



IBM Software Group

WebSphere® Business Process Management Suite V6.1.2

WebSphere Process Server: New features



@business on demand.

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This presentation will cover the new features for the WebSphere Process Server version 6.1.2.

Agenda

- Update and installation process
- Installation usability enhancements
 - ▶ DB configuration before installation
 - ▶ Quick start using the products - Latest level verified
 - ▶ Apply fixes during installation
- Stack product support
 - ▶ XSD holes
 - ▶ Horizontal trace
 - ▶ Business calendar
 - ▶ Business client support
- WebSphere test environment enhancements
 - ▶ Server test environment
 - ▶ Improved test environment console messages and tracing
 - ▶ Performance improvements



These topics are covered during this presentation. Moving from version 6.1 to version 6.1.2 is an upgrade process without any migration required. The install process includes some usability enhancements to help during the initial installation and setup. These include separate database scripts and ifixes to be applied during install. For the process server many of the enhancements involved provide support for other products. The WebSphere Integration Developer, Monitor, Modeler and business space use some of these enhancements. This presentation will explain each of these items in detail to provide an understanding of how the process server is involved. Additional enhancements are provided for the unit test environment for performance and ease of use.

Section

Installation and update



This section will cover the installation and update enhancements.

Interim fixes

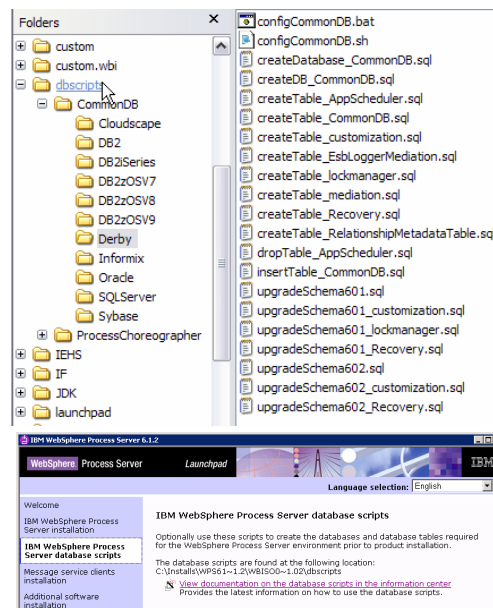
- Custom install packages only
- Default directory
 - ▶ <INSTALL_IMAGE_LOC>/WBI/WBI_Fixes
- Specified directory
 - ▶ Windows®: install.bat –OPT fixLocation=<user_fix_dir>
 - ▶ UNIX®: install.sh –OPT fixLocation=<user_fix_dir>
- Installation order
 - ▶ Check WBI_Fixes
 - ▶ Check user_fix_dir - takes precedence
- Shown in final installation panel



The installation now allows iFixes to be installed during the product installation. These iFixes must be packaged as a custom install package and be located in a directory that can be located by the installation. This requires that the installation disks be copied to writable media to use the default directory. During silent install using scripts, a location can be specified. During installation, the default directory is checked followed by the specified directory which takes precedence. A GUI installation will show all iFixes being installed on the final installation panel.

Database scripts available

- DB scripts to be exposed:
 - ▶ scheduler.wbi
 - ▶ common.wps
 - ▶ common.esb
 - ▶ sibxmediation.scripts
 - ▶ persistentLockManager
 - ▶ interfaceMediation
 - ▶ recovery.ejb
 - ▶ relationshipService
 - ▶ customization
 - ▶ bpcobservermodel
 - ▶ workflow.common
- Launchpad access



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WebSphere Process Server: New features

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All of the database scripts have been provided in a separate dbscripts directory to allow these to be used outside of the installation. These scripts can also be accessed directly through the launchpad. There are many scenarios where customers prefer to have the databases created before the installation. Many configurations require the database to be on a separate system.

Install or update

- Select install or update
- Detect all
- Applies iFixes or features
- Install new copy
- New profile creation

Features Selection

Select IBM WebSphere Process Server features to install. See the information center for descriptions of the features.

