Process.</p>
<Over-time bar>	<p>Displays an over-time line, which consists of a colored band representing the KPI status results over the selected time; each color represents a specific KPI status.</p> <p>The width of the colored bands corresponds to the length of time the KPI is in a particular status. The most recent status in the time bar is on the right.</p> <p>Example:</p> 
KPI	<p>The name of the KPI for the Business Process. The column lists the KPIs that were selected in the KPIs dialog box for the Scorecard.</p>

UI Element	Description
<p>Status</p>	<p>Indicates the status of the KPI. For details on the statuses, see “Understanding KPI Statuses” on page 297.</p> <p>Tooltip: Provides the value of the status, and indicated when the status was changed to the current value.</p>
<p>Trend</p>	<p>Indicates the trend of the KPI as compared to its previous state.</p> <p>For details on the trend information refer to the Service Health documentation.</p> <p>Tooltip: Provides the description of the trend.</p>

10

BPI Application Health

This chapter includes:

Concepts

- ▶ Health Page Overview on page 308
- ▶ BPI Instance and Violation Health Information on page 312
- ▶ Process Status on page 315
- ▶ Synchronization and Delay in Seeing Updates to Data on page 316

Tasks

- ▶ How to Configure Active Monitor Instances in the Infrastructure Settings Manager on page 317

Reference

- ▶ BPI Application Health User Interface on page 318

Concepts

Health Page Overview

This section describes the BPI Application Health pages and explains how to navigate and use them to track and monitor the health of your Business Processes.

The Health pages show the operational and business health of the Business Processes that you have defined using the BPI Modeler. The Health pages also include data on the Business Process Monitors, Thresholds and KPIs that you have defined for the Business Processes.

The Health pages provides:

- ▶ Graphical representation of a selected Business Process, in the form of the process diagram. The process diagram is annotated with information relating to the health of the overall Business Process and the individual Activities in the process.
- ▶ Business Process or Business Activity summary information according to the selection criteria. This shows the overall business health of the Business Process or Business Activity, in tabular and in graphical form. You can drill down and view related BPI reports if required.
- ▶ Details of the KPIs that you have defined for the selected Business Process or Business Activity, or Business Process Monitor.
- ▶ Instance violation counts for the selected Business Process or Business Activity.
- ▶ Ability to view the status of the IT operational resources that are linked to Activities in the Business Process.
- ▶ Ability to filter Business Process and Activity data by a specified group. A *<group_property>* drop-down list displays on the Health page, if the Group property was set in the Modeler for the Business Process. The Group drop-down lists the groups that were defined in the Modeler.

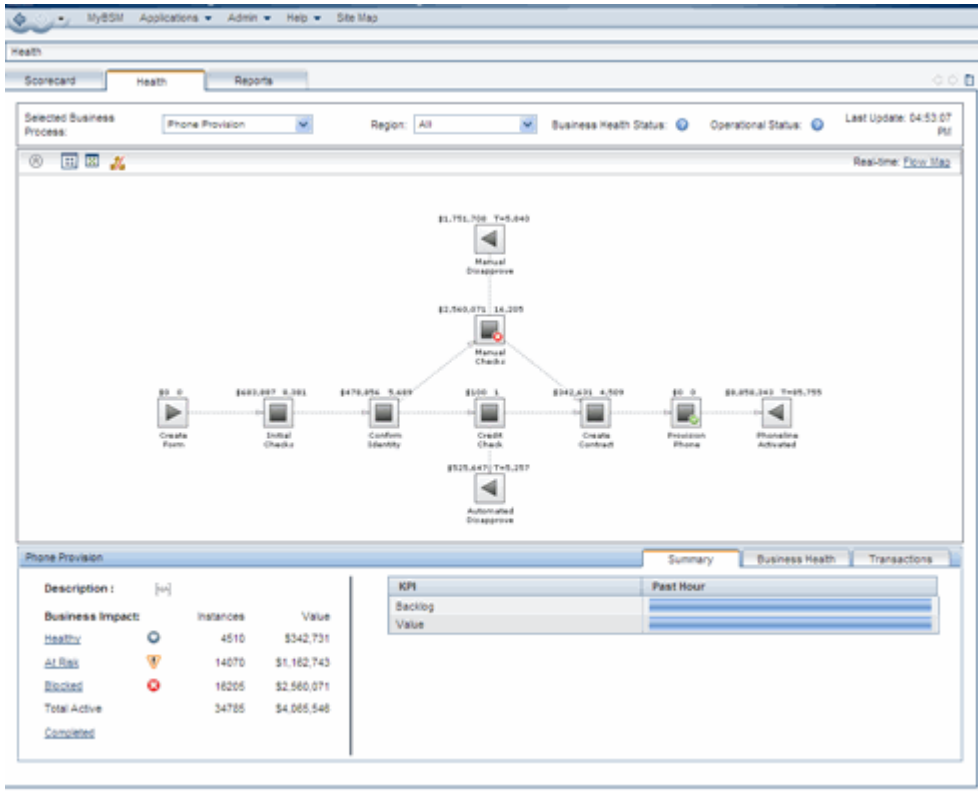
If the Group property was not set or was set to **None** in the Modeler, the *<group_property>* drop-down list does not appear on the Health page or any of the Health dialogs. For details on setting the Group property in the Modeler, see Chapter 3, “Modeler Management.”

You can limit the number of groups that can be specified using the BPI Server Admin Console, to optimize BPI’s performance. For details on setting the group limit, see the "Component Configuration - Business Impact Engine (BIE)" section in the *Business Process Insight Server Administration Guide*. If the number of groups specified in the Group property field exceeds the group limit, the data for the groups listed beyond the exceeded number are combined into a group called **Other**.

Note: If you had defined groups in the Modeler, but set the Group Property to None, and you later decide you want to collect data by groups on the client pages, you can reset the Group Property value in the Modeler and redeploy the Business Process. Changes to the Group Property require redeployment of the process model.

- ▶ Ability to view a summary of related TransactionVision Business Transaction CIs and KPIs that are linked to the current Business Process. You do this by drilling down to the Transaction Management Transaction Summary Report from the Transactions tab on the main Health page.
If there are no TransactionVision CIs linked to the Business Process that you are viewing, no data is available from this option.
- ▶ Ability to view details about a specific transaction instance related to a Process instance by drilling down to the Transaction Management Transaction Tracking Report, to see a list of all completed TransactionVision transactions in a specified time frame.

The Following figure shows an example of the top-level Health page for the Business Process Insight application.



The Health Page is subdivided into different areas of focus, but at the top-level it provides an overall view of both the business and operational health of your deployed Business Processes. To access, select **Applications > Business Process Insight > Health**.

Note: The Health page is available only when you have configured the BPI Server to connect with the BSM Server so that data samples can be sent to the BSM Server. For details, see the "Component Configuration - HP Business Service Management Settings" section of the *Business Process Insight Server Administration Guide*

The Health Page is divided into the following areas, each of which provides more detailed information:

► “Process Diagram Area” on page 318

You can collapse and expand the Process Diagram if you want to provide more space for the information shown on the tabbed areas under the diagram.

► “Summary Tab” on page 326

The Summary Tab displays process instance information and the Scorecard over time graph for the selected Business Process.

From the Summary Tab you can link to additional pages, which enable access to details of Instances; see “Process Instances Dialog” on page 336

► “Business Health Tab” on page 330

The Business Health Tab displays KPI details in the form of a dial and instance violation details in the form of a table.

From the Business Health Tab, you can link to additional pages, which enable access to details of:

- Violations; see section “Instance Violations Dialog” on page 352.
- Monitor details; see section “Monitor Dialog” on page 356.
- BPI Monitors Over Time Report; see section “BPI Monitors Over Time Report” on page 384.
- Process Over Time Report; see section “Business Process Over Time Report” on page 392.
- Activity Over Time Report; see section “Business Activity Over Time Report” on page 396.

- ▶ “Transactions Tab” on page 333

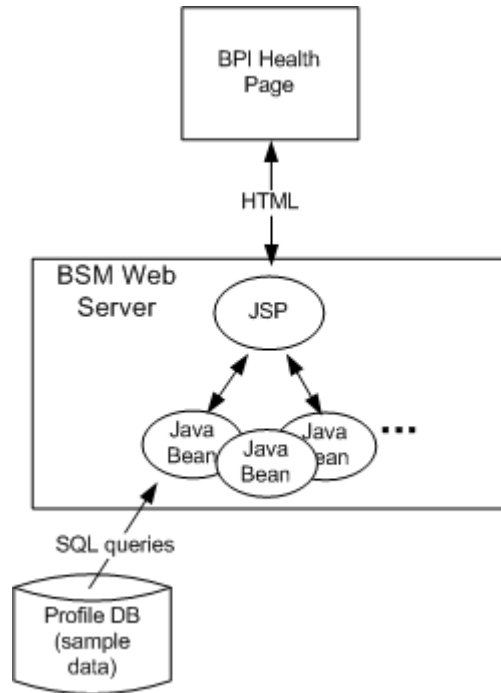
From the Transactions tab, you can link to the Transaction Management Transaction Tracking report, which provides more details of the selected transaction event.

BPI Instance and Violation Health Information

Some of the information presented from the Health pages (links from the Health tab) is sourced directly from the BPI Server and some is sourced from the BSM system.

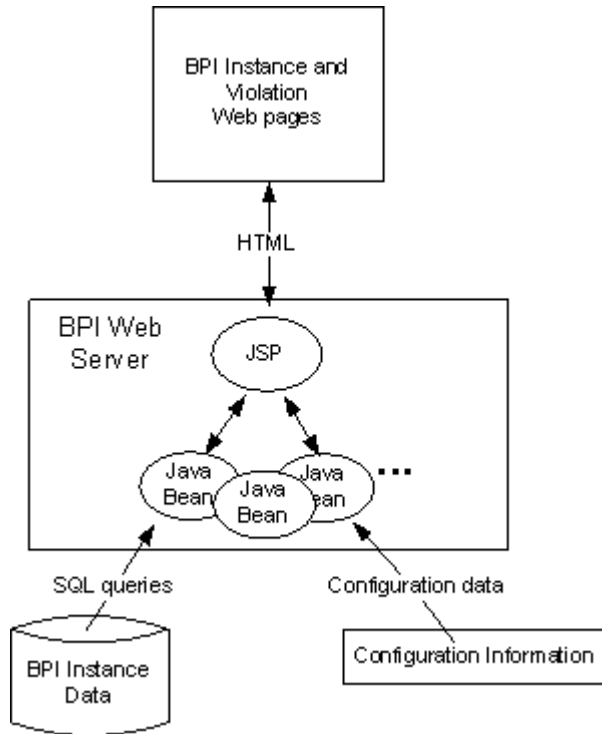
When you open the Health page, the page consists of a set of Java Server Pages (JSPs) and Java beans, which run on the Web Server configured for your BSM installation.

The data presented within the Process Diagram area, the Summary Tab and the Business Health Tab is sourced using the BSM Web Server, which obtains its count information directly, from the BPI data samples, as shown in the following diagram:



The BPI Instance and Violation pages, which you access when you drill down from the top-level Health page to subordinate pages and dialogs, are managed by a set of Java Server Pages (JSPs) and Java beans. These JSPs run on the Web Server configured for the BPI installation and the instance and violation data is obtained from the BPI Instance database.

Following is a diagram of the BPI Instance and Violation web pages.



If the BPI Server, or Servlet Engine, is not running for any reason, this information is not available within the Health Pages.

Process Status

When displaying the status of a process, the following terms are used:

► Blocked

At least one instance of the process is active for an Activity, and this instance cannot proceed due to a problem in an underlying IT operational service.

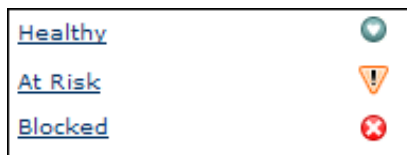
► At Risk

There are currently no process instances in a blocked state, however there are process instances in progress that might reach the blockage some point in the future.

► Healthy

All active process instances are currently past the blockage and can therefore continue to run to completion, or there is no problem with the IT infrastructure.

There is also an icon representing each of the statuses, which is used in place of text. Following are the Business Process Status icons:



Note: Be aware that these rate values can give slightly incorrect values.

Synchronization and Delay in Seeing Updates to Data

The data displayed on the BPI application is based on data sample data. The frequency that the data samples are sent are configured using the **Data samples settings** within the BPI Server Administration Console, described in the *Business Process Insight Server Administration Guide*.

Only the instance data shown in the drill-downs from the BPI Health page is obtained directly from the BPI Instance database.

Tasks

How to Configure Active Monitor Instances in the Infrastructure Settings Manager

You can determine whether active monitor instances are to be included in violation counts on the Health page, or to include only completed instances.

- 1** To modify the active monitor instances setting, select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**:
- 2** Select **Business Process Insight**.
- 3** In the **Health Page Setting**, locate the **Include violations for active monitor instances setting**. Change the value to:
 - **True** to include active monitor instances in violation counts on the Health page
 - **False** to include only completed instances and violation counts on the Health page and the Business Process Instance Violations component in myBSM

Reference

BPI Application Health User Interface

This section includes:

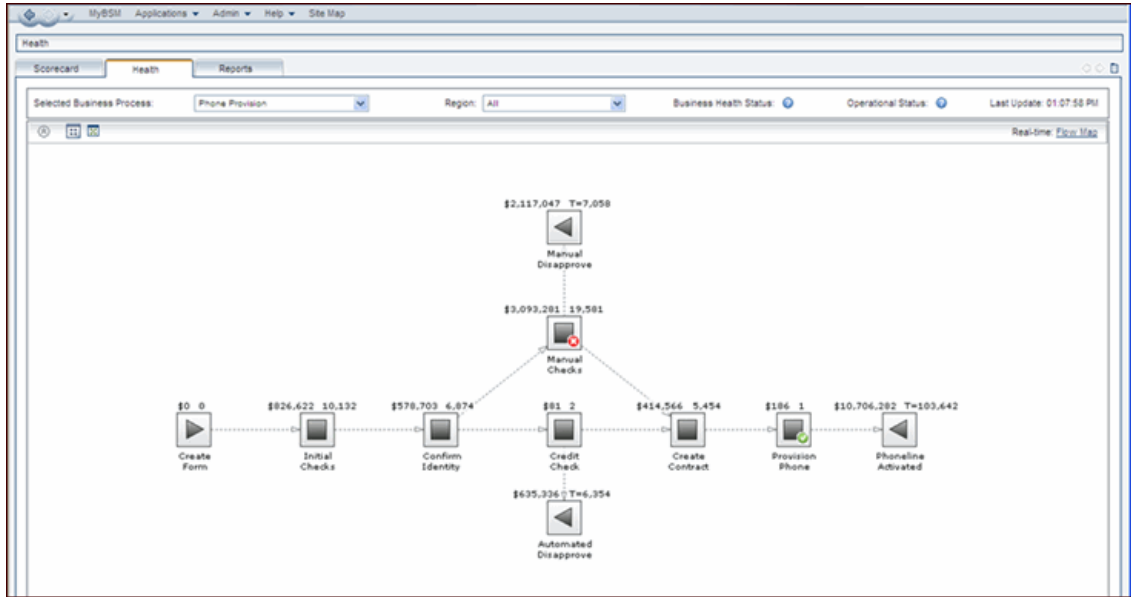
- ▶ Process Diagram Area on page 318
- ▶ Summary Tab on page 326
- ▶ Business Health Tab on page 330
- ▶ Transactions Tab on page 333
- ▶ Process Instances Dialog on page 336
- ▶ Process Instance Dialog on page 344
- ▶ Activity Instance Dialog on page 350
- ▶ Instance Violations Dialog on page 352
- ▶ Monitor Dialog on page 356
- ▶ Monitor Threshold Dialog on page 364

Process Diagram Area

The Process Diagram shows the components and structure of the Business Process when you create it using the Modeler. The data displayed is based on data samples sent to BSM from the BPI Server.






This enables you to visualize the Business Process, which includes the Activity annotations to indicate how many process instances are active at a particular Activity and the process values.




