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## **WebSphere® Enterprise Service Bus for z/OS® V6.1 WebSphere Process Server for z/OS V6.1**

### ***z/OS installation and configuration overview***



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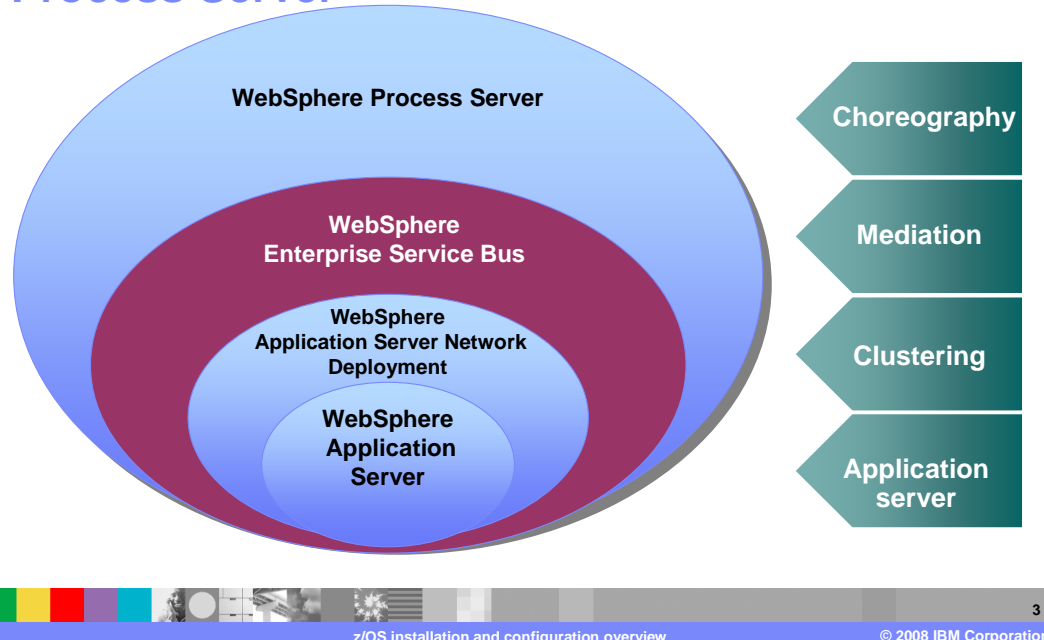
This presentation will cover the installation and configuration of WebSphere® Process Server for z/OS V6.1 and WebSphere Enterprise Service Bus for z/OS V6.1

## Goals

- Describe prerequisites and product packaging
- Describe WebSphere Process Server for z/OS V6.1 configuration process

The goal is to look at the pre-requisites and packaging of the products and then look at the installation and configuration of the products at a high level. Once you understand the high-level process, you can look at the more detailed presentations that talk about the various configurations.

## WebSphere Application Server, ESB, and Process Server



This slide is meant to show where the WebSphere Process Server and the WebSphere Enterprise Service Bus fit in the product stack. Notice that the WebSphere Enterprise Service Bus is built on top of the WebSphere Application Server which provides the Java™ 2 Enterprise Edition framework for the stack products. The WebSphere Enterprise Service Bus adds mediation capabilities to the picture, allowing mediation of message flows between service requestors and providers. WebSphere Process Server is built on top of that, which means that the WebSphere Process Server includes the mediation functions found in the WebSphere Enterprise Service Bus. The WebSphere Process Server also adds choreography capabilities for business process management applications.

## Section

# ***Prerequisites and product packaging***

This next section will look briefly at the prerequisites for the products and how the products are packaged.

## Prerequisites (derived from base WebSphere)

- Hardware requirements
  - ▶ Any hardware that supports z/OS 1.7 or higher or z/OSe 1.7 or higher
- Software requirements
  - ▶ z/OS 1.7 or higher or z/OSe 1.7 or higher with several features installed, enabled and configured. They are:
    - z/OS Communications Server (TCP/IP) or equivalent
    - z/OS UNIX® System Services and hierarchical file system (HFS) **or** zSeries® file system (zFS) support
    - SecureWay® Security Server (RACF®) or equivalent security management product
    - System logger
    - System SSL security required when using SSL
    - Workload management in goal mode
    - Resource recovery services
- Requirements officially documented here:  
<http://www-1.ibm.com/support/docview.wss?rs=2307&uid=swg27009841>

The requirements for WebSphere Process Server for z/OS V6.1 and WebSphere Enterprise Service Bus for z/OS V6.1 come from the Base WebSphere that the Process Server or the Enterprise Service Bus will be installed on top of. Notice that z/OS 1.7 is the minimum z/OS level with WebSphere Process Server V6.1 and WebSphere Enterprise Service Bus V6.1 since z/OS V1.6 is out of service. If you plan to exploit any zAAPs in your configuration, you will need a z9-109, z990 or z890 server. The features listed on the slide are needed for the base application server configuration. For an official list of requirements, you can refer to the Web site shown on the slide.

