Part IV Profile Creation

Chapter 6 Create deployment manager profile

6.1 Create the profile

The creation of the profile has to be executed on the deployment manager machine, in this case the machine W6201L3M. In our case this step was executed with root user id. In a production system this step will be done as non-root user.
The first step in building up a WPS cell or cluster is creating a deployment manager profile. The deployment manager is used to manage the whole cell later on. To create a deployment manager profile there are two options:

- graphical creation via profile creation tool. (Only available on 32 -bit on 64-bit you must use the silent mode)
- silent creation (via response files, as described in the prior chapter)

You find more information on how to create a profile in both ways by inspecting the information provided here:

http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r2mx/index.jsp?topic=/com.ibm.websphere.wps.620.doc/doc/iins_config_post_install.html

Regardless of which way you choose to create the deployment manager profile, use the following configuration parameters to create the profile:

```
create
profileName=W6201L3MBPMDmgr
profilePath=/WPS62/profiles/W6201L3MBPMDmgr
cellName=Cell01
nodeName=W6201L3MBPMDmgr
hostName=W6201L3M.boeblingen.de.ibm.com
templatePath=/WPS62/profileTemplates/dmgr.wbiserver
enableAdminSecurity=true
adminUserName=vmmuser
adminPassword=<use_own_pwd>
dbType=ORACLE10g
dbName=ORCL
dbCreateNew=false
dbDelayConfig=true
dbUserId=WPS_COMMONDB
dbPassword=<use_own_pwd>
dbDriverType=oracle_thin
dbHostName=W6201L3O.boeblingen.de.ibm.com
dbServerPort=1521
dbJDBCClasspath=/opt/oracle/driver
```

In order to create the deployment manager profile silently a response file which contains the configuration information for the deployment manager needs to be created. Navigate to the root folder (/) and create a folder **profileRespFiles**. In that folder create file and name it **dmgrRespFile.txt**. Add the entries from the previous page to that file, then save the file.

Navigate to /WPS62/bin and execute:

```
./manageprofiles.sh -response /profileRespFiles/dmgrRespFile.txt
```

6.2 Verification

1. List existing profiles with the following command:

```
cd /WPS62/bin
./manageprofiles.sh -listProfiles
```

```
[W6201L3MBPMDmgr]
```

2. Check the following files for return code **"INSTCONFSUCCESS"**:

```
cd /WPS62/logs/manageprofiles
grep INSTCONFSUCCESS W6201L3MBPMDmgr_create.log
```

```
  <message>Returning with return code: INSTCONFSUCCESS</message>
  <message>Returning with return code: INSTCONFSUCCESS</message>
  <message>Returning with return code: INSTCONFSUCCESS</message>
  <message>Returning with return code: INSTCONFSUCCESS</message>
  <message>INSTCONFSUCCESS: Success: Profile W6201L3MBPMDmgr now exists.
Please consult /WPS62/profiles/W6201L3MBPMDmgr/logs/AboutThisProfile.txt
for more information about this profile.</message>
  <message>Returning with return code: INSTCONFSUCCESS</message>
```

Chapter 7 Creating Oracle users and tables

This chapter describes the creation of the Oracle users, tablespaces and tables for WebSphere Process Server.

7.1 WebSphere Process Server tablespaces

This section describes how to create the Oracle tablespaces needed by WPS. WPS provides a set of scripts that can be used to create mandatory tablespaces. It is recommended to add additional tablespaces for the message engines and the common db.

A SQL script to create the recommended tablespaces can be found in the Section 7.1.3 Create recommended tablespaces.

7.1.1 Predefined WPS tablespaces

The following tablespaces are defined in WPS database scripts for Oracle.

Tablespace Name	WPS data
AUDITLOG	Business Process Choreographer
INSTANCE	Business Process Choreographer
STAFFQRY	Business Process Choreographer
TEMPLATE	Business Process Choreographer
WORKITEM	Business Process Choreographer
LOBTS	Business Process Choreographer
INDEXTS	Business Process Choreographer
SCHEDTS	Business Process Choreographer
OBSVRTS	Business Process Choreographer Reporting Function
OBSVRLOB	Business Process Choreographer Reporting Function
OBSVRIDX	Business Process Choreographer Reporting Function
BSPACE	Business Space
{CEIUSER}_cei_ts_extended	Common Event Infrastructure
{CEIUSER}_cei_ts_base	Common Event Infrastructure
{CEIUSER}_cei_ts_temp	Common Event Infrastructure
{CEIUSER}_cei_ts_catalog	Common Event Infrastructure

7.1.2 Recommended user default tablespaces

The following tablespaces are recommendations for WPS data without tablespace definitions in the WPs db scripts.

Tablespace Name	Description
WPS_COMMON_TBS	Tablespace for the WPS Common Database.
WPS_MEAPP_TBS	Tablespace for the SCA Application Message Engine datastore.
WPS_MESYS_TBS	Tablespace for the SCA System Message Engine datastore.
WPS_MECEI_TBS	Tablespace for the Common Event Infrastructure Message Engine datastore.
WPS_MEBPC_TBS	Tablespace for the Business Process Choreographer Message Engine datastore.

Note: The tablespace names are also only recommendations. Changing the tablespace name can be done in the 01createRecWPSOraTablespaces.sql script. If the tablespace names are changed, remember to change them also in the section 7.2 WebSphere Process Server users and privileges.

7.1.3 Create recommended tablespaces

You can use the following script to create the recommended tablespaces from Section 7.1.2 Recommended user default tablespaces.
Create a file **01createRecWPSOraTablespaces.sql** with the editor of your choice and paste in the lines from below:

```
REM ****************************************************************
REM File: 01createRecWPSOraTablespaces.sql
REM Date: 2009-05-04
REM
REM Desc: Create all recommended tablespaces for WPS 6.2.0.1
REM
REM Usage:
REM 1. Define datafile paths as needed.
REM 2. Execute the sql script as user oracle on the database host.
REM ****************************************************************

REM Define Oracle datafile paths for WPS
Define WPS_TbsPath = "/opt/oracle/oradata/ORCL"

REM Define Oracle datafile paths for the Message Engines
Define MEAPP_TbsPath = "/opt/oracle/oradata/ORCL"
Define MESYS_TbsPath = "/opt/oracle/oradata/ORCL"
Define MECEI_TbsPath = "/opt/oracle/oradata/ORCL"
Define MEBPC_TbsPath = "/opt/oracle/oradata/ORCL"

REM ****************************************************************
REM Create the Oracle tablespace for WPS
CREATE TABLESPACE WPS_COMMON_TBS DATAFILE '&WPS_TbsPath/WPS_COMMON.dbf'
SIZE 150 M REUSE AUTOEXTEND ON NEXT 10 M;

REM ****************************************************************
REM Create the Oracle tablespace for the Message Engines
CREATE TABLESPACE WPS_MEAPP_TBS DATAFILE '&MEAPP_TbsPath/WPS_MEAPP.dbf'
SIZE 100 M REUSE AUTOEXTEND ON NEXT 10 M;
CREATE TABLESPACE WPS_MESYS_TBS DATAFILE '&MESYS_TbsPath/WPS_MESYS.dbf'
SIZE 100 M REUSE AUTOEXTEND ON NEXT 10 M;
CREATE TABLESPACE WPS_MECEI_TBS DATAFILE '&MECEI_TbsPath/WPS_MECEI.dbf'
SIZE 100 M REUSE AUTOEXTEND ON NEXT 10 M;
CREATE TABLESPACE WPS_MEBPC_TBS DATAFILE '&MEBPC_TbsPath/WPS_MEBPC.dbf'
SIZE 100 M REUSE AUTOEXTEND ON NEXT 10 M;

REM Commit work
COMMIT;
EXIT
```

Execute the **01createRecWPSOraTablespaces.sql** by typing the following command as user oracle:

```
sqlplus sys/<yourPassword>@ORCL AS SYSDBA @01createRecWPSOraTa-
blespaces.sql
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Fri May 4 10:31:17 2009
Copyright (c) 1982, 2008, Oracle. All privileges reserved.
Connected to:
Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit Produc-
tion
With the Partitioning option
old 1: CREATE TABLESPACE WPS_COMMON_TBS DATAFILE '&WPS_TbsPath/WPS_COM-
MON.dbf' SIZE 150 M REUSE AUTOEXTEND ON NEXT 10 M
new 1: CREATE TABLESPACE WPS_COMMON_TBS DATAFILE
'/opt/oracle/oradata/ORCL/WPS_COMMON.dbf' SIZE 150 M REUSE AUTOEXTEND ON
NEXT 10 M
Tablespace created.
old 1: CREATE TABLESPACE WPS_MEAPP_TBS DATAFILE '&MEAPP_TbsPath/WPS_ME-
APP.dbf' SIZE 100 M REUSE AUTOEXTEND ON NEXT 10 M
new 1: CREATE TABLESPACE WPS_MEAPP_TBS DATAFILE
'/opt/oracle/oradata/ORCL/WPS_MEAPP.dbf' SIZE 100 M REUSE AUTOEXTEND ON
NEXT 10 M
Tablespace created.
old 1: CREATE TABLESPACE WPS_MESYS_TBS DATAFILE
'&MESYS_TbsPath/WPS_MESYS.dbf' SIZE 100 M REUSE AUTOEXTEND ON NEXT 10 M
new 1: CREATE TABLESPACE WPS_MESYS_TBS DATAFILE
'/opt/oracle/oradata/ORCL/WPS_MESYS.dbf' SIZE 100 M REUSE AUTOEXTEND ON
NEXT 10 M
Tablespace created.
old 1: CREATE TABLESPACE WPS_MECEI_TBS DATAFILE '&MECEI_TbsPath/WPS_ME-
CEI.dbf' SIZE 100 M REUSE AUTOEXTEND ON NEXT 10 M
new 1: CREATE TABLESPACE WPS_MECEI_TBS DATAFILE
'/opt/oracle/oradata/ORCL/WPS_MECEI.dbf' SIZE 100 M REUSE AUTOEXTEND ON
NEXT 10 M
Tablespace created.
old 1: CREATE TABLESPACE WPS_MEBPC_TBS DATAFILE '&MEBPC_TbsPath/WPS_MEBP-
C.dbf' SIZE 100 M REUSE AUTOEXTEND ON NEXT 10 M
new 1: CREATE TABLESPACE WPS_MEBPC_TBS DATAFILE
'/opt/oracle/oradata/ORCL/WPS_MEBPC.dbf' SIZE 100 M REUSE AUTOEXTEND ON
NEXT 10 M
Tablespace created.
Commit complete.
Disconnected from Oracle Database 11g Enterprise Edition Release
11.1.0.7.0 - 64bit Production
With the Partitioning option
```

7.2 WebSphere Process Server users and privileges

This section describes the Oracle database users needed for WebSphere Process Server. A common database role with all needed privileges is also described.

Scripts for creating the database users and the common role are also provided in a sub-section.

7.2.1 Needed WebSphere Process Server database users

The following database users are needed for WebSphere Process Server:

DB user	Description
WPS_COMMONDB	Common DB user
WPS_BPCDB	BPC DB user
WPS_BPCOBS	Observer DB user
WPS_CEIDB	Common Event Infrastructure DB user
WPS_BSPACE	BusinessSpace DB user
WPS_SCAAPPMSG	SCA application message engine DB user
WPS_SCASYSMSG	SCA system message engine DB user
WPS_CEIMSG	Common Event Infrastructure message engine DB user
WPS_BPCMSG	Business process choreographer message engine DB user
WPS_RECOVERY	Oracle DB user with XA recovery privileges. (Optional)

7.2.2 WebSphere Process Server database user roles

The following privileges are needed for every WebSphere Process Server database user:

Role	Description
CONNECT	Enables a user to connect to the database. Grant this role to any user or application that needs database access. If you create a user using Oracle Enterprise Manager Database Control, this role is automatically granted to the user.
RESOURCE	Enables a user to create, modify, and delete certain types of schema objects in the schema associated with that user. Grant this role only to developers and to other users that must create schema objects. This role grants a subset of the create object system privileges. For example, it grants the CREATE TABLE system privilege, but does not grant the CREATE VIEW system privilege. It grants only the following privileges: CREATE CLUSTER, CREATE INDEXTYPE, CREATE OPERATOR, CREATE PROCEDURE, CREATE SEQUENCE, CREATE TABLE, CREATE TRIGGER, CREATE TYPE. In addition, this role grants the UNLIMITED TABLESPACE system privilege, which effectively assigns a space usage quota of UNLIMITED on all tablespaces in which the user creates schema objects.
UNLIMITED TABLESPACE	Permits a user to use an unlimited amount of any tablespace in the database, grant the user the UNLIMITED TABLESPACE system privilege. This overrides all explicit tablespace quotas for the user. If you later revoke the privilege, then explicit quotas again take effect. You can grant this privilege only to users, not to roles.

Note: WPS provides a jar-file to measure time differences in the BPC Observer. In order to make use of this java utility a specifc jar file is needed within oracle (bpcodbutil.jar). To use this jar file the Oracle database needs to give the WPS_BPCOBS user an additional user privilege. For futher information please refer to the WPS infocenter and the technote below.

javauserpriv technote:

http://www.ibm.com/support/docview.wss?uid=swg21377372

7.2.2.1 Create WPS custom WPS_USER role

All needed grants (except of UNLIMITED TABLESPACE) can be collected in a custom role. You can use the following script to create the custom WPS role and assign only this role to every WPS database user.

Create a file **02createWPSuserRole.sql** with the editor of your choice and paste in the lines from below:

```
REM ****************************************************************
REM File: 02createWPSuserRole.sql
REM Date: 2009-05-04
REM
REM Desc: Create Oracle user role for WPS 6.2.0.1
REM
REM Usage:
REM 1. Execute the sql script as user oracle on the database host.
REM ****************************************************************

REM Create custom user role for WPS
CREATE ROLE WPS_USER_ROLE;
GRANT CONNECT TO WPS_USER_ROLE;
GRANT RESOURCE TO WPS_USER_ROLE;

REM Commit work
COMMIT;
EXIT
```

Execute the **02createWPSuserRole.sql** by typing the following commands as user oracle:

```
sqlplus sys/<yourPassword>@ORCL AS SYSDBA @02createWPSuserRole.sql
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Fri May 6 10:39:07 2009
Copyright (c) 1982, 2008, Oracle. All privileges reserved.
Connected to:
Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit Produc-
tion
With the Partitioning option
Role created.
Grant succeeded.
Grant succeeded.
Disconnected from Oracle Database 11g Enterprise Edition Release
11.1.0.7.0 - 64bit Production
With the Partitioning option
```

7.2.3 WebSphere Process Server XA recovery user privileges

This section describes the privileges for XA recovery needed by the WPS users in an

Oracle 11g (11.1.0.6/7) database. To enable recovery a custom WPS recovery role is defined which encapsualtes the needed XA privileges. This custom role is then assigned to each WPS user or to the WPS_RECOVERY user.

The following table lists the required privileges for XA recovery:

privileges	Description
SELECT ON DBA_PENDING_TRANSACTIONS	Used for XA recovery.
SELECT ON PENDING_TRANS$	Used for XA recovery.
SELECT ON DBA_2PC_PENDING	Used for XA recovery.
EXECUTE ON DBMS_XA	Used to execute XA recovery action in the Oracle database.

7.2.3.1 Create WPS custom WPS_RECOVERY role

Create a file **03reateWPSrecoveryRole.sql** with the editor of your choice and paste in the lines from below:

```
REM ****************************************************************
REM File: 03createWPSrecoveryRole.sql
REM Date: 2009-05-04
REM
REM Desc: Create Oracle user role for WPS 6.2.0.1
REM
REM Usage:
REM 1. Execute the sql script as user oracle on the database host.
REM ****************************************************************

REM Create custom recovery role for WPS
CREATE ROLE WPS_RECOVERY_ROLE;
GRANT SELECT ON SYS.DBA_PENDING_TRANSACTIONS TO WPS_RECOVERY_ROLE;
GRANT SELECT ON SYS.PENDING_TRANS$ TO WPS_RECOVERY_ROLE;
GRANT SELECT ON SYS.DBA_2PC_PENDING TO WPS_RECOVERY_ROLE;
GRANT EXECUTE ON SYS.DBMS_XA TO WPS_RECOVERY_ROLE;

REM Commit work
COMMIT;
EXIT
```

Execute the **03createWPSrecoveryRole.sql** by typing the following commands as user oracle:

```
sqlplus sys/<yourPassword>@ORCL AS SYSDBA @03createWPSrecoveryRole.sql
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Fri May 6 10:39:07 2009
Copyright (c) 1982, 2008, Oracle. All privileges reserved.
Connected to:
Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit Produc-
tion
With the Partitioning option
Role created.
Grant succeeded.
Grant succeeded.
Grant succeeded.
Grant succeeded.
Disconnected from Oracle Database 11g Enterprise Edition Release
11.1.0.7.0 - 64bit Production
With the Partitioning option
```

7.2.4 Create WPS users and assign needed privileges and roles

This section describes how to create the needed WPS database users: Once the users exist the previously created roles are assigned.

DB user	Description	Role(s)	Privilege(s)
WPS_COMMONDB	Common DB user	WPS_USER	CONNECT, RESOURCE, UNLIMITED TABLESPACE
WPS_BPCDB	BPC DB user	WPS_USER	CONNECT, RESOURCE, UNLIMITED TABLESPACE
WPS_BPCOBS	Observer DB user	WPS_USER	CONNECT, RESOURCE, UNLIMITED TABLESPACE
WPS_CEIDB	Common Event Infrastructure DB user	WPS_USER	CONNECT, RESOURCE, UNLIMITED TABLESPACE
WPS_BSPACE	BusinessSpace DB user	WPS_USER	CONNECT, RESOURCE, UNLIMITED TABLESPACE
WPS_SCAAPPMSG	SCA application message engine DB user	WPS_USER	CONNECT, RESOURCE, UNLIMITED TABLESPACE
WPS_SCASYSMSG	SCA system message engine DB user	WPS_USER	CONNECT, RESOURCE, UNLIMITED TABLESPACE
PS_CEIMSG	Common Event Infrastructure message engine DB user	WPS_USER	CONNECT, RESOURCE, UNLIMITED TABLESPACE
WPS_BPCMSG	Business process choreographer message engine DB user	WPS_USER	CONNECT, RESOURCE, UNLIMITED TABLESPACE
WPS_RECOVERY	Oracle DB user with XA recovery privileges. (Optional)	WPS_USER	CONNECT, RESOURCE, UNLIMITED TABLESPACE
		WPS_RECOVERY	DBA_PENDING_TRANSACTIONS,PENDING_TRANS$, DBA_2PC_PENDING, DBMS_XA

You can use the following script to create the WPS database users from section 7.2.1 Needed WebSphere Process Server database users and grant the needed privileges and roles to the WPS database users from the sections above:

- 7.2.2 WebSphere Process Server database user roles
- 7.2.3 WebSphere Process Server XA recovery user privileges

Create a file **04createWPSOraUser.sql** with the editor of your choice and paste in the lines from below:

```
REM ****************************************************************
REM File: 04createWPSOraUser.sql
REM Date: 2009-05-04
REM
REM Desc: Create all Oracle database user for WPS 6.2.0.1
```

```
REM
REM Usage:
REM 1. Define db user names
REM 2. Define db user passwords for all WPS user
REM 3. Optional: Adjust default tablespaces.
REM 4. Execute the sql script as user oracle on the database host.
REM ****************************************************************

REM Create user for WPS common db
CREATE USER WPS_COMMONDB IDENTIFIED BY <PASSWORD> DEFAULT TABLESPACE
WPS_COMMON_TBS;
GRANT WPS_USER_ROLE TO WPS_COMMONDB;
GRANT UNLIMITED TABLESPACE TO WPS_COMMONDB;

REM Create user for SCA application message engine
CREATE USER WPS_SCAAPPMSG IDENTIFIED BY <PASSWORD> DEFAULT TABLESPACE
WPS_MEAPP_TBS;
GRANT WPS_USER_ROLE TO WPS_SCAAPPMSG;
GRANT UNLIMITED TABLESPACE TO WPS_SCAAPPMSG;

REM Create user for SCA system message engine
CREATE USER WPS_SCASYSMSG IDENTIFIED BY <PASSWORD> DEFAULT TABLESPACE
WPS_MESYS_TBS;
GRANT WPS_USER_ROLE TO WPS_SCASYSMSG;
GRANT UNLIMITED TABLESPACE TO WPS_SCASYSMSG;

REM Create user for CEI message engine
CREATE USER WPS_CEIMSG IDENTIFIED BY <PASSWORD> DEFAULT TABLESPACE WPS_ME-
CEI_TBS;
GRANT WPS_USER_ROLE TO WPS_CEIMSG;
GRANT UNLIMITED TABLESPACE TO WPS_CEIMSG;

REM Create user for BPC message engine
CREATE USER WPS_BPCMSG IDENTIFIED BY <PASSWORD> DEFAULT TABLESPACE WPS_ME-
BPC_TBS;
GRANT WPS_USER_ROLE TO WPS_BPCMSG;
GRANT UNLIMITED TABLESPACE TO WPS_BPCMSG;

REM Create user for BPC data
CREATE USER WPS_BPCDB IDENTIFIED BY <PASSWORD>;
GRANT WPS_USER_ROLE TO WPS_BPCDB;
GRANT UNLIMITED TABLESPACE TO WPS_BPCDB;

REM Create user for BPC Observer data
CREATE USER WPS_BPCOBS IDENTIFIED BY <PASSWORD>;
GRANT WPS_USER_ROLE TO WPS_BPCOBS;
GRANT UNLIMITED TABLESPACE TO WPS_BPCOBS;

REM Create user for CEI data
```

```
CREATE USER WPS_CEIDB IDENTIFIED BY <PASSWORD>;
GRANT WPS_USER_ROLE TO WPS_CEIDB;
GRANT UNLIMITED TABLESPACE TO WPS_CEIDB;

REM Create user for Business Space data
CREATE USER WPS_BSPACE IDENTIFIED BY <PASSWORD>;
GRANT WPS_USER_ROLE TO WPS_BSPACE;
GRANT UNLIMITED TABLESPACE TO WPS_BSPACE;

REM Commit work
COMMIT;
EXIT
```

Execute the **04createWPSOraUser.sql** by typing the following commands as user oracle:

```
sqlplus sys/<yourPassword>@ORCL AS SYSDBA @04createWPSOraUser.sql
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Fri May 6 10:52:39 2009
Copyright (c) 1982, 2008, Oracle. All privileges reserved.
Connected to:
Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit Produc-
tion
With the Partitioning option
User created.
Grant succeeded.
Grant succeeded.
User created.
Grant succeeded.
Grant succeeded.
User created.
Grant succeeded.
Grant succeeded.
User created.
Grant succeeded.
Grant succeeded.
User created.
Grant succeeded.
Grant succeeded.
User created.
Grant succeeded.
Grant succeeded.
User created.
Grant succeeded.
Grant succeeded.
User created.
Grant succeeded.
Grant succeeded.
Commit complete.
Disconnected from Oracle Database 11g Enterprise Edition Release
11.1.0.7.0 - 64bit Production
```

```
With the Partitioning option
```

7.2.5 WPS XA recovery user(s)

In order to use distributed transactions (XA) with Oracle several privileges are required (see also 7.2.3 WebSphere Process Server XA recovery user privileges) for the connecting db user.

Two approaches exist:

1. Create a specific recovery user with the required recovery privileges.

   Pro: The privileges are encapsulated in one place. Only one user has the XA recovery privileges.

   Cons: Each datasource have to be altered. The XA authentication alias has to be set explicitly.

2. Grant all connecting db users (WPS users) the required recovery privileges.

   Pro: The authentication alias settings within the datasources do not need to be altered.

   Cons: XA privileges are spread across all users which might be a potential security issue.

Scripts will be provided for both approaches. However this document describes the first approach (specific recovery user) in detail.

7.2.5.1 Create specific XA recovery user

Create a file **05createWPSrecoveryUser.sql** with the editor of your choice and paste in the lines from below:

```
REM ****************************************************************
REM File: 05createWPSrecoveryUser.sql
REM Date: 2009-05-04
REM
REM Desc: Create WPS recovery database user for WPS 6.2.0.1
REM
REM Usage:
REM 1. Define db user names
REM 2. Define db user passwords for WPS recovery user
REM 3. Execute the sql script as user oracle on the database host.
REM ****************************************************************

REM Create WPS recovery user
CREATE USER WPS_RECOVERY IDENTIFIED BY <PASSWORD>;
GRANT WPS_USER_ROLE TO WPS_RECOVERY;
```

```
GRANT WPS_RECOVERY_ROLE TO WPS_RECOVERY;

REM Commit work
COMMIT;
EXIT
```

Execute the **05createWPSrecoveryUser.sql** by typing the following commands as user oracle:

```
sqlplus sys/<yourPassword>@ORCL AS SYSDBA @05createWPSrecoveryUser.sql
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Fri May 6 10:52:39 2009
Copyright (c) 1982, 2008, Oracle. All privileges reserved.
Connected to:
Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit Produc-
tion
With the Partitioning option
User created.
Grant succeeded.
Grant succeeded.
Commit complete.
Disconnected from Oracle Database 11g Enterprise Edition Release
11.1.0.7.0 - 64bit Production
With the Partitioning option
```

7.2.5.2 Grant all db users the XA recovery privileges

Create a file **05BgrantWPSallUsersRecoveryPrivileges.sql** with the editor of your choice and paste in the lines from below:

```
REM ****************************************************************
REM File: 05BgrantWPSallUSersRecoveryPrivileges.sql
REM Date: 2009-05-04
REM
REM Desc: Grant all Oracle database user the XA recovery privileges.
REM
REM Usage:
REM 1. Define db user names
REM 2. Execute the sql script as user oracle on the database host.
REM ****************************************************************

GRANT WPS_RECOVERY_ROLE TO WPS_COMMONDB;
GRANT WPS_RECOVERY_ROLE TO WPS_SCAAPPMSG;
GRANT WPS_RECOVERY_ROLE TO WPS_SCASYSMSG;
GRANT WPS_RECOVERY_ROLE TO WPS_CEIMSG;
GRANT WPS_RECOVERY_ROLE TO WPS_BPCMSG;
GRANT WPS_RECOVERY_ROLE TO WPS_BPCDB;
```

```
GRANT WPS_RECOVERY_ROLE TO WPS_BPCOBS;
GRANT WPS_RECOVERY_ROLE TO WPS_CEIDB;
GRANT WPS_RECOVERY_ROLE TO WPS_BSPACE;

REM Commit work
COMMIT;
EXIT
```

Execute the **05BgrantWPSallUsersRecoveryPrivileges.sql** by typing the following commands as user oracle:

```
sqlplus sys/<yourPassword>@ORCL AS SYSDBA @05BgrantWPSallUsersRecoveryP-
rivileges.sql
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Fri May 6 10:52:39 2009
Copyright (c) 1982, 2008, Oracle. All privileges reserved.
Connected to:
Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit Produc-
tion
With the Partitioning option
Grant succeeded.
Grant succeeded.
Grant succeeded.
Grant succeeded.
Grant succeeded.
Grant succeeded.
Grant succeeded.
Grant succeeded.
Grant succeeded.
Commit complete.
Disconnected from Oracle Database 11g Enterprise Edition Release
11.1.0.7.0 - 64bit Production
With the Partitioning option
```

7.2.6 WebSphere Process Server CEI user configuration privileges

You will need additional user privileges during a WebSphere Process Server CEI configuration. Therefore you will need to grant the following privileges to the CEI WPS user:

- Create Tablespaces
- Drop Tablespaces
- Create Tables
- Create Views

7.2.6.1 Grant configuration / migration privileges script

You can use the following script to grant the additional installation privileges to the WPS CEI user.
Create a file **07AgrantCEIOraInstRights.sql** with the editor of your choice and paste in the lines from below:

```
REM ****************************************************************
REM File: 07AgrantCEIOraInstRights.sql
REM Date: 2009-05-04
REM
REM Desc: Grant all needed privileges for installation/migration
REM                          to CEI db user for WPS 6.2.0.1
REM
REM Usage:
REM 1. Define db user name
REM 2. Execute the sql script as user oracle on the database host.
REM ****************************************************************

REM Grant install/migration privileges for CEI user
GRANT CREATE TABLESPACE TO WPS_CEIDB;
GRANT DROP TABLESPACE TO WPS_CEIDB;
GRANT CREATE TABLE TO WPS_CEIDB;
GRANT CREATE VIEW TO WPS_CEIDB;

REM Commit work
COMMIT;
EXIT
```

Execute the **07AgrantCEIOraInstRights.sql** by typing the following command as user oracle:

```
sqlplus sys/<yourPassword>@ORCL AS SYSDBA @07AgrantCEIOraInstRights.sql
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Fri May 6 10:54:59 2009
Copyright (c) 1982, 2008, Oracle. All privileges reserved.
Connected to:
Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit Produc-
tion
With the Partitioning option
Grant succeeded.
Grant succeeded.
Grant succeeded.
Grant succeeded.
Commit complete.
Disconnected from Oracle Database 11g Enterprise Edition Release
11.1.0.7.0 - 64bit Production
With the Partitioning option
```

7.2.7 WebSphere Process Server CEI user runtime privileges

Important: Revoke the configuration privileges for the CEI user as described in this chapter **AFTER** you have finished the configuration.

After the WebSphere Process Server configuration is finished revoke the CEI WPS user privileges to:

- Create Tablespaces
- Drop Tablespaces
- Create Tables
- Create views

7.2.7.1 Revoke installation privileges script

You can use the following script to revoke the additional privileges from the WPS CEI user.

Create a file **07BrevokeCEIOraInstRights.sql** with the editor of your choice and paste in the lines from below:

```
REM ****************************************************************
REM File: 07BrevokeWPSOraInstRights.sql
REM Date: 2009-05-04
REM
REM Desc: Revoke all privileges for installation/migration
REM                          from CEI db user for WPS 6.2.0.1
REM
REM Usage:
REM 1. Define db user names
REM 2. Execute the sql script as user oracle on the database host.
REM ****************************************************************

REM REVOKE install/migration privileges for CEI user
REVOKE CREATE TABLESPACE FROM WPS_CEIDB;
REVOKE DROP TABLESPACE FROM WPS_CEIDB;
REVOKE CREATE TABLE FROM WPS_CEIDB;
REVOKE CREATE VIEW FROM WPS_CEIDB;

REM Commit work
COMMIT;
EXIT
```

Execute the **07BrevokeCEIOraInstRights.sql** by typing the following command as user oracle:

```
sqlplus sys/<yourPassword>@ORCL AS SYSDBA @07BrevokeCEIOraInstRights.sql
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Fri May 6 10:57:35 2009
Copyright (c) 1982, 2008, Oracle. All privileges reserved.
Connected to:
Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit Produc-
tion
With the Partitioning option
Revoke succeeded.
Revoke succeeded.
Revoke succeeded.
Revoke succeeded.
Commit complete.
Disconnected from Oracle Database 11g Enterprise Edition Release
11.1.0.7.0 - 64bit Production
With the Partitioning option
```

7.3 Websphere Process Server tables

This chapter describes how to create the different WebSphere Process Server tables in the Oracle database.

7.3.1 Create CommonDB tables

1. Switch to the directory /WPS62/profiles/W6201L3MBPMDmgr/dbscripts/CommonDB/Oracle/ORCL on the deployment manager host, in this case the host w6201l3m.boeblingen.de.ibm.com.

2. Create a directory on the Oracle database host, e.g. /home/oracle/commondb

3. Copy all files from this directory to the created directory on the Oracle database host, in this case the host w6201l3o.boeblingen.de.ibm.com.

4. Start the CommonDB scripts in the created directory on the Oracle host by executing the following command as user oracle:

```
sqlplus /nolog @createTables.sql WPS_COMMONDB ORCL
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Fri May 6 12:55:04 2009
Copyright (c) 1982, 2008, Oracle. All privileges reserved.
```

```
Enter Oracle Password:
```

```
Connected.
Table created.
Table altered.
Index created.
Table created.
Table altered.
Index created.
Table created.
Table altered.
Index created.
Table created.
Table altered.
Index created.
...
Sequence created.
Sequence created.
Sequence created.
Sequence created.
Table created.
Table altered.
Table created.
Table created.
Table created.
Table created.
Table created.
1 row created.
Table created.
```

```
Disconnected from Oracle Database 11g Enterprise Edition Release
11.1.0.7.0 - 64bit Production
With the Partitioning option
```

7.3.2 Create BPC and BPC Explorer reporting function tables

1. Switch to the directory /WPS62/dbscripts/ProcessChoreographer/Oracle on the deployment manager host, in this case the host w6201l3m.boeblingen.de.ibm.com.

2. Create a directory on the Oracle database host, e.g. /home/oracle/bpcdb

3. Copy the following files from this directory to the created directory on the Oracle database host, in this case the host w6201l3o.boeblingen.de.ibm.com:

- createSchema.sql
- createSchema_Observer.sql
- createTablespace.sql
- createTablespace_Observer.sql

4. Start the createTablespace.sql scripts in the created directory on the Oracle host by executing the following command as user oracle:

```
sqlplus sys/<password>@ORCL AS SYSDBA @createTablespace.sql
"/opt/oracle/oradata/ORCL"
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Fri May 6 13:10:37 2009
Copyright (c) 1982, 2008, Oracle. All privileges reserved.cd /U
Connected to:
Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit Produc-
tion
With the Partitioning option
old 2: DATAFILE '&1/AUDITLOG.dbf' SIZE 100M AUTOEXTEND ON NEXT 20M MAXSIZE
UNLIMITED LOGGING
new 2: DATAFILE '/opt/oracle/oradata/ORCL/AUDITLOG.dbf' SIZE 100M AUTOEX-
TEND ON NEXT 20M MAXSIZE UNLIMITED LOGGING
Tablespace created.
old 2: DATAFILE '&1/INSTANCE.dbf' SIZE 500M AUTOEXTEND ON NEXT 100M MAX-
SIZE UNLIMITED LOGGING
new 2: DATAFILE '/opt/oracle/oradata/ORCL/INSTANCE.dbf' SIZE 500M AUTOEX-
TEND ON NEXT 100M MAXSIZE UNLIMITED LOGGING
Tablespace created.
old 2: DATAFILE '&1/STAFFQRY.dbf' SIZE 10M AUTOEXTEND ON NEXT 2M MAXSIZE
UNLIMITED LOGGING
new 2: DATAFILE '/opt/oracle/oradata/ORCL/STAFFQRY.dbf' SIZE 10M AUTOEX-
TEND ON NEXT 2M MAXSIZE UNLIMITED LOGGING
Tablespace created.
old 2: DATAFILE '&1/TEMPLATE.dbf' SIZE 100M AUTOEXTEND ON NEXT 20M MAXSIZE
UNLIMITED LOGGING
new 2: DATAFILE '/opt/oracle/oradata/ORCL/TEMPLATE.dbf' SIZE 100M AUTOEX-
TEND ON NEXT 20M MAXSIZE UNLIMITED LOGGING
Tablespace created.
old 2: DATAFILE '&1/WORKITEM.dbf' SIZE 50M AUTOEXTEND ON NEXT 10M MAXSIZE
UNLIMITED LOGGING
```

```
new 2: DATAFILE '/opt/oracle/oradata/ORCL/WORKITEM.dbf' SIZE 50M AUTOEX-
TEND ON NEXT 10M MAXSIZE UNLIMITED LOGGING
Tablespace created.
old 2: DATAFILE '&1/LOBTS.dbf' SIZE 200M AUTOEXTEND ON NEXT 40M MAXSIZE
UNLIMITED LOGGING
new 2: DATAFILE '/opt/oracle/oradata/ORCL/LOBTS.dbf' SIZE 200M AUTOEXTEND
ON NEXT 40M MAXSIZE UNLIMITED LOGGING
Tablespace created.
old 2: DATAFILE '&1/INDEXTS.dbf' SIZE 250M AUTOEXTEND ON NEXT 50M MAXSIZE
UNLIMITED LOGGING
new 2: DATAFILE '/opt/oracle/oradata/ORCL/INDEXTS.dbf' SIZE 250M AUTOEX-
TEND ON NEXT 50M MAXSIZE UNLIMITED LOGGING
Tablespace created.
old 1: CREATE TABLESPACE SCHEDTS DATAFILE '&1/SCHEDTS.dbf' SIZE 5M AUTOEX-
TEND ON NEXT 1M MAXSIZE UNLIMITED
new 1: CREATE TABLESPACE SCHEDTS DATAFILE
'/opt/oracle/oradata/ORCL/SCHEDTS.dbf' SIZE 5M AUTOEXTEND ON NEXT 1M MAX-
SIZE UNLIMITED
Tablespace created.
Disconnected from Oracle Database 11g Enterprise Edition Release
11.1.0.7.0 - 64bit Production
With the Partitioning option
```

5. Open the file createSchema.sql in a editor, replace the tag @SCHEMA@ with WPS_BPCDB and save the file again.

6. Start the createSchema.sql scripts in the created directory on the Oracle host by executing the following command as user oracle:

```
sqlplus sys/<password>@ORCL AS SYSDBA @createSchema.sql
```

```
...
Table created.
Table created.
Table created.
Index created.
Disconnected from Oracle Database 11g Enterprise Edition Release
11.1.0.7.0 - 64bit Production
With the Partitioning option
```

7. Start the createTablespace_Observer.sql scripts in the created directory on the Oracle host by executing the following command as user oracle:

```
sqlplus sys/<password>@ORCL AS SYSDBA @createTablespace_Observer.sql
"/opt/oracle/oradata/ORCL"
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Fri May 6 13:24:13 2009
Copyright (c) 1982, 2008, Oracle. All privileges reserved.
Connected to:
Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit Produc-
tion
With the Partitioning option
old 2: DATAFILE '&1/OBSVRTS.dbf' SIZE 100M AUTOEXTEND ON NEXT 20M MAXSIZE
UNLIMITED LOGGING
new 2: DATAFILE '/opt/oracle/oradata/ORCL/OBSVRTS.dbf' SIZE 100M AUTOEX-
TEND ON NEXT 20M MAXSIZE UNLIMITED LOGGING
```

```
Tablespace created.
old 2: DATAFILE '&1/OBSVRLOB.dbf' SIZE 200M AUTOEXTEND ON NEXT 40M MAXSIZE
UNLIMITED LOGGING
new 2: DATAFILE '/opt/oracle/oradata/ORCL/OBSVRLOB.dbf' SIZE 200M AUTOEX-
TEND ON NEXT 40M MAXSIZE UNLIMITED LOGGING
Tablespace created.
old 2: DATAFILE '&1/OBSVRIDX.dbf' SIZE 250M AUTOEXTEND ON NEXT 50M MAXSIZE
UNLIMITED LOGGING
new 2: DATAFILE '/opt/oracle/oradata/ORCL/OBSVRIDX.dbf' SIZE 250M AUTOEX-
TEND ON NEXT 50M MAXSIZE UNLIMITED LOGGING
Tablespace created.
Disconnected from Oracle Database 11g Enterprise Edition Release
11.1.0.7.0 - 64bit Production
With the Partitioning option
```

8. Open the file createSchema_Observer.sql in a editor, replace the tag @SCHEMA@ with WPS_BPCOBS and save the file again.

9. Start the createSchema_Observer.sql scripts in the created directory on the Oracle host by executing the following command as user oracle:

```
sqlplus sys/<password>@ORCL AS SYSDBA @createSchema_Observer.sql
```

```
...
1 row created.
1 row created.
1 row created.
1 row created.
1 row created.
1 row created.
Disconnected from Oracle Database 11g Enterprise Edition Release
11.1.0.6.0 - 64bit Production
With the Partitioning option
```

7.3.3 Create BusinessSpace tables

1. Switch to the directory /WPS62/dbscripts/BusinessSpace/Oracle on the deployment manager host, in this case the host w6201l3m.boeblingen.de.ibm.com.

2. Create a directory on the Oracle database host, e.g. /home/oracle/bspace

3. Copy the createTable_BusinessSpace.sql file from this directory to the created directory on the Oracle database host, in this case the host w6201l3o.boeblingen.de.ibm.com.

