HP Business Service Management

for the Windows operating system

Software Version: 9.00

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

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   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
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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.

Topic Type	Description	Usage
Tasks	**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. Task steps can be with or without numbering: ➤ **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.	➤ 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.
	Use-case Scenario Tasks. Examples of how to perform a task for a specific situation.	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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1

Introducing Business Process Insight

This chapter includes:

Concepts

Tasks

Reference

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.

➤ 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 ODB" on page 47.

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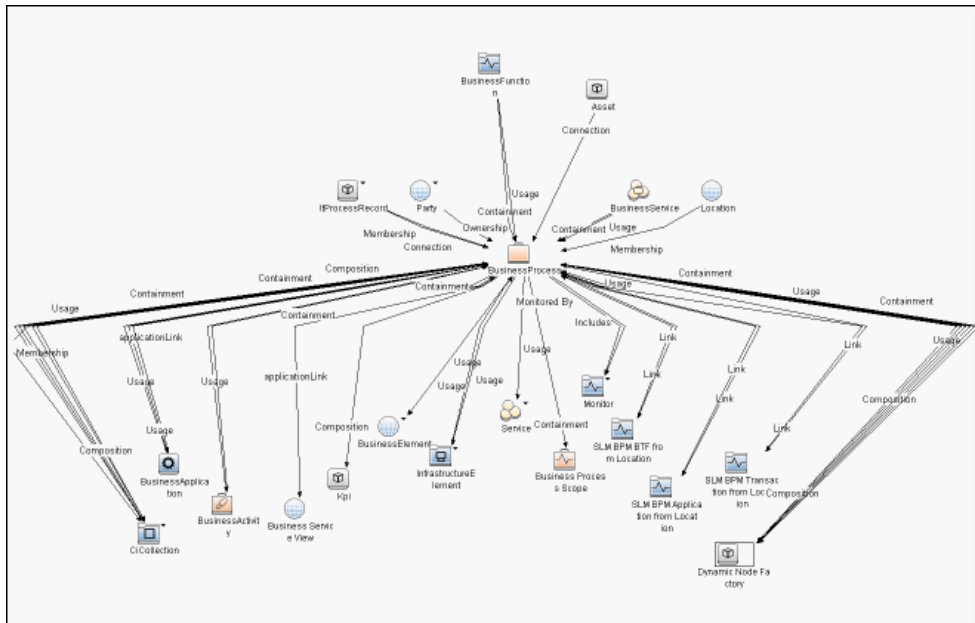
Each of the elements in this diagram is represented as a CI within the ODB. The BPI application sends data samples for the Business Process CIs that you define and these data samples are then displayed on the Business Process Diagram in Service Health and in the Business Process Application.

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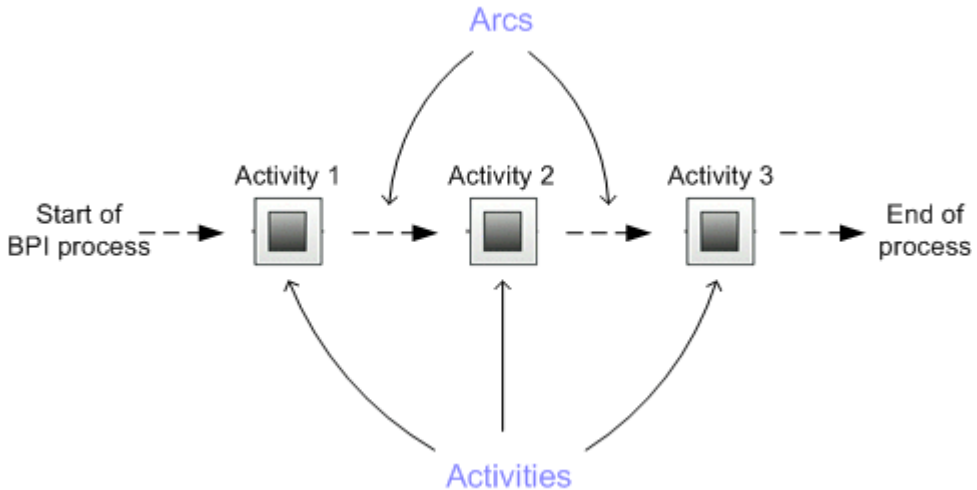
An activity in a Business Process might represent one or more business activities, according to how much detail of the Business Process you are modeling in order to track it.

BPI enables you to represent a business process in a graphical form. This allows 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, you do need to make sure that you model sufficient of the structure of the process to be able to report on 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.
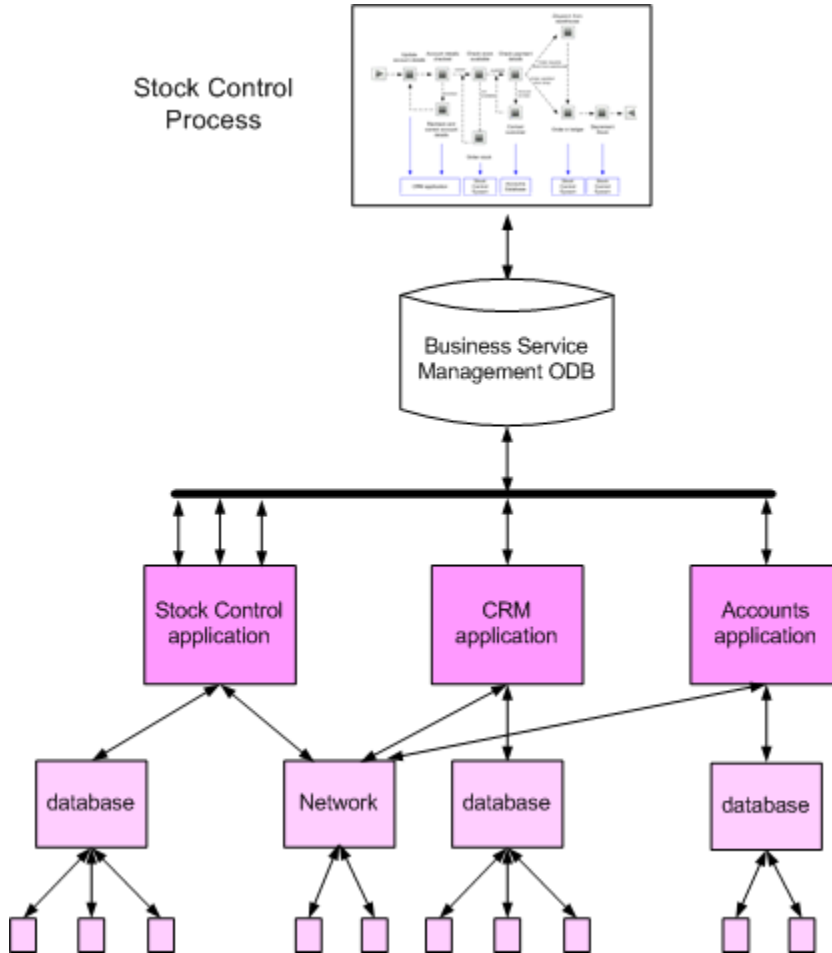
The organization is structured as a front office, middle office and back office:

➤ The front office includes:

  ➤ a Web site for online access

  ➤ a shop

  ➤ a 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.

➤ The middle office is where the orders are processed and validated.

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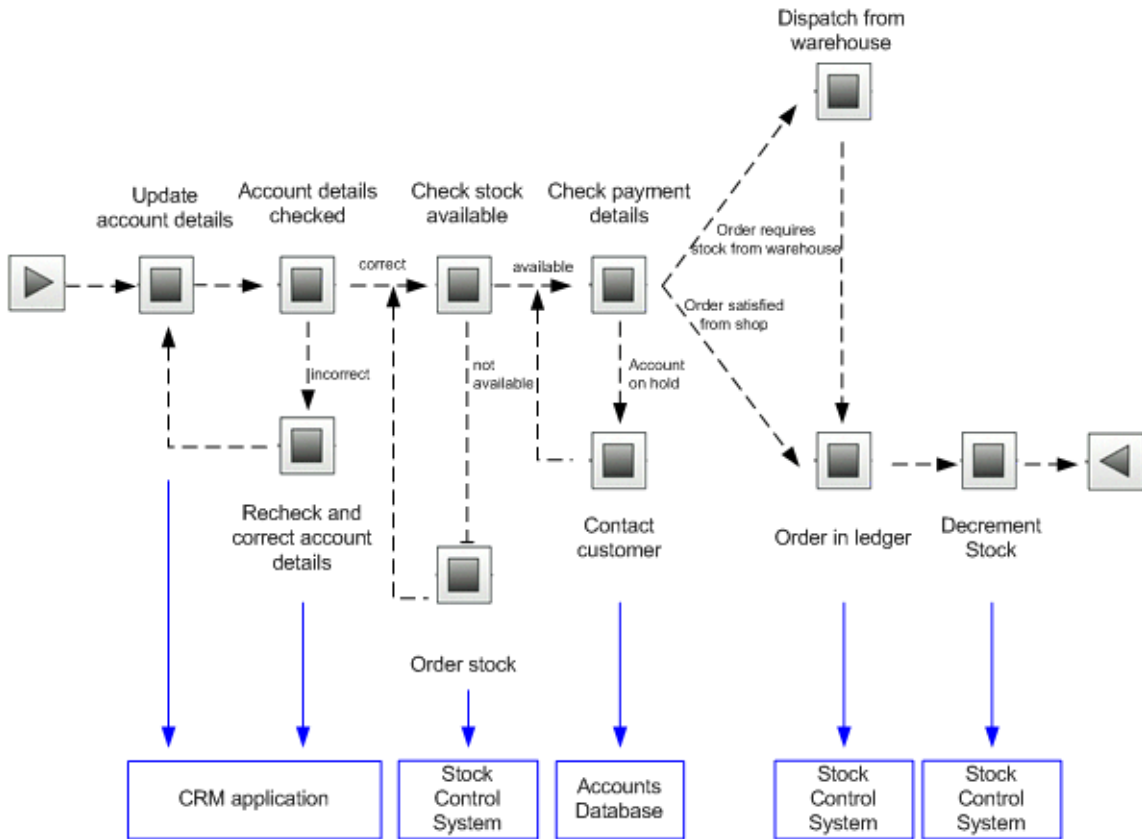
The process shown in this diagram utilizes underlying business applications and also includes IT operational resources. Some of the business applications might be operationally tracked and therefore represented as IT operational resource CIs within Business Service Management.

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

In order 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 SAP, 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 sections describe business event components for BPI:

➤ "Business Events and openadaptor" on page 26

➤ "BPI Accelerator for SAP Applications" on page 27

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 on 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.

BPI also includes specific adapters for SAP; see "BPI Accelerator for SAP Applications" on page 27.

BPI Accelerator for SAP Applications

In addition to using the openadaptor framework to create solutions for integrating business applications, you can use the BPI Accelerator for SAP to enable you to track the status fields within an IDoc. Using the BPI Accelerator, you can create processes and business events that are based on the status changes within one or more IDocs.

The Accelerator is based on the openadaptor framework and uses the Business Event Handler to access the status information within an IDoc header. Refer to the *Business Process Insight Accelerator for SAP Guide* for full details of installing and using the Accelerator.

⚙ 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 in order 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 utilize 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 in order 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 actually flow based on observing real transactions as they are processed. You do have to configure TransactionVision to send the required transaction events to BPI. See the *HP TransactionVision Deployment Guide* PDF for details.

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 being able to visualize your Business Processes and relate 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?

In order 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

In order to get more detail from your business systems, you need to be able 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:

➤ to 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 My BSM.

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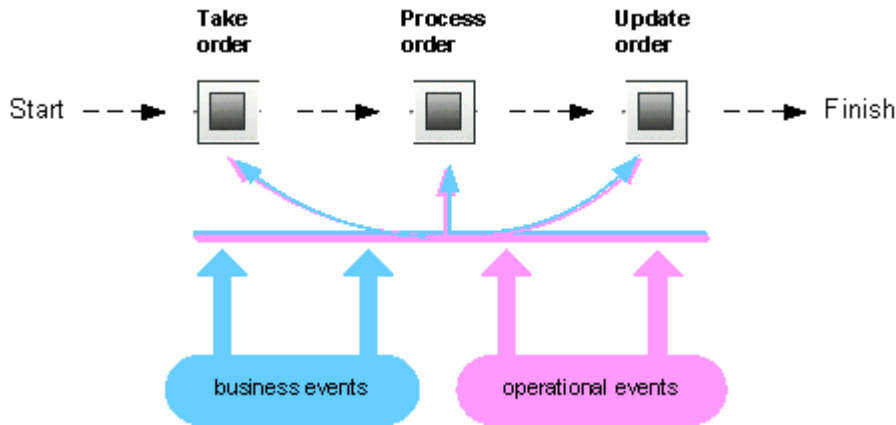
The BPI system also manages the data required for the process (the data models), as Data definitions. In the Stock Control example, it maintains information about the account business data and within that, information about value, customer name, and customer type data.

BPI does not need to know about all the data related to a process, just enough to give a business manager information on the business impact of the affected Business Processes. For example, in the Stock Control process (see the diagram in "Example BPI Process" on page 23), the account business data might also contain data relating t 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 have access to (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.
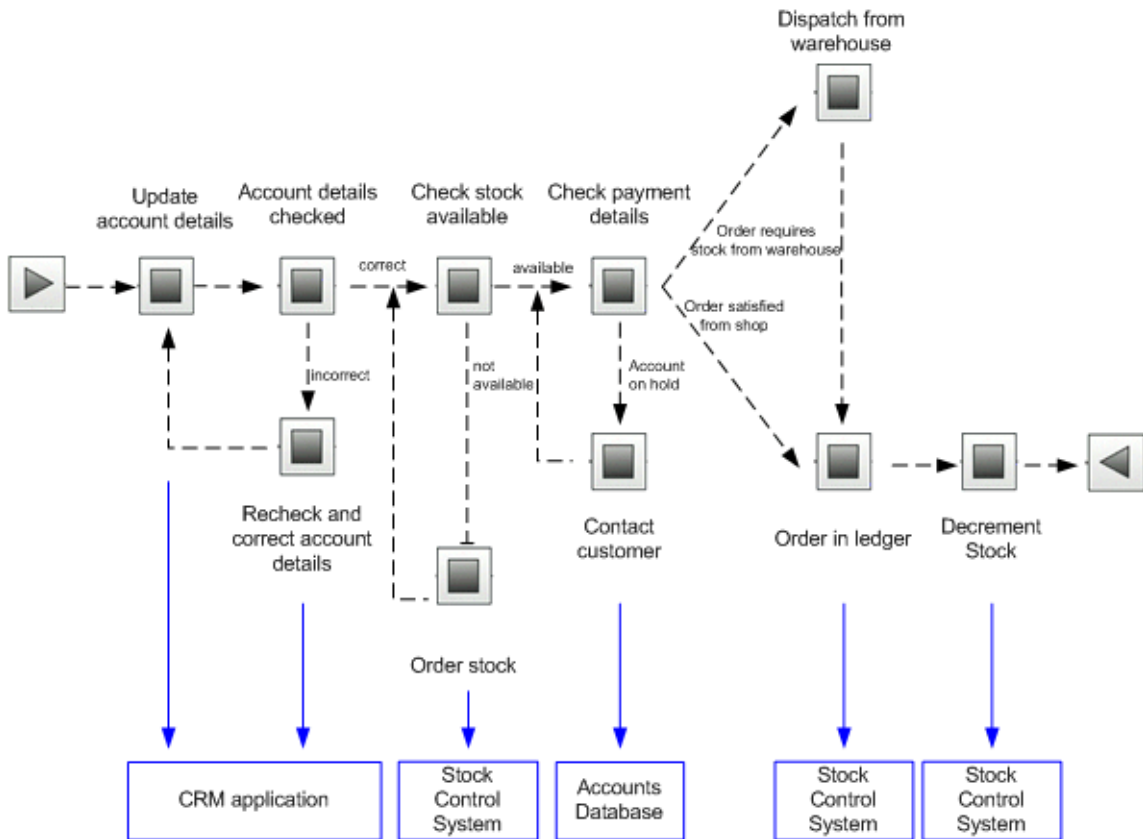
The business also has a Gold Customer scheme whereby key customers are guaranteed their deliveries within a specified time, or significant penalties in the way of discounts are incurred.

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

➤ the impact of the IT operational resource failures

➤ the 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 ODB 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 ODB.

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:

➤ The BPI Server installed

➤ 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 63

➤ "Modeling with Tracking Individual Process Instances Enabled" on page 64

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 109

➤ "Monitoring - Tracking Individual Process Instances is Enabled" on page 111

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 and KPIs" 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" in the *Business Process Insight Server Administration Guide*.

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

➤ 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.

To add or modify a KPI, complete these steps:

1 Select **Admin** > **Service Health** > **View Management** > **Ci Indicators**.

2 In the CI Types panel, navigate to the Business Process Activity that you want to modify.

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

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.

Refer to the Business Service Management Service Level Management documentation for information about setting Service Level Objectives.

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 are able to 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 Managemen**t. 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 45

➤ "BSM Predefined Roles Relevant to Business Process Insight" on page 46

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. [a]
BPIUser	**View** all deployed BPI processes.
BPIRestrictedViewUser	**View** only those deployed BPI processes to which View permission has been granted.
	To grant permission to view a process:
	1 Select **Admin > Platform > Users and Permissions > User Management**.
	2 Highlight 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.
	You must grant View permission for each process that you wish the user to be able to view in the BPI Application.
	NOTE: **BPIAdministrator** and **BPIUser** roles by definition already have View permissions for all processes.
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.

a. 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 ODB

The following table describes the BPI data that is stored in the ODB 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 ODB. The BPI data is stored in the ODB as a configuration item (CI) of several types. For more information about CI types, see the "CI Type Manager" chapter in the *Modeling Guide*.

Following are the BPI CI types:.

CI Type	Description
BusinessProcess (business_process)	Stores the Process Name and Process Description as entered using the BPI Modeler.
	A business_process CI is created for each Business Process in BPI.
	Data samples are sent to BSM for each business_process CI.
	business_process CIs are logical CIs.

CI Type	Description
BusinessActivity (business_activity)	Stores the Activity Name and Description as entered using the BPI Modeler. A bpi_activity CI is created for each Activity in all Business Processes. Data samples are sent to BSM for each business_activity CI. bpi_activity CIs are logical CIs.
Business Process Scope (business_process_scope)	Stores the Monitor Name, Description, Type, Units, Collection Interval, Threshold Operator, Server Name and Instance Threshold limits (where specified) as defined with BPI. Monitor data samples are sent for each Business Process Monitor. 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: ➤ **Duration** ➤ **Value** ➤ **Custom**

Note that the CI Types have changed for 9.00. The following table shows the changes between the 8.00 and 9.00 CI Types:

8.00 CI Type	9.00 CI Type
bpi_process_monitor	business_process
bpi_step_monitor bp_step	business_activity
bpi_monitor > bpi_duration_monitor bpi_monitor > bpi_value_monitor bpi_monitor > bpi_custom_monitor	business_process_scope

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 ODB, 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.

