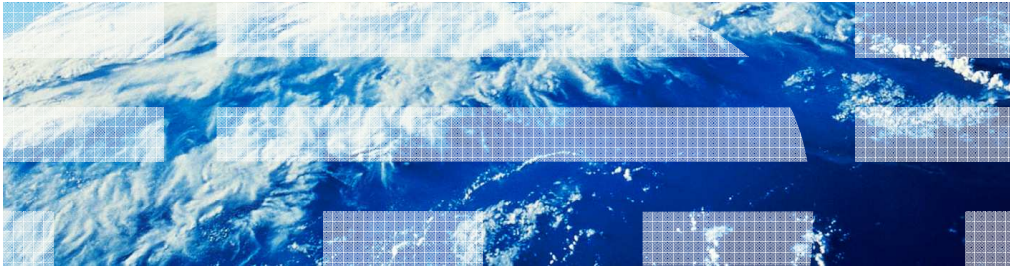# Business Process Management
IBM Business Process Manager V7.5

Process application authoring

At this point in your learning you should be familiar with the key concepts, capabilities and basic architecture, for BPM Standard and Advanced.

This presentation will take you through a quick tour of the Process Designer and highlight some features that you should be aware of before embarking on your first project.

Table of contents

- Processes and process elements
- Smart folders
- Connecting to a snapshot in test
- Configuring Business Process Diagrams (BPD)
- Setup
- Deployment time configuration

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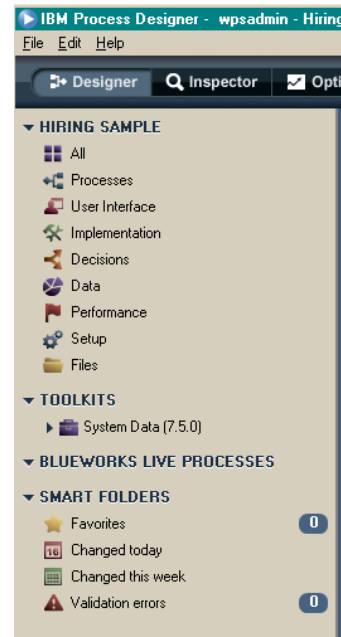
The first part of the tour will take you through the process library elements that are created from the Process Designer. The details of the process flow elements, such a decision gateways, events, and activities are discussed in a separate presentation.

The remainder of the tour will take you through features that will help you manage, test and configure your process applications.

Basic process authoring

- Processes
  - Business Process Flow
  - Ties it all together
  - Defines who does what and when
- User Interfaces
  - Use Coaches
  - Can do more here than you might think
- Implementation
  - Where the work gets done
  - Services
  - Undercover agents (UCA)
- Data

The library in the Designer view

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The library in the designer view is the menu on the left. This is where you can create and edit the elements that comprise a business process application.

Highlighted here are the categories you'll be working with immediately, the business process, user interfaces, the service implementations and the definitions for the data that are passed between the processes, activities and services.

The process is where you define the flow of the business process, describing who does what and when. All the elements are linked together in the business process flow.

The user-interfaces encapsulate the interactions between the-user and the process application. A key element of a user interface is the Human Service. The Human Service uses Coaches to gather input and receive information from the-user. The Coach is an HTML form. As you will learn, there is much more that can be done using a Human Service besides just gathering input.

The implementation is where the work is done. In the key concepts discussion you learned about the separation between the model and the implementation.

To create an implementation you use the implementation library elements. You'll soon discover though that there are several ways to create them.

The data library category is where you define the data objects used to move information from the-users, to the processes, to the activities, and to the services.

You can use simple types defined by the system or create your own complex types.

All of these are covered in more detail in the next slides.

First notice the plus sign that has been highlighted. This becomes visible when the mouse cursor flies over the area. Selecting the plus sign will display the "Create New" menu for the library category at the left.

The 'create new' menu is where you create the elements you will need.

The first thing you'll need to do is create a business process definition. The process definition is where you define the flow of the business process. It describes who does what, when, and what data are used at each activity. All the elements are linked together in the business process flow.

The primary element within the business process diagram is the activity. They are the rectangles with the rounded edges and have the links connecting them to other activities, decision gateways or events. Each element in a business process definition has properties that are displayed in the window pane below the flow diagram. The properties pane is not shown here. The properties are used to configure the element and define the behavior. In the case of the activity, a key property is the link to the service implementation. The service implementation is where the work is done. In the next few slides we'll discuss the different kinds of services that are available.