Install maintenance updates contained in this installation

Business Rule Beans (deprecated)

Extended Messaging Service(deprecated)

WebSphere Process Server samples

Detected IBM WebSphere Process Server

The installation wizard detected an existing installation of IBM WebSphere Process Server. You can apply maintenance and add new features to an existing copy, install a new copy or create a new profile that runs from the core product files already installed on your computer.

Apply maintenance or add features to IBM WebSphere Process Server

C:\WebSphere\ProcServer61

Install a new copy of IBM WebSphere Process Server

Create a new WebSphere Process Server profile using the Profile Management Tool

C:\WebSphere\ProcServer61

Apply maintenance or add features to IBM WebSphere Process Server

C:\WebSphere\ProcServer61

C:\WebSphere\ProcServer61

C:\WebSphere\ProcServer612

C:\IBM\WID612\runtimes\bi_v61



Version 6.1.2 allows the installation as an update of version 6.1. When moving from version 6.1, all applications and configuration are compatible. A list of previous installs is presented or you can select to create a separate new installation. If you are moving from previous versions before version 6.1 then this requires that the migration tools are used.

Section

XSD enhancements



This section will discuss the XSD enhancements.

XSD enhancements

- WSDL/XSD and industrial schema tolerance, interoperability, and fidelity
 - ▶ substitution groups, attribute groups, array support
 - ▶ SOAP-encoded arrays, SOAP Headers
 - ▶ Microsoft® ADO.NET diffgram
 - ▶ Local element
- XSD conformance test
- Validation and quick fix
- WSDL encoding types
- Vendor compliance
- Industry schemas



The 6.1.2 release provided some additional XSD enhancements to complete the industry support requirements and standards. Several of the types listed here are discussed in detail in the next few slides. The addition of conformance testing and validation makes usability much better.

Substitution group

- BO / SDO create/get/set APIs
 - ▶ alias substitution pattern
 - ▶ derived type pattern
 - ▶ element being substituted can be abstract

- Alias pattern

```
<xs:element name="name" type="xs:string"/>
<xs:element name="nombre" substitutionGroup="name"/>
<xs:complexType name="customerdata">
  <xs:sequence>
    <xs:element ref="name"/>
  </xs:sequence>
</xs:complexType>
<xs:element name="customer" type="customerdata"/>
<xs:element name="cliente" substitutionGroup="customer"/>
```

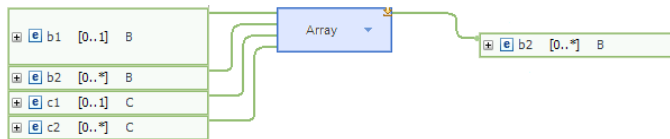
- Derived type pattern
 - ▶ Variation of aliasing
 - ▶ Typing checking



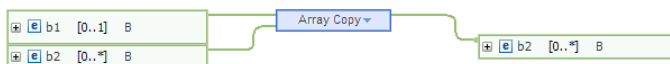
The substitution group provides the ability to provide a variation of the data based on external criteria. For instance, the external criteria can specify a language type that is used in place of the default. This XML example shows how the substitution can be specified.

Array support

▶ Array transform:



▶ Array copy:



▶ Array extract:



The array support has been enhanced to allow transformation, copy, and extracts to occur. These array types are exposed in the WebSphere Integration Developer as shown here.

A transform has an input list with an array output that can be drilled into, similar to Inline. It can take one or many single or arrayed inputs. The order coming into the transform is recognized. The properties page contains predicate entries for each of the inputs. This accomplishes **iteration** over different types, **insertion or append** based on ordering, or **removal**, using predicates to filter out which elements to exclude.

The copy is a simplified version of the array transform, but it is restricted to take inputs of the *same type*. It is not able to drill into the list since the inputs are implicitly moved or copied over to the output array knowing that the types are all the same.

An array extract is a transform that takes in an array and outputs a single element. The index or XPath indicates which element to **extract** from the input array and move or copy to the single output.

Local element

- Promote to global element
 - ▶ In same file:
 - local element global
 - create an element ref
 - ▶ In another file:
 - local element a global
 - reference this global element in maps.



In the business object editor, you are allowed to select a locally defined element with an anonymous complex type and perform two actions on it. You can make the local element global and create an element ref in its place or you can make the local element a global element in the specified file. You can then reference this global element in the maps.