➤ a synchronization is forced using the **Synchronize with the CMDB** 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 ODB. The BPI unique identifiers for the data (GUIDs) are mapped to the ODB 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.
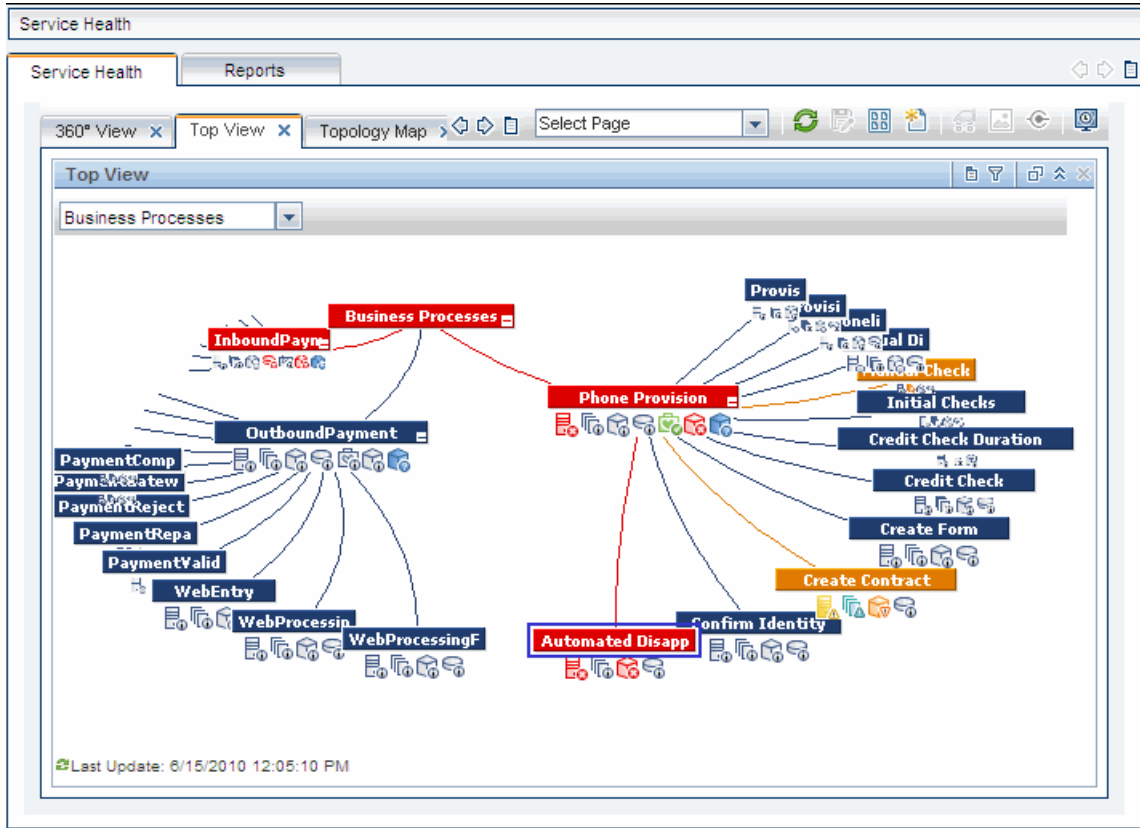
In this example, you can see that there are also other processes deployed and you also see these other processes within the Business Processes.

Part I

BPI Administration

2

General Administration

This chapter includes:

Concepts

➤ BPI Administration Overview on page 54

Tasks

➤ How to Administer BPI on page 56

Concepts

🔩 BPI Administration Overview

This chapter 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 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 Chapter 3, "Modeler Management."

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 56

➤ "Define Business Process Monitors and Monitor Instance Threshold Definitions for Deployed Processes" on page 57

➤ "View, Print, and Manage the Contents of the Process Repository Schema" on page 57

➤ "Use the Process Intervention to Manage Process Instances and Data Instances" on page 57

➤ "Configure the Notifications that You Want to Generate" on page 57

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 or not you have a valid BPI license and have installed the BPI Server. For more information, see Chapter 3, "Modeler Management," the *Business Process Insight Integration Training Guide - Modeling Processes* and the Modeler online Help.

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 to Manage Process Instances and Data Instances

In specific circumstances, you can use the Process Intervention Client to access processes that you have deployed in order 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."

Once configured, the Notification Server 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

Tasks

Reference

Concepts

🔷 Modeler Overview

This chapter describes tasks that are specific to the management of your Process definitions using the Modeler.

For information and help about using the BPI Modeler to create and deploy definitions, including examples and scenarios, see *Business Process Insight Integration Training Guide - Modeling Processes*.

The BPI Modeler is a client-side BPI component that you use to create your Business Process definitions, Data definitions and Event definitions. It is a graphical tool, with a unified interface for all the definition types that you are creating. The modeler is accessed from **Admin** > **Business Process Insight** > **Modeling tab** > **BPI Modeler**.

Once 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 or not 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 allowed 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: BPI must be enabled on the BSM Server Deployment page to be able to access the Modeler. If BPI is disabled, the Business Process Insight Application is deactivated. For information on accessing and enabling/disabling BPI on the Server Deployment page, see "Using BPI Within Business Service Management" on page 38.

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 *Platform Administration*.)

When you have access to 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 66.

🔩 Design-Time Integration

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 runtime 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 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 63

➤ Modeling with Tracking Individual Process Instances Enabled on page 64

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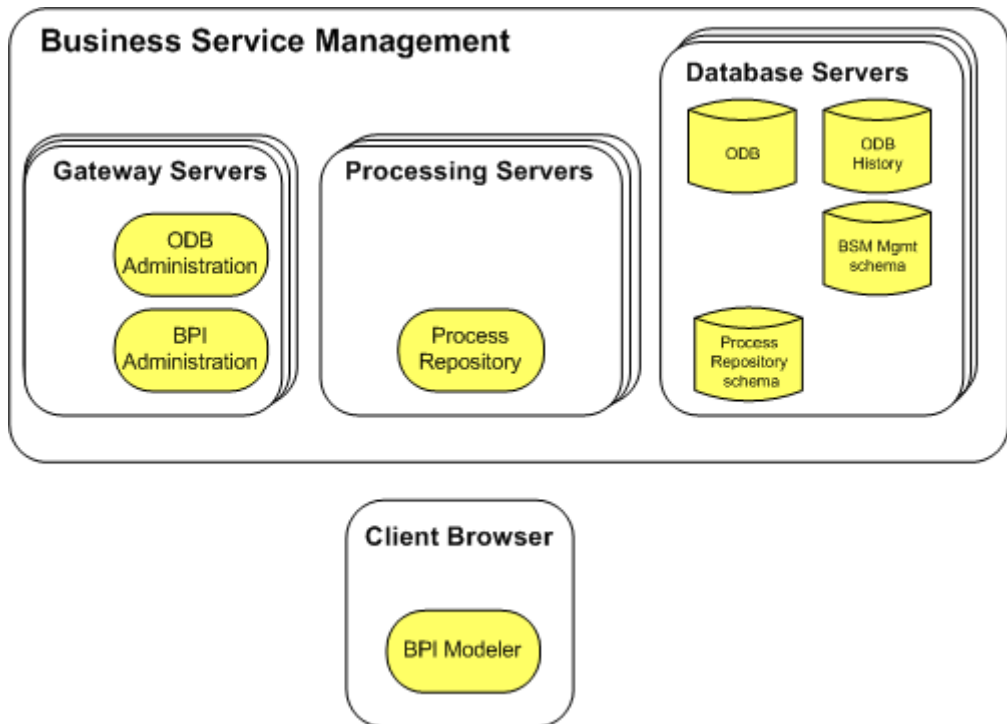
The following steps describe the communication between Business Service Management components as shown in the diagram above:

➤ 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
ODB.

➤ As part of creating your Business Processes, you can map IT operational
resources, which are defined as CIs within the ODB 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 63.

The following diagram shows design-time process instance tracking enabled.
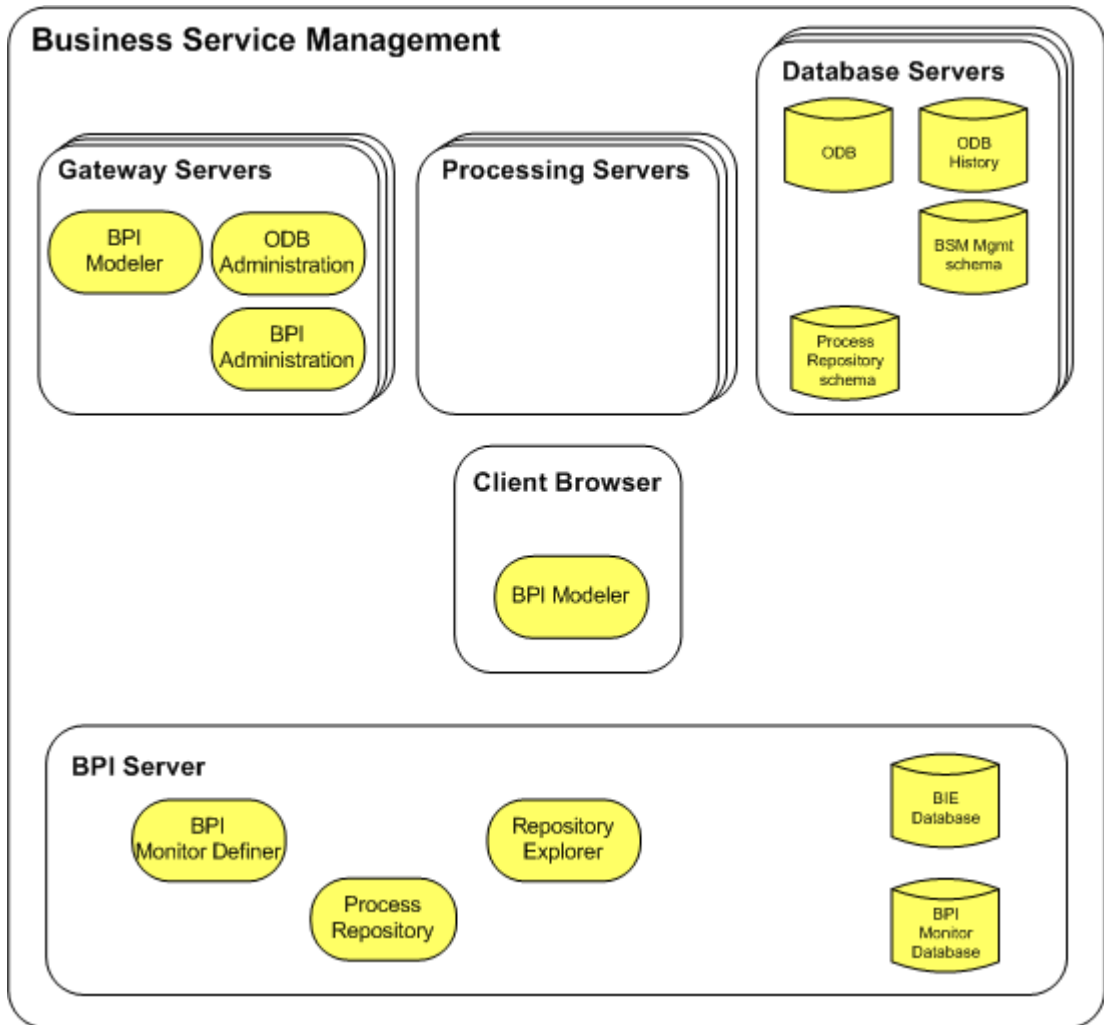
The following steps describe the communication between Business Service Management components when you have chosen to model processes in order to track and monitor individual process instances, as shown in the diagram above. You can model Business Processes and map IT operational resource CIs to the process Activities as described in "Modeling with Tracking Individual Process Instances Disabled" on page 63.

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.

➤ The Process Repository manages 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.

➤ When the Business Process is successfully deployed, you can define Monitors and instance thresholds for the Business Process. These definitions are stored in the BPI Instance database and are synchronized with the ODB.

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. Basically, 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 **ToDoList** within the Modeler. The **ToDoList** is associated with each definition. The **ToDoList** 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 there 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 Activities 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".

This section includes the following topics:

➤ Business Process Monitors on page 68

➤ Databases on page 68

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 of 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*.

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 ODB.

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.

Setting Modeler Options

Use the Modeler Options dialog to change the configuration of the BPI Modeler. You select Options from the File menu option as follows:

   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.

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."

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.

To design a Business Process model:

1 Design the Business Process model

Use the BPI Modeler to draw out your high-level Business Process.

Identify the Business Processes you want to track for business impact.

2 Define the data to be maintained for each process instance

Define the data attributes that you wish 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 refer to 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 n 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 Manage the BPI Modeler

The following are the management tasks that you can complete using the BPI Modeler:

➤ "Starting and Stopping the Modeler" on page 73

➤ "Deploying Processes and Dependencies" on page 75

➤ "Redeploying a Definition" on page 77

➤ "Running Deployed Processes" on page 77

➤ "Undeploying Definitions from the BPI Modeler" on page 78

➤ "BPI Modeler Log File" on page 79

➤ "Exporting and Importing" on page 80

➤ "Using TransactionVision Events in the Modeler" on page 85

➤ "Linking Activities to IT Operational Resource CIs" on page 89

➤ "Copying Process Definitions" on page 89

➤ "Copying Properties Between Data and Event Definitions" on page 90

➤ "Exporting Definitions to Recover Unsaved Changes" on page 91

➤ "Exporting Definitions to Recover Unsaved Changes" on page 91

Details of the tasks for creating Business Processes definitions, Data definitions and Event definitions are contained in the Modeler online Help, which can be accessed from the Modeler Help menu option.

Starting and Stopping the Modeler

To start the BPI Modeler, complete the following steps:

1 Select **Admin** > **Business Process Insight**.

You are presented with a tabbed page that includes a tab for Modeling.

2 Select the Modeling page.

3 Click the icon for the Modeler on the page and 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.

The BPI Modeler opens.

The following figure shows an example of the layout of the Modeler when you open it.
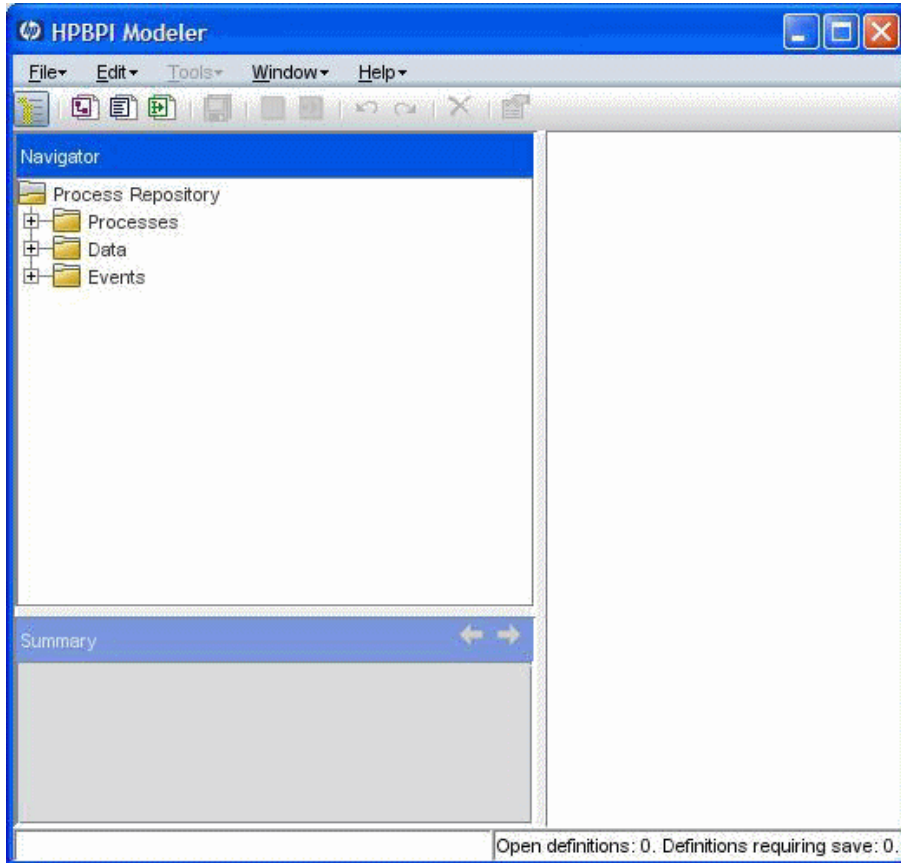
If you have installed the BPI Server component, you also need to make sure that the Process Repository component is started on the BPI Server system and the Infrastructure settings are completed for BPI (access the infrastructure settings from: **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure settings** > **Business Process Insight)**.

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*.

To stop the BPI Modeler, select **File** > **Exit** in the Modeler window. You are prompted to save any currently unsaved changes to the models that you have been editing.

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.

Deploying Processes and Dependencies

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.

This section explains how to deploy a Process and any associated Data definitions and Event definitions.

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.

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 ODB. 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.

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.

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

Redeploying a Definition

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. See Chapter 6, "Process Intervention," for more information about the Intervention Client.

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.

Undeploying 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:

1 Open the Modeler.

2 Select the definition that you want to undeploy from the Navigator pane.

3 Select **File** > **Undeploy** and follow the instructions provided.

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

You are presented with an Undeploy dialog where the definitions that will be undeployed are listed.

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.

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 Intervention tool to show you the status of the definitions. The Intervention tool is described in Chapter 6, "Process Intervention".

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 "How to Export and Import Monitor Definitions" on page 121.

You can also export a process definition in order 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.

Exporting 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 "Importing Process and BPEL Definitions" on page 81.

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.

Importing 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.

Importing 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 comprises only one Activity, the size of the canvas will be 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.