The colored horizontal sections in the diagram are the swim lanes. Each swim lane has one or more participant groups or individuals associated with it that specify who can perform the activity in the lane. Just like the activities, the swim lanes have properties. You use the properties to make the association with the participant groups, set the colors and set the name of the lane. To create a new participant group you can use the menu option from the "create new" menu or a wizard that is available from the properties of the swim lane.
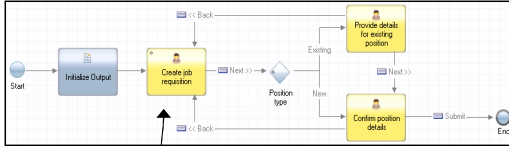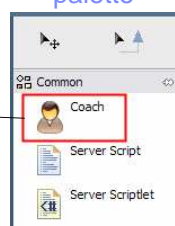
User interfaces

- Human Service
  - A service that calls a Coach
  - The Coach is the UI form used to present business user with data and options and to receive their responses.
  - Because the Coach is in a service, there can be
    - be pre-processing of the data before invoking the Coach
    - post-processing of it after the coach returns
- Ajax Service
  - bound to coach controls to perform functions such
    - as automatically populating drop-down lists
    - enabling type-ahead capability in input fields.
    - to pull data dynamically from a connected data source, such as a database.
- Localization Resource
  - Used to manage the formats displayed by the Coach based on the Locale setting

Human service flow

palette

In the User-interface category there are two specialized services used for creating user interfaces, and the localization resource.

Both services are created using service flow diagrams. Constructing a service flow diagram is the same as creating a business process definition, except the element palette is different. In the Human service flow there is a Coach element that you can use. The Ajax service does not use Coaches so the Coach is not in it's palette.

The Coach is an HTML form that is presented to the-user to gather input and receive information. Double clicking on the Coach will invoke the Coach editor which is used for creating and customizing the form. The editor is a drag-and-drop WYSIWYG editor. If you need to work directly with the HTML files and style sheets you can do that also.

Sometimes you need to manage the data that is part of the interface more efficiently than simple gets and puts. With Ajax, web applications can send data to, and retrieve data from, a server asynchronously, in the background, without interfering with the display and behavior of the existing page.

The Ajax services that you build in IBM Business Process Manager are subsequently bound to coach controls to perform functions such as automatically populating drop-down lists and enabling type-ahead capability in input fields. You can use an Ajax service to pull data dynamically from a connected data source, such as a database.

The localization resource is used to manage the formats displayed by the coach, based on the locale setting.

Implementation

Called by an activity

- General System Service
    - Used to implement function using JavaScript
    - Error handling, decisions, events nesting, and so on
- Integration Service
    - Used to integrate with an external system to complete a task.
    - Tools for web service and Java integration
- Advanced Integration Service
    - Used to integrate with a service created in *Integration Designer*.
- Web Service
    - Expose BPM service as a SOAP-callable web service
- Undercover Agent (UCA)
    - Is started by an event.
    - Events can either be triggered by a message or on a specific schedule.
    - When a UCA is started, it invokes an IBM Business Process Manager service in response to the event.

6   Process application authoring

Opening the implementation category you can see the other kinds of services that are available besides the human service.

The general system and integration services are very similar to the human service in that they are created using a flow editor and linking the elements that are available from the palette.

The general system service is the generic service.

It provides all of the base elements as shown here. The human service and the integration service both include all of these elements and add a few more that are specific to their function. Shown to the left of the palette are the specializations added to the integration service palette. They are the web service and the Java integration. Both of these elements are essential tools for integrating with other systems. The web service is a very popular protocol for communication between systems. If that is not sufficient, then you should be able to do what you need to do, using Java.

The Advanced Integration Service is for when you want to take advantage of the WebSphere Process Server SCA services that are implemented using the Integration Designer. Using this option, you create the interface for the service that you need and the integration developer will then use your interface to develop the implementation.

The web service that is create from the menu is different from the one in the integration service. The web service integration in the integration service is for connecting to a service that some external system is providing. The web service from the menu, is used when you want to expose one of your services or a set of services, as a SOAP-callable web service.

The undercover agent, UCA, is essentially an event handler. It waits for some incoming event and when the event is received, the UCA is started.