Following is the Process Diagram area on the Health page:



To access	Applications > Business Process Insight > Health
Important information	<p>When displayed in the Process Diagram page, the Business Process layout is the same as when it is created in the Modeler.</p> <p>The data displayed on the Health page changes according to whether you select one of the following:</p> <ul style="list-style-type: none"> ▶ Whole process — in this case, the data relates to all the instances for all the Activities in the process. ▶ Specific process Activity — in this case, the data relates to all the instances for the selected Activity. <p>Click a specific Activity to obtain data for the Activity. Click anywhere in the process diagram area, but not another Activity, to deselect it and move to a whole process view.</p>
See also	“Health Page Overview” on page 308

User interface elements are described below (unlabeled elements are shown in angle brackets>):

UI Elements	Description
	<p>Click this icon to collapse and expand the pane where the Process Diagram is located. This permits more room for the tabbed areas below the diagram.</p> <p>The arrows point upwards when the process diagram is displayed.</p>
	<p>This and the icon that follows enable you to toggle between a fit-to-pane view and a normal view.</p> <p>Click this icon to stretch or shrink the Process Diagram such that it fits within the available space.</p>
	<p>This and the icon above enables you to toggle between a fit-to-pane view and a normal view.</p> <p>Click this icon to revert the Process Diagram to the size it was when defined within the Modeler</p>
	<p>Click this icon to hide or display transactions.</p>
	<p>This icon is the Activity that represents a normal starting point for a process.</p> <p>Note: A visual representation of the health of the Business Process with respect the IT operational resources on which it depends. The health of each Activity is shown as an icon overlay. “Activity Overlay” on page 325 describes these overlays and their meaning.</p> <p>Customization: You can customize the Activity graphic as described in Chapter 12, “Annotations for Process Diagrams”.</p>

UI Elements	Description
	<p>This icon is the Activity that represents an activity within your Business Process, for example, a check for account details.</p> <p>Note: A visual representation of the health of the Business Process with respect the IT operational resources on which it depends is shown in terms of an icon overlay. “Activity Overlay” on page 325 describes these overlays and their meaning.</p> <p>Customization: You can customize the Activity graphic as described in Chapter 12, “Annotations for Process Diagrams”.</p>
	<p>This icon is the Activity that represents a normal end point for a process.</p> <p>Note: A visual representation of the health of the Business Process with respect the IT operational resources on which it depends is shown in terms of an icon overlay. “Activity Overlay” on page 325 describes these overlays and their meaning.</p> <p>Customization: You can customize the Activity graphic as described in Chapter 12, “Annotations for Process Diagrams”.</p>
	<p>This icon represents a junction point within your Business Process and is a visual Activity and is used to help define the structure of the Business Process.</p> <p>It shows the start and end point of a structural element in the process and has no IT operational resource status or count and value information associated with it.</p>

UI Elements	Description
<Activity overlay>	<p>A visual representation of the health of the Business Process with respect the IT operational resources on which it depends. The health of each Activity is shown as an icon overlay.</p> <p>The Activity overlay provides additional information to show the health of the of the selected Business Process with respect to the IT operational resources on which the process depends; see “Activity Overlay” on page 325 for more information about the meanings of the overlays.</p>
<group_property> drop-down	<p>Available if the Group property was set in the Modeler for the Business Process. If the Group property was not set, or was set to None, this field is not shown.</p> <p>Select one of the following Group attributes to filter the data shown for a Business Process:</p> <ul style="list-style-type: none"> ▶ All - Shows combined data for all the groups. ▶ <Group> - Shows data only for that group. ▶ Not Set - Shows combined data for process or monitor instances which existed before the grouping was defined for the process. ▶ Other - If available, shows combined data of groups that exceeded the group limit set in the BPI Server Admin Console. This only appears if the number of defined groups exceeded the limit. For details on setting the group limit, see the "Component Configuration - Business Impact Engine (BIE)" section in the <i>Business Process Insight Server Administration Guide</i>. <p>For more details on groups, see “Health Page Overview” on page 308.</p>

UI Elements	Description
<Normal Arc>	<p>Process Activities are linked using Arcs, which are dotted lines that join Activities. The Arc shows the direction of the flow in the Business Process; they do not imply any sequence or processing order, but they do imply an expected order. Arcs are not enforced; however, they are used when determining the business impact status of the process.</p> <p>If you want to know when the Activities in your process are executed in an unexpected order, use a Sequence Arc.</p>
<Sequence Arc>	<p>A Sequence Arc is a solid line and is a notification that the Activities, which are connected by the arc, are not being activated in the correct order. The correct order is determined by the direction of the arc between the Activities.</p>
<Text below the Activity icon>	<p>This is the name of the Activities as entered in the BPI Modeler when the process was created; for example: Confirm Identity.</p>
<Text in upper left-hand corner of Activity icon>	<p>In the case of a Start or Business Activity, this represents the total Business Process value of all the instances that are currently active at that Activity.</p> <p>In the case of an End Activity, this represents the total value of all the instances that have completed at that Activity.</p> <p>If the locale for the system is set, a currency symbol appears with the text for values that are currencies.</p> <p>Customization: You can customize this text as described in Chapter 12, “Annotations for Process Diagrams”.</p>

UI Elements	Description
<Text in upper right-hand corner of Activity icon>	<p>This is the count of the number of instances that are currently active at the Activity. The End Activity shows the total of the completed instances for the business; this is the total of all instances since the process was deployed in the Modeler or the counts were reset.</p> <p>If the locale for the system is set correctly, the count is displayed in a locale-sensitive format.</p> <p>Customization: You can customize this text as described in Chapter 12, “Annotations for Process Diagrams”.</p>
Business Health Status	<p>Overall Business Health of the Business Process. The worst case status is presented here.</p>
Last Update	<p>The date and time the data presented on the Health page was last updated.</p> <p>Note: If you have configured a delay for sending data samples to BSM, the data presented is not for Last Update time, but for the Last Update time adjusted by the delay you have configured; refer to section “Data Samples” on page 41 for more information.</p>
Operational Status	<p>Overall IT operational resource status for the Business Process. The worst case status is presented here.</p> <p>This is the IT operational resource status as it is known to BPI.</p>
Real Time Process Diagram	<p>Click to view the Process Diagram data from the BPI Server in real time.</p>
Selected Business Process	<p>Click to open a drop-down list where you can select a different Business Process that you want to display on the Health page.</p>







Activity Overlay

The Activity Overlays provide additional information about the Process Diagram to show the health of the Business Process. This is the health of the Business Process in terms of the IT infrastructure of the underlying systems on which the individual Business Activities are linked. The IT infrastructure is linked to the Activities in your Business Process when you model the process using the BPI Modeler.

The overlays are presented as visual representations and are shown in terms of an icon overlay on the Activity of the Business Process.

The diagram displays the operational status as an overlay on an Activity if the status is **OK** or above.

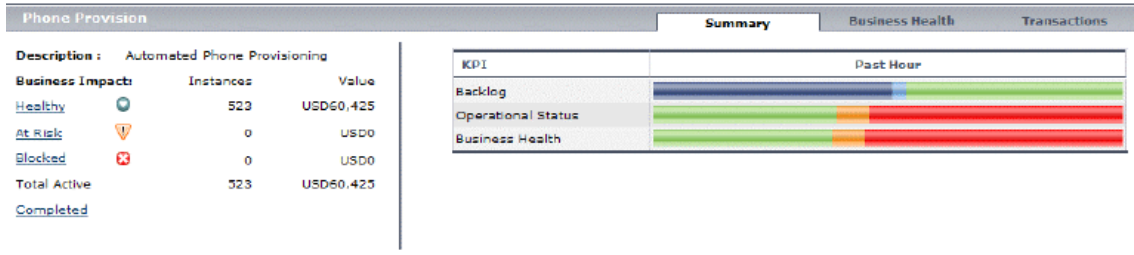
The following table describes the overlays in more detail (unlabeled UI elements are shown in angle brackets>):

UI Elements (A-Z)	Description
	A system health status of OK . All the system KPIs fell within their configured settings.
	A system health status of Warning . The worst status of any system KPI, for a dependent CI, was reported as a warning (using the worst-child rule).
	A system health status of Minor . The worst status of any system KPI, for a dependent CI, was reported as minor (using the worst-child rule).
	A system health status of Major . The worst status of any system KPI, for a dependent CI, was reported as major (using the worst-child rule).
	A system health status of Critical . The worst status of any system KPI, for a dependent CI, was reported as critical (using the worst-child rule).
	The system health status is No Data . This means there is insufficient data to make a decision on the system health status.

Summary Tab

The Summary tab shows business and operational summary information relating to either the selected Business Process (see “Business Process Elements” on page 327), or the selected Process Activity (see “Business Activity Elements” on page 328).

Following is an example of the Summary Tab on the Health page.



To access	Applications > Business Process Insight > Health > select the Summary tab
Important information	<ul style="list-style-type: none"> ▶ If you select a Business Process, you can then select specific categories of process instances; for example, blocked instances. You are then moved to the Instances Details page, where the list of instances is filtered to show only those process instances that are blocked. ▶ The label No Data is displayed when no data samples are available.
See also	“Health Page Overview” on page 308

The Summary Tab includes the following:

- ▶ “Business Process Elements” on page 327
- ▶ “Business Activity Elements” on page 328

Business Process Elements

The following table describes the elements presented on the Summary Tab when the Business Process is selected; that is, you have not selected a specific Activity in the Business Process.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<Name>	The name of Business Process is shown in the title bar of the tabs area and is the name of the Business Process as entered using the Modeler.
Description	Content of description field entered using Modeler. If no description is provided, [NA] is displayed as a value.
Business Impact	<p>Breakdown of the health status of all the process instances for the selected Business Process. It includes instances that are:</p> <ul style="list-style-type: none"> ▶ Healthy ▶ At Risk ▶ Blocked <p>For more details about the status field, see “Process Status” on page 315.</p> <p>Click the status label to open the Process Instances Page, which is filtered to show only instances with the selected status; see “Process Instances Dialog” on page 336.</p>
Instances	<p>Numbers of instances for the Business Process in each of the specified statuses; see “Process Status” on page 315 for a description of the status field.</p> <p>The total Count for all instances is also presented and the count of Violations.</p>
Value	<p>Value of the instances for the Business Process in each of the specified statuses; see “Process Status” on page 315 for a description of the status field.</p> <p>The total Value for all instances is also presented.</p>

UI Elements	Description
Completed	Click to open the Process Instances Page, which is filtered to show only instances with the status of Completed .
<Scorecard summary>	Scorecard display for the selected Business Process showing the over-time bar; see Chapter 9, “BPI Application Scorecard”.

Business Activity Elements

The following table describes the elements presented on the Summary Tab when a specific Business Activity is selected (unlabeled UI elements are shown in angle brackets):

User interface elements are described below (unlabeled elements are shown in angle brackets):

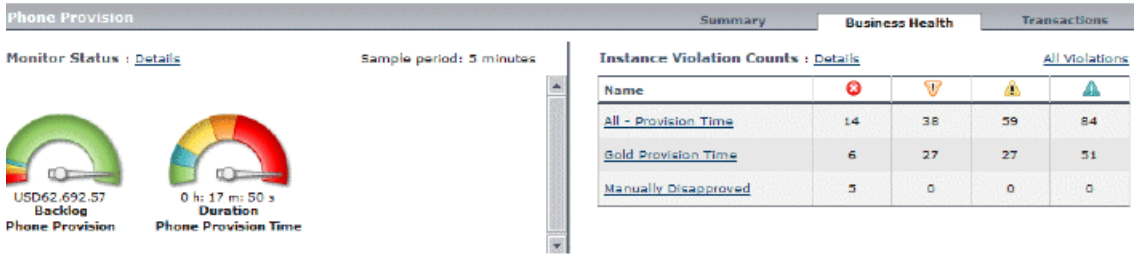
UI Elements	Description
<Name/Activity name>	Name of Business Process and the Business Activity is shown in the title bar of the tabs area and is the name of the Business Process and Business Activity as entered using the Modeler.
Description	Content of description field for the Business Activity when entered using the Modeler. If no description is provided, [NA] is displayed as a value.
Instances	Lists the Active instances for the selected Activity. Active instances are still progressing through the process. Click the Total Active link to open the Instances Page; see “Process Instances Dialog” on page 336. The instances page is filtered to show all the process instances for the selected Activity within the selected Business Process.

UI Elements	Description
Count	Label for the instance counts, which lists the number of Active instances at the selected Activity. Active instances are still progressing through the process.
Value	Labels for the value, which lists the values of the instances that are Active at the selected Activity. Active instances are still progressing through the process.
<Scorecard summary>	Scorecard display for the complete Business Activity showing the over-time bar; see Chapter 9, “BPI Application Scorecard”.

Business Health Tab

The Business Health tab enables you to view objectives set on a Health Indicator, Violation counts and details.

Following is an example of the Business Health tab on the Health page.



To access	Applications > Business Process Insight > Health > select the Business Health tab
Important information	<p>The Business Health tab displays:</p> <ul style="list-style-type: none"> ▶ Objective dials for the objectives set on a Health Indicator associated with a Business Process, Business Activity or Business Process Monitor using the option: Admin > Service Health > View Management > CI Indicators See “Business Health Dials” on page 331 for more details. ▶ Table showing the Instance Violation Counts for the selected Business Process or Business Activity; see “Instance Violation Counts” on page 332. ▶ Violation details for the selected Business Process or Business Activity. Click to open the Violations page; see “Instance Violations Dialog” on page 352. <p>NOTE: You must create a unique KPI for each Health Indicator. Otherwise, KPIs that contain multiple related Health Indicators are not displayed.</p>
See also	“Health Page Overview” on page 308

The Business Health tab includes the following:

- “Business Health Dials” on page 331
- “Instance Violation Counts” on page 332

Business Health Dials

When you open the Business Health tab, you are presented with a series of dials representing the KPI statuses that you have configured.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<Dials>	<p>The dials provide a visual representation of the business objectives that have been set on Health Indicators associated with a Business Process, Business Activity or Business Process Monitor.</p> <p>The dial shows the current value. The needle on the dial indicates status of the KPI value with respect to the objectives that have been set on the related Health Indicators.</p>
<Drilldown>	<p>You can select a dial and drill down for more information, as follows:</p> <ul style="list-style-type: none"> ➤ For dials representing Business Process Monitor KPIs configured using the Monitor Definer, you can drill down to the Monitors Over Time Report; see “BPI Monitors Over Time Report” on page 384. ➤ For dials representing Business Process or Business Activity KPIs, you can drill down to the Business Process Over Time or Business Activity Over time Report; see “Business Process Over Time Report” on page 392 and “Business Activity Over Time Report” on page 396. <p>You can also drill down to the Monitors page for more details of the Monitors; see “Monitor Dialog” on page 356.</p>

UI Elements	Description
<KPI name and process or activity name>	The name of the KPI and the appropriate Process, Activity, or Monitor or Process Activity name are displayed below the dial. If the dial represents objectives set on a custom monitor, the KPI name is shown as the custom monitor data units value.
<KPI status>	The KPI status shows the current status of all the KPIs for which you have set Health Indicator objectives.
<Tooltip>	There is a tooltip for each dial showing the monitor status, plus the monitor and objective values. The background color for the tooltip indicates the Business Process Monitor status.

Instance Violation Counts

The Business Health tab displays an Instance Violation Counts table which summarizes the counts for the selected Business Process or Business Activity.

The Instance Violation Counts table can be configured to include threshold violations for active instances of duration monitors, or to include only completed instances. A duration monitor instance is considered active if the business process instance has entered the monitor's span, but not yet exited. For details on this configuration setting, see “How to Configure Active Monitor Instances in the Infrastructure Settings Manager” on page 316.

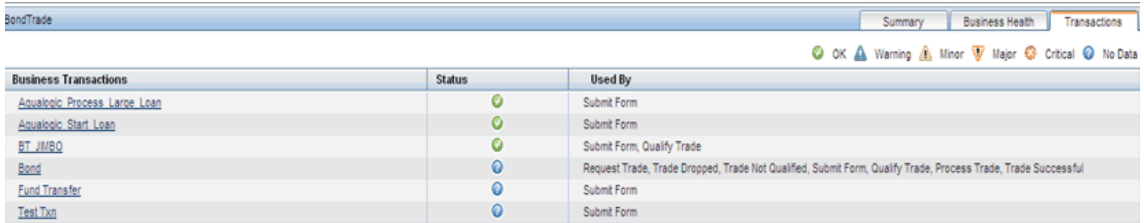
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
All Violations	Click the link to open the Violation page, which is filtered to show violations for the selected Business Process, or Business Activity; see “Instance Violations Dialog” on page 352.
Threshold Name Drilldown	You can select an Instance Threshold and drill down to the Threshold Violations table for more information about the individual threshold instances.

Transactions Tab

The Transactions tab displays summary information relating to the Business Transactions that are linked to the selected Business Process or Business Activity.

