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WebSphere® Process Server for z/OS® V6.0.2 WebSphere Enterprise Service Bus for z/OS V6.0.2

Simple configuration



@business on demand.

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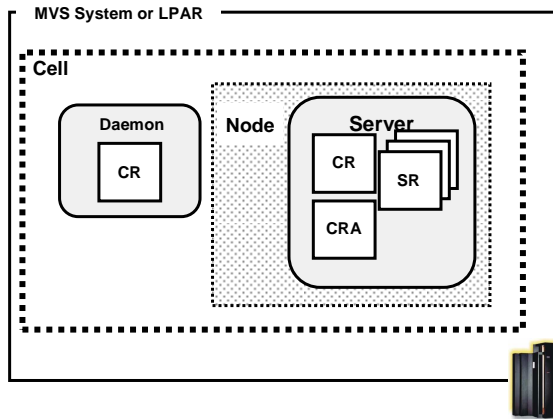
This presentation will look at a simple configuration of a stand-alone application server to enable WebSphere Process Server for z/OS V6.0.2 or WebSphere Enterprise Service Bus for z/OS V6.0.2 function. It is recommended that you look at the installation and configuration overview presentation as a prerequisite to this one.

Goals

- Describe WebSphere Process Server for z/OS V6.0.2 and WebSphere Enterprise Service Bus V6.0.2 configuration process using a simple configuration scenario

The goal of this presentation is to take you through the necessary steps to complete the configuration of WebSphere Process Server for z/OS and WebSphere Enterprise Service Bus for z/OS in a simple configuration scenario involving a stand-alone WebSphere environment.

Configure a stand-alone application server



- Start with a configured stand-alone application server
- Configure it with WebSphere Process Server or WebSphere Enterprise Service Bus

```

d:\cell
├─ AppServerNode1
├─ CL1BASE1.CL1BASE1.CL1DEMN
├─ CL1BASE1.CL1NODE1.CL1SR01
├─ CL1BASE1.CL1NODE1.CL1SR01.HOME
└─ Daemon
  
```

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This slide shows an already-configured stand-alone application server. This presentation begins with that server as the base and explains how to configure it to include the WebSphere Process Server or WebSphere Enterprise Service Bus function. Note that if you have the WebSphere Process Server for z/OS V6.0.2 product, you can configure the server with either WebSphere Process Server, which includes the WebSphere Enterprise Service Bus function or WebSphere Enterprise Service Bus only. If you have the WebSphere Enterprise Service Bus for z/OS V6.0.2 product, your only option is to configure the server with WebSphere Enterprise Service Bus function.

Configure stand-alone – ‘install’

```
<WPS_SMP_ROOT>/zos.config/bin/zSMPInstall.sh
  -smproot <WPS_SMP_ROOT>
  -runtime <WAS_HOME>
  -install
```



Back up
HFS
first!!!!

- Will perform **-prereqonly** for you
- Run as '*WSADMIN*'
- 'install' creates links to product code, adds plug-ins to the administrative console for new functions
- Runs applyPTF as well

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The first thing you need to do for the configuration is run the zSMPInstall.sh script in order to create symlinks in your WebSphere Application Server configuration to the WebSphere Process Server or WebSphere Enterprise Service Bus product code. This is really a task for the system administrator, since it is somewhat of an extension of the SMP/E install. You should use a WebSphere Administrator user ID to run the script. The zSMPInstall.sh script will also add plug-ins to the administrative console for new functions needed for the WebSphere Process Server or WebSphere Enterprise Service Bus. You need to specify the SMP/E root where you installed the WebSphere Process Server or WebSphere Enterprise Service Bus product code and the WAS_HOME for the WebSphere Application Server profile you are updating. The script will perform the prerequisite only function for you automatically to ensure that any prerequisites are met. Note that before running the script, you should backup your WebSphere Application Server configuration HFS first. The zSMPInstall script can be run from a telnet session or OMVS. You may find you need to increase some OMVS parameters such as MAXFILEPROC, MAXPROCUSER or MAXCPUPTIME when running the shell script this way. For example, you may need to specify: SETOMVS MAXCPUPTIME=86400