## Implementation options (optional)

- IBM HTTP Server for z/OS or equivalent
- DB2® Universal Database Server for z/OS, Version 7 or higher
  - ▶ Need stored procedure builder enabled (DSNTPSMP) if using Relationships
  - ▶ DB2® Universal Database Server for z/OS, Version 8 or higher needed for Business Rules and Selectors
- CICS® TS for z/OS 2.2 and above
- Information Management System IMS™ V8.1 or later; IMS Connect V2.2
- WebSphere MQSeries® for z/OS V5.3.1 and higher
- LDAP
- Tivoli® Access™ Manager (TAM) V6.0
- WebSphere Integration Developer, V6.1

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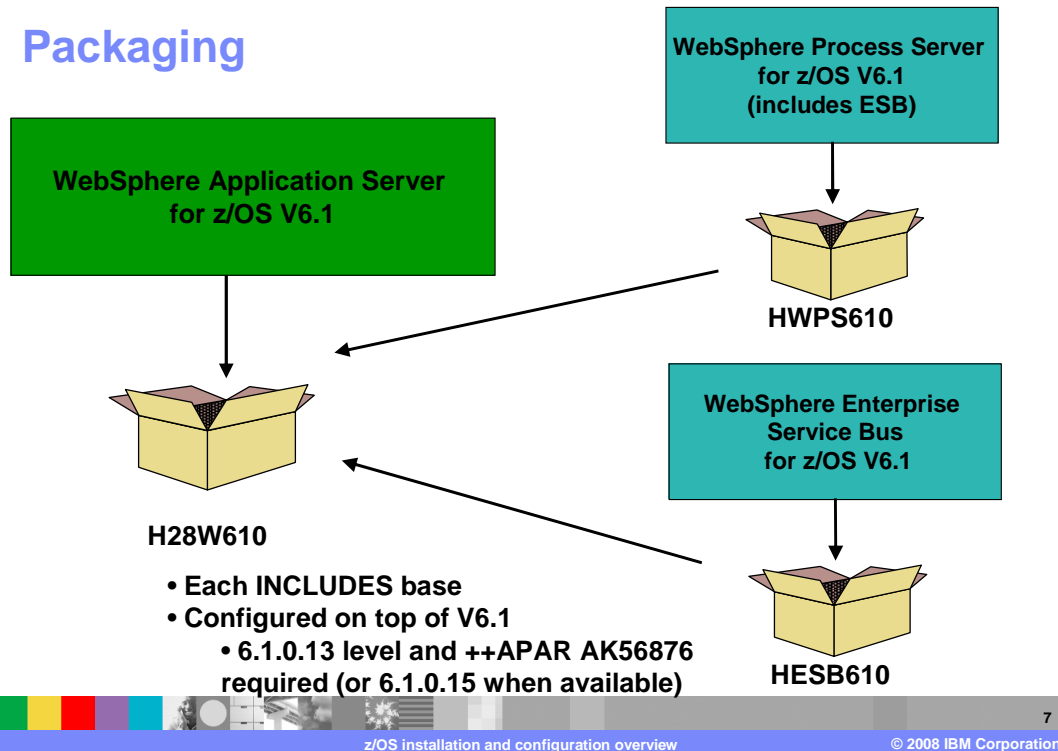
z/OS installation and configuration overview

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Many of the implementation options shown here, such as CICS® and IMS™, are determined by the applications that are run on the server. In the case of DB2®, if you plan to implement a Network Deployment solution with WebSphere Process Server or WebSphere Enterprise Service Bus, DB2 becomes a requirement. WebSphere Process Server and WebSphere Enterprise Service Bus require many databases. DB2 V7 is sufficient for the Process Choreographer function in WebSphere Process Server but might pose limitations for Common Event Infrastructure, Business Rules and Selector functions. DB2 V8 is recommended. The Stored Procedure Builder (DSNTPSMP) in DB2 also needs to be enabled if using Relationships.

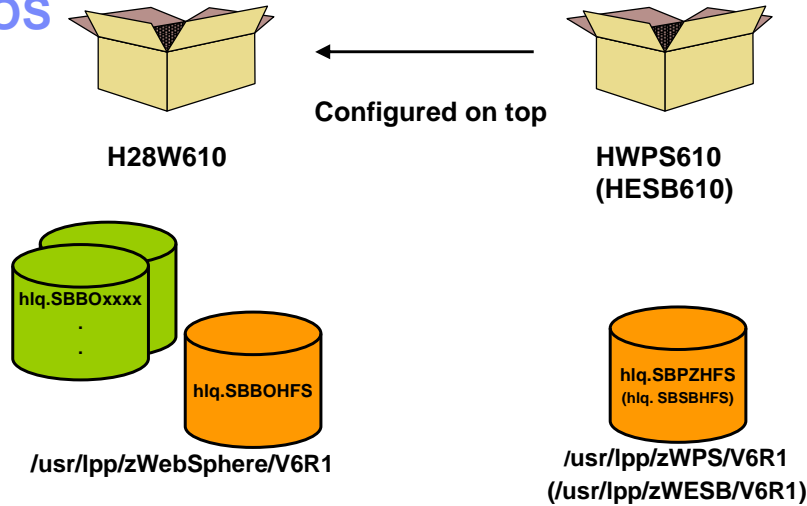
The WebSphere Integration Developer V6.1 is the tool that should be used to build the applications to be run in a WebSphere Process Server environment.

## Packaging



This slide shows the packaging of the products. WebSphere Process Server for z/OS V6.1 and WebSphere Enterprise Service Bus for z/OS V6.1 are built on top of WebSphere Application Server for z/OS V6.1. When you order either product, you will receive a copy of the base WebSphere Application Server for z/OS at the latest PTF level. You should note that V6.1.0.13 is the minimum required PTF level. ++APAR AK56876 is also required until V6.1.0.15 is made available. There are two new FMIDs for the products, HWPS610 and HESB610 as shown on the slide. You should also note that the WebSphere Process Server product **INCLUDES** the WebSphere Enterprise Service Bus product so the WebSphere Enterprise Service Bus product is really a subset of the WebSphere Process Server product.

## Structure for WebSphere Process Server for z/OS and WebSphere Enterprise Service Bus for z/OS



WebSphere Process Server for z/OS and WebSphere Enterprise Service Bus for z/OS are pure Java implementations so there is no need for PDSes in the products. The code is fully contained in the HFSes shown.