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. Once these 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 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:
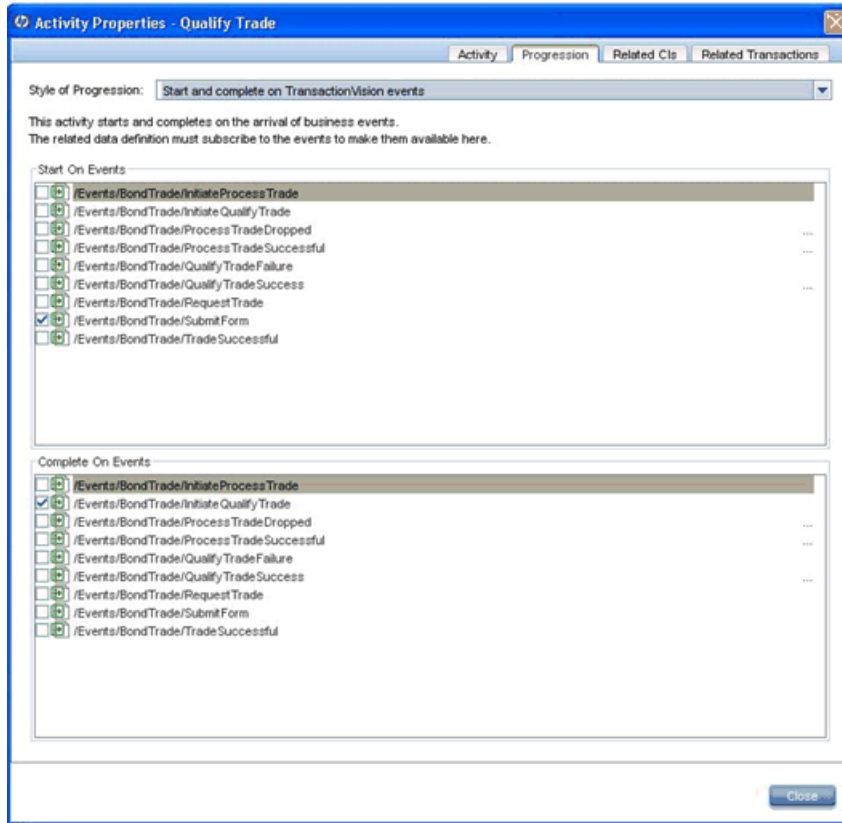
You can relate Business Transactions to an Activity using any of the tabs in the Activity Properties dialog (right-click on an Activity in the Process Editor). The **Related Transactions** tab displays a filtered list of only the TransactionVision Business Transactions that are originating the events 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 ODB, use the **Related CIs** tab.

For more details on each tab, see the Modeler online help.

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 TranactionVision 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.

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 ODB. These relationships are displayed on the Health page. For details, see Chapter 10, "BPI Application Health."

To link Activities to Business Transactions using the Related Transactions tab:

1 Right-click on the Activity to which you want to link a Business Transaction and select **Properties**. The Activities Properties dialog opens.

2 Select the **Related Transactions** tab. The Business Transactions that originated from the TransactionVision event are listed.

3 Open the Transaction Selector dialog by clicking the Transaction Selector icon.
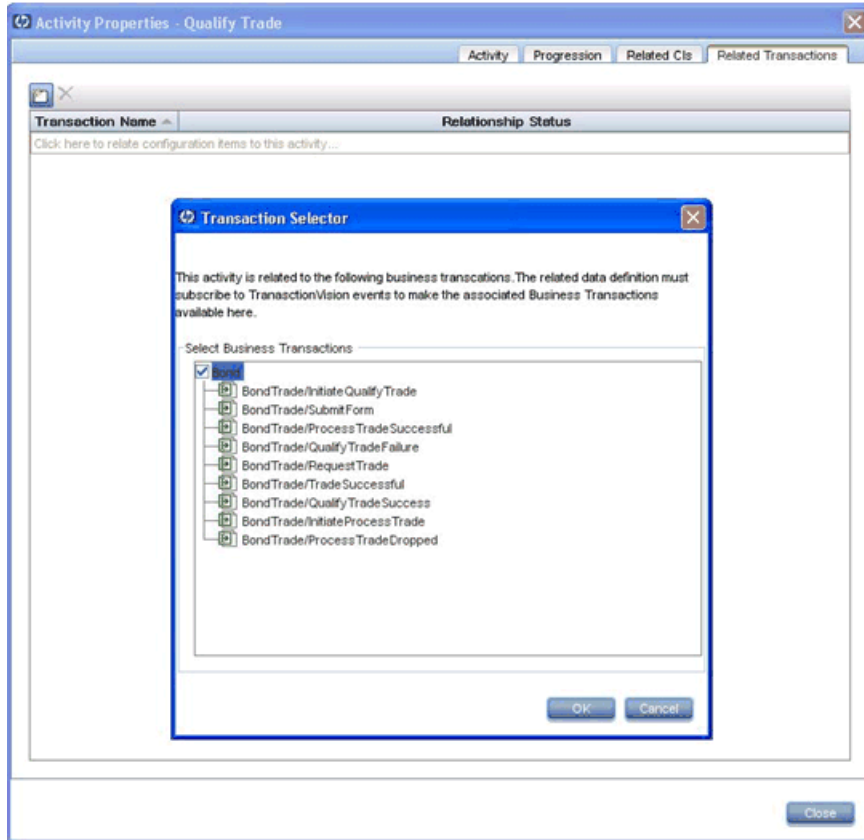
4 Select the Business Transaction and click **OK**.

The Business Transaction is now linked to the Activity.

5 Follow steps 1 - 4 to link other Activities to Business Transactions.

Linking Activities to IT Operational Resource CIs

When you configure the Activities in your Business Process using the Modeler, there is an option to link the Activity to one or more CIs within the ODB.

You edit the Related CIs for a Business Process, and then you redeploy the process to commit these CI dependencies to the ODB. For details of linking CIs to Business Activities, see the Modeler online Help.

Copying 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 "Exporting Process Definitions" on page 80 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.

Copying 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.

Note that you are not able to 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 copies to the definition that you opened in step 1.

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

Exporting 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 in order 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

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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 in order 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 purposed 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.

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 *prop-name* to property *prop-name* as it is not a compatible type.

Data Type...	Assigned from...
Boolean	Other Boolean values, or from **String**s 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 prop-name to property prop-name 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 92.
Comparison: < <= = != > >=	The comparison operators can be used to provide a: ➤ numeric comparison between Numeric properties or values that can be coerced to numeric using the assignment rules described in "Assignments" on page 92. ➤ 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 92 (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 92.
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 allows 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: ➤ 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

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

Expression Grammar in Process, Data, and Filter 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

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 98 for possible values for
function_return_value.

constant_value =>
      string_contant
      |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

The following are examples that you might use in your expressions. Further examples are given in the *Business Process Insight Integration Training Guide - Modeling Processes*:

➤ this.OrderNumber

➤ this.Customer.Customer_ID

➤ event.Status

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 102.

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 102. 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

In order 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
this.data.property.changed()	This function is used to test when the property value changes. When the property value changes it returns a result of **True**.
this.data.property.before()== *"prop-value"*	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.
this.data.property.after()== *"prop-value"*	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.
this.data.created()	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
this.data.property.in(*"prop-value1"*, *"prop-value2"*, ...)	This evaluates to true when the value of the propery is set to any of the listed values. The method returns a Boolean result.
this.data.terminated()	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**. The method returns a Boolean result.
onEvent(*"event-name"*)	This evaluates to true when the specified event is processed by the Data definition. It evaluates to false if the event does not match.

Example of Complete Condition for Start Activity When Data Definition 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.

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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 expression 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.

4

Monitor Definer

This chapter includes:

Concepts

➤ Business Process Monitor Definer Overview on page 108

➤ BPI Monitor Definer Log Files on page 117

Tasks

➤ How to Manage the BPI Monitor Definer on page 119

➤ How to Export and Import Monitor Definitions on page 121

Concepts

🍄 Business Process Monitor Definer Overview

This chapter 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.

🦠 Using the Monitor Definer Without and With the BPI Server Installed

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 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 109

➤ "Monitoring - Tracking Individual Process Instances is Enabled" on page 111

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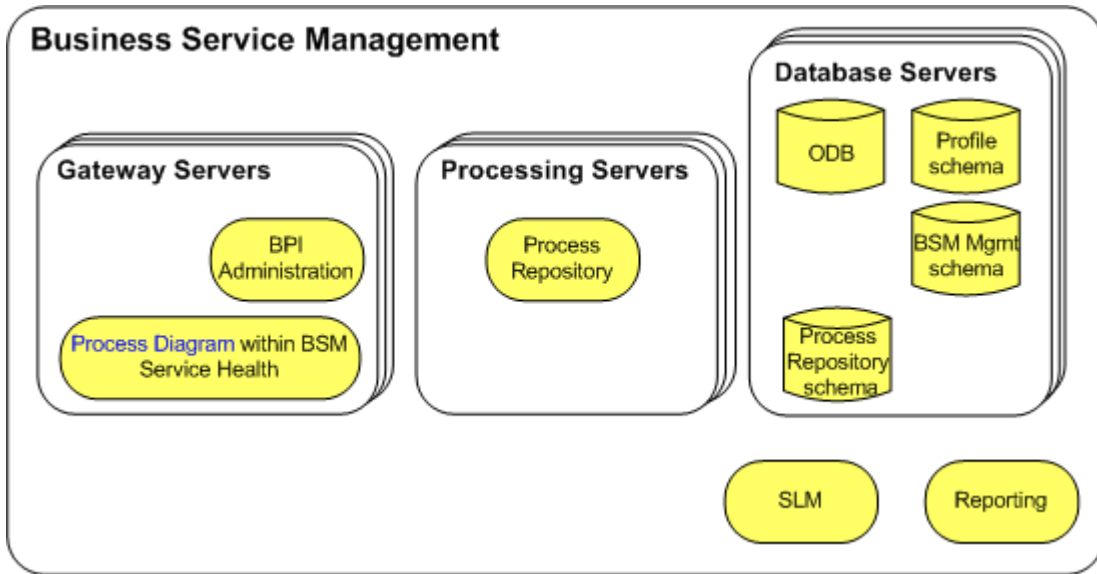
The following is a list of the key steps involved for monitoring your Business Processes:

➤ 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 in order 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.
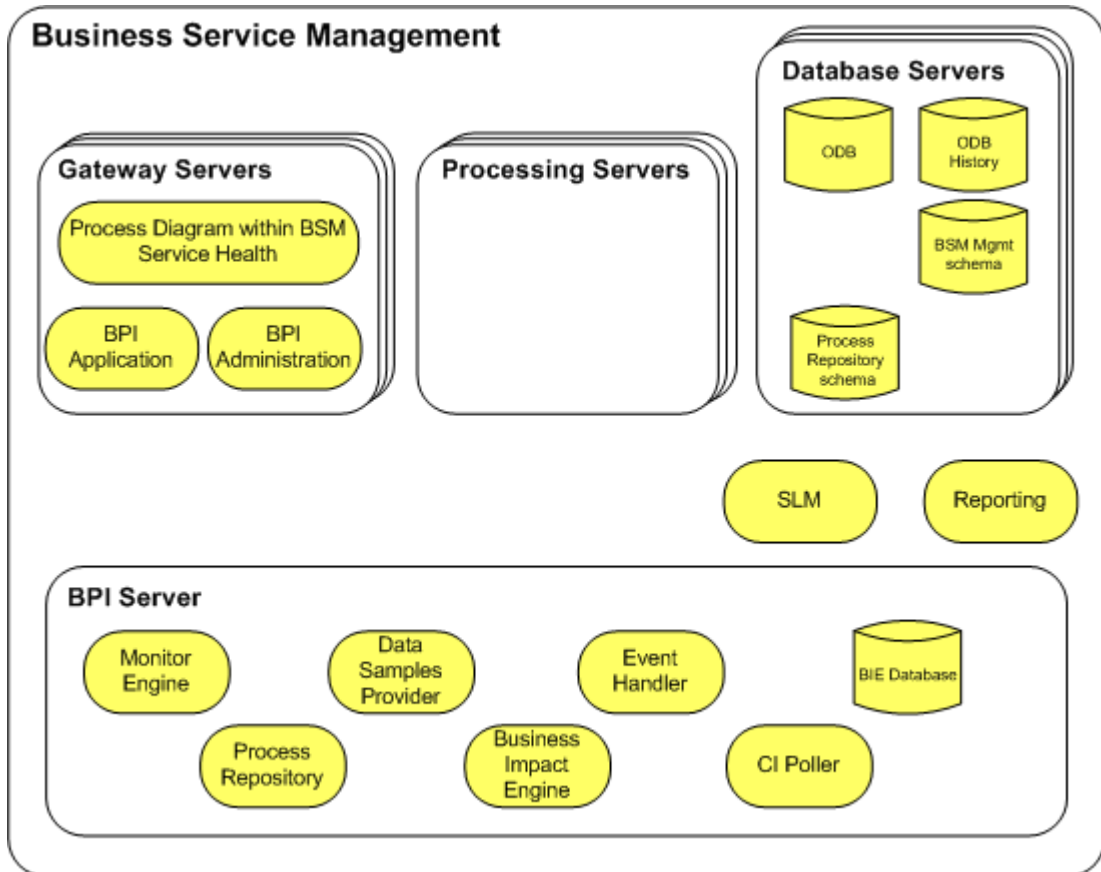
The following is a list of the key steps involved for monitoring your Business Processes. These steps are in addition to those described in section "Monitoring - Tracking Individual Process Instances is Disabled" on page 109:

➤ 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 ODB.

➤ 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 Availability Center 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 9, "Introduction to Reports".

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

🔩 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.
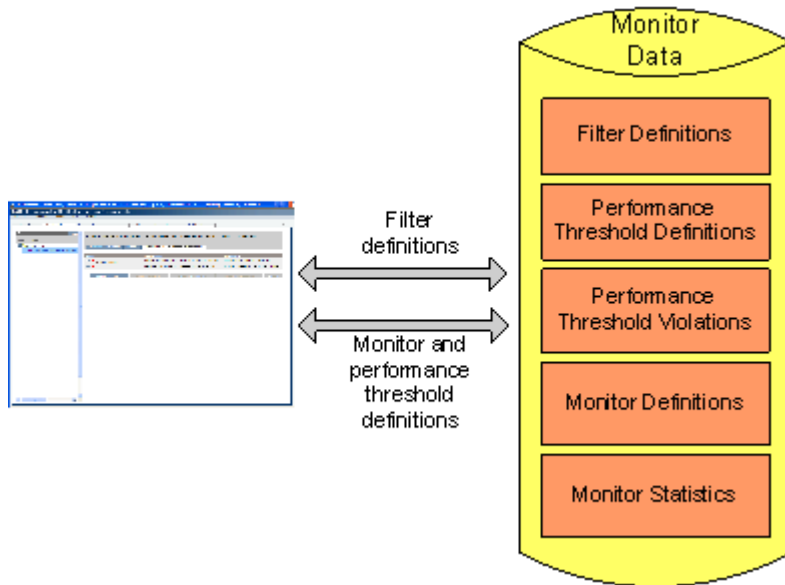
You can define monitors for:

➤ 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 114.

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.
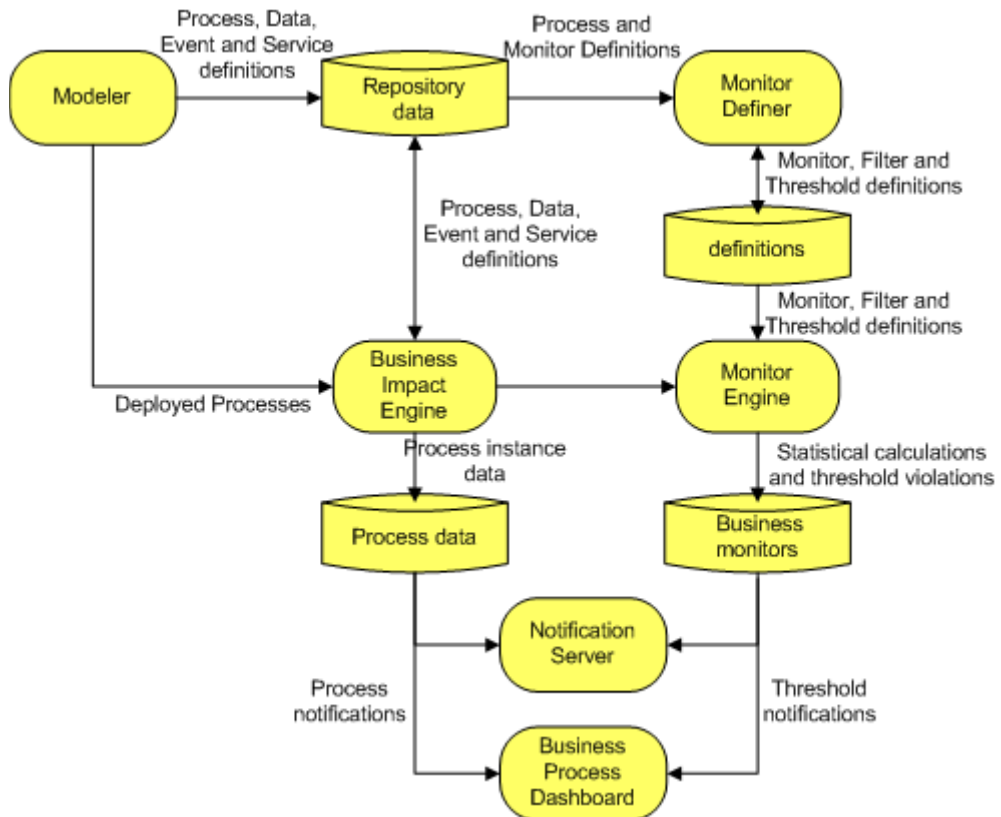
The Business Process Monitors and monitor thresholds are configured through the Business Process Monitor Definer; see "Business Process Monitor Definer Overview" on page 108.

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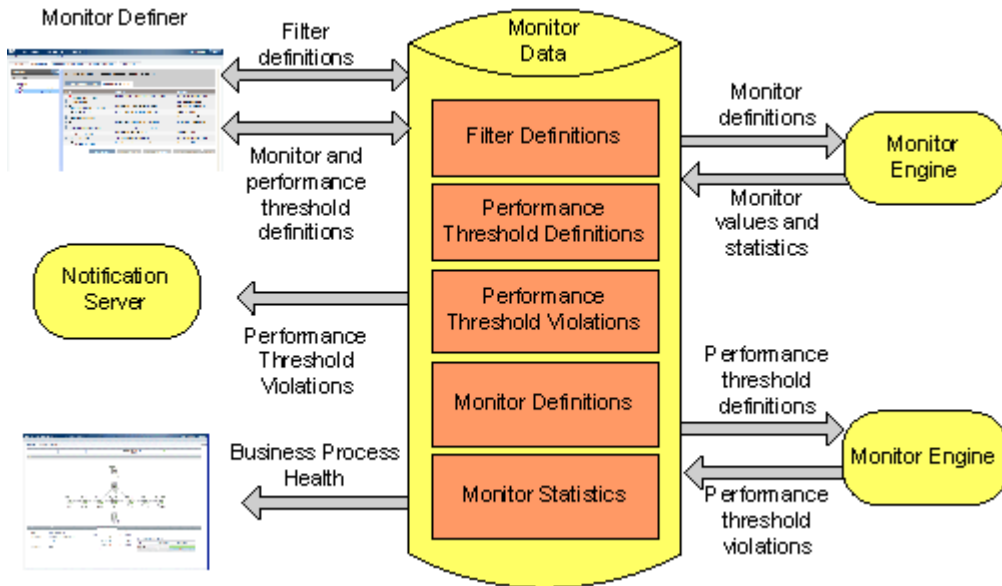
The statistics that the Monitor Engine calculates are stored in BPI database tables and are used by the Business Process Insight Application Health pages. The database tables also hold information used to determine if any monitor thresholds have been violated. These violations are reported through the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

➤ "Opening the Monitor Definer" on page 119

➤ "How to Export and Import Monitor Definitions" on page 121

For details about creating and modifying monitors, see the Monitor Definer online Help.