Configure stand-alone – ‘install’ JCL

```

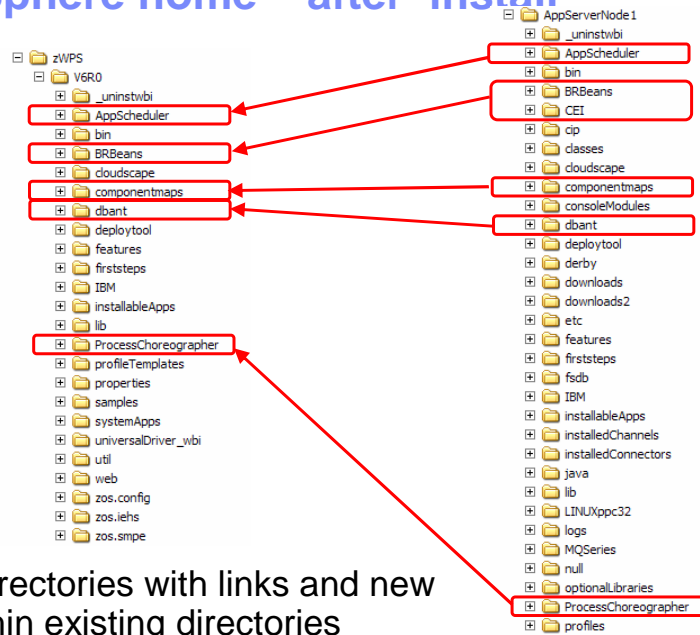
//INSTONLY JOB (ACCTNO,ROOM),'HONKEN',CLASS=A,REGION=0M,
// NOTIFY=&SYSUID,TIME=NOLIMIT
//*
//*****
//* zSMPInstall.sh R_*/
//*****
//INSTO EXEC PGM=IKJEFT01,REGION=0M
//SYSTSPRT DD SYSOUT=*
//SYSTSIN DD *
BPXBATCH SH +
/etc/WAS60B/usr/lpp/zWPS/V6R0/zos.config/+
/bin/zSMPInstall.sh +
-smproot /etc/WAS60B/usr/lpp/zWPS/V6R0 +
-runtime /etc/cllicell/AppServerNode1 +
-install +
1> /tmp/installonly_84821.out +
2> /tmp/installonly_84821.err
/*
//*****
//* STEP Copy - Copy script output back to joblog *
//*****
//MCFGD EXEC PGM=IKJEFT01,REGION=0M
//SYSEXC DD DISP=SHR,DSN=WAS60A.SBBOEXEC
//SYSTSIN DD *
BBOHFSWR '/tmp/installonly_84821.out'
BBOHFSWR '/tmp/installonly_84821.err'
//SYSTSPRT DD SYSOUT=*
//

```

- Can run the job from JCL as well

The zSMPInstall.sh script can also be run from JCL. This slide shows an example of running the shell script from JCL.

WebSphere home – after 'install'

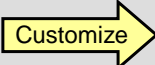


After running the zSMPIInstall.sh script, the WebSphere Application Server configuration is updated with new directories with links to the WebSphere Process Server or WebSphere Enterprise Service Bus product files, and with new links within existing directories.