When a UCA is started, it invokes a BPM service in response to the event.

Events can either be triggered by a message or on a specific schedule.

Data
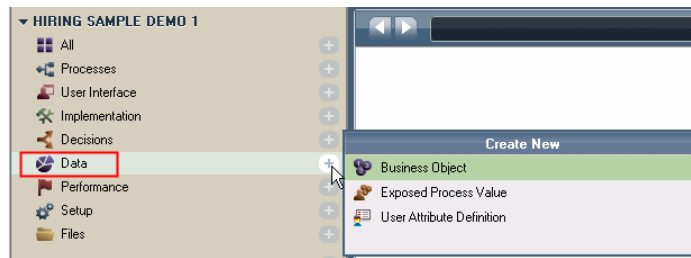
- Business Object
    - Data that are passed between activities
    - Simple, Structured, or complex

- Exposed Process Value
    - Enables the people that you specify to set or alter variable <u>values</u> while instances of a process are running

- User Attribute Definition
    - Associate unique capabilities or qualities with one or more users
        - Use the defined attributes when you <u>create participant groups</u> based on a user <u>attribute rule</u>
    - The attribute values are assigned using the "*Bulk User Attribute Assignment*" function
        - In the Process Admin Console

In the Data category, there are several data related functions besides just creating business objects.

Business objects are very straightforward. When creating them, you can use simple system defined types or create complex, highly structured types. The business objects are then used to pass information between the activities and processes.

Beyond creating business objects, there are two other useful tools.

"Expose process value" is a way for you to create a special variable which you can expose to enable the people that you specify, to set or alter variable values while instances of a process are running.

For example, if you create a process to handle expense reimbursement, you might want to enable supervisors to change the allowed amounts for daily expenditures, or the dollar amount that coincides with various levels of approvers. By creating an exposed process value, you can enable end-users to adjust specific variable values as constants, thereby affecting the flow of all running process instances, task assignments, and so on.

The user attributes are a way for you to add attributes to a user definition that aren't in the user-registry model.

For example, all of your users have a name, and ID, but there is no attribute for department. You can add a user defined attribute called 'department' and then use that when creating a participant group using an attribute rule.

Bulk User Attribute Assignment
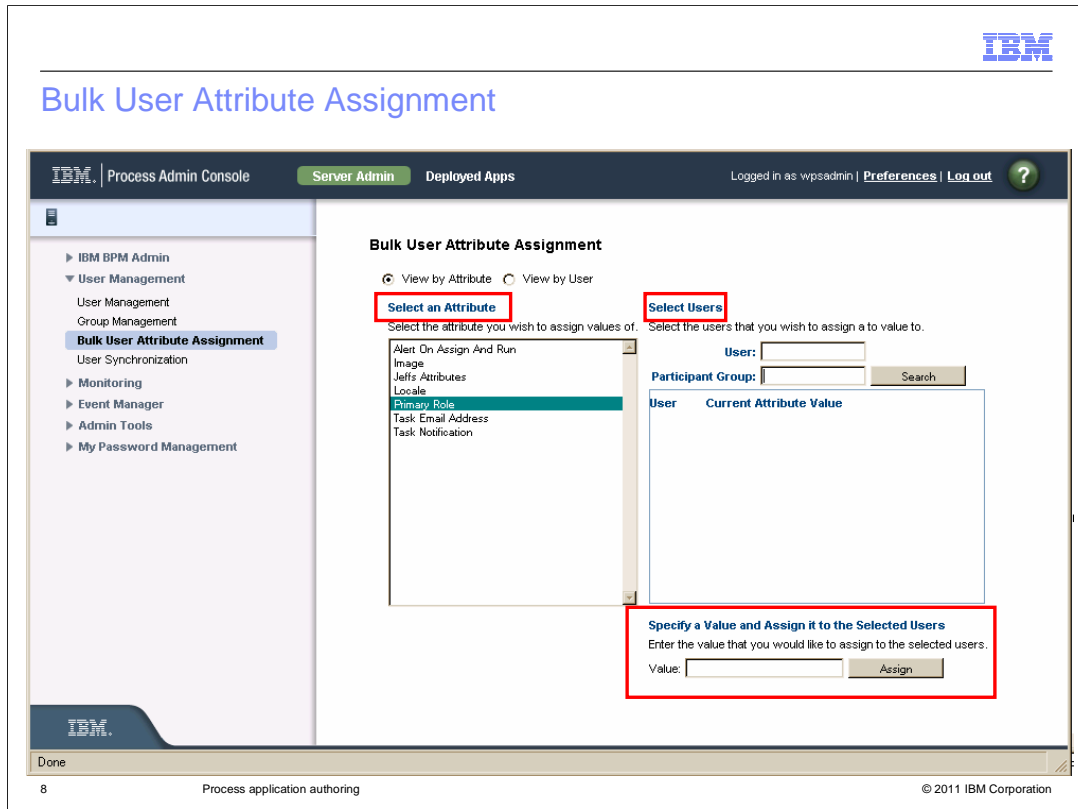
Once the user-defined attributes have been created you need to associate the attribute and a value to a user or participant group.