Section

Cross component trace



This section will discuss the new cross component trace.

Cross component trace

- Capture correlation data
 - ▶ Correlation ID
 - ▶ Use SCA Policy to capture SCA Context.
 - ▶ Dynamically enable/disable
 - ▶ Multiple levels of detail to capture (performance impact)
- Provide a Model to access:
 - ▶ List of SCA call chains available
 - ▶ Definition of call chains
 - ▶ The correlated records from logs, and additional SCA context data captured by the filter for a particular point in the SCA Calling chain
- GUI in WebSphere Integration Developer
- XCT ID



Cross component trace will allow the correlation of trace between SCA components. To do this it requires that you capture enough correlation data at runtime so that log records can be identified later and matched. A model has been provided to allow the SCA call chains to be viewed from different time periods of the trace. The correlated records from logs and additional SCA context data captured by the filter for a particular point in the SCA Calling chain can be viewed. There is a GUI in WebSphere Integration Developer to allow you to select which call chains to work with. The XCT ID is a two part ID of parent and child. This is used to identify call chains.

SCA context

- SCA Policy to access the SCA invocation
- For each SCA call (if correlation collection is turned on)
 - ▶ Capture SCA Calling Context
 - Module, Component, Interface, Operation
 - Invocation Type: sync/async
 - Stage of call: remote-call, local-call, remote-call-return, local-call-return, failure on return...
 - ▶ Optionally capture
 - Session context
 - SOAP Envelope
 - ▶ Create UUID
 - ▶ captured data saved to file
 - ▶ Write correlation ID
- On a call return, mark the end of the call.



The correlation record will make use of SCA policy to get access to each SCA invocation. For each SCA call it will capture the calling context containing these attributes in the test environments. A UUID is created for a new call, stored in thread local context and sometimes in the SCA Header. The context data, which is identified by the UUID, is stored in a file for later viewing in the integration developer.

Cross component trace panel

Trace SCA call path only

Trace and capture SCA in/out data

Cross Component Trace

Use this page to specify how the process servers handle cross component tracing. You can set for config or/and runtime.

Select	Server	Status	Node	Config	Runtime
<input type="checkbox"/>	default.AppTarget.ERICZPRO1Node01.0	⊗	ERICZPRO1Node01	trace with data snapshot	disable
<input type="checkbox"/>	default.Messaging.ERICZPRO1Node01.0	⊗	ERICZPRO1Node01	trace	disable
<input type="checkbox"/>	default.Support.ERICZPRO1Node01.0	⊗	ERICZPRO1Node01	disable	disable
<input type="checkbox"/>	dmgr	⊕	ERICZPRO1CellManager01	disable	disable
<input type="checkbox"/>	ericServer1	⊗	ERICZPRO1Node01	disable	disable
<input type="checkbox"/>	nodeagent	⊗	ERICZPRO1Node01	disable	disable
<input type="checkbox"/>	ss.AppTarget.ERICZPRO1Node01.0	⊗	ERICZPRO1Node01	disable	disable
<input type="checkbox"/>	ss.Messaging.ERICZPRO1Node01.0	⊗	ERICZPRO1Node01	disable	disable

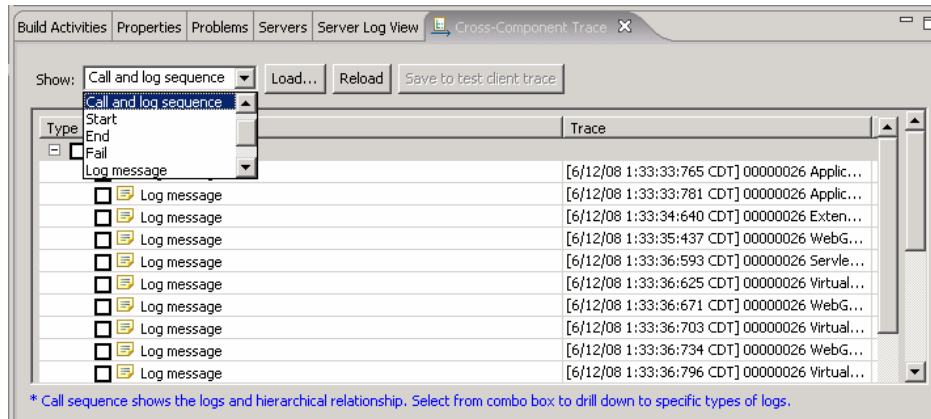
Total 8

Apply OK Reset Cancel

In the administrative console, under cross component trace, the trace can be enabled for each server. Either trace or trace with data snapshot can be selected. These can be set separately for configuration and runtime.