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Configure stand-alone – create databases

<WAS_HOME>/dbscripts/* DB2® only



Customize

```
CommonDB/DB2/createCommonDb2Zos.sql
CEI/DB2/createCeiDb2Zos.sql
EsbLoggerMediation/DB2/createEsbDb2Zos.sql
ProcessChoreographer/DB2/createBpcDb2Zos.sql
```

- Can use DBUtility.sh script:
 - cd <WAS_HOME>/bin
 - for example, cd /WebSphere/V6R0M0/AppServer/bin
 - export LIBPATH=/db2810/jcc/lib:\$LIBPATH
 - ./DBUtility.sh createTable


```
-DsqlScriptPath.default=/u/wpswork/createCommonDb2Zos.sql
-DdbType=DB2UDBOS390_V8_1 -DdbName=xxxxxV2
-DprofilePath=<WAS_HOME> -DdbJDBCProperties=/etc/db2cfg
-DdbConnectionLocation=MVS215D1
-DdbJDBCClasspath=/usr/lpp/db2810/jcc/classes
-DdbUserId=db2d -DdbPassword=fr1day
-DdbDelayConfig=false -DdbCreateNew=false
>/tmp/DBUtility.output 2>/tmp/DBUtility.err
```

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If you plan on using DB2 in your configuration, you should create the necessary databases and storage groups at this point. .sql to do this is provided in the dbscripts directory as shown on the slide. Note that these files are all in ASCII and need to be customized so you will need to use an editor that is able to edit ASCII files or convert them to EBCDIC before editing. This shows an example of using the DBUtility.sh script in order to create the DB2 databases and storage groups. The createTable parameter tells the utility to run the sql or ddl file you specify in the sqlScriptPath.default parameter; the contents of the file don't necessarily have anything to do with creating tables. Note that the dbName parameter can be anything here. It is merely used as a directory name where the sql or ddl is copied before it is run. If EBCDIC ddl is specified, it will be converted to ASCII before running.

If you plan on using Cloudscape™ databases, the configuration script will create those for you and you need to do nothing at this step.

Configure stand-alone – create databases

- Alternatively:

Recommended!

- ▶ <http://www.ibm.com/support/techdocs/atsmastr.Nsf/webindex/PRS2520>

- Contains V6.0.2 SQL and DDL sample using one database/storage group/schema

- XXCell.sql or XXCell.ddl

- Defines database/storage group
 - <Xx> needs to be globally replaced with a two-letter cell identifier
 - Assumes one database and storage group will be used for all tables



Alternatively, techdoc PRS2520, found at the URL shown on the slide, contains sample SQL or DDL that can be used instead to create the DB2 database and storage group needed. The SQL/DDDL found in the techdoc assumes the use of one database and storage group for all the tables needed for WebSphere Process Server or WebSphere Enterprise Service Bus. The XXCell.sql or XXCell.ddl file needs to be customized for your installation but they are set up for global replacement making it very easy to customize.

Configure stand-alone - update response file

- Samples found in <WPS_SMP_ROOT>zos.config directory: **standAloneProfile<DB2>.rsp**
 - Copy it to a place where it can be modified
 - Person running the zWPSConfig.sh or zWESBConfig.sh script needs to have 'R' access
- Global Properties (if DB2):

```
JMSUSER=ibmuser → ceiSampleJmsUser=$JMSUSER
JMSPASS=ibmuser
DBUSER=wsadmin
DBPASS=wsadmin
CONFIGSERVER=sssr011
DBLOCATION=MVS215D1
```

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To prepare for running the configuration script, you will need to update one of the response file samples that are shipped with the product. The samples can be found in the zos.config directory in the SMP/E-installed HFS directory path. Since it is a read-only file system, you will need to copy it to a place where it can be modified. Make sure that the user ID that you will use to run the zWPSConfig.sh script or zWESBConfig.sh script has at least read-access to the file. There are two samples shipped for the Stand-alone configuration: standAloneProfile.rsp and standAloneProfileDB2.rsp. Select the correct one based on whether you plan to use DB2 or Cloudscape for your databases.

The first set of parameters you need to set in the response file are ones that can be used later in variable substitutions as shown in the yellow box. This allows you to specify parameters once, making it easier to override on the command line and cutting down on typographical errors. The user IDs and passwords that you are asked to supply will be used to create authentication aliases to protect various resources that are created for you. You are able to change their values in the administrative console at a later time if needed. Note that the DBLOCATION needs to be the location name, not the subsystem name.

