



IBM Software Group

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

### *z/OS Network Deployment configuration - Part 1 Configuration*



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This presentation will look at the configuration of a Network Deployment cell to enable WebSphere Process Server for z/OS V6.1 or WebSphere Enterprise Service Bus for z/OS V6.1 function in its servers or clusters. You should look at the **z/OS installation and configuration overview** and the **z/OS DB2® configuration** presentations as prerequisites to this one.

## Goals

- Describe WebSphere Process Server for z/OS V6.1 and WebSphere Enterprise Service Bus for z/OS V6.1 configuration process using a Network Deployment 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 V6.1 and WebSphere Enterprise Service Bus for z/OS V6.1 in a Network Deployment environment.

## Configure Network Deployment environment

- The Network Deployment configuration supports a DB2 for z/OS database only
- Need to 'configure' the deployment manager node and an empty node or stand-alone node before federation (that is, do not run BBOWMNAN)
  - ▶ Cloning is available once server is configured as needed
- Response files:
  - ▶ **DmgrDB2.rsp**
  - ▶ **ManagedDB2.rsp**
  - ▶ **standAloneProfileDB2.rsp**

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z/OS Network Deployment configuration

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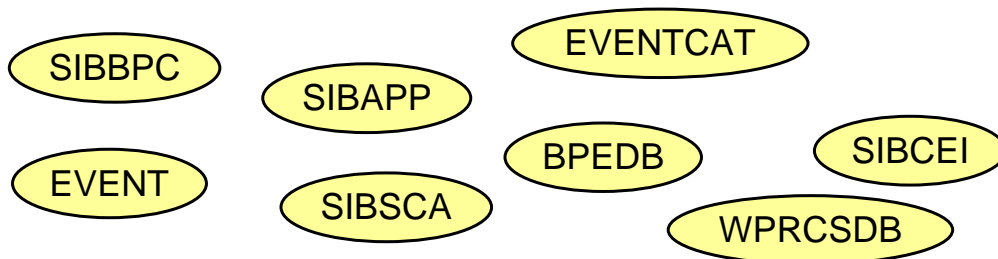
To configure WebSphere Process Server for z/OS V6.1 or WebSphere Enterprise Service Bus for z/OS V6.1 in a Network Deployment environment, DB2 for z/OS is a requirement. Derby is not supported in this environment. In order to configure the products in this environment, you will see that you will first 'configure' the deployment manager node and then 'configure' an empty node before federating it. In other words, you will create an empty node but not run the BBOWMNAN job until you have run the WebSphere Process Server or WebSphere Enterprise Service Bus configuration scripts against the empty node. You will create a server in this node as a manual process.

You are also able to configure a stand-alone profile with WebSphere Process Server or WebSphere Enterprise Service Bus and then federate that into the Network Deployment cell. Again, the deployment manager node needs to be configured for either WebSphere Process Server or WebSphere Enterprise Service Bus before the federation of the stand-alone profile. As you will see later, this approach has some limitations and drawbacks when it comes to resource naming.

There are two new response files to support this environment. The DmgrDB2 response file is used to run the configuration script against the deployment manager node while the ManagedDB2 response file is used to run the configuration script against the empty node. The standAloneProfileDB2.rsp can be used if you decide to federate a stand-alone node.

## Planning for DB2

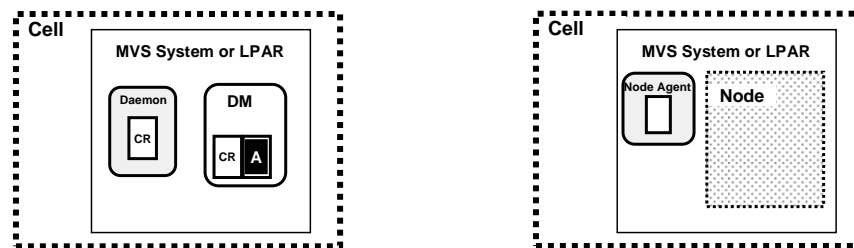
- Review the **z/OS DB2 configuration** presentation
- Determine naming conventions
- Talk to your DB2 administrator
  - ▶ Optionally, run createdB sample script so SQL can be run while WebSphere Process Server or WebSphere Enterprise Service Bus is configured



As noted on the previous slide, the Network Deployment environment requires DB2. Before going any further in the configuration of WebSphere Process Server or WebSphere Enterprise Service Bus, stop to do some planning. You will soon need to know the database and schema names that will be used. Review the **z/OS DB2 configuration presentation** and talk to your DB2 administrator about the DB2 artifacts that are needed. If you decide to use the createdB sample script to create SQL for the databases, you can run that at this point and get your DB2 database configuration underway early.