Opening 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*.

Opening the Business Process Monitor

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.
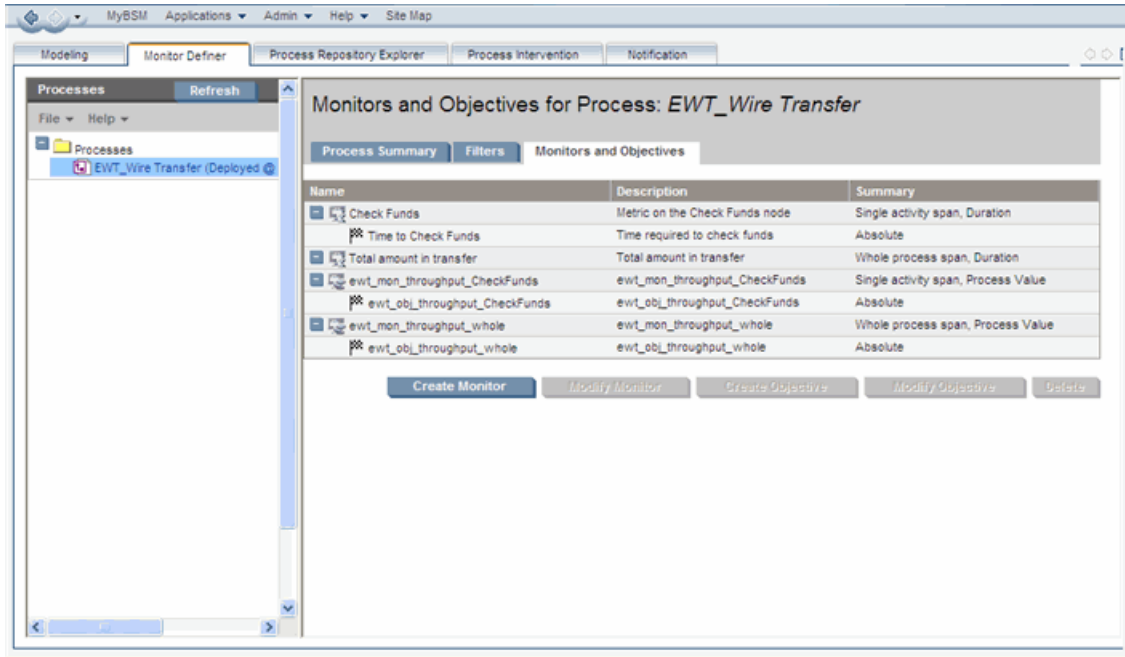
Importing a Business Process Monitor

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 or not 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.

How to 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 80 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 in order 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 allows only .zip archive file names that contain ASCII characters.

5

Process Repository Explorer

This chapter includes:

Concepts

➤ Process Repository Explorer Overview on page 126

Tasks

➤ How to Use Repository Explorer to Complete Tasks on page 129

Reference

➤ Process Repository Explorer User Interface on page 134

Concepts

🔹 Process Repository Explorer Overview

This chapter describes the BPI Repository Explorer, which is a Web-based interface that enables you to browse and manage the contents of the Process Repository Database. The Process Repository Database holds 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*.

For information about creating definitions using the BPI Modeler, see the *Business Process Insight Integration Training Guide - Modeling Processes*, or the Modeler Online Help.

The Repository Explorer is a Web-based interface that enables you to view, print and manipulate the contents of the Process Repository. 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: The data presented by the Repository Explorer contains a super-set of information. It shows those definitions that were once deployed, those definitions that are currently deployed, and those 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.

The Repository Explorer enables you to always be able to 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.
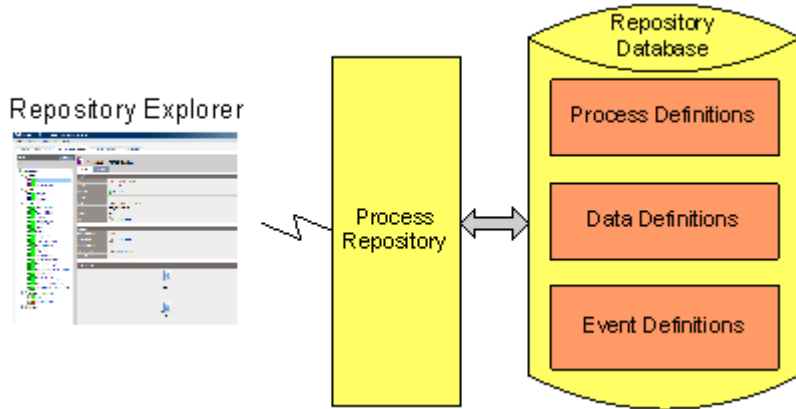
Process Repository Explorer Log Files

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 129
- ➤ "Browse Definitions" on page 130
- ➤ "Print Definitions" on page 130
- ➤ "Delete Definitions" on page 130
- ➤ "Exporting Process Definitions" on page 130
- ➤ "Undeploying a Process Definition" on page 132
- ➤ "Restoring a Definition" on page 133

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 GUI. 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 135)

2 Click the History tab (see "History Tab" on page 139).

3 Select the checkbox for the definition, or definitions that you want to delete.

4 Click Delete.

Exporting Process Definitions

The Repository Explorer can be used to export any revision of a definition from the Process Repository.

Caution: 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 131.

   You might want to do this in order 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 132.

   You might want to do this in order 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 Click the Export option from the File menu in the Navigation pane.

   Continue at step 6.

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.

6 The right-hand pane lists the definition that will be exported.

7 Click the Download button to continue to export the definition.

You are presented with your browser's File Download dialog.

8 Select Save, to save the definition as a .zip file.

You are presented with a Save As dialog, where you can specify a file name and directory location for the .zip file.

9 Enter the details of the file name and click Save.

The file is saved and a Download complete dialog is displayed.

10 Click Close and the export is complete.

Exporting All Definitions

To export all definitions, complete the following steps:

1 Click the Export All Option from the File menu in the Navigation pane.

2 The right-hand pane lists the definitions that will be exported.

3 Click the Download button to continue to export the definition.

You are presented with your browser's File Download dialog.

4 Select Save, to save the definition as a .zip file.

You are presented with a Save As dialog, where you can specify a file name and directory location for the .zip file.

5 Enter the details of the file name and click Save.

The file is saved and a Download complete dialog is displayed.

6 Click Close and the export is complete.

Undeploying 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 135.

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 Intervention tool to delete the individual Data definition instances.

Restoring 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 the Restore option from the File menu 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

This section includes (in alphabetical order):

➤ Repository Explorer Page on page 134

🔖 Repository Explorer Page

Following is an example of the layout of the BPI Repository Explorer.
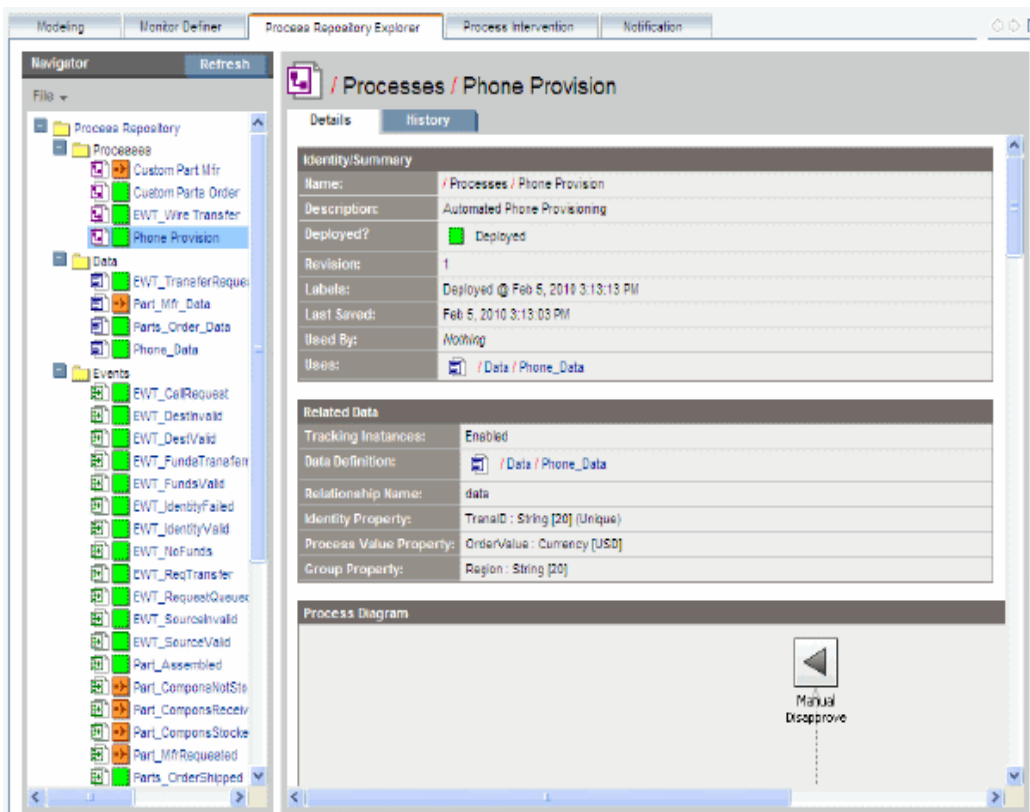
The Repository Explorer comprises the following main areas:

➤ "Navigator Frame" on page 135

➤ "Details Tab" on page 137

➤ "History Tab" on page 139

Navigator Frame

User interface elements are described below:

UI Elements	Description
<folders>	**Process**, **Data** and **Event** definitions have been created in the BPI Modeler.
	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."
	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.

UI Elements	Description
File	The menu includes the following options: ➤ **Export.** Enables you to export the selected definition to a zip file. For details see "Exporting Process Definitions" on page 130. ➤ **Export All.** Enables you to export the latest revision of all the definitions in the Navigator frame to a zip file. For details see "Exporting Process Definitions" on page 130. ➤ **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 "Restoring a Definition" on page 133. ➤ **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. **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 137. You can select the **History** tab described in "History Tab" on page 139.
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 the Modeler online Help.

Following is an overview of all the sections under the **Details** tab for all the
definitions:

UI Elements (A-Z)	Description
Activities	This section appears only for a Process definition and lists details of the individual Activities that make up the Process definition, including: ➤ **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:** Filename of the image selected for the Activity's icon. ➤ **Related CIs**: List of any CIs that the Activity is linked to.
Checked Arcs	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.

UI Elements (A-Z)	Description
Identity/Summary	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. 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.
Process Diagram	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 through the BPI Modeler.
Properties	This section appears for Data and Event definitions and lists details of the properties that have been defined for the selected definition. ➤
Related Data	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.

UI Elements (A-Z)	Description
Subscriptions	This section appears only for a Data definition and lists details of the Event subscriptions related to the Data definition and includes: ➤ 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	This section appears for all the definitions and lists the content of the current to-do list for the selected definition.

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 allow 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 142

Tasks

➤ How to Use the Process Intervention Tool on page 145

Reference

➤ Process Intervention Reference on page 150

Concepts

⚛ Process Intervention Overview

This chapter describes how you can make changes to your Business Process data, and delete completed instances of Processes and Data definitions using the Process Intervention pages.

The Process Intervention page enables you to access processes that you have deployed in order to modify or delete Process instances and their associated Data instances.

You might want to modify or delete instances to resolve problems with the process, or its data. This is more 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.

Note: You cannot open or use the Process Intervention page, unless you have installed the BPI Server. The Process Intervention page appears when the BPI Server is installed and the connectivity between the BPI Server and the Business Availability 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*.

You use Process Intervention to remove individual process instances or data instances from the 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*.

The purpose of Process Intervention is to:

➤ enable you to access deployed Process and Data definitions, plus Process instances and Data instances.

➤ enable you to delete Process and Data definitions, and clear the average and total counts associated with a specific definition.

➤ invoke a manual synchronization between BPI CIs and the ODB.

The following are some examples of why you might want to use the Intervention tool:

➤ 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 Intervention tool 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 and 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 ODB 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 ODB 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 option to delete all existing BPI CIs from the ODB 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 using the Intervention pages, it is recommended that you use the Intervention Client to remove the definitions and all their instances from the Business Impact Engine and then re-deploy the process or processes that you want to use.

Tasks

🔧 How to Use the Process Intervention Tool

The following are the tasks that you can complete using the Process Intervention tool:

➤ "Opening the Process Intervention Page" on page 145

➤ "Deleting Process or Data Definitions and Clearing Data" on page 145

➤ "Search for Specific Instances" on page 146

➤ "Change the State of an Instance" on page 147

➤ "Delete All Instances" on page 148

➤ "Modify or Reset the Data within a Data Instance" on page 148

➤ "Synchronize with the ODB" on page 149

Before completing any of these options, you are advised to read section "Process Intervention Reference" on page 150, which provides information on the possible impacts of making these changes.

Opening the Process Intervention Page

You access the Process Intervention page as follows:

1 Select Admin > Business Process Insight

You are presented with a tabbed page that includes a tab for Process Intervention.

2 Click the tab for Process Intervention and you are presented with a page requesting you to select from Process Definitions, Data Definitions or Synchronize with the ODB.

3 Select the option for the task that you want to complete.

Deleting Process or Data Definitions and Clearing Data

This section describes how to:

➤ Delete Process and Monitor Definitions, and instances of these definitions.

➤ Delete Process, Monitor and Data Definitions and all related instances.

➤ Clear Average Time and Total Instance Count for both the Process and the Process Activities).

➤ Delete Data Definition and associated instances

➤ Clear Average Time and Total Instance Count

If you want to deleted individual instances and not the Process or Data definition refer to the sections below.

To make your required changes:

1 Open the Process Intervention page.

2 Select the Process Definitions or Data Definitions option as appropriate.

3 Select the Process or Data definition that you want to modify, or delete.

4 Select the option for the task that you want to complete.

When you have completed your changes you can exit from the Process Intervention page.

Search for Specific Instances

To search for a specific 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 Click the Search option for the definition that you are interested in.

The search dialog various according to whether you are searching for a process or a data instance.

4 Enter the criteria for the search as appropriate.

In the case of 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 that are in a particular state, for example: Active or Completed.

In the case of a Data instance, you can search based on the values of the properties of the Data instances. You are presented with a Data Instance List page where you can delete or edit the Data Instances that match the search criteria.

When you choose to edit a Data instance, you are presented with a Data instance screen where you have access to the properties of the Data instance in order to confirm that it is the definition that you are interested in.

When modifying the properties of a Data instance, make sure that you enter the correct Type for the property, for example, if the property is an Integer, a numeric value for the property must be specified.

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 the Intervention tool returns all the instances for the selected definition.

Change the State of an Instance

To change the state of a process or data instance:

1 Open the Process Intervention page.

2 Select the Process Definitions or Data Definitions option as appropriate

3 Click the search option for the definition that you want to list instances for.

The search option enables you to filter the list of instances that are presented.

4 Enter the criteria for the search; see "Search for Specific Instances" on page 146 for information related to completing the search criteria. Click the **Search** button to initiate the filter. If you want to return to the previous screen click **Cancel**.

You can leave the search criteria blank, in which case the Intervention tool returns all the instances for the selected definition.

5 Select the instance that you want to modify and click the **Edit** option.

6 Make the change to the State of the instance at the required Activity and click **OK**.

Continue and make changes to other instances in the same way.

When you have completed your changes you can exit from the Intervention page.

Delete All Instances

To delete all 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 Click the Search option for the definition that you want to delete the instances for.

4 Enter the criteria for the search; see "Search for Specific Instances" on page 146 for information related to completing the search criteria. Click the **Search** button to initiate the filter. If you want to return to the previous screen click **Cancel**.

You can leave the search criteria blank, in which case the Intervention tool returns all the instances for the selected definition.

5 Click the Select All button to select all the instances.

6 Click the Delete button to delete all the instances.

When you have completed your changes you can exit from the Intervention page.

Modify or Reset 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 Click the Search option for the Data definition that you want to list instances for.

4 Enter the criteria for the search.

5 Make the required changes to the data Select the instance that you want to modify and click the Edit option.

You can leave the search option blank to select all the instances for the Data definition.

The full list of instances for the definition is presented.

6 Select the Data instance that you want to modify and click the Edit button.

The Data instance details are presented in on editable form.

7 Edit the Data instance as appropriate and click OK.

When you have completed your changes you can exit from the Process Intervention page.

Synchronize with the ODB

To synchronize the BPI definitions with those held in the ODB, complete the following steps:

1 Open the Process Intervention page.

2 Select the Synchronize with the ODB option.

You have the option to delete all existing BPI CIs from the ODB before synchronizing. This is useful if there are CIs in the ODB that have been created by previous installations and processes were not undeployed before BPI was uninstalled.

3 Select the checkbox if you want to delete all existing BPI CIs, clear the checkbox if you do not want to delete them.

4 Click the Synchronize button to commence the synchronization.

When the synchronization is complete, you can exit from the Process Intervention page.

Reference

🔍 Process Intervention Reference

This section provides background information relating to using the Process Intervention tool to delete or modify definitions and instances.

Typically, you have identified an anomaly using the Business Process Insight Application, and are therefore using the Process Intervention tool 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 Intervention tool's filtering capability to search for the instance that you want.

You need to be aware of the following when using the Intervention tool:

➤ 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 Intervention tool 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.

Using the Process Intervention Option

On the Process Intervention page, you are offered the following menu options:

➤ Process Definitions

➤ Data Definitions

➤ Synchronize with the ODB

When you select one of the options (Process Definitions or Data Definitions), you are presented with a list of definitions within the selected category. The actions that you can complete at this point depend on the definition that you have selected:

➤ for Process definitions, refer to section "Process Definitions" on page 151.

➤ for Data definitions, refer to section "Data Definitions" on page 152.

Caution: 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.

Process Definitions

When you select the Process Definitions option from the Intervention tool menu, you are presented with a list of Process definitions that are deployed in the Business Impact Engine.

The Process definitions within the Modeler are not impacted by the actions of the Intervention tool, so you can redeploy the Process; however active and completed instances of the process are potentially impacted by changes made through the Intervention tool.

At this stage, you can choose one of the following options:

➤ 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)

   This clears (or removes) the values for TotalFlows and AvrgTime from the
   Flows table in the BPI Instance database.

You can also choose to select:

➤ the Search option to identify specific instances of the definition; see
   "Search for Specific Instances" on page 146.

➤ the Edit option and a process diagram is displayed. The process diagram
   shows the status of each Activity in the process, for example, whether it is
   in the started or completed state. You can progress process instances from
   this option, by manually activating or completing Activities in the
   process.