4. Open the file createTable_BusinessSpace.sql in a editor, replace the following tags:

1. @SCHEMA@ with WPS_BSPACE
2. @TSDIR@_ with /opt/oracle/oradata/ORCL/
3. comment out the following lines:

```
-------------------------
-- Create schema owner --
-------------------------
-- CREATE USER WPS_BSPACE IDENTIFIED BY @DBPASS@;

-- ALTER USER WPS_BSPACE QUOTA UNLIMITED ON BSPACE;
-- GRANT CONNECT TO WPS_BSPACE;

...

-- GRANT SELECT,INSERT,UPDATE,DELETE ON WPS_BSPACE.USER_DATA_T TO
WPS_BSPACE;
-- GRANT SELECT,INSERT,UPDATE,DELETE ON WPS_BSPACE.SPACES TO WPS_BSPACE;
-- GRANT SELECT,INSERT,UPDATE,DELETE ON WPS_BSPACE.NLSINFO TO WPS_BSPACE;
-- GRANT SELECT,INSERT,UPDATE,DELETE ON WPS_BSPACE.PAGE TO WPS_BSPACE;
-- GRANT SELECT,INSERT,UPDATE,DELETE ON WPS_BSPACE.WIDGET TO WPS_BSPACE;
-- GRANT SELECT,INSERT,UPDATE,DELETE ON WPS_BSPACE.REGISTERED_WIDGET TO
WPS_BSPACE;
-- GRANT SELECT,INSERT,UPDATE,DELETE ON WPS_BSPACE.REGISTERED_WIDGET_NLS
TO WPS_BSPACE;
-- GRANT SELECT,INSERT,UPDATE,DELETE ON WPS_BSPACE.REGISTERED_CATEGORY TO
WPS_BSPACE;
-- GRANT SELECT,INSERT,UPDATE,DELETE ON WPS_BSPACE.REGISTERED_CATEGORY_NLS
TO WPS_BSPACE;
-- GRANT SELECT,INSERT,UPDATE,DELETE ON WPS_BSPACE.REGISTERED_ENDPOINT TO
WPS_BSPACE;
-- GRANT SELECT,INSERT,UPDATE,DELETE ON WPS_BSPACE.REGISTERED_ENDPOINT_NLS
TO WPS_BSPACE;
-- GRANT SELECT,INSERT,UPDATE,DELETE ON WPS_BSPACE.REGISTERED_WCCM_END-
POINT TO WPS_BSPACE;
```

```
-- GRANT SELECT,INSERT,UPDATE,DELETE ON WPS_BSPACE.REGISTRY_FILE TO
WPS_BSPACE;
```

The user creation and the granted privileges are not needed because both were already created in the Chapters 7.2.3.1 Create WPS custom WPS_RECOVERY role and 7.2.4 Create WPS users and assign needed privileges and roles.

4. and save the file again.

5. Start the BusinessSpace script in the created directory on the Oracle host by executing the following command as user oracle:

```
sqlplus sys/<password>@ORCL AS SYSDBA @createTable_BusinessSpace.sql
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Fri  6 13:53:41 2009
Copyright (c) 1982, 2008, Oracle. All privileges reserved.
Connected to:
Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit Produc-
tion
With the Partitioning option
Tablespace created.
Table created.
Table created.
Table created.
Table created.
Index created.
Index created.
Table created.
Table created.
Table created.
Table created.
Table created.
Table created.
Table created.
Table created.
Table created.
Table created.
```

7.4 Start and configure the deployment manager

This chapter describes how to start the deployment manager the first time and access the admin console to configure database settings for Oracle 11g.

1. Start the deployment manager entering the following command in profiledirectory **<install_root>profiles/W6201L3MBPMDmgr/bin**:

```
cd /WPS62/profiles/W6201L3MBPMDmgr/bin
./startManager.sh
```

```
ADMU0116I: Tool information is being logged in file
           /WPS62/profiles/W6201L3MBPMDmgr/logs/dmgr/startServer.log
ADMU0128I: Starting tool with the W6201L3MBPMDmgr profile
ADMU3100I: Reading configuration for server: dmgr
ADMU3200I: Server launched. Waiting for initialization status.
ADMU3000I: Server dmgr open for e-business; process id is <xxxxx>
```

2. Check the logs in location **<install_root>/profiles/W6201L3MBPMDmgr/logs/dmgr** for errors.

3. Open a webbrowser and type in: https://<hostname>:9043/ibm/console

> **Hint:** Check the SystemOut.log of the deployment manager process to find out the correct port for the admin_host.

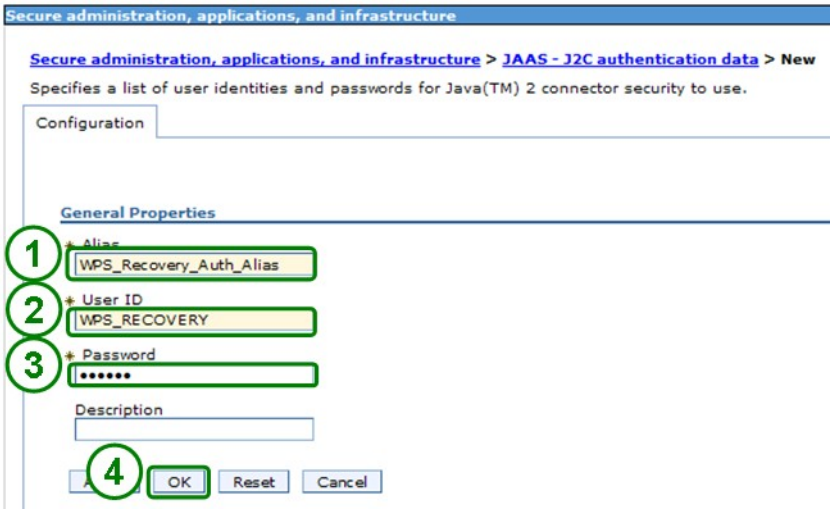
4. Login to the admin console with the user vmmuser.

7.4.1 Create the Authentication Alias for XA recovery

This chapter describes how to create the authentication alias for XA recovery.
In the admin console navigate to:

```
Security
    -> Secure administration, applications, and infrastructure
        -> Java Authentication and Authorization Service
            -> J2C authentication data
                -> New
```

The "New" form is displayed:



1. Enter the Alias "WPS_Recovery_Auth_Alias"

2. Enter the User ID "WPS_RECOVERY".

3. Enter the password to match the User ID.

4. Click **OK**

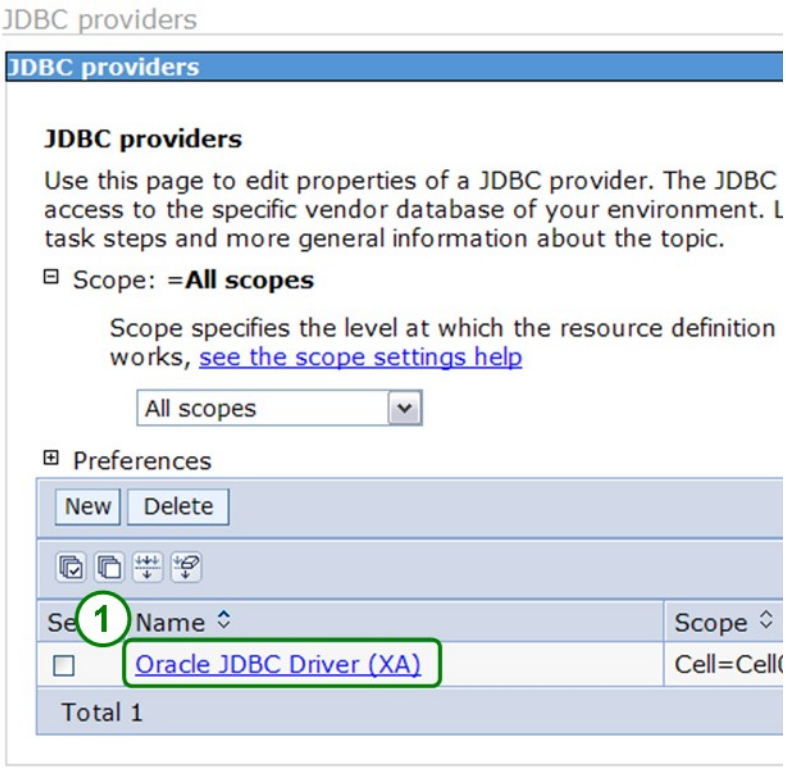
Save and synchronize the changes.

7.4.2 Change the jdbc driver in the jdbc provider for Oracle 11g

In the admin console navigate to:

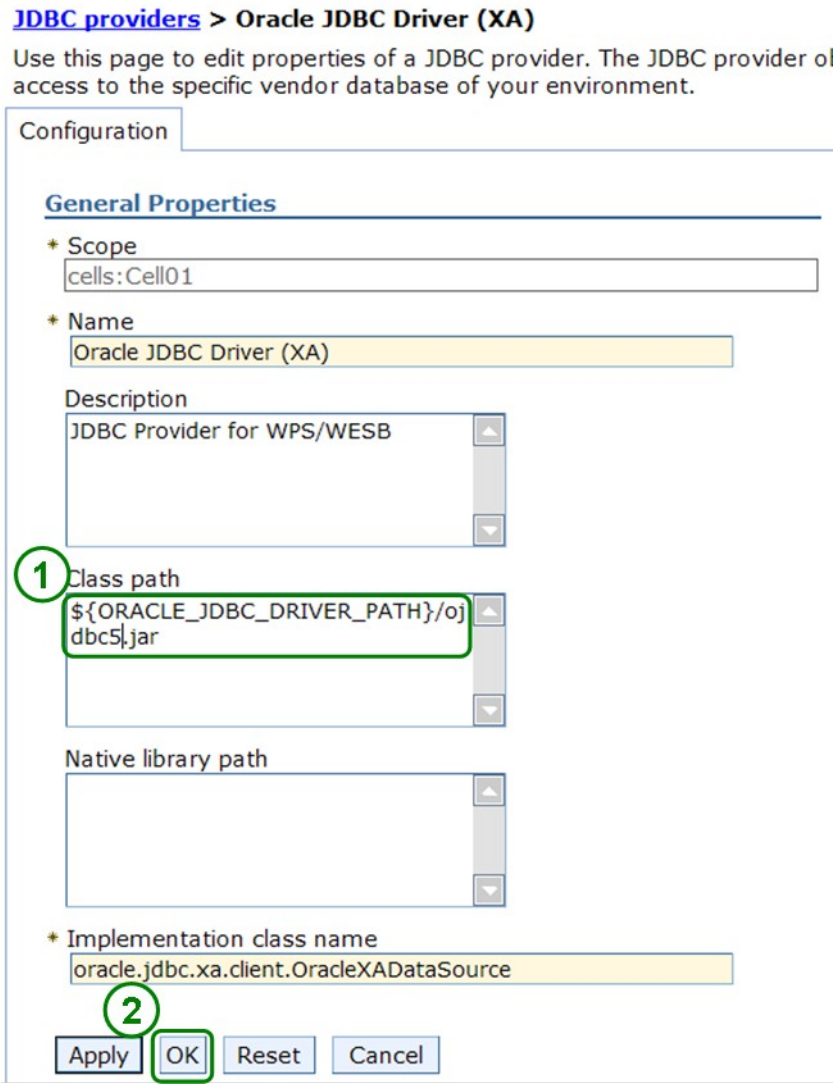
```
Resources
  -> JDBC
    -> JDBC Providers
```

The "JDBC providers" page is displayed:



1. Click **Oracle JDBC Driver (XA)**

The "Oracle JDBC Driver (XA) Configuration" page is displayed:



1. Change the Class path to "${ORACLE_JDBC_DRIVER_PATH}/ojdbc5.jar"

2. Click **Ok**

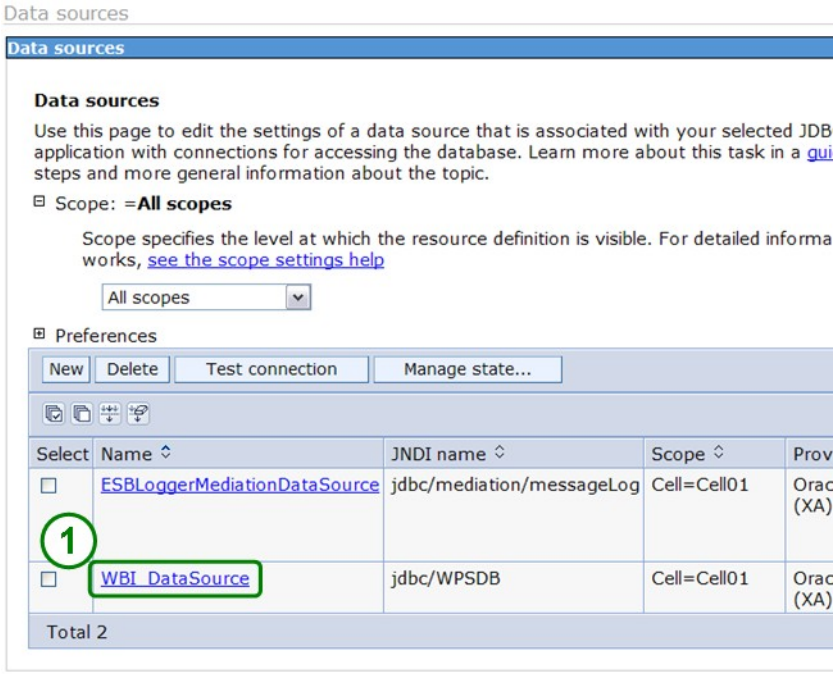
Save and synchronize the changes.

7.4.3 Change the data source for Oracle 11g

In the admin console navigateto:

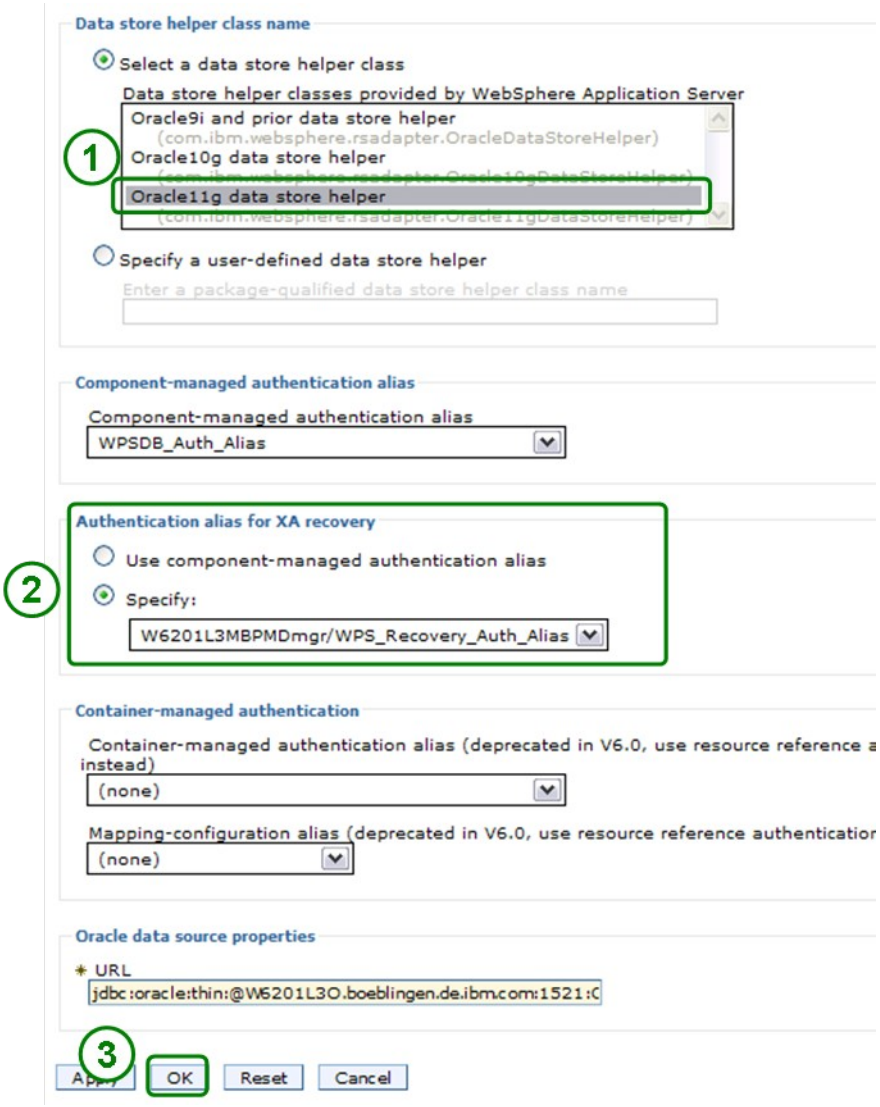
```
Resources
  -> JDBC
    -> Data sources
```

The "Data sources" page is displayed:



1. Click **WBI_DataSource**

The "WBI_DataSource" page is displayed:



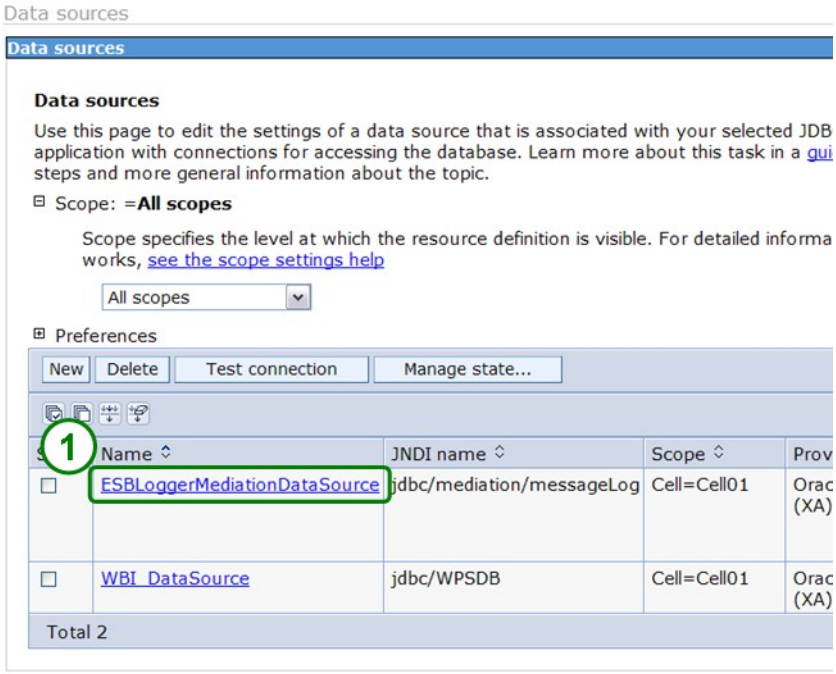
1. Select "Oracle11g data store helper".

2. Select "<hostname>/WPS_Recovery_Auth_Alias".

3. Click **Ok**

Save and synchronize the changes.

In the "Data sources" page:



1. Repeat the steps above with the "ESBLoggerMediationDataSource".

Chapter 8 Custom profiles

NOTE: This step has to be executed on the machines hosting the servers of this cluster, in this case this are the machines w6201ln1 and w6201ln2. Make sure to execute this step with root user id.

8.1 Custom profile creation

The next step in the setup of a cell/cluster is to create profiles on the other machines which should host the servers that are later on created in the cell. To create a WPS profile there are two options:

- graphical creation via profile creation tool
- silent creation (via response files, as you have seen it in the prior chapter)

You find more information on how to create a profile in both ways by inspecting the information provided here:

http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r2mx/index.jsp?topic=/com.ibm.websphere.wps.620.doc/doc/tins_creating_profiles.html

Use the following configuration parameters to create the profile:

For w6201ln1:

```
create
profileName=W6201LN1WPSCustom01
profilePath=/WPS62/profiles/W6201LN1WPSCustom01
templatePath=/WPS62/profileTemplates/managed.wbiserver
nodeName=W6201LN1WPSNode01
hostName=w6201ln1.boeblingen.de.ibm.com
dbType=ORACLE10G
dbJDBCClasspath=/opt/oracle/driver
federateLaterProcServer=true
ndtopology=false
```

For w6201ln2:

```
create
profileName=W6201LN2WPSCustom01
profilePath=/WPS62/profiles/W6201LN2WPSCustom01
templatePath=/WPS62/profileTemplates/managed.wbiserver
nodeName=W6201LN2WPSNode01
hostName=w6201ln2.boeblingen.de.ibm.com
dbType=ORACLE10G
dbJDBCClasspath=/opt/oracle/driver
federateLaterProcServer=true
ndtopology=false
```

In order to create the custom profiles silently a response file which contains the configuration information needs to be created. Navigate to the root folder (/) and

create a folder **profileRespFiles**. In that folder create file and name it **CustomRespFile.txt**. Add the entries from the previous page to that file, then save the file.

root:

```
/WPS62/bin/manageprofiles.sh -response <responsefilename>
```

Federate the custom node to the deployment manager:

root:

```
cd /WPS62/profiles/W6201LN1WPSCustom01/bin/
./addNode.sh w6201l3m.boeblingen.de.ibm.com 8879 -username vmmuser
 -password <password>
```

Repeat the custom profile creation and federation on host w62l3n02.

8.2 Verify the custom profile creation

1. List existing profiles with the following command:

```
cd /WPS62/bin/
./manageprofiles.sh -listProfiles
```

```
[W6201LN1WPSCustom01]
```

```
cd /WPS62/bin/
./manageprofiles.sh -listProfiles
```

```
[W6201LN2WPSCustom01]
```

2. Check the following files for return code **"INSTCONFSUCCESS"**:

```
cd /WPS62/logs/manageprofiles
grep INSTCONFSUCCESS W6201LN1WPSCustom01_create.log
```

```
  <message>Returning with return code: INSTCONFSUCCESS</message>
  <message>Returning with return code: INSTCONFSUCCESS</message>
  <message>Returning with return code: INSTCONFSUCCESS</message>
  <message>Returning with return code: INSTCONFSUCCESS</message>
  <message>INSTCONFSUCCESS: Success: Profile W6201LN1WPSCustom01 now
exists. Please consult
/WPS62/profiles/W6201LN1WPSCustom01/logs/AboutThisProfile.txt for more
information about this profile.</message>
  <message>Returning with return code: INSTCONFSUCCESS</message>
```

```
cd /WPS62/logs/manageprofiles
grep INSTCONFSUCCESS W6201LN2WPSCustom01_create.log
```

```
  <message>Returning with return code: INSTCONFSUCCESS</message>
  <message>Returning with return code: INSTCONFSUCCESS</message>
  <message>Returning with return code: INSTCONFSUCCESS</message>
  <message>Returning with return code: INSTCONFSUCCESS</message>
```

```
  <message>INSTCONFSUCCESS: Success: Profile W6201LN2WPSCustom01 now
exists. Please consult
/WPS62/profiles/W6201LN2WPSCustom01/logs/AboutThisProfile.txt for more
information about this profile.</message>
  <message>Returning with return code: INSTCONFSUCCESS</message>
```

Unlike the deployment manager profile creation, the creation of a WPS profile does not create a startable server. A server is created later on when the clusters are created.

On both machines (w6201ln1 and w6201ln2) check the nodeagent logs.

These logs are located in:

- /WPS62/profiles/W6201LN1WPSCustom01/logs/nodeagent
- /WPS62/profiles/W6201LN2WPSCustom01/logs/nodeagent

Check that they do not contain any errors.

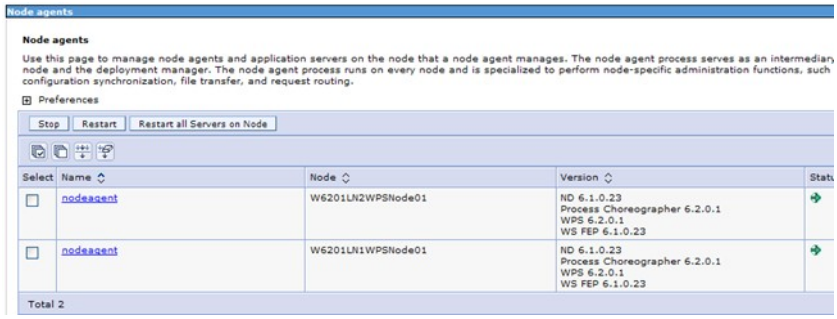
Further check the following files for errors:

- /WPS62/profiles/W6201LN1WPSCustom01/logs/addNode.log
- /WPS62/profiles/W6201LN2WPSCustom01/logs/addNode.log

Login to the deployment manager admin console and navigate to:

```
System Administration
  -> Node agents.
```

and verify existence and status of the node agents:



Chapter 9 Enable security

9.1 Configure Federated Repository

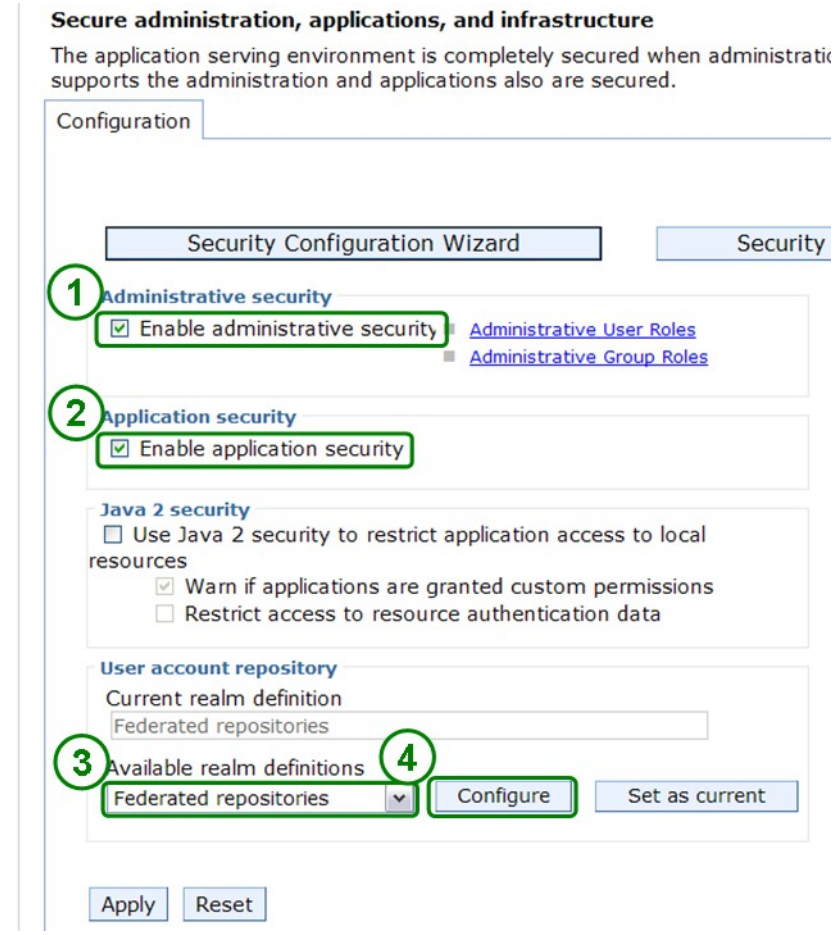
This step can be performed at any time after the deployment manager is up and running. The chosen point of time is right here, to find potential errors in security settings at an early stage.

WebSphere Process Server offers two approaches to use a Directory Server like IBM Tivoli Directory Server (LDAP). The first one is using a standalone LDAP repository and the second one is using a federated repository which will be presented in this document.

Login to administrative console and navigate to:

```
Security
   → Secure administration, applications, and infrastructure
```

The "Secure administration, applications, and infrastructure Configuration" page is displayed:



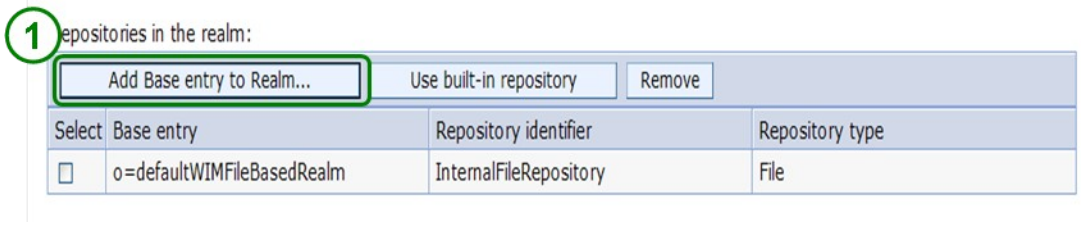
1. Make sure that "Enable administrative security" is selected.

2. Make sure that "Enable application security" is selected.

3. Select "Federated repositories" in the drop-down-box.

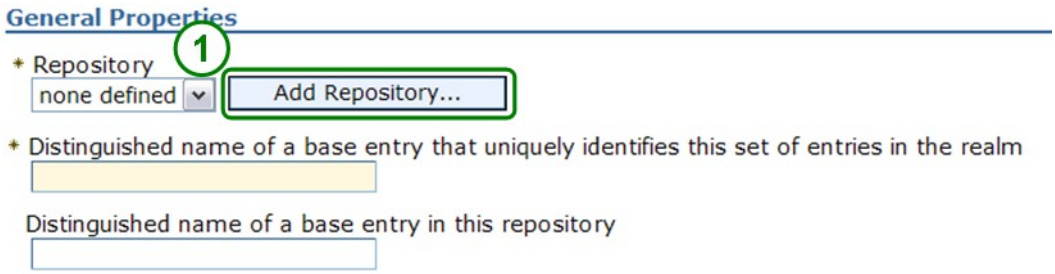
4. Click **Configure**

The "Federated repositories Configuration" page is displayed:



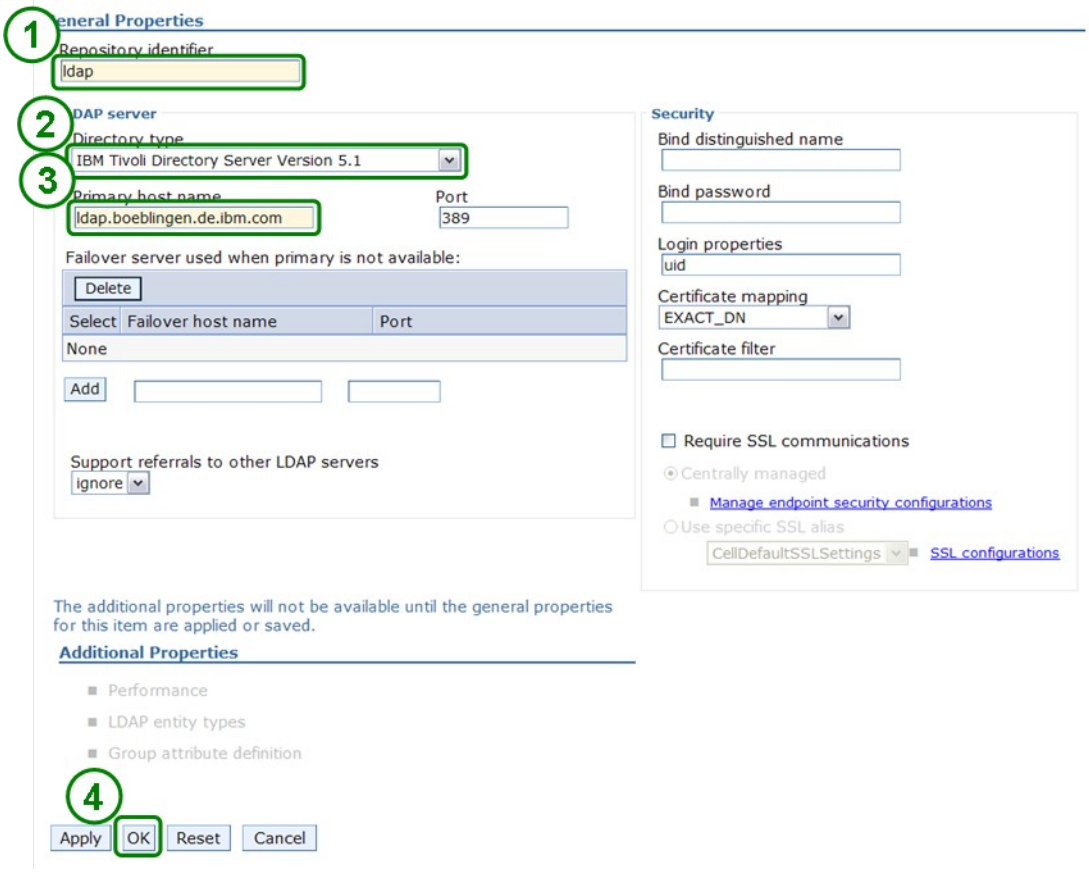
1. Click **Add Base entry to Realm...**

The "Repository reference Configuration" page is displayed:



1. Click **Add Repository...**

The "Repository reference New" page is displayed:



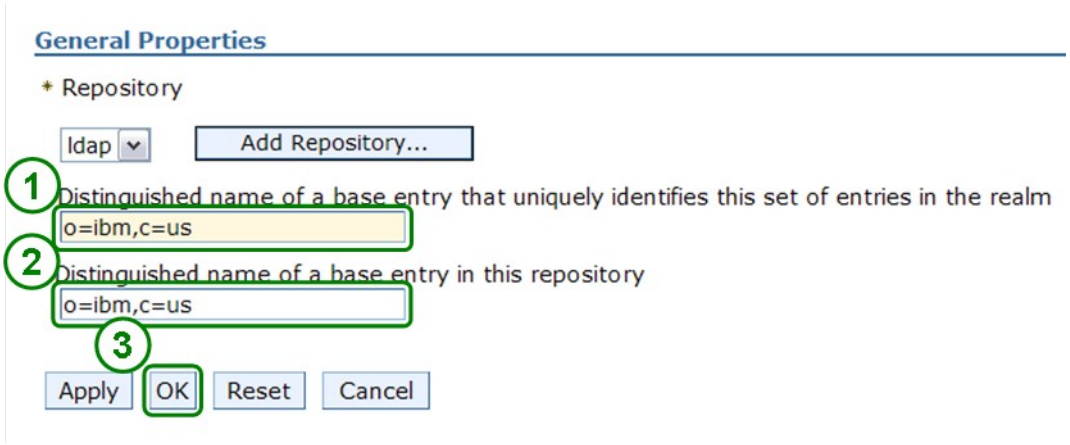
1. Type in the Repository identifier in ths case "ldap".

2. Select "IBM Tivoli Directory Server Version 6.1" from the drop-down-box.

3. Type in the Primary host name in this case "ldap.boeblingen.de.ibm.com".

4. Click **Ok**

The "Repository reference Configuration" page is displayed again:

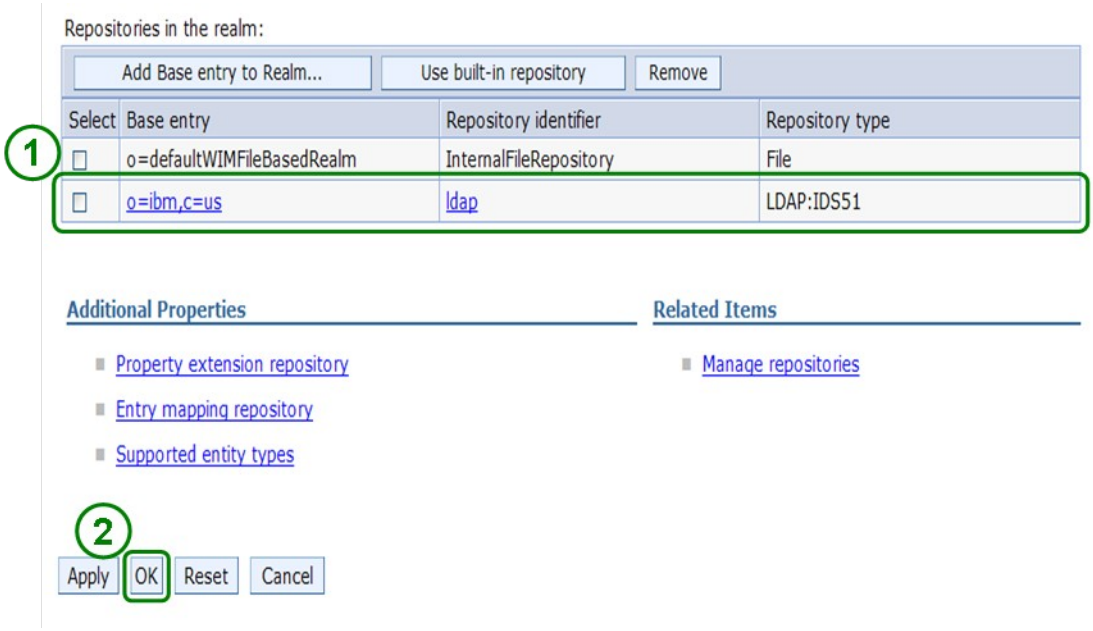


1. Type in the DN for the realm.

2. Type in the DN for the base entry.

3. Click **Ok**

The "Federated repositories Configuration" page is displayed:



1. Check the new realm entry.

2. Click **Ok**

Save changes and synchronize Nodes.

Please refer to the Appendix "Save changes and synchronize Nodes" how to do this.

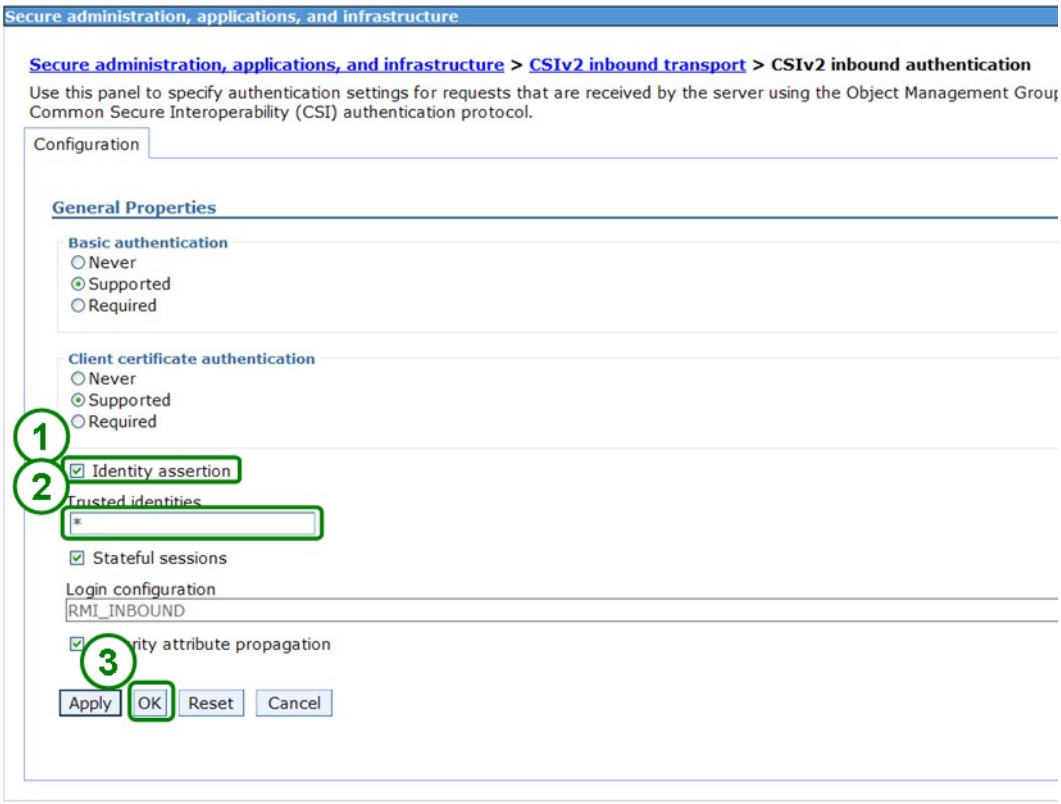
9.2 Enable identity assertion

9.2.1 Enable inbound authentication

In the admin console navigate to:

```
Security
  -> Secure administration, application, and infrastructure
    -> RMI/IIOP security
      -> CSIv2 inbound authentication.
```

The "CSIv2 inbound authentication" page is displayed:



1. Select "Identity assertion".

2. Type in "*" in "Trusted identities".

3. Click **Ok**

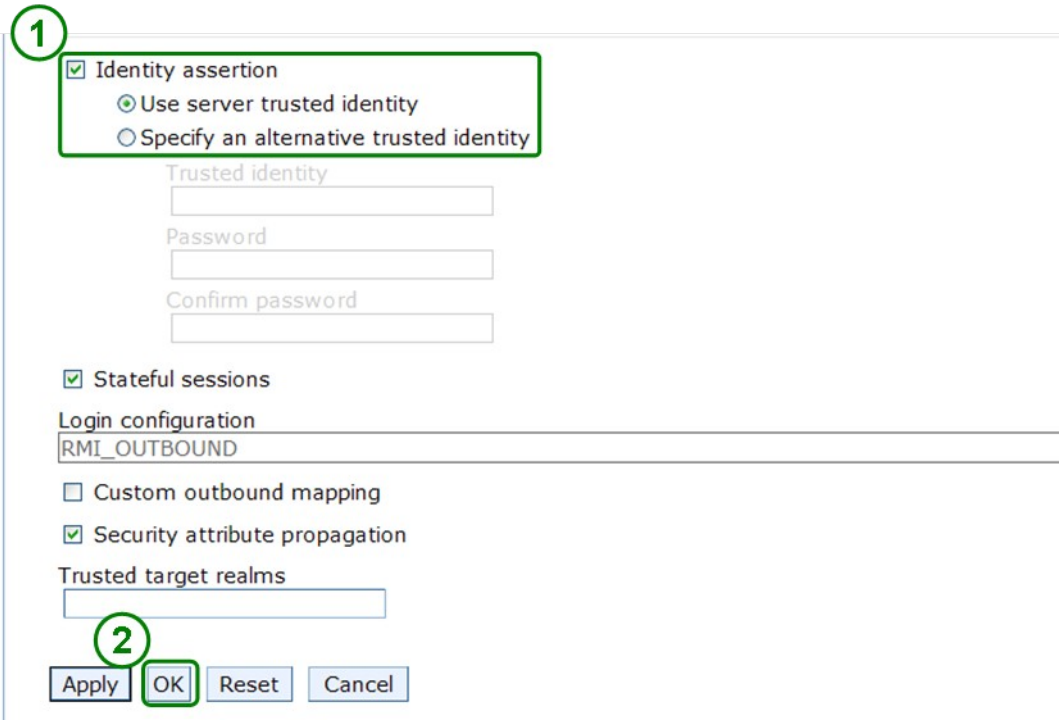
Save changes and synchronize Nodes.