## V6.1 SMP/E news

- New sample jobs to allocate either zFS **or** HFS for product code
  - BPZALZFS / BSBALZFS
  - BPZALHFS / BSBALHFS

Only run one!

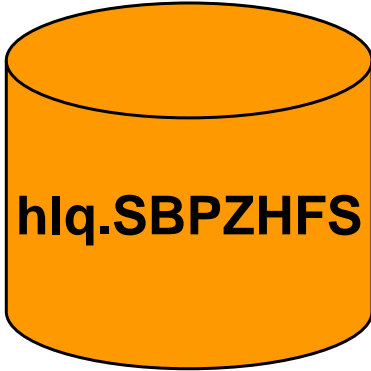
- hlq.SBPZHFS **or** hlq.SBSBHFS is created:
  - **wps\_smpe\_root** = WebSphere Process Server SMP/E installation  
Z/HFS: -PathPrefix-/usr/lpp/zWPS/V6R1
  - **webb\_smpe\_root** = WebSphere Enterprise Service Bus SMP/E installation  
Z/HFS: -PathPrefix-/usr/lpp/zWESB/V6R1
- Note you will have WebSphere SMP/E root as well (hlq.SBBOHFS):
  - **was\_smpe\_root** = WebSphere Application Server SMP/E installation  
HFS: -PathPrefix-/usr/lpp/zWebSphere/V6R1



As part of WebSphere Process Server for z/OS V6.1 and WebSphere Enterprise Service Bus for z/OS V6.1 products, new sample allocation jobs are included. These jobs allow allocation of either a hierarchical file system (HFS) **or** a zSeries file system (zFS) for the product code. The files created are mounted at the specified mount points, depending on whether you are installing the WebSphere Process Server or WebSphere Enterprise Service Bus product. Regardless of product, you will also have a WebSphere Application Server Z/HFS.

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## SMP/E directory configuration



**hlq.SBPZHFS**

```

usr
├── lpp
│   └── zWPS
│       └── V6R1
│           ├── AppScheduler
│           ├── bin
│           ├── BRBeans
│           ├── dbscripts
│           ├── deploytool
│           ├── eventbrowser
│           ├── features
│           ├── firststeps
│           ├── HeritageAPI
│           ├── IBM
│           ├── installableApps
│           ├── lib
│           ├── optionalLibraries
│           ├── patches
│           ├── plugins
│           ├── ProcessChoreographer
│           ├── profileTemplates
│           ├── properties
│           ├── samples
│           ├── systemApps
│           ├── universalDriver_wbi
│           ├── util
│           ├── web
│           ├── zos.config
│           └── zos.smpe
        
```

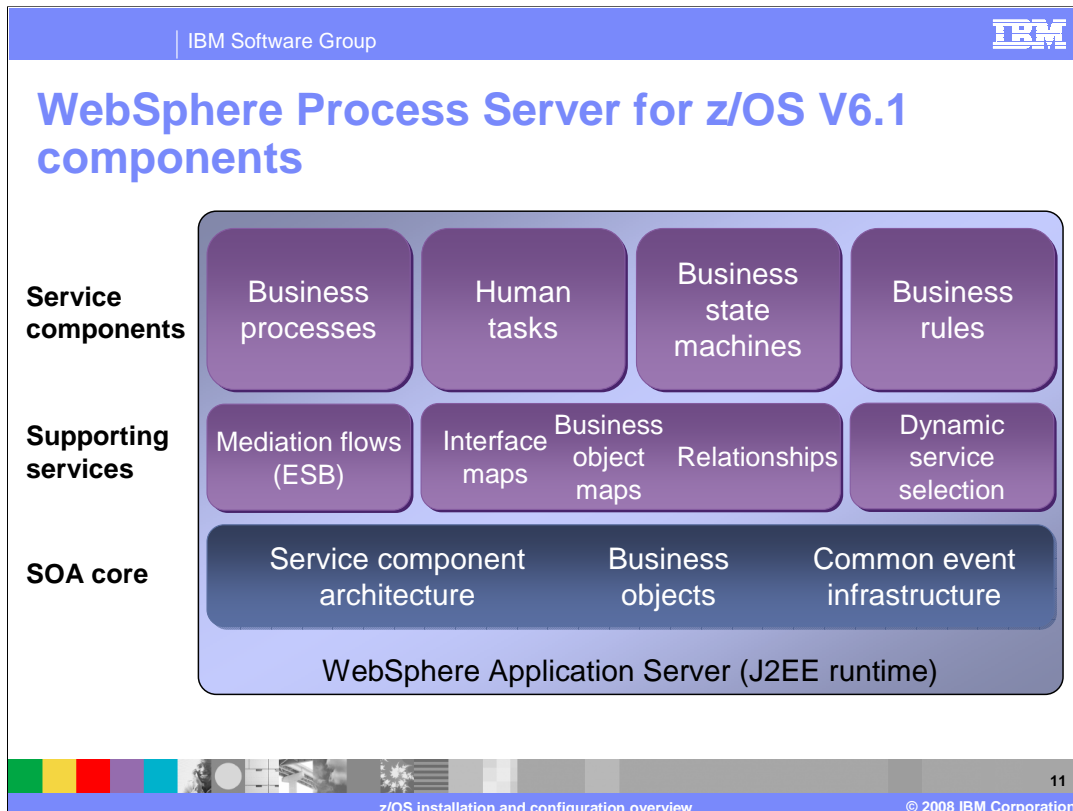
**-pathPrefix-/usr/lpp/zWPS/V6R1**

**-Or- ESB-only configuration:**  
**-pathPrefix-/usr/lpp/zWESB/V6R1 → hlq.SBSBHFS**

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This slide shows the HFS for the WebSphere Process Server as installed by SMP/E. The WebSphere Enterprise Service Bus HFS would be similar. The default paths are shown along with the naming for the HFS file that will contain the product code.