   The following are the icons that can be associated with each instance:

   ➤ a tick, which indicates that the Activity instance has completed at least
      once

   ➤ a cog wheel, which indicates that the Activity instance is started

   ➤ no icon, which indicates that the Activity instance is not started or
      completed

Data Definitions

When you select the Data Definitions option from the Intervention tool
menu, you are presented with a list of Data Definitions that are currently
deployed in the Business Impact Engine.

At this stage, you can choose one of the following options:

➤ Delete Data Definition and instances

➤ Clear Average Time and Total Instance Count

   This clears (or removes) the values for TotalInstances and AvrgTime from
   the Data Objects table in the BPI Instance database. The *Business Process
   Insight Server Administration Guide* describes the database tables in detail.

You can also choose to select the Search option to identify specific instances of the definition; see "Search for Specific Instances" on page 146.

The Data definitions within the Modeler are not impacted by the actions of the Intervention tool, 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 Intervention tool.

7

Notification

This chapter includes:

Concepts

Tasks

Reference

Concepts

🔧 Notification Server Overview

This chapter 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 157.

➤ **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 160.

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 160.

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.
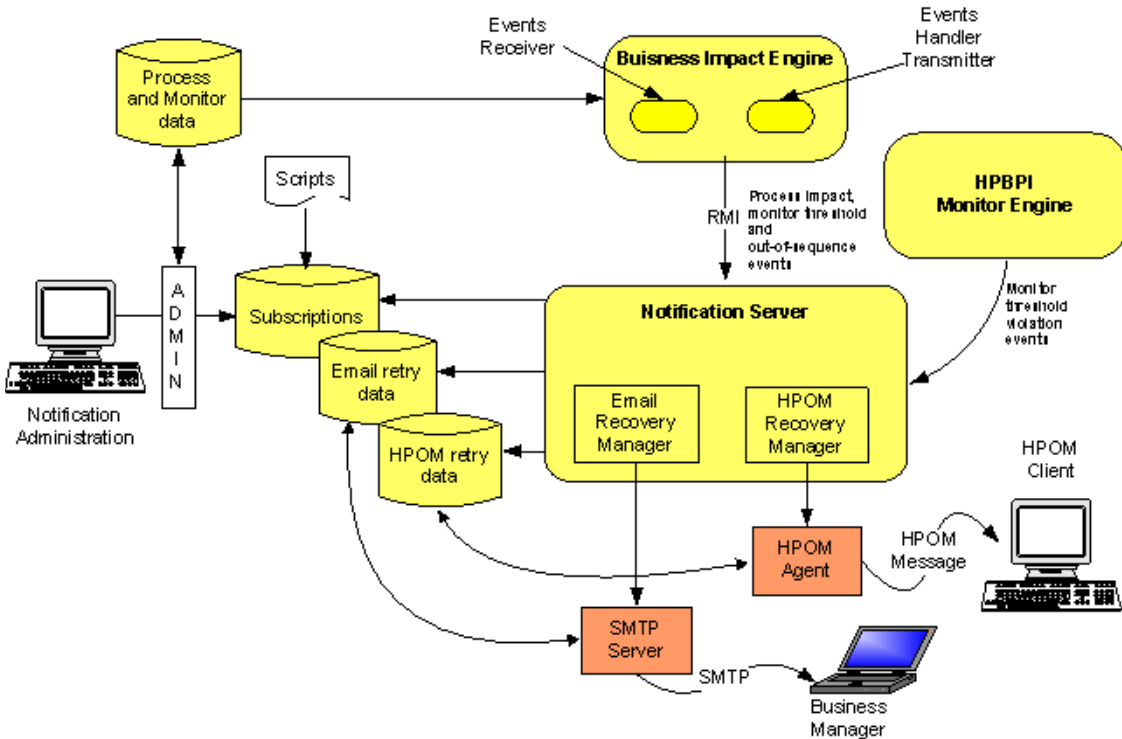
Business violations are created by the Notification Server as a result of receiving:

➤ 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 176.

Email Notification Messages

The email notifications contain impact information about:

➤ the 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 160

➤ "Managing HP Operations Manager Message Subscriptions" on page 164

➤ "Managing Script Subscription" on page 167

➤ "Creating Notification Server Templates" on page 169

➤ "Creating Script Files" on page 176

Managing Email Subscriptions

This section includes creating:

➤ subscriber accounts to receive specific process impact events that are generated by the BPI Server.

➤ subscriber accounts to receive specific monitor instance threshold events that are generated by the BPI Server.

➤ subscriber accounts to receive specific out-of-sequence events that are generated by the BPI Server.

Complete the following steps 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 162.

➤ 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 176 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 176 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://jakarta.apache.org/velocity/

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 is able to 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()
Frocess 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 179, "Methods Specific to Process Impact Violations" on page 180, "Methods Specific to Out-of-Sequence Violations" on page 182, or "Methods Specific to Out-of-Sequence Violations" on page 182.

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 187.

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 187.

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 in order 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 167 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 in order 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 filename:

bpi-install-dir/data/conf/bia/notify-scripts

The Notification Server looks in this directory for scripts and presents these scripts to your 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 167 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
$alert.getVersion()	Returns a STRING containing the version number for the BPI event.
$alert.getSeverity(*locale*)	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 *locale*, for example: ➤ $alert.getSeverity("ja"), for a Japanese locale ➤ $alert.getSeverity("ko"), for a Korean locale The value returned is also used to determine the color of the text in the email notification.
$alert.getEventGroup()	Returns a STRING containing the name of the event group for the BPI event, that is, NOTIFICATIONS.
$alert.getEventName()	Returns a STRING containing the name of the BPI event, that is, PROCESS_IMPACTED, PROCESS_MONITOR_THRESHOLD_VIOLATION or PROCESS_OUT_OF_SEQUENCE
$alert.getEventTime(*locale*)	Returns a STRING containing the time of the BPI event, formatted using the locale for the BPI Server or, if specified, the *locale* of the country and language specified in *locale*.

Alert Method Names	Alert Method Description
$alert.getEventDataListSize()	Returns the number of event data items in the BPI event.
$alert.getEventDataNames()	Returns an ARRAYLIST of the names of the event data items in the BPI event.
$alert.getEventDataByName (*Stringname, locale*)	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 *locale*.
$alert.getEventDataByIndex (*index, locale*)	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 *locale*.

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
$alert.getFlowName()	Returns a STRING containing the process name for the BPI event.
$alert.getFlowGuid()	Returns a STRING containing GUID for the process definition in the BPI event.
$alert.getServiceName()	Returns a STRING containing the name of the service for the BPI event.
$alert.getServiceGuid()	Returns a STRING containing the service GUID for the BPI event.

Alert Method Name	Alert Method Description
$alert.getFlowNodeString()	Returns a STRING 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 ARRAYLIST of Activity names in the BPI event. You can use the methods defined in the ArrayList class. For example, you can access the first element of an array list named flowNodeList using $flowNodeList.get(0)
$alert.getFlowNodeListSize()	Returns the number of elements in the process Activity list in the BPI event.
$alert.getRootCause()	Returns a STRING 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->Oracle System Europe->Network Resources
$alert.getFlowNodeStatusList()	Returns an ARRAYLIST of the status of the Activities in the BPI event. You can use the methods defined in the ArrayList class. For example, you can access the first element of an array list namesFlowNodeStatusList using $flowNodeStatusList.get(0).

Alert Method Name	Alert Method Description
$alert.getFlowNodeStatusString(*locale*)	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.
	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:
	➤ $alert.getFlowNodeStatusString("ja"), for a Japanese locale
	➤ $alert.getFlowNodeStatusString("ko"), for a Korean locale
$alert.getFlowNodeStatusList Size()	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
$alert.getFlowName()	Returns a STRING containing the process name for the BPI event.
$alert.getFlowGuid()	Returns a STRING containing GUID for the process definition in the BPI event.
$alert.getFlowInstanceGuid()	Returns a STRING containing GUID for the process instance in the BPI event.
$alert.getSourceNode()	Returns a STRING containing the name of the Activity that is the source Activity for the out-of sequence violation.

Alert Method Name	Alert Method Description
$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.
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.	
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.	
getThresholdAlertNotification PeriodDurationHours()	Returns a STRING containing the duration of actual notification period in terms of hours.
getThresholdAlertNotification PeriodDurationHours(*locale*)	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 *locale*.

Alert Method Name	Alert Method Description
getThresholdAlertNotification PeriodDurationMinutes()	Returns a STRING containing the duration of actual notification period in terms of minutes.
getThresholdAlertNotification PeriodDurationMinutes(*locale)*	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 *locale*.
getThresholdAlertNotification PeriodDurationSeconds()	Returns a STRING containing the duration of actual notification period in terms of seconds.
getThresholdAlertNotification PeriodDurationSeconds(*locale)*	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 *locale*.
$alert.getThresholdAlert NotificationPeriodStart()	Returns a STRING containing the start time of the Threshold violation notification period. Start time is the time from and including the time specified.
$alert.getThresholdAlert NotificationPeriodEnd()	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.
$alert.getThresholdAlertStatus ChangeTime()	Returns a STRING containing the time that the Metric_Fact_Alerts table was updated with the instance threshold alert notification.
$alert.getThresholdAlertRaised Time()	Returns a STRING containing the time that the event notification was sent to the Notification Server.
$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 Method Name	Alert Method Description
$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.getThresholdNumber NotificationsInPeriod()	Returns a STRING containing the total number of notifications sent for the instance threshold in the Threshold violation notification polling interval.
$alert.getThresholdNumber AlertsInPeriod()	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.getThresholdNumber NormalAlertsInPeriod()	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 getThresholdNumberAlertsInPeriod().
$alert.getThresholdNumber WarningAlertsInPeriod()	Returns a STRING containing the total number of Warning instance threshold violations generated for the instance threshold in the Threshold violation notification polling interval. This number is a subset of getThresholdNumberAlertsInPeriod().

Alert Method Name	Alert Method Description
$alert.getThresholdNumber MinorAlertsInPeriod()	Returns a STRING containing the total number of Minor instance threshold violations generated for the instance threshold in the Threshold violation notification polling interval. This number is a subset of getThresholdNumberAlertsInPeriod().
$alert.getThresholdNumber MajorAlertsInPeriod()	Returns a STRING containing the total number of Major instance threshold violations generated for the instance threshold in the Threshold violation notification polling interval. This number is a subset of getThresholdNumberAlertsInPeriod().
$alert.getThresholdNumber CriticalAlertsInPeriod()	Returns a STRING containing the total number of Critical instance threshold violations generated for the instance threshold in the Threshold violation notification polling interval. This number is a subset of getThresholdNumberAlertsInPeriod().
$alert.getFlowMetricGuid()	Returns a STRING containing the Business Process Monitor GUID in the BPI event.
$alert.getFlowMetricName()	Returns a STRING containing the Business Process Monitor name in the BPI event.
$alert.getFlowMetricValue()	Returns a STRING containing the Business Process Monitor value in the BPI event.

🔍 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.

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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	the 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 violations, for example, a Backlog count. This the property that you have nominated to be the identifier for the processe.

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

Reports

9

Introduction to Reports

This chapter includes:

Concepts

➤ BPI Reports Overview on page 194

Tasks

➤ How to Use the Reports to View and Analyze Data on page 196

Concepts

🔧 BPI Reports Overview

This chapter provides an overview of the 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 Reports provide:

➤ an 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.

➤ an 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.

➤ a 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 steps describe how to use the reports to view and analyze data.

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 14, "BPI Components in MyBSM."

Use the reports to view data

1 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 11, "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.

2 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".

3 To view data for Business Processes and Business Process Activities, use the following reports in the BPI Application:

➤ BPI Process Summary

➤ BPI Monitors Over Time

➤ Business Process Activity Summary

The Reports are described in Chapter 12, "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 13, "Annotations for Process Diagrams".

10

BPI Application Health

This chapter includes:

Concepts

Tasks

Reference

Concepts

🔵 Health Page Overview

This chapter describes the BPI Application Health pages and explains how to navigate and use the 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 the Modeler **Help** menu option.

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.

➤ List of the related transaction CIs and KPIs for the selected Business Process or Business Activity. You can drill down to the Transaction Management Transaction Summary Report for each Business Transaction, which displays a list of all completed TransactionVision transactions in a specified time frame.

If there are no TransactionVision CIs linked to the Business Process that you are viewing, no data is available from this option.

Following is an example of the BPI Application Health page
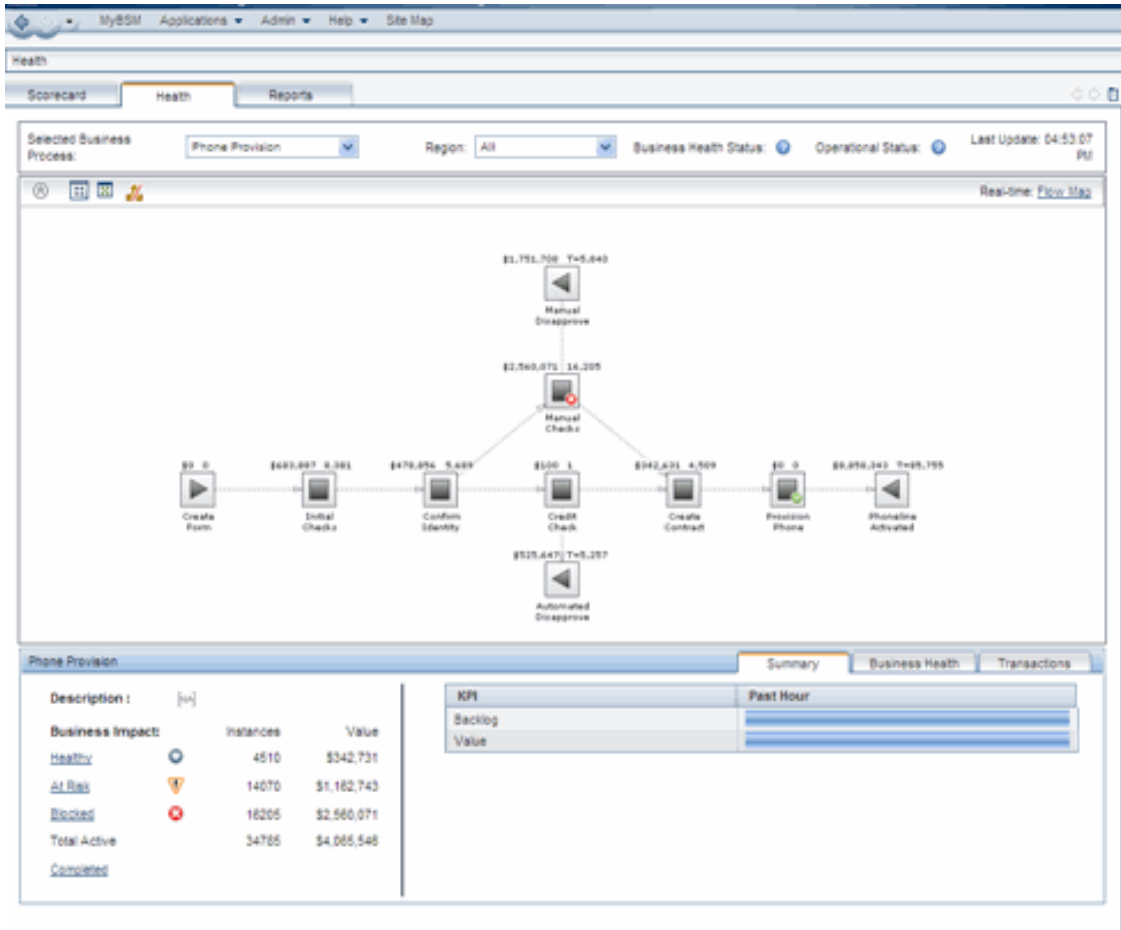
This figure shows the top-level Health Page for the Business Process Insight Application.

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	**Applications** > **Business Process Insight** > **Health**
Important Information	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 210

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 217

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 227

➤ "Business Health Tab" on page 221

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 Box" on page 241.

➤ Monitor details; see section "Monitor Dialog Box" on page 244.

➤ BPI Monitors Over Time Report; see section "BPI Monitors Over Time Report" on page 283.

➤ Process Over Time Report; see section "Business Process Over Time Report" on page 291.

➤ Activity Over Time Report; see section "Business Activity Over Time Report" on page 295.

➤ "Transactions Tab" on page 224

From the Transactions Tab, you can link to the Transaction Management Transaction Summary 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 comprises 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:
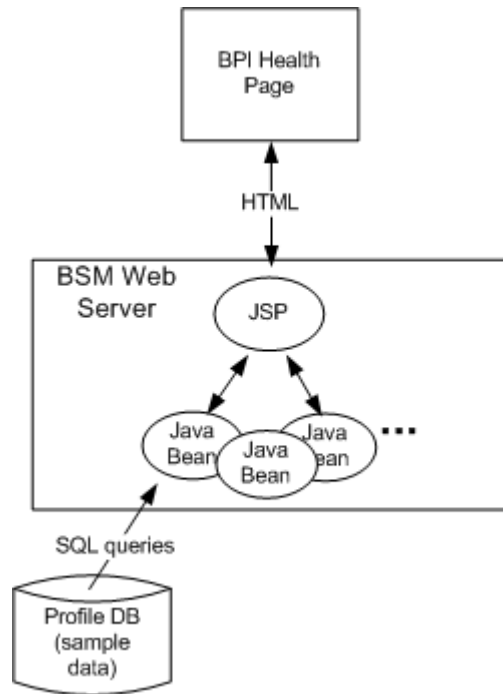
The BPI Instance and Violation pages, which you access when you drill down from the top-level Health page to subordinate pages and dialogs, are managed by a set of Java Server Pages (JSPs) and Java beans. These JSPs run on the Web Server configured for the BPI installation and the instance and violation data is obtained from the BPI Instance database.

Following is a diagram of the BPI Instance and Violation web pages.
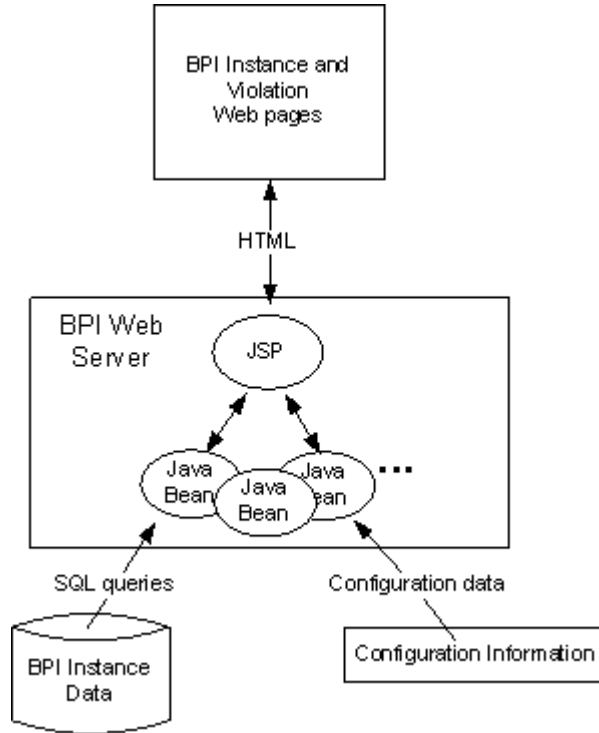
If the BPI Server, or Servlet Engine, is not running for any reason, this information is not available within the Health Pages.