Following is an example of the Transactions Tab on the Health page:



Business Transactions	Status	Used By
Aqualoic Process Large Loan	OK	Submit Form
Aqualoic Start Loan	OK	Submit Form
BT_WIBO	OK	Submit Form, Qualify Trade
Bond	Warning	Request Trade, Trade Dropped, Trade Not Qualified, Submit Form, Qualify Trade, Process Trade, Trade Successful
Fund Transfer	No Data	Submit Form
Test Txn	No Data	Submit Form

To access	Applications > Business Process Insight > Health > select the Transactions tab
See also	“Health Page Overview” on page 308

You can see which Business Transactions drive each Business Activity in the Business Process in one of the following ways:

- In the “Transactions Tab Table” on page 334.
- In the “Transactions Tab Process Diagram” on page 335.

Transactions Tab Table

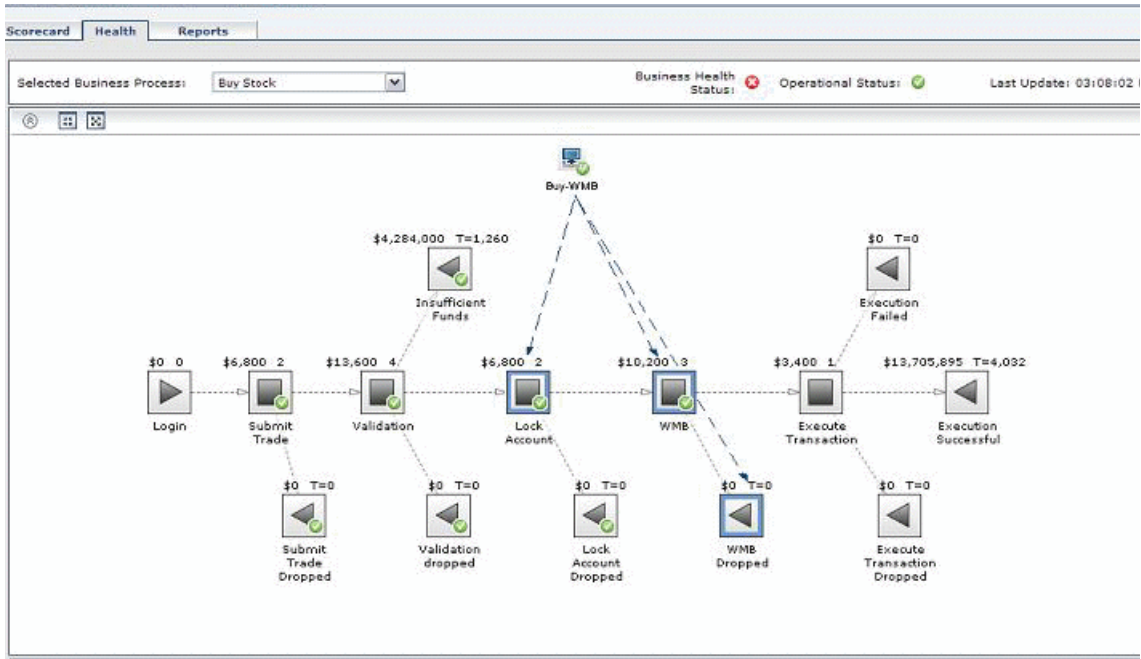
The Transactions tab table shows in table format which Business Transactions drive each Business Activity in the Business Process.

Following are the user interface elements that are presented in the Transaction Tab table. The elements are the same if you select the whole Business Process, or a Business Activity (unlabeled UI elements are shown in angle brackets):

UI Elements	Description
Business Transactions	<p>The name of the Business Transaction as defined in TransactionVision and as linked to the BPI Business Process.</p> <p>Click a Business Transaction to drill down to the Transaction Summary Report in Transaction Management. This report displays a list of all completed transactions in a specified time frame, as well as volume and response time metrics. For details, see “Transaction Management Reports” in <i>Using Transaction Management</i> or the Transaction Management Help.</p>
<column data>	<p>This column data is as defined under:</p> <p>Admin > Service Health> Business Transactions</p> <p>The columns included on the Transactions Tab are variable to match the KPI defined for Business Transaction and as shown in Service Health.</p>
Status	<p>Current status of the Business Transaction as defined by TransactionVision.</p>
Used By	<p>List of all activities linked to the Business Transaction.</p>

Transactions Tab Process Diagram

Following is an example of the Process Diagram when the Transactions Tab is selected on the Health Page.



When you select the Transactions tab on the Health page, the Process Diagram changes to show the relationships between the Business Activities and the Business Transactions. Each Business Transaction is represented by the Transaction icon along the bottom of the Process Diagram, with dotted lines to the activities they drive.

When you click a Business Transaction icon, the dotted lines are highlighted between the icon and the Business Activities to which the icon is linked. You can also click the Business Activity to highlight the dotted line to the Business Transaction that drives it.

The Hide Transactions icon enables you to toggle between hiding and viewing the transaction icons and dotted lines.

Process Instances Dialog

The Process Instances dialog displays information relating to the process instance counts.

Process Instances

Phone Provision: Process Instances

Business Activity : All Activities Region : All

Process Instances: Found 4,518 - showing most recent 10. [Export all](#) as CSV.

Identifier Search Instance Status: Healthy Maximum List Size : 10

Identifier	Process Value	Start Time	End Time	Status
812246	\$105.95	2/23/10 1:41:56 PM PST	--	●
812236	\$69.99	2/23/10 1:41:37 PM PST	--	●
812232	\$99.50	2/23/10 1:41:26 PM PST	--	●
812231	\$85.60	2/23/10 1:41:23 PM PST	--	●
812221	\$105.95	2/23/10 1:40:54 PM PST	--	●
812212	\$69.99	2/23/10 1:40:37 PM PST	--	●
812209	\$99.50	2/23/10 1:40:29 PM PST	--	●
812208	\$85.60	2/23/10 1:40:27 PM PST	--	●
812198	\$105.95	2/23/10 1:39:53 PM PST	--	●

● Healthy ▼ At Risk ✘ Blocked ● Completed

Close Help

To access	Applications > Business Process Insight > Health > select one of the following links in the left panel of the Summary tab: Healthy, Blocked, At Risk or Completed
Important information	The display is filtered according to the status of the instances and whether the instance counts have been requested from a Business Process, or an Activity context. The most recent instances are listed first. For details, see: <ul style="list-style-type: none"> ▶ “Process Instances for a Selected Business Process” on page 337 ▶ “Process Instances for a Selected Business Activity” on page 341
See also	“Health Page Overview” on page 308

Process Instances for a Selected Business Process

This section describes the Process Instances dialog when selected from a Business Process context. The Process Instances dialog is divided into the following areas:

- ▶ “Instances Dialog Settings for a Business Process” on page 338
- ▶ “Instances Dialog Results for a Business Process” on page 339

Instances Dialog Settings for a Business Process

The following table describes the user interface elements for the settings area of the Instances dialog for a Business Process (unlabeled UI elements are shown in angle brackets):

UI Elements	Description
Business Activity	<p>Indicates the selection criterion for the dialog. You can list all the Activities in the selected Business Process, or you can select a specific Activity and list only the instances that are active at the Activity.</p> <p>The number of Process Instances found and the number of Process Instances listed in the results area is displayed underneath this UI element.</p>
<group_property> drop-down	<p>Available if the Group property was set in the Modeler for the Business Process. If the Group property was not set, or was set to None, this field is not shown.</p> <p>Select one of the following Group attributes to filter the data shown for a Business Process:</p> <ul style="list-style-type: none"> ➤ All - Shows combined data for all the groups. ➤ <group> - Shows data only for that group. ➤ Other - Shows combined data of groups that exceeded the group limit set in the BPI Server Admin Console. This only appears if the number of defined groups exceeded the limit. For details on setting the group limit, see the "Component Configuration - Business Impact Engine (BIE)" section in the <i>Business Process Insight Server Administration Guide</i>. <p>For more details on groups, see "Health Page Overview" on page 308.</p>
Identifier	<p>The Identifier of the Process Instance that you want to list in the results area. You can search for a specific instance, or leave this field blank if you want to list all Process Instances. Wildcard searches are also available.</p>

UI Elements	Description
Instance Status	The status of the Process Instances that you want to list in the results area. Select the value Any to list all Process Instances in all states.
Maximum List Size	The number of Process Instances that you want to list in the results area. You can select from a list size of 12, 20 50 or 100.
Export all	Enables you to export all the process instances and their values to a file in comma separated value (CSV) format. You can optionally include Data definition values when exporting the process instance information; this is set from the Servlet Engine option within the BPI Server Administration Console. see "Component Configuration - Servlet Engine" in the <i>Business Process Insight Server Administration Guide</i> . The exported CSV file can then be imported into Microsoft Excel for analysis.

Instances Dialog Results for a Business Process

The following table describes the user interface elements in the results area (unlabeled UI elements are shown in angle brackets>):

UI Elements	Description
End Time	The time that this Process Instance fulfilled the End Condition for the End Activity, if applicable.
Identifier	The identifier for the Process Instance. Click to open the Process Instance page to obtain more information relating to the selected Process Instance; see section "Process Instance Dialog" on page 344.

UI Elements	Description
Process Value	<p>The content of the Value attribute for the listed Process Instance.</p> <p>Process Value is based on the Process Value property of the Business Process. The Process Value is assigned when you create the Business Process in the Modeler. The value is typically assigned from a Business Event when the processes is active.</p>
Start Time	<p>The time that this Process Instance fulfilled the Start Condition for the Start Activity.</p>
Status	<p>The status of the listed Process Instance, and can be one of:</p> <ul style="list-style-type: none"> ➤ Healthy ➤ At Risk ➤ Blocked ➤ Completed <p>See “Process Status” on page 315 for descriptions of the status values.</p>

Process Instances for a Selected Business Activity

This section describes the Process Instances dialog when selected from a Business Activity view.

The Process Instances dialog is divided into the following areas:

- “Instance Dialog Settings for a Business Activity” on page 341
- “Dialog Instance Results for a Business Activity” on page 343

Instance Dialog Settings for a Business Activity

The following table describes the user interface elements for the settings area (unlabeled UI elements are shown in angle brackets):

UI Elements	Description
<Activity Name>	Name of the selected Activity
Activity Name	Select box that shows the current selection criterion for the dialog. You can list all the instances in the selected process, or you can select a specific Activity and list only the Instances that are active at the Activity.
Activity Status	The status of the Process Instances that you want to list in the results area. Select the value Any to list all Process Instances in all states.
Average Duration (H:M:S)	The average time taken for all process instances to fulfill the Start and End condition for the Activity. This time is measured across all the instances that have passed through this Activity. A value for this field is provided only when there is sufficient data to generate a statistical result.

UI Elements	Description
Export all	<p>Enables you to export all the process instances and their values to a file in comma separated value (CSV) format. You can optionally include Data definition values when exporting the process instance information; this is set from the Servlet Engine option within the BPI Server Administration Console. See "Component Configuration - Servlet Engine" in the <i>Business Process Insight Server Administration Guide</i>.</p> <p>The exported CSV file can then be imported into Microsoft Excel for analysis.</p>
Identifier	<p>The Identifier of the Process Instance that you want to list in the results area. Leave this field blank if you want to list all Process Instances for the selected Activity.</p>
Instance Rate (per hour)	<p>The rate at which instances of the Activity are being completed, expressed as an hourly rate.</p> <p>A value for this field is provided only when there is sufficient data to generate a statistical result.</p>
Maximum List Size	<p>The number of Process Instances (Active and Completed) that you want to list in the results area. You can select from a list size of 8, 20 50 or 100.</p>
Operational Status	<p>Status of selected Activity, and can be one of:</p> <ul style="list-style-type: none"> ▶ Healthy ▶ At Risk ▶ Blocked ▶ Completed <p>See section "Process Status" on page 315 for descriptions of the status values.</p>
Process Value Rate (per hour)	<p>The value of the process instances as they are processed on an hourly basis.</p> <p>A value for this field is provided only when there is sufficient data to generate a statistical result.</p>

Dialog Instance Results for a Business Activity

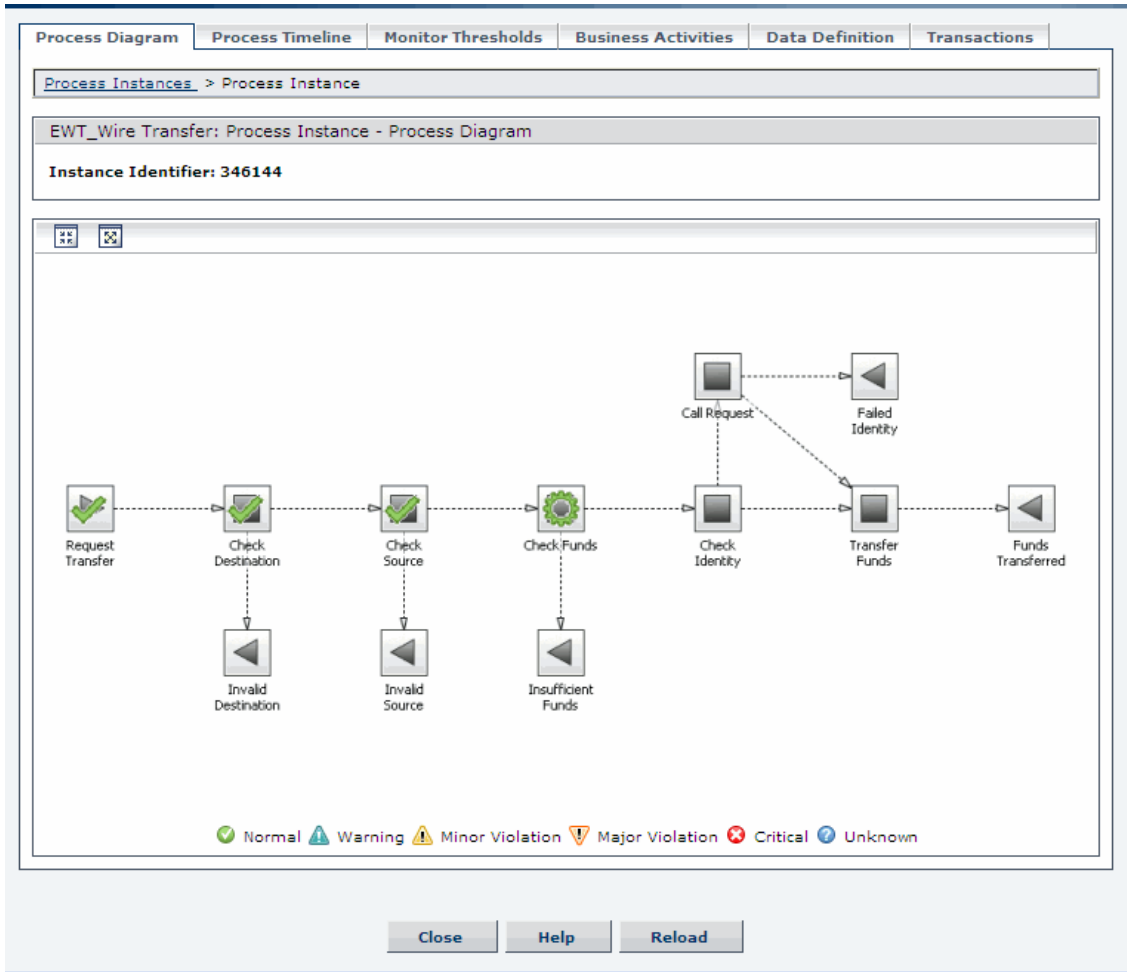
The following user interface elements are included (unlabeled UI elements are shown in angle brackets>):

UI Elements	Description
Activity Start Time	The time that this Process Instance fulfilled the Start Condition for the selected Activity. If an Activity fulfills its Start Condition multiple time, the most recent start time is listed.
Activity Stop Time	The time that this Process Instance fulfilled the End Condition for a selected Activity.
Identifier	The identifier for the Process Instance. Click to open the Process Instance page to obtain more information relating to the selected Process Instance; see “Process Instance Dialog” on page 344.
Process Value	The content of the Value attribute for the listed Process Instance.
Start Time	The time that this Process Instance fulfilled the Start Condition for a Start Activity.

Process Instance Dialog

The Process Instance dialog displays information relating to the selected process instance.

Following is an example of the Process Instance dialog.