This is done in one step, using the "bulk user attribute assignment' function in the Process Admin Console.

Note that there are already some system defined user attributes, primary role, image, and task notification.

The Primary Role is a handy user defined attribute for creating participant groups. It is very easy to imagine the need to create participant groups based on the role of the person.

When someone's role changes the participant group is automatically updated.

This is done using a participant rule, and is shown in the next slide.

Participant groups

Participant groups are groups of users that are associated with the swimlane roles, which determine who can work on the activities in the swimlane.

An important distinction between participant groups and the groups defined in the Process Admin or LDAP user registeries, is that these groups are created by the process developer and are very specific to the business process. Participant groups can be composed of individuals and groups from all user registries that are federated into the user-repository.

When you first start using the Process Designer you'll most likely use the 'standard members' option shown in the members section above. It is straightforward and easy to understand and use.

As your project develops your requirements will change. You will most likely want to have a more dynamic way of managing who is in a participant group.
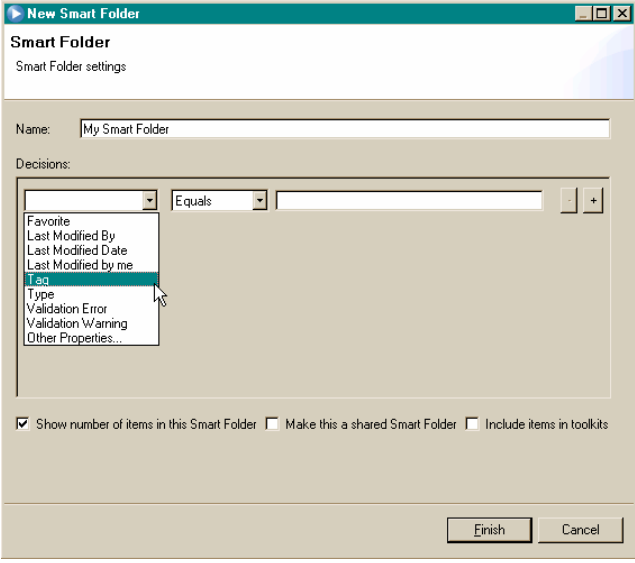
This is where the 'using expression' option comes in. The expression can add members to the group based on a rule that uses attributes of the user, including the user-defined attributes.

Smart Folders and tags

▼ SMART FOLDERS   +
⭐ Favorites   0
📅 Changed today
📊 Changed this week
⚠️ Validation errors   0

- This is very handy once your projects start becoming complex
- You can create a tag for you, your team or whatever you need
  - Associate the tag to the BPD
  - Create a folder that filters on the tag.
  - Or you have make rules based on other attributes
    - As shown

New Smart Folder

Smart Folder
Smart Folder settings

Name: My Smart Folder

Decisions:

[▼] [Equals ▼] [   ] [| +]
Favorite
Last Modified By
Last Modified Date
Last Modified by me
Tag
Type
Validation Error
Validation Warning
Other Properties...

☑ Show number of items in this Smart Folder ☐ Make this a shared Smart Folder ☐ Include items in toolkits

[Finish] [Cancel]

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Tags and smart folders are Process Designer concepts that help you organize and manage your work.

Once your development effort is underway it becomes more difficult to find the things you need to work on.

Smart folders are a way that you can create a folder that holds only the library items that you're working with.

It begins with the tag. First you identify an existing tag or create a new tag.

Then you create a smart folder using the plus sign next to the smart folders,

and set the filter based on one or more tags that are available.