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:

Healthy

At Risk

Blocked

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.

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.

To modify the active monitor instances setting, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**:

➤ Select **Business Process Insight**.

➤ 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

Following is the Process Diagram area on the Health Page.
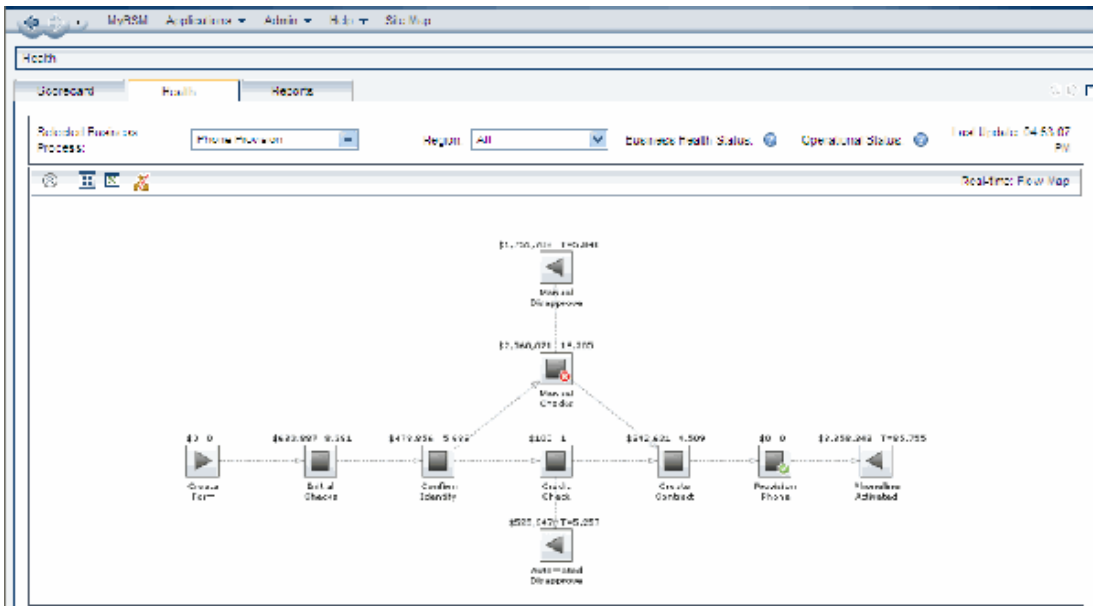
The Process Diagram shows the components and structure of the Business Process when you create it using the Modeler. The data displayed is based on data samples sent to BSM from the BPI Server.

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.

When displayed in the Process Diagram page, the Business Process layout is the same as when it is created in the Modeler.

The data displayed on the Health page changes according to whether you select:

➤ the whole process — in this case, the data relates to all the instances for all the Activities in the process.

➤ a specific process Activity — in this case, the data relates to all the instances for the selected Activity.

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.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
⊗	Click this icon to collapse and expand the pane where the Process Diagram is located. This allows more room for the tabbed areas below the diagram.
	The arrows point upwards when the process diagram is displayed.
⊠	This and the icon that follows enable you to toggle between a fit-to-pane view and a normal view.
	Click this icon to stretch or shrink the Process Diagram such that it fits within the available space.
⊠	This and the icon above enables you to toggle between a fit-to-pane view and a normal view.
	Click this icon to revert the Process Diagram to the size it was when defined within the Modeler
⚡	Click this icon to hide or display transactions.

UI Elements	Description
	This icon is the Activity that represents a normal starting point for a process. **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 216 describes these overlays and their meaning. **Customization**: You can customize the Activity graphic as described in Chapter 13, "Annotations for Process Diagrams".
	This icon is the Activity that represents an activity within your Business Process, for example, a check for account details. **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 216 describes these overlays and their meaning. **Customization**: You can customize the Activity graphic as described in Chapter 13, "Annotations for Process Diagrams".
	This icon is the Activity that represents a normal end point for a process. **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 216 describes these overlays and their meaning. **Customization**: You can customize the Activity graphic as described in Chapter 13, "Annotations for Process Diagrams".

UI Elements	Description
●	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.
	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.
<Activity overlay>	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.
	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 216 for more information about the meanings of the overlays.

UI Elements	Description
<*group_property*> drop-down	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.
	Select one of the following Group attributes to filter the data shown for a Business Process:
	➤ All - Shows combined data for all the groups.
	➤ <group> - Shows data only for that group.
	➤ 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 *Business Process Insight Server Administration Guide*.
	For more details on groups, see "Health Page Overview" on page 200.
<Normal Arc>	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.
	If you want to know when the Activities in your process are executed in an unexpected order, use a Sequence Arc.
<Sequence Arc>	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.

UI Elements	Description
<Text below the Activity icon>	This is the name of the Activities as entered in the BPI Modeler when the process was created; for example: **Confirm Identity**.
<Text in upper left-hand corner of Activity icon>	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. In the case of an End Activity, this represents the total value of all the instances that have completed at that Activity. If the locale for the system is set, a currency symbol appears with the text for values that are currencies. **Customization**: You can customize this text as described in Chapter 13, "Annotations for Process Diagrams".
<Text in upper right-hand corner of Activity icon>	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. If the locale for the system is set correctly, the count is displayed in a locale-sensitive format. **Customization**: You can customize this text as described in Chapter 13, "Annotations for Process Diagrams".
Business Health Status	Overall Business Health of the Business Process. The worst case status is presented here.

UI Elements	Description
Last Update	The date and time the data presented on the Health page was last updated.
	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.
Operational Status	Overall IT operational resource status for the Business Process. The worst case status is presented here.
	This is the IT operational resource status as it is known to BPI.
Real Time Process Diagram	Click to view the Process Diagram data from the BPI Server in real time.
Selected Business Process	Click to open a drop-down list where you can select a different Business Process that you want to display on the Health page.

Activity Overlay

The Activity Overlays provide additional information on 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

Following is an example of the Summary Tab on the Health Page.

The Summary Tab shows business and operational summary information relating to either the selected Business Process (see "Business Process Elements" on page 218), or the selected Process Activity (see "Business Activity Elements" on page 220).

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.

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.

UI Elements	Description
Business Impact	Breakdown of the health status of all the process instances for the selected Business Process. It includes instances that are: ➤ Healthy ➤ At Risk ➤ Blocked For more details about the status field, see "Process Status" on page 206. 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 227.
Instances	Numbers of instances for the Business Process in each of the specified statuses; see "Process Status" on page 206 for a description of the status field. The total Count for all instances is also presented and the count of Violations.
Value	Value of the instances for the Business Process in each of the specified statuses; see "Process Status" on page 206 for a description of the status field. The total Value for all instances is also presented.
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 11, "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 227. The instances page is filtered to show all the process instances for the selected Activity within the selected Business Process.
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 11, "BPI Application Scorecard".

🔍 Business Health Tab

Following is an example of the Business Health Tab on the Health Page.
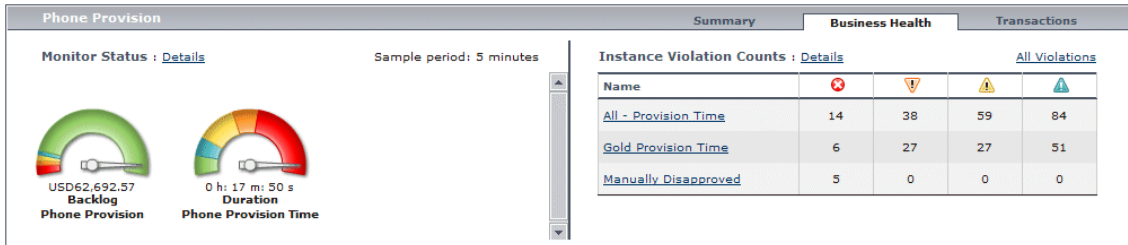
The Business Health tab displays:

➤ 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 221 for more details.

➤ Table showing the Instance Violation Counts for the selected Business Process or Business Activity; see "Instance Violation Counts" on page 223.

➤ Violation details for the selected Business Process or Business Activity.

Click to open the Violations page; see "Instance Violations Dialog Box" on page 241.

Note: You must create a unique KPI for each Health Indicator. Otherwise, KPIs that contain multiple related Health Indicators are not displayed.

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>	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.
	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.
<Drilldown>	You can select a dial and drill down for more information, as follows:
	➤ 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 283.
	➤ 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 291 and "Business Activity Over Time Report" on page 295.
	You can also drill down to the Monitors page for more details of the Monitors; see "Monitor Dialog Box" on page 244.
<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.

UI Elements	Description
<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.
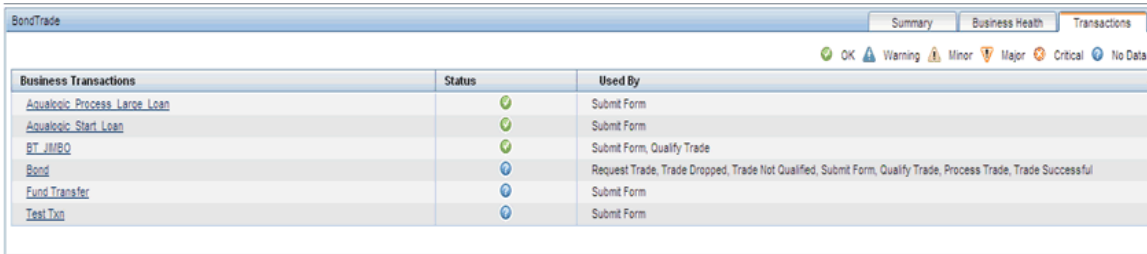
Important information	The Instance Violation Counts table can be configured to include threshold violations for active instances of duration monitors, or to include only completed instances. A duration monitor instance is considered active if the business process instance has entered the monitor's span, but not yet exited. For details on this configuration setting, see "How to Configure Active Monitor Instances in the Infrastructure Settings Manager" on page 208.

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 Box" on page 241.
Threshold Name Drilldown	You can select an Instance Threshold and drill down to the Threshold Violations table for more information on the individual threshold instances.

🔍 Transactions Tab

Following is an example of the Transactions Tab on the Health Page.

The Transactions tab displays summary information relating to the Business Transactions that are linked to the selected Business Process or Business Activity. 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 224.

➤ In the "Transactions Tab Process Diagram" on page 226.

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	The name of the Business Transaction as defined in TransactionVision and as linked to the BPI Business Process.
	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 the "Transaction Summary Reports" chapter in *Using Transaction Management* or the Transaction Management Help.
<column data>	This column data is as defined under:
	Admin > Service Health> Business Transactions
	The columns included on the Transactions Tab are variable to match the KPI defined for Business Transaction and as shown in Service Health.
Status	Current status of the Business Transaction as defined by TransactionVision.
Used By	List of all activities linked to the Business Transaction.

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 on a Business Transaction icon, the dotted lines are highlight between the icon and the Business Activities to which the icon is linked. You can also click on 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 is accessible directly from the **Healthy**, **Blocked**, **At Risk** and **Completed** links in the left panel of the Summary Tab on the Health page.

Following is an example of the Process Instances Dialog.

The Process Instances dialog displays information relating to the process instance counts. 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.

➤ "Process Instances for a Selected Business Process" on page 228 describes the information for a selected Business Process.

➤ "Process Instances for a Selected Business Activity" on page 231 describes the information for a selected Business Activity.

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 229

➤ "Instances Dialog Results for a Business Process" on page 230

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 (A-Z)	Description
Business Activity	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.
	The number of Process Instances found and the number of Process Instances listed in the results area is displayed underneath this UI element.
<group_property> **drop-down**	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.
	Select one of the following Group attributes to filter the data shown for a Business Process:
	➤ 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 *Business Process Insight Server Administration Guide*.
	For more details on groups, see "Health Page Overview" on page 200.
Identifier	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.

UI Elements (A-Z)	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 *Business Process Insight Server Administration Guide*. 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 (A-Z)	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 Box" on page 234.

UI Elements (A-Z)	Description
Process Value	The content of the Value attribute for the listed Process Instance.
	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.
Start Time	The time that this Process Instance fulfilled the Start Condition for the Start Activity.
Status	The status of the listed Process Instance, and can be one of:
	➤ Healthy
	➤ At Risk
	➤ Blocked
	➤ Completed
	See section "Process Status" on page 206 for descriptions of the status values.

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 232

➤ "Dialog Instance Results for a Business Activity" on page 233

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 (A-Z)	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.
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 *Business Process Insight Server Administration Guide*. The exported CSV file can then be imported into Microsoft Excel for analysis.
Identifier	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.

UI Elements (A-Z)	Description
Instance Rate (per hour)	The rate at which instances of the Activity are being completed, expressed as an hourly rate.
	A value for this field is provided only when there is sufficient data to generate a statistical result.
Maximum List Size	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.
Operational Status	Status of selected Activity, and can be one of:
	➤ Healthy
	➤ At Risk
	➤ Blocked
	➤ Completed
	See section "Process Status" on page 206 for descriptions of the status values.
Process Value Rate (per hour)	The value of the process instances as they are processed on an hourly basis.
	A value for this field is provided only when there is sufficient data to generate a statistical result.

Dialog Instance Results for a Business Activity

The following user interface elements are included (unlabeled UI elements are shown in angle brackets):

UI Elements (A-Z)	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.

UI Elements (A-Z)	Description
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 Box" on page 234.
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 Box

The Process Instance dialog displays information relating to the selected process instance.

To access	
To access	➤ Instances dialog; see "Process Instances Dialog" on page 227.
	➤ Monitor dialog; see "Monitor Dialog Box" on page 244.
	➤ Monitor Threshold dialog; see "Monitor Threshold Dialog Box" on page 251.
	➤ Violations dialog; see "Instance Violations Dialog Box" on page 241.

Following is an example of the Process Instance dialog.
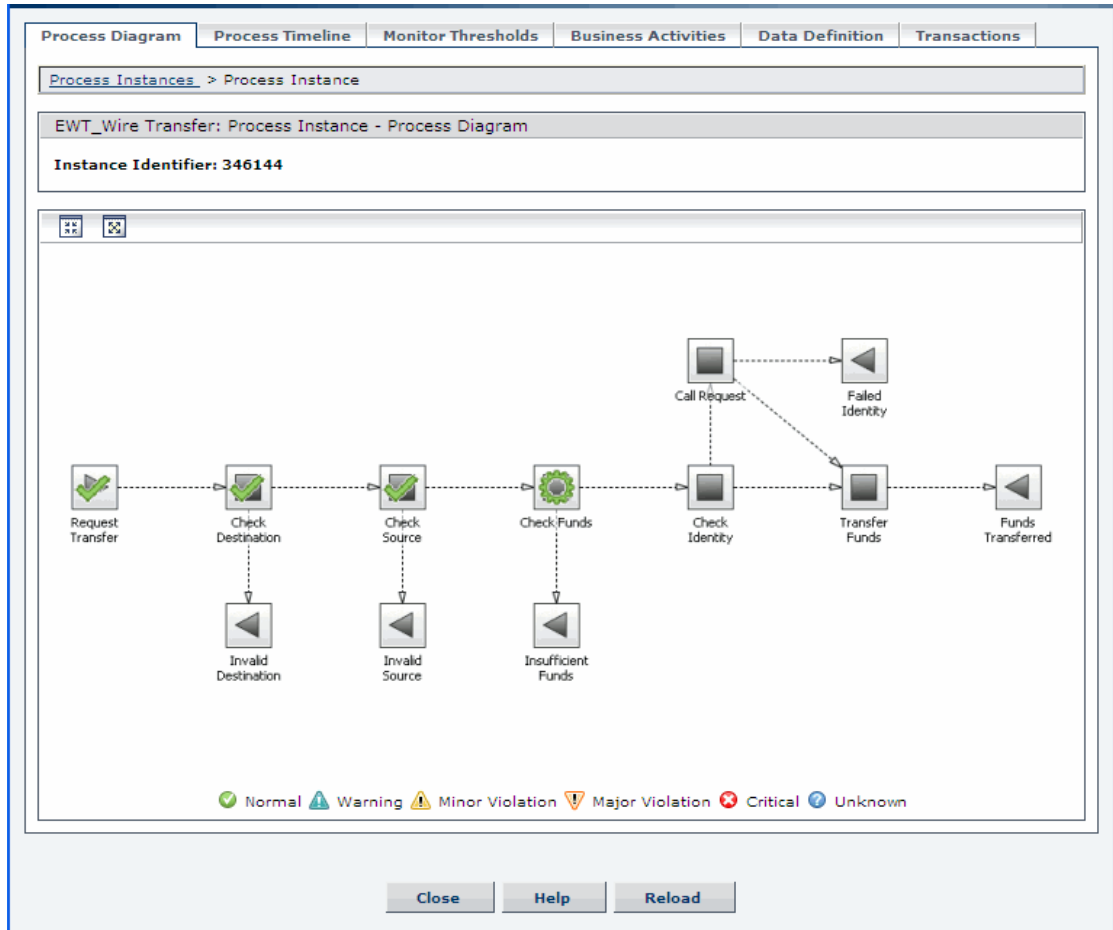
Process Diagram

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements (A-Z)	Description
<Activity>	Click an Activity in the process diagram and open the Activity Instance dialog; see "Activity Instance Dialog Box" on page 240.
<Process diagram>	This shows the process diagram for the selected Process Instance; see "Process Diagram Area" on page 210 for a description of the process diagram.

Process Timeline

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements (A-Z)	Description
<Activity>	Click an Activity in the process diagram and open the Activity Instance dialog; see "Activity Instance Dialog Box" on page 240.
<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 (A-Z)	Description
<Associated monitor>	Click the associated Monitor to open the Monitor dialog; see "Monitor Dialog Box" on page 244.

UI Elements (A-Z)	Description
<Instance threshold name>	Click the instance threshold name to open the Threshold instance dialog; see "Monitor Threshold Dialog Box" on page 251.
<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 (A-Z)	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 Box" on page 240.