9.2.2 Enable outbound authentication

In the admin console navigate to:

```
Security
  -> Secure administration, application, and infrastructure
    -> RMI/IIOP security
      -> CSIv2 outbound authentication
```

The "CSIv2 outbound authentication" page is displayed:



1. Select "Identity assertion" and "Use server trusted identity".

2. Click **Ok**

Save changes and synchronize Nodes.

9.3 Verification

To verify the enabled security stop the node agents and the deployment manager and start them again.

> Please refer to the Appendix "Start/stop the deployment manager and the node agents" on how to start and stop the node agents and the deployment manager.

Then open the administrative console in the browser. When starting the administration console you are prompted for user ID and password.

```
https://w620113m.boeblingen.de.ibm.com:9043/ibm/console
```

The "Login" page is displayed:

1. Type in the "user ID" in this case "vmmuser".

2. Type in the chosen password.

3. Click **Log In**

In the admin console verify that all node agents are shown up and running. Try to synchronize the nodes to check that secure communication is working well. Use:

```
System administration
   → Nodes
      → full resynchronize
```

to do so. If you do not see all node agents, you were maybe too fast starting the admin console. Logout and login to the console again and check again.

If they are still missing, check the appropriate log files on the machines:

```
/WPS62/profiles/W6201L3MBPMDmgr/logs/dmgr
/WPS62/profiles/W6201LN1WPSCustom01/logs/nodeagent
/WPS62/profiles/W6201LN2WPSCustom01/logs/nodeagent
```

Part V Basic Cluster (ND7)

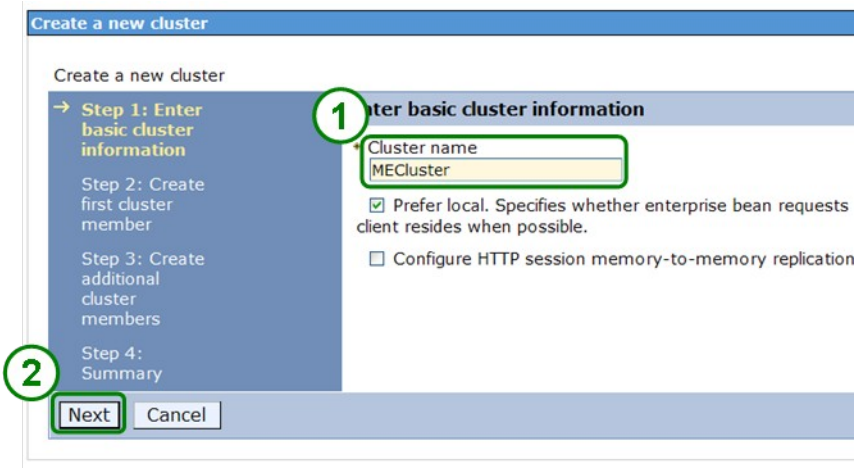
Chapter 10 Create and configure the messaging engine cluster (MECluster)

10.1 Create the MECluster

In the admin console, navigate to:

```
Servers
  -> Clusters
    -> New
```

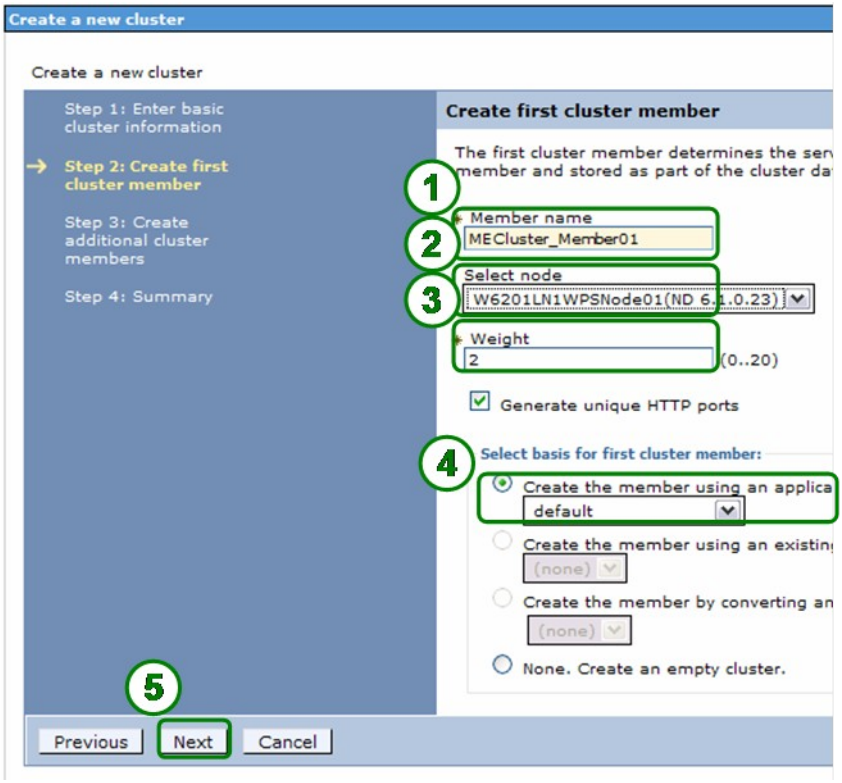
The "Create a new cluster Step 1" page is displayed:



1. Type in the Cluster name in this case "MECluster".

2. Click **Next**

The "Create a new Cluster Step 2" page is displayed:



1. Type in the Member name in this case "MECluster_Member01".

2. Select node "W6201LN1WPSNode01" from the drop-down-box.

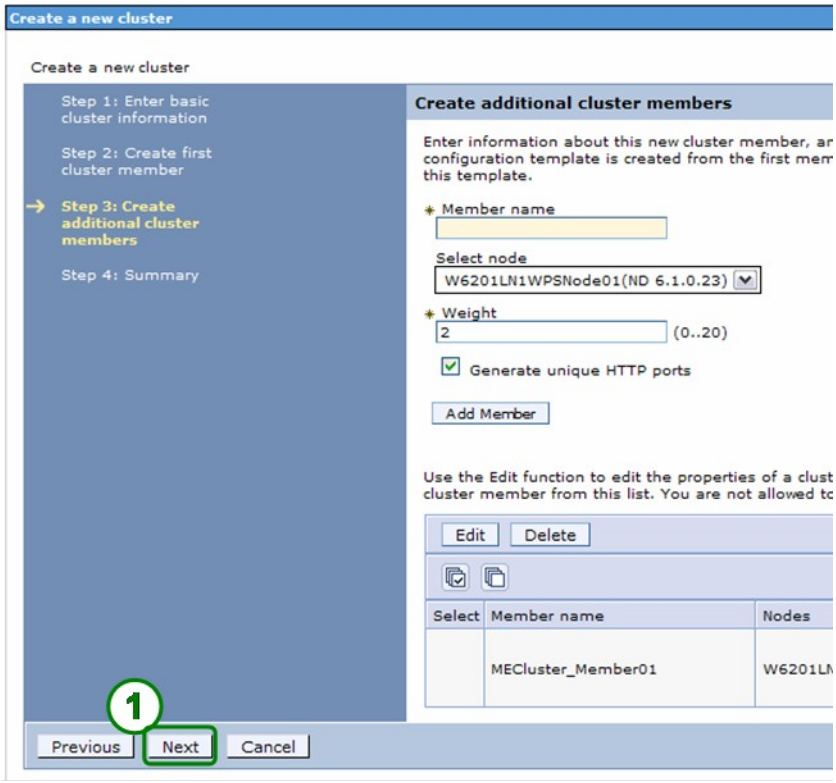
3. Type in the Weight in this case "2".

4. Select the Template "default" from the drop-down-box.

5. Click **Next**

Hint: The members of this cluster will use Application server functionality only. You can therefore select the template "**default"** (WebSphere Application Sever).

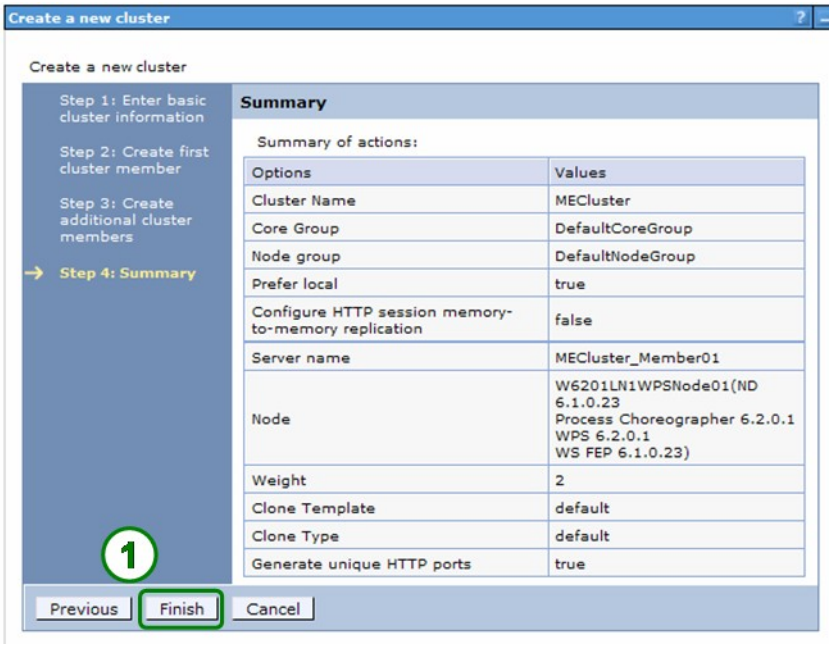
The "Create a new cluster Step:3" page is displayed:



1. Click **Next**

Note: For now there will be only one member for the cluster created and proceeded with the configuration of the cluster. After verifying that the cluster works, an additional cluster member will be created.

The "Create a new cluster Step:4" page is displayed:



1. Click **Finish**

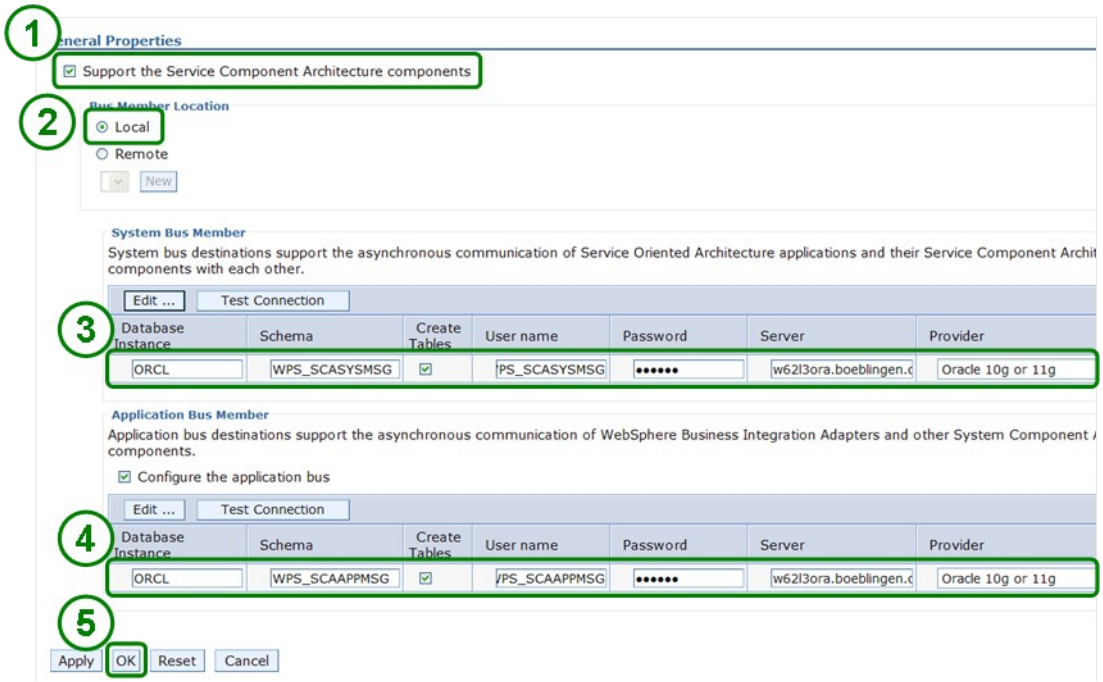
Save and **synchronize** the configuration.

10.2 Configure the MECluster to host the messaging engines for SCA

In the admin console, navigate to:

```
Servers
  -> Clusters
    -> MECluster
      -> Service Component Architecture.
```

The "Service Component Architecture Configuration" page is displayed:



1. Select "Support the Service Component Architecture components".

2. Select "Local" for Bus Member Location.

3. Type in the following values for the system bus member:

a.) Database Instance:	ORCL
b.) Schema:	WPS_SCASYSMSG
c.) Create Tables:	<selected>
d.) User name:	WPS_SCASYSMSG
e.) Password:	<password>
f.) Server:	w6201L3o.boeblingen.de.ibm.com

g.) Provider: Oracle 10g or 11g

4. Type in the following values for the application bus member:

a.) Database Instance: ORCL
b.) Schema: WPS_SCAAPPMSG
c.) Create Tables: <selected>
d.) User name: WPS_SCAAPPMSG
e.) Password: <password>
f.) Server: w6201L3o.boeblingen.de.ibm.com
g.) Provider: Oracle 10g or 11g

5. Click **Ok**

Hint: When the messaging engines start for the first time, they will connect to the database. If they do not find the schema-qualified tables, then they will automatically create them, if selection **"Create Tables"** is checked.

Hint: The schema name will be used to create the database tables required for the messaging engine. If there is only one database shared by all of the messaging engines, it is recommended that the schema name is unique within the database.

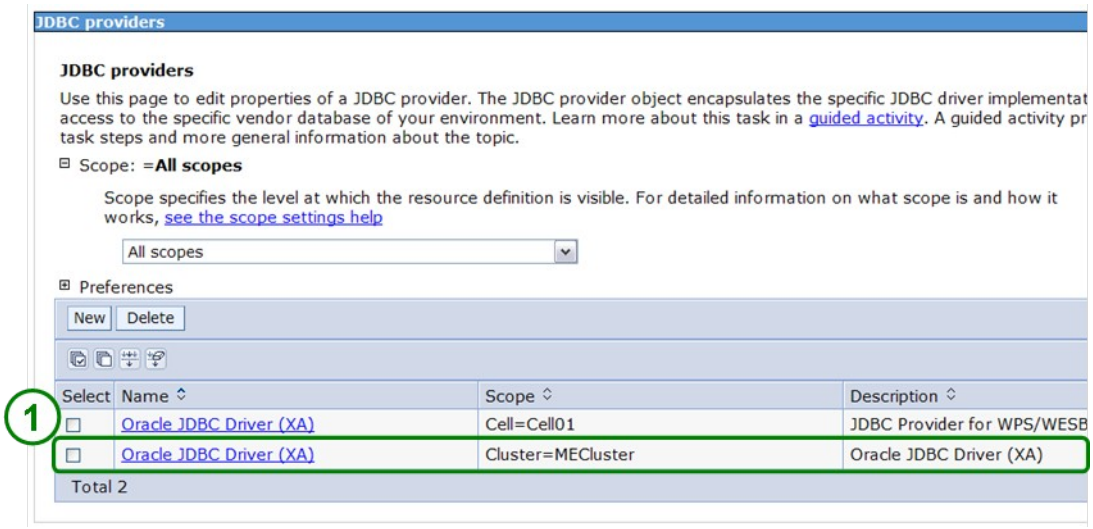
Save and **synchronize** the configuration.

10.3 Change the JDBC Provider Class path

In the admin console navigate to:

```
Resources
  -> JDBC
    -> JDBC Providers
```

The "JDBC providers" page is displayed:



1. Click **Oracle JDBC Driver (XA)** (Scope=MECluster).

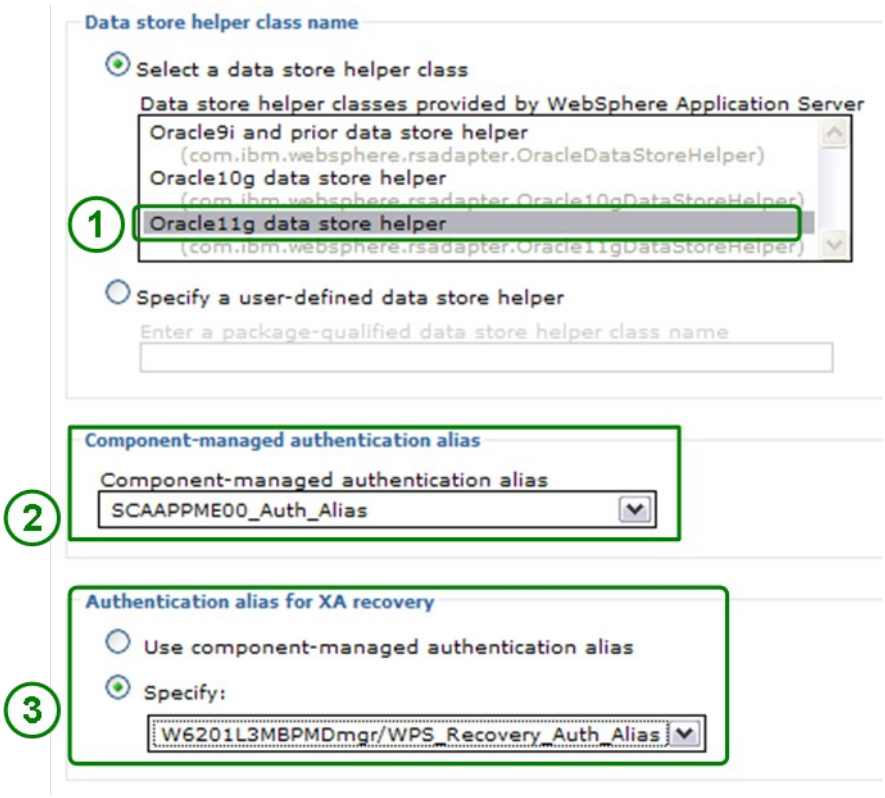
Change the Class path to "${ORACLE_JDBC_DRIVER_PATH}/ojdbc5.jar", then press OK.

10.4 Change the ME data sources

In the admin console navigate to:

```
Resources
  -> JDBC
    -> Data sources
      -> SCA Application Bus ME data source
```

The "SCA Application Bus ME data source" page is displayed:



1. Select "Oracle11g data store helper".

2. Select "SCAAPPME00_Auth_Alias".

3. Select "<hostname>/WPS_Recovery_Auth_Alias".

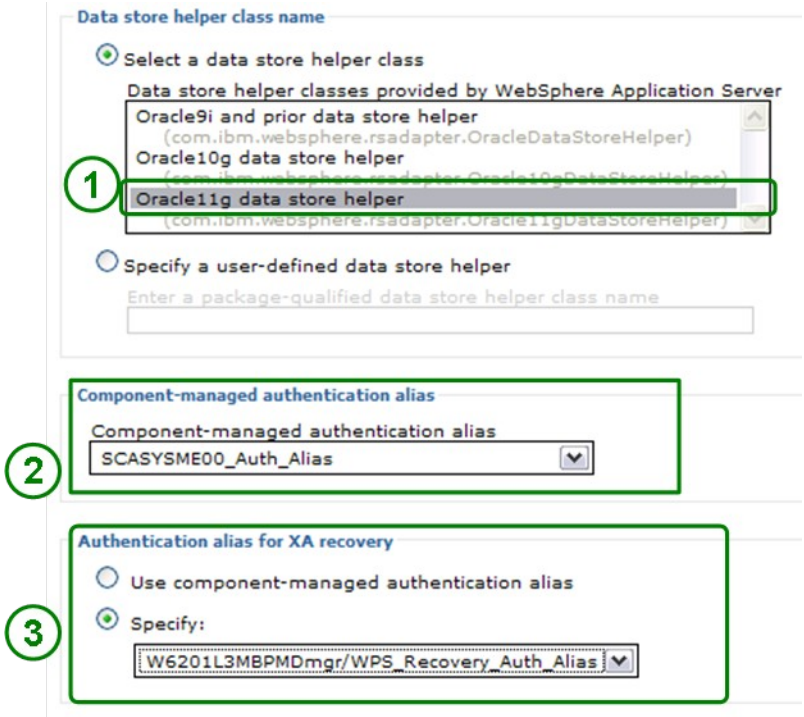
4. Press **Ok**

Save and **synchronize** the configuration.

In the admin console navigate to:

```
Resources
  -> JDBC
    -> Data sources
      -> SCA System Bus ME data source
```

The "SCA System Bus ME data source" page is displayed:



1. Select "Oracle11g data store helper".

2. Select "SCASYSME00_Auth_Alias".

3. Select "<hostname>/WPS_Recovery_Auth_Alias".

Press **Ok**

Save and **synchronize** the configuration.

10.5 Verify cluster start-up

In the admin console, navigate to:

```
Servers
  -> Clusters.
```

Select ***MECluster*** and click **Start.**

Check log file **SystemOut.log** for MECluster_member01 in directory:

```
<install_root>/profiles/W6201LN1WPSCustom01/logs/MECluster_member01
```

for errors. The following messages appear in the log file:

```
[2/9/09 16:08:03:181 CET] 0000001e SibMessage    I
[SCA.SYSTEM.Cell01.Bus:MECluster.000-SCA.SYSTEM.Cell01.Bus] CWSID0016I:
Messaging engine MECluster.000-SCA.SYSTEM.Cell01.Bus is in state Started.
```

```
[2/9/09 16:08:03:181 CET] 00000021 SibMessage    I   [SCA.APPLICATION.-
Cell01.Bus:MECluster.000-SCA.APPLICATION.Cell01.Bus] CWSID0016I: Messaging
engine MECluster.000-SCA.APPLICATION.Cell01.Bus is in state Started.
```

Check that in the ORCL database new tables have been created in the users WPS_SCAAPPMSG and WPS_SCASYSMSG.

To verify the table creation in the ORCL database execute the following commands as user **oracle** on the database host in this case the w6201l3o.boeblingen.de.ibm.com for the application ME datastore:

```
sqlplus WPS_SCAAPPMSG/<password>@ORCL
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Tue May 5 16:09:39 2009
Copyright (c) 1982, 2008, Oracle.  All rights reserved.
Connected to:
Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit
Production
With the Partitioning, OLAP, Data Mining and Real Application Testing
options
```

```
SQL>select table_name from user_tables;
```

```
TABLE_NAME
------------------------------
SIBXACTS
SIBKEYS
SIB002
SIB001
SIB000
SIBLISTING
SIBCLASSMAP
SIBOWNER
```

```
SIBOWNERO
9 rows selected.
```

and for the system ME datastore:

```
sqlplus WPS_SCASYSMSG/<password>@ORCL
```

```
SQL*Plus: Release 11.1.0.7.0 - Production on Tue May 5 16:12:12 2009
Copyright (c) 1982, 2008, Oracle.  All rights reserved.
Connected to:
Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit
Production
With the Partitioning, OLAP, Data Mining and Real Application Testing
options
```

```
SQL>select table_name from user_tables;
```

```
TABLE_NAME
------------------------------
SIBXACTS
SIBKEYS
SIB002
SIB001
SIB000
SIBLISTING
SIBCLASSMAP
SIBOWNER
SIBOWNERO
9 rows selected.
```

10.6 Create an additional cluster member

In the admin console, navigate to:

```
Servers
  -> Clusters.
```

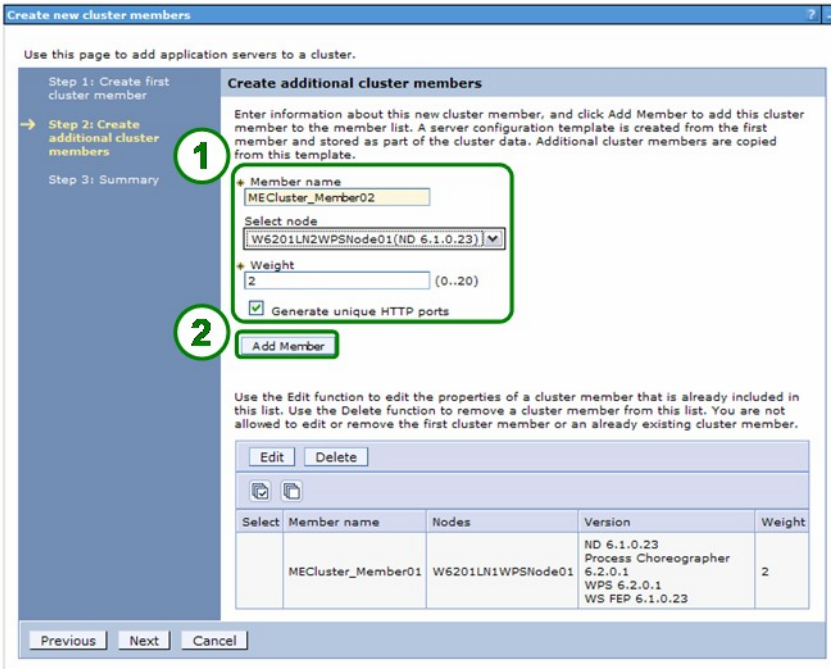
Select ***MECluster*** and click **Stop.** Wait until the MECluster is stopped.

Navigate to:

```
Servers
  -> Clusters
    -> MECluster
      -> Cluster Members
```

and click **New**.

The "Create new cluster members" page is displayed:



1. Enter the following values:

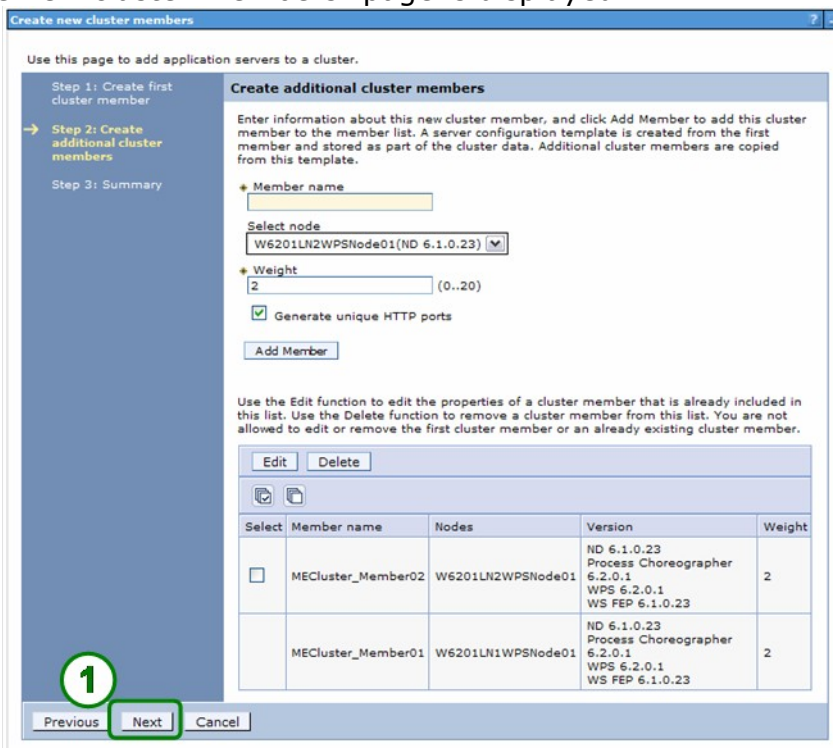
a.) Member name: MECluster_Member02

b.) Select node: W6201LN2WPSNode01

c.) Weight: 2

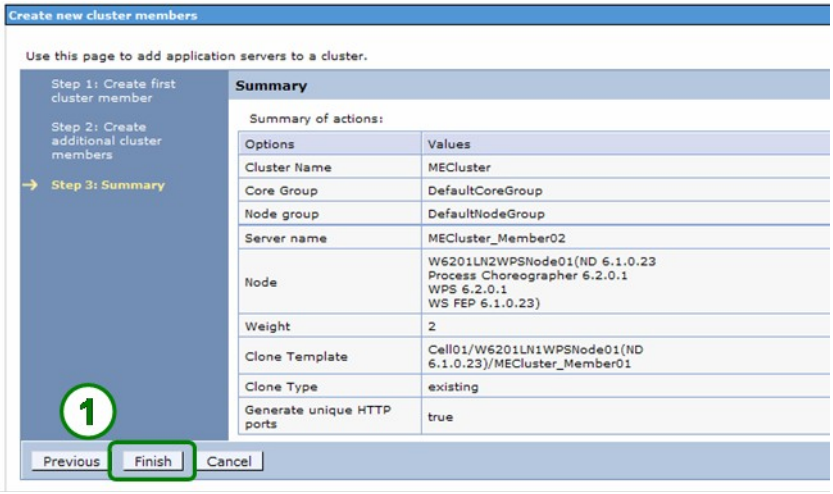
2. Click **Add Member**

The "Create new cluster members" page is displayed:



1. Click **Next**

The "Create new cluster members Summary" page is displayed:



1. Click **Finish**

Save and **synchronize** the configuration.

10.7 Verify cluster start-up

In the admin console, navigate to

```
Servers
  -> Clusters.
```

Select ***MECluster*** and click **Start.**

Check logs file **SystemOut.log** for MECluster_Member1 and MECluster_Member2 in directory

```
<install_root>/profiles/W6201LN1WPSCustom01/logs/MECluster_Member01
<install_root>/profiles/W6201LN2WPSCustom01/logs/MECluster_Member02
```

for errors. The following messages appear in the log file:

MECluster_Member01:

```
[2/9/09 16:08:03:181 CET] 0000001e SibMessage    I
[SCA.SYSTEM.Cell01.Bus:MECluster.000-SCA.SYSTEM.Cell01.Bus] CWSID0016I:
Messaging engine MECluster.000-SCA.SYSTEM.Cell01.Bus is in state Started.
[2/9/09 16:08:03:181 CET] 00000021 SibMessage    I
[SCA.APPLICATION.Cell01.Bus:MECluster.000-SCA.APPLICATION.Cell01.Bus]
CWSID0016I: Messaging engine MECluster.000-SCA.APPLICATION.Cell01.Bus is
in state Started.
```

MECluster_Member02:

```
[2/9/09 16:08:03:181 CET] 0000001c SibMessage    I
[SCA.SYSTEM.Cell01.Bus:MECluster.000-SCA.SYSTEM.Cell01.Bus] CWSID0016I:
Messaging engine MECluster.000-SCA.SYSTEM.Cell01.Bus is in state Joined.
[2/9/09 16:08:03:181 CET] 00000022 SibMessage    I   [SCA.APPLICATION.-
Cell01.Bus:MECluster.000-SCA.APPLICATION.Cell01.Bus] CWSID0016I: Messaging
engine MECluster.000-SCA.APPLICATION.Cell01.Bus is in state Joined.
```

HINT: It's also possible that member02 is in state started and member01 is in state joined. But only one member can be in state started.

Chapter 11 Create and configure the support cluster (SupportCluster)

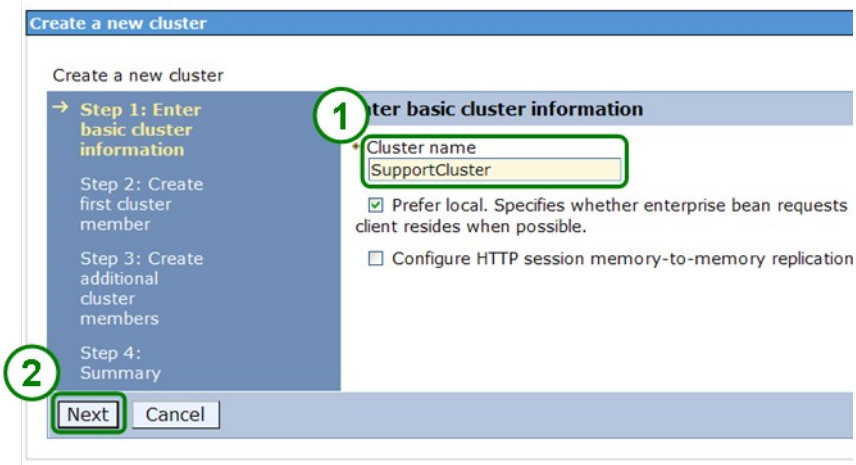
The Common Event Infrastructure (CEI) is used to provide basic event management services, such as event generation, transmission, persistence, and consumption. The support cluster will be configured to host CEI components and the Business Rules Manager. We will also configure Business Process Choreographer Explorer with reporting function to administer processes and tasks and to monitor and examine events.

11.1 Create the SupportCluster

In the admin console, navigate to:

```
Servers
  -> Clusters
    -> New.
```

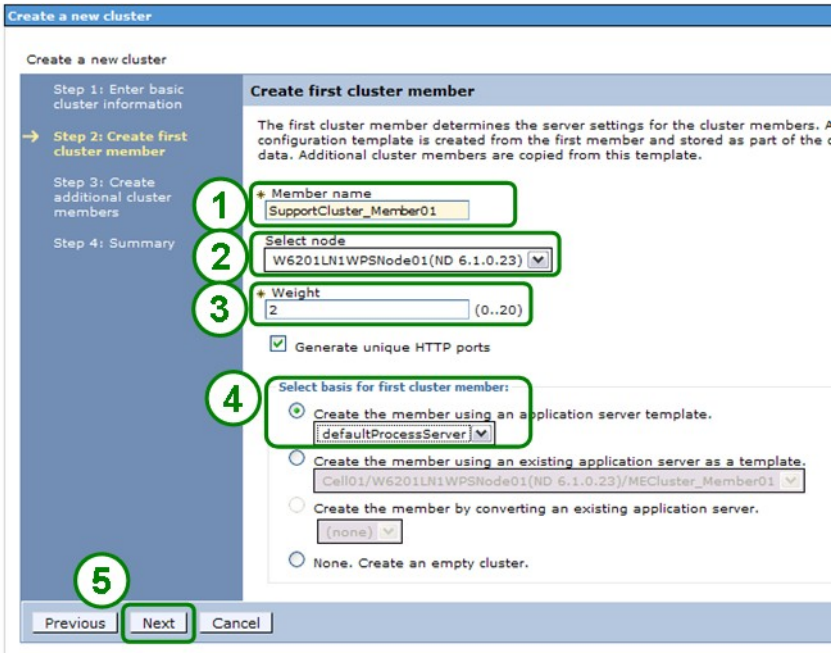
The "Create a new cluster Step:1" page is displayed:



1. Type in the Cluster name in this case "SupportCluster".

2. Click **Next**

The "Create a new Cluster Step:2" page is displayed:



1. Type in the Member name in this case "SupportCluster_Member01".

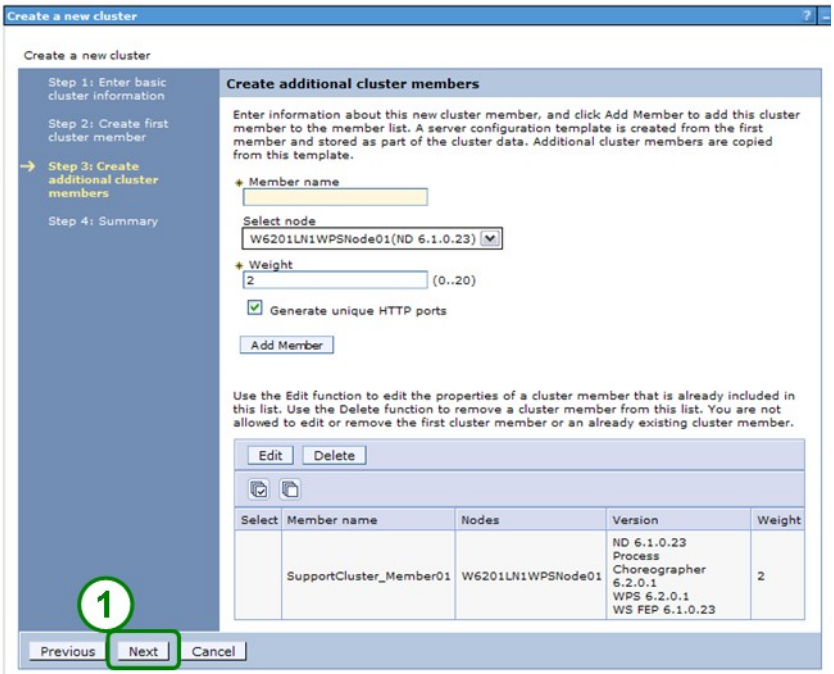
2. Select node "W6201LN1WPSNode01" from the drop-down-box.

3. Type in the Weight in this case "2".

4. Select the Template "defaultProcessServer" from the drop-down-box.

5. Click **Next**

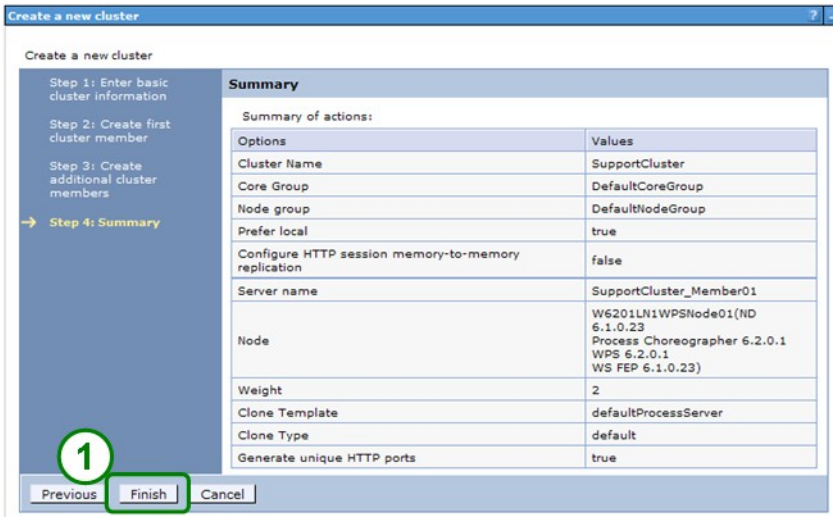
The "Create a new cluster Step:3" page is displayed:



1. Click **Next**

Note: We will complete the cluster creation with only one cluster member. After verifying that the cluster works, an additional cluster member will be added.