To access	Applications > Business Process Insight > Health > Summary tab > select one of the following links in the left panel of the Summary tab: Healthy, Blocked, At Risk or Completed > the Process Instances dialog opens > select an identifier.
See also	"Health Page Overview" on page 308

The Process Instance dialog includes the following:

- "Process Diagram" on page 346
- "Process Timeline" on page 346
- "Monitor Thresholds" on page 347
- "Process Activities" on page 347
- "Data Definition" on page 348
- "Transactions" on page 348

Process Diagram

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<Activity>	Click an Activity in the process diagram and open the Activity Instance dialog; see “Activity Instance Dialog” on page 350.
<Process diagram>	This shows the process diagram for the selected Process Instance; see “Process Diagram Area” on page 318 for a description of the process diagram.

Process Timeline

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<Activity>	Click an Activity in the process diagram and open the Activity Instance dialog; see “Activity Instance Dialog” on page 350.
<Process Instance details>	This shows the Process Instance details as a time line, so that you can easily see the order in which Activities are executed and graphically see the length of time spent at each Activity.

Monitor Thresholds

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<Associated monitor>	Click the associated Monitor to open the Monitor dialog; see “Monitor Dialog” on page 356.
<Instance threshold name>	Click the instance threshold name to open the Threshold instance dialog; see “Monitor Threshold Dialog” on page 364.
<Monitor Instance threshold details>	This shows the monitor instance threshold details. Each instance threshold is shown in the form of a dial. The dial shows the status of the Monitor Instance Threshold.

Process Activities

This page lists the details of a selected Process Activity.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
Activity Name	The name of the Activity instance.
Overall Duration	Time taken to complete the Activity.
Latest Start Time	Time at which the Process Instance fulfilled the Start Condition for the last activation of the Activity.
Latest End Time	Time at which the Process Instance fulfilled the End Condition for the last activation of the Activity.
Multiple Starts	Whether the Activity fulfilled its start condition more than once.
<Activity>	Click an Activity to open the Activity Instance dialog; see “Activity Instance Dialog” on page 350.

Data Definition

This page lists the Data definition property values for the Associated Data definition that has been defined in the Modeler for the Business Process.

User interface elements are described below (unlabeled elements are shown in angle brackets>):

UI Elements	Description
Property Name	The name of the Data Definition property as entered in the Modeler.
Property Value	The value for the Data Definition property at the selected Activity.

Transactions

This page lists the TransactionVision transaction instances associated within the context of the current Process Instance.

Following is an example of the Transactions tab:

Process Diagram Process Timeline Monitor Thresholds Business Activities Data Definition Transactions

[Process Instances](#) > Process Instance

BondTrade: Process Instance - Transactions

Instance Identifier: 00000129677890380000000000002510

BondTrade

Business Transaction	Start Time	End Time	Completion State	Result State
Bond	6/24/10 5:25:55 PM PDT	6/24/10 5:25:59 PM PDT	✔	✔

✔ Completed ⏸ Processing ⚪ Unknown ✔ Success ✖ Failed

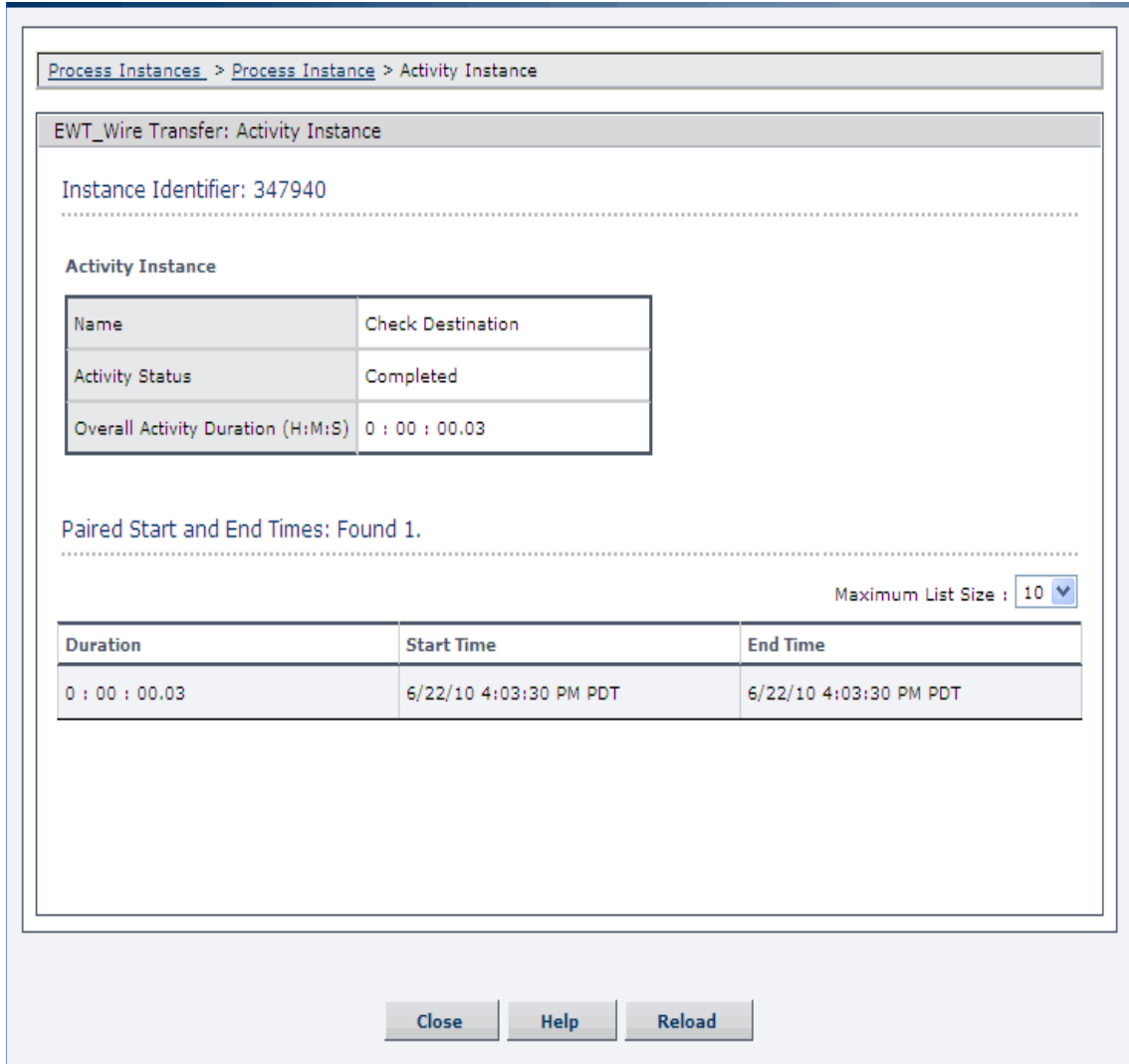
Close Help Reload

The following elements are included for each transaction instance. User interface elements are described below:

UI Elements	Description
Business Transaction	The class name of the transaction instance. If you configured BPI to integrate with TransactionVision within Transaction Management, a link to the Transaction Tracking Report (managed by Transaction Management) for the selected transaction instance, is displayed. For more details on the Transaction Tracking Report, see <i>Using Transaction Management</i> .
Completion State	The current state of the transaction instance. This value may be Processing , Completed or Unknown .
End Time	The time that the transaction instance finished.
Result State	The result state of the transaction instance. This value may be Success , Failed or Unknown .
Start Time	The time that the transaction instance started.

Activity Instance Dialog

This dialog lists all the instances that have fulfilled their Start and End conditions for the selected Activity.



Process Instances > Process Instance > Activity Instance

EWT_Wire Transfer: Activity Instance

Instance Identifier: 347940

Activity Instance

Name	Check Destination
Activity Status	Completed
Overall Activity Duration (H:M:S)	0 : 00 : 00.03

Paired Start and End Times: Found 1.

Maximum List Size : 10

Duration	Start Time	End Time
0 : 00 : 00.03	6/22/10 4:03:30 PM PDT	6/22/10 4:03:30 PM PDT

Close Help Reload

To access	Applications > Business Process Insight > Health > Summary tab > select Completed status in the left pane (opens the Process Instances dialog) > Business Activities tab > select Activity Name link
See also	“Health Page Overview” on page 308

User interface elements are described below:

UI Elements	Description
Activity Status	The status of the selected Activity, see “Process Status” on page 315 for details of the possible statuses for the Activity.
Maximum List Size	A drop-down list box that enables you to configure the number of items that appear in the list.
Name	The name of the selected Activity.
Overall Activity Duration (H:M:S)	The time taken to complete the Process Activity.
Paired Start and End Times	This is a list of the history of the Activity with respect to the number of times the selected instance has fulfilled the Start and End Conditions for the Activity; it includes the Duration, Start Time and End Time.

Instance Violations Dialog











The Instance Violations dialog lists all the Threshold Violation instances related to the selected Business Process or Business Activity.







Violations

EWT_Wire Transfer: Violations

Violations: Found 1,224,889 - showing most recent 10. [Export all as CSV.](#)

Identifier : Severity All Maximum List Size : 10

Time Threshold Violated	Time Violation Raised	Monitor Name	Threshold Name	Monitor Value At Violation Time	Severity	Process Identifier
6/22/10 3:45:12 PM PDT	6/22/10 3:50:12 PM PDT	Check Funds	Time to Check Funds	0 h: 5 m: 0 s		347009
6/22/10 3:45:12 PM PDT	6/22/10 3:50:12 PM PDT	Check Funds	Time to Check Funds	0 h: 7 m: 0 s		346927
6/22/10 3:45:12 PM PDT	6/22/10 3:50:12 PM PDT	Check Funds	Time to Check Funds	0 h: 9 m: 0 s		346849
6/22/10 3:45:12 PM PDT	6/22/10 3:50:12 PM PDT	Check Funds	Time to Check Funds	0 h: 3 m: 0 s		347087
6/22/10 3:45:10 PM PDT	6/22/10 3:50:12 PM PDT	Check Funds	Time to Check Funds	0 h: 5 m: 0 s		347007
6/22/10 3:45:10 PM PDT	6/22/10 3:50:12 PM PDT	Check Funds	Time to Check Funds	0 h: 7 m: 0 s		346926
6/22/10 3:45:10 PM PDT	6/22/10 3:50:12 PM PDT	Check Funds	Time to Check Funds	0 h: 9 m: 0 s		346847
6/22/10 3:45:10 PM PDT	6/22/10 3:50:12 PM PDT	Check Funds	Time to Check Funds	0 h: 3 m: 0 s		347086
6/22/10 3:45:09 PM PDT	6/22/10 3:50:12 PM PDT	Check Funds	Time to Check Funds	0 h: 5 m: 0 s		347006
6/22/10 3:45:09 PM PDT	6/22/10 3:50:12 PM PDT	Check Funds	Time to Check Funds	0 h: 3 m: 0 s		347085

 Normal
 Warning
 Minor Violation
 Major Violation
 Critical
 Unknown

To access	Applications > Business Process Insight > Health > Business Health tab > select Name identifier or All Violations
Important information	<ul style="list-style-type: none"> ▶ The most recent instance Threshold violations are listed first. ▶ The label No Data is displayed when no data samples are available.
See also	“Health Page Overview” on page 308

The following user interface elements are included for the Instance Violation settings:

UI Elements	Description
Activity Name	The Activity Name for the single-activity Monitor.
Identifier	Enter a Process Identifier to list violations related to a specific process instance. Leave this blank to list violations for all process instances, or enter a partial string to search.
Severity	Select a severity level (Warning, Minor, Major or Critical) to list violations that are greater than or equal to a specific violation level. Enter All to list all violation levels.

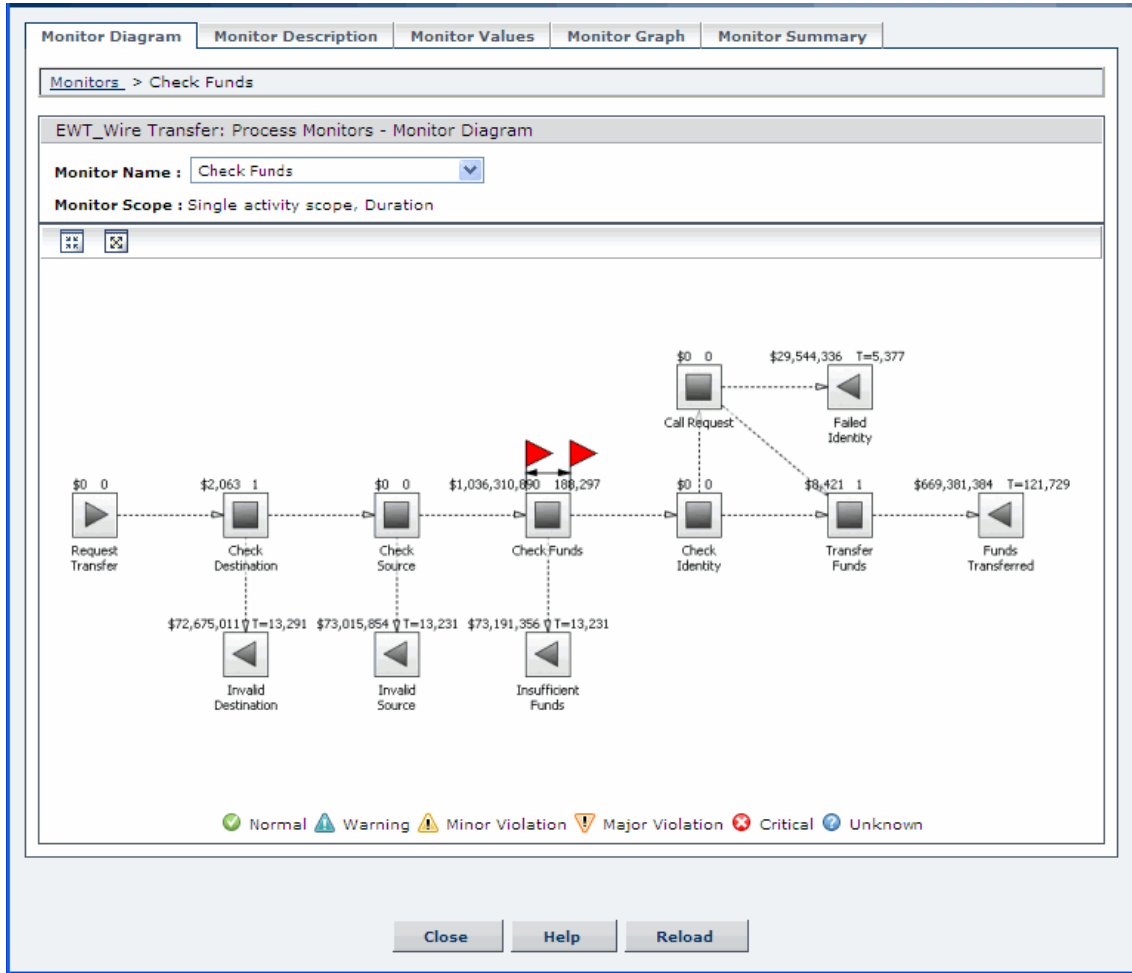
UI Elements	Description
Maximum List Size	The number of instance violations that you want to list in the results area. You can select from a list size of 10, 20 50 or 100.
Export all as CSV	Enables you to export all the process instances and their values to a file in comma separated value (CSV) format. You can optionally include Data definition values when exporting the process instance information; this is set from the Servlet Engine option within the BPI Server Administration Console. See "Component Configuration - Servlet Engine" in the <i>Business Process Insight Server Administration Guide</i> . The exported CSV file can then be imported into Microsoft Excel for analysis.

The following user interface elements are included (unlabeled UI elements are shown in angle brackets>):

UI Elements	Description
Time Threshold Violated	The time that the instance threshold condition was violated.
Time Threshold Raised	<p>The time that the instance threshold condition was detected by BPI.</p> <p>The time that a instance threshold is detected can be different if you have stopped the BPI Monitor Engine, or the BPI system has been disabled for some reason.</p>
Monitor Name	<p>Name of the Monitor that this instance threshold is defined for.</p> <p>Click to open the related Monitor Dialog; see section “Monitor Dialog” on page 356.</p>
Threshold Name	<p>Name of the instance threshold.</p> <p>Click to open the related Monitor Threshold dialog; see section “Monitor Threshold Dialog” on page 364.</p>
Monitor Value At Time of Threshold Violation	Value of Monitor when instance threshold was violated.
Severity	<p>Level of the violation, which can be one of:</p> <ul style="list-style-type: none"> ➤ Normal ➤ Warning ➤ Minor ➤ Major ➤ Critical
Process Identifier	<p>Identifier for Process Instance listed for the selected Activity and affected by the instance threshold violation.</p> <p>Click to open the related Process Instance page; see section “Process Instance Dialog” on page 344.</p>

Monitor Dialog

The Monitor Dialog shows the data collected that relates to the Business Process Monitors that you defined for a Business Process.