Stand-alone response file – common properties

```
augment
profileName=default
profilePath=/etc/sscell/AppServerNode1/profiles/default
templatePath=/etc/sscell/AppServerNode1/profileTemplates/default.*
cellName=ssbase1
nodeName=ssnode1
serverName=sssr01
```

Long names!!

- Basic information
- Leave templatePath set to 'default.*'

```
/WebSphere/V6R0M0/AppServer/profileTemplates/default.wbicore
/WebSphere/V6R0M0/AppServer/profileTemplates/default.bfm
/WebSphere/V6R0M0/AppServer/profileTemplates/default.wbiserver
```

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The next set of values you are asked to specify in both cases are some common properties such as cellName, nodeName and serverName. It is important to note that if you set up your cell such that you have different names for the long names and short names, you must specify the long name. On z/OS, the profileName will always be 'default' so that should not be changed. You need to change the path parameters to include your configuration HFS path, being careful to leave the non-highlighted part alone. On the templatePath parameter, this value determines which actions are performed during the profile augmentation portion of the install. It should be left 'as-is' with the wildcard unless you have a good reason to change it. One reason might be that the job is timing out so it does not finish. For that reason, you might specify one value shown here at a time and run the job multiple times. The values shown here are valid for the WebSphere Process Server product. The values for the WebSphere Enterprise Service Bus product are different and can be found in the response file. If you leave the wildcard, all three actions will be performed for you.

Stand-alone response file – WebSphere Business Integration core properties

```

CEI {
  ceiSampleJmsUser=$JMSUSER
  ceiSampleJmsPwd=$JMSPASS
  ceiSampleServerName=$CONFIGSERVER
  ceiDbProduct=DB2UDBOS390_V8_1
  ceidbHome=/db2810/jcc
  ceiDbUser=$DBUSER
  ceiDbPwd=$DBPASS
  ceiDbStorageGroup=SSEVTSTO
}
SCA {
  configureScaSecurity=true
  scaSecurityUserId=$JMSUSER
  scaSecurityPassword=$JMSPASS
}
ESB {
  esbDbProduct=DB2UDBOS390_V8_1
  esbDbName=SSESDB
  esbDbStorageGroup=SSESBSTO
  esbDbSqlId=ESBLOG
}
  
```

Will not configure CEI
If ceiSampleJmsUser,
ceiSampleJmsPwd, and
ceiSampleServer not
specified

Note DBNames and
STOGroups need to
match what was used
on creation

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The next set of parameters deal with the configuration of the WebSphere Business Integration Core functions. Common event infrastructure will not be configured if you do not specify the ceiSample JMS User, JMS password and server parameters. Recall that CEI is an optional function. For the service component architecture function it will create an authentication alias to protect the system integration buses that are created if you set the configureSCASecurity parameter to 'true'. Finally, you are asked some information for the enterprise service bus setup having to do with the databases that are required. The names specified here must match what you created earlier when you ran the sql or ddl to create the database or databases.

Stand-alone response file – Business process choreographer properties

Business flow manager configuration (optional)

```
bpcmUser=$JMSUSER
bpcmPwd=$JMSPASS
bpcAdminGroups=$JMSUSER
```

Other values
not shown

- If specified, will create a sample business process choreographer configuration which includes a business process database. Also:
 - Business process container
 - BPEContainer_<node>_<server> application
 - BPC.<cell>.Bus Service Integration Bus
 - Human task container
 - TaskContainer_<node>_<server> application
 - Business process choreographer explorer
 - BPCEXplorer_<node>_<server> application

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This slide shows a subset of the business flow manager configuration parameters. The business flow manager is not part of the WebSphere Enterprise Service Bus configuration. It is available only when configuring WebSphere Process Server. The business flow manager includes both the business process choreographer and the human task manager. In order for these functions to be configured at this time, you must specify the values shown here on the slide. If they are not specified, a sample configuration is not created at this time. It is possible to create a sample configuration later using .jacl scripts or the installation wizards in the administrative console. You can find a sample of running the .jacl script or using the administrative console install wizard in the NetworkDeploymentConfiguration presentation.