The "Create a new cluster Step:4" page is displayed:



1. Click **Finish**

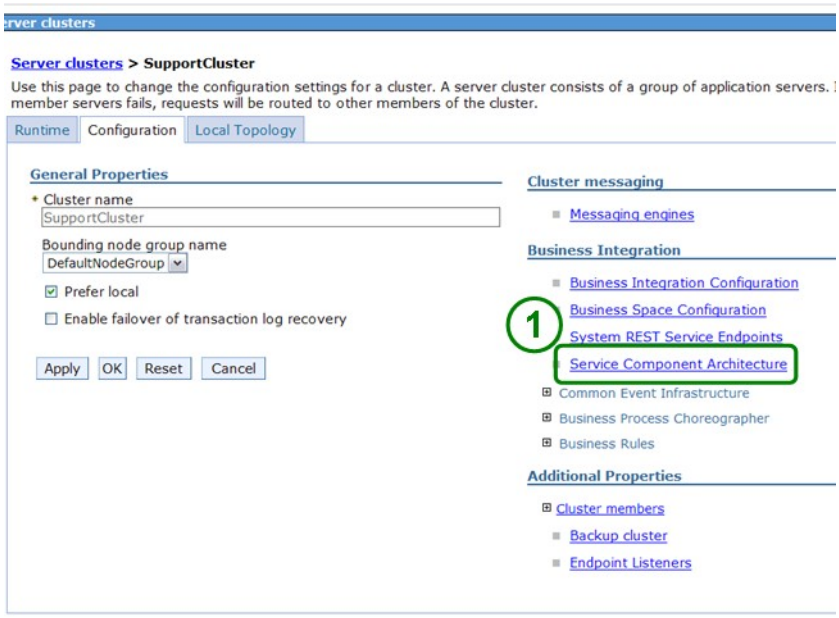
Save and **synchronize** the configuration.

11.2 Enable SCA on the SupportCluster

In the admin console, navigate to:

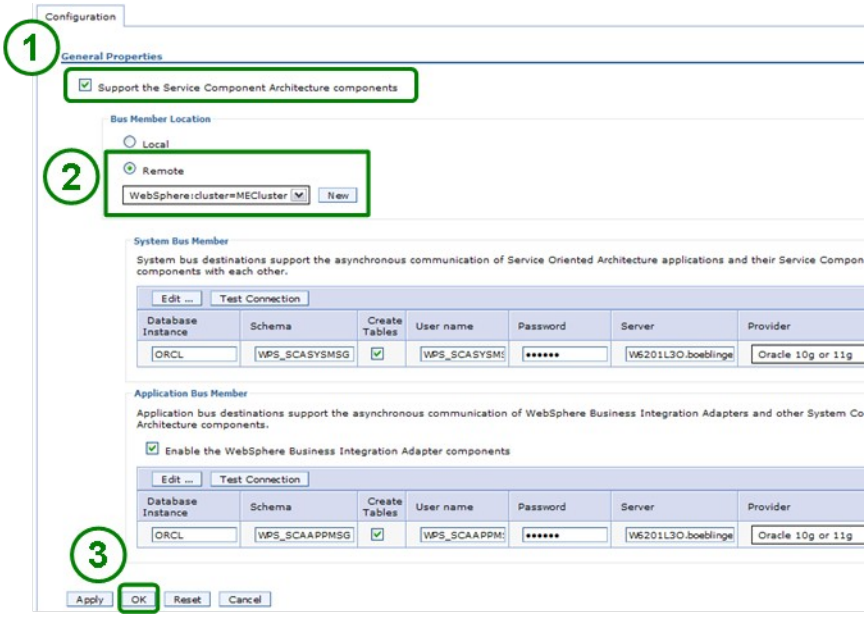
```
Servers
  -> Clusters
    -> SupportCluster
```

The "SupportCluster Configuration" page is displayed:



1. Click **Service Component Architecture**

The "Service Component Architecture" page is displayed:



1. Select the "Support the Service Component Architecture components" checkbox.

2. Select "Use a remote destination location" and select the "MECluster" from the drop-down-box.

3. Click **Ok**

Save and synchronize the configuration.

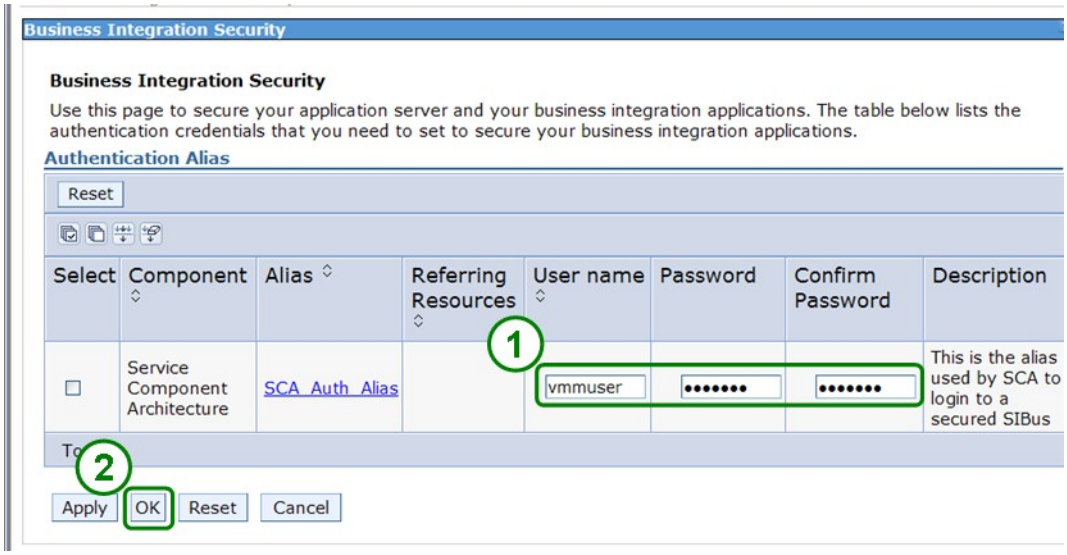
By doing this, we enabled the SupportCluster for SCA. At the same time the FailedEvent was created on the SCA.SYSTEM bus. This queue is required on each SCA enabled server or cluster.

11.2.1 Verify SCA Authentication Alias

In the admin console, navigate to:

```
Security
  -> Business Integration Security
```

The "Business Integration Security" page is displayed:



1. Verify user name is set to "vmmuser", if not set type in "vmmuser" and password.

2. Click **Ok** if the user name was changed.

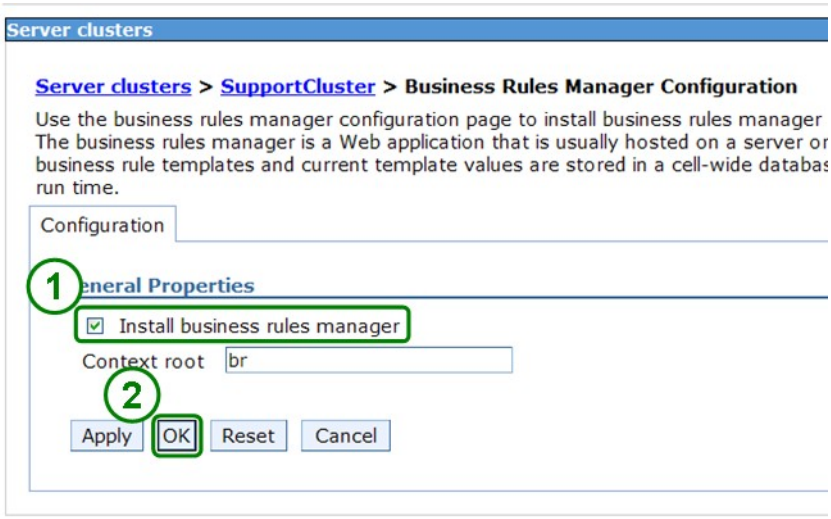
Save and synchronize the configuration if changes were made.

11.2.2 Install the Business Rules Manager

In the admin console, navigate to:

```
Servers
  -> Clusters
    -> SupportCluster
      -> Business Rules Manager Configuration
```

The "Business Rules Manager Configuration" page is displayed:



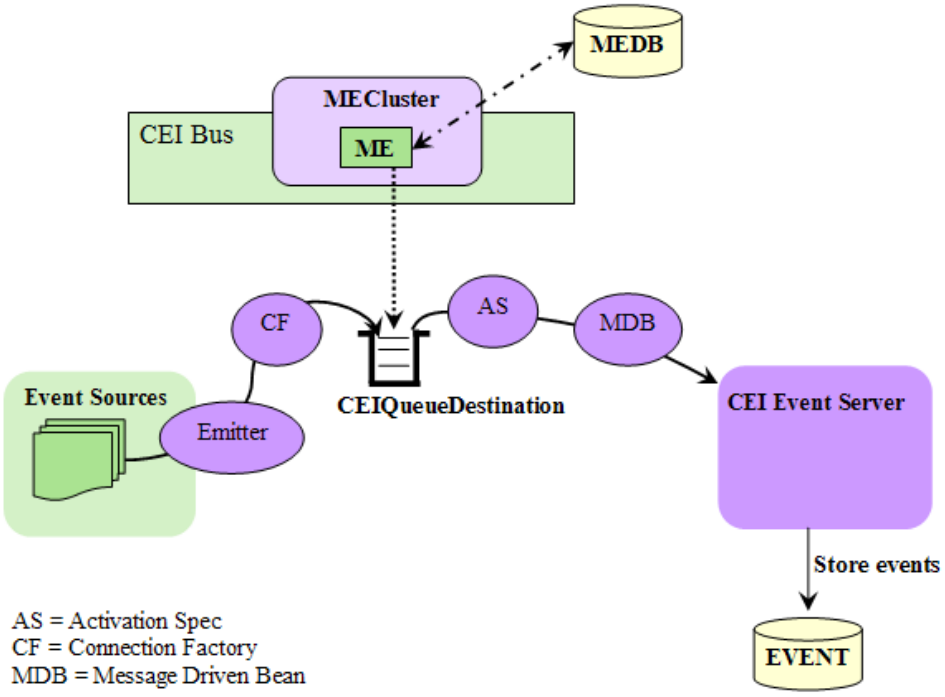
1. Select "Install business rules manager".

2. Click **Ok**

Save and synchronize the configuration if changes were made.

11.2.3 Configure the Common Event Infrastructure (CEI)

CEI is a set of modular event processing components that deliver functions such as event transport, event-bus distribution, event persistence, event subscription, event updates and event queries. The following block chart depicts the event flow from the event source to the CEI event server shows the involved components. The next chapters describe the setup of these components:



(Image Source: SW360 "WebSphere Process Server High Availability, Tuning and Administration" Course Exercises)

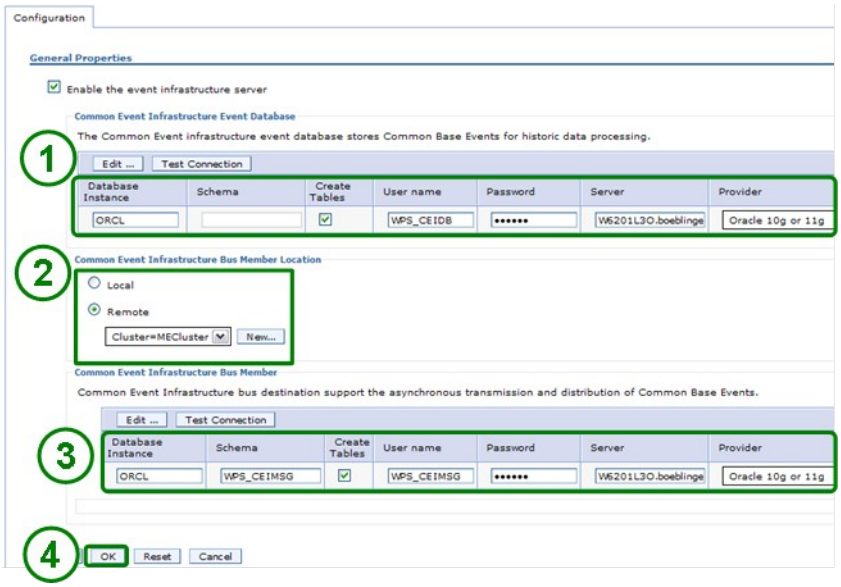
The ORCL database contains the tables for the following Buses:

- SCA.SYSTEM.WPS612Cell01.Bus - WPS_SCASYSMSG
- SCA.APPLICATION.WPS612Cell01.Bus - WPS_SCAAPPMSG
- CommonEventInfrastructure_Bus - WPS_CEIMSG

In the admin console navigate to:

```
Servers
  -> Clusters
    -> SupportCluster
      -> Common Event Infrastructure Server
```

The "Common Event Infrastructure Server Configuration" page is displayed:



1. Type in the following values for the event database store:
   - a.) Database Instance: ORCL
   - b.) Schema: <not accessable>
   - c.) Create Tables: <selected>
   - d.) User name: WPS_CEIDB
   - e.) Password: <password>
   - f.) Server: w6201l3o.boeblingen.de.ibm.com
   - g.) Provider: Oracle 10g or 11g

2. Select "Remote" and choose MECluster from the drop-down-box. If the list is empty, press the New button and select the “MECluster”, then press the OK button.

3. Type in the following values for the CEI bus member:
   - a.) Database Instance: ORCL
   - b.) Schema: WPS_CEIMSG
   - c.) Create Tables: <selected>

d.) User name:	WPS_CEIMSG
e.) Password:	<password>
f.) Server:	w62l3ora.boeblingen.de.ibm.com
g.) Provider:	Oracle 10g or 11g

4. Click **Ok**

Save and synchronize the configuration

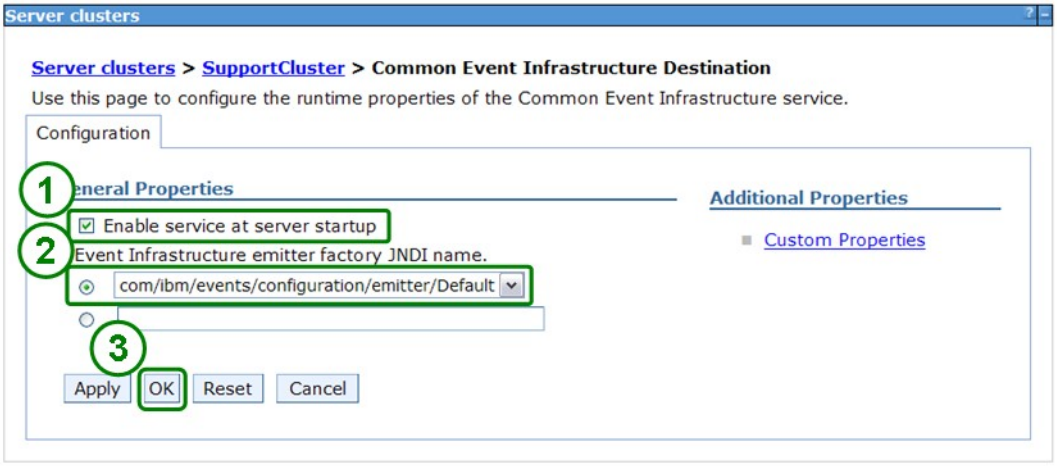
By doing this, the following is created under the covers:

- a CEI SI Bus "CommonEventInfrastructure_Bus"
- a CEI ME data source:
  - JNDI Name: jdbc/com.ibm.ws.sib/MECluster-CommonEventInfrastructure_Bus
- the tables for the CEI Server events in the specified existing database
- the tables for the CEI Bus MessageEngine
- a Event Data source – jdbc/cei
- a Event Infrastructure Emitter Factory
  - JNDI name: com/ibm/events/configuration/emitter/Default"

In the Admin console, navigate to:

```
Servers
  -> Clusters
    -> SupportCluster
    -> Common Event Infrastructure Destination
```

The "Common Event Infrastructure Destination " page is displayed:



1. Select "Enable service at server startup".

2. Select "com/ibm/events/configuration/emitter/Default" from the drop-down-box.

3. Click **Ok**

Save and synchronize the configuration

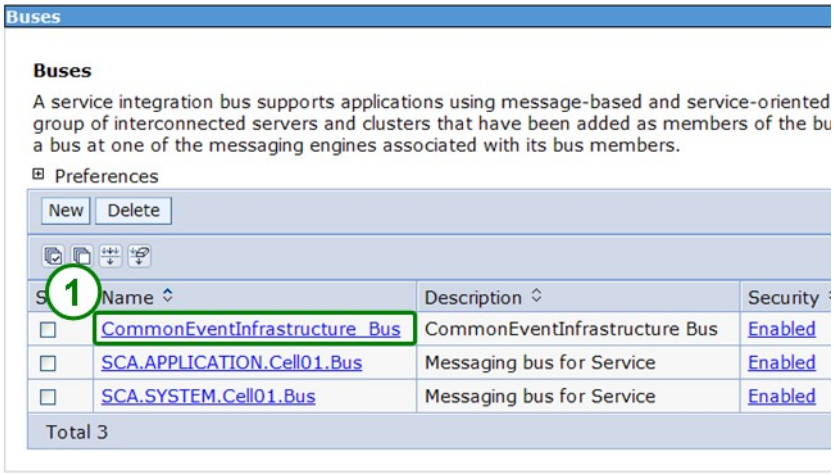
11.2.3.1 Verify service integration buses security

To verify the bus security for the buses navigate to:

```
Service Integration
  -> Buses
```

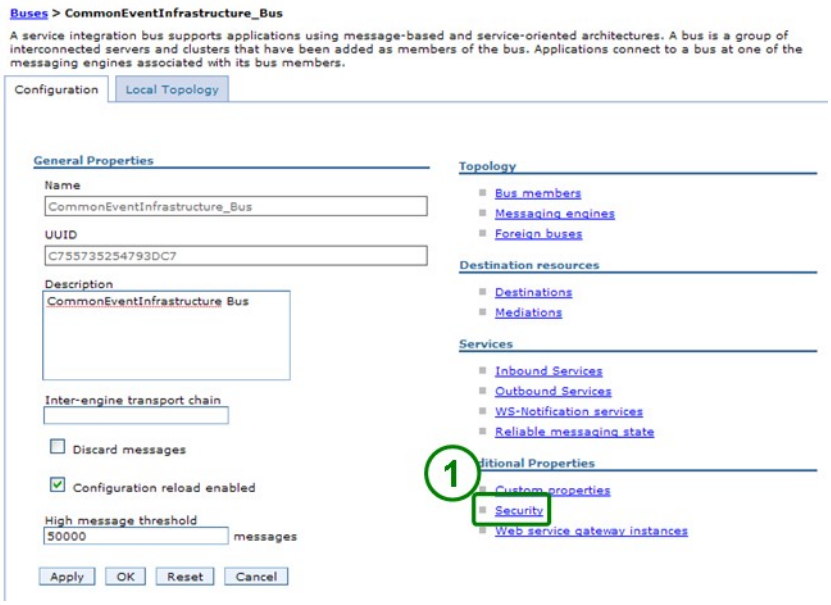
The following steps have to be repeated for all configured buses.

The "System Integration Busses" page is displayed:



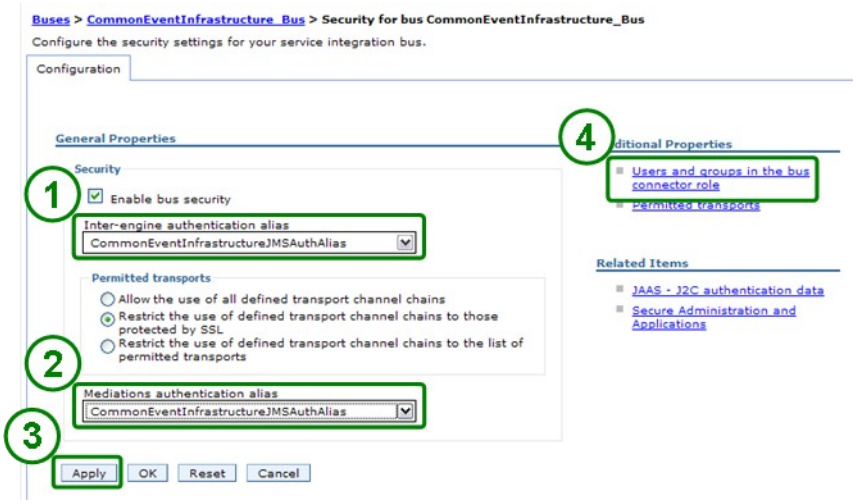
1. Click **CommonEventInfrastructure_Bus**

The "CommonEventInfrastructure_Bus" page is displayed:



1. Click **Security**

The "Security for bus CommonEventInfrastructure_Bus" page is displayed:



1. Verify that the "Inter-engine authentication alias" is set to "CommonEvent InfrastructureJMSAuthAlias".

2. Verify that the "Mediations authentication alias" is set to "CommonEvent InfrastructureJMSAuthAlias".

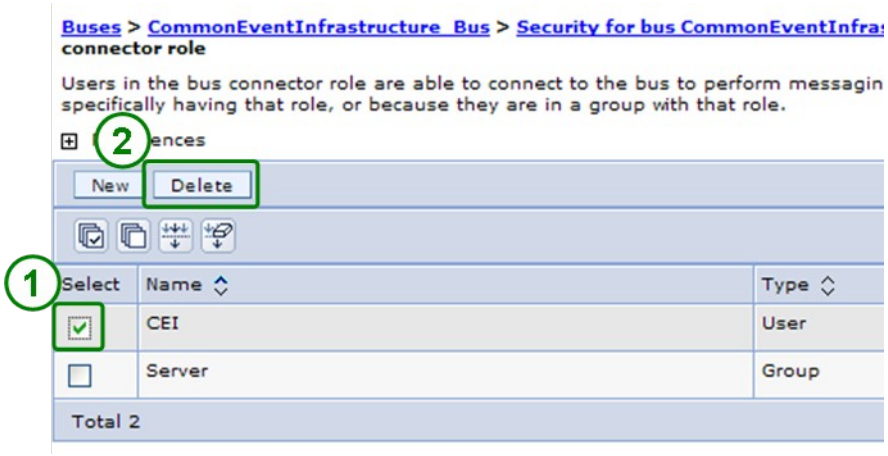
3. Click **Apply** if you made any changes.

4. Click **Users and groups in the bus connector role**

Repeat the steps above for the two SCA buses (SCA.APPLICATION.Cell01.Bus and SCA.SYSTEM.Cell01.Bus).

Use **SCA_Auth_Alias** as the authentication alias for the SCA buses.

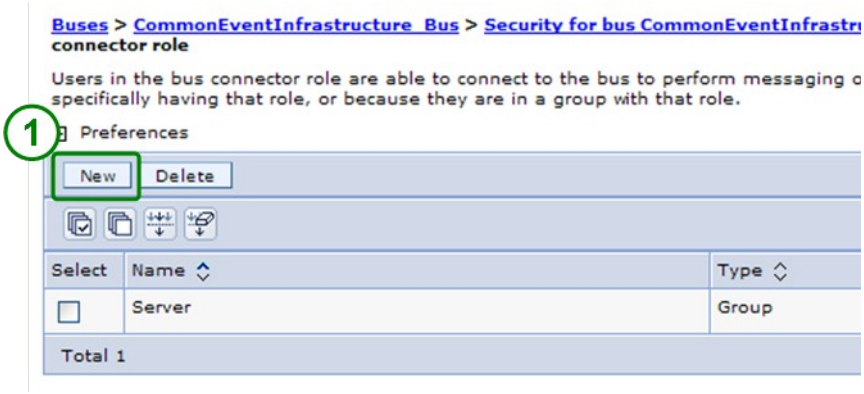
The "Users and groups in the bus connector role" page is displayed:



1. Select "CEI".

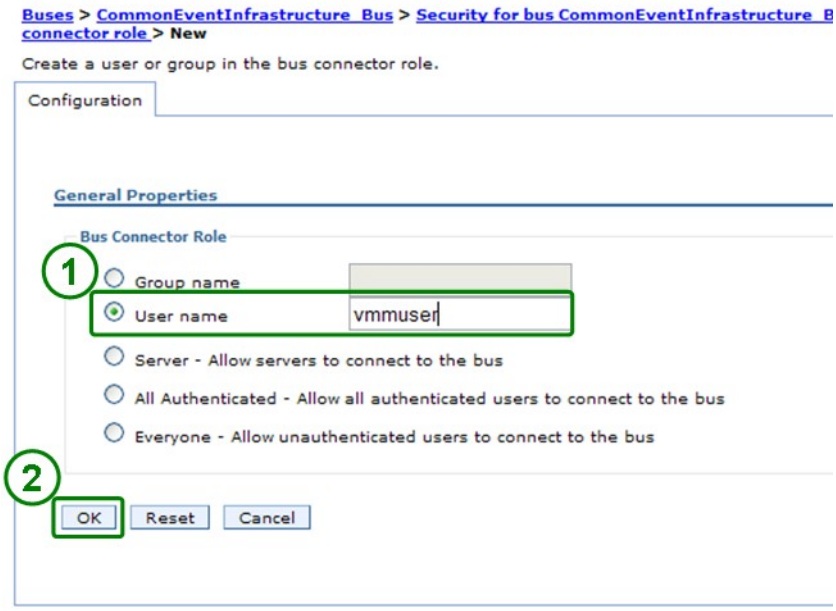
2. Click **Delete**

The "Users and groups in the bus connector role" page is displayed again:



1. Click **New**

The " Users and groups in the bus connector role New" page is displayed:



1. Select "User name" and type in "vmmuser".

2. Click **Ok**

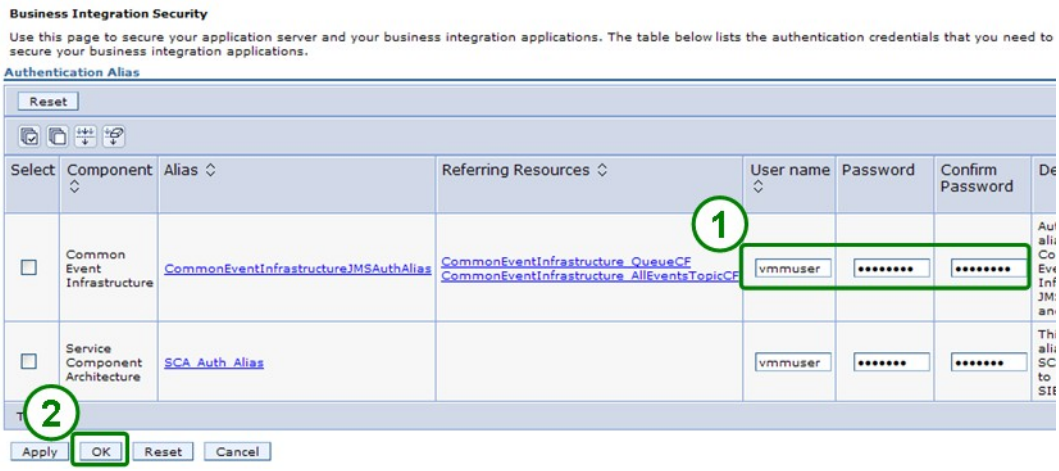
Save and synchronize the configuration

11.2.3.2 Verfiy CommonEventInfrastructureJMSAuthAlias

In the admin console navigate to:

```
Security
  -> Business Integration Security
```

The "Business Integration Security" page is displayed:



1. Type in the following values:
   a.) User name: vmmuser
   b.) Password: <password>
   c.) Confim Password: <password>
2. Click **Ok**

Save and synchronize the configuration

Stop the MECluster, node agents and Deployment Manager and then restart the Deployment Manager and nodes and MECluster.

Do not yet start the SupportCluster.

Hint: By default, the *CommonEventInfrastructure_QueueCF*, *CommonEventInfrastructure_AllEventsTopicCF* and *CommonEventInfrastructure_ActivationSpec* are configured to use the *CommonEventInfrastructureJMSAuthAlias* authentication alias. However, this authentication alias is configured to use the non-existing userid "CEI", which would lead to errors when the SupportCluster would be started. In the following steps, this configuration mismatch is being corrected.

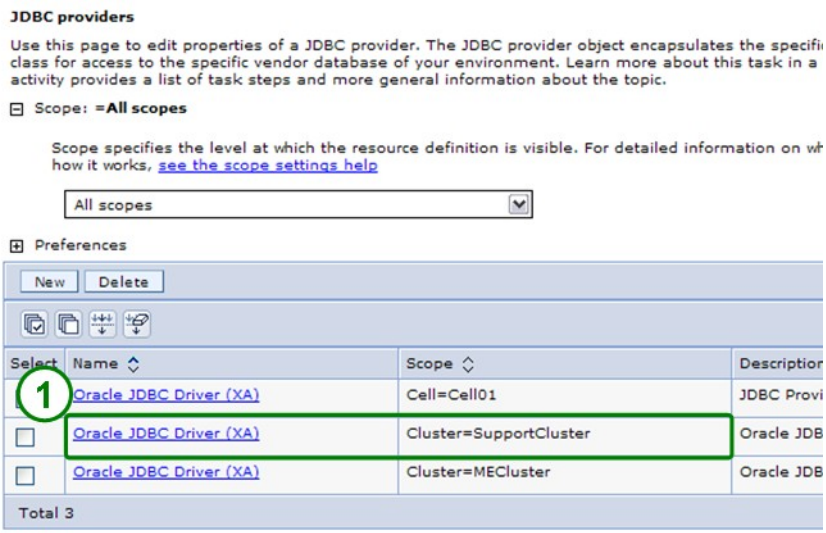
11.2.3.3 Verify JDBC provider for SupportCluster

The JDBC provider for the CEI database has already been created automatically under the covers. It needs to be updated to use the correct Oracle JDBC driver.

In the admin console navigate to:

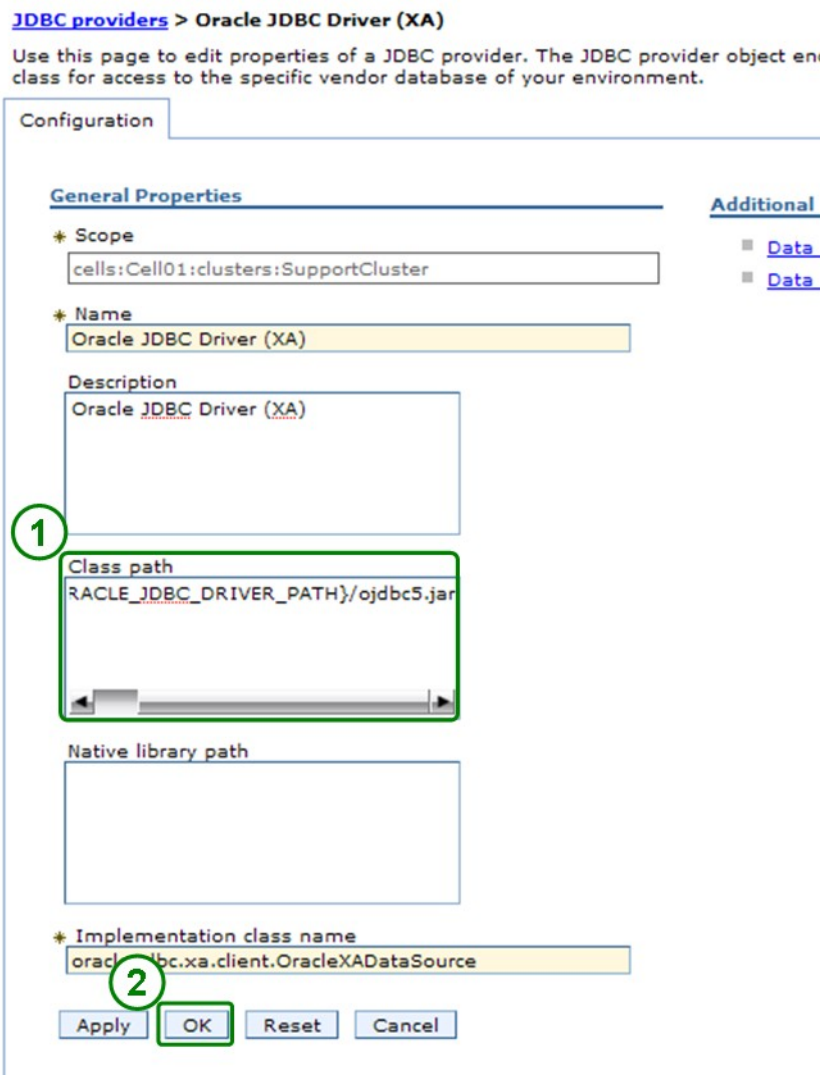
```
Resources
  -> JDBC
    -> JDBC Providers
```

The "JDBC providers" page is displayed:



1. Click **Oracle JDBC Driver (XA)**, Scope "SupportCluster".

The "Oracle JDBC Driver (XA)" page is displayed:



1. Change the "Class path" to "${ORACLE_JDBC_DRIVER_PATH}/ojdbc5.jar".

2. Click **Ok**

Save and synchronize the configuration

11.2.3.4 Verify JDBC data source for SupportCluster

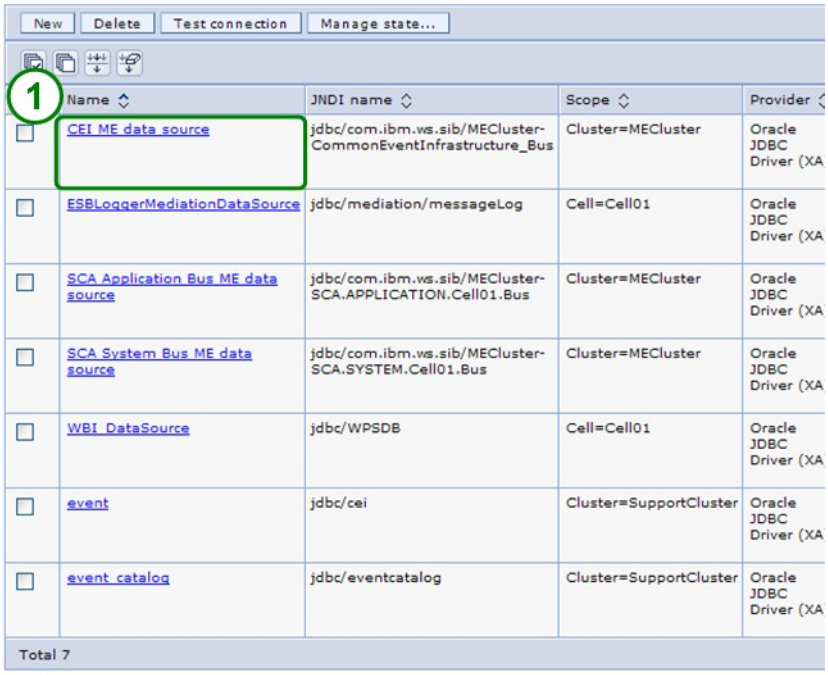
The data source for the CEI database has already been created automatically under the covers. The following data sources need to be updated:

- CEI_ME_data_source
- event
- event_catalog

In the admin console navigate to:

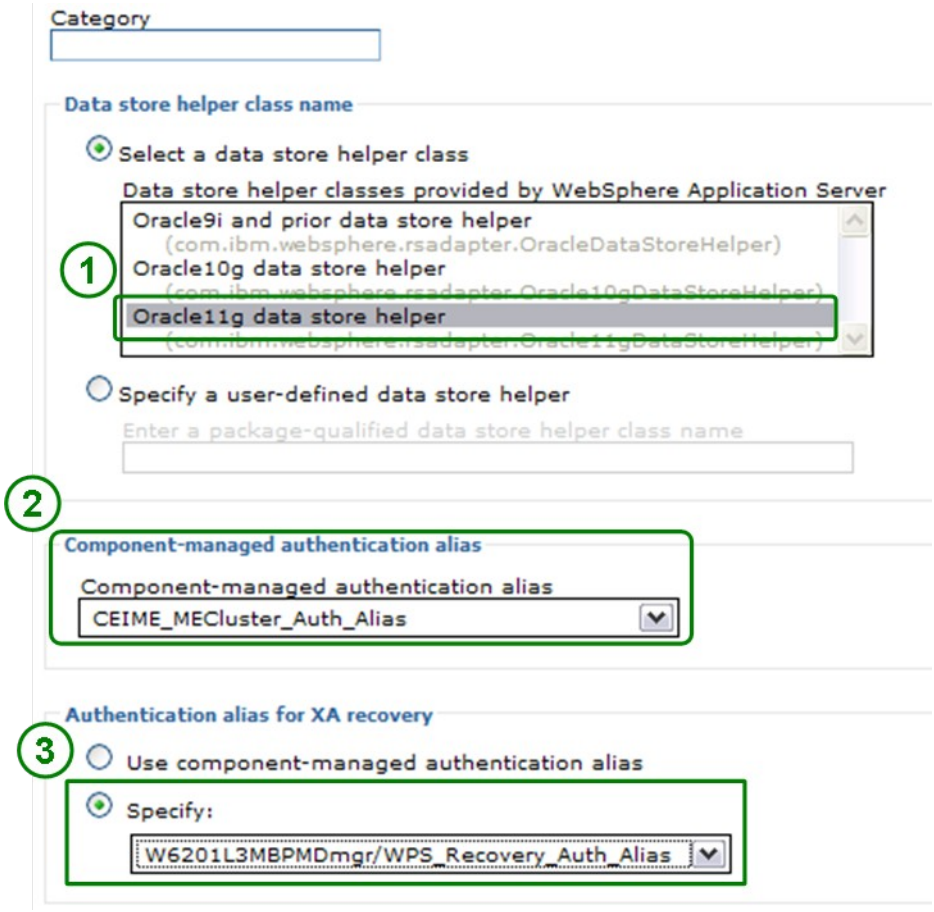
```
Resources
  -> JDBC
    -> Data sources
```

The "data sources" page is displayed:



1. Click **CEI_ME_data_source**

The "CEI_ME_data_source" page is displayed:



1. Select "Oracle11g data store helper".

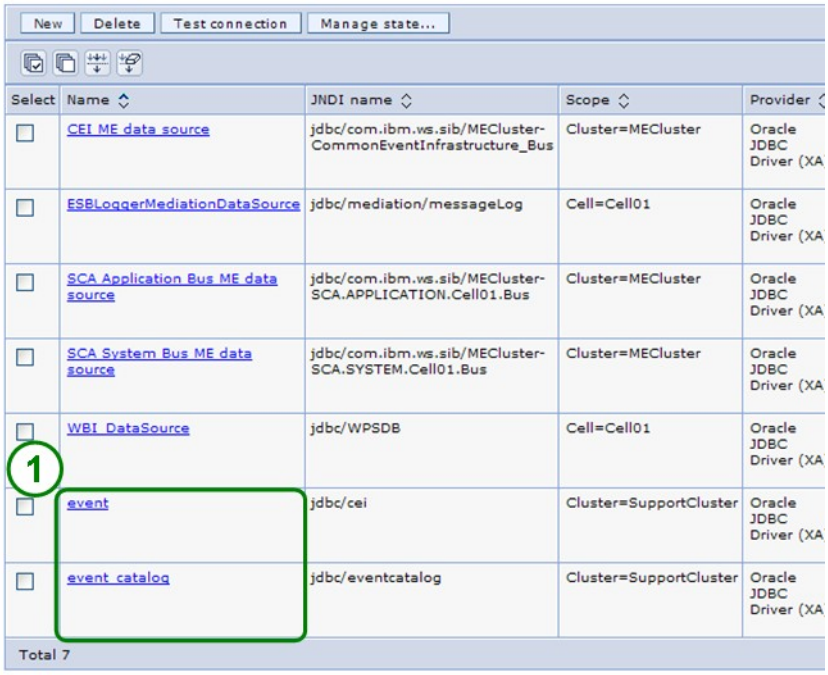
2. Select "CEIME_MECluster_Auth_Alias".