To access	Applications > Business Process Insight > Health > Business Health tab > select one of the following links in the left panel of the Summary tab: Healthy, Blocked, At Risk , or Completed (opens the Process Instances Dialog) > select an identifier (opens the Process Instance Dialog) > select the Monitor Threshold tab > click Associated Monitor
Important information	Information about defining Business Process Monitors can be found in the following documentation: <ul style="list-style-type: none"> ▶ Business Process Insight Monitor Definer Online Help ▶ <i>Business Process Insight Integration Training Guide - Defining Business Monitors</i>
See also	“Health Page Overview” on page 308

The Monitor dialog includes the following:

- ▶ “Monitor Diagram” on page 357
- ▶ “Monitor Description” on page 358
- ▶ “Monitor Values” on page 358
- ▶ “Monitor Graph” on page 361
- ▶ “Monitor Summary” on page 363

Monitor Diagram

This page shows a graphical representation of the selected Monitor as a process diagram, see “Process Diagram Area” on page 318 for a description of the process diagram.

Click an Activity on the process diagram to open the Process Instances dialog in the selected Activity context.

Select a group from the *<group_property>* drop-down list to view the Monitor Diagram by that group, if groups were defined in the Modeler. If groups were not defined, the *<group_property>* drop-down is not displayed. See “Health Page Overview” on page 308 for details.

The additional information about the process diagram are the red flags. These red flags reflect those added when you defined the Monitor in the Monitor Definer and show the start and end points for this Monitor Definition. The flags do not appear in the case of a Business Process Monitor with a span of Whole Process.

Monitor Description

This page displays the details of the Monitor as defined when you created the Monitor using the Monitor Definer:

- Monitor Name
- Monitor Description
- Monitor Span

In the case of a Monitor Definition that has been defined with a span of Single Activity or Multiple Activity, the Start Activity and End Activity values are also listed.

You can use this page to gain an overview of all the monitors reported for the selected process.

Monitor Values

This page lists the values for the Monitor instances, starting with the most recent.

User interface elements are described below:

UI Elements	Description
Monitor Name	Name of the selected Monitor. The number of Monitor Instances found and the number of Monitor Instances listed in the results area is displayed underneath Monitor Name.
Process Identifier	Enter a Process Identifier to filter the list based on a specific Process Instance, or leave the field blank to filter on all instances.

UI Elements	Description
Monitor Status	Select the value of the status for the Monitor on which you want to filter the results: <ul style="list-style-type: none"> ➤ All ➤ Active ➤ Completed
Maximum List Size	The number of Monitor instances that you want to list in the results area. You can select from a list size of 10, 20 50 or 100.
Export All as CSV	Enables you to export all the Monitor instance data to a file in comma separated value (CSV) format. The exported CSV file can then be imported into Microsoft Excel for analysis.

The results shown in the results area varies according to whether you are viewing a Value or Duration Monitor.

- “Value Monitor” on page 359
- “Duration Monitor” on page 360

Value Monitor

The following table describes the user interface elements for the Monitor Instance results area for a Value Monitor.

User interface elements are described below:

UI Elements	Description
Process Identifier	The identifier for the Process Instance.
Start Time	Time when process instance entered the span of the Monitor.
End Time	Time when process instance exited the span of the Monitor.

UI Elements	Description
Monitor Status	Status of the Process Instance, which can be one of All , Active or Completed .
Process Value	The configured value of each Process Instance that is currently within the span of the monitor
Severity	The worst status of any instance threshold in this monitor and which the process instance has violated. The status can be: <ul style="list-style-type: none"> ➤ Normal ➤ Warning ➤ Minor ➤ Major ➤ Critical ➤ Unknown

Duration Monitor

The following table describes the user interface elements for the Monitor Instance results area for a Duration Monitor.

User interface elements are described below:

UI Elements	Description
Process Identifier	The identifier for the Process Instance.
Start Time	Time when process instance entered the Monitor span.
End Time	Time when process instance exited the Monitor span.
Monitor Status	Status of the Monitor instance, which can be one of All , Active or Completed .

UI Elements	Description
Monitor Duration	The value of the Monitor specified as a time.
Severity	The worst status of any instance threshold in this monitor and that the process instance has violated. This status can be: <ul style="list-style-type: none"> ➤ Normal ➤ Warning ➤ Minor ➤ Major ➤ Critical ➤ Unknown

Monitor Graph

This page shows the Monitor results as a graph based on the statistics collected for the Monitor; these statistics are selected from the **Data Aggregation Method**. The graph can be either a bar chart or a line. The data shown on the graph is tailored to your filter criteria. When you have completed the settings for the filters, the graph is drawn automatically as required.

The page is divided into an area to select the filter criteria and a results area, which show the required data in graphical form.

User interface elements are described below:

UI Elements	Description
Monitor Name	Name of the selected Monitor. You can change the Monitor that you want to see the results for using this drop-down selection box.
Data Aggregation Method	The statistical sources that you want to use as the data to be plotted on the graph.
Graph Type	Select the type of graph that you want to show. This can be either a bar chart, or a line graph.

UI Elements	Description
Graphing Period	Select the time period that you want to plot results for. If you select All , then all the data collected is plotted.
Chart by group	If you have defined Groups for your Monitors, in the Monitor Definer, you have the option to chart your data using the Group definitions. Select Yes to chart using your Group definitions, or No to chart the data without using groups.
Export Graph as CSV	<p>Enables you to export the statistical data plotted on the graph to a file in comma separated value (CSV) format. You can optionally include Data definition values when exporting the process instance information; this is set from the Servlet Engine option within the BPI Server Administration Console. See "Component Configuration - Servlet Engine" in the <i>Business Process Insight Server Administration Guide</i>.</p> <p>The exported CSV file can then be imported into Microsoft Excel for analysis.</p>
Export all data sources as CSV	<p>Enables you to export all the statistical data for all the data sources to a file in comma separated value (CSV) format. You can optionally include Data definition values when exporting the process instance information; this is set from the Servlet Engine option within the BPI Server Administration Console. See "Component Configuration - Servlet Engine" in the <i>Business Process Insight Server Administration Guide</i>.</p> <p>The exported CSV file can then be imported into Microsoft Excel for analysis.</p>

Monitor Summary

This page displays summary information relating to recent and all values of the Monitor.

User interface elements are described below:

UI Elements (A-Z)	Description
Monitor Values to date	The data relating to each listed Monitor value since the Monitor was deployed.
Recently Completed Monitor Values	The data relating to each listed Monitor value over the last collection interval (Data sample collection period).

Monitor Threshold Dialog



The Monitor Threshold dialog displays the statistical data collected that relates to the Business Process Monitor Thresholds that you defined in the Monitor Definer.

Threshold Definition
Threshold Violations

[Process Instances](#) > [Process Instance](#) > [Time to Check Funds](#)

EWT_Wire Transfer: Process Instance Monitor Thresholds - Threshold Definition

Threshold Name : Time to Check Funds

 **Check Funds:**  Time to Check Funds

Threshold Name	Time to Check Funds
Description	Time required to check funds
Threshold Type	Absolute
Monitor Field	Each Process Instance Value
Warning Level	>= 3 mins
Minor Level	>= 5 mins
Major Level	>= 7 mins
Critical Level	>= 9 mins
Recent Monitor Average	3 d: 5 h: 30 m
Associated Monitor	Check Funds

Close
Help
Reload

To access	Applications > Business Process Insight > Health > Business Health tab > select one of the following links in the left panel of the Summary tab: Healthy, Blocked, At Risk , or Completed (opens the Process Instances Dialog) > select an identifier (opens the Process Instance Dialog) > select the Monitor Threshold tab > click Threshold Name
See also	“Health Page Overview” on page 308

Click the Threshold name link to see the Monitor Threshold details, which are divided into the following tabbed areas:

- “Threshold Definitions” on page 365
- “Threshold Violations” on page 366

Threshold Definitions

This tab displays the details of the Monitor Threshold as defined using the Monitor Definer:

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<Parent monitor definition>	<p>The following is additional information relating to the parent Monitor Definition:</p> <p><group_property> drop-down list</p> <p>The <group_property> drop-down list enables you to view the threshold details by group, if a Group property was set in the Monitor Definer. See “Health Page Overview” on page 308 for details.</p>

UI Elements	Description
Recent Monitor Average	The average Monitor value as measured over the latest collection interval; see section “Collection Interval” on page 203 for information relating to the collection interval.
Associated Monitor	Link to the Monitor Page that shows information for the Monitor that is associated with the selected Threshold.

Threshold Violations

This tab displays a list of all the violations found for the selected instance threshold.

The data shown in the list is tailored to your filter criteria. When you have completed the settings for the filters, the list is populated automatically as required.

The page is divided into the following areas, which show the required data in list form:

- ▶ “Filter Criteria for Threshold Violations” on page 366
- ▶ “Results Area for Threshold Violations” on page 367)

Filter Criteria for Threshold Violations

The following user interface elements are included (unlabeled UI elements are shown in angle brackets):

UI Elements	Description
<code><group_property></code>	Select a group from the drop-down list to view the threshold violations by group, if groups were defined in the Monitor Definer. If groups were not defined, <code><group_property></code> is not displayed. See “Health Page Overview” on page 308 for details.
Identifier	Enter a Process Identifier to list violations related to a specific process instance. Leave this blank to list violations for all process instances.

UI Elements	Description
Severity	Select the violation level that you want to list. If you select the value <i>All</i> , all violation levels are listed.
Maximum List Size	The number of Threshold Violations that you want to list in the results area. You can select from a list size of 8, 20 50 or 100.
Export all as CSV	Enables you to export all the Threshold Violation data to a file in comma separated value (CSV) format. You can optionally include Data definition values when exporting the process instance information; this is set from the Servlet Engine option within the BPI Server Administration Console. See "Component Configuration - Servlet Engine" in the <i>Business Process Insight Server Administration Guide</i> . The exported CSV file can then be imported into Microsoft Excel for analysis.

Results Area for Threshold Violations

The following user interface elements are included (unlabeled UI elements are shown in angle brackets>):

UI Elements	Description
Process Identifier	The identifier for the Process Instance. Click to open the Process Instance page to obtain more information relating to the selected Process Instance; see section "Process Instance Dialog" on page 344.
Time Threshold Violated	The time that the instance threshold condition was violated.

UI Elements	Description
Time Violation Raised	<p>The time that the instance threshold condition was detected by BPI.</p> <p>The time that an instance threshold is detected can be different if you have stopped the Monitor Engine, or the BPI or BSM system has been disabled for some reason.</p>
Monitor Value At Violation Time	Value of parent Monitor instance at the point where the Violation occurred.
Severity	<p>The level of the instance threshold violation, which can be:</p> <ul style="list-style-type: none"> ➤ Normal ➤ Warning ➤ Minor ➤ Major ➤ Critical ➤ Unknown

11

BPI Application Reports

This chapter includes:

Concepts

- ▶ Report Pages Overview on page 370

Tasks

- ▶ How to View and Analyze Data Using the BPI Application Reports on page 371

Reference

- ▶ BPI Application Reports User Interface on page 373

Concepts

Report Pages Overview

The BPI Application Report pages display historical data relating to summaries of Business Processes, Business Activities, and Monitors that you have defined.

The BPI reports consist of charts and tables that help you track and analyze the health of your monitored BPI environment.

You can view and generate the BPI reports, as well as drill down and apply various filtering criteria to examine performance trends and pinpoint the cause of health and performance issues.

Reports enable you to examine and analyze the data that is collected for Business Process Insight in the Profile database. When generating reports, you can specify various report settings, including time range and resolution, profile, grouping, and filters.

As with all BSM reports, you can customize the BPI reports by adding a header and a footer, by selecting to automatically or manually generate the report, or by customizing other display elements. More details of using BSM reports can be found in "Using the Report Manager Reports " in *Reports*.

Tasks

How to View and Analyze Data Using the BPI Application Reports

The following steps describe how to view and analyze data using the BPI Application reports.

- “Prerequisites” on page 371
- “View and analyze the data using the reports” on page 371
- “Enrich the Business Process Report View” on page 372

1 Prerequisites

To see report information for your Business Processes, you need to make sure that you have created a Profile database using the following option within BSM:

Admin > Platform > Manage Profile Databases

2 View and analyze the data using the reports

When there is data available in the Profile database; that is, BPI is sending data samples, the following BPI reports are available to help you analyze the BPI Business Process data:

- **Business Process Summary.** Displays summary data for the selected Business Process; see section “Business Process Summary Report” on page 373.

You can drill down to the following reports from the Business Process Summary report.

- **BPI Monitors Over Time.** Displays two graphs for each selected Monitor definition; see section “BPI Monitors Over Time Report” on page 384.

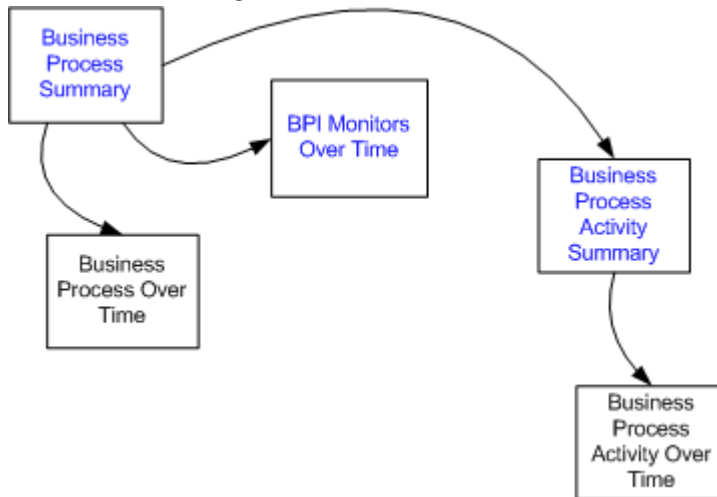
The first graph displays the average/minimum/maximum/weighted value or duration of the selected Monitor over time.

The second graph displays the number of Monitor instance violations over time.

- **Business Activity Summary.** Displays summary data for the selected Business Activity; see section “Business Activity Summary Report” on page 388.

You can drill down to the Business Activity Over Time report from this report.

The following diagram shows the hierarchy of reports for Business Process Insight.



3 Enrich the Business Process Report View

You can additionally attach IT Universe CIs to the appropriate Business Activity. This enables you to add additional CI information to your reports to enhance the level of information that the reports provide.

Reference

BPI Application Reports User Interface

This section includes:

- Business Process Summary Report on page 373
- BPI Monitors Over Time Report on page 384
- Business Activity Summary Report on page 388
- Business Process Over Time Report on page 392
- Business Activity Over Time Report on page 396

Business Process Summary Report

The Business Process Summary Report displays the summary data for the selected Business Processes. Use the Business Process Summary Report to gain an overall view of the historical health of your Business Processes.

Following is an example of a Business Process Summary Report

The screenshot shows a web application interface for a Business Process Summary Report. The interface includes a navigation menu at the top with options like 'MyBSM', 'Applications', 'Admin', 'Help', and 'Site Map'. Below the navigation, there are tabs for 'Scorecard', 'Health', and 'Reports'. The main content area is titled 'Business Process Summary' and features a 'View' dropdown set to 'Month to date' and a 'Show' section with radio buttons for 'Value', 'Count', and 'Both' (selected). There are two data tables displayed:

Value					
Business Process	Total Value of Completed Instances	Avg. Value of Backlog Instances	Avg. Value of Healthy Instances	Avg. Value of At Risk Instances	Avg. Value of Blocked Instances
EVT_Wire Transfer (\$)	0.00	0.00	0.00	0.00	0.00
Phone Provision (\$)	0.00	2,869,153.22	2,869,153.22	0.00	0.00
RFD_Supply Chain	0.00	1,447,430.98	1,447,430.98	0.00	0.00

Count					
Business Process	Number of Completed Instances	Avg. Number of Backlog Instances	Avg. Number of Healthy Instances	Avg. Number of At Risk Instances	Avg. Number of Blocked Instances
EVT_Wire Transfer	0	0.00	0.00	0.00	0.00
Phone Provision	0	24,714.41	24,714.41	0.00	0.00
RFD_Supply Chain	0	288.67	288.67	0.00	0.00

To access	Applications > Business Process Insight > Reports > Business Process Summary
Relevant tasks	“How to View and Analyze Data Using the BPI Application Reports” on page 371
See also	“Report Pages Overview” on page 370

Report Settings

The following table describes the user interface elements of the Business Process Summary report settings (unlabeled UI elements are shown in angle brackets):

UI Elements	Description
<Common report elements>	For details, see “Common Report Elements” in <i>Reports</i> .
Business Processes	Click to open the Business Processes dialog box where you can filter which Business Processes you want to display. For details, see “Browse/Search Tabs” on page 375.
Show	Select one of the following options: <ul style="list-style-type: none">▶ Value. Select to display value data for the Business Processes in the Value area.▶ Count. Select to display Business Process count values in the Count area.▶ Both. Select to display both the counts and the values. This is the default for the Report.