## Configure Network Deployment environment

1. Configure deployment manager node for WebSphere Process Server or WebSphere Enterprise Service Bus
2. Configure empty node or stand-alone node for WebSphere Process Server or WebSphere Enterprise Service Bus
3. Federate empty node or stand-alone node
4. Perform post-configuration tasks



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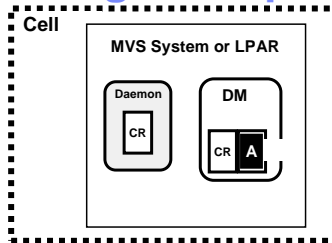
The configuration of WebSphere Process Server for z/OS or WebSphere Enterprise Service Bus for z/OS in a Network Deployment environment can be thought of as a four step process. You will run the configuration shell scripts against the deployment manager node first. This sets the deployment manager up to be able to manage a WebSphere Process Server or Enterprise Service Bus environment. You will then configure an empty node or stand-alone node to be able to host servers that have the WebSphere Process Server or Enterprise Service Bus function. Next you will federate the empty node or stand-alone node into the Network Deployment cell. Finally you will perform any necessary post-configuration tasks such as configuring DB2 databases; these tasks are detailed in Part 2 of this topic. The starting point for the empty node is shown in the graphic. You have a deployment manager cell and an empty node already configured for WebSphere but you have not yet federated the empty node into the deployment manager cell.

## Section

# ***Configure Network Deployment environment***

The first step is configuring the Network Deployment environment.

## Configure deployment manager node



### 1. Run zSMPIInstall.sh

```
<wps_smpe_root>/zos.config/bin/zSMPIInstall.sh
```

```
-smproot <wps_smpe_root>
-runtime <app_server_root>
-install
```

Back up file  
system first!!!!

- -runtime should point to deployment manager configuration
  - /WebSphere/V6R1/DeploymentManager

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Starting with the deployment manager node, you need to run the zSMPIInstall.sh script, pointing the runtime to the deployment manager configuration HFS as shown on the slide. This will create symlinks in your WebSphere Application Server Deployment Manager configuration to the WebSphere Process Server or WebSphere Enterprise Service Bus product code. This is a task for the system administrator, since it is somewhat of an extension of the SMP/E installation. You should use a WebSphere Administrator user ID to run the script. The zSMPIInstall.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.

## Configure deployment manager node....

### 2. Copy **DmgrDB2.rsp** and modify it

- Found in <wps\_smpe\_root>/zos.config directory
- Same basic fields as StandaloneDB2.rsp but no need for CEI or Business Process Choreographer here

### Global Properties

```
JMSUSER=ibmuser      adminUserName=$JMSUSER
JMSPASS=ibmuser
CONFIGSERVER=xxsr011
DBPRODUCT=DB2UDBOS390_V8_1
DBLOCATION=MVS215D1
...
```



To prepare for running the configuration script, you will need to update the DmgrDB2 response file sample that is shipped with the product. It 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 need to copy it to a place where it can be modified. Make sure that the user ID that you use to run the zWPSConfig script or zWESBConfig script has at least read-access to the file.

The DmgrDB2 response file has the same basic fields as the StandaloneDB2 response file but note that there is no need for CEI and business process choreographer information here. Those functions need a server host and at this point, there is none. You will need to provide information on the Common Database (WPRCSDB) however.

The first set of parameters you need to set in the response file are ones that will 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 typing 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.



## DmgrDB2 response file – Common properties

```
augment
profileName=default
profilePath=/etc/xxcell/DeploymentManager/profiles/default
templatePath=/etc/xxcell/DeploymentManager/profileTemplates/dmgr.wbiserver
cellName=xxcell
nodeName=xxdmnode
serverName=$CONFIGSERVER
```

Long names!!

- Leave templatePath set to 'dmgr.wbiserver'

```
/WebSphere/V6R1/DeploymentManager/profileTemplates/dmgr.wbicore
/WebSphere/V6R1/DeploymentManager/profileTemplates/dmgr.bfm
/WebSphere/V6R1/DeploymentManager/profileTemplates/dmgr.wbiserver
/WebSphere/V6R1/DeploymentManager/profileTemplates/dmgr.*
```

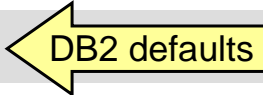
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The next set of values you are asked to specify are some common properties such as cellName, nodeName and serverName. It is important to note that if you set up your cell such that you have different names for the long names and short names, you must 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 installation. It should be left 'as-is' with wbiserver specified 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 at a time and run the job multiple times. In that case, you need to start with the wbicore template and move down the list shown. Each value specified will perform the augment actions for that template plus the augment actions for any pre-requisite templates. This means that the wbiserver value will perform the augment actions for everything. The asterisk value will also perform the augment actions for everything but the output log will get overwritten for each of the values and you are left with only the log from the last template augmentation. By leaving the default as wbiserver, the augmentation actions are performed for all three templates and the output is put in one log. 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.