The sample configuration that is created includes the Business Process Container, the Human Task Container and the Business Process Choreographer Explorer. This includes a few applications and a Service Integration Bus as shown on the slide.

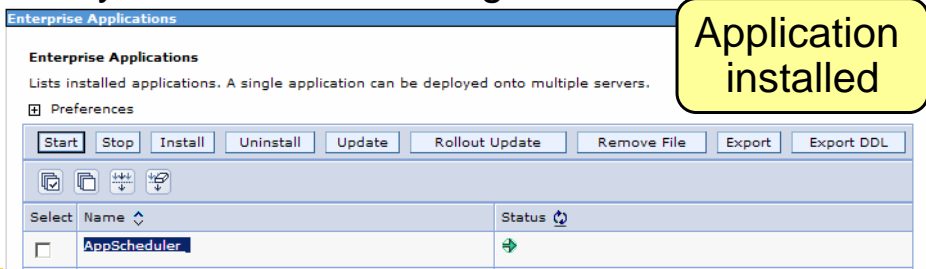
Here, 'optional' refers to whether you actually configure the Business Flow Manager at this time. The components needed will still be installed when you run the configuration but you will have to configure them at a later time. It is recommended that you configure the sample at this time, however. Later on, when you get an idea of how you will be using it, you can use the .jacl scripts to update the configuration more to your liking.

Stand-alone response file – WebSphere Business Integration server properties

Application scheduler configuration (optional)

```
configureAppScheduler=true  
appSchedulerServer=$CONFIGSERVER
```

- Allows you to schedule the starting and stopping of applications that are installed on WebSphere Process Server
- May choose to not configure it



The screenshot shows the 'Enterprise Applications' page in the WebSphere Administrative Console. The page title is 'Enterprise Applications' and it lists installed applications. A table below the title shows the 'AppScheduler' application with a green status icon. A yellow callout box with the text 'Application installed' is overlaid on the table. The page footer includes 'Simple configuration' and '© 2007 IBM Corporation'.

The application scheduler configuration is optional. By configuring the application scheduler, the administrator will have the ability to schedule the starting and stopping of applications that are installed on the WebSphere Process Server using the administrative console. When configured, a new application will be installed into your server.

Stand-alone response file – database

WPRCSDB database configuration

```
dbName=SSWPSDB
dbType=DB2UDBOS390_V8_1
dbUserId=$DBUSER
dbPassword=$DBPASS
dbStorageGroup=SSWPSSTO
dbHostName=localhost
dbServerPort=446
dbConnectionLocation=$DBLOCATION
dbJDBCClasspath=/db2810/jcc/classes
dbJDBCProperties=/db2810/jcc/properties
dbCreateNew=false
dbDelayConfig=false
```

For Type 4

dbCreateNew – create Databases
dbDelayConfig – configure Databases

- dbJDBCProperties file must point to DB2JccConfiguration.properties if specified

This slide shows some values you must specify for the common database configuration in order to create JDBC resources, authentication aliases and the .sql needed to configure the tables that are used. This database is needed for both the WebSphere process server and the WebSphere Enterprise Service Bus. Shown here are values from the DB2 response file; the Cloudscape version has just a subset of these parameters. Again, it's important that the database name and storage group parameters match what you specified when you created the database. The dbCreateNew parameter determines whether the database itself is created during augmentation. For the DB2 version, this must be false but for Cloudscape, this should be true. The dbDelayConfig parameter determines whether the SQL to configure the database is run during the augmentation phase. Setting this to 'false' allows the configuration to be fully automated. If this parameter is set to 'true', you will need to manually run the SQL that is generated in order to configure the databases. The ServerPort parameter is used for a Type 4 definition only and finally, if you need to specify a JDBC properties file (dbJDBCProperties), it must be called DB2JccConfiguration.properties.