3. Select "<Dmgr_hostname>/WPS_Recovery_Auth_Alias".

Click **Ok**

Save and synchronize the configuration

The "data sources" page is displayed again:



1. Repeat the steps above for the event and the event_catalog data source.

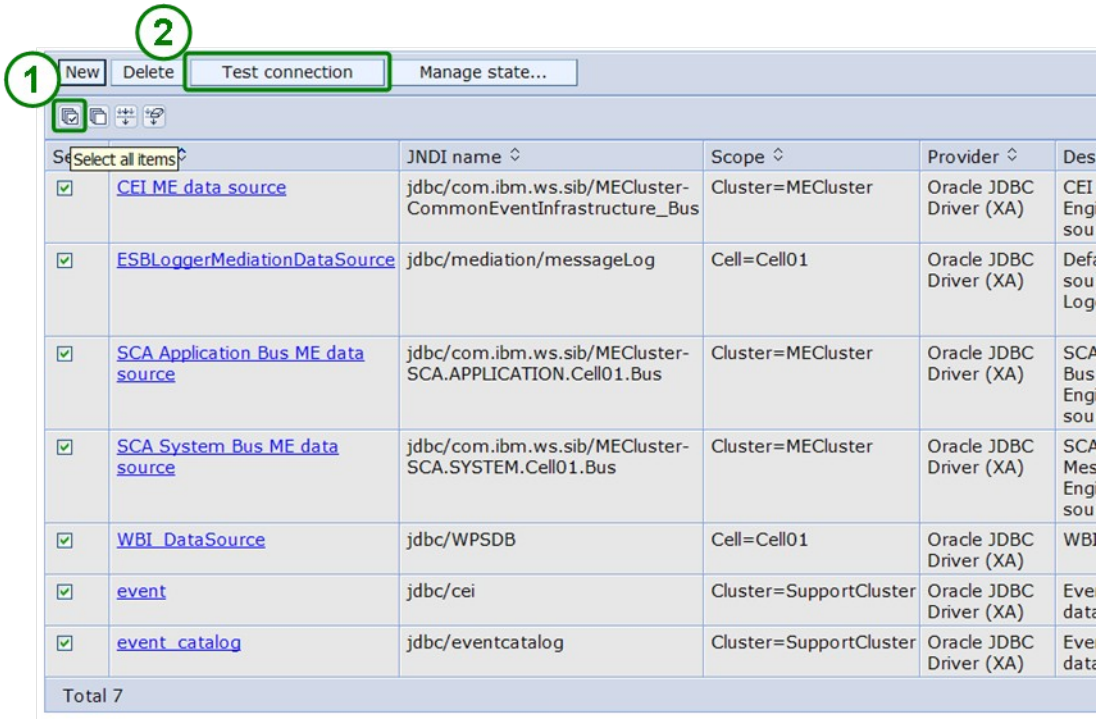
Use Cell01/SupportCluster/EventAuthDataAliasOracle as authentication alias for both data sources.

Save and synchronize the configuration

To verify the already configured data sources use the admin console and navigate to:

```
Resources
  -> JDBC
    -> Data sources
```

The "Data sources" page is displayed:



1. Click **Select all item** icon

2. Click **Test connection**

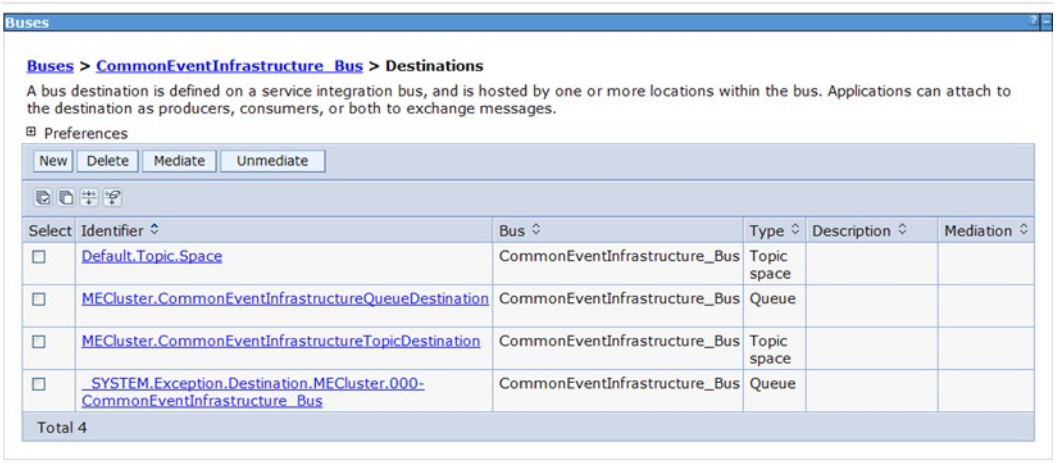
If the test connection says something about "null userid" then restart the node agents and try again. Also make sure that you have changed the "Component-managed authentication alias" for all three data sources.

11.2.3.5 Verify the JMS destinations for CEI

In the admin console navigate to:

```
Service Integration
  -> Buses
    -> CommonEventInfrastructure_Bus
      -> Destinations
```

The "Destinations" page is displayed:



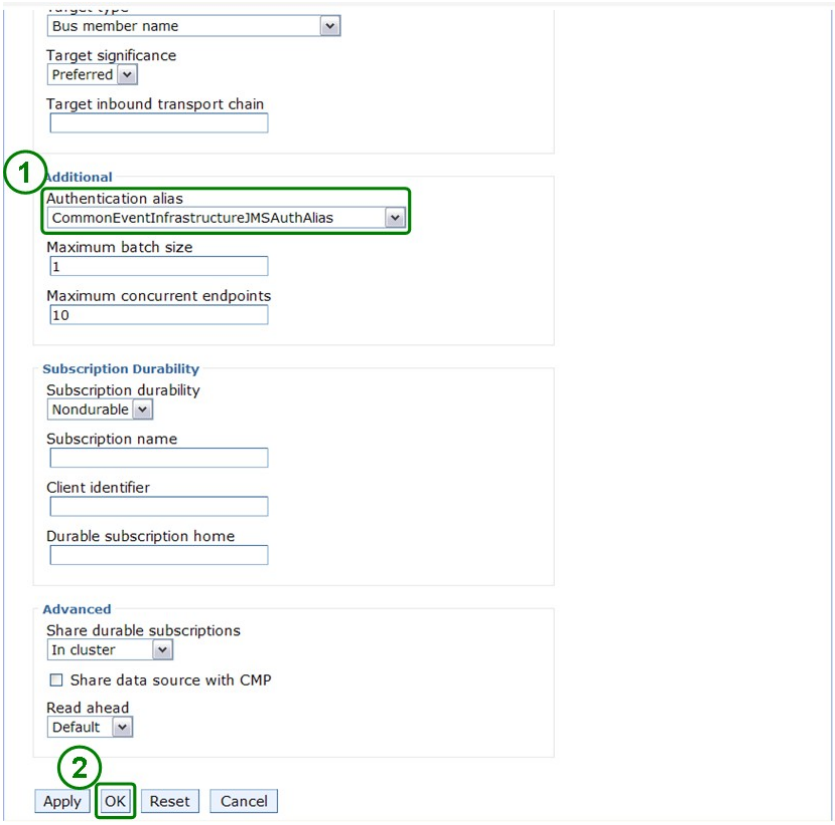
You should see the destinations listed above.

11.2.3.6 Verify activation specification for CEI

In the admin console navigate to:

```
Resources
  -> JMS
....-> Activation specifications
      -> CommonEventInfrastructure_ActivationSpec
```

The "CommonEventI_ActivationSpec" page is displayed:



1. Verify the "Authentication alias" is set to "CommonEventInfrastructureJM-SAuthAlias".

2. Click **Ok**

Save and synchronize the configuration

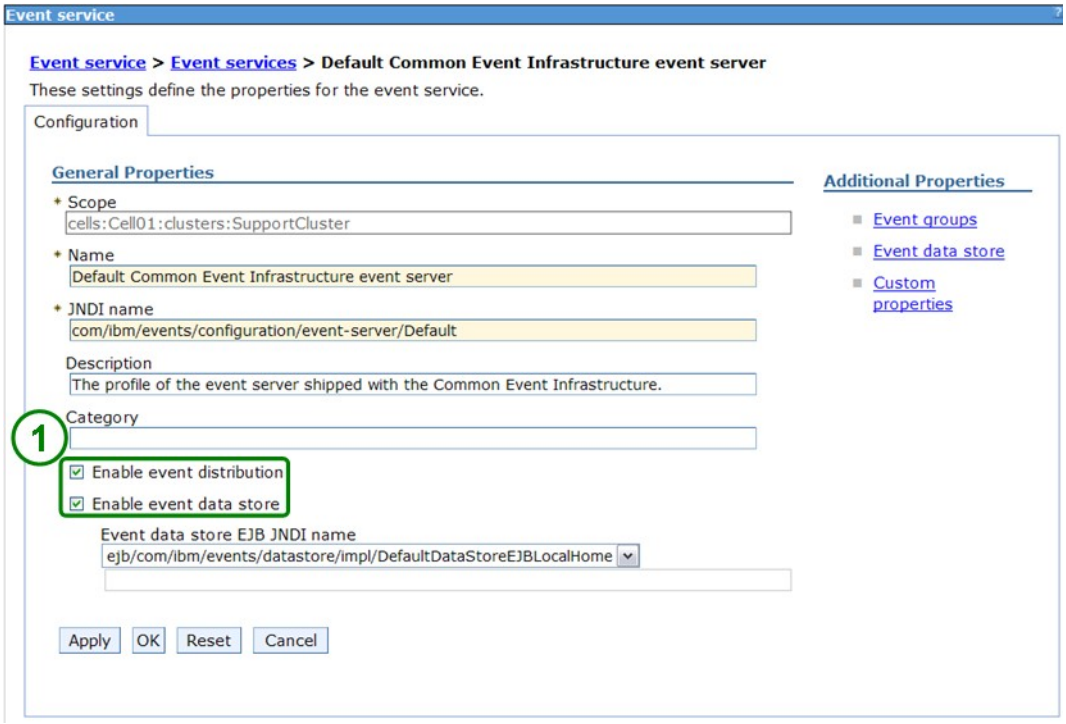
11.2.3.7 Verify the Common Event Infrastructure server

Hint: The CEI Event Server is installed under the covers by configuring the CEI Event Server. However, there is no "visible" CEI Event Server enterprise application in the admin console.

In the admin console navigate to:

```
Service Integration
  -> Common Event Infrastructure
    -> Event Service
      -> Event Services
........-> Default Common Event Infrastructure event server
```

The "Default Common Event Infrastructure event server" page is displayed:



1. Verify that event distribution and data store are enabled.

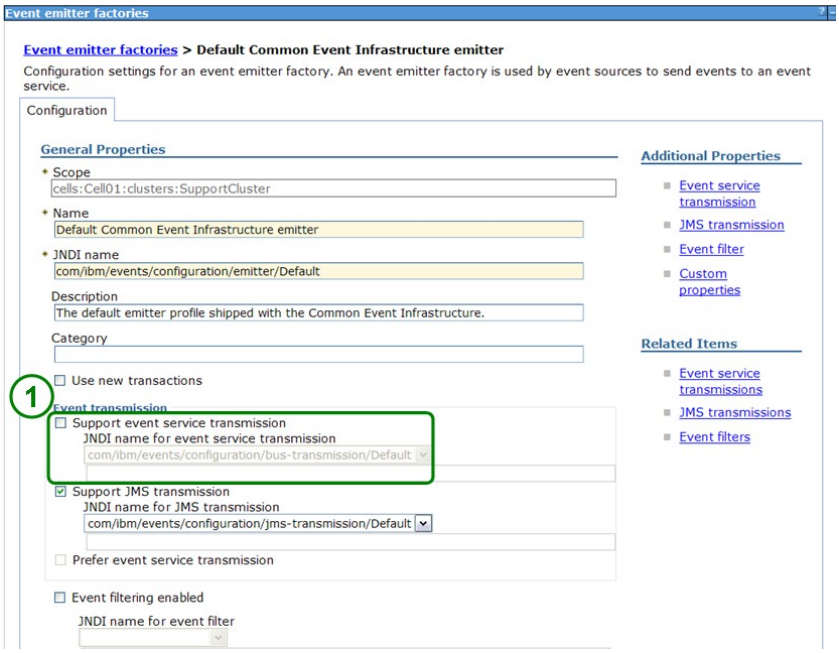
Save and synchronize the configuration

11.2.3.8 Set up the emitter to send events asynchronously

An application (event source) sends events to the event server though an emitter object. The emitter factory is used to create emitter objects and to define their behavior (e.g. asynchronous transmission).
In the admin console navigate to:

```
Service Integration
  -> Common Event Infrastructure
    -> Event Emitter Factories
      -> Default Common Event Infrastructure emitter
```

The "Default Common Event Infrastructure emitter" page is displayed:



In the Event transmission box the selections have the following meaning:

Support event service transmission - Indicates whether events are sent directly to the event service before control is returned to the event source.

Support JMS transmission - Indicates whether events are sent to a JMS queue and control returned to the event source before the event is returned to the event source.

Prefer event service transmission - The transmission mode you want to use by default when sending event to the event service. Indicates whether events are sent to a JMS queue and control returned to the event source before the event is returned to the event source.

1. Deselect "Support event service transmission" and click **Ok** .

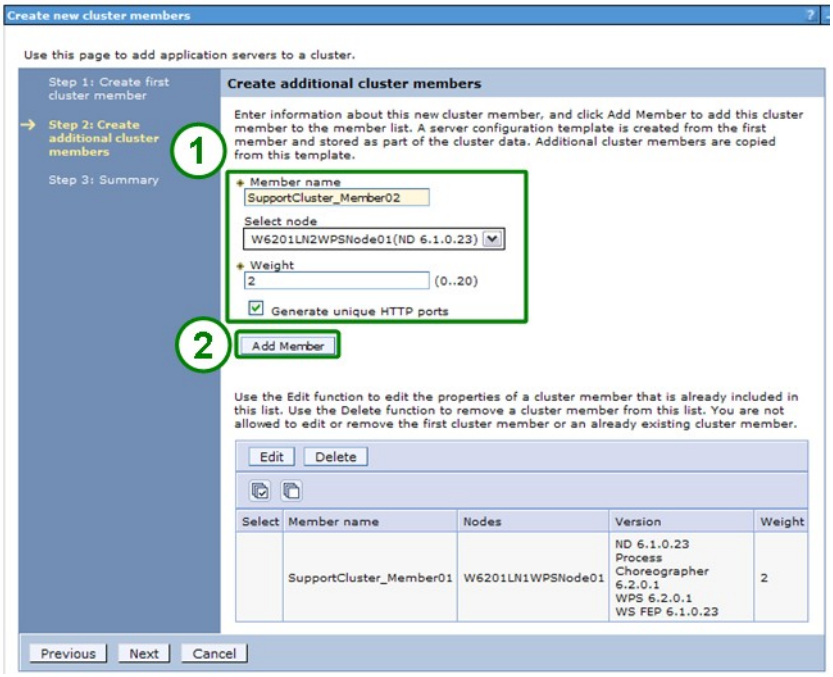
Save and synchronize the configuration

11.2.4 Create the additional cluster member for SupportCluster

In the admin console, navigate to:

```
Servers
  -> Clusters
    -> SupportCluster
      -> Additional properties
        -> Cluster Members
.........-> New
```

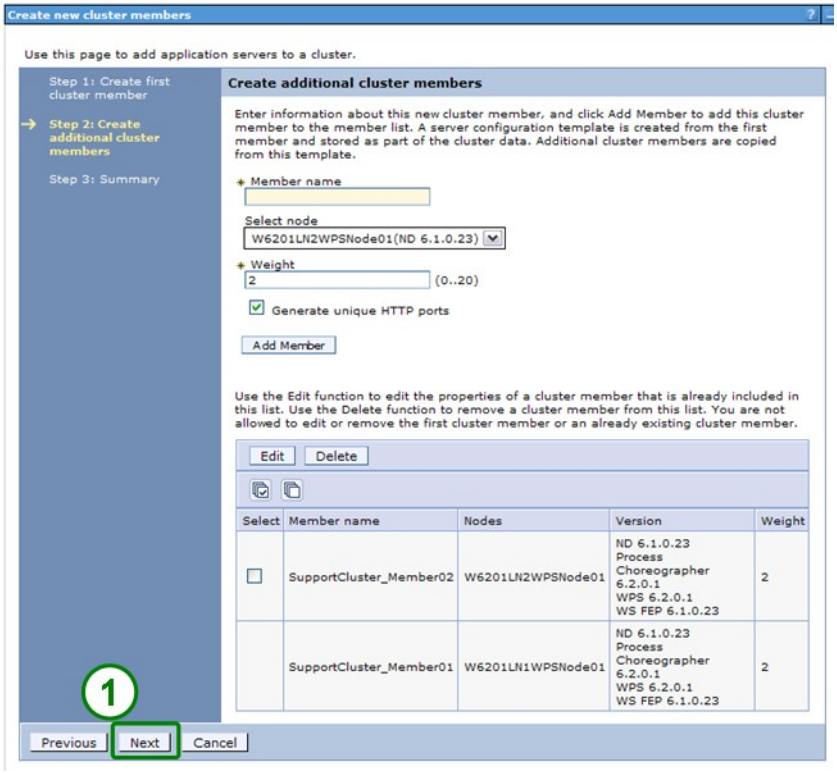
The "Create additional cluster members" page is displayed:



1. Type in the following values:
   a.) Member name: SupportCluster_Member02
   b.) Select node: WPSNode02
   c.) Weight: 2

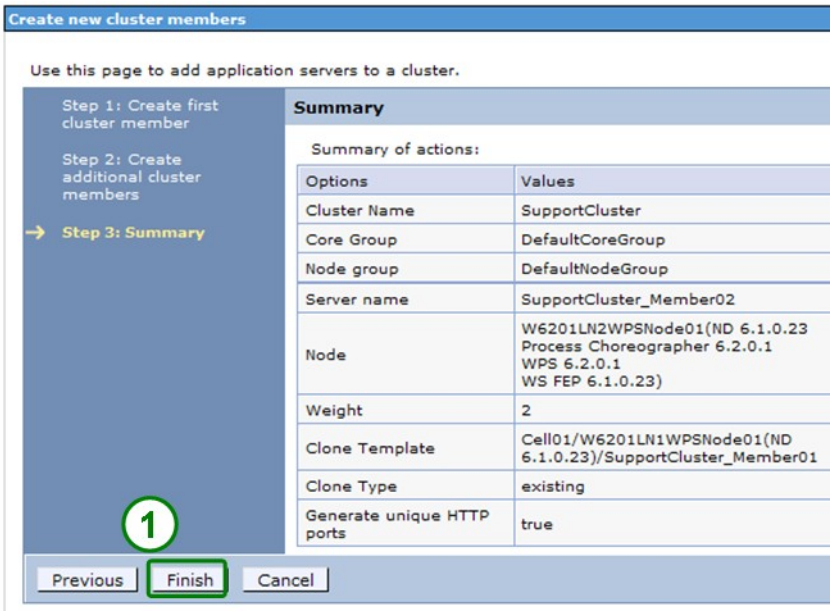
2. Click **Add Member**

The "Create additional cluster members" page is displayed again:



1. Click **Next**

The "Create additional cluster members Summary" page is displayed:

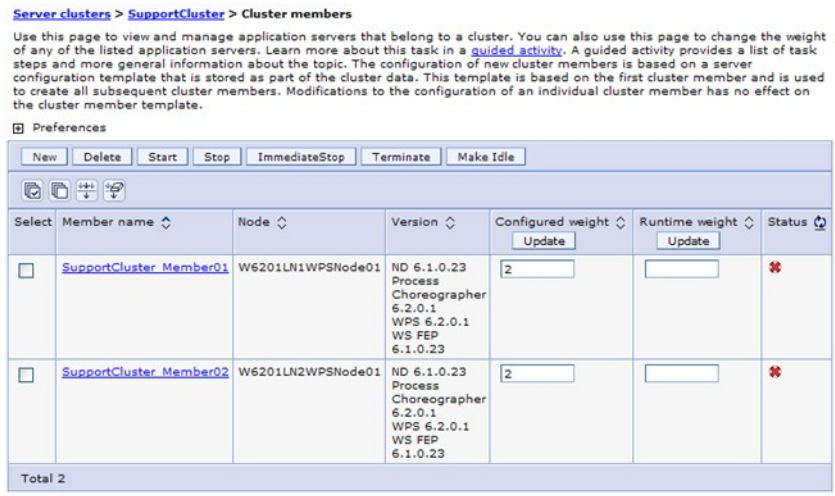


1. Click **Finish**

Save and synchronize the configuration

11.2.5 Verify configuration

Verify the members of the SupportCluster:



Server clusters > SupportCluster > Cluster members

Use this page to view and manage application servers that belong to a cluster. You can also use this page to change the weight of any of the listed application servers. Learn more about this task in a guided activity. A guided activity provides a list of task steps and more general information about the topic. The configuration of new cluster members is based on a server configuration template that is stored as part of the cluster data. This template is based on the first cluster member and is used to create all subsequent cluster members. Modifications to the configuration of an individual cluster member has no effect on the cluster member template.

Preferences

New | Delete | Start | Stop | ImmediateStop | Terminate | Make Idle

Select	Member name	Node	Version	Configured weight (Update)	Runtime weight (Update)	Status
☐	SupportCluster_Member01	W6201LN1WPSNode01	ND 6.1.0.23 Process Choreographer 6.2.0.1 WPS 6.2.0.1 WS FEP 6.1.0.23	2		✖
☐	SupportCluster_Member02	W6201LN2WPSNode01	ND 6.1.0.23 Process Choreographer 6.2.0.1 WPS 6.2.0.1 WS FEP 6.1.0.23	2		✖

Total 2

Start the clusters in the following sequence:

1. MECluster
2. SupportCluster

Check the SystemOut.log of the MECluster members and verify that

- the messaging engine **CommonEventInfrastructure_Bus** reports state **started** for one and state **joined** for the other. The member started first hosts the messaging engine (started), the other member provides the stand-by (joined).
- for the message:

```
WsServerImpl  A   WSVR0001I: Server MECluster_member0x open for e-business
```

Check the SystemOut.log of the SupportCluster members and verify that

- there aren't any exceptions
- for the message

```
WsServerImpl  A   WSVR0001I: Server SupportCluster_member0x open for e-business
```

Revoke configuration privileges for user WPS_CEIDB as described in the database configuration chapter.

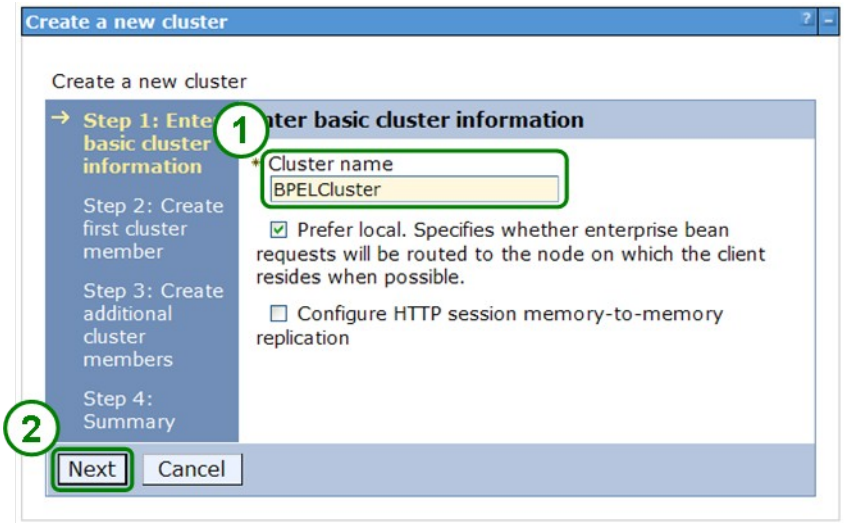
Chapter 12 Create and configure the BPC and HTM cluster (BPELCluster)

12.1 Create the BPELCluster

In the admin console, navigate to:

```
Servers
  -> Clusters
    -> New
```

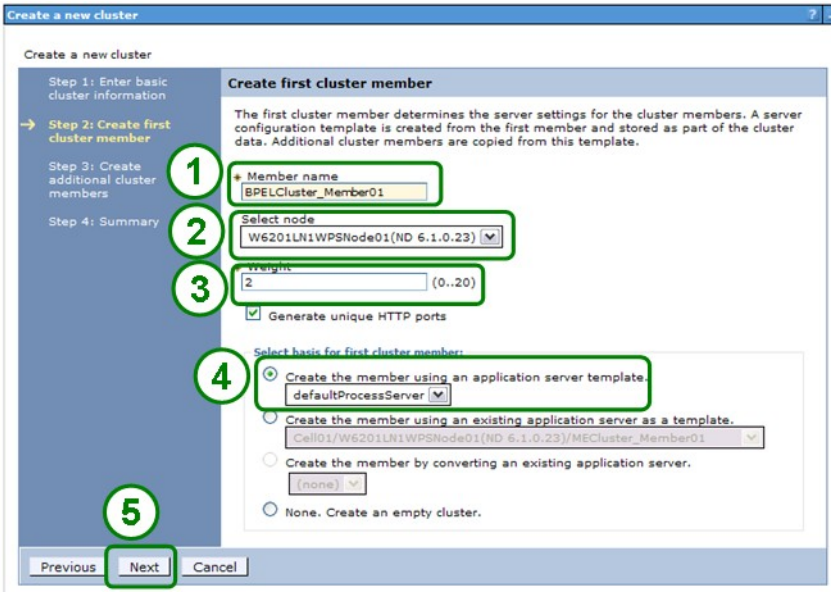
The "Create a new Cluster" page is displayed:



1. Type in the "Cluster name" in this case "BPELCluster".

2. Click **Next**

The "Create a new cluster Step 2" page is displayed:



1. Type in the "Member name" in this case "BPELCluster_Member01".

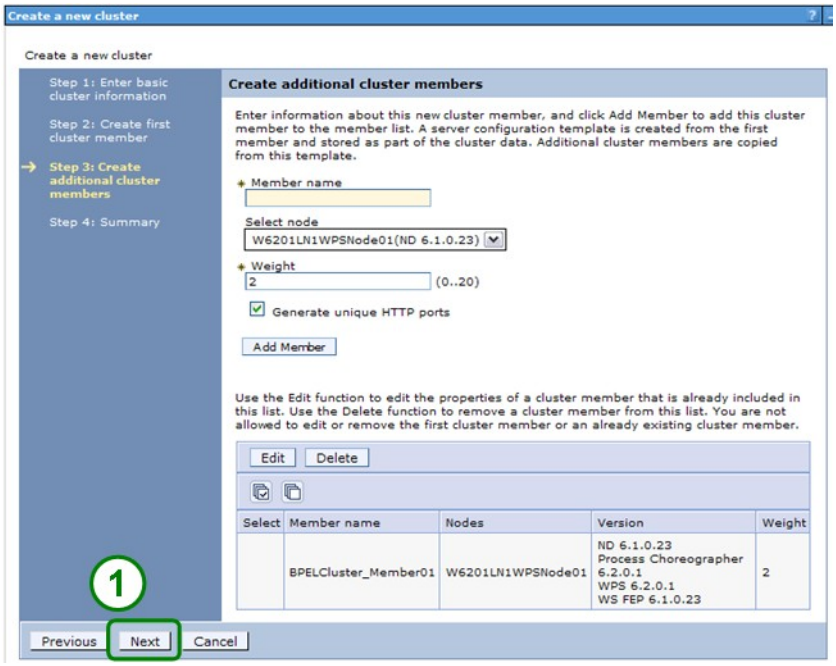
2. Select "WPSNode01" from the drop-down-box.

3. Type in the "Weight" "2".

4. Select "defaultProcessServer" as basis for the first cluster member.

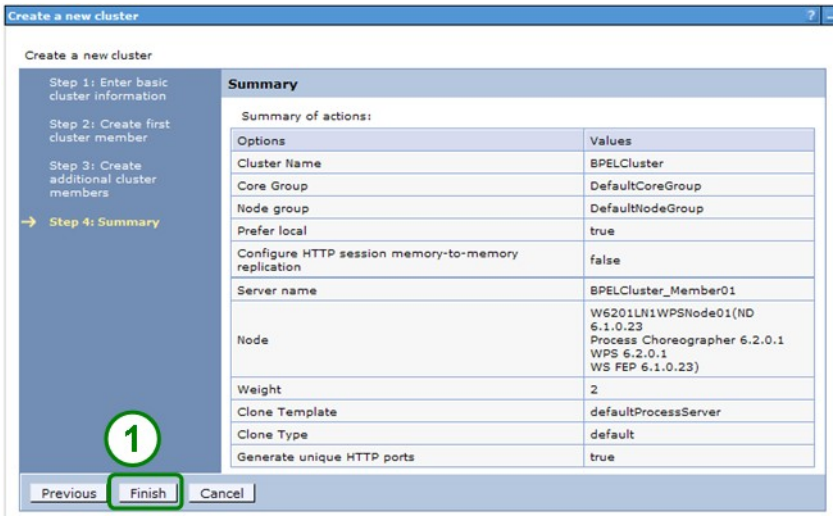
5. Click **Next**

The "Create a new cluster Step 3" page is displayed:



1. Click **Next**

The "Create a new cluster Step 4 Summary" page is displayed:



1. Click **Finish**

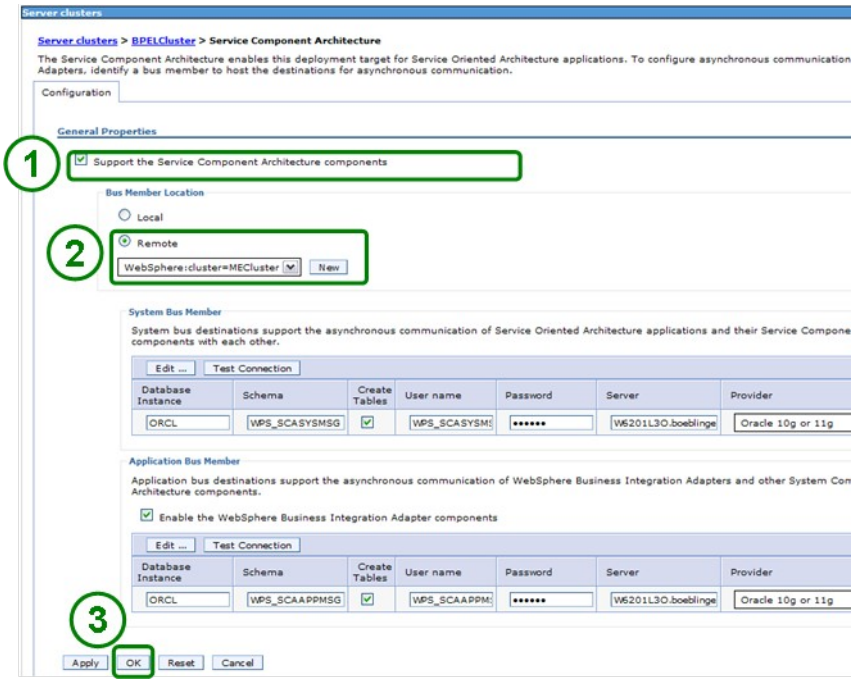
Save and **synchronize** the configuration.

12.2 Enable SCA on the BPELCluster

In the admin console navigate to:

```
Servers
  -> Clusters
    -> BPELCluster
      -> Service Component Architecture
```

The "Service Component Architecture" page is displayed:



1. Select "Support the Service Component Architecture components".

2. Select "Remote" and choose "MECluster" from the drop-down-box.

3. Click **Ok**

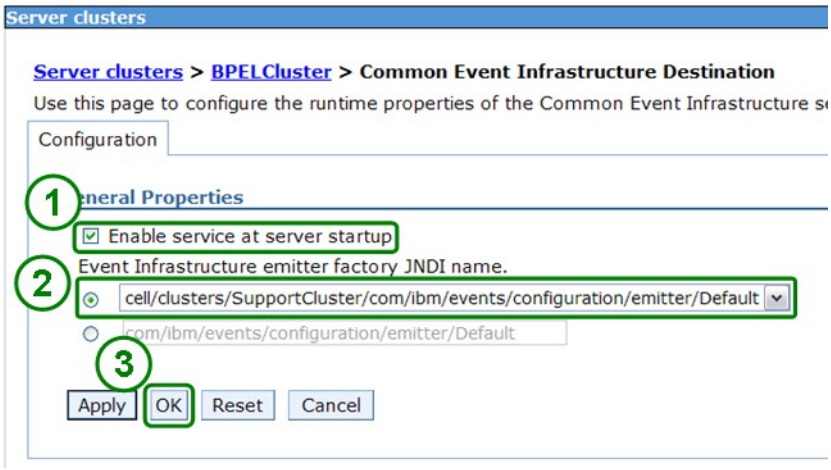
Save and **synchronize** the configuration.

12.3 Route CEI data from the BPELCluster to the SupportCluster

To route all the CEI messaging from the BPELCluster to the SupportCluster where CEI is installed, navigate to:

```
Servers
  -> Clusters
    -> BPELCluster
      -> Common Event Infrastructure Destination
```

The "Common Event Infrastructure Destination" page is displayed:



1. Select "Enable service at server startup".

2. Select the drop-down-box and choose "cell/cluster/SupportCluster/com/ibm/events/configuration/emitter/Default".

3. Click **Ok**

Save and **synchronize** the configuration.

12.4 Install the Business Process Choreographer Container in BPELCluster

There are several ways to configure the BPC Container, here the bpeconfig.jacl is being used. Login to the deployment manager server, in this case it is the w62l3dmg.boeblingen.de.ibm.com machine as user **root** and execute the following commands:

```
cd /WPS62/ProcessChoreographer/config
/WPS62/bin/wsadmin.sh -f bpeconfig.jacl -user vmmuser -password <password>
```

```
WASX7209I: Connected to process "dmgr" on node CellManager01 using SOAP connector;
The type of process is: DeploymentManager

*******************************************************************************
* This script allows to configure Process Choreographer including all needed *
* WebSphere resources, the database, and the queue manager and queues.        *
* Supported databases are Derby, DB2, Informix, Oracle, and SQL Server;       *
* supported JMS providers are WebSphere Platform Messaging and WebSphere MQ.  *
* The prerequisite software must already be installed.                        *
* --------------------------------------------------------------------------- *
* You will be prompted for the required information at each step. The         *
* default value is always listed first in a prompt, you can select it by      *
* simply pressing the 'Enter' key.                                            *
*******************************************************************************

More than one server found. Please specify where to configure Process
Choreographer.
```

```
Configure Process Choreographer on cluster 'SupportCluster' [Yes/no]? no
```

```
==> no
```

```
Configure Process Choreographer on cluster 'MECluster' [Yes/no]? no
```

```
==> no
```

```
Configure Process Choreographer on cluster 'BPELCluster' [Yes/no]? Yes
```

```
==> yes
```

```
Install the business process container [Yes/no]? Yes
```

```
==> yes
```

```
User(s) to add to role BPESystemAdministrator (separator is pipe, '|') []: vmmuser
```

```
==> vmmuser
```

```
Group(s) to add to role BPESystemAdministrator (separator is pipe, '|') []:
```

```
==>
```

```
User(s) to add to role BPESystemMonitor (separator is pipe, '|') []: vmmuser
```

```
==> vmmuser
```

```
Group(s) to add to role BPESystemMonitor (separator is pipe, '|') []:
```

```
==>
```

```
Run-as UserId for role JMSAPIUser [root]: vmmuser
```

```
==> vmmuser
vmmuser's password []: <password>
==> <password>
Run-as UserId for cleanup service (may be empty; if set, must be a
BPESystemAdminstrator) []: vmmuser
==> vmmuser
Use WebSphere default messaging or WebSphere MQ (deprecated) [WPM/MQSeries]?
==> WPM
Virtual Host for the SCA Web Service [default_host]:
==> default_host
Context root for the SCA Web Service [/BFMIF_BPELCluster]:
==> /BFMIF_BPELCluster
Context root for the REST API [/rest/bpm/bfm]:
==> /rest/bpm/bfm
Create the DataSource for the Process Choreographer database [Yes/no]? Yes
==> yes
Create DataSource for a Derby, a DB2, an Informix, an Oracle, or an SQL Server
database [Derby/DB2/zOS-DB2/iSeries-DB2/Informix/Oracle/MSSQL]? ORACLE
==> Oracle
Create DataSource for an Oracle 11g (using ojdbc5.jar), or an Oracle 10g/11g (using
ojdbc14.jar) or an Oracle 9i database [11/10/9]? 11
==> 11
Database name [BPEDB]: ORCL
==> ORCL
Database schema name (may be empty) []: WPS_BPCDB
==> WPS_BPCDB
Use the oci8 or the thin JDBC driver [oci8/thin]? thin
==> thin
Database server name [w620113m.boeblingen.de.ibm.com]:
w620113o.boeblingen.de.ibm.com
==> w6213ora.boeblingen.de.ibm.com
Database server port [1521]:
==> 1521
Oracle user ID [system]: WPS_BPCDB
```

```
==> WPS_BPCDB
```

```
WPS_BPCDB's password []: <password>
```

```
==> <password>
Creating Process Choreographer DataSource for cluster 'BPELCluster'.
Modifying template DataSource 'Oracle JDBC Driver XA DataSource'.
```

```
JDBC driver directory on 'w6201ln1.boeblingen.de.ibm.com' []: /opt/oracle/driver
```

```
==> /opt/oracle/driver
Setting variable ORACLE_JDBC_DRIVER_PATH on node 'WPSNode01'.
```

```
Create the Process Choreographer database objects [Yes/no]? no
```

```
==> no
NOTE: Any following settings are needed to generate the database script for manual
execution.
```

```
JDBC driver directory on 'w6201l3m.boeblingen.de.ibm.com' []: /opt/oracle/driver
```

```
==> /opt/oracle/driver
```

```
Fully qualified path of Oracle tablespace directory on database server (may be
empty) []:
```

```
==>
********************************************************************************
/
WPS62/profiles/Dmgr01/dbscripts/ProcessChoreographer/Oracle/ORCL/WPS_BPCDB/createSc
hema.sql
has been generated for manual execution.
Any password in the script has been masked by '********' and
must be replaced before executing the script.
********************************************************************************
```

```
User ID for access to Process Choreographer SI bus [root]: vmmuser
```

```
==> vmmuser
```

```
User ID for access to the messaging engine database [ORCBM00]: WPS_BPCMSG
```

```
==> WPS_BPCMSG
```

```
WPS_BPCMSG's password []: <password>
```

```
==> <password>
```

```
Messaging engine database schema qualifier [WPS_BPCMSG]:
```

```
==> WPS_BPCMSG
```

```
Automatically create the database tables when the messaging engine connects for the
first time [True/false]?
```

```
==> true
Configuring: Cluster 'BPELCluster' / Node 'WPSNode01' / Server
'BPELCluster_Member01'
```

```
Install the task container [Yes/no]?
```

```
==> yes
```

```
Run-as UserId for role EscalationUser [root]: vmmuser
```

```
==> vmmuser
Context root for the SCA Web Service [/HTMIF_BPELCluster]:
==> /HTMIF_BPELCluster
Context root for the REST API [/rest/bpm/htm]:
==> /rest/bpm/htm
Create the mail notification session for the human task manager [Yes/no]? no
==> no
Context root for the Process Choreographer Explorer [/bpc]:
==> /bpc
Install the Process Choreographer Explorer [Yes/no]? no
==> no
To interactively configure the EventCollector, please use the script
setupEventCollector located in /WPS62/ProcessChoreographer/config.
Set 'com.ibm.SOAP.loginUserid' in soap.client.props [Yes/no]?
==> yes
Server user ID [root]: vmmuser
==> vmmuser
Process Choreographer configuration finished. See
/WPS62/profiles/Dmgr01/logs/bpeconfig.log for details.
```

12.4.1 Enable the state observers and Auditlog for the Business Flow Manager and Human Task Manager

To enable the state observer and the Auditlog login to the deployment manager, in this case the w6201l3m.boeblingen.de.ibm.com as user **root** and execute the following commands:

```
cd /WPS62/ProcessChoreographer/config
/WPS62/bin/wsadmin.sh -lang jython -f
/WPS62/ProcessChoreographer/config/setStateObserver.py -user vmmuser
-password <password> -cluster BPELCluster -enable "CEI;AuditLog" -bfm
```

```
WASX7209I: Connected to process "dmgr" on node W6201L3MBPMDmgr using SOAP
connector; The type of process is: DeploymentManager
WASX7303I: The following options are passed to the scripting environment
and are available as arguments that are stored in the argv variable: "[-
cluster, BPELCluster, -enable, CEI;AuditLog, -bfm]"
Changing bfm state observers for
BPELCluster(cells/Cell01/clusters/BPELCluster|
cluster.xml#ServerCluster_1241680216626) from '' to 'CEI;AuditLog;'.
```

```
/WPS62/bin/wsadmin.sh -lang jython -f
/WPS62/ProcessChoreographer/config/setStateObserver.py -user vmmuser
-password <password> -cluster BPELCluster -enable "CEI;AuditLog" -htm
```

```
WASX7209I: Connected to process "dmgr" on node W6201L3MBPMDmgr using SOAP
connector; The type of process is: DeploymentManager
WASX7303I: The following options are passed to the scripting environment
and are available as arguments that are stored in the argv variable: "[-
cluster, BPELCluster, -enable, CEI;AuditLog, -htm]"
Changing htm state observers for
BPELCluster(cells/Cell01/clusters/BPELCluster|
cluster.xml#ServerCluster_1241680216626) from '' to 'CEI;AuditLog;'.
```

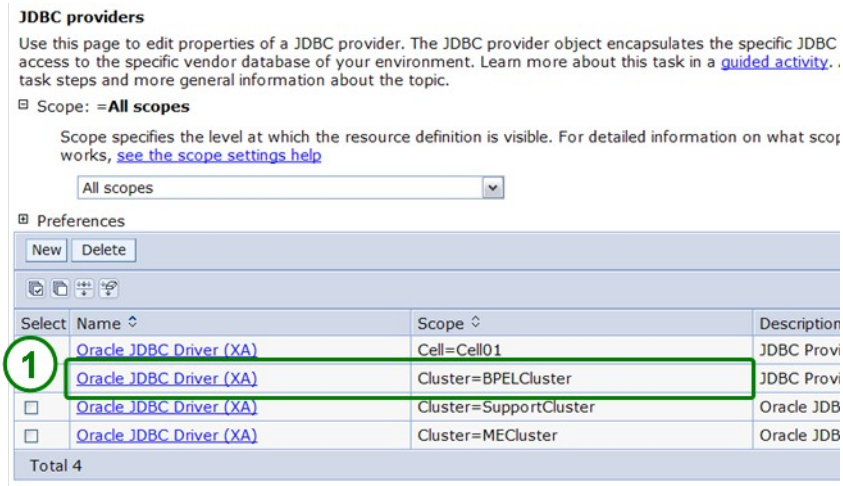
12.4.2 Verify JDBC provider for BPELCluster

The JDBC provider for the BPC database has already been created automatically under the covers. It needs to be checked, that it uses the correct Oracle JDBC driver.