## DmgrDB2 response file – database

- Database configuration parameters

```
dbCreateNew=false  
dbDelayConfig=true
```



DB2 defaults

- dbCreateNew – always false for DB2

- Determines whether databases will be created during augmentation

- ▶ dbDelayConfig – defaults to true

- Determines whether databases are configured during augmentation
- If set to 'false', the tailored SQL will be run during augmentation
  - Must have authority to run the SQL
  - Databases must already exist!

As you saw earlier, many databases and tables are required to run WebSphere Process Server or WebSphere Enterprise Service Bus. The two parameters shown here, dbCreateNew and dbDelayConfig, determine what configuration is done during the augmentation step. The dbCreateNew parameter determines whether the specified databases are created during augmentation. It must be set to 'false' when configuring with DB2. If you are configuring your system to use DB2, the databases **MUST** be created manually. The augmentation will never create them for you.

The second parameter, dbDelayConfig, determines whether the tailored SQL is run during augmentation or whether it will be run manually after augmentation. The default value for DB2 is 'true' which implies that you will need to run the tailored SQL at a later time. You do have the option of running the SQL during augmentation if you set this parameter to 'false' but if set to 'false', you **MUST** have the required databases already created. You also must have the authority to create tables and indexes for them.

## Configure deployment manager node...

### 3. Run zWPSConfig.sh

```
export LIBPATH=/db2810/jcc/lib:$LIBPATH
<app_server_root>/bin/zWPSConfig.sh
    -response DmgrDB2.rsp
    -augment
```

- 'export' needed only if 'dbDelayConfig=false'



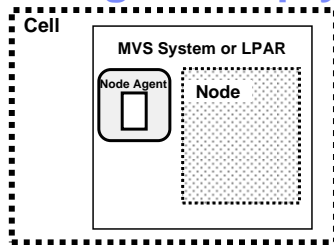
Once the response file is updated, you will run the zWPSConfig.sh or zWESBConfig.sh script against the deployment manager node. If you plan to have the augmentation configure the databases for you, meaning that you have set dbDelayConfig=false in the response file, you will need to export your JCC LIBPATH as shown.

## Section

# ***Configure empty node or stand-alone node***

The next step in the process is configuration of the empty or stand-alone node.

## Configure empty or stand-alone node



### 1. Run zSMPInstall.sh

```
<wps_smpe_root>/zos.config/bin/zSMPInstall.sh
```

```
-smproot <wps_smpe_root>
```

```
-runtime <app_server_root>
```

```
-install
```

- -runtime should point to empty node configuration

- ▶ -runtime=/WebSphere/V6R0M0/**AppServer**

After completing the deployment manager node configuration, move your attention to the empty node that you have configured. Remember, you should not have run the BBOWMNAN job yet to federate it! You will run the zSMPInstall.sh script again, this time specifying the configuration HFS for the empty node or stand-alone node that was created. This will again set up the symlinks to the product code from the configuration HFS.

## Configure empty or stand-alone node...

2. Copy **ManagedDB2.rsp** (or **StandaloneDB2.rsp**) and modify it
  - Found in <wps\_smpe\_root>/zos.config directory
  - Same basic fields as DmgrDB2 response file
3. Run zWPSConfig.sh

```
export LIBPATH=/db2810/jcc/lib:$LIBPATH
<app_server_root>/bin/zWPSConfig.sh
    -response ManagedDB2.rsp
    -augment
```

Empty node  
being shown

Before running the augmentation job against the empty node, you need to update a copy of the ManagedDB2 response file. The ManagedDB2 response file has the same basic fields as the DmgrDB2 response file. Note that you could instead use the StandaloneDB2.rsp to configure a stand-alone node. You should consult the **z/OS simple configuration** presentation for more information on that. Once the response file is modified, you need to run the zWPSConfig.sh or zWESBConfig.sh script in order to augment the node with WebSphere Process Server or WebSphere Enterprise Service Bus function.

## Section

# ***Federate empty node or stand-alone node***

Federation of the empty or stand-alone node is the next step.

## Federate augmented node

### 1. Run the BBOWMNAN job to federate the empty node (or stand-alone node)

```
addNode.sh <DM_HOST> <DM_PORT> -includeapps -includebuses  
-nodegroupname DefaultNodeGroup -username xxADMIN  
-password xxx -nodeagentshortname xxAGNT1 -replacelog
```

- ▶ `-includebuses` required for stand-alone node
- ▶ Configuration is now ready for WebSphere Process Server or WebSphere Enterprise Service Bus function
  - Note: stand-alone node is already configured with WebSphere Process Server/WebSphere Enterprise Service Bus function

Once both the deployment manager node and the empty or stand-alone node are configured, you can run the BBOWMNAN job to federate the empty node or stand-alone node into the Network Deployment cell. Also shown on the slide is the `addNode.sh` script invocation that will do the same thing. The `includebuses` parameter is required on the `addNode` command if federating a stand-alone node.