This slide provides an overview of the components that make up the WebSphere Process Server and are enabled by the WebSphere Integration Developer. The WebSphere Process Server is built on WebSphere Application Server Version 6.1, providing a robust J2EE™ application server runtime with capabilities that the process server implementation can exploit, such as JMS messaging and enterprise beans. It can also make use of the application server qualities of service, such as transactions, security and clustering. Overall, this provides a well proven runtime environment for WebSphere Process Server.

The Service Oriented Architecture (SOA) Core is the foundation in WebSphere Process Server. The main components of the SOA Core are the Service Component Architecture (SCA), Business Objects (BOs) and the Common Event Infrastructure (CEI). SCA is the uniform programming and invocation model for business services that publish or operate on business data. Business Objects (BOs) represent the data that is passed within that framework. Business objects are extensions to Service Data Objects (SDOs), which carry additional information needed for some integration scenarios. The Common Event Infrastructure (CEI) provides the foundation architecture for the management and handling of events produced by business processes. This is essential for enabling the monitoring of business processes with products such as the WebSphere Business Monitor.

On top of the SOA Core are a set of Supporting Services, which provide the transformation primitives required by integration scenarios built using Service Component Architecture and Business Objects. WebSphere Enterprise Service Bus is found in this layer and provides Mediation capabilities for the WebSphere Process Server. As noted, WebSphere Enterprise Service Bus is also a separate product. Interface maps are used to enable components making use of a particular interface to make calls to a component that provides a semantically similar but syntactically different interface. Business object maps enable the transformation of business data between fields of Business Objects representing the same business entity but of differing types. Relationships enable the correlation and synchronization of data representing the same business entity stored in multiple back end systems. Selectors provide for a dynamic invocation of a target component based on a date and time criteria.

## Section

# ***Installation and configuration overview***

The next section will look at an overview of the installation and configuration of the WebSphere Process Server for z/OS V6.1 and the WebSphere Enterprise Service Bus for z/OS V6.1.

## Configuration options

- Stand-alone environment
  - ▶ Limited to one server
    - Derby – highly automated!
    - DB2
- Network deployment environment
  - ▶ Multiple servers, clustering available
    - DB2 only!
  - ▶ Stand-alone node OR empty node
  - ▶ Manual tasks needed

Before starting the configuration of WebSphere Process Server or WebSphere Enterprise Service Bus, you should have an idea of where you are going. Will you need a network deployment environment with clustering or are you just starting out and are looking for an easy environment to set up? To get a look at the various pieces that make up the WebSphere Process Server or WebSphere Enterprise Service Bus environment, a highly automated option using Derby is available. You'll see that this is the quickest configuration and can be a good place to start if you are new to the product. The stand-alone configuration with DB2 can also be highly automated but you will need to get your DB2 administrator involved to configure that environment. As you move into the network deployment environment, not only is DB2 your only database option, you add some manual tasks to configure the various pieces of the WebSphere Process Server or WebSphere Enterprise Service Bus environment. While these tasks can be completed in the administrative console, there are additional steps that might be needed to complete the configuration. On the next few slides, we'll look at the configuration at a very high level. Other presentations are available to look at the various configuration options in more detail.

## Installation task overview

1. Configure WebSphere Base Application Server
2. Run zSMPInstall.sh script
  - ▶ 'Install' WebSphere Process Server or WebSphere Enterprise Service Bus function into node profiles
3. Run zWPSConfig.sh or zWESBConfig.sh script
  - ▶ 'Augment' profiles with WebSphere Process Server or WebSphere Enterprise Service Bus function
4. Complete post-configuration tasks, if needed

To configure WebSphere Process Server or WebSphere Enterprise Service Bus, there are four general tasks that you need to complete. To start with, you need to configure a WebSphere Base Application Server that will host the WebSphere Process Server or WebSphere Enterprise Service Bus function. Next, a couple of scripts need to be run against each node that you are configuring. The first script, zSMPInstall, will 'install' the WebSphere Process Server or WebSphere Enterprise Service Bus function into the node's profile, creating links to the product code. The second script, zWPSConfig, will augment the node with WebSphere Process Server or WebSphere Enterprise Service Bus function, configuring the various pieces needed to run applications that exploit the function. Finally, there are some post-configuration tasks that you will need to complete depending on whether you are configuring a stand-alone or a Network Deployment environment.

## 1. Configure WebSphere base application server

- Configure WebSphere base application server
  - ▶ Stand-alone application server cell
  - ▶ Network deployment cell
    - Deployment manager node and empty node
    - Deployment manager node and stand-alone node

Turn security on!



Starting with the first task of configuring a WebSphere Base Application Server, note that security needs to be turned on! Depending on the environment planned, you need to create a stand-alone application server cell or a full network deployment cell. The stand-alone application server cell is a nice place to start and can be highly automated for the WebSphere Process Server or WebSphere Enterprise Service Bus configuration as noted earlier. If creating a network deployment cell, you need to configure a deployment manager node AND either an empty node OR a stand-alone node. The empty node is labeled as a 'managed (custom)' node in the zPMT tool. However, do not federate either until later!