Browse/Search Tabs

When you select Business Processes, a dialog opens with the Browse and Search views in which you can select which Business Processes you want to display.

Browse View

You can browse CIs in the RTSM. These CIs are already populated in the RTSM by the person responsible to IT operations. This is done either manually or through automated means, such as discovery.

Select the Business Process view and the Business Process CIs that you want to display on the Report page.

If one Business Process is selected, its name is displayed to the right of the link. If more than one Business Activity is selected, Filtered (n) is displayed to the right of the link, where n represents the number of selected Processes.

You can only select CIs within the current Browse view.

Search

Search for one or more Business Process CIs in the views or the RTSM, search for all occurrences of a CI, or filter the list of CIs that is displayed.

The Search option enables you to find the CI you need. You can set up searches based on any combination of the filter criteria based on CI Type and CI Name.

When searching for CIs by name, you enter a string, or partial string in the CI Name list box. The search returns all CIs that contain the entered string somewhere in the name (within the boundaries of the other search criteria that you define).

When using this search option, note the following:





- ▶ The search by CI name option is not case sensitive.
- ▶ You can search just for the name by using the first few letters of the name or first part of the name. Wildcards do not work.
- ▶ You can search just for the CI type by entering the type, such as `business_activity`.

If there are more than one CIs beginning with that name or of that CI type, a list displays in the left panel.

- ▶ You can select one or more CIs and click the right arrow to put the CIs in the Related CIs right panel.

Report Value

The following table describes the user interface elements of the Business Process Summary Value area. The Value area is displayed when you select Value or Both from the Show: option (unlabeled UI elements are shown in angle brackets).




UI Elements	Description
	<p>Select a Business Process and click the Drill Down to Business Process Over Time Report button to drill down to the Business Process Over Time report for the selected Business Process. The report is displayed with the most appropriate option selected.</p>
	<p>Select a Business Process and click the Drill Down to Business Activity Summary Report button to drill down to the Business Activity Summary report for the selected Business Process. The report is displayed with the most appropriate option selected.</p>
	<p>Select a Business Process and click the Drill Down to Duration Monitors Over Time Report button to drill down to the BPI Monitors Over Time report for the selected Business Process where only the Duration Monitors are shown in the report.</p> <p>The button is enabled only if the selected Business Process has Duration Monitors defined.</p>
	<p>Select a Business Process and click the Drill Down to Value Monitors Over Time Report button to drill down to the Monitors Over Time report for the selected Business Process where only the Value Monitors are shown in this report.</p> <p>Custom Monitor can also be selected for this report.</p> <p>The button is enabled only if the selected Business Process has a Value Monitor defined.</p>


UI Elements	Description
Business Process	<p>The name of the selected Business Process.</p> <p>Note: You can sort on this column.</p> <p>Tooltip: Displays the name of the Business Process and the currency symbol, in cases where the value is a currency type.</p>
Total Value of Completed Instances	<p>Displays the total of the value attribute for all the Business Process instances that were completed in the selected time period.</p> <p>The background color of the table row is set to gray.</p> <p>Tooltip: Displays the value of the table cell with a currency unit if it is available.</p>
Avg. Value of Backlog Instances	<p>Displays the average of the value attributes for all the Business Process instances with a status of Active over the specified period of time.</p> <p>The background color of the table row is set to gray.</p> <p>Tooltip: Displays the value of the table cell with a currency unit if it is available.</p>
Avg. Value of Healthy Instances	<p>Displays the average of the value attributes for all the Business Process instances that have a Healthy status over the specified period of time. The background color of the table row is set to green.</p> <p>Tooltip: Displays:</p> <ul style="list-style-type: none"> ▶ The value of the table cell. ▶ The value of the Avg. Number of Backlog Instances cell. ▶ The percentage of the current table cell value compared to the value of the Avg. Number of Backlog Instances cell.

UI Elements	Description
<p>Avg. Value of At Risk Instances</p>	<p>Displays the average of the value attributes for all the Business Process instances that have an At Risk status over the specified period of time. The background color of the table row is set to yellow.</p> <p>Tooltip: Displays:</p> <ul style="list-style-type: none"> ▶ The value of the table cell. ▶ The value of the Avg. Value of Backlog Instances cell. ▶ The percentage of the current table cell value compared to the value of the Avg. Value of Backlog Instances cell.
<p>Avg. Value of Blocked Instances</p>	<p>Displays the average of the value attribute for all the Business Process instances that are in the Blocked status over the specified period of time. The background color of the table row is set to red.</p> <p>Tooltip: Displays:</p> <ul style="list-style-type: none"> ▶ The value of the table cell. ▶ The value of the Avg. Number of Backlog Instances cell. ▶ The percentage of the current table cell value compared to the value of the Avg. Number of Backlog Instances cell.

Report Count

The following table describes the user interface elements of the Business Process Summary Count area. The Count area is displayed when you select Count or Both from the Show: option (unlabeled UI elements are shown in angle brackets).

UI Elements	Description
	Select a Business Process and click the Drill Down to Business Process Over Time Report button to drill down to the Business Process Over Time report for the selected Business Process. The report is displayed with the Count option selected.
	Select a Business Process and click the Drill Down to Business Activity Summary Report button to drill down to the Business Activity Summary report for the selected Business Process. The report is displayed with the Count option selected.
	Select a Business Process and click the Drill Down to Duration Monitors Over Time Report button to drill down to the Monitors Over Time report for the selected Business Process where only the Duration Monitors are shown in the report. The button is enabled only if the selected Business Process has a duration Monitor defined.

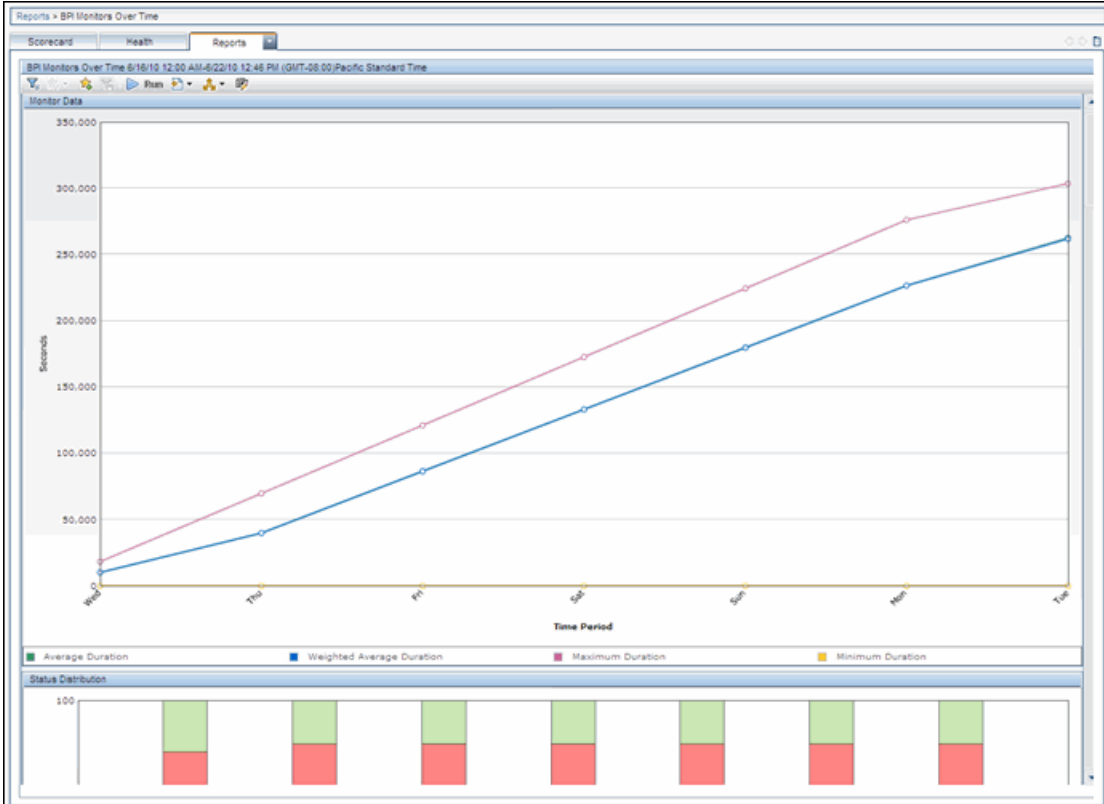
UI Elements	Description
	<p>Select a Business Process and click the Drill Down to Value Monitors Over Time Report button to drill down to the Monitors Over Time report for the selected Business Process where only the Value Monitors are shown in this report.</p> <p>Custom Monitors can also be displayed in this report.</p> <p>The button is enabled only if the selected Business Process has a Value Monitor defined.</p>
<p>Business Process</p>	<p>The name of the selected Business Process.</p> <p>Note: You can sort on this column.</p> <p>Tooltip: Displays the name of the Business Process.</p>
<p>Number of Completed Instances</p>	<p>Displays the total number of the Business Process instances that were completed in the selected time period.</p> <p>The background color of the table row is set to gray.</p> <p>Tooltip: Displays the value of the table cell.</p>
<p>Avg. Number of Backlog Instances</p>	<p>Displays the average number of backlogged Business Process instances out of the number of samples reported over the specified period of time.</p> <p>The background color of the table row is set to gray.</p> <p>Tooltip: Displays the value of the table cell.</p>

UI Elements	Description
<p>Avg. Number of Healthy Instances</p>	<p>Displays the average number of the Business Process instances that have a Healthy status, out of the number of samples reported over the specified period of time. The background color of the table row is set to green.</p> <p>Tooltip: Displays:</p> <ul style="list-style-type: none"> ▶ The value of the table cell. ▶ The value of the Avg. Number of Backlog Instances cell. ▶ The percentage of the current table cell value compared to the value of the Avg. Number of Backlog Instances cell.
<p>Avg. Number of At Risk Instances</p>	<p>Displays the average number of the business process instances that have an At Risk status, out of the number of samples reported over the specified period of time. The background color of the table row is set to yellow.</p> <p>Tooltip: Displays:</p> <ul style="list-style-type: none"> ▶ The value of the table cell. ▶ The value of the Avg. Number of Backlog Instances cell. ▶ The percentage of the current table cell value compared to the value of the Avg. Number of Backlog Instances cell.

UI Elements	Description
Avg. Number of Blocked Instances	<p>Displays the average number of Business Process instances that are in the Blocked status, out of the number of samples reported over the specified period of time.</p> <p>The background color of the table row is set to red.</p> <p>Tooltip: Displays:</p> <ul style="list-style-type: none">▶ The value of the table cell.▶ The value of the Avg. Number of Backlog Instances cell.▶ The percentage of the current table cell value compared to the value of the Avg. Number of Backlog Instances cell.

BPI Monitors Over Time Report

The BPI Monitors Over Time Report displays two graphs for a selected Business Process Monitor: Monitor Data and Status Distribution.



To access	Applications > Business Process Insight > Reports > BPI Monitors Over Time
Important information	<p>Use the BPI Monitors Over Time Report to list information relating to the Business Process Monitors status for your Business Processes over a selected time period. The report data is shown in graphical form and can also be published in tabular form for the following graphs:</p> <ul style="list-style-type: none"> ▶ Monitor Data, which plots the average/minimum/maximum/weighted value or duration of the selected Business Process Monitor over time. ▶ Status Distribution, which plots the Monitor instance violations over time, based on their status.
Relevant tasks	“How to View and Analyze Data Using the BPI Application Reports” on page 371
See also	“Report Pages Overview” on page 370

Report Settings

The following table describes the user interface elements of the BPI Monitor Over Time Report settings (unlabeled UI elements are shown in angle brackets).

UI Elements	Description
<Common report elements>	For details, see “Common Report Elements” in <i>Reports</i> .
BPI Monitors	Click to open the BPI Monitors dialog box where you can filter which BPI Monitor you want to display. For details, see “Browse/Search Tabs” on page 375.
Graph by Group	<p>This option appears when one Business Process Monitor is selected. If more than one monitor is selected, this option is not available.</p> <p>Click Graph by Group to drill down to a Monitor Graph with a display that is split according to the different elements in the Group definition</p>

Monitor Data Area

The Monitor Over Time Report displays a separate set of charts for each selected Monitor and for the selected time period in the Monitor Data area.

If you have selected an BPI Value or Custom Monitor, the graph displays the following information:

UI Elements	Description
Average Duration	The average duration of the completed instances of the selected Monitors out of the total number of completed instances of the selected Monitors.
Average Value per Instance	The average value of the completed instances of the selected Monitor out of the total number of completed instances.
Maximum Duration.	The maximum duration of all the completed instances for the selected Monitor.
Maximum Value	The maximum value of all the completed instances of the selected Monitor.
Minimum Duration	The minimum duration of all the completed instances for the selected Monitor.
Minimum Value	The minimum value of all the completed instances of the selected Monitor.If you have selected an BPI Duration Monitor, the graph displays the following information:
Weighted Average Duration	The weighted average duration of all the completed instances of the BPI Monitors out of the total number of completed instances of the Monitor.
<Tooltip>	There is tooltip for each point on the graphs and you can progressively drill down to a specific hour for more detailed data.

Status Distribution

The Monitor Over Time Report displays a separate bar chart for each of the selected Monitors for the selected time period in the Status Distribution area.

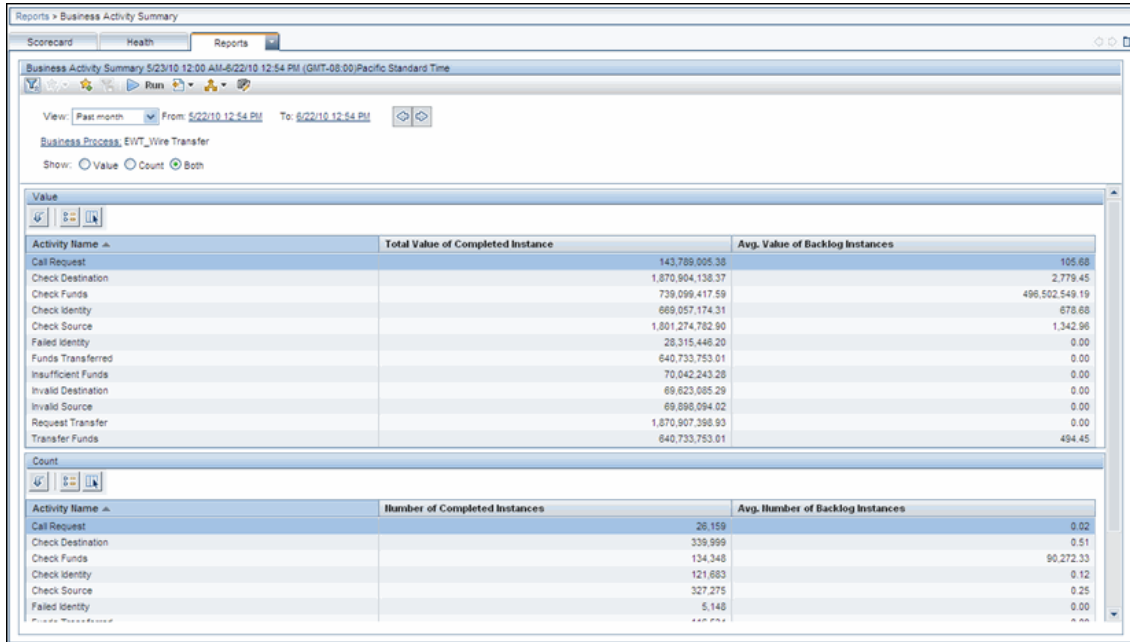
The Monitor Over Time report displays the following data for the selected Monitor over the selected time period:

UI Elements	Description
Total % of Value/Duration Critical Violated Instances	The percentage of the total number of instances of the Monitor instances that completed with a Critical Violated status out of the total number of completed instances of the Monitor.
Total % of Value/Duration Major Violated Instances	The percentage of the total number of instances of the Monitor instances that completed with a Major Violated status out of the total number of completed instances of the Monitor.
Total % of Value/Duration Minor Violated Instances	The percentage of the total number of instances of the Monitor instances that completed with a Minor Violated status out of the total number of completed instances of the Monitor.
Total % of Value/Duration Non-Violated Instances	The percentage of the total number of instances of the Monitor instances that completed with a Non-Violated status out of the total number of completed instances of the Monitor.
Total % of Value/Duration Warning Violated Instances	The percentage of the total number of instances of the Monitor instances that completed with a Warning Violated status out of the total number of completed instances of the Monitor.
<Tooltips>	Tooltips for bars in the bar chart display the number of instances, the total number of instances, and the percentage and you can progressively drill down to a specific hour for more detailed data.