In the admin console navigate to:

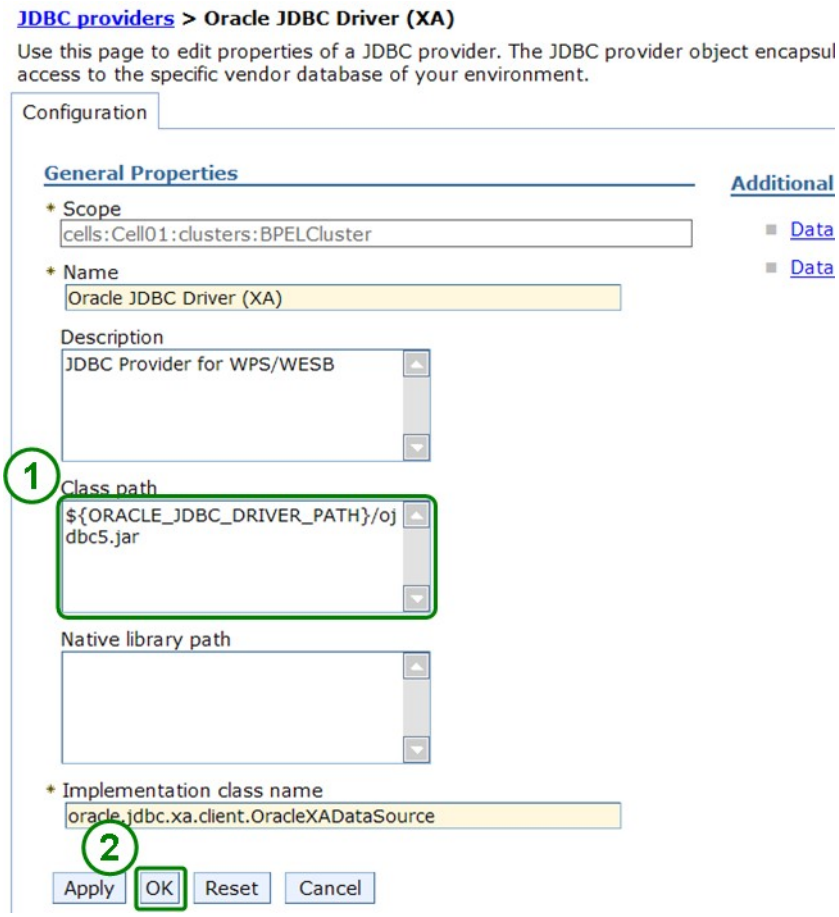
```
Resources
  -> JDBC
    -> JDBC Providers
```

The "JDBC providers" page is displayed:



1. Click **Oracle JDBC Driver (XA)**, Scope "BPELCluster".

The "Oracle JDBC Driver (XA)" page is displayed:



1. Change the "Class path" to "${ORACLE_JDBC_DRIVER_PATH}/ojdbc5.jar".

2. Click Ok

Save and synchronize the configuration

12.4.3 Verify JDBC data source for BPELCluster

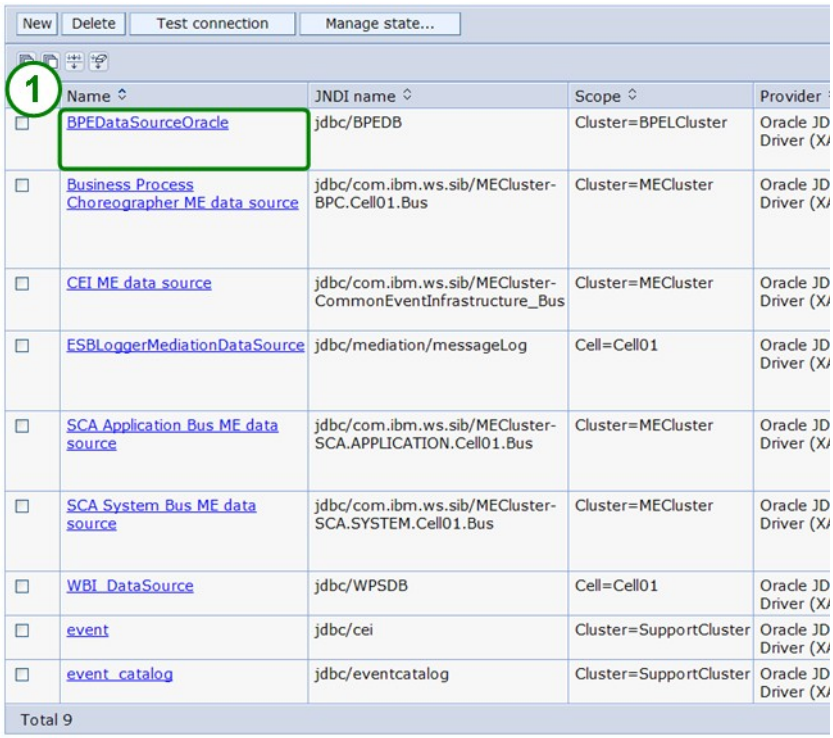
The data source for the BPC database has already been created automatically under the covers. The following data sources need to be updated:

- BPEDataSourceOracle
- Business Process Choreographer ME data source

In the admin console navigate to:

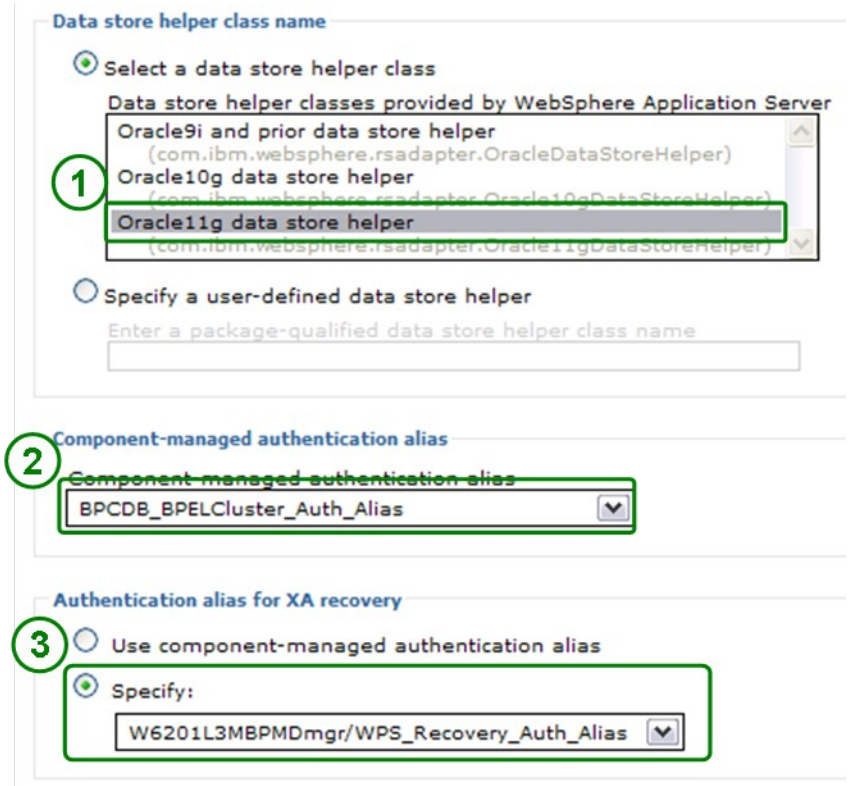
```
Resources
  -> JDBC
    -> Data sources
```

The "data sources" page is displayed:



1. Click **BPEDataSourceOracle**

The "BPEDataSourceOracle" page is displayed:



1. Select "Oracle11g data store helper".

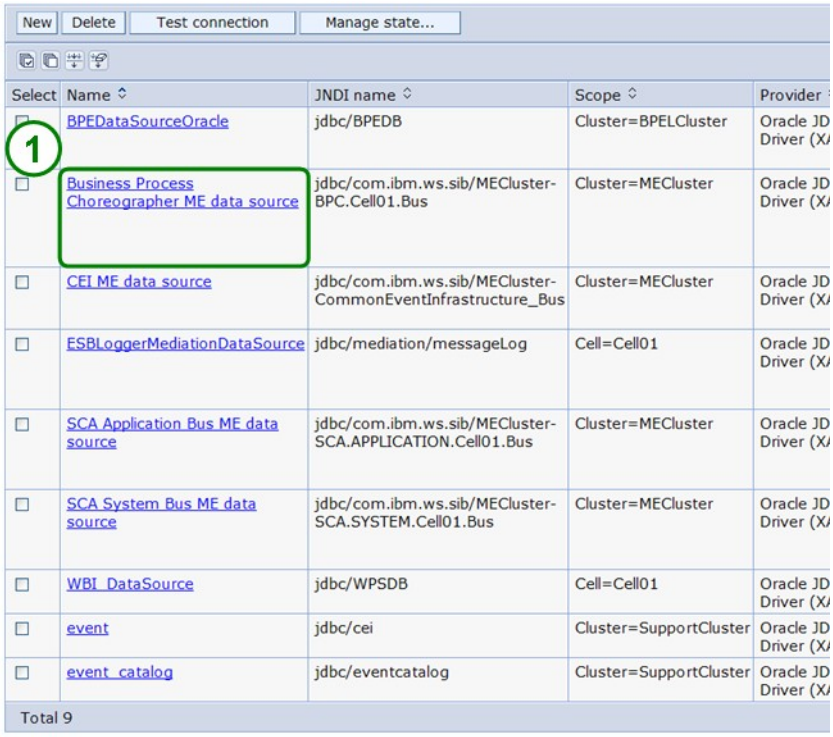
2. Select "BPCDB_BPELCluster_Auth_Alias".

3. Select "<hostname>/WPS_Recovery_Auth_Alias".

Click **Ok**

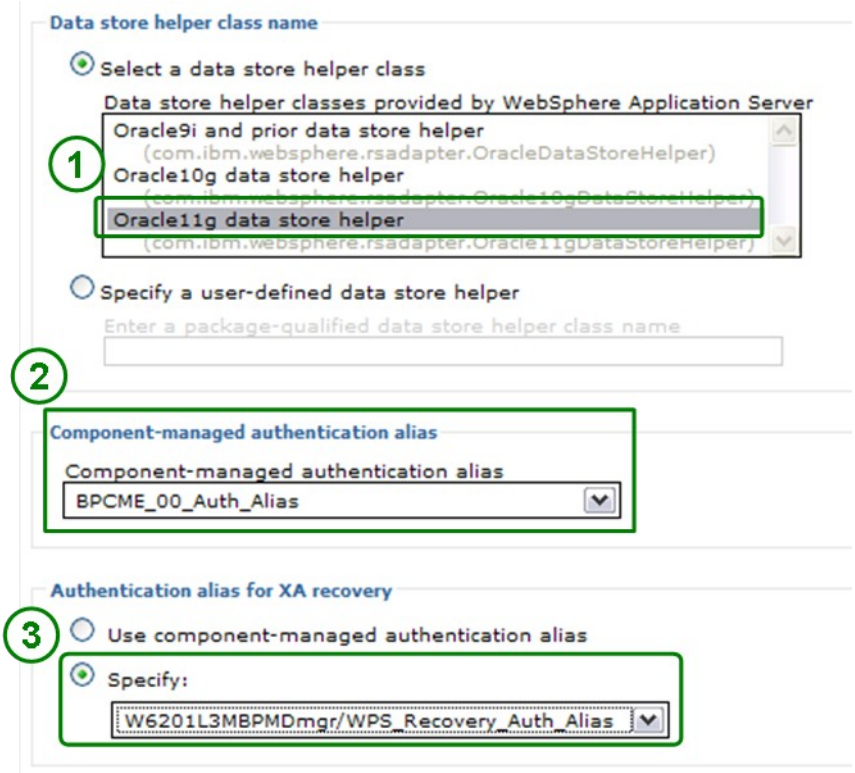
Save and synchronize the configuration

The "data sources" page is displayed again:



1. Click **Business Process Choreographer ME data source**

The "Business Process Choreographer ME data source" page is displayed:



1. Select "Oracle11g data store helper".

2. Select "BPCME_00_Auth_Alias".

3. Select "<hostname>/WPS_Recovery_Auth_Alias".

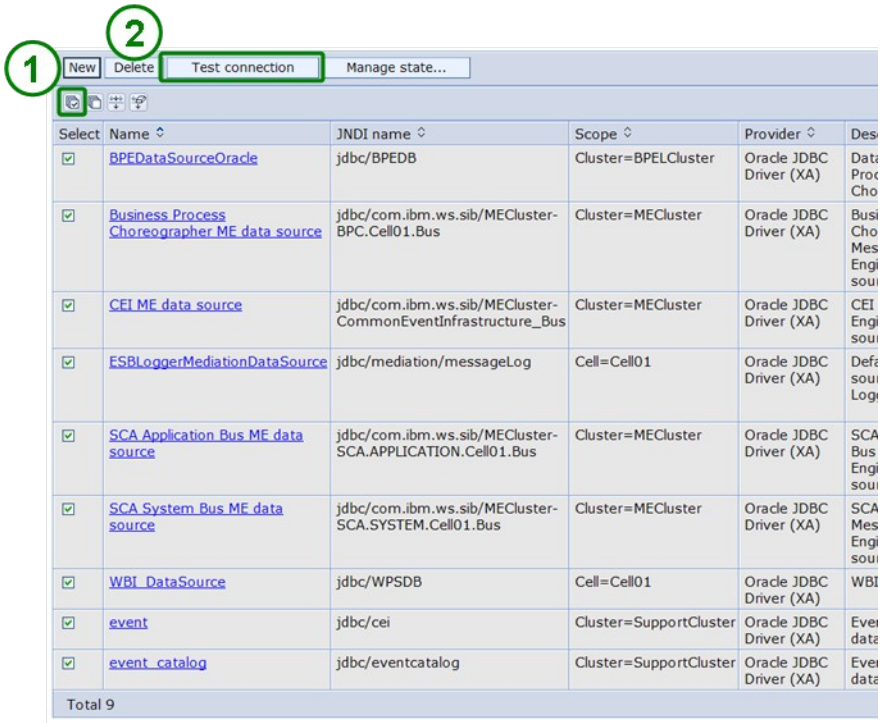
Click **Ok**

Save and synchronize the configuration

To verify the already configured data sources use the admin console and navigate to:

```
Resources
  -> JDBC
    -> Data sources
```

The "Data sources" page is displayed:



1. Click **Select all items** icon

2. Click **Test connection**

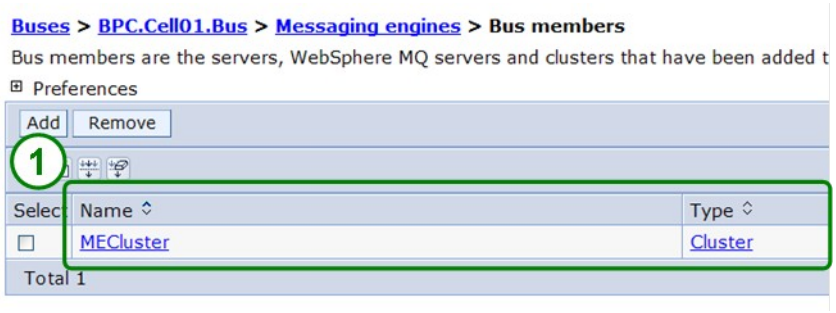
If the test connection says something about "null userid" then restart the node agents and try again. Also make sure that you have changed the "Component-managed authentication alias" for all data sources.

12.4.4 Verify the bus member for BPC bus

In the admin console navigate to:

```
Service Integration
  -> Buses
    -> BPC.Cell01.Bus
      -> Bus members
```

The "bus member" page is displayed:



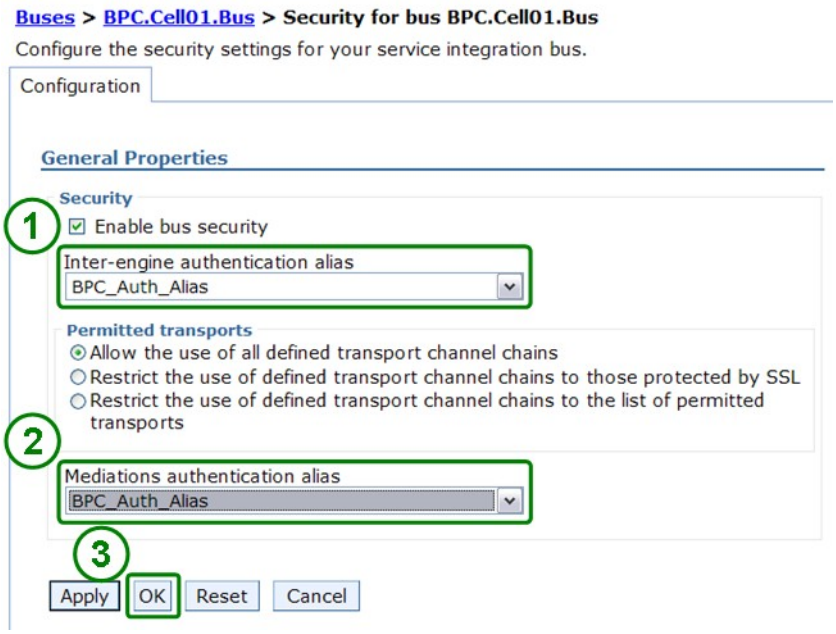
1. Verify that one member is listed for this bus: "MECluster".

12.4.5 Verify authentication credentials on the BPC bus

In the admin console navigate to:

```
Service Integration
  -> Buses
    -> BPC.WPS612Cell01.Bus
      -> Security
```

The "Security for bus BPC.Cell01.Bus" page is displayed:



1. Select "BPC_Auth_Alias" as "Inter-engine authentication alias".

2. Select "BPC_Auth_Alias" as "Mediations authentication alias".

3. Click **Ok**

Save and synchronize the configuration

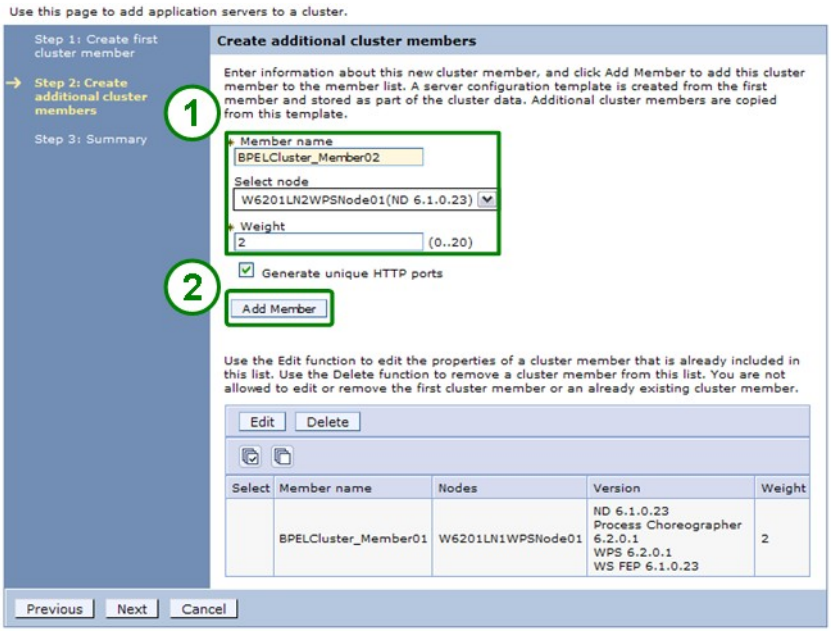
Stop all clusters, node agents and the deployment manager and then restart the Deployment Manager and nodes.

12.5 Create the additional cluster member for BPELCluster

In the admin console navigate to:

```
Servers
  -> Clusters
    -> BPELCluster
      -> Additional properties
        -> Cluster Members
          -> New
```

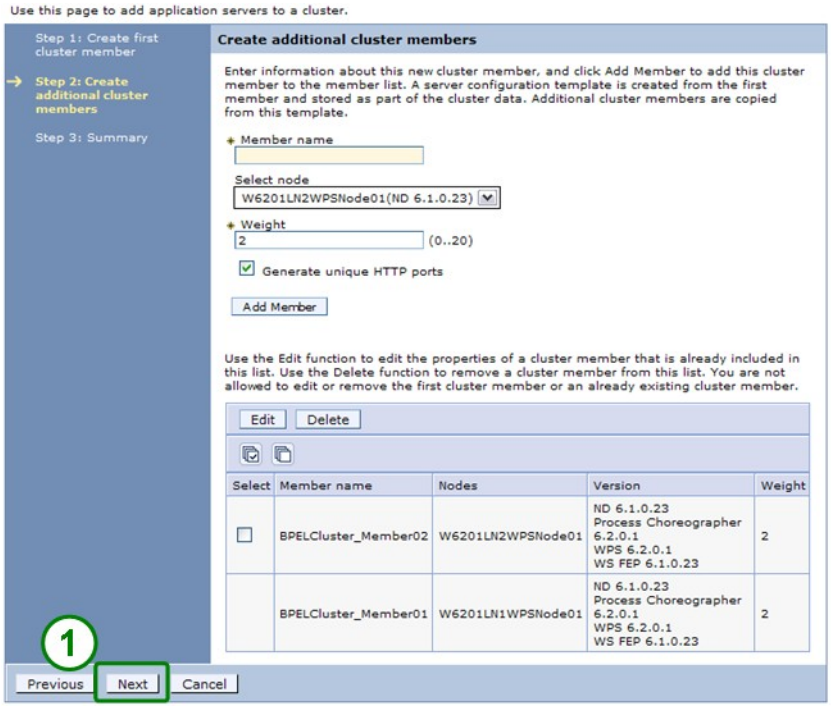
The "Create additional cluster members" page is displayed:



1. Type in the following values:
   - a.) Member name: BPELCluster_Member02
   - b.) Select node: WPSNode02
   - c.) Weight: 2

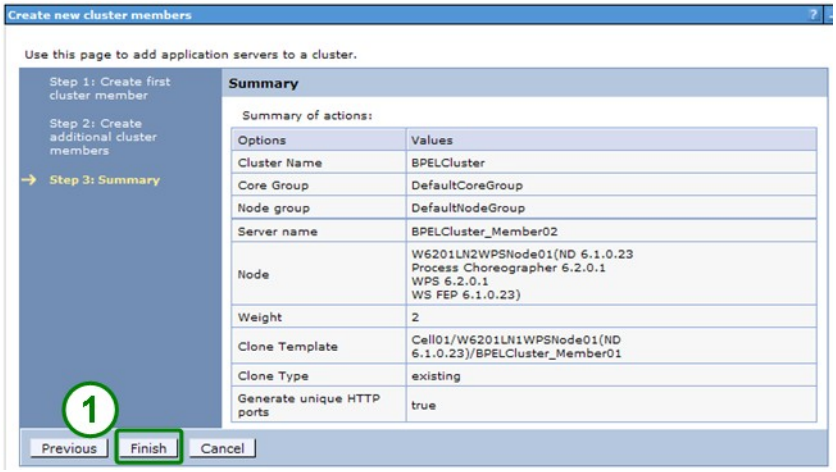
2. Click **Add member**

The "Create additional cluster members" page is displayed:



1. Click **Next**

The "Create additional cluster members Summary" page is displayed:



1. Click **Finish**

Save and synchronize the configuration

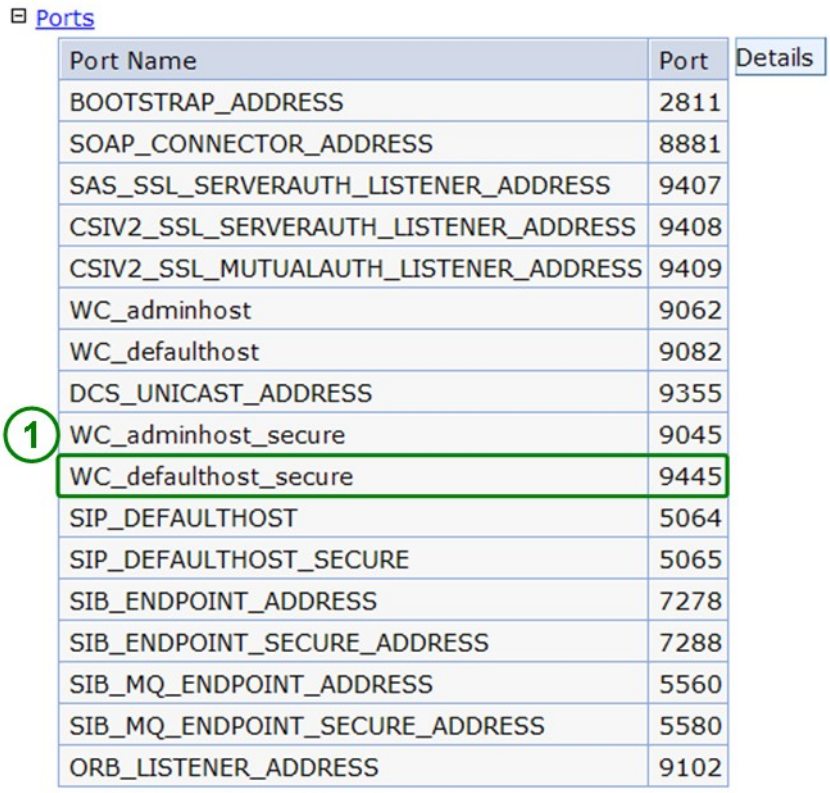
12.6 Add host names and corresponding port numbers

Hint: The port you have to configure here is the port named WC_defaulthost.

To check it navigate to:

```
Servers
  -> Application servers
    -> BPELCluster_member0X
      -> Communications
        -> Ports
          -> WC_defaulthost.
```

The "Ports" page is displayed:



1. This port needs to be added to the host aliases.

In the admin console navigate to:

```
Environment
  -> Virtual hosts
    -> default host
      -> Host aliases
```

Create the following two host aliases:

Hostname:	Port:
w6201ln1.boeblingen.de.ibm.com	9445
w6201ln2.boeblingen.de.ibm.com	9445

Note: The port number can be different depending on installation environment.

12.7 Restart the system

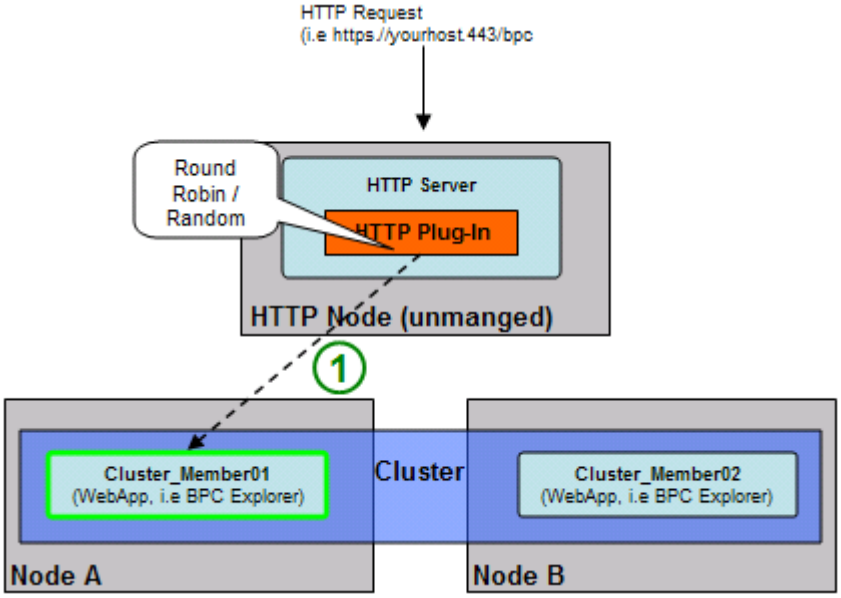
Recycle the entire cell (clusters, nodes and deployment manager) and verify output messages for successful startup.

Chapter 13 Configure IBM HTTP Server and Proxy Server

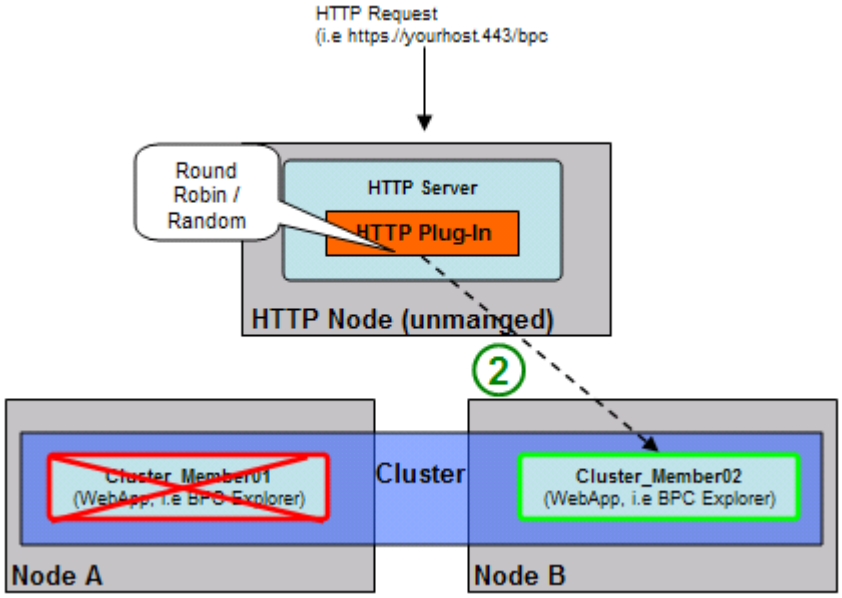
This chapter describes how to configure basic high availability settings within a clustered environment. An IBM HTTP server is used to enable high availability of web applications, and a proxy server provides high availability of REST services.

13.1 Install and configure IBM HTTP Server v7.0

This section describes how to install and configure IBM HTTP Server v7.0 (IHS) within a clustered environment. Based on the HTTP server Plug-in HTTP requests are routed to any available cluster member. In case an active cluster member fails subsequent requests are automatically routed to another active cluster member. Configuring high availability of the HTTP server is beyond the scope the this document.



1. A HTTP request for a defined web resource arrives at the HTTP server. Based on the HTTP Plug-In and a selection algorithm (round robin or random) the request is routed to any available cluster member. The cluster member chosen handles the request.



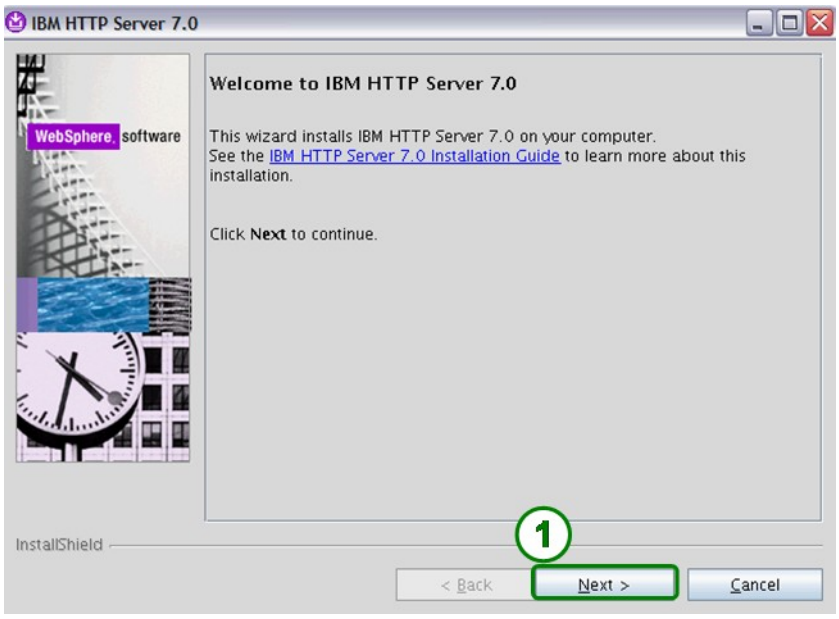
2. In case the cluster members which served the incoming request fails subsequent requests are routed to the remaining cluster member.

13.1.1 Install the IHS binaries

As user root log in to the deployment manager host and install the IHS binaries by executing the following command:

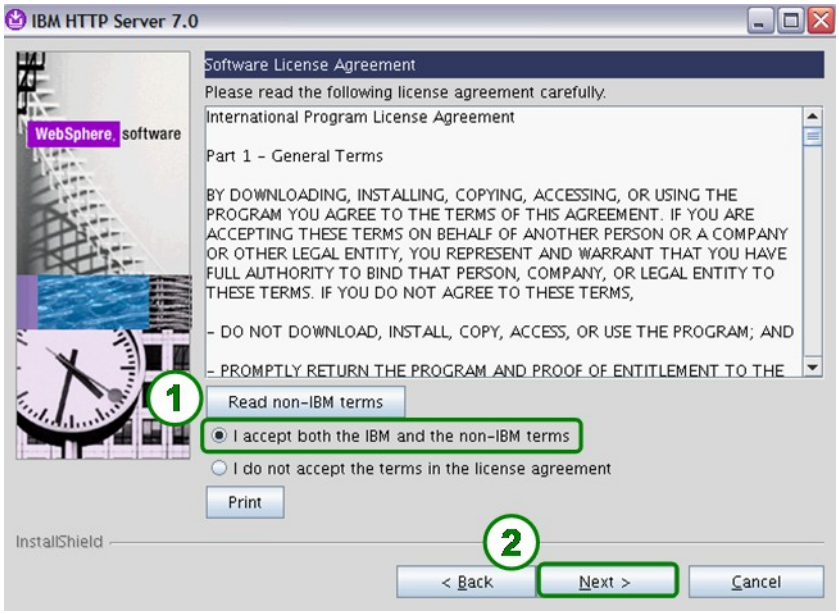
```
cd /<BINARY_ROOT>
./install
```

The "Welcome" panel is displayed:



1. Press **Next**

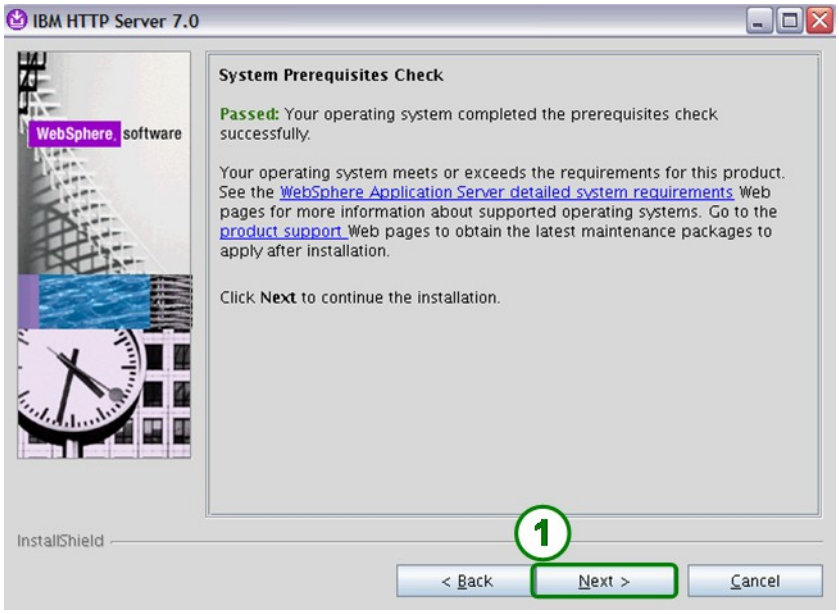
The "Software License Agreement" panel is displayed:



1. Select "I accept both the IBM and the non IBM terms" to accept the license agreement.

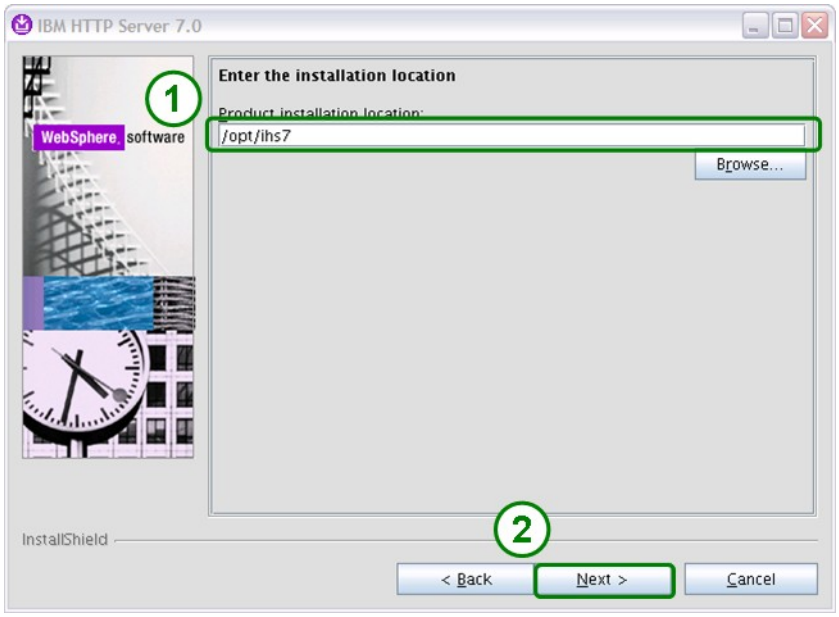
2. Press **Next**.