## 2. Run zSMPInstall.sh script

- Found in:

- <pathPrefix>/usr/lpp/zWPS/V6R1/zos.config/bin

- <pathPrefix>/usr/lpp/zWESB/V6R1/zos.config/bin

- Run against each node in your configuration

- ▶ 'Installs' WebSphere Process Server or WebSphere Enterprise Service Bus into your profile using many ant scripts

- Creates symLinks in <app\_server\_root> for <wps\_smpe\_root> directories
    - Updates the administration console for WebSphere Process Server or WebSphere Enterprise Service Bus

- ▶ Log files written to <app\_server\_root>/logs/wbi directory

- <app\_server\_root>/logs/wbi/zSMPInstall.log
    - <app\_server\_root>/logs/wbi/zSMPInstall.trace
    - **<app\_server\_root>/logs/wbi/install/installconfig.log**

The second step entails running the zSMPInstall script against EACH NODE in your configuration. This means that if you are doing a network deployment configuration, the script needs to be run against the deployment manager node and the empty node or stand-alone application server node. The zSMPInstall script will run a lot of ant scripts that among other things will create symLinks to the WebSphere Process Server or WebSphere Enterprise Service Bus product code. The script will also update the administration console with plug-ins that are needed to configure the WebSphere Process Server or WebSphere Enterprise Service Bus functions. As shown on the slide, log files are written to the logs/wbi directory. The installconfig.log found in the installation directory is more verbose than the others and is a good place to look for errors.



## 2. Run zSMPIInstall.sh script...

### Command line structure

#### Installing WebSphere Process Server for z/OS Definitions

Script name	Install file system for WebSphere Process Server and Base	Procedure	Trace
{	{	{	{
<b>zSMPIInstall.sh -smproot &lt;wps_smpe_root&gt; -runtime &lt;app_server_root&gt; -install -trace</b>			
<b>-prereqonly</b>			
<b>-uninstall</b>			

Backup file  
system first!

This slide shows the syntax for the zSMPIInstall script command. You need to only supply values for the **smproot** parameter and the **runtime** parameter. The smproot parameter tells the script where the WebSphere Process Server or WebSphere Enterprise Service Bus product code was SMP/E installed. The runtime parameter tells the script what profile you plan to add WebSphere Process Server or WebSphere Enterprise Service Bus functionality to. The 'procedure' parameter will normally be **install**. The prereqonly parameter verifies arguments and the environment. When specifying install, the code will automatically validate the arguments and environment, or in other words, perform the function of the prereqonly parameter anyway. The install parameter will create *symbolic links* from the WebSphere Process Server or WebSphere Enterprise Service Bus read-only HFS directories to the WebSphere Application Server for z/OS /lib and /bin directories. It will also enable WebSphere Process Server or WebSphere Enterprise Service Bus features by running configuration manager scripted actions. This will create any new administrative console plug-in extensions needed. A trace parameter is also available for debug.

## 2. Run zSMPIinstall.sh script...options

### **-prereqonly**

Verify command arguments and environment.

### **-install**

Validates prerequisites (see -prereqonly)

Creates *symlinks* from the read-only file system directories to the **/lib** and **/bin** directories installing the definitions.

Enables features by running Configuration Manager scripted actions, thus creating new administrative console plug-in extensions.

Creates post install file

Updates code base permissions

### **-uninstall**

Disables features by running Configuration Manager scripted actions and removes administrative console plug-in extensions...

This slide spells out the various procedure options and talks in more detail about what each of them does when specified. As noted on the previous slide, you should always save or backup the WebSphere Application Server configuration root before configuring WebSphere Process Server or WebSphere Enterprise Service Bus in the WebSphere Application Server environment.

## 2. Run zSMPInstall.sh script... 'expected' error

```
...
<message>Information about actions that failed, follows</message>
</record>
<record>
<date>2007-09-27T16:20:10</date>
<millis>1190924410316</millis>
<sequence>4916</sequence>
<logger>com.ibm.ws.install.configmanager.ConfigManager</logger>
<level>INFO</level>
<class>com.ibm.ws.install.configmanager.ConfigManager</class>
<method>dumpNonFatalFailedActionsInfoToLogFile</method>
<thread>10</thread>
<message>This action failed to execute:
/etc/sscell/ssnode1/AppServerNode1/properties/version/install.wbi/config/install/99SInstallInvokeWSPProfile.ijc</message>
</record>
<record>
.
<message>To manually apply this action, please execute this command: </message>
</record>
<record>
.
<message>Returning with return code: INSTCONFPARTIALSUCCESS</message>
</record>
```



The zSMPInstall.sh script will end with a PARTIAL SUCCESS message. This can be ignored and is documented in Technote 1291021. If you are running the job from JCL, it will end with a return code of 1024. The error message is the result of a NoClassDefFoundError error for a class that is not being used on the z/OS platform.

### 3. Run zWPSConfig.sh or zWESBConfig.sh script

- Found in:

- <app\_server\_root>/bin/zWPSConfig.sh

- <app\_server\_root>/bin/zWESBConfig.sh

- Run against each node in your configuration

- ▶ 'Augments' profile with WebSphere Process Server or WebSphere Enterprise Service Bus function using many ant scripts

- Create resource definitions
    - Create resources (databases, buses, queues)
    - Deploy needed applications

- ▶ Log files written to <app\_server\_root>/logs/ directory

- <app\_server\_root>/logs/wbi/zWPSConfig.log
    - <app\_server\_root>/logs/wbi/zWPSConfig.trace
    - **<app\_server\_root>/logs/manageprofiles/default\_augment.log**

In the third step, you will run another script, zWPSConfig or zWESBConfig, against each node in your configuration. If you are creating a network deployment cell, the empty or stand-alone node should not yet be federated. These scripts will again call many ant scripts which will augment the node profiles with needed resources and functions necessary for the WebSphere Process Server or WebSphere Enterprise Service Bus products. As listed on the slide, the augmentation will create needed resource definitions, create the actual resources such as databases, buses and queues and deploy needed applications. Other presentations go into more detail on what these resources and applications are. Log files for this script are written to the logs/manageprofiles directory. The default\_augment.log is the best place to look for errors as it is more verbose than the others.