Any library items that are tagged with the tags in the filter will show up in the smart folder.

Creating a tag

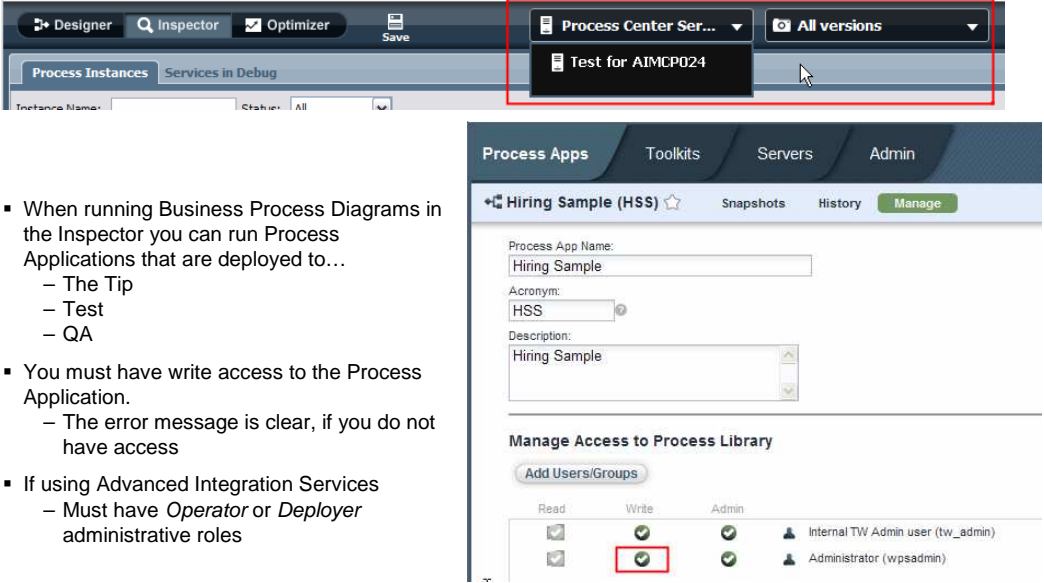To select or create a tag, open the library item in the designer.

Then right click the area to the right of the name and the menu is displayed.

When you select the tag, it is associated with the library item.

If you want to create a new one, then select the 'new' menu option at the bottom of the tag list.

Connecting to a snapshot

- When running Business Process Diagrams in the Inspector you can run Process Applications that are deployed to…
  – The Tip
  – Test
  – QA
- You must have write access to the Process Application.
  – The error message is clear, if you do not have access
- If using Advanced Integration Services
  – Must have *Operator* or *Deployer* administrative roles

By default, when you are running and testing your business processes in the Inspector, you are running in 'the tip'.

You can also use the Inspector to run and test business processes that have been deployed to test or a QA server.

First, you must have write access to the process application on the server where it is running. If you forget to do this you are reminded. The error message is very clear.

Next, if you are running a process application that is using Advanced Integration Services, you need to make sure that users executing the Advanced Integration Services have the Operator or Deployer role set in the WebSphere Process Server Adminconsole.

Once the permissions have been properly set, you switch to the server you want using the drop down menu at the top.

Configuring business process definitions

- Expose the business process definition
- Set the work schedule for the business process definition
- Set the name and due date for business process definition instances
- Create exposed process values (EPVs)
- Track data for reports
- Set simulation properties and track data for analyses using the Optimizer

Understanding configuration options

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When building business process definitions, you need to complete several configuration tasks to ensure that runtime instances of the processes meet the requirements of everyone in your organization.

This list provides a handy checklist of the kind of configuration tasks you should consider when developing your business process definitions.

For more details on each of these, select he link, "Understanding configuration options".

Expose the business process definition.

During business process definition creation and design, you should establish who can start the process and perform other tasks in the Process Portal.

Set the work schedule

IBM Business Process Manager enables you to establish a schedule so that the tasks generated by a business process definition have due dates that reflect the work schedule of the end-users who receive them.

Set the name and due date for business process definition instances.

When you run a business process definition, IBM BPM establishes a default name and due date for each instance.

You can change these default settings for each business process definition.

Create exposed process values.

IBM BPM enables you to expose specific process variables so that end-users can adjust the values of those variables to affect the flow of a process at run time.

Track data for reports.