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 (A-Z)	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:
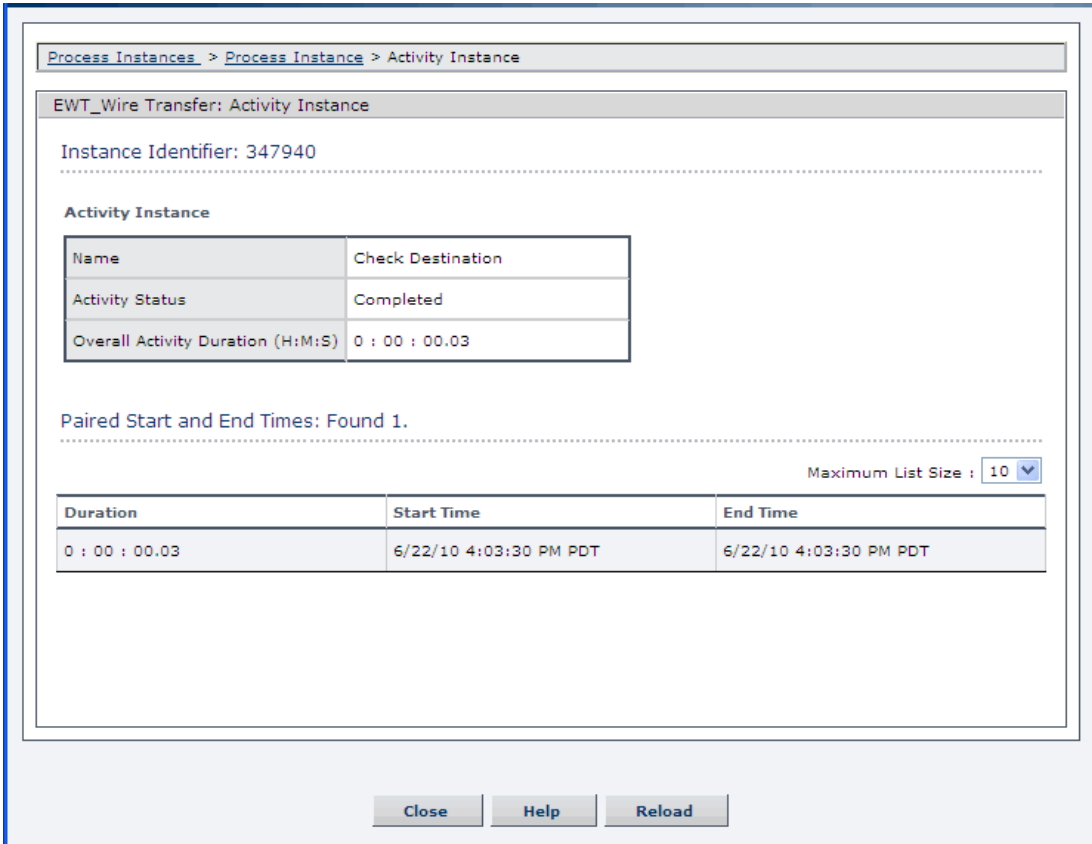
The following elements are included for each transaction instance. User interface elements are described below (unlabeled elements are shown in angle brackets):

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 *Using Transaction Management*.
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 Box

This page lists all the instances that have fulfilled their Start and End conditions for the selected Activity.

Following is an example of an Activity Instance dialog:

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
Activity Status	The status of the selected Activity, see "Process Status" on page 206 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 Box

The Instance Violation dialog lists all the Threshold Violations instances related to the selected Business Process or Business Activity. The most recent instance Threshold violations are listed first.

The label **No Data** is displayed when no data samples are available.

Following is an example of the Instances Violation dialog:

The following user interface elements are included for the Instance Violation settings (unlabeled UI elements are shown in angle brackets):

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.
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 *Business Process Insight Server Administration Guide*. 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.

UI Elements	Description
Time Threshold Raised	The time that the instance threshold condition was detected by BPI.
	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.
Monitor Name	Name of the Monitor that this instance threshold is defined for.
	Click to open the related Monitor Dialog; see section "Monitor Dialog Box" on page 244.
Threshold Name	Name of the instance threshold.
	Click to open the related Monitor Threshold dialog; see section "Monitor Threshold Dialog Box" on page 251.
Monitor Value At Time of Threshold Violation	Value of Monitor when instance threshold was violated.
Severity	Level of the violation, which can be one of: ➤ Normal ➤ Warning ➤ Minor ➤ Major ➤ Critical
Process Identifier	Identifier for Process Instance listed for the selected Activity and affected by the instance threshold violation.
	Click to open the related Process Instance page; see section "Process Instance Dialog Box" on page 234.

Monitor Dialog Box

The Monitor Dialog shows the data collected that relates to the Business Process Monitors that you defined for a Business Process.

Following is an example of the Monitor dialog showing the Monitor Diagram page.
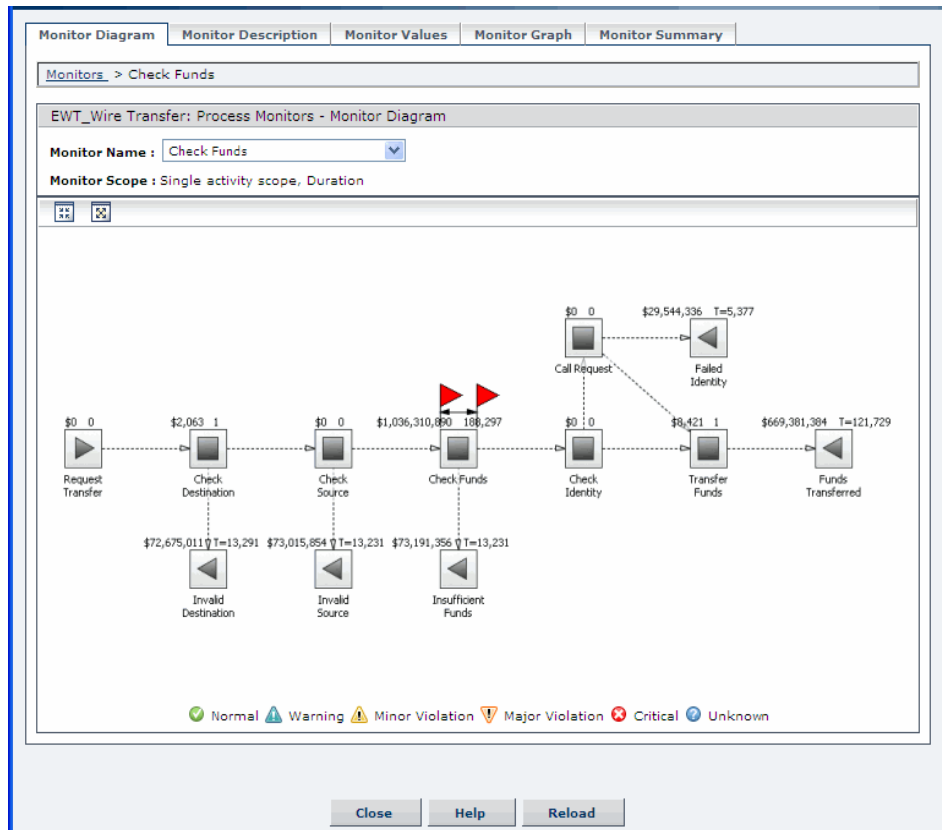
Information about defining Business Process Monitors can be found in the following documentation:

➤ *Business Process Insight Monitor Definer Online Help*

➤ *Business Process Insight Integration Training Guide - Defining Business Monitors*

Monitor Diagram

This page shows a graphical representation of the selected Monitor as a process diagram, see "Process Diagram Area" on page 210 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 194 for details.

The additional information on 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 (A-Z)	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.
Monitor Status	Select the value of the status for the Monitor on which you want to filter the results: ➤ **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 247

➤ "Duration Monitor" on page 248

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 (A-Z)	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.
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: ➤ 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 (A-Z)	Description
Process Identifier	The identifier for the Process Instance.
Start Time	Time when process instance entered the Monitor span.

UI Elements (A-Z)	Description
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**.
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: ➤ 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 (A-Z)	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.

UI Elements (A-Z)	Description
Graph Type	Select the type of graph that you want to show. This can be either a bar chart, or a line graph.
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	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 *Business Process Insight Server Administration Guide*. The exported CSV file can then be imported into Microsoft Excel for analysis.
Export all data sources as CSV	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 *Business Process Insight Server Administration Guide*. The exported CSV file can then be imported into Microsoft Excel for analysis.

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 Box

The Monitor Threshold dialog displays the statistical data collected that relates to the Business Process Monitor Thresholds that you defined in the Monitor Definer.

Following is an example of the Monitor Threshold dialog box.
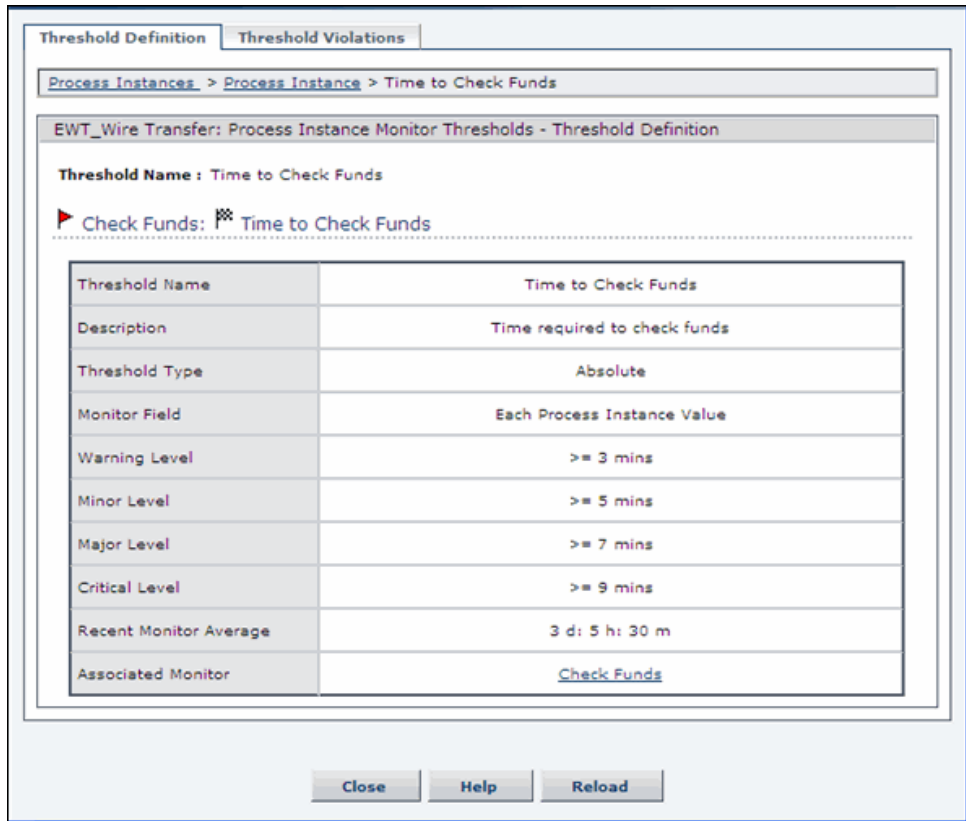
Click on the Threshold name link to see the Monitor Threshold details, which are divided into the following tabbed areas:

➤ "Threshold Definitions" on page 252

➤ "Threshold Violations" on page 253

Threshold Definitions

This tab displays the details of the Monitor Threshold as defined using the Monitor Definer:

User interface elements are described below:

UI Elements	Description
<Parent monitor definition>	The following is additional information relating to the parent Monitor Definition: *<group_property>* drop-down list The *<group_property>* drop-down list allows you to view the threshold details by group, if a Group property was set in the Monitor Definer. See "Health Page Overview" on page 200 for details.
Recent Monitor Average	The average Monitor value as measured over the latest collection interval; see section "Collection Interval" on page 117 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 254

➤ "Results Area for Threshold Violations" on page 255)

Filter Criteria for Threshold Violations

The following user interface elements are included (unlabeled UI elements are shown in angle brackets):

UI Elements	Description
<group_property>	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, *<group_property>* is not displayed. See "Health Page Overview" on page 200 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.
Severity	Select the violation level that you want to list. If you select the value All, 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 *Business Process Insight Server Administration Guide*. 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 Box" on page 234.
Time Threshold Violated	The time that the instance threshold condition was violated.
Time Violation Raised	The time that the instance threshold condition was detected by BPI. 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.
Monitor Value At Violation Time	Value of parent Monitor instance at the point where the Violation occurred.
Severity	The level of the instance threshold violation, which can be: ➤ Normal ➤ Warning ➤ Minor ➤ Major ➤ Critical ➤ Unknown

11

BPI Application Scorecard

This chapter includes:

Concepts

➤ BPI Application Scorecard Overview on page 258

➤ Understanding KPI Statuses on page 259

➤ How the Scorecard Builds its Display on page 261

Reference

➤ BPI Application Scorecard User Interface on page 263

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.

Following is an example of the BPI Scorecard:
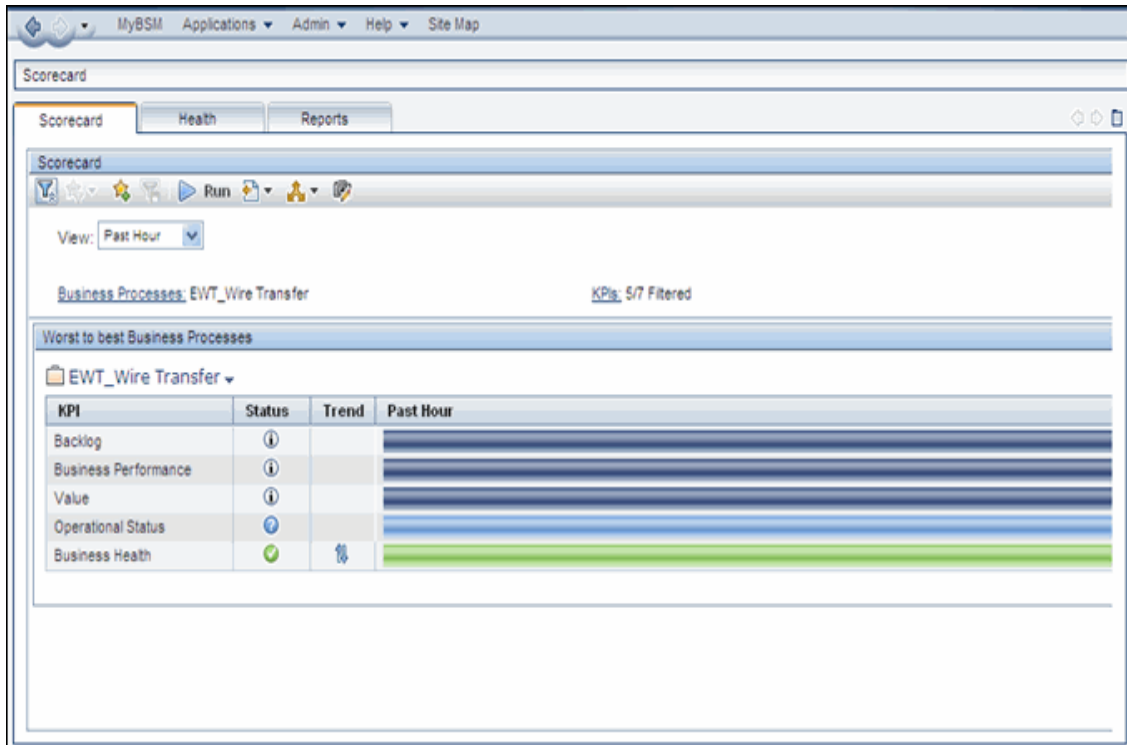
The Scorecard is divided into the following areas:

➤ The common header, which enables you to tailor the content of the main body of the page; see section "Common Header" on page 264.

➤ The main body of the page, where the selected Business Process data is presented; see section "Results Area" on page 266.

Following are the areas of the Scorecard.

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.

♻ How the Scorecard Builds its Display

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.
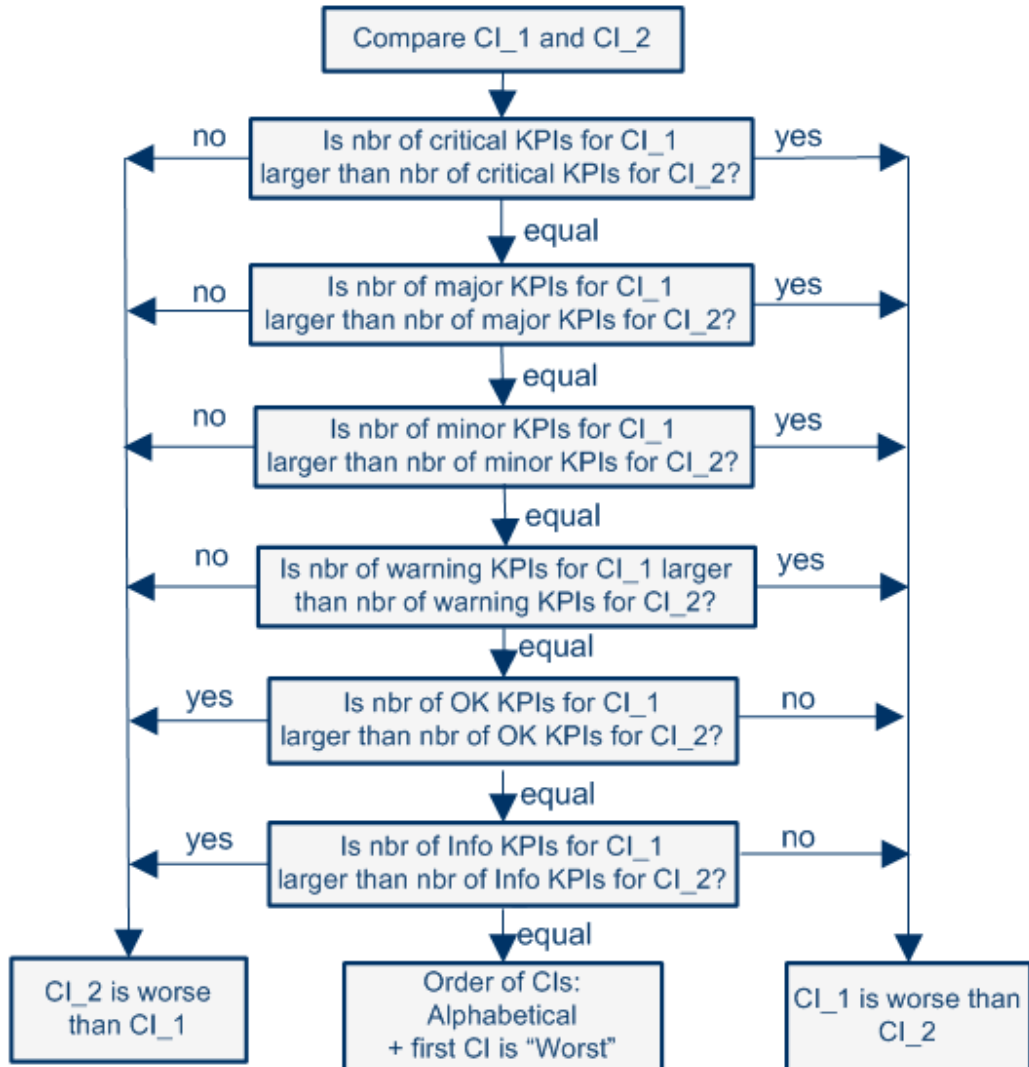
If a pair of Business Process CIs have the same number of KPIs with a specific status, the sorting mechanism compares the number of KPIs with the next better status using the critical, major, minor and warning statuses in this order. The Business Process with the highest number of those KPIs is then 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 264

➤ Results Area on page 266

Common Header

Following are the user interface elements in the General Information area:

UI Element	Description
Description	Enables you to select the criteria that you want to use for presenting Scorecard results.
	To access: Select **Applications** > **Business Process Insight** > **Scorecard**
Important Information	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 261.
	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.