### 3. Run zWPSConfig.sh or zWESBConfig.sh script

#### Command line structure

#### Configure WebSphere Process Server for z/OS

Script name	Procedure	Configuration response file	Property Override	Trace
<code>zWPSConfig.sh</code>	<code>-augment</code>	<code>-response &lt;response file path&gt;</code>	<code>-Z &lt;property name&gt;</code>	<code>-trace</code>
<code>zWESBConfig.sh</code>	<code>-prereqonly</code>			

- `-Z` parameter can override any values in the response file (useful for user ID/password)
- `-trace` `'*=all=enabled'`

Sample response  
files provided

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The `zWPSConfig` and `zWESBConfig` scripts require that you provide a response file to provide information to the configuration process. Sample response files are found in the product HFS; those will be shown on a later slide. The **augment** and **response** parameters are the only required parameters. The **Z**-parameter is used to override any of the properties specified in the response file. An example usage of this parameter is to specify user IDs and passwords on the command line so that they are not specified in clear text in the response file. You can also specify a trace string with the **trace** parameter if needed. To specify the trace string, put it in single quotation marks as shown on the slide.

Both scripts are available with the WebSphere Process Server for z/OS product. When dealing with the WebSphere Process Server for z/OS product, it is possible to configure an Application Server with the WebSphere Process Server function OR the WebSphere Enterprise Service Bus function only. Remember that WebSphere Process Server INCLUDES the WebSphere Enterprise Service Bus function. If you have the WebSphere Enterprise Service Bus for z/OS product, only the `zWESBConfig.sh` script is available.

### 3. Run zWPS/zWESBConfig.sh script...options

#### **-prereqonly**

Validates that zSMPInstall.sh has successfully created the product definitions for WebSphere Process Server.

#### **-augment**

Validates prerequisites  
Verifies arguments  
Enable profile augmentation using scripted actions.

- Mutually exclusive actions

This slide again shows the various procedure options and talks in more detail about what each of them does when specified. They are mutually exclusive and you can only specify one.

### 3. Run zWPS/zWESBConfig.sh script...response files

- Needed by the zWPSConfig.sh and zWESBConfig.sh scripts
- Samples found in:
  - <pathPrefix>/usr/lpp/zWPS/V6R1/zos.config
  - <pathPrefix>/usr/lpp/zWESB/V6R1/zos.config
- Samples provided:
  - ▶ standAloneProfile.rsp – Derby only
  - ▶ standAloneProfileDB2.rsp
  - ▶ DmgrDB2.rsp
  - ▶ ManagedDB2.rsp

Now, let's look at the response files needed by the configuration scripts. Again, the response files supply values needed for the configuration. Sample response files are found in the zos.config directory in the SMP/E install root. Four sample response files are provided. "stand-aloneProfile.rsp" is the response file used for the simplest configuration and uses Derby databases. It allows for an automated configuration of a stand-alone application server environment. To configure a stand-alone application server with WebSphere Process Server or WebSphere Enterprise Service Bus function using DB2, you would start with the standAloneProfileDB2.rsp file. That configuration can also be highly automated if you are able to configure the databases during augmentation.

When you move to the network deployment configuration, DB2 is the only option for the databases as noted earlier and there are two response files for that configuration: DmgrDB2.rsp and ManagedDB2.rsp. You will first use the DmgrDB2.rsp file to augment the deployment manager node with WebSphere Process Server or WebSphere Enterprise Service Bus function. You then augment an empty node using the ManagedDB2.rsp file before federating it into the Network Deployment Cell. As noted earlier, you can also start with a stand-alone node in the network deployment configuration. In that case, you use the standAloneProfileDB2.rsp file to augment your stand-alone node before federation.

### 3. Run zWPS/zWESBConfig.sh script...response files (continued)

- Common sections:
  - ▶ Global Properties -- used in variable substitution with a '\$'
    - Only full substitution supported
    - For example, x=\$DBHOME...NOT x=/\$DBHOME/jcc/)
  - ▶ Common Properties
    - 'augment' keyword, cell name, server name, profileTemplate locations
  - ▶ WebSphere Business Integration Core Properties
    - SCA Configuration
    - CEI (stand-alone)
  - ▶ Business Process Choreographer Properties (stand-alone)
  - ▶ WebSphere Business Integration Server Properties
    - AppScheduler configuration
  - ▶ Database Configuration

Each of the sample response files have many of the same common sections shown on this slide. Each starts with 'Global Properties' definitions which are used in variable substitutions throughout the rest of the response file. Using the dollar sign with these global properties, you can specify your value once and use variable substitution for the parameters in the following sections. Common properties include parameters that provide information such as cell name, server name and profile name. WebSphere Business Integration Core Properties and Business Process Choreographer properties sections are found only in the stand-alone response files since these are manual post-configuration steps in the Network Deployment Configuration. WebSphere Business Integration Server Properties provides parameters for the AppScheduler configuration if needed and finally, some database parameters are needed such as the dbDelayConfig parameter to determine if the databases will be configured during augmentation. There is documentation in each one of the response files to describe the parameters being asked for.