Cross component trace usage

- Load / reload
- Filtering
- Save to test client trace



* Call sequence shows the logs and hierarchical relationship. Select from combo box to drill down to specific types of logs.

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Here is an example of the cross component trace panel in the integration developer. You can load trace from a directory. The load panel allows multiple directories to be added to a list. The trace can then be filtered by call and log sequence, start, end, fail and several other ways. You can also select trace to be used in the test client and step through the trace, viewing the details of the data between SCA modules.

Section

Business calendar support



The business calendar support is now part of the WebSphere Process Server.

Business calendar

- XML file
- Created , viewed, edited in a business module in WebSphere Integration Developer
- Stored in a library
 - ▶ referenced by a module
- Deployed to WebSphere Process Server as part of the business module
 - ▶ libraries are copied to the ear
- Namespace and name



The business calendar support from modeler has been moved into the process server to allow several components to have access to the same calendar model. The business calendar is an XML file that can be shared between these components. It can be created, viewed, edited in a business module in WebSphere Integration Developer. This business module can also be created within the modeler and exported into the integration developer. The business process choreographer also has access to use the same calendar during human task operations. The business calendar has a namespace and name that provides access by other components.

Scenario usage

- Business processes need to calculate time taking into account weekends, holidays, and time off
 - ▶ Today is Thursday
 - ▶ Saturday, Sunday are holidays
 - ▶ Two days from today needs to return Monday, not Saturday
- WebSphere Process Server cannot do time computations based on non contiguous time



A typical scenario will take into account that holidays and weekends are not to be used for calculation of business time lines. If a request comes in on a Thursday and requires resolution within two days, then the result needs to return Monday, not Saturday. The process server previously can not compute these business events based on contiguous time.

Usage of calendars in BPC

To-do Task - hr

Calendar type: Business Calendar - "Germany"

Duration until task is overdue:
0 Days 1 Hours 0 Minutes 0 Seconds

Duration until task is deleted: Immediate
0 Days 1 Hours 0 Minutes 0 Seconds

Auto deletion mode: On successful completion

Duration until task expires:
0 Days 0 Hours 0 Minutes 0 Seconds

TEL

```
<tel:task ...  
  calendarJNDIName="com/ibm/wbiserver/calendar/BusinessCalendarHome"  
  calendarName="Business Calendar-Germany"  
  durationUntilDue="P1D12H" ...>  
...  
</tel:task>
```

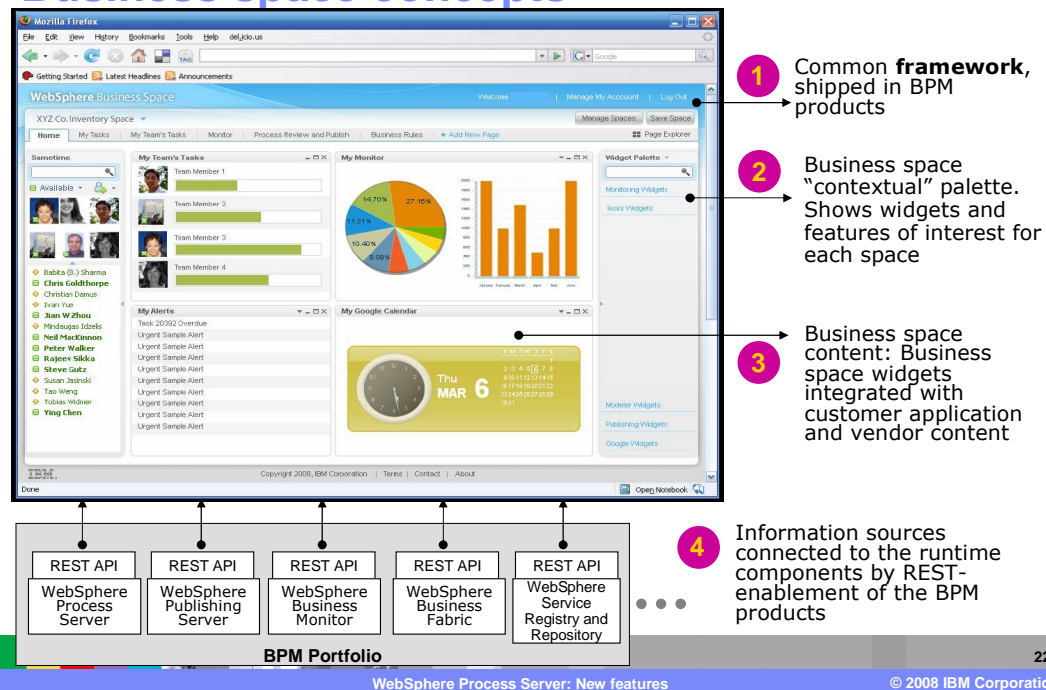
In the business process choreographer, a human task will specify the task parameters based on other previously defined calendars. You can specify the calendar type, when the task is overdue, deleted or expires. Here is an example of how the data is saved in XML format.