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 *Reports*.
Business Processes	Click to open the Business Processes dialog where you can select the Business Process that you want to display.
	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.

UI Element	Description
KPIs	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**.
	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
View	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.

Results Area

This part of the Scorecard shows the results of the selections made from the Common Area; see "Common Header" on page 264.

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element	Description
Description	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:** Select **Applications > Business Process Insight > Scorecard**
Important Information	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. The Scorecard page 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 261. All the data sample information sent by the BPI Server is displayed using the following KPIs: ➤ Backlog ➤ Business Health ➤ Business Impact ➤ Duration ➤ Value ➤ Volume

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element	Description
	Click the button to the right of the Business Process to display the available menu options. The context menu options are described in *Using Service Health*.
<Business Process Name>	The name of the Business Process.
<Over-time bar>	Displays an over-time line, which comprises a colored band representing the KPI status results over the selected time; each color represents a specific KPI status. 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. **Example:**
KPI	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.

GUI Element	Description
Status	Indicates the status of the KPI. For details on the statuses, see "Understanding KPI Statuses" on page 259. **Tooltip**: Provides the value of the status, and indicated when the status was changed to the current value.
Trend	Indicates the trend of the KPI as compared to its previous state. For details on the trend information refer to the Service Health documentation. **Tooltip**: Provides the description of the trend.

12

BPI Application Reports

This chapter includes:

Concepts

➤ Reports Overview on page 270

Tasks

➤ How to View and Analyze Data Using the BPI Application Reports on page 271

Reference

➤ BPI Application Reports User Interface on page 273

Concepts

🔹 Reports 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 customized BSM Reports and comprise 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 reports can be found in *Report Manager*.

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 271

➤ "View and analyze the data using the reports" on page 271

➤ "Enrich the Business Process Report View" on page 272

1 Prerequisites

In order 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 273.

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 283.

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 287.

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.
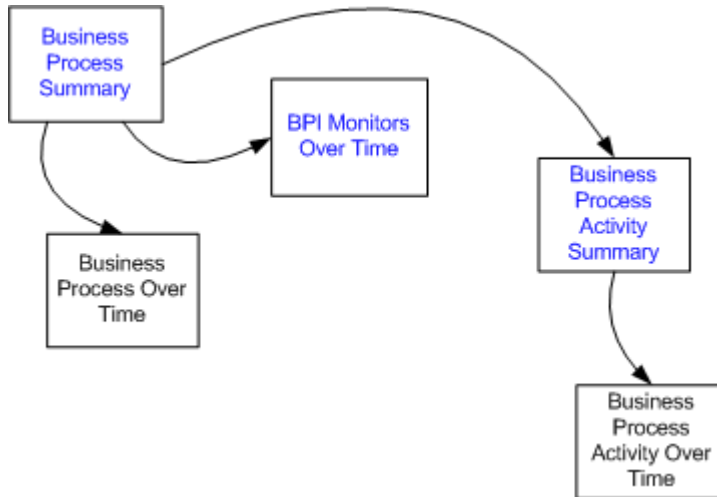
3 Enrich the Business Process Report View

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 273

➤ BPI Monitors Over Time Report on page 283

➤ Business Activity Summary Report on page 287

➤ Business Process Over Time Report on page 291

➤ Business Activity Over Time Report on page 295

🔖 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.

To access	**Applications** > **Business Process Insight** > **Reports** >**Business Process Summary**

Following is an example of a Business Process Summary Report.

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 (A-Z)	Description
<Common report elements>	For details, see "Common Report Elements" in *Reports*.

UI Elements (A-Z)	Description
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 275.
Show	Select one of the following options: ➤ **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 ODB and associate CIs that represent dependent IT operation resources with Business Process Activities. These CIs are already populated in the ODB 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 Monitor 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 ODB, 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
	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.
	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.
	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. The button is enabled only if the selected Business Process has Duration Monitors defined.
	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. Custom Monitor can also be selected for this report. The button is enabled only if the selected Business Process has a Value Monitor defined.

UI Elements	Description
Business Process	The name of the selected Business Process. **Note:** You can sort on this column. **Tooltip**: Displays the name of the Business Process and the currency symbol, in cases where the value is a currency type.
Total Value of Completed Instances	Displays the total of the value attribute for all the Business Process instances that were completed in the selected time period. The background color of the table row is set to gray. **Tooltip**: Displays the value of the table cell with a currency unit if it is available.
Avg. Value of Backlog Instances	Displays the average of the value attributes for all the Business Process instances with a status of Active over the specified period of time. The background color of the table row is set to gray. **Tooltip**: Displays the value of the table cell with a currency unit if it is available.
Avg. Value of Healthy Instances	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. **Tooltip**: Displays: ➤ 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. Value of At Risk Instances	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.
	Tooltip: Displays:
	➤ 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.
Avg. Value of Blocked Instances	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.
	Tooltip: Displays:
	➤ 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
🔁	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. Custom Monitors can also be displayed in this report. The button is enabled only if the selected Business Process has a Value Monitor defined.
Business Process	The name of the selected Business Process. **Note:** You can sort on this column. **Tooltip**: Displays the name of the Business Process.
Number of Completed Instances	Displays the total number of the Business Process instances that were completed in the selected time period. The background color of the table row is set to gray. **Tooltip**: Displays the value of the table cell.
Avg. Number of Backlog Instances	Displays the average number of backlogged Business Process instances out of the number of samples reported over the specified period of time. The background color of the table row is set to gray. **Tooltip**: Displays the value of the table cell.

UI Elements	Description
Avg. Number of Healthy Instances	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. **Tooltip**: Displays: ➤ 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 At Risk Instances	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.
	Tooltip: Displays:
	➤ 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.
Avg. Number of Blocked Instances	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.
	The background color of the table row is set to red.
	Tooltip: Displays:
	➤ 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**

Following is an example of the BPI Monitors Over Time Report.
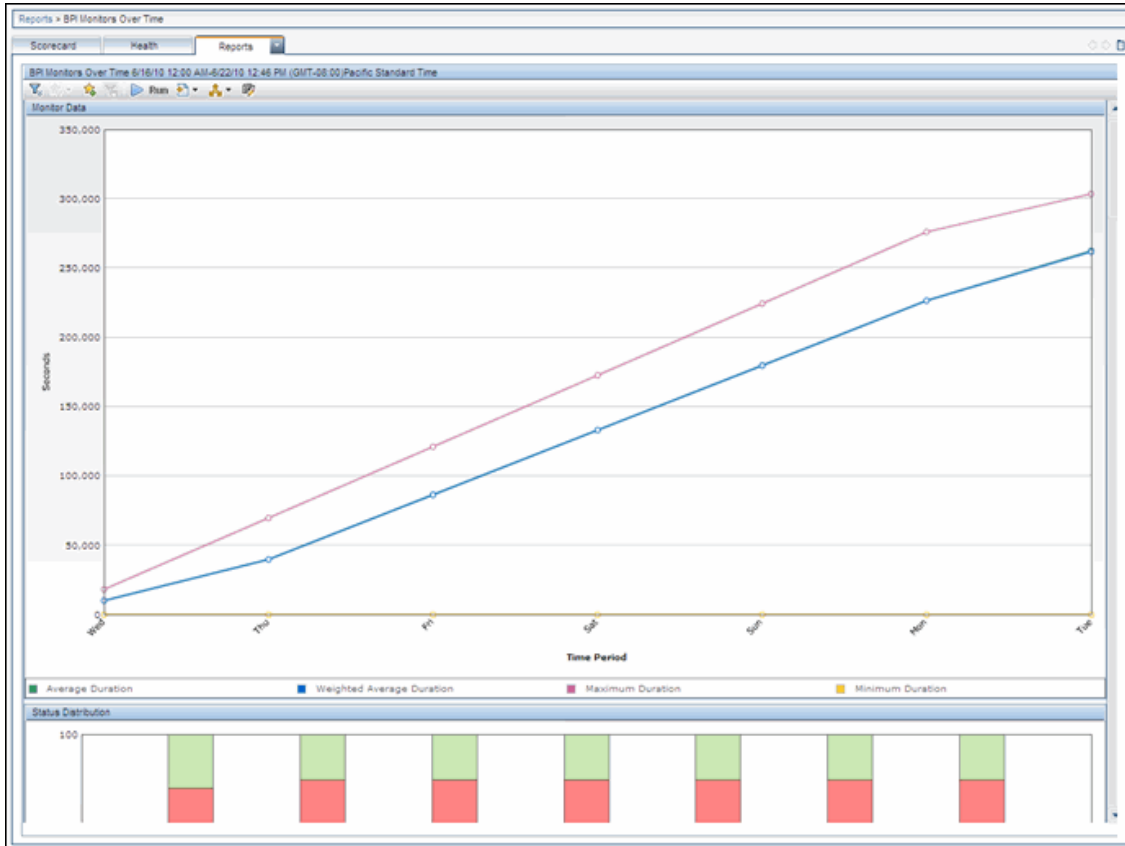
Use the BPI Monitors Over Time Report to list information relating to the Business Process Monitors status for your Business Processes over a selected time period. The report data is shown in graphical form and can also be published in tabular form for the following graphs:

➤ 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.

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 (A-Z)	Description
<Common report elements>	For details, see "Common Report Elements" in *Reports*.
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 275.
Graph by Group	This option appears when one Business Process Monitor is selected. If more than one monitor is selected, this option is not available. 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

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 (A-Z)	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.

UI Elements (A-Z)	Description
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 (A-Z)	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.

UI Elements (A-Z)	Description
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.

To access	**Applications** > **Business Process Insight** > **Reports** > **Business Activity Summary**

Following is an example of a Business Activity Summary report.

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 (A-Z)	Description
<Common report elements>	For details, see "Common Report Elements" in *Reports*.

UI Elements (A-Z)	Description
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 275.
Show	Select one of the following options: ➤ **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 (A-Z)	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.

UI Elements (A-Z)	Description
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.

UI Elements	Description
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.

The report data is shown in graphical form and can also be published in tabular form.

To access	**Applications** > **Business Process Insight** > **Reports** > **Business Process Summary** > **Business Process Over Time**

Following is an example of the Business Process Over Time Report:

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 (A-Z)	Description
<Common report elements>	For details, see "Common Report Elements" in *Reports*.
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:
	➤ 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 (A-Z)	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 (A-Z)	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 (A-Z)	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. This report shows information relating to the values and counts for Activities in the selected Business Activity over a selected time period.

The report is accessible from:

To access	**Applications** > **Business Process Insight** > **Reports** > **Business Activity Summary** > **Business Activity Over Time**

Following is an example of a Business Activity Over Time Report.
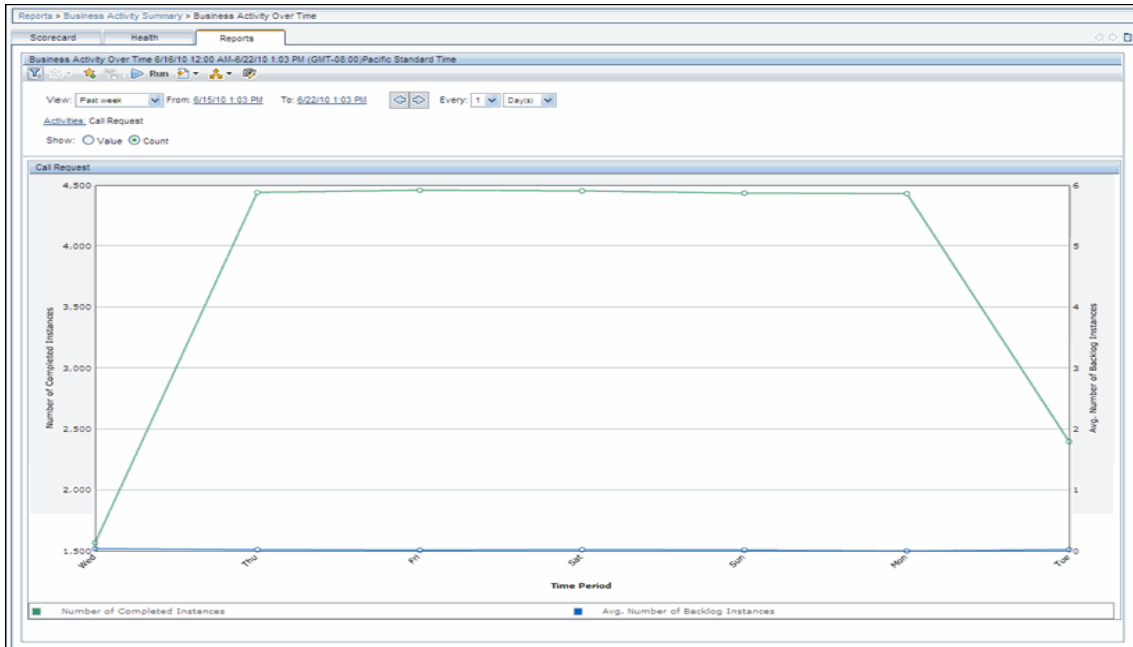
The report data is shown in graphical form and can also be published in tabular form.

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 (A-Z)	Description
<Common report elements>	For details, see "Common Report Elements" in *Reports*.
Business Processes	Click to open the Business Processes dialog box where you can select the Business Process that you want to display data for.

UI Elements (A-Z)	Description
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: ➤ 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 (A-Z)	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 (A-Z)	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. 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.

13

Annotations for Process Diagrams

This chapter includes:

Concepts

➤ Annotations Overview on page 300

Tasks

➤ How to Customize Your Process Diagram on page 302

➤ How to Include Character Set Encoding in the Annotation File on page 309

Reference

➤ annotations.xml File Format on page 310

Concepts

🔵 Annotations Overview

This chapter 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.
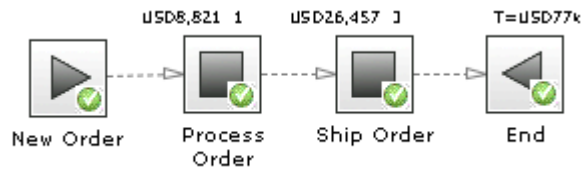
BPI enables you to customize a process diagram as follows:

➤ 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.
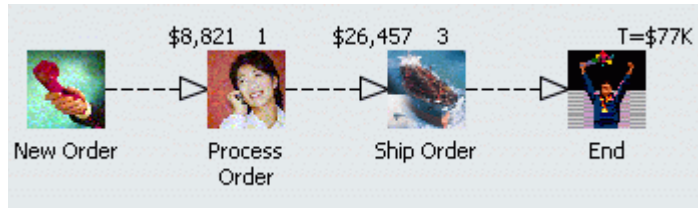
Tasks

🔧 How to Customize Your Process Diagram

You can customize your Process Diagram in one of the following ways:

➤ "Using the Properties Dialog in the Modeler" on page 302

➤ "Use an annotations.xml File" on page 304

➤ "Do not display text on Process Activity" on page 305

➤ "Use a Custom Image for Process Activity Image" on page 305

➤ "Show the Value for Active Instances and Custom Image on a Process Activity" on page 306

➤ "Show the Scaled Active Value" on page 306

➤ "Show Value and Instance Count" on page 307

Note: Keep the following in mind when customizing Activity icons:

➤ 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**.

Using the Properties Dialog in the Modeler

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" on page 304.

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\ovbpimetricdefiner\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," and the Modeler Online Help.

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

You can configure the changes that you want to make to your Process Diagram by creating an **annotations.xml** file and then copying it 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-I NF\classes**

   The **annotations.xml** file needs to be placed on the BPI Server so that the annotations are correct on the Process Instance pages.

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.

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 on troubleshooting your system when your annotations are not displayed as expected.

Examples

The following are examples of using the **annotation** element. These examples assume that the image files exist in the following directories:

➤ On the BSM Gateway Server:

   ***BSM-install-dir*\AppServer\webapps\bpi.war\customimages**

➤ On the BPI Server:

   ***BPI-install-dir*\nonOV\jakarta-tomcat-5.0.19\webapps\hpbpi-bpd\c ustomimages**

   and

BPI-install-dir**nonOV****jakarta-tomcat-5.0.19****webapps****ovbpimetric definer****customimages**

Do not display text on Process Activity

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.

Use a Custom Image for Process Activity Image

If you want to replace the default Process Activity image with a custom image, specify your XML as follows:

```
<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.

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.

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.

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

The following is an example of the file **annotations.xml** 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.
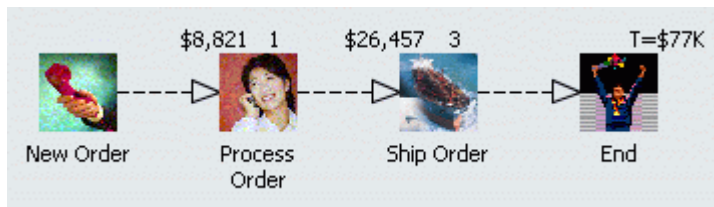
⚓ How to Include Character Set Encoding in the Annotation File

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.

As an 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.

For 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.

For 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.

For 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**

If you do not want to show any text above the Process Activity use option.

For 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**.

For 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**.

For example, you might set the value for **textdp** to be 2 as follows:

<textdp>2</textdp>

If you then 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 rounded.

For example, you might set the following value for **textdp**:

<textdp>-3</textdp>

If you then have a value of **234567**, this is shown as follows on the Process Diagram:

Note: If you specify a negative value for **textdp**, you also need to specify a **scalesymbol** element, as described in "<scalesymbol>" on page 314.

<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 then have a value of **234567**, this is shows as follows on the Process Diagram:

```
235K
```

Example 2:

```
<textdp>-6</textdp>
<scalesymbol>M</scalesymbol>
```

If you then 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.

For 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**AppServer\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.

14

BPI Components in MyBSM

This chapter includes:

Concepts

➤ MyBSM Components Overview on page 318

Tasks

➤ How to Add BPI Components to MyBSM on page 319

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 291.

➤ **Business Process Instance Violations** to display information about the instance violations for a selected Business Process. For details, see "Instance Violation Counts" on page 223.

➤ **Business Process Summary** to display the summary data for all selected Business Processes. For details, see "Business Process Summary Report" on page 273.

➤ **Business Process Diagram** to display the overall status of the health of your Business Process. For details, see "Process Diagram Area" on page 210.

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 *Using MyBSM*.

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