## 4. Complete post-configuration tasks, if needed

- ▶ Stand-alone application server cell (with Derby)
  - No post-configuration tasks!!
- ▶ Stand-alone application server cell (with DB2)
  - Create DB2 Databases and Tables
- ▶ Network deployment cell
  - Federate empty/stand-alone node
  - Deployment manager node and empty node
    - Create new Cluster/Server using defaultProcessServer template
    - Configure the Service Component Architecture
  - Deployment manager node and empty/stand-alone node
    - Create DB2 Databases and Tables
    - Configure Business Process and Human Task containers
    - Configure CEI

If you are configuring a stand-alone application server cell using Derby as the database, you are done at this point! You can start your server and are able to exploit the WebSphere Process Server or WebSphere Enterprise Service Bus function right away. If configuring with DB2, there are most likely some post-configuration tasks that are needed. If configuring a stand-alone application server cell with DB2, you will need to talk to your DB2 administrator and have some SQL run to create databases and tables before having a fully functional environment. For more information on the DB2 requirements, you should look at the [\*\*z/OS DB2® configuration\*\*](#) presentation. If configuring a Network Deployment Cell, you need to federate the empty/stand-alone node into your network deployment cell and have the DB2 database and tables created. Depending on whether you decide to start with an empty node or a stand-alone node will determine the other post-configuration steps needed. If you are starting with an empty node, you will have to actually create a cluster or server in the environment before continuing configuration and configure the Service Component Architecture environment. If you are starting with a stand-alone node, you will have a server but you might need to configure CEI and the Business Process and Human Task containers. This depends on how much you allowed the zWPSConfig script to do for you. Some of the tasks that might be needed for the network deployment cell in either case are configuring the Business Process and Human Task containers and CEI.

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## Administrative console – after configuration

Application servers > sssr01a

Use this page to configure an application server. An application server is a server that provides services required to run enterprise applications.

Runtime Configuration

### General Properties

Name: sssr01a

Node Name: ssnodea

Short Name: sssr01a

Unique Id: C1C7AF62A09BA0AE000000FC00000008092A76E6

Run in 64 bit JVM mode

Run in development mode

Access to internal server classes: Allow

Server-specific Application Settings

ClassLoader policy: Multiple

Class loading mode: Parent first

### Container Settings

- [Session management](#)
- SIP Container Settings
- Web Container Settings
- Business Process Choreographer Container Settings
  - [Business Process Choreographer Containers](#)
- Portlet Container Settings
- EJB Container Settings
- Container Services
- Business Process Services

### Applications

- [Installed applications](#)

### Server messaging

- [Messaging engines](#)
- [Messaging engine inbound transports](#)
- [WebSphere MQ link inbound transports](#)
- [SIB service](#)

### Business Integration

- [Business Integration Configuration](#)
- [Service Component Architecture](#)
- Common Event Infrastructure
- Business Process Choreographer
  - [Business Flow Manager](#)
  - [Human Task Manager](#)
  - [Business Process Choreographer Explorer](#)
  - [Business Process Choreographer Event Collector](#)
  - [Business Process Choreographer Observer](#)
  - [People Assignment Service](#)
- Business Rules
  - Selectors
    - [WebSphere Business Integration Adapter Service](#)
    - [Application Scheduler](#)
    - [Extended Messaging Service](#)

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Looking at the administrative console after the configuration is complete; you should see some new containers for the business process choreographer. This allows you to configure both the Business Flow Manager and the Human Flow Task Manager. There is an entire new 'Business Integration' section as well, including sections to configure the application scheduler and business rules. This is only a subset of changes that you will see but it should give you an idea of the changes that were made.

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## New resources after configuration

### Buses

A service integration bus supports applications using message-based and service-oriented architectures of interconnected servers and clusters that have been added as members of the bus. Learn more about this task in a [guided activity](#). A guided activity provides a step-by-step procedure to complete a task.

Preferences

New Delete

**New buses**

Select	Name	Description
<input type="checkbox"/>	<a href="#">BPC.ssbased1.Bus</a>	Messaging bus for Process Choreographer
<input type="checkbox"/>	<a href="#">CommonEventInfrastructure.Bus</a>	CommonEventInfrastructure Bus
<input type="checkbox"/>	<a href="#">SCA.APPLICATION.ssbased1.Bus</a>	Messaging bus for Service
<input type="checkbox"/>	<a href="#">SCA.SYSTEM.ssbased1.Bus</a>	Messaging bus for Service

Total 4

### Data sources

Use this page to edit the configuration of a data source. Learn more about this task in a [guided activity](#). A guided activity provides a step-by-step procedure to complete a task.

Scope: =All scopes

Scope specifies the level at which the resource definition is visible. For details, see [Scope](#).

All scopes

Preferences

New Delete Test connection Manage state...

**Many databases defined**

Select	Name	JNDI name
<input type="checkbox"/>	<a href="#">BPEDataSourceDb2zOS</a>	jdbc/BPEDB
<input type="checkbox"/>	<a href="#">CEIME01_DataSource</a>	jdbc/CEIME01_DataSource
<input type="checkbox"/>	<a href="#">ESBLoggerMediationDataSource</a>	jdbc/mediation/messageLog
<input type="checkbox"/>	<a href="#">SCAAPPE01_DataSource</a>	jdbc/SCAAPPE01_DataSource
<input type="checkbox"/>	<a href="#">SCASYSME01_DataSource</a>	jdbc/SCASYSME01_DataSource
<input type="checkbox"/>	<a href="#">WPS_DataSource</a>	jdbc/WPSDB
<input type="checkbox"/>	<a href="#">ssnode1.ssr011-BPC.ssbased1.Bus</a>	jdbc/com.ibm.ws.sib/ssnode1.ssr011-BPC.ssbased1.Bus
<input type="checkbox"/>	<a href="#">event</a>	jdbc/cei
<input type="checkbox"/>	<a href="#">event_catalog</a>	jdbc/eventcatalog

Total 9

Simple configuration, very automated!

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You will also note that many new resources were defined for you. On the left, you see the service integration buses that were created for you and on the right you see some new data sources that are created during configuration. There are many databases needed to run WebSphere Enterprise Service Bus and WebSphere Process Server. Again, these are detailed in the [z/OS DB2® configuration](#) presentation.

## New applications...

**Enterprise Applications**

Use this page to manage installed applications. A single application can be deployed onto multiple servers.