Section

Client support

The introduction of business clients which have access to the underlying components has required that support be provided by the WebSphere Process Server, WebSphere Business Monitor, WebSphere Business Modeler and several other products within the WebSphere Business Process Management Suite.

Business space concepts



One example of a business client is business space. Business space unifies the business process management UI space for business users to allow them to work in a single window for all the business activities taking place in different BPM products in the suite. It is a common framework and is included in most of the BPM products. Business space contains a set of widgets for each of the different products that shows features of interest or referred to as business space for that product for a business user. The space can be for the review of models from Publishing server, or viewing the KPIs. Also other monitoring data in the Monitor dashboard, or the ability to work on the human task or business rules within the Process server can be viewed.

The BPM products in the suite provide REST based APIs for external applications to get the business data from that product. Business space function is installed as part of the product install. When multiple products are installed, the business space is an aggregated view of the installed products through widgets.

Business space administration

- Enable
- DB schema name

The screenshot shows the 'Business Space Configuration' page in the WebSphere administrative console. The page title is 'Application servers > server1 > Business Space Configuration'. Below the title, there is a brief description: 'Use the Business Space Configuration page to install Business Space powered by WebSphere to your runtime environment. Business Space is a common interface for application users to create, manage and integrate Web interfaces across the IBM WebSphere Business Process Management portfolio. The Business Space service is hosted on a server or cluster.'





The main configuration area is titled 'Configuration' and contains a 'General Properties' section. In this section, the checkbox 'Install Business Space service' is checked. Below this, there are three input fields: 'Database schema name', 'Existing Business Space data source', and 'Create Business Space data source using:'. The 'Create Business Space data source using:' field has a dropdown menu with 'WBI_DataSource' selected. At the bottom of the configuration area, there are four buttons: 'Apply', 'OK', 'Reset', and 'Cancel'.

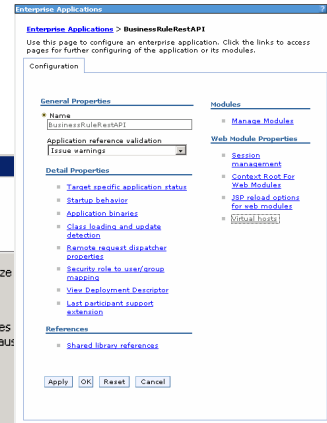
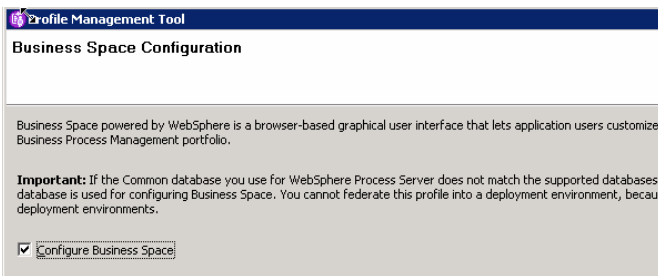
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The administrative console for the process server provides a panel to enable business space widgets and provide the database schema name.