Configure stand-alone – ‘augment’

```
export LIBPATH=/db2810/jcc/lib:$LIBPATH
<WAS_HOME>/bin/zWPSConfig.sh
    -response standAloneProfile<DB2>.rsp
    -augment
```

- ‘augment’ will create resources and install applications needed to run the WebSphere Process Server or WebSphere Enterprise Service Bus
- Needs to be run from the <WAS_HOME>/bin directory as ‘*WSADMIN*’
- Need to export LIBPATH first if using DB2 and dbDelayConfig=false

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Now that you have completed the update of the response file, you are ready to run the augment job. If using DB2 and you set dbDelayConfig to ‘false’ in order to configure the databases automatically, you will need to export your LIBPATH statement first. The zWPSConfig.sh script, found in the bin directory of your WAS_HOME is used for the augment. You should again run the script from a WebSphere administrator user ID. The only parameter you need to specify other than ‘augment’, which takes no value, is the ‘response’ parameter to indicate where the updated copy of the sample response file can be found.

Configure stand-alone – ‘augment’

- Keep in mind that configuring WebSphere Process Server will also configure ESB
- To configure an ESB-only server use:
 - zWESBConfig.sh

```
<WAS_HOME>/bin/zWESBConfig.sh  
-response standAloneProfile<DB2>.rsp  
-augment
```

Recall that when you configure WebSphere Process Server, you automatically configure the WebSphere Enterprise Service Bus since that is included as part of the WebSphere Process Server Product. It is also possible to configure only the WebSphere Enterprise Service Bus. The command to do that, zWESBConfig.sh, is shown here. This would be the only available option if you have the WebSphere Enterprise Service Bus for z/OS V6.0.2 product.

Configure stand-alone – ‘augment’ JCL

```

//AUGMENT JOB (ACCTNO,ROOM),'HONKEN',CLASS=A,REGION=0M,
// NOTIFY=8SYSUID,TIME=NOLIMIT
//*****
//* zWPSConfig.sh
//*****
//AUGMT EXEC PGM=IKJEFT01,REGION=0M
//SYSTSPT DD SYSOUT=*
//SYSTSIN DD *
BPXBATCH SH +
cd /etc/clicell
/AppServerNode1
/bin; +
  export LIBPATH=/usr/lpp/db2810/jcc/lib:$LIBPATH; +
  ./zWPSConfig.sh +
  -response /u/wsuser/standAloneProfileDB2.rsp +
  -augment +
  1> /tmp/zWPSConfig_40135.out +
  2> /tmp/zWPSConfig_40135.err
/*
//*****
//* STEP Copy - Copy script output back to joblog
//*****
//MCFGC EXEC PGM=IKJEFT01,REGION=0M
//SYSEXEC DD DISP=SHR,DSN=WAS60A.SBBOEXEC
//SYSTSIN DD *
  BBOHFSWR '/tmp/zWPSConfig_40135.out'
  BBOHFSWR '/tmp/zWPSConfig_40135.err'

```

- Note the ‘export’ in the JCL

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Again, here is an example of running the augment function using JCL. Do not forget to export the native Java common client LIBPATH if dbDelayConfig is set to ‘false’.

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Administrative console – After configuration

Application servers > cl1sr01
 An application server is a server which provides services required to run enterprise applications.