Business Activity Summary Report

The Business Activity Summary Report shows summary information for a Business Activity over a selected period of time.

Following is an example of a Business Activity Summary report.



The screenshot shows a software interface for a Business Activity Summary report. At the top, it displays 'Reports > Business Activity Summary'. Below this, there are tabs for 'Scorecard', 'Health', and 'Reports'. The main area shows the report title 'Business Activity Summary 5/23/10 12:00 AM-6/22/10 12:54 PM (GMT-08:00/Pacific Standard Time)'. There are controls for 'View: Past month', 'From: 5/22/10 12:54 PM', and 'To: 6/22/10 12:54 PM'. Below these are options for 'Business Process: EWT_Wire Transfer' and 'Show: Value, Count, Both'. The report is divided into two sections: 'Value' and 'Count'. Each section has a table with columns for 'Activity Name', 'Total Value of Completed Instance', and 'Avg. Value of Backlog Instances' (for Value) or 'Number of Completed Instances' and 'Avg. Number of Backlog Instances' (for Count).

Activity Name	Total Value of Completed Instance	Avg. Value of Backlog Instances
Call Request	143,769,005.38	105.68
Check Destination	1,870,904,138.37	2,779.45
Check Funds	739,099,417.59	496,502,549.19
Check Identify	669,057,174.31	676.68
Check Source	1,801,274,782.90	1,342.98
Failed Identify	28,315,448.20	0.00
Funds Transferred	640,733,753.01	0.00
Insufficient Funds	70,042,243.28	0.00
Invalid Destination	69,623,085.29	0.00
Invalid Source	69,896,094.02	0.00
Request Transfer	1,870,907,398.93	0.00
Transfer Funds	640,733,753.01	494.45

Activity Name	Number of Completed Instances	Avg. Number of Backlog Instances
Call Request	26,159	0.02
Check Destination	339,999	0.51
Check Funds	134,348	90,272.33
Check Identify	121,683	0.12
Check Source	327,275	0.25
Failed Identify	5,148	0.00

To access	Applications > Business Process Insight > Reports > Business Activity Summary
Relevant tasks	“How to View and Analyze Data Using the BPI Application Reports” on page 371
See also	“Report Pages Overview” on page 370

Report Settings


The following table describes the user interface elements of the Business Activity Summary Report settings (unlabeled UI elements are shown in angle brackets).

UI Elements	Description
<Common report elements>	For details, see “Common Report Elements” in <i>Reports</i> .
Business Processes	Click to open the Business Processes dialog box where you can select the Business Process whose Activities you want to report on. For details, see “Browse/Search Tabs” on page 375.
Show	Select one of the following options: <ul style="list-style-type: none">▶ Value - Select to display value data for the Business Activities in the Value area.▶ Count - Select to display Business Activity count values in the Count area▶ Both - Select to display both the Activity Value and Activity Count values for the Business Process Activities. Both the Value and the Count area are displayed. This is the default.

Value Table

This table lists the value of completed process instances at each Activity, plus the average value of the active instances at each Activity (backlog).


The following table describes the user interface elements of the Value table (unlabeled UI elements are shown in angle brackets).

UI Elements	Description
	Select a Business Process and click the Drill Down to Activity Over Time Report button to drill down to the Activity Over Time report for a selected Business Activity. The report is displayed with the Value option selected.
Activity Name	The name of the selected Business Activity. You can select to list the Activities in ascending or descending alphabetical order. Tooltip: Displays the name of the Business Activity.
Total Value of Completed Instance	Displays the total of the value attribute for all the Business Activity instances that were completed in the selected time period. Tooltip: Displays the value of the table cell, with value units (where value units are set).
Avg. Value of Backlog Instances	Displays the average value (backlog) of the active instances at each Activity in the process over the selected time period. Tooltip: Displays the value of the table cell.

Count Table

This table lists the total number of completed process instances at each Activity, plus the average number of the active instances at each Activity (backlog).

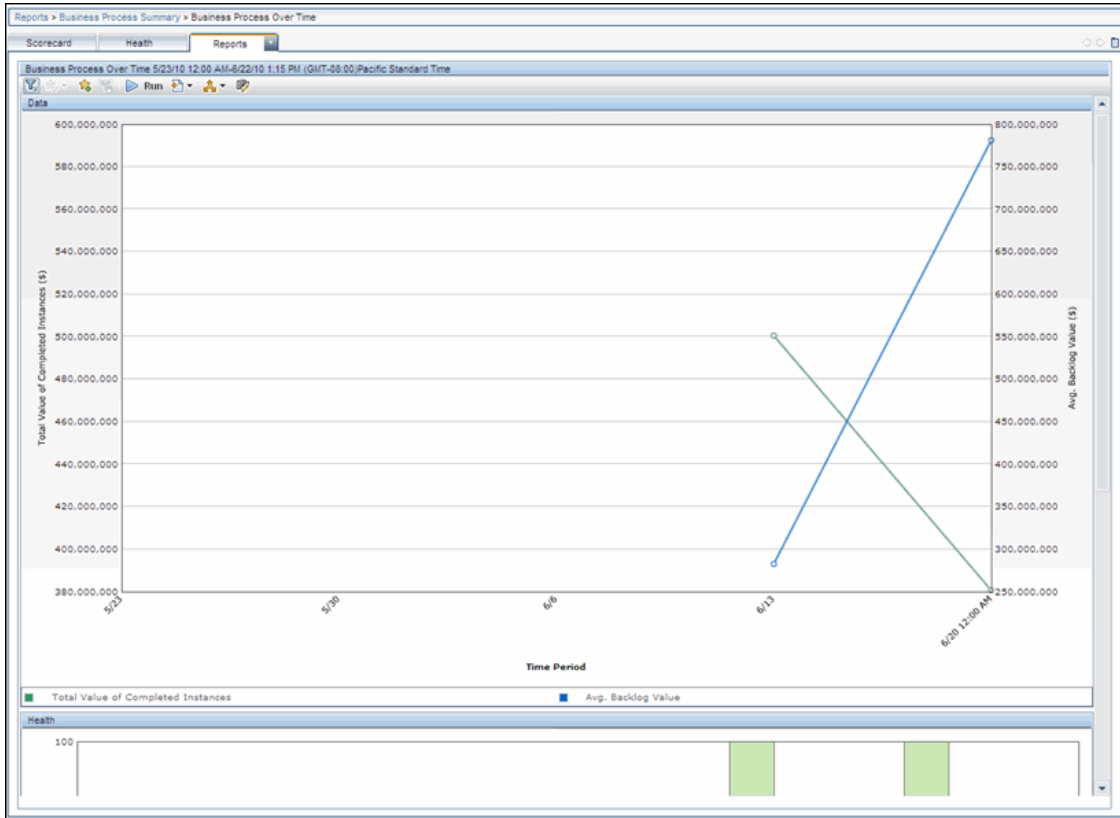
The following table describes the user interface elements of the Count table (unlabeled UI elements are shown in angle brackets).

UI Elements	Description
	Select a Business Process and click the Drill Down to Activity Over Time Report button to drill down to the Business Activity Over Time report for the selected Business Activity. The report is displayed with the Count option selected.
Activity Name	The name of the selected Business Activity. Tooltip: Displays the name of the Business Activity.
Number of Completed Instances	Displays the total number of the Business Activity instances that were completed in the selected time period. Tooltip: Displays the value of the table cell.
Avg. Number of Backlog Instances	Displays the average value (backlog) of the active instances at each Activity in the process over the selected time period. Tooltip: Displays the value of the table cell.

Business Process Over Time Report

The Business Process Over Time Report shows an over-time graph of information relating to the Business Process value and count data over a selected time period.

Following is an example of the Business Process Over Time Report:



To access	Applications > Business Process Insight > Reports > Business Process Summary > Business Process Over Time
Important Information	The report data is shown in graphical form and can also be published in tabular form.

Relevant tasks	“How to View and Analyze Data Using the BPI Application Reports” on page 371
See also	“Report Pages Overview” on page 370

Report Settings

The following table describes the user interface elements for the Business Process Over Time Report settings (unlabeled UI elements are shown in angle brackets).

UI Elements	Description
<Common report elements>	For details, see “Common Report Elements” in <i>Reports</i> .
Business Processes	Click to open the Business Processes dialog box where you can select a Business Process that you want to display. You can select only Business Processes that have a Business Process Monitor defined for them. The name of the Business Process is displayed to the right of the link.
Show	Is preselected when you enter the report according to the setting at the Parent Business Process Summary, you can change the selection as follows: <ul style="list-style-type: none"> ➤ Select Value to display value-related data for the Business Processes in the Value area. ➤ Select Count to display count-related data for the Business Processes in the Count area.

Data

The Data graph displays data relating to the Value or Count for the selected Business Process over the selected time period.

The Business Process Over Time report displays the following data for the selected Business Process over the selected time period:

UI Elements	Description
<Tooltips>	Tooltips for the over time graph display the same information for the selected entry and you can progressively drill down to a specific hour for more detailed data.
Avg. Backlog Value/Count	The average Value or average Count for the backlog KPI for the selected Business Process. This average is taken from the total number of completed Business Process instances.
Total Value/Count of Completed Instances	The total Value or Count of the completed instances for the selected Business Process.

Health

The Health bar chart displays the overall health of the Business Process over the selected time.

The Business Process Over Time report displays the following health information for the selected Business Process over the selected time period:

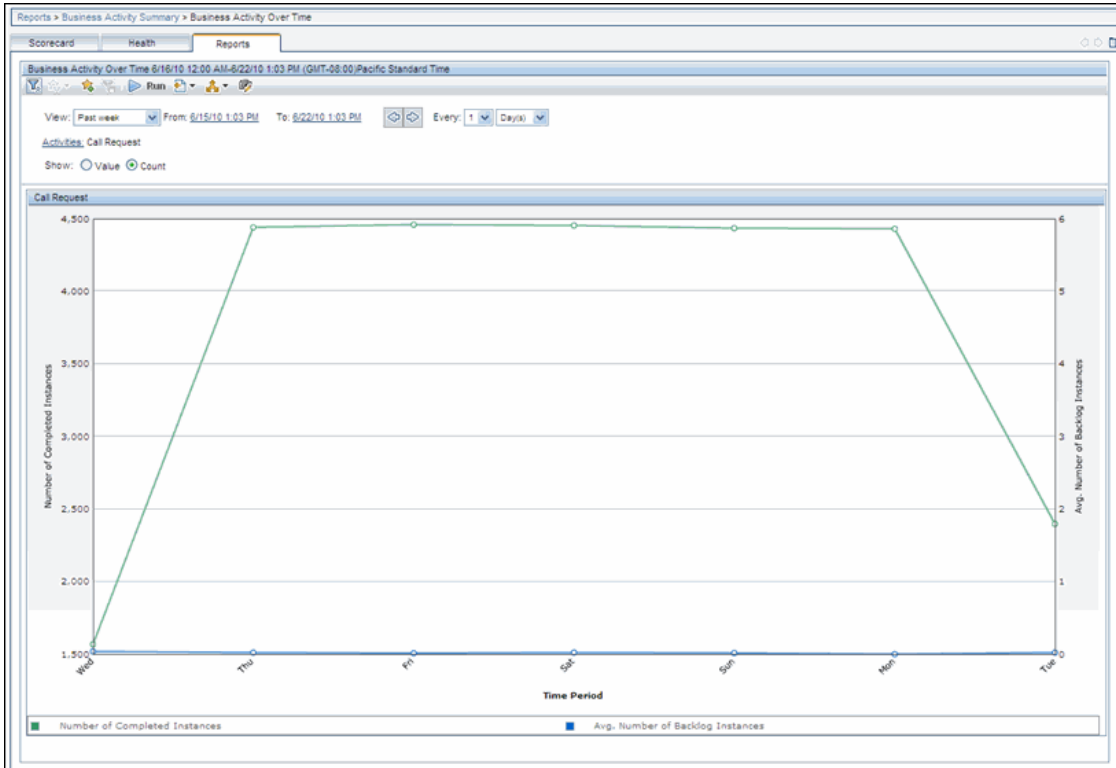
UI Elements	Description
<Tooltips>	Tooltips for the bars in the bar chart display the same information for the selected entry and you can progressively drill down to a specific hour for more detailed data.
Avg. % of At Risk Instances or Avg. % of At Risk Instances Value	The percentage of the average number of instances of the Business Process, which are in the state of At Risk, measured from the total number of instances over the period.

UI Elements	Description
Avg. % of Blocked Instances or Avg. % of Blocked Instances Value	The percentage of the average number of instances of the Business Process, which are in the state of Blocked, measured from the total number of instances over the period.
Avg. % of Healthy Instances or Avg. % of Healthy Instances Value	The percentage of the average number of instances of the Business Process, which are in the state of Healthy, measured from the total number of instances over the period.

Business Activity Over Time Report

The Business Activity Over Time Report shows an over-time graph of information relating to the Business Activity status.

Following is an example of a Business Activity Over Time Report.



To access	Applications > Business Process Insight > Reports > Business Activity Summary > Business Activity Over Time
Important Information	This report shows information relating to the values and counts for Activities in the selected Business Activity over a selected time period. The report data is shown in graphical form and can also be published in tabular form.

Relevant tasks	“How to View and Analyze Data Using the BPI Application Reports” on page 371
See also	“Report Pages Overview” on page 370

Report Settings

The following table describes the user interface elements for the Business Activity Over Time Report settings (unlabeled UI elements are shown in angle brackets).

UI Elements	Description
<Common report elements>	For details, see “Common Report Elements” in <i>Reports</i> .
Business Processes	Click to open the Business Processes dialog box where you can select the Business Process that you want to display data for.
Activities:	Click to open the Activities dialog box where you can select the Business Activity that you want to display.
Show	Is preselected when you enter the report according to the setting at the Parent Business Activity Summary, you can change the selection as follows: <ul style="list-style-type: none"> ▶ Select Value to display value-related data for the Business Process. ▶ Select Count to display count-related data for the Business Process.

Value

This over-time graph shows the total value of completed instances and the average **Backlog** value of process instances at the selected Activity.

The Business Activity Over Time report displays the following **Value** data for the selected Business Activity over the configured time period:

UI Elements	Description
Total Value of Completed Instances	The total Value of the completed instances for the selected Business Activity.
Avg. Value of Backlog Instances	The average Value for the backlog KPI for the selected Business Activity. This average is taken from the total number of completed Business Process instances.
<Tooltips>	Tooltips for the over time graph display the same information for the selected entry and you can progressively drill down to a specific hour for more detailed data.

Count

This over-time graph shows the number of completed instances and the average number of **Backlog** instances at the selected Activity.

The Business Activity Over Time report displays the following **Count** data for the selected Business Activity over the configured time period:

UI Elements	Description
<Tooltips>	Tooltips for the over time graph display the same information for the selected entry and you can progressively drill down to a specific hour for more detailed data.

UI Elements	Description
Avg. Number of Backlog Instances	The average number of instances for the backlog KPI for the selected Business Activity. This average is taken from the total number of completed Business Process instances.
Number of Completed Instances	The total number of the completed instances for the selected Business Activity.

12

Annotations for Process Diagrams

This chapter includes:

Concepts

- ▶ Annotations Overview on page 402

Tasks

- ▶ How to Customize Your Process Diagram on page 403
- ▶ How to Include Character Set Encoding in the Annotation File on page 411

Reference

- ▶ annotations.xml File Format on page 412

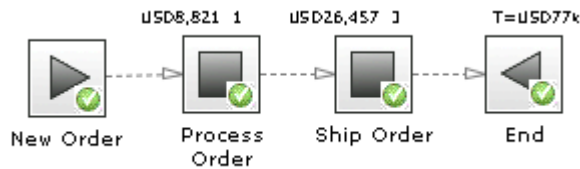
Concepts

Annotations Overview

This section describes how to add annotations to your Process Diagrams, which appear within the Health page and on the Service Health application Business Process Diagram.