Common business user interface

- Representational state transfer (REST) APIs
- HTTP Protocol
- Installed as Web Apps for HTM, BFM and BR
- PMT configuration

<input type="checkbox"/>	BusinessRuleRestAPI	
<input type="checkbox"/>	BusinessSpaceManager	
<input type="checkbox"/>	DefaultApplication	
<input type="checkbox"/>	IBM_BSPACE_WIDGETS	



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The common business user interface runs as a set of applications that provide the REST APIs over the HTTP protocol along with separate widgets applications for each of the supported components within the process server. During the installation, the profile management tool and the business space applications are installed. Once they are installed, they can be configured as any other application through the administrative console.

Section

Other enhancements

The section will review other enhancements for the WebSphere Process Server. Most of these pertain to the unit test environment within the WebSphere Integration Developer.

Test environment messages

GOOD:

CWWBW3040E: The process timeout event must specify at least a for expression, an until expression, or a repeatEvery expression (process timeout event {0}).

Explanation: The for element defines the duration expression after which the event is signaled. The until element specifies when the timeout event is fired. If the repeatEvery element is specified, the timeout event is fired repeatedly once each time the duration period expires. One of these three expressions or a repeatEvery expression with a for expression or an until expression must occur in an timeout event.

User Action: Specify a **for expression**, an **until expression**, or a **repeatEvery expression**.

BAD:

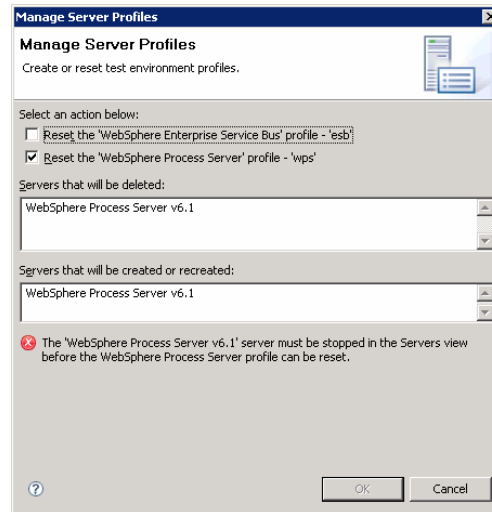
- **CWLBS0000E:** Unexpected runtime exception occurred.
 - ▶ **Explanation:** Unexpected runtime exception has occurred, it can cause other errors in the calling code.
 - ▶ **User Action:** none.



Significant effort has been made to enhance the unit test environment messages to provide additional problem determination information. Many messages, as shown by the bad example, have been changed to indicate the problem occurrence, an explanation of the problem and a user action to resolve the problem.

Server test environment

- Restore test environment to install state
- Need a reset button for the test environment to a clean state



The integration developer now offers the ability to restore the unit test environment to its original state or to reinstall the test environment without reinstalling the integration developer. In previous versions of the test environment, there are many scenarios during development of an application where the environment can not be restored without reinstalling the integration developer.

Performance

- Improve overall product usability
 - ▶ Reducing build and publish response times
 - ▶ Memory grows when adding and removing projects
 - ▶ Improve application start and server restart times



Several performance enhancements have been included for the version 6.1.2 release. Most of these focused on the integration developer unit test environment, improving memory growth, build and publish times and application start and stop. These changes are focused on the usability of the application development environment.

Summary

- Update and Installation process
- Installation usability enhancements
 - ▶ DB configuration before installation
 - ▶ Quick start using the products - latest level verified
 - ▶ Apply fixes during installation
- Stack product support
 - ▶ High priority XSD holes
 - ▶ Horizontal trace
 - ▶ Business calendar
 - ▶ Business client support
- Unit test environment enhancements
 - ▶ Server test environment
 - ▶ Improved test environment console messages and tracing
 - ▶ Performance improvements



This presentation reviewed several update and installation options for version 6.1.2 of the WebSphere Process Server. These updates include separate database scripts and application of iFixes during installation. There were also many support enhancements discussed for other components within the WebSphere Business Process Management Suite. There was also a focus on how the integration developer unit test environment has been improved.

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