The “System Prerequisties Check” panel is displayed:



2. Press **Next**.

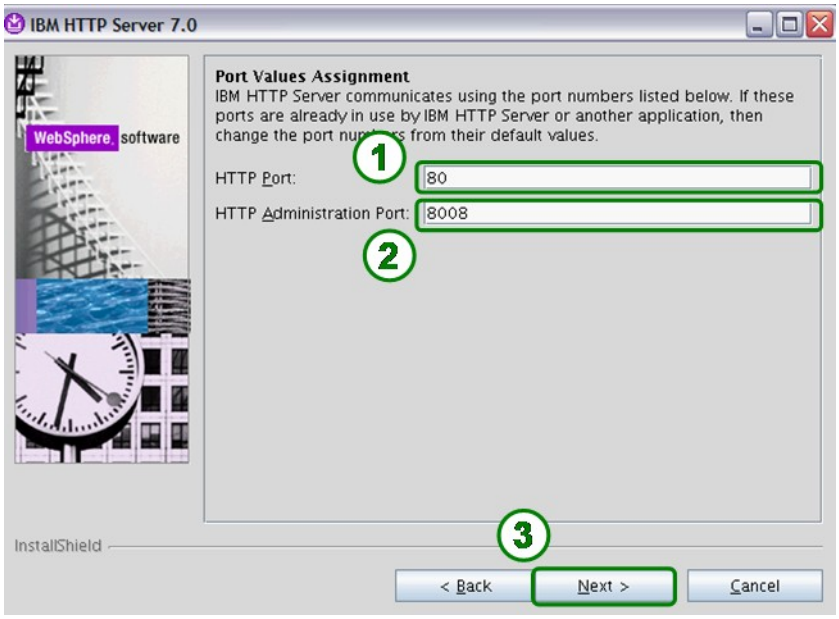
The "Product installation location" panel is displayed:



1. Specify the “Product installation directory" (/opt/ihs7).

2. Press **Next**.

The "Port Values Assignment" panel is displayed:

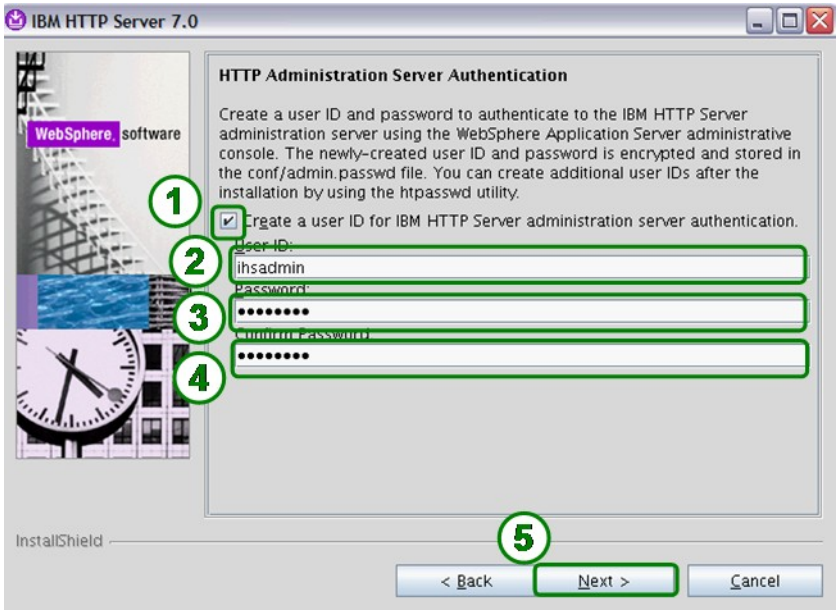


1. Specify the HTTP port (80).

2. Specify the HTTP Administration Port (8008).

3. Press **Next**.

The “HTTP Admininstration Server Authentication” panel is displayed:



1. Select “Create a user ID for IBM HTTP Server administration server authentication”

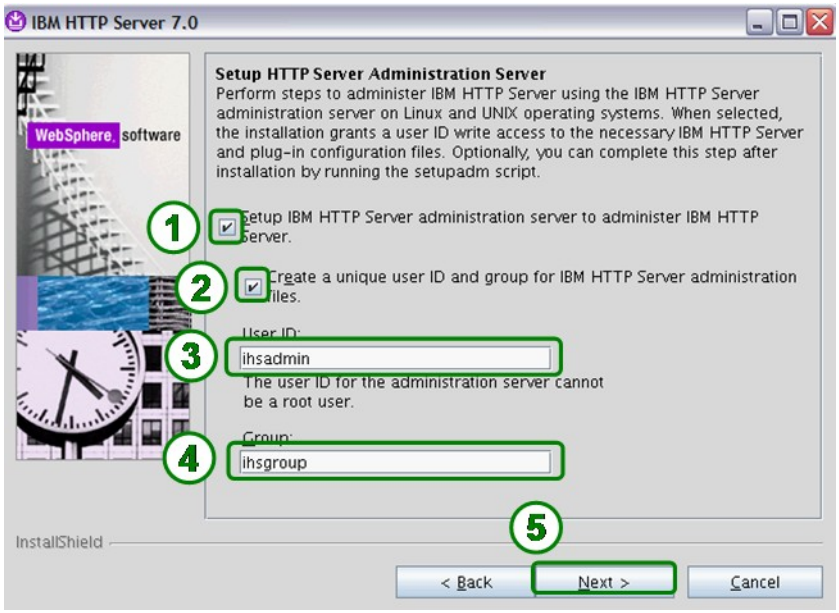
2. Specify a user ID (ihsadmin).

3. Specify a password (password).

4. Confirm the password (password).

5. Press **Next**.

The “Setup HTTP Server Administration Server” panel is displayed:



1. Select “Setup IBM HTTP Server administration server to administer IBM HTTP Server”.

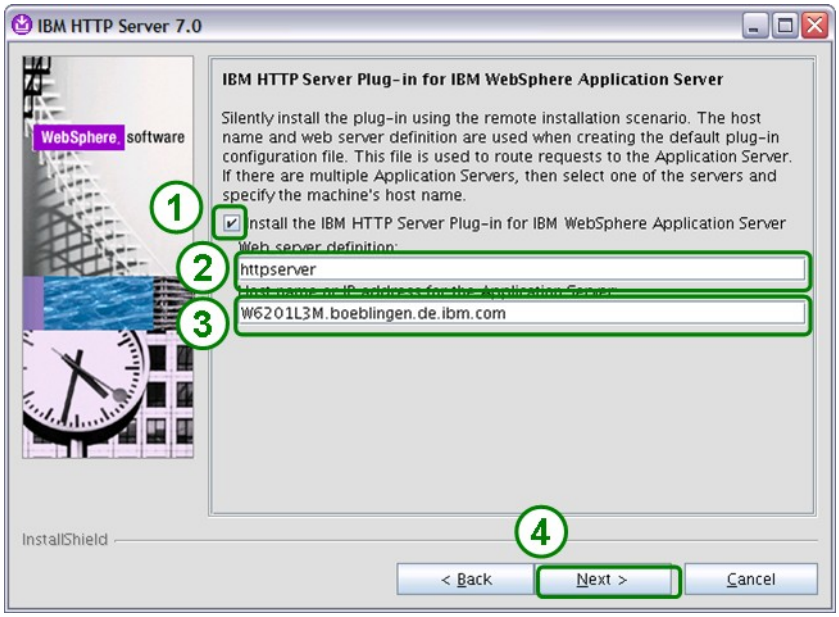
2. Select “'Create a unique user ID and group for IBM HTTP Server administration files”.

3. Specify a user ID (ihsadmin).

4. Enter a group (ihsgroup).

5. Press **Next**.

The “IBM HTTP Server Plug-in for IBM WebSphere Application Server” panel is displayed:



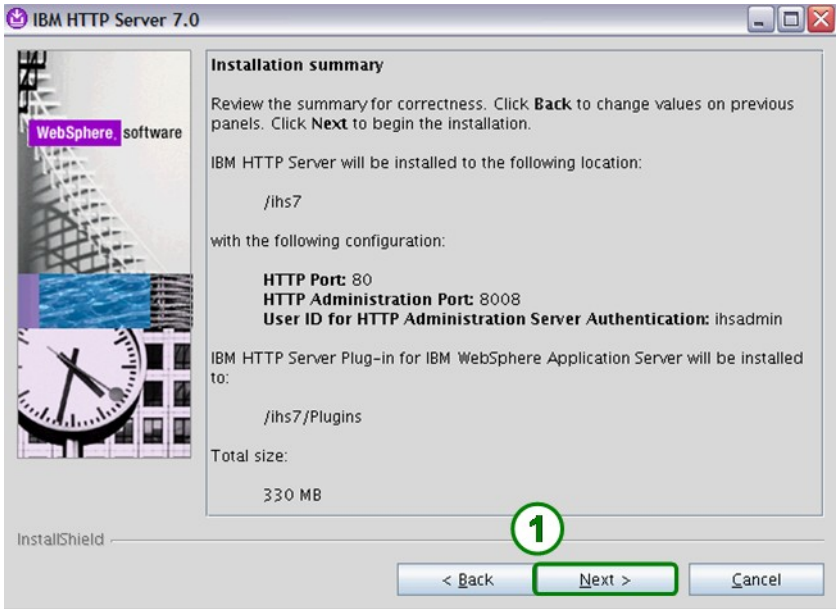
1. Select “Install the IBM HTTP Server Plug-in for IBM WebSphere Application Server”.

2. Specify the Web sever definition (httpserver).

3. Specify the host name of the application server (host name of the deploy ment manager).

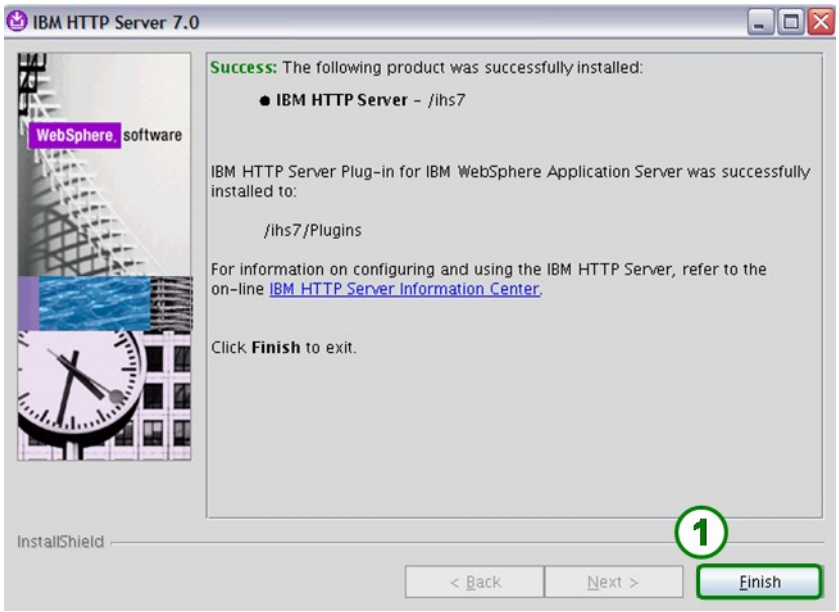
4. Press **Next**.

The “Installation summary” panel is displayed:



1. Press **Next**. The installation of IHS starts.

After IHS has been installed a status panel is displayed:



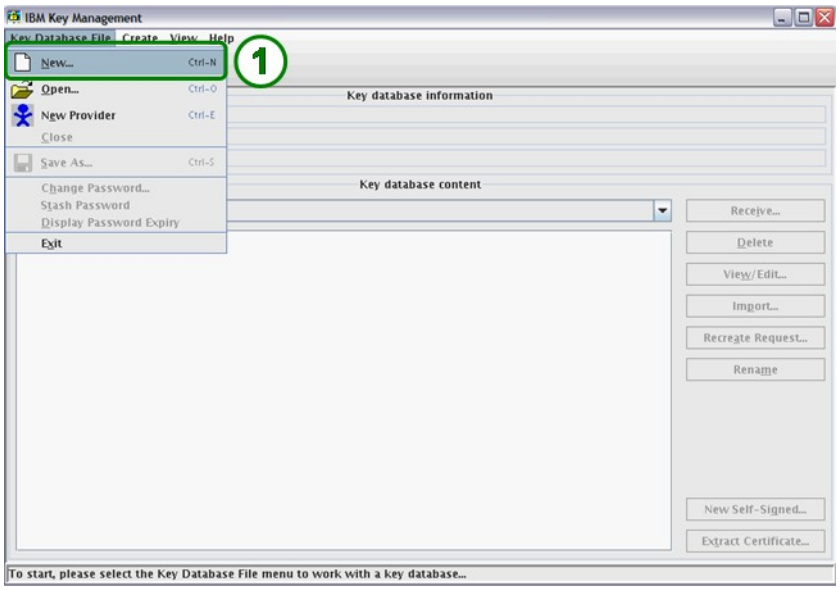
1. Press **Finish**.

13.1.2 Configure SSL

Execute following command:

```
cd /<IHS_INSTALL_ROOT>/bin
./ikeyman
```

The ikeyman utility starts:



Select **File / New**.

The key file creation window is displayed:

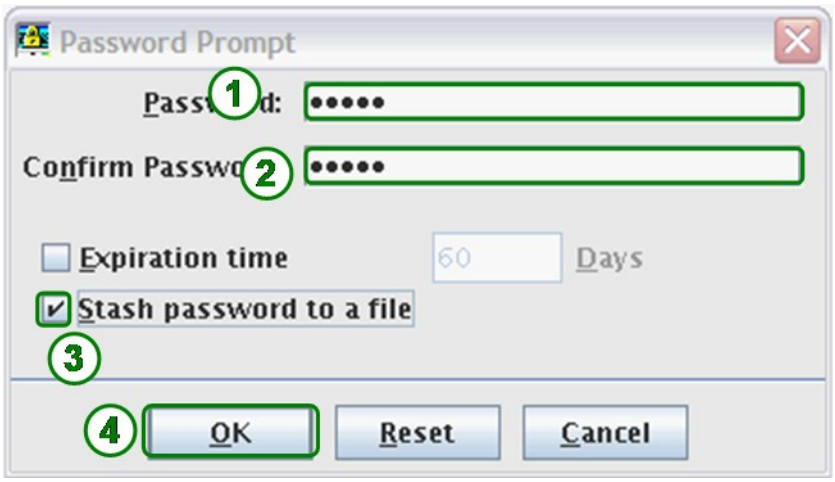
1. Specify CMS as key database type.

2. Specify a file name (ihskey.kdb).

3. Specify the location (/opt/ihs7/

4. Press **OK**.

The password prompt is displayed:



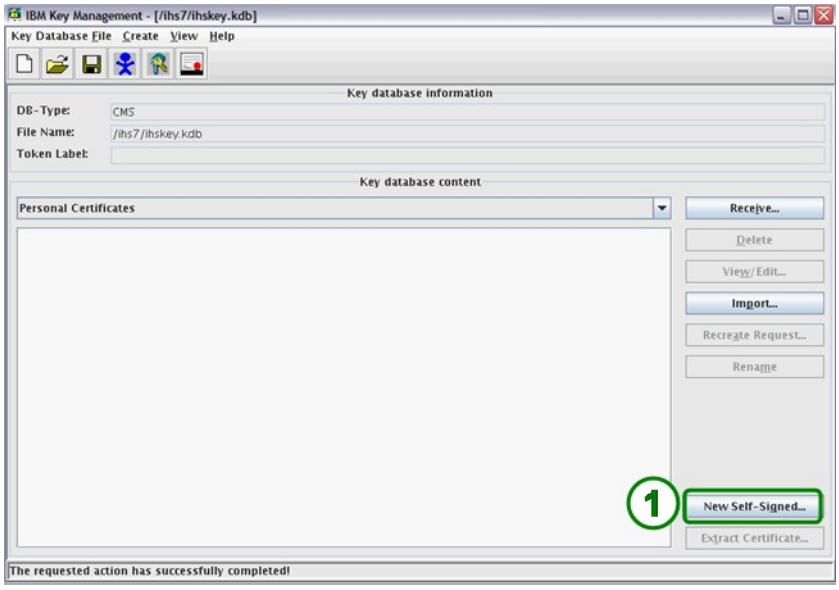
1. Specify a password (ihspw).

2. Confirm the password (ihspw).

3. Select "Stash password to a file".

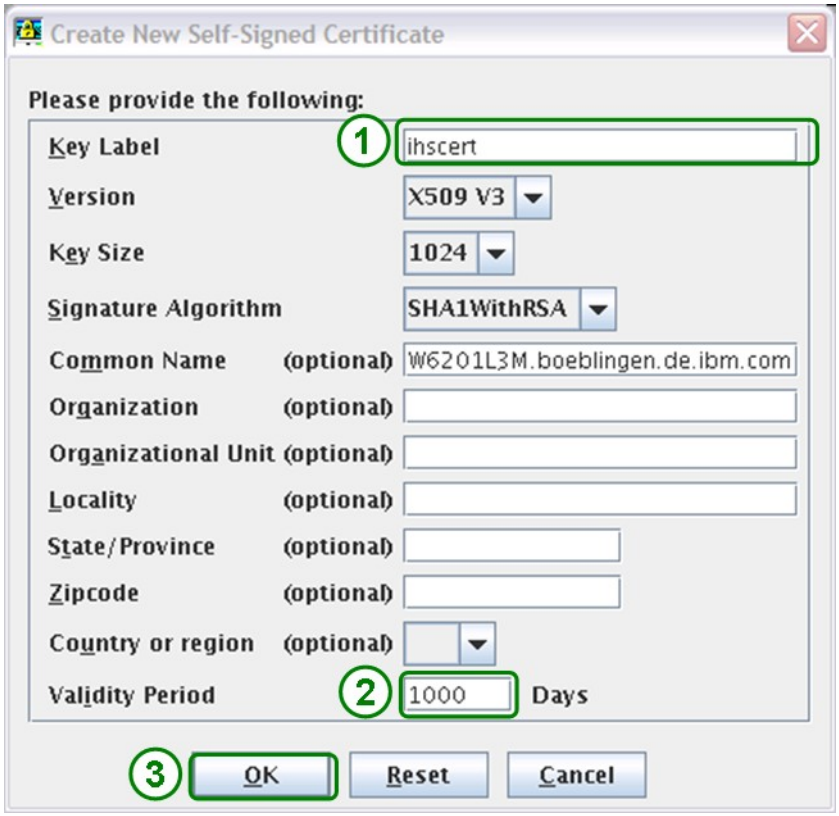
4. Press **OK**.

The ikeyman utility main window is displayed again:



1. Press **New Self-Signed**.

The Self-Signed Certificate configuration panel is displayed:



1. Specify a Key Label (ihscert).

2. Confirm a validity period (1000).

3. Press **OK**.

The certificate is displayed in the list of Personal Certificates. Shut down the ikeyman utility.

1. Open **httpd.conf** (located in <IHS_INSTALL_ROOT>/conf).
Locate the following lines and remove the leading **#**. Also the key file setting needs to reference the key file which has been created in the previous step.

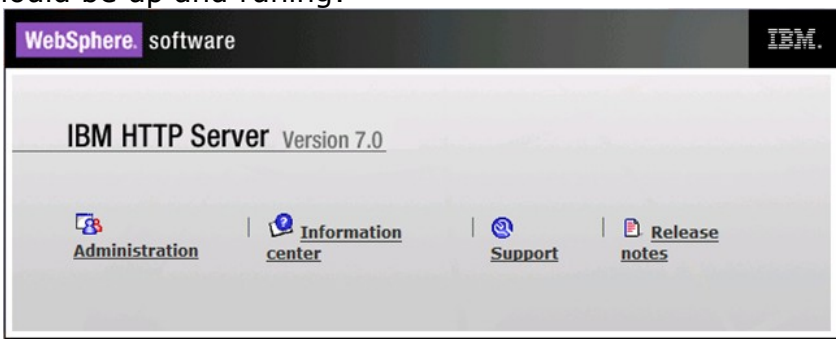
```
LoadModule ibm_ssl_module modules/mod_ibm_ssl.so
Listen 443
<VirtualHost *:443>
SSLEnable
SSLProtocolDisable SSLv2
</VirtualHost>
KeyFile /ihs7/ihskey.kdb (Note: this is the key file that has been created
in the previous step)
```

2. Save and close **httpd.conf**.

3. Execute following command:

```
cd /<IHS_INSTALL_ROOT>/bin
./apachectl start
```

4. Open a browser, enter **https://<DMGR_HOST>:443** and accept the certificate request. IHS should be up and runing:



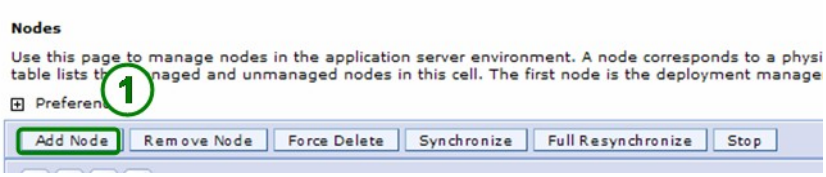
5. Execute following command:

```
cd /<IHS_INSTALL_ROOT>/bin
./apachectl stop
```

13.1.3 Add IHS to WPS cell

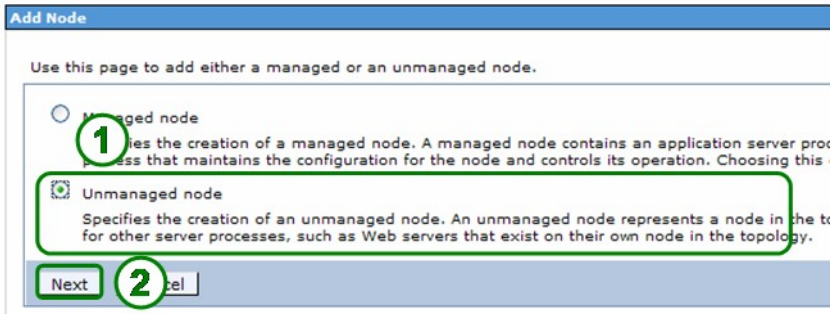
The HTTP Server will be defined on an unmanaged node. The advantage of having an unmanaged node is that the HTTP administrative server can be configured and utilized. This enables the operator to start and start the IBM HTTP server from within the integration solutions console (assumed the administrative server is running).

Open the deployment manager integration solution console and navigate to **Administration → Nodes**.



1. Press **Add Node**.

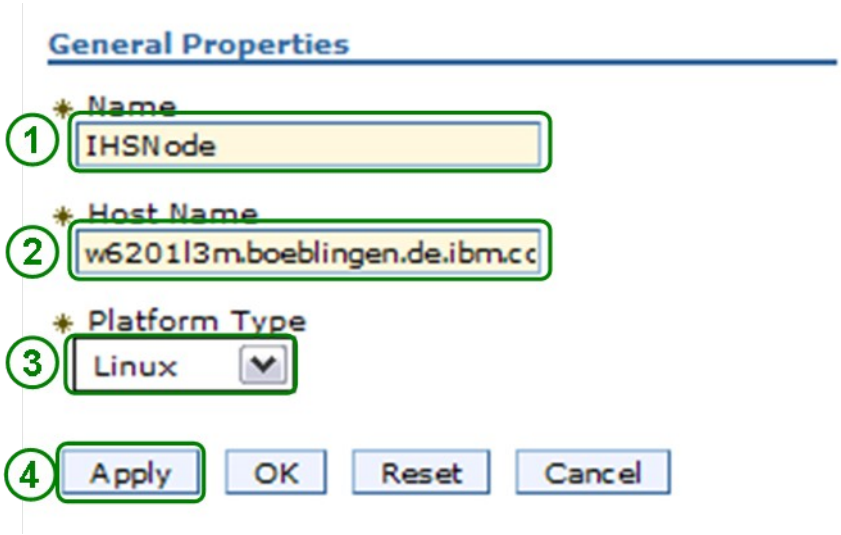
A page is displayed where the node type has to be selected:



1. Select "Unmanaged node".

2. Press **Next**.

Specify the basic settings for the unmanged node:



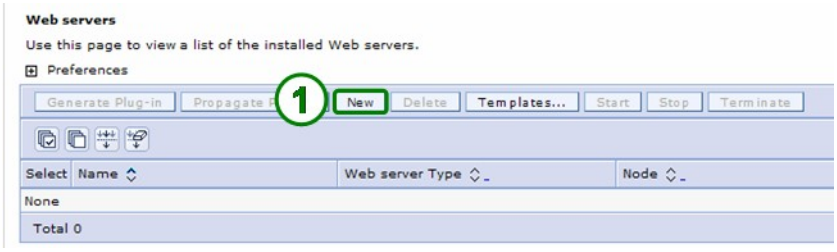
1. Specify the Name of the unmanaged node (IHSNode).

2. Specify the Host Name the unmanaged node is supposed to be defined on (w62l3dmg.boeblingen.de.ibm.com).

3. Specify the Platform Type (Linux)

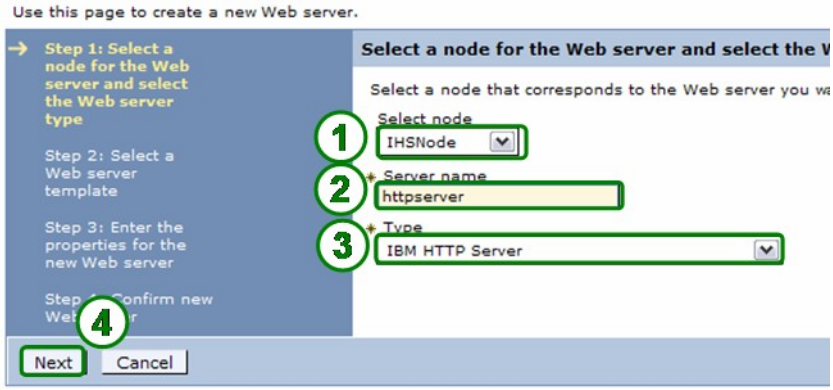
4 Press **Apply** and then **Save**.The node appears in the list of available nofes.

Navigate to "Servers → WebServers"



1. Press **New**

Specify the basic settings of the HTTP Server:



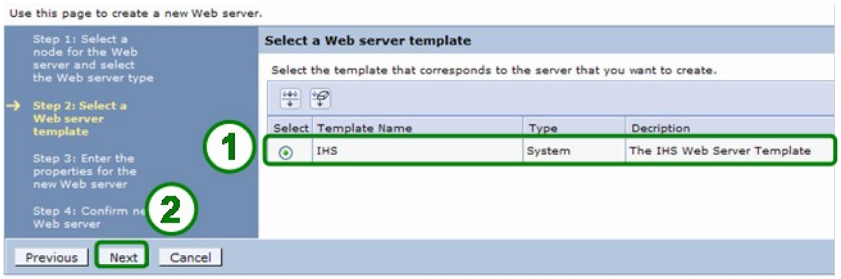
1. Specify the node (IHSNode). (Note: This is the unmanaged node which was specified in the previous step).

2. Specify the HTTP server name (httpserver). (Note: This name needs to correspond to the name of the web server definition which was specfied during the installation of the IHS plugin).

3. Specify HTTP server type (IBM HTTP Server).

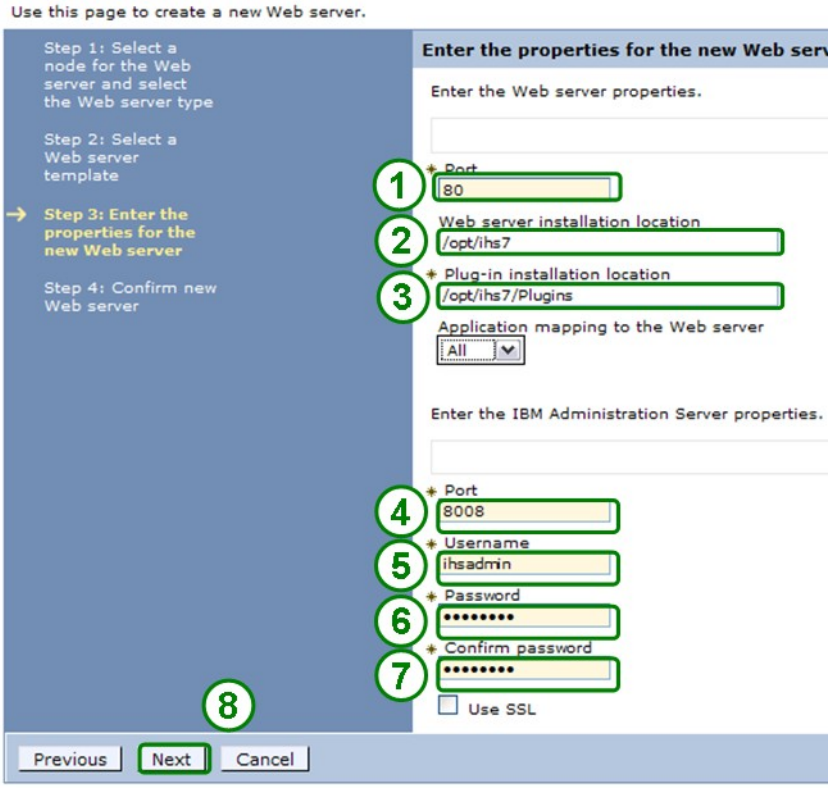
4.Press **Next**

Specify the web server template (There is only on pre-selected template):



2.Press **Next**

Specify the web server properties:



1. Specify the Port (443).(Mehr Info zum Port)

2. Specify the Web server installation location (/ihs7).

3. Specify the Plug-in installation location (/ihs/Plugins).

4. Specify the HTTP Administration Server port (8008). (Note: this needs to correspond to the port which was specified during the installation of the HTTP Administration Server).

5. Specify the username of the HTTP Administration Server administrator (ihsadmin). (Note: this needs to correspond to the username which was specified during the installation of the HTTP Administration Server).

6. Specify the password of the administrator of of the HTTP Administration Server (ihsadmin). (Note: this needs to correspond to the password which was specified during the installation of the HTTP Administration Server).

7. Confirm the password of the administrator of of the HTTP Administration Server (ihsadmin). (Note: this needs to correspond to the password which was specified during the installation of the HTTP Administration Server).

8.Press **Next** then **Finish** and then **Save.**

The new created HTTP server appears in the list of available web servers (Note: the server is stopped).

In order to be able to start and and stop the server from within the integration solutions console the corresponding HTTP Administration Server needs to be started.
Execute following command:

```
cd /<IHS_INSTALL_ROOT>/bin
./adminctl start
```

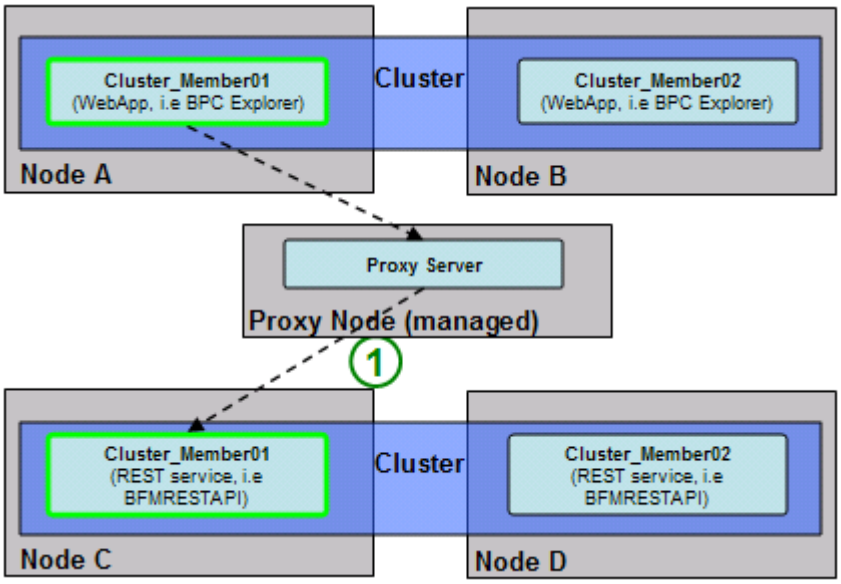
Go back to **Servers → Web servers:**

1. Select the new created HTTP server (httpserver).

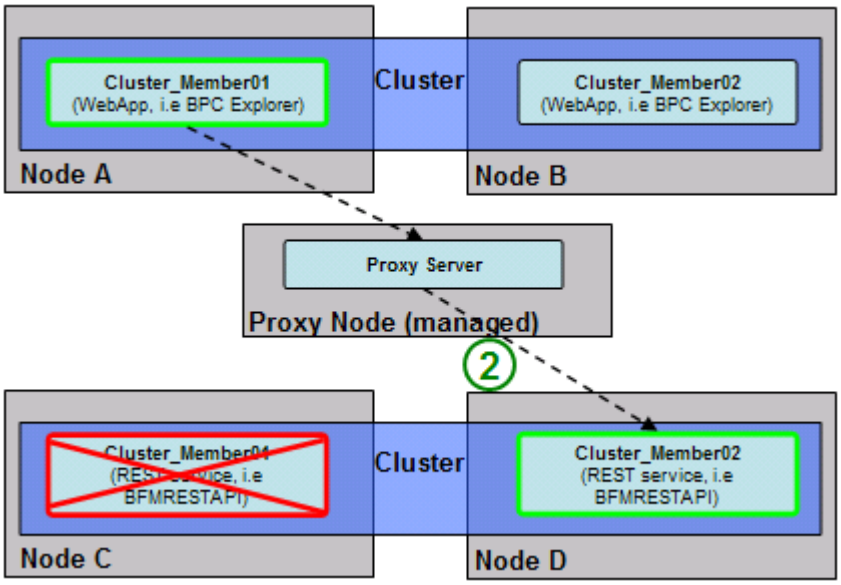
2. Press **Start**. The HTTP server starts successfully.

13.2 Install and configure a Proxy server

This section describes how to setup an proxy server within a clustered environment. The proxy server is used as intermediary which receives REST requests from several clients (i.e Business Space) and forwards those requests to any active cluster member hosting the particular service. In case an active cluster member fails subsequent requests are automatically routed to another active cluster member. Enabling high availability of the proxy server is beyond the scope the this document.



1. A REST request arrives at the proxy server which routes the request to any available cluster member providing service.



2. In case the cluster members which served the incoming request fails subsequent requests are routed to the remaining cluster member.

13.2.1 Create a dedicated node

The proxy server is going to be created on a dedicated node. In this scenario the node is created on the machine which is hosting the deployment manager. However it is recommended to define the node on a dedicated machine.

Use the following configuration parameters to create the profile:

```
create
profileName=ProxyProfile
profilePath=/WPS62/profiles/ProxyProfile
templatePath=/WPS62/profileTemplates/managed.wbiserver
nodeName=ProxyNode01
hostName=w620l13m.boeblingen.de.ibm.com
dbType=ORACLE10G
dbJDBCClasspath=/opt/oracle/driver
federateLaterProcServer=true
ndtopology=false
```

In order to create the custom profiles silently a response file which contains the configuration information needs to be created. Navigate to the root folder (/) and create a folder **profileRespFiles**. In that folder create file and name it **CustomRespFile.txt**. Add the entries from the parameter list above to that file, then save the file.
To create another node-log in to the deployment manager host as user **root** and execute the following command:

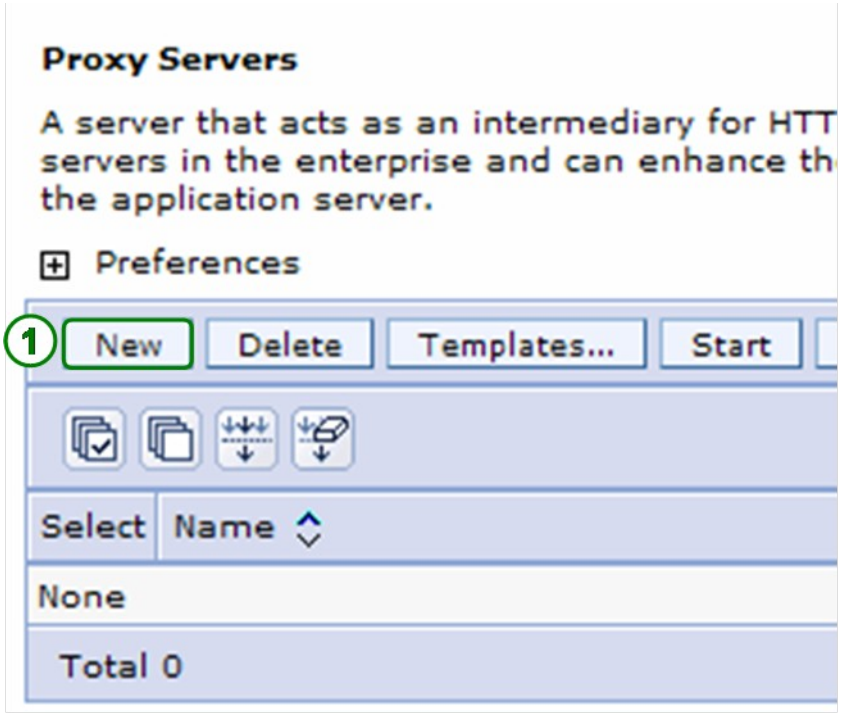
```
/WPS62/bin/manageprofiles.sh -response <responsefilename>
```

To Federate the custom node to the deployment manager log in to the host as user root :

```
cd /WPS62/profiles/ProxyProfile/bin/
./addNode.sh w620l13m.boeblingen.de.ibm.com 8879 -username vmmuser
 -password <password>
```

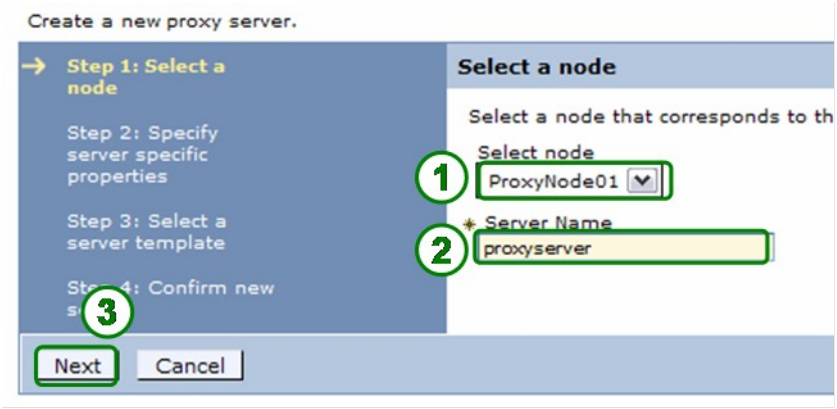
13.2.2 Define Proxy Server in WPS cell

Open the deployment manager integration solution console, navigate to “Servers → Proxy Servers”.



1. Press **New**

Specify the node and the name of the proxy server:

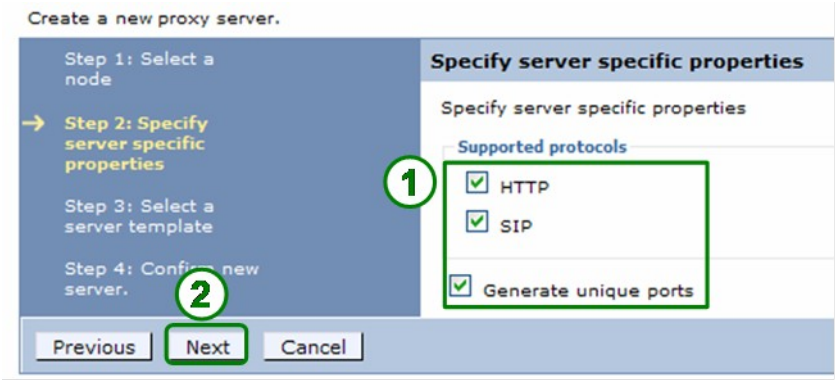


1. Specify the node which hosts the proxy server (ProxyNode01).

2. Specify the name of the proxy server (proxyserver).

3. Press **Next**

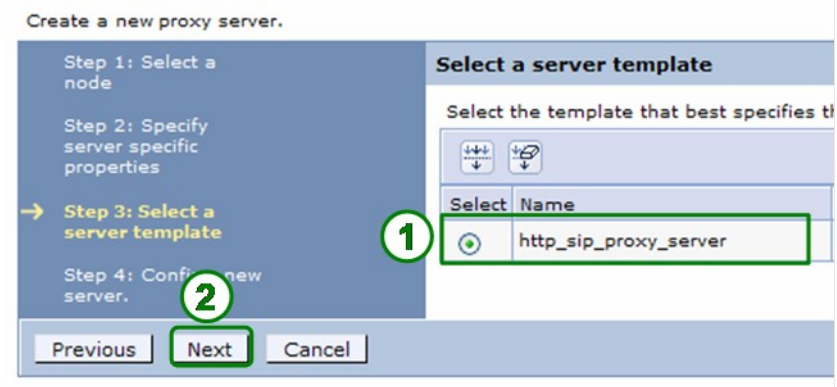
Specify the server specific properties:



1. Select “HTTP” and “SIP” as supported protocols. Also select “Generate unique ports””

2. Press **Next**

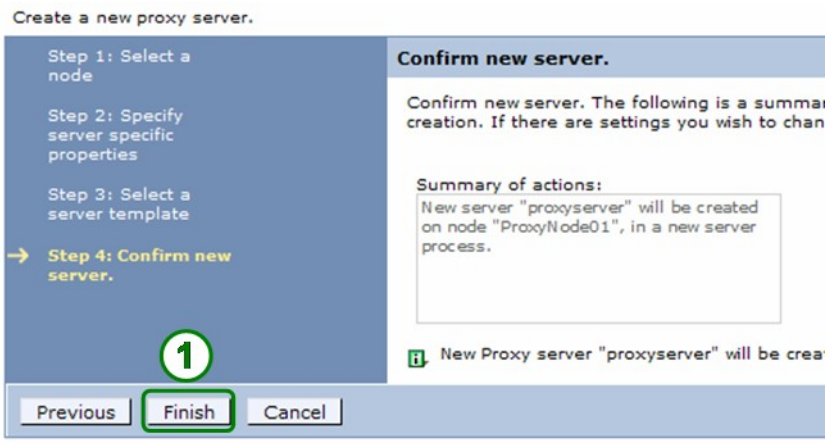
Specify the server template



1. “http_sip_proxy_server” is the only template available and therefore pre-selected.