Enable tracking for variables, add tracking points, and complete other configuration tasks required to collect necessary data for IBM BPM reports.

Set simulation properties and track data for analyses using the Optimizer.

Configure your business process definitions and the activities within them for simulations and historical analyses using the Optimizer.

Setup

■ Library items
 – Deployment Service
 – Environment Variables
 – Process App Settings

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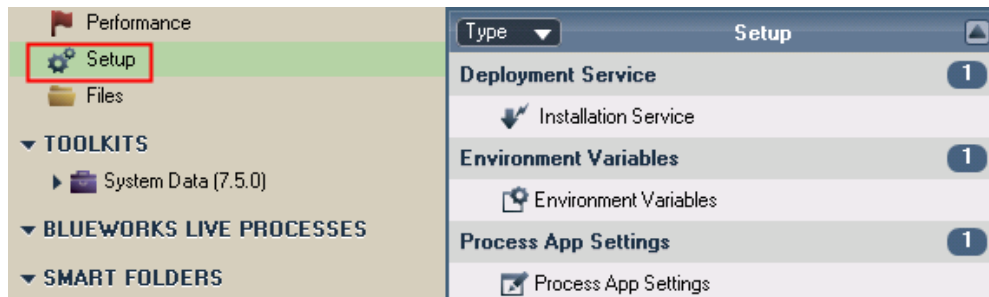
The setup category is where you go to do some of the configuration tasks.

There are three library items already created for you. They are part of the system. You cannot delete them and you cannot create new ones. You can only edit the ones that are provided.

Each of these are covered in detail in subsequent slides.

The deployment service is a way for you to customize the deployment process.

The environment variables are a way for you to define variables that have different values depending on the deployment environment.

Process App settings are where you can specify things like, the Coach XSL and CSS, the acronym name, and enable process monitoring through IBM Business Monitor.

Deployment Service

Type ▼   Setup ▲

Deployment Service ①
  ↳ Installation Service
Environment Variables ①
  Environment Variables
Process App Settings ①
  Process App Settings
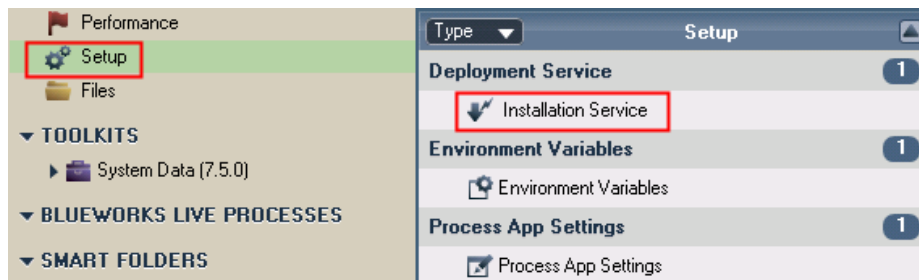
- A service that can be called at deployment time
  – Created automatically when the PA is created
  – The default does nothing
  – Just start customizing the one the is there.

- Used to
  – Create or update database tables
  – Update necessary environment variables
  – Determine which snapshots are already deployed
  – Migrate individual process instances
  – Create custom time schedules

You can add calls and scripts to the deployment service to perform specific functions when a process application is deployed on a server in another environment.

Some of the tasks that a custom deployment service might handle are,

  Create or update database tables,

  Update necessary environment variables ,

  Determine which snapshots are already deployed ,

  Migrate individual process instances, and Create custom time schedules.

For example, you can customize a deployment service to create tables on the target process server to hold data such as the options for drop-down menus that exist in your process. When you need to add to or change those menu options, you can modify the service so that those database updates are handled automatically during deployment.