If you federate an empty node, there are still no servers defined where you can run a workload that uses the new WebSphere Process Server or WebSphere Enterprise Service Bus functions. In the case of the stand-alone node, there is a server defined and some of the additional function that needs a server may already be configured. For instance, it is possible that the process choreography and human task function may already exist as well as the common event infrastructure environment.



## Federation of augmented stand-alone node

- Start with an augmented empty deployment manager node
  - ▶ Only initial federation supported
    - After the first federated node with applications and buses, only empty nodes can be federated
  - ▶ Can then promote WebSphere Process Server/WebSphere Enterprise Service Bus Server to a cluster
  - ▶ Note that some data source scopes may change
    - jdbc/WPSDB is moved from node to cell scope

As mentioned earlier, there are limitations when it comes to federating a stand-alone node that has been augmented with WebSphere Process Server or WebSphere Enterprise Service Bus. First of all, only initial federation is supported. This means that it is only supported if there are currently no other nodes in the Network Deployment cell. Then after the federation of the first stand-alone node, all other WebSphere Process Server or WebSphere Enterprise Service Bus-capable nodes that are federated must be empty nodes. Once federated though, you are able to promote the configured server to a cluster. Note that some data source scopes may change as you move the node into the Network Deployment cell. The data source for the jdbc/WPSDB definition is moved from the node to the cell scope, for instance.

## Federation of augmented stand-alone node...

- Naming of resources based on stand-alone node cellname
  - ▶ Bus names
    - BPC.**xxbase2**.Bus
    - CommonEventInfrastructure\_Bus
    - SCA.APPLICATION.**xxbase2**.Bus
    - SCA.SYSTEM.**xxbase2**.Bus
  - ▶ Messaging engines
    - xxnode2.xxsr012-BPC.**xxbase2**.Bus
    - xxnode2.xxsr012-CommonEventInfrastructure\_Bus
    - xxnode2.xxsr012-SCA.APPLICATION.**xxbase2**.Bus
    - xxnode2.xxsr012-SCA.SYSTEM.**xxbase2**.Bus

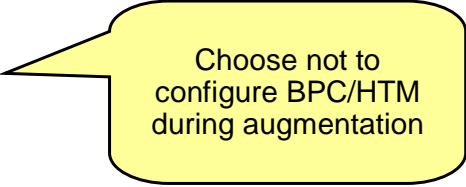


Stand-alone  
Node federated into  
**xxcell**

Drawbacks were also mentioned when it comes to resource naming. After federation into the Network Deployment cell, you may notice that the names of the resources are still based on the original stand-alone node's cell name. This may be confusing in your configuration. On the slide here, the original cell name was **xxbase2**. If resources were originally created in the deployment manager node instead, they would have the correct **xxcell** name.

## Federation of augmented stand-alone node...

- Eventually going to cluster
  - ▶ Applications:
    - BPEContainer\_xnode2\_xxsr012
    - BPCExplorer\_xnode2\_xxsr012
    - TaskContainer\_xnode2\_xxsr012
  - ▶ SCA Configuration
    - May not want to inherit stand-alone node's Configuration
    - BPC configured using File store
- Empty node better choice



Choose not to configure BPC/HTM during augmentation

The application names are also based on the stand-alone configuration. If you will eventually be configuring a cluster to run WebSphere Process Server or WebSphere Enterprise Service Bus applications, you may want to choose not to configure the business process choreographer and human task manager during augmentation of the stand-alone node. If you wait until you have created the cluster, the names will better reflect your configuration. The same goes for the SCA configuration. You probably do not want to inherit the stand-alone node's SCA configuration, but in that case, you have no choice but to configure it in the stand-alone node first. The message engine for BPC will also be configured using a File store rather than DB2 as its message store. You may want to update that once federated which is an additional task. The empty node gives you better control over your configuration and is the recommended alternative.

## Summary

- WebSphere Process Server and WebSphere enterprise service bus configured in a Network Deployment environment has more post-configuration steps
  - ▶ Uses DB2 only

The configuration of a Network Deployment environment with WebSphere Process Server for z/OS or WebSphere Enterprise Service Bus for z/OS has some manual steps. This presentation looked at three of the four steps involved to configure a fully-functional WebSphere Process Server or WebSphere Enterprise Service Bus server or cluster in a Network Deployment environment. See Part 2 of this topic for the fourth step, the post-configuration tasks.

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