Runtime | Configuration

General Properties

Name: cl1sr01

* short Name: CL1SR01

Unique Id: BE72A004098E767C000000B40000005092A76E8

Run in development mode

Server-specific Application Settings

ClassLoader policy: Multiple

Class loading mode: Parent first

Apply OK Reset Cancel

Container Settings

- Web Container Settings
- EJB Container Settings
- Business process container settings
- Human task container settings
- Container Services
- Business Process Services

Business Integration

- Advanced Configuration
- Application Scheduler
- Events service
- Extended Messaging Service
- Business rules
- Selectors
- Staff service
- WebSphere Business Integration Adapter Service

New containers

Business Integration configuration

Business Integration

Additional Properties

- Endpoint Listeners
- Debugging Service
- Thread Pools
- Web Server plug-in properties
- z/OS location service

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Looking at the administrative console after the configuration is complete; you should see some new containers for business processes and human tasks. 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. A bus is a group of interconnected servers and clusters that have been added as members of the bus. Applications connect to a bus at one of its bus members.

Preferences

New Delete

New buses

| Select | Name | Description |
|--------------------------|-------------------------------|-------------|
| <input type="checkbox"/> | BPC.clibase1.Bus | Message |
| <input type="checkbox"/> | CommonEventInfrastructure.Bus | Comm |
| <input type="checkbox"/> | SCA.APPLICATION.clibase1.Bus | Message |
| <input type="checkbox"/> | SCA.SYSTEM.clibase1.Bus | Message |

Total 4

Simple configuration, very automated!

JDBC providers

JDBC providers are used by the installed applications to access data from databases.

Scope: Cell=clibase1, Node=clinode1

Cell : clibase1
 Node : clinode1
 Server : cl1sr01

Many databases defined

Apply

Preferences

New Delete

| Select | Name | Description |
|--------------------------|---------------------------------|---|
| <input type="checkbox"/> | Cloudscape JDBC Provider | Cloudscape JDBC Provider for customization repository |
| <input type="checkbox"/> | WPSDefaultDatasource.Cloudscape | WPSCloudscape Driver |

Total 2

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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 a new JDBC provider. If you were to drill down, you will find JDBC resources defined for the various functions included in the product.

New applications...

Enterprise Applications

Lists 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 | Status |
|--------------------------|--|--------|
| <input type="checkbox"/> | BPCEXplorer_clinode1_clisr01 | → |
| <input type="checkbox"/> | BPFCOntainer_clinode1_clisr01 | → |
| <input type="checkbox"/> | DefaultApplication | → |
| <input type="checkbox"/> | ESBSamplesGallery | → |
| <input type="checkbox"/> | EventServer | → |
| <input type="checkbox"/> | EventServerMdb | → |
| <input type="checkbox"/> | TaskContainer_clinode1_clisr01 | → |
| <input type="checkbox"/> | jvtApp | → |
| <input type="checkbox"/> | query | → |
| <input type="checkbox"/> | sca.sib.mediation | → |
| <input type="checkbox"/> | wpsFEMgr | → |

Total 11

Many new applications installed

Finally, you will see many applications that were installed into your server. At the top, you see the business process choreographer explorer which allows you to start and stop business processes and claim human tasks. Below that, you see the business process container, a couple of applications for the common event Infrastructure, the human task container, an application for mediations and finally the failed event manager. Note that this was all done for you automatically during the augmentation. The stand-alone server configuration can be highly automated. Another presentation is available that talks about the configuration in a network deployment cell which has more manual steps. The simple configuration using a stand-alone server is a good place to start as an introduction to the world of business integration.

Summary

- WebSphere Process Server for z/OS V6.0.2 and WebSphere Enterprise Service Bus for z/OS V6.0.2 are easily configured in a simple configuration
 - ▶ Uses Cloudscape or DB2
 - ▶ Highly automated

In summary, 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. This presentation went through the steps involved and how you can easily configure a Stand-Alone Application server for use with these products using a DB2 or Cloudscape database. For a more complicated configuration, see the Network Deployment Configuration presentation.

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Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. All customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. The actual throughput or performance that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput or performance improvements equivalent to the ratios stated here.

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