Environment Variables
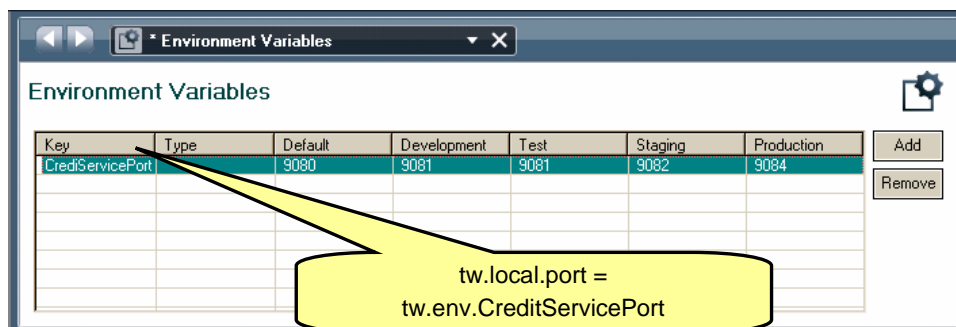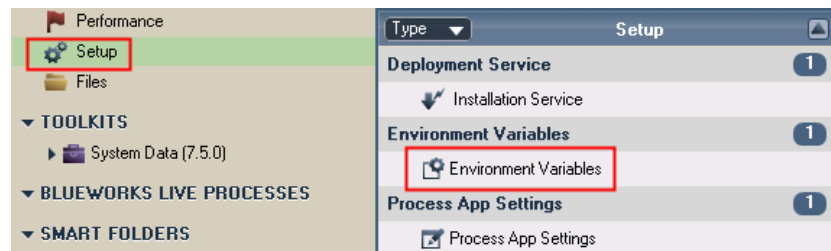
16   Process application authoring   © 2011 IBM Corporation

Each process application and toolkit created in the Process Center repository includes environment variables.

You can set these environment variables to ensure that your process implementations are using correct values, whatever environment you deploy to,

or whatever change occurs at runtime in the environment.

Suppose your process includes an implementation that requires the port number for an external application. By using an environment variable, you can set the port number for each environment in which the process will run.

To use one of the preceding variables in a script in the current process application, you use the variable key preceded by tw.env.

Process App Settings
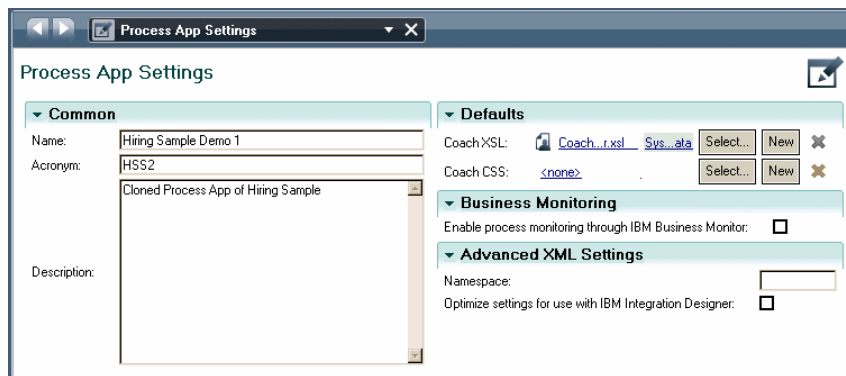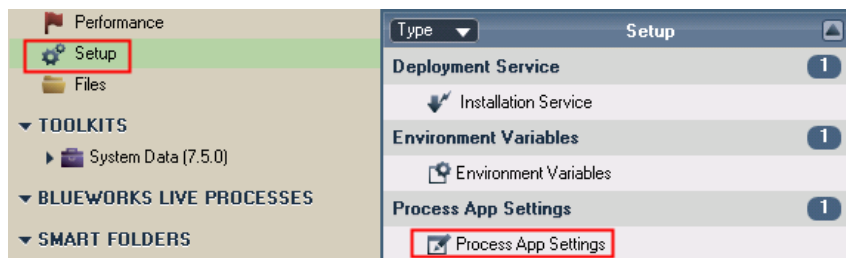
The process apps settings is where you can change the name of the acronym, the coach XSL and CSS files, enable the IBM business monitor and set the default namespace you want to use.

The acronym is used to identify this process application and the library items that it contains and so it must be a valid JavaScript identifier. When you change the acronym, any existing scripts or other implementations in the process application that rely on the current acronym is broken unless you update them with the new acronym. For this reason, IBM Process Designer displays a warning, requesting confirmation to continue with the change. You must be an administrator to perform this operation.

The Coach transform XSL that you specify in this field is used for all Coaches in the process application except individual Coaches with a transform XSL override set to something other than <Use Default>. By default, this field is set to the CoachDesigner.xsl file that resides in the System Data toolkit.

The Coach CSS that you specify in this field is also used for all Coaches in the process application except individual Coaches with a CSS override set to something other than <Use Default>. By default, this field is set to the coach_designer.css file and it too is in the System Data toolkit.