Preferences

Start Stop Install Uninstall Update Rollout Update Remove File Export Export DDL

Select	Name	Application Status
<input type="checkbox"/>	<a href="#">AppScheduler</a>	→
<input type="checkbox"/>	<a href="#">BPCECollector_ssnode1_ssr011</a>	→
<input type="checkbox"/>	<a href="#">BPCEExplorer_ssnode1_ssr011</a>	→
<input type="checkbox"/>	<a href="#">BPCEObserver_ssnode1_ssr011</a>	→
<input type="checkbox"/>	<a href="#">BPCEContainer_ssnode1_ssr011</a>	→
<input type="checkbox"/>	<a href="#">RemoteAL</a>	→
<input type="checkbox"/>	<a href="#">TaskContainer_ssnode1_ssr011</a>	→
<input type="checkbox"/>	<a href="#">IvtApp</a>	→
<input type="checkbox"/>	<a href="#">persistentkMqr</a>	→
<input type="checkbox"/>	<a href="#">query</a>	→
<input type="checkbox"/>	<a href="#">sca.sib.mediation</a>	→
<input type="checkbox"/>	<a href="#">wpsFEMqr 6.1.0</a>	→

Total 12

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Finally, you will see many applications that were installed into your server. The applications include the business process choreographer explorer which allows you to start and stop business processes and claim human tasks. You also see the business process container, the business process observer, the human task container, an application for mediations and the failed event manager. Note that these were all deployed for you automatically during the augmentation.

## EJBROLE profiles for BPC, HTM & Explorer

### Profiles for Business Process Choreographer Explorer:

Roles	Default permission	Notes
BPESystemAdministrator	Group name entered during the installation.	Has access to all business processes and all operations.
BPESystemMonitor	All authenticated users.	Has access to read operations.
BPEAPIUser	All authenticated users.	Can access the Business Process Choreographer APIs
TaskSystemAdministrator	Group name entered during the installation.	Has access to all human tasks.
TaskSystemMonitor	All authenticated users.	Has access to read operations.
TaskAPIUser	All authenticated users.	Can access the Human Task APIs
WebClientUser	All authenticated users.	Can access the Business Process Choreographer Explorer.

### Active when “com.ibm.security.SAF.authorization= true”

```

/* Set up EJBROLEs Profile for BPE administrative roles and Permissions */
RDEFINE EJBROLE xx.BPESystemAdministrator UACC(NONE)
PERMIT xx.BPESystemAdministrator CLASS(EJBROLE) ID(xxADMIN) ACCESS(READ)
PERMIT xx.BPESystemAdministrator CLASS(EJBROLE) ID(xxCFG) ACCESS(READ)

```

Regardless of what type of cell you configure, there are some security roles that you need to set up if you configure the business process choreographer. These roles are shown here on the slide. The WebClientUser, TaskAPIUser and BPEAPIUser are important roles to even allow the Business Process Choreographer Explorer to be entered. Down below are some sample commands to set up the roles if you are using RACF®. BPESystemAdministrator is shown but the other roles are similar.

## RunAs roles for business processes

RunAs roles associated with business processes

- `<domain>.JMSAPIUser`
  - Used by the Business Flow Manager JMS API MDB in `bpecontainer.ear`.
- `<domain>.EscalationUser`
  - Used by the `task.ear` MDB.

```
RDEFINE EJBROLE JMSApiUser UACC(NONE) APPLDATA(xxADMIN)
RDEFINE EJBROLE EscalationUser UACC(NONE) APPLDATA(xxADMIN)
```

**Also see 'Security in human tasks and business processes' in the information center**

Also necessary for the business process choreographer are some RunAs roles. These are used for the JMS API within the business flow manager and the human task container for escalations. In order to create a RunAs role, you need to specify a user ID on the APPLDATA keyword for the EJBROLE. An example is shown on the slide.

## EJBROLE profiles for CEI Security

<code>&lt;domain&gt;.eventAdministrator</code>	Event consumers that need to query, update, and delete events stored in the event database.
<code>&lt;domain&gt;.eventConsumer</code>	Event consumers that need to query events stored in the event database.
<code>&lt;domain&gt;.eventUpdater</code>	Event consumers that need to update events stored in the event database.
<code>&lt;domain&gt;.eventCreator</code>	Event sources that need to submit events to an emitter using synchronous EJB calls.
<code>&lt;domain&gt;.catalogAdministrator</code>	Event catalog applications that need to create, update, delete, or retrieve event definitions in the event catalog. This role provides access to all methods of the EventCatalog interface and all functions of the eventcatalog.jacl script.
<code>&lt;domain&gt;.catalogReader</code>	Event catalog applications that need to retrieve event definitions from the event catalog.

There are also some roles needed if the common event infrastructure is being used. These roles are shown on the slide with explanations of what they are meant to allow. The same command syntax is used as seen for the business process choreographer.

## Summary

- WebSphere Process Server for z/OS V6.1 and WebSphere Enterprise Service Bus for z/OS V6.1 built on top of WebSphere for z/OS V6.1
- WebSphere Process Server for z/OS V6.1 and WebSphere Enterprise Service Bus for z/OS V6.1 configuration in all environments has common tasks
  - ▶ Stand-alone environment can be highly automated
  - ▶ Network deployment environment has additional tasks

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In summary, the WebSphere Process Server or WebSphere Enterprise Service Bus products are configured on top of WebSphere V6.1 which is where they get most of their pre-reqs from. DB2 becomes a mandatory pre-req when configuring in a network deployment environment.

The configuration of a stand-alone application server with WebSphere Process Server for z/OS or WebSphere Enterprise Service Bus for z/OS is highly automated, particularly if you use Derby as a starting point. This presentation looked at the configuration of all environments at a high-level. Each configuration has common tasks as seen here. To get a more detailed description of the various configurations, additional presentations are available.



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