BPI enables you to view any deployed Business Process. When displaying the Process Diagram, it annotates each of the Activities by showing the number of active process instances and the Value of the total instances at each Activity.

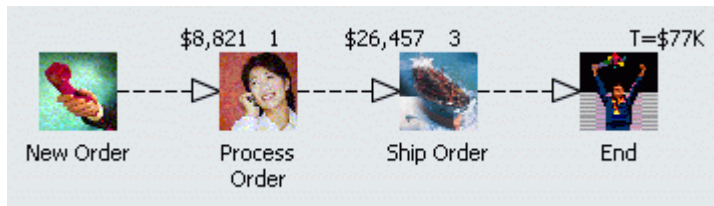
Following is an example of a process diagram shown from the Health Page.



BPI enables you to customize a process diagram as follows:

- ▶ You can configure a customized image for each Activity in the process.
- ▶ You can configure the text that is shown above each Activity.

As an example, you can customize your process diagram to be displayed as shown in the following figure. In this figure, the instance values and the instance counts are shown on two of the Activities and the End Activity is configured to show the total value of all completed instances.



Tasks

How to Customize Your Process Diagram

You can customize your Process Diagram as follows:

- ▶ “Use the Modeler to Customize Activity Icon Images” on page 404
- ▶ “Use an annotations.xml File to Customize Activity Icon Images” on page 405
- ▶ “Use an annotations.xml File to Customize Activity Text” on page 407
- ▶ “Example of a Complete Process in the annotations.xml File” on page 410

Note: Keep the following in mind when customizing Activity icons:

- ▶ It is recommended that you define the Activity images using the Modeler’s Process Editor. After the Business Process is deployed, the new images are displayed immediately in the Process Diagram on the Health page, Process Instance pages and Service Health page.
 - ▶ If you define images in the **annotation.xml** file, the images display in the Process Diagram but not in the Modeler’s Process Editor. It may take time for the images to display in the Process Diagram on the various pages.
 - ▶ If you have different images selected in the Modeler, those images take precedence over the images in the **annotation.xml** file.
 - ▶ The following image file types are supported: **.jpeg**, **.jpg**, **.gif**, and **.png**.
-

Use the Modeler to Customize Activity Icon Images

You can customize the Activity icons for each Activity from the Modeler's Properties dialog.

To configure the text shown above each Activity, you create an **annotations.xml** file as described in "Use an annotations.xml File to Customize Activity Icon Images" on page 405.

To customize the Activity icons:

- 1** Upload the image or images to both the BSM Gateway Server and BPI Server as follows:
 - ▶ On the BSM Gateway Server, place images in:
BSM-install-dir\AppServer\webapps\bpi.war\customimages
 - ▶ On the BPI Server, place images in:
BPI-install-dir\nonOV\jakarta-tomcat-5.0.19\webapps\hpbpi-bpd\customimages
and
BPI-install-dir\nonOV\jakarta-tomcat-5.0.19\webapps\ovbpicmetricdefiner\customimages
- 2** Open the Modeler:
Admin > Business Process Insight > Modeler
- 3** Click the Business Process in the left pane and click the Process Editor in the right pane to display the Activities of the Business Process model.

If you are creating a new Business Process model in the Process Editor, you can customize each Activity icon using the following steps. For more information about the Modeler and creating Business Process models, see Chapter 3, "Modeler Management."
- 4** Right-click on the Activity you want to customize and click **Properties**. The Activity Properties dialog opens.

- 5 Select an image from the Images dropdown list.

Make sure the images you use are proportional in width and height. If the images are not square, they may not display properly.

- 6 Close the Properties dialog to see the customized Activity icon.

Use an annotations.xml File to Customize Activity Icon Images

You can create an **annotations.xml** file to modify the image of one or more Activities in your Process Diagram. For details of the configuration elements, see “**annotations.xml File Format**” on page 412.

The completed **annotations.xml** file must be copied to the following locations:

- Under the BSM installation hierarchy:

BSM-install-dir\lib

where *BSM-install-dir* is the installation directory for the BSM Gateway Server to which the BPI Server is configured to connect.

- On the BPI Server:

BPI-install-dir\nonOV\jakarta-tomcat-5.0.19\webapps\hpbpi-bpd\WEB-INF\classes

The **annotations.xml** file needs to be placed on the BPI Server so that the annotations are correct on the Process Instance pages.

To customize the Activity icons using the annotations.xml file:

- 1 Upload the image or images to both the BSM Gateway Server and BPI Server as follows:

- On the BSM Gateway Server, place images in:

BSM-install-dir\AppServer\webapps\bpi.war\customimages

- On the BPI Server, place images in:

BPI-install-dir\nonOV\jakarta-tomcat-5.0.19\webapps\hpbpi-bpd\customimages

and

BPI-install-dir\nonOV\jakarta-tomcat-5.0.19\webapps\ovbpi-metric-definer\customimages

- 2 Edit the **annotations.xml** file to replace the default Process Activity image with a custom image:

```
<step name="Activity_name">  
  <texttype>none</texttype>  
  <image>customimages/image_name.gif</image>  
</step>
```

For Example:

```
<step name="Process Order">  
  <texttype>none</texttype>  
  <image>customimages/engineer_on_call.gif</image>  
</step>
```

In this example, the **Process Order** Activity is shown with a custom image as seen below.



When BPI detects that the file exists and the icon was not customized using the Modeler, BPI uses the file when it draws a Process Diagram.

Note: If there is an error processing the **annotations.xml** file, the file is ignored and the Process Diagram displays as it would if the file did not exist. The *Business Process Insight Problem Solving Guide* provides some information about troubleshooting your system when your annotations are not displayed as expected.

Use an annotations.xml File to Customize Activity Text

You can create an **annotations.xml** file to modify the text of one or more Activities in your Process Diagram. For details of the configuration elements, see “annotations.xml File Format” on page 412. The completed **annotations.xml** file must be copied to the locations described in “Use an annotations.xml File to Customize Activity Icon Images” on page 405.

Following are examples of how to edit the **annotations.xml** file to hide text, show the value for active instances, scaled active value, and value and instance count, using a custom image.

To Hide Text on Process Activities

If you do not want any text shown above your Process Activities, specify your XML as follows:

```
<step name="Process Order">
  <texttype>none</texttype>
</step>
```

In this example, the **Process Order** Activity is shown without any text above the Activity, as seen below.



To Show the Value for Active Instances and Custom Image on a Process Activity

If you want to show the value for the active instances on a custom image for a Process Activity, specify your XML as follows:

```
<step name="Process Order">
  <texttype>value</texttype>
  <textsymbol>${</textsymbol>
  <image>customimages/engineer_on_phone.gif</image>
</step>
```

In this example, the **Process Order** Activity is shown with an active value as seen below.

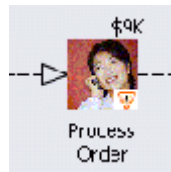


To Show the Scaled Active Value

If you want to show the value for the active instances that has been scaled and that also includes a custom image for a Process Activity, specify your XML as follows:

```
<step name="Process Order">
  <texttype>value</texttype>
  <textsymbol>${</textsymbol>
  <textdp>-3</textdp>
  <scalesymbol>K</scalesymbol>
  <image>customimages/engineer_on_phone.gif</image>
</step>
```


In this example, the **Process Order** Activity is shown with a scaled active value, as seen below.



To Show Value and Instance Count

If you want to show both a value, which has been scaled, for the active instances and the number of active instances, plus a custom image for a Process Activity, specify your XML as follows:

```
<step name="Process Order">
  <texttype>both</texttype>
  <textsymbol>$</textsymbol>
  <textdp>-3</textdp>
  <scalesymbol>K</scalesymbol>
  <image>customimages/engineer_on_phone.gif</image>
</step>
```

This displays the **Process Order** Activity showing both the value and instance count, as shown below.

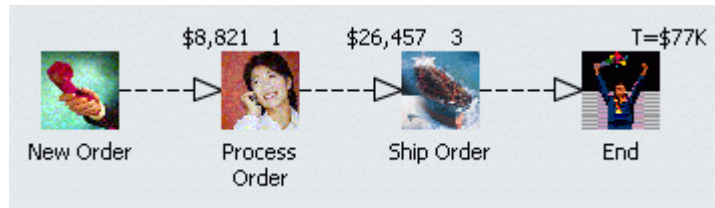


Example of a Complete Process in the annotations.xml File

The following is an example of the `annotations.xml` file for a complete process:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<annotations>
  <step name="New Order">
    <texttype>none</texttype>
    <image>customimages/phone_receiver.gif</image>
  </step>
  <step name="Process Order">
    <texttype>both</texttype>
    <textsymbol>$</textsymbol>
    <textdp>2</textdp>
    <image>customimages/engineer_on_phone.gif</image>
  </step>
  <step name="Ship Order">
    <texttype>both</texttype>
    <textsymbol>$</textsymbol>
    <textdp>2</textdp>
    <image>customimages/ship.gif</image>
  </step>
  <step name="End">
    <texttype>value</texttype>
    <textsymbol>$</textsymbol>
    <textdp>-3</textdp>
    <scalesymbol>K</scalesymbol>
    <image>customimages/success.gif</image>
  </step>
</annotations>
```

In this example, the Process Diagram is displayed as shown below.



How to Include Character Set Encoding in the Annotation File

To create an annotations file that contains a specific character set encoding, for example, UTF-8:

- 1 Use an editor that supports UTF-8.

The editor that you use does not add any extra characters (hidden characters) to the file. As an example, Notepad writes three additional bytes to the start of a file, which although not visible within Notepad, create errors in the XML file that you create.

- 2 Specify the first line of your XML as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
```

In the UTF-8 example, if you specify UTF-8 as the XML encoding and do not use a corresponding UTF-8 editor when entering the UTF-8 characters, BPI fails to parse the **annotations.xml** file and therefore ignores your settings.

- 3 Make sure that you use an editor that supports the character set encoding that you specify in your annotations file.

Reference

annotations.xml File Format

The **annotations.xml** file is structured as follows:

```
<?xml version="1.0" encoding="..." ?>
<annotations>
  <step name="...">
    <texttype> ... </texttype>
    <textsymbol> ... </textsymbol>
    <textdp> ... </textdp>
    <scalesymbol> ... </scalesymbol>
    <image> ... </image>
  </step>

  ...further steps...

</annotations>
```

Note: An Activity is configured using the `<step>` element.

The following sections describe this structure in more detail and provide some examples of configuration options.

- ▶ `encoding=`
- ▶ `<annotations>`
- ▶ `<step>`
- ▶ `<texttype>`
- ▶ `<textsymbol>`
- ▶ `<textdp>`

➤ <scalesymbol>

➤ <image>

encoding=

The first line of the annotations file declares that this file contains XML and it declares the encoding used within this XML.

If your annotations include 8-bit Western European characters, then you could set the first line of the file to be:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
```

The following are examples of other XML encodings you could use:

windows-1252

UTF-8

UTF-16

The XML encoding that you use depends on the editor you are using to create the annotations file and the type of characters you are using.

<annotations>

The **annotations** element simply encloses the set of activity elements.

You must have one, and only one, **annotations** element within the **annotations.xml** file.

<step>

You define a **step** element for each Activity in the Process Diagram that you want to annotate.

BPI uses only one **annotations.xml** file, and there is no way to specify a Process Name in the **annotations.xml** file. This means that when you specify a **step** element for a particular Process Activity name, all Process Activities with the same name in any process definition, are displayed with the same annotation in the Process Diagram. As a result, you might want to consider making sure that your Activity names are unique across your process definitions.

Example:

You might have a **step** element structured as follows:

```
<step name="New Order">  
...  
</step>
```

In this case, any process with a Process Activity named **New Order** is annotated when BPI displays it as a Process Diagram.

<texttype>

The **texttype** element enables you to specify the data that is displayed above the image of the Process Activity.

You can specify one of the following values:

► **count**

This displays the number of active instance at this Process Activity.

Example:

```
<texttype>count</texttype>
```

If you do not specify a **texttype** element, a value for **count** is automatically added to the Process Diagram.

When displayed within the Process Diagram, the value for **count** is displayed above, and slightly to the right, of the Process Activity.

► **value**

This is the value of all the current active instances at the specified Process Activity and as defined by the Process Value property for the Process.

Example:

```
<texttype>value</texttype>
```

When displayed within the Process Diagram, the Process value of the active instances is displayed above, and slightly to the right, of the Process Activity.

► **both**

This enables you to display both the active count of process instances at this Process Activity, and the active value of these instances.

Example:

```
<texttype>both</texttype>
```

When displayed within the process diagram, the **value** of the active instances is displayed above, and slightly to the left, of the Process Activity, and the **count** of the active instances is displayed above, and slightly to the right, of the Process Activity.

► **none**

This enables you to display the Process Activity without any text above it.

Example:

```
<texttype>none</texttype>
```

<textsymbol>

The **textsymbol** element enables you to specify a character sequence to display as part of the active instance value. This character sequence is usually displayed before the active instance value, but its position is localizable.

The **textsymbol** element is used only if you have specified a **texttype** setting of **value** or **both**.

Example:

```
<textsymbol>$</textsymbol>
```

<textdp>

The **textdp** element enables you to specify the number of decimal places to use when displaying the value attribute for active instances at a specified Process Activity.

The **textdp** element is used only if you have specified a **texttype** setting of **value** or **both**.

Example:

You might set the value for **textdp** to be 2 as follows:

```
<textdp>2</textdp>
```

If you have a value of **2.8765**, this is shown as **2.88** on the Process Diagram.

If you do not specify a **textdp** element, the value is shown with zero decimal places on the Process Diagram.

If you specify a negative value for the value of **textdp**, that is, a number between -1 and -100, then the number that you want to display is truncated by that number of digits, and the value is rounded. When you specify a negative value for **textdp**, you also need to specify a **scalesymbol** element. For examples of using negative values, see “<scalesymbol>” on page 416.

<scalesymbol>

The **scalesymbol** element is used to define the symbol you want to be displayed with the active instances value to reflect the scaled number. In other words, if you have specified a **textdp** with a negative value then you need to set a **scalesymbol** to show the scaling that has occurred.

The following are examples of how you might set values for **textdp** and **scalesymbol** and the results that are displayed:

Example 1:

```
<textdp>-3</textdp>  
<scalesymbol>K</scalesymbol>
```

If you have a value of **234567**, this is shown as **235K** on the Process Diagram.

Example 2:

```
<textdp>-6</textdp>  
<scalesymbol>M</scalesymbol>
```

If you have a value of **1234567**, this is shown as **1M** on the Process Diagram.

<image>

The **image** element specifies a file name of an image that you want to be displayed in place of the standard Process Activity image. The file name for the image is relative to the **webapps** directory.

Example:

You might set the following:

```
<image>customimages/myImage.gif</image>
```

In this example, BPI looks for the **myImage.gif** file in the following directories:

- BSM installation directory:

BSM-install-dir\AppDataServer\webapps\bpi.war\customimages

- BPI Server installation directories:

BPI-install-dir\nonOV\jakarta-tomcat-5.0.19\webapps\hpbpi-bpd\customimages

and

BPI-install-dir\nonOV\jakarta-tomcat-5.0.19\webapps\ovbpimetricdefiner\customimages

You need to create the directory **customimages**, if it does not already exist.

13

BPI Components in MyBSM

This chapter includes:

Concepts

- ▶ MyBSM Components Overview on page 420

Tasks

- ▶ How to Add BPI Components to MyBSM on page 421

Concepts

MyBSM Components Overview

Within Business Service Management, you can use the MyBSM portal server to add and customize BPI pre-defined components so that you can display specific content that is relevant to you.

You can configure MyBSM to display the following pre-defined BPI components:

- ▶ **Business Process Overtime** to display information about the volume (throughput), backlog (active process value) and health of a selected Business Process CI over a specific time interval. For details, see "Business Process Over Time Report" on page 392.
- ▶ **Business Process Instance Violations** to display information about the instance violations for a selected Business Process. For details, see "Instance Violation Counts" on page 332.
- ▶ **Business Process Summary** to display the summary data for all selected Business Processes. For details, see "Business Process Summary Report" on page 373.
- ▶ **Business Process Diagram** to display the overall status of the health of your Business Process. For details, see "Process Diagram Area" on page 318.

Note: The Process Diagram in MyBSM and Service Health displays only the data from the "current" sample, whereas the Health Page displays the totals.

Tasks

How to Add BPI Components to MyBSM

You can add one or more BPI pre-defined components. For details on adding and using components in MyBSM, see "Working With MyBSM" in *Using MyBSM*.

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