By default, monitoring in available with the Process Data Warehouse. The IBM Business Monitor is a separate product that provides additional monitoring capability and can be integrated with other products. If you are using the IBM Business Monitor in your environment, you need to enable it here.

The Namespace field identifies the namespace of the process application. If you do not enter a specific namespace identifier, the editor automatically populates the Namespace field with a shortened version of the process application name.

The Optimize settings for IBM Integration Designer check box indicates that this project is being used or is intended to be eventually used in collaboration with IBM Integration Designer.

Localization Resource

- Linked to specific variables in a service to provide special locale specific formatting when displayed in a coach.
  - In this case the time attribute

18   Process application authoring   © 2011 IBM Corporation

You can apply formatting to a Coach control that is bound to a localization resource.

The following procedure illustrates how you can apply formatting to a Coach control that is bound to a localization resource.

The localization resource for this example (named Localized Formats) includes a localization key named time,

which contains two locales: "Default Locale" and Sweden.

The value of "Default Locale" is delimited by colons, which is the standard format used to represent time in the majority of countries.

The value of the Sweden locale is delimited by periods, which is the standard format for Swedish time:

You define the format to use for a locale in the localization resource. You then associate the resource with a field in a Coach, using the presentation properties for the field. This is shown in the inset at the bottom part of the slide.

Deployment time configuration

- Exposing
  – Processes
  – Services
- Role Bindings
- Environment Variables

Process administrative console
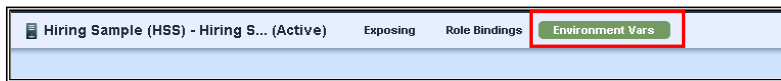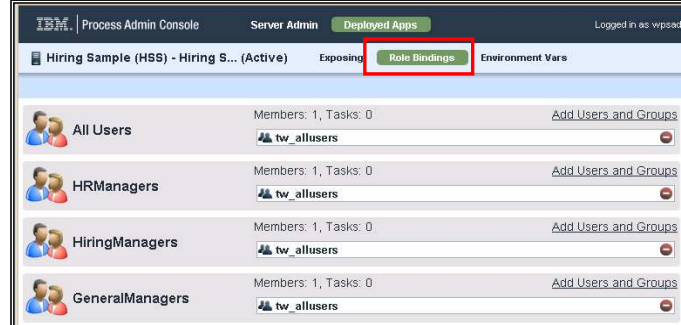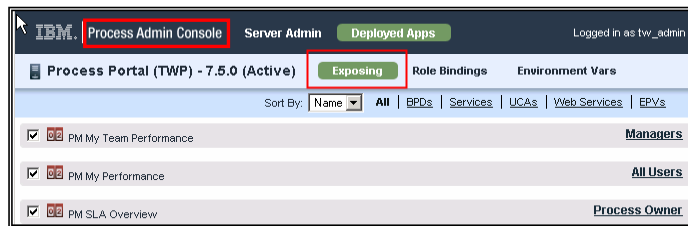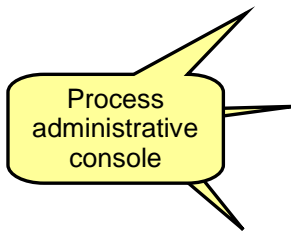
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These deployment time configuration tasks are done using the Process Admin Console.

Each of these are ways to carry configuration options defined by the process authors during development, over to the deployment environments.

During development, process authors determine which processes, services, reports, and other items are available and to which participant groups.

After a process application is deployed to a Process Server in a different environment (test or production), you will need to disable a particular exposed item within that application. The screen capture at the top shows how you can enable or disable exposed processes and services.

Process authors also create the participant groups and environment variables for each process application. The options in the Process Admin Console shown here are where you go to change the participant groups and the values of the environment variables to meet the specific needs for each deployment environment.

Summary

- Processes and process elements
- Smart folders
- Connecting to a snapshot in test
- Configuring Business Process Definitions
- Setup
- Deployment time configuration

Process application authoring

This discussion began with a quick tour of the process library elements that are available for you to construct your business process applications in the IBM BPM Process Designer.

After introducing the basic tools, a broader view of the development process was presented, showing you how to organize your work using smart folders and how to connect and test your business processes on deployed snapshots.

The remainder of the discussion focused on configuration and setup, and how to manage participant groups, exposed processes and services, and environment variables in the deployed environments.

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