2. Press **Next**

Confirm the creation of the proxy server:



1. Press **Finish** and then **Save**

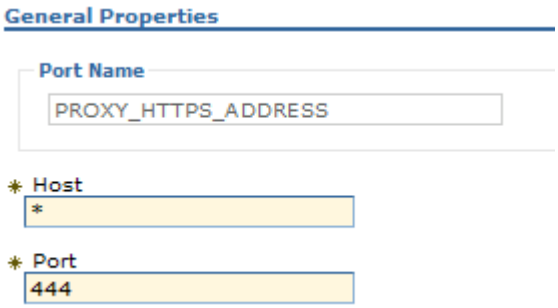
Select the new create proxy server

1. Select “proxyserver”

Search for Communication → Ports:

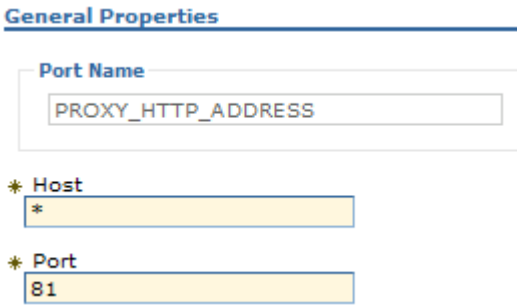
1. Select “Ports”

Select PROXY_HTTPS_ADDRESS and define * as host and **444** as port.



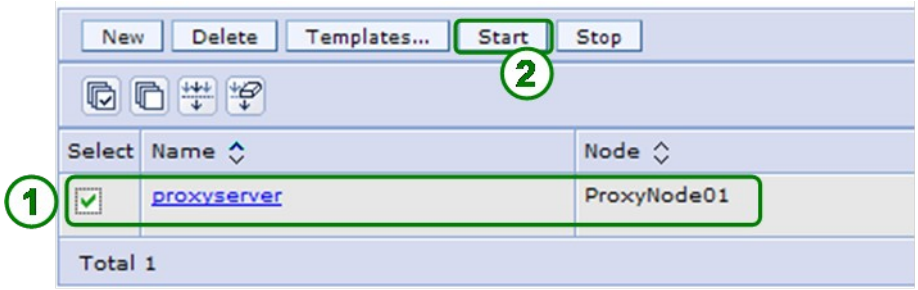
Apply and Save the change.

Select PROXY_HTTP_ADDRESS and define * as host and **81** as port.



Apply and Save the change.

Navigate to “Servers → Proxy Servers”.



1. Select the tick box aside “proxyserver”.

2. Press **Start** (Wait until the server is started; this indicated by a green arrow).

13.3 Add Virtual Hosts

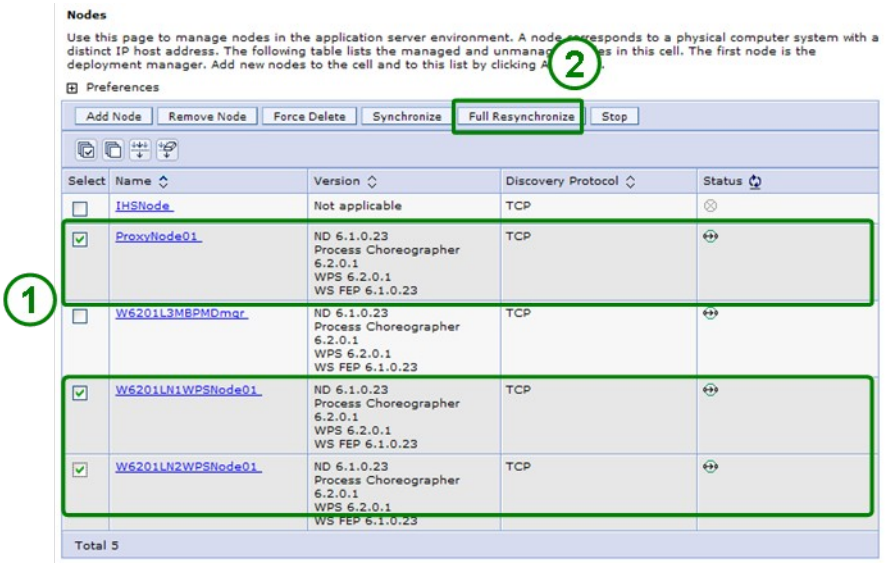
Navigate to

```
Environment
  → Virtual Hosts
    → default_host
      → Host Aliases.
```

Enter the following host aliases if not already there:

Hostname:	Port:
*	80
*	81
*	443
*	444

Navigate to “System Administration → Nodes”



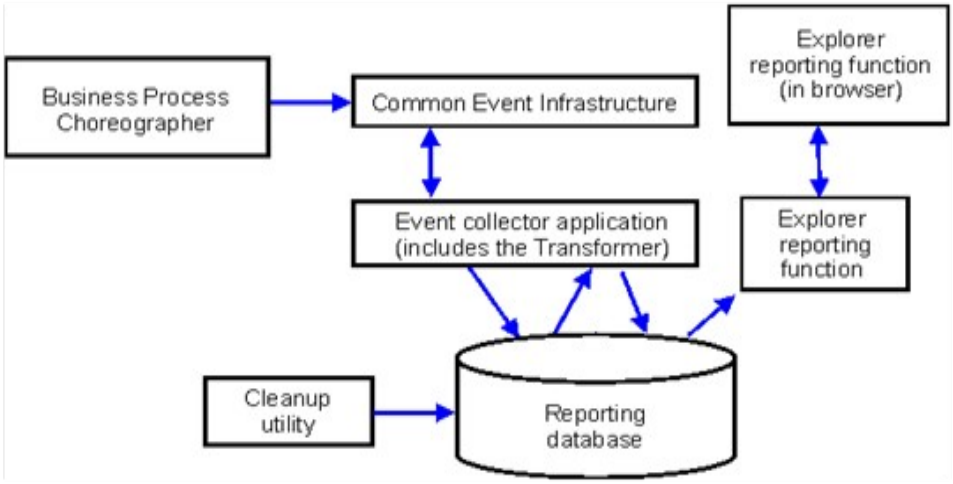
1. Tick the checkboxes alongside “ProxyNode01”, “WPSNode01” and “WPSNode01”.

2. Press **Full Resynchronize**.

Wait until the resynchronization finishes. Then the whole cell needs to be re-cycled. Restart all clusters, the node agents and the deployment manager.

Chapter 14 Install and set up Business Process Choreographer Explorer reporting function

The Business Process Choreographer Explorer reporting function (also known as BPC Observer in pre 6.2 release) uses the Common Event Infrastructure (CEI) to collect events that are emitted by WebSphere® Process Server. You can either use a number of predefined reports or define your own reports to get an overview of the number of processes, activities, or other aggregate data. You can also get information about specific processes or activities.
The Business Process Choreographer Explorer reporting function is based on two J2EE enterprise applications, which are shown in the following figure:



- The event collector application reads event information from the CEI bus and stores it in the event collector table in the reporting database.
- The reporting database is a set of database tables that store the event data.
- Periodically the event transformer is triggered, which transforms the raw event data into a format that is suitable for queries from the Business Process Choreographer Explorer reporting function.
- The Business Process Choreographer Explorer reporting function generates the reports and performs other actions that the user can initiate using the graphical user interface (GUI).
- You can use the GUI to generate your reports. You can also store and retrieve reports that you have defined.
- A cleanup utility can be used to remove records from the observer database, which can help to improve the performance.

14.1 In a network deployment environment

The following constraints apply if you want to configure Business Process Choreographer Explorer reporting function in a network deployment environment.

- CEI must be configured in your cell.
- As illustrated in the previous figure, the Business Process Choreographer event collector must be configured on a deployment target where the CEI Event server is configured. If the CEI Event server is configured on a different cluster than Business Process Choreographer, you must configure the Business Process Choreographer event collector on a deployment target where the CEI Event server is configured. The Business Process Choreographer Explorer reporting function application does not need to be installed on the same machine as the event collector.

The following steps describe how to set up the infrastructure for the reporting function in BPC Explorer in the SupportCluster.

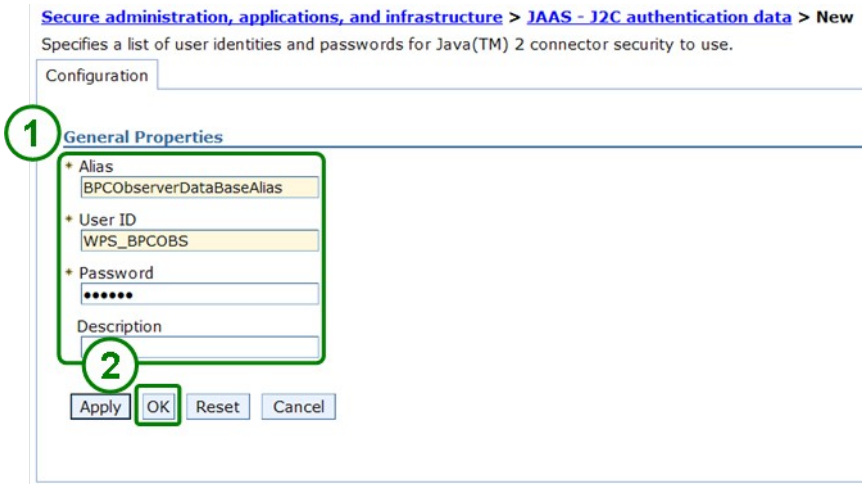
14.2 Install the Event Collector application

Before we can run the script for the Event Collector application installation we have to create a datasource for the access to the Observer database (OBSRVDB). Accordingly we have to create a new AuthenticationAlias for this datasource too.

To create the Authentication Alias, navigate to:

```
Security
  -> Secure administration, applications, and infrastructure
    -> Authentication
      -> Java Authentication and Authorization Service
        -> J2C Authentication data
          -> New
```

The "JAAS - J2C authentication data New" page is displayed:



1. Type in the following values:
   - a.) Alias: BPCObserverDataBaseAlias
   - b.) User ID: WPS_BPCOBS
   - c.) Password <password>
   - d.) Description ...

2. Click **Ok**

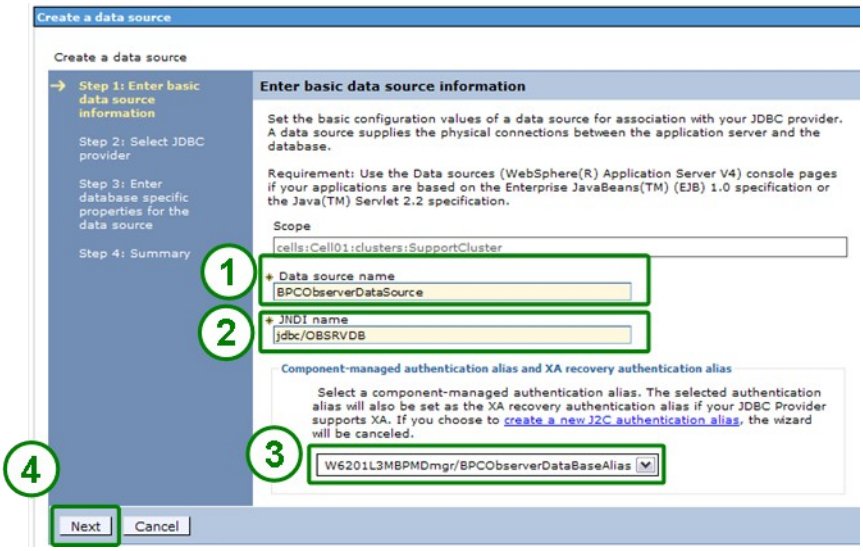
Hint: Although an Alias Name of "BPCObserverDataBaseAlias" is specified, the console creates a new Authentication alias name of "WPSDMGR/BPCObserverDataBaseAlias" (WPSDMGR is the nodename of the deployment manager). This behavior is intentional.

Save and synchronize the configuration

To create the data source navigate to:

```
Resources
  -> JDBC
    -> Data sources
      -> Switch the scope to Cluster = SupportCluster
        -> New
```

The "Create a data source Step 1" page is displayed:



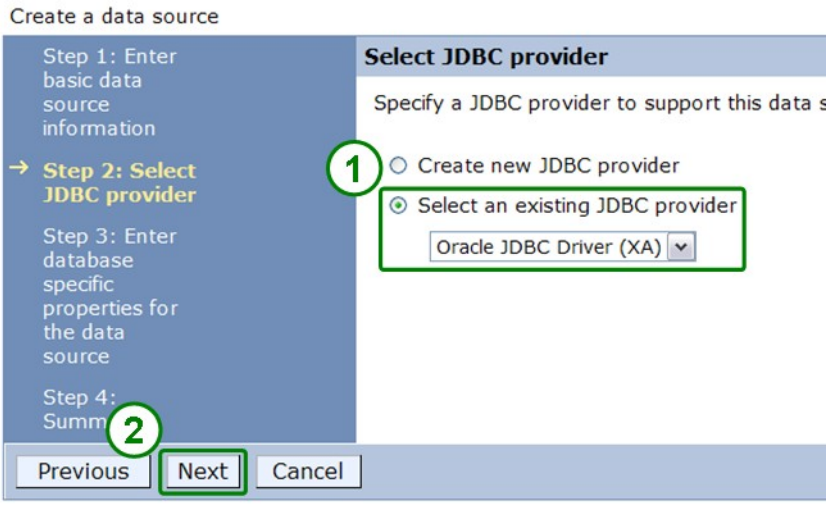
1. Type in the data source name, in this case "BPCObserverDataSource".

2. Type in the JNDI name, in this case "jdbc/OBSRVDB".

3. Select "<hostname>/BPCObserverDataBaseAlias" from the drop-down-box.

4. Click **Next**

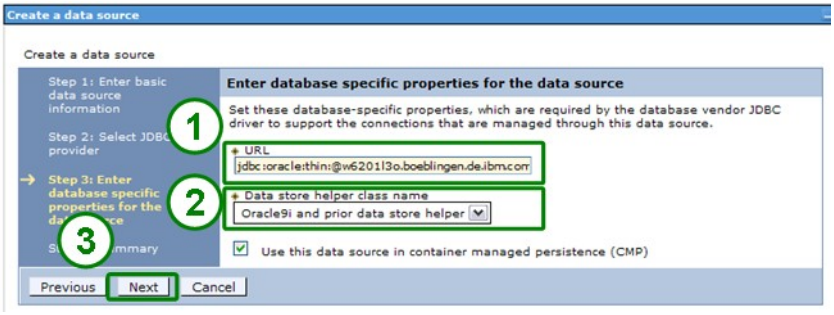
The "Create a data source Step 2" page is displayed:



1. Select "Select an existing JDBC provider" and select "Oracle JDBC Driver (XA)" from the drop-down-box.

2. Click **Next**

The "Create a data source Step 3" page is displayed:

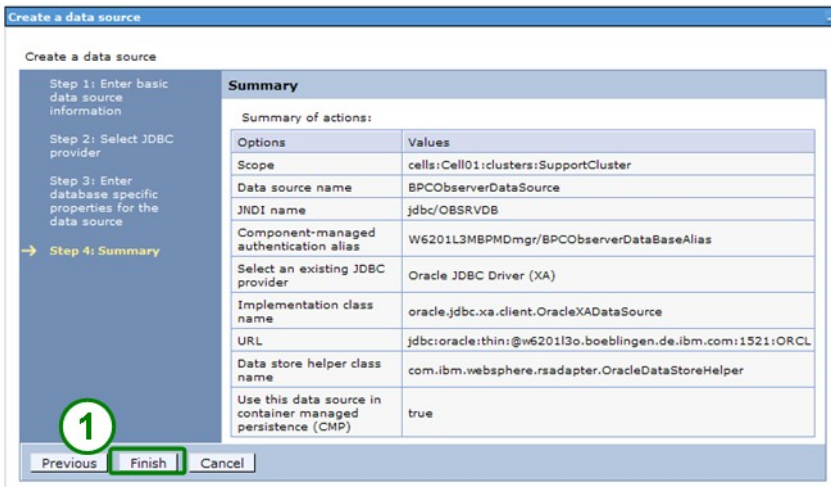


1. Type in the URL, in this case "jdbc:oracle:thin:@w6201l3o.boeblingen.de.ibm.com:1521:ORCL".

2. Select the data store helper class name, in this case "Oracle11g data store helper".

3. Click **Next**

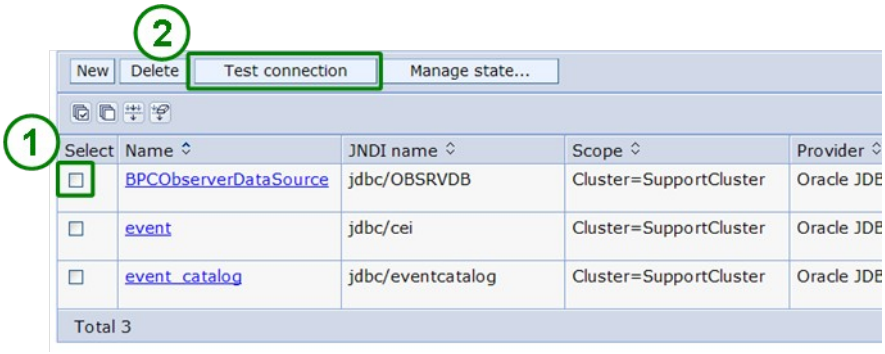
The "Create a data source Step 4" page is displayed:



1. Click **Finish**

Save and synchronize the configuration

The "Data sources" page is displayed:



1. Select "BPCObserverDataSource".

Click **Test connection**

Log in to the deployment manager host as user **root** and execute the following commands to setup and install the event collector application on the SupportCluster:

```
cd /WPS62/ProcessChoreographer/config
./setupEventCollector.sh -user vmmuser -password <password> -cluster
SupportCluster
```

```
WASX7209I: Connected to process "dmgr" on node W6201L3MBPMDmgr using SOAP
connector;  The type of process is: DeploymentManager
-------------------------------------------------------------------------
 Welcome to the WebSphere Business Process Choreographer Event Collector
setup!
-------------------------------------------------------------------------
Logfile is '/WPS62/profiles/W6201L3MBPMDmgr/logs/setupEventCollector.log'.
Initializing ...

Commands Menu
  1) Prepare a database for the Event Collector and reporting function
  2) Install the Event Collector application
  3) Remove the Event Collector application and related objects
  4) Change configuration settings of an installed Event Collector
  5) Drop the database schema of the Event Collector and reporting func-
tion
  6) Administer reporting function related user-defined functions
  0) Exit Menu
```

```
Your selection:  2
```

```
==> Install the Event Collector application

Create required objects and install the WebSphere Business Process Choreo-
grapher Event Collector application

Select the deployment target to install to:
  1) Cluster 'BPELCluster'
  2) Cluster 'MECluster'
```

```
  3) Cluster 'SupportCluster'
  0) Exit Menu
```

```
Your selection: [1] 3
```

```
==> Cluster 'SupportCluster'

Searching for an already installed Event Collector on 'SupportCluster' ...
No Application named 'BPCECollector_SupportCluster' was found.

Specify the JNDI name of the database where the Event Collector should
store the collected events.
Enter '?' to get a list.
```

```
Your selection:  [jdbc/BPEDB] jdbc/OBSRVDB
```

```
==> jdbc/OBSRVDB

Specify the database schema to be used:
```

```
Enter a space character or leave empty to use the default schema of the
datasource.  [] WPS_BPCOBS
```

```
==> WPS_BPCOBS

Install the WebSphere Business Process Choreographer Event Collector

Starting install ...

WebSphere Business Process Choreographer Event Collector installed suc-
cessfully!

Checking if CEI event logging is enabled ...
WARNING: The Business process container was not found on SupportCluster.
To allow the Event Collector to work correctly, CEI event logging is re-
quired.
If your business process container is on another server, ensure that the
CEI event logging is enabled there. Else configure one on this server.

Do you want to save the changes?
  y) yes
  n) no
```

```
Your selection: [y]
```

```
==> yes

Information: Please run the node synchronization (run syncNode.bat|.sh) to
activate the changes.

Commands Menu
  1) Prepare a database for the Event Collector and reporting function
  2) Install the Event Collector application
  3) Remove the Event Collector application and related objects
  4) Change configuration settings of an installed Event Collector
  5) Drop the database schema of the Event Collector and reporting func-
tion
  6) Administer reporting function related user-defined functions
  0) Exit Menu
```

```
Your selection:  0
```

```
==> Exit Menu
```

IMPORTANT NOTE: As a default, the BPC Event Collector is configured to start transforming events at a 500 events threshold. As this is suitable for a production environment, it isn't for a test environment. You can change this threshold by executing the *setupEventCollector.sh* script again.

```
./setupEventCollector.sh
```

```
WASX7209I: Connected to process "dmgr" on node W6201L3MBPMDmgr using SOAP
connector;  The type of process is: DeploymentManager
-------------------------------------------------------------------------
 Welcome to the WebSphere Business Process Choreographer Event Collector
setup!
-------------------------------------------------------------------------
Logfile is '/WPS62/profiles/W6201L3MBPMDmgr/logs/setupEventCollector.log'.
Initializing ...

Commands Menu
  1) Prepare a database for the Event Collector and reporting function
  2) Install the Event Collector application
  3) Remove the Event Collector application and related objects
  4) Change configuration settings of an installed Event Collector
  5) Drop the database schema of the Event Collector and reporting
function
  6) Administer reporting function related user-defined functions
  0) Exit Menu
```

```
Your selection:  4
```

```
==> Change configuration settings of an installed Event Collector

Select the deployment target where the application is installed:
  1) Cluster 'BPELCluster'
  2) Cluster 'MECluster'
  3) Cluster 'SupportCluster'
  0) Exit Menu
```

```
Your selection: [1] 3
```

```
==> Cluster 'SupportCluster'

Retrieving the application configuration settings of application
'BPCECollector_SupportCluster' ...

Enter the number of the configuration parameter you want to
change/display:
  1) BPCEventTransformerEventCount
  2) BPCEventTransformerMaxWaitTime
  3) BPCEventTransformerToleranceTime
  4) ObserverCreateTables
  5) ObserverSchemaName
  0) Exit Menu
```

```
Your selection:  1
```

```
Edit a configuration parameter.
```

```
  Configuration parameter:   BPCEventTransformerEventCount
  Description:               The number of events after which the Event
                             Collector sends a notification to the
Transformer.
  Data type:                 Integer
  Unit:                      Events
  Current value is:          '500'

  Enter a new value. Press 'Enter' to exit.
```

```
  Your selection:  20
```

```
==> Value for 'BPCEventTransformerEventCount' set to '20'.

Enter the number of the configuration parameter you want to
change/display:

  1) BPCEventTransformerEventCount
  2) BPCEventTransformerMaxWaitTime
  3) BPCEventTransformerToleranceTime
  4) ObserverCreateTables
  5) ObserverSchemaName
  0) Exit Menu
```

```
Your selection:  2
```

```
Edit a configuration parameter.

  Configuration parameter:   BPCEventTransformerMaxWaitTime
  Description:               Time in minutes after the Transformer is
notified
                             although the number of events is not reached.
  Data type:                 Integer
  Unit:                      Minutes
  Current value is:          '10'

  Enter a new value. Press 'Enter' to exit.
```

```
  Your selection:  1
```

```
==> Value for 'BPCEventTransformerMaxWaitTime' set to '1'.

Enter the number of the configuration parameter you want to
change/display:

  1) BPCEventTransformerEventCount
  2) BPCEventTransformerMaxWaitTime
  3) BPCEventTransformerToleranceTime
  4) ObserverCreateTables
  5) ObserverSchemaName
  0) Exit Menu
```

```
Your selection:  3
```

```
Edit a configuration parameter.

  Configuration parameter:   BPCEventTransformerToleranceTime
  Description:               Time in minutes while the Transformer ignores
the
                             events in the database.
```

```
  Data type:                  Integer
  Unit:                       Minutes
  Current value is:           '10'

  Enter a new value. Press 'Enter' to exit.
```

```
  Your selection:  1
```

```
==> Value for 'BPCEventTransformerToleranceTime' set to '1'.

Enter the number of the configuration parameter you want to
change/display:

  1) BPCEventTransformerEventCount
  2) BPCEventTransformerMaxWaitTime
  3) BPCEventTransformerToleranceTime
  4) ObserverCreateTables
  5) ObserverSchemaName
  0) Exit Menu
```

```
Your selection:  0
```

```
Do you want to save the changes?
  y) yes
  n) no
```

```
Your selection: [y] y
```

```
==> yes
Updating the application configuration settings ...

Note: To activate the changes, you must restart the application
BPCECollector_SupportCluster.
Information: Please run the node synchronization (run syncNode.bat|.sh) to
activate the changes.

Commands Menu

  1) Prepare a database for the Event Collector and reporting function
  2) Install the Event Collector application
  3) Remove the Event Collector application and related objects
  4) Change configuration settings of an installed Event Collector
  5) Drop the database schema of the Event Collector and reporting
function
  6) Administer reporting function related user-defined functions
  0) Exit Menu
```

```
Your selection:  0
```

```
==> Exit Menu
```

14.3 Install the Business Process Choreographer Explorer with the reporting function

This section describes the installation and setup of the Business Process Choreographer Explorer including reporting function.
To setup the BPC Explorer and the reporting function login to the deployment manager host as user root and execute the following commands:

```
/WPS62/bin/wsadmin.sh -f clientconfig.jacl -user vmmuser -password
<password>
```

```
WASX7209I: Connected to process "dmgr" on node W6201L3MBPMDmgr using SOAP
connector;  The type of process is: DeploymentManager
Business Process Choreographer Explorer configuration started.
```

```
Install the Process Choreographer Explorer on a standalone server or in a
cluster [Standalone/cluster]? cluster
```

```
==> cluster
```

```
Name of cluster where to install the Process Choreographer Explorer
[BPELCluster/MECluster/SupportCluster]: SupportCluster
```

```
==> SupportCluster
```

```
Context root for the Process Choreographer Explorer [/bpc]:
```

```
==> /bpc
```

```
Virtual Host for the Process Choreographer Explorer [default_host]:
```

```
==> default_host
```

```
Precompile JSPs (precompiled JSPs cannot be debugged) [No/yes]?
```

```
==> no
```

```
Connect the Explorer to a clustered or a standalone Process Choreographer
[Clustered/standalone]?
```

```
==> clustered
```

```
Cluster of Process Choreographer to connect to
[SupportCluster/BPELCluster/MECluster]: BPELCluster
```

```
==> BPELCluster
```

```
Maximum number of list entries for the Process Choreographer Explorer
[10000]: 200
```

```
==> 200
********************************************************************************
* NOTE: The Process Choreographer REST API URLs are needed by the
* Process Choreographer Explorer's graphical process widget.
* In an ND environment, it is not possible to compute default values for
them.
********************************************************************************
```

```
URL for the Business Flow Manager REST API (for example,
http://<host>:<port>/rest/bpm/bfm) []:
https://w6201l3m.boeblingen.de.ibm.com:444/rest/bpm/bfm
```

```
==> https://w6201l3m.boeblingen.de.ibm.com:444/rest/bpm/bfm
```

```
URL for the Human Task Manager REST API (for example,
http://<host>:<port>/rest/bpm/htm) []:
https://w6201l3m.boeblingen.de.ibm.com:444/rest/bpm/htm
```

```
==> https://w6201l3m.boeblingen.de.ibm.com:444/rest/bpm/htm
```

```
Enable the reporting function (formerly known as 'Observer') [No/yes]? yes
```

```
==> yes
```

```
JNDI name of the data source to access the reporting database (this data
source will not be created) [jdbc/OBSVRDB_SupportCluster]:jdbc/OBSRVDB
```

```
==> jdbc/OBSRVDB
```

```
Automatically create the database tables when the Process Choreographer
Explorer connects for the first time [True/false]? false
```

```
==> false
```

```
Name of the reporting database schema [ORCBC00]: WPS_BPCOBS
```

```
==> WPS_BPCOBS
```

```
Report at snapshot range [60]:
```

```
==> 60
*********************************************************************
* NOTE: The Process Choreographer URL will be used by the
* Human Task Manager on cluster BPELCluster
* to link to this Explorer instance. Set an empty URL to not create this
link.
* To clear the default value, enter a space character.
*********************************************************************
```

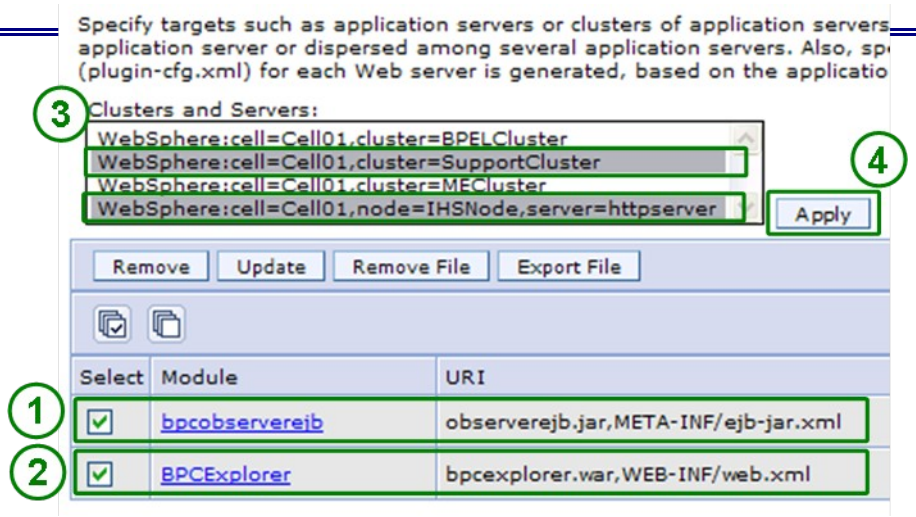
```
URL for this Process Choreographer Explorer (for example,
http://<host>:<port>/bpc): https://w6201l3m.boeblingen.de.ibm.com/bpc
```

```
Business Process Choreographer Explorer configuration finished. See
/WPS62/profiles/W6201L3MBPMDmgr/logs/clientconfig.log for details.
```

14.3.1 Map BPC Explorer

Open the deployment manager integration solution console, navigate to “Applications → Enterprise Applications” and select “BPCExplorer_SupportCluster”.

1. Select “Manage Modules”



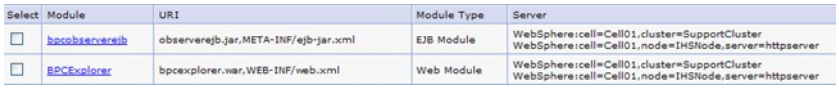
1. Select Module "bpcobserverejb".

2. Select Module "BPCExplorer".

3. Select both "WebSphere:cell=Cell01, cluster=SupportCluster" and "WebSphere:cell=Cell01, node=IHSNode, server=httpserver".

4. Press **Apply**, then **OK** and then **Save**

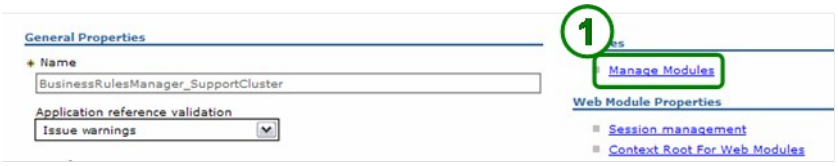
Both modules should now be mapped to the Support Cluster and the HTTP server:



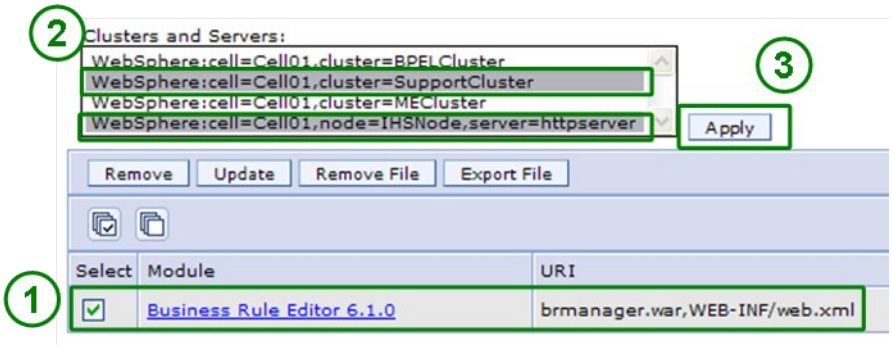
Select	Module	URI	Module Type	Server
☐	bpcobserverejb	observerejb.jar,META-INF/ejb-jar.xml	EJB Module	WebSphere:cell=Cell01,cluster=SupportCluster WebSphere:cell=Cell01,node=IHSNode,server=httpserver
☐	BPCExplorer	bpcexplorer.war,WEB-INF/web.xml	Web Module	WebSphere:cell=Cell01,cluster=SupportCluster WebSphere:cell=Cell01,node=IHSNode,server=httpserver

14.3.2 Map Business Rules Manager

Navigate to Applications → Enterprise Applications and select "BusinessRulesManager_SupportCluster".



1. Select "Manage Modules"



1. Select Module "Business Rule Editor 6.1.0".

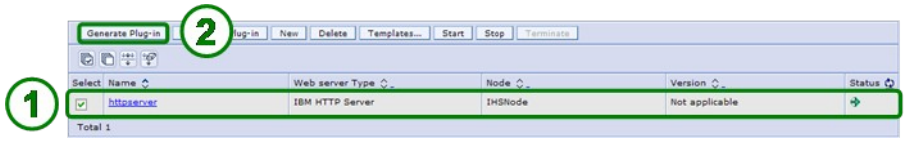
2. Select both "WebSphere:cell=Cell01, cluster=SupportCluster" and "WebSphere:cell=Cell01, node=IHSNode, server=httpserver".

3. .Press **Apply**, then **OK** and then **Save**

The module should now be mapped to the Support Cluster and the HTTP server:

14.4 Generate and propagate IHS Plug-in

Navigate to "Servers → WebServers"

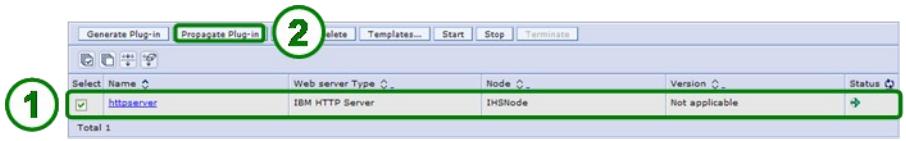


1. Select "httpserver".

Press **Generate Plug-in**

A message indicates that the plug-in (plugin-cfg.xml) was created:

Navigate to "Servers → WebServers" (if not already there)



1. Select "httpserver".

2. Press **Propagate Plug-in**

A message indicates that the plug-in (plug-cfg.xml) was propagated.

Navigate to "Servers → WebServers" (if not already there)

1. Select "httpserver".

2. Press **Stop** (wait until the server is stopped).

3. Press **Start** (wait until the server is started).

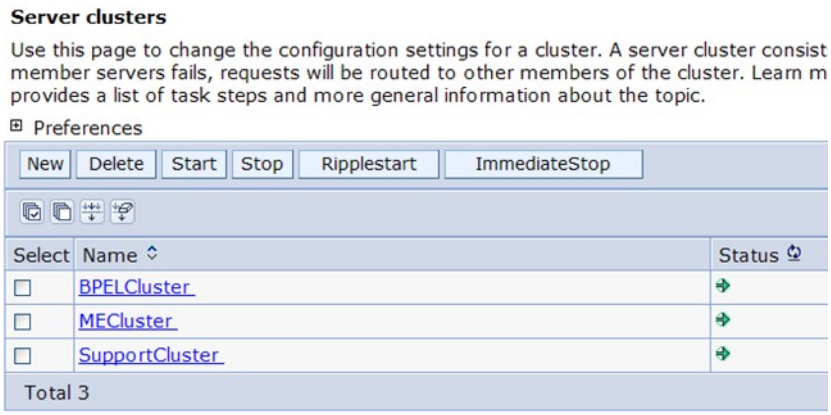
14.5 Verification

This section describes how to verify the succesfull installation and configuration of the BPC Explorer.

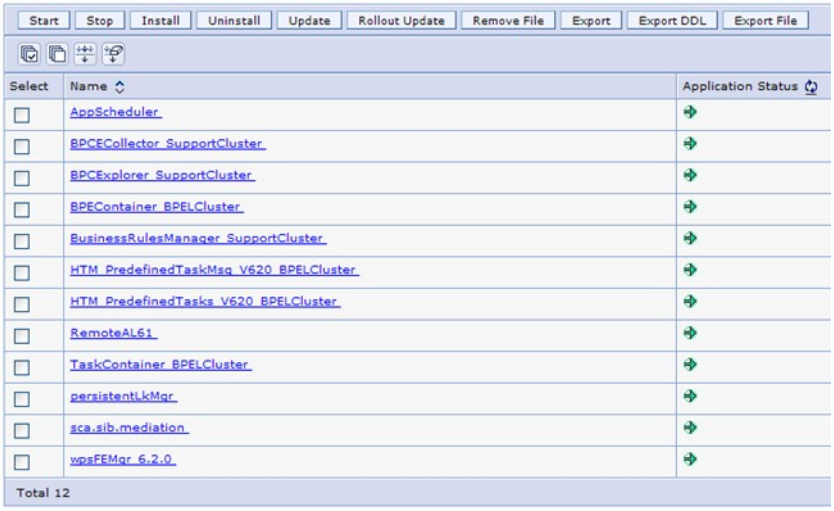
In the admin console navigate to:

```
Servers´
  -> Clusters
```

Start the **MECluster**, first, followed by the **SupportCluster and BPEL-Cluster.** If no fatal errors occurred, all clusters are in state **started (also check the log files)**:



Navigate to ***Applications -> Enterprise Applications*** and verify that all applications are up and running:

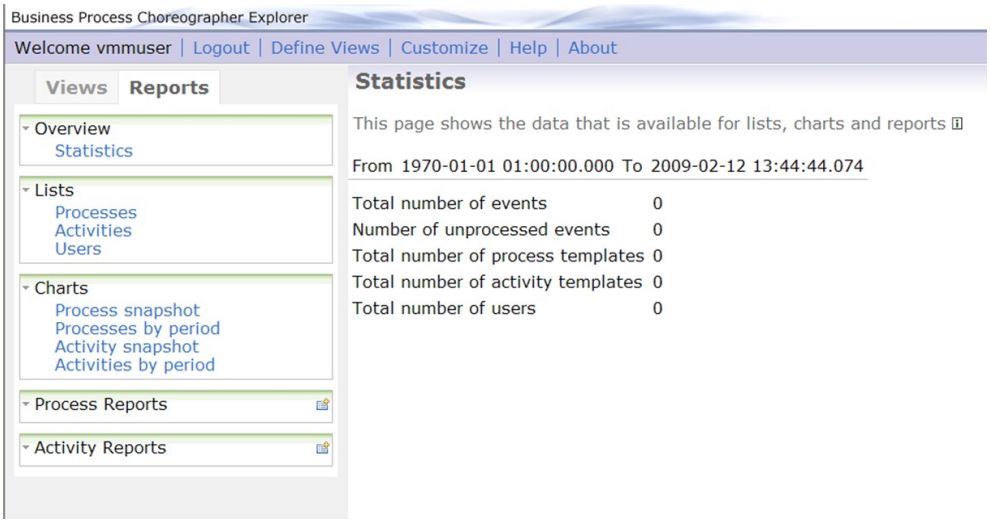


To check that the BPC Explorer reporting function is running, access it as a Web browser on URL: **https://<hostname_dmgr>**/bpc

As global security is enabled a user ID and password is required for log-on:

User ID: vmmuser

Password: <password>



Part V b Business Space

Skip Business Space chapter if WebSphere Business Monitor installation is planned.

Chapter 15 Install and configure Business Space in the Support Cluster

This chapter describes the Business Space configuration in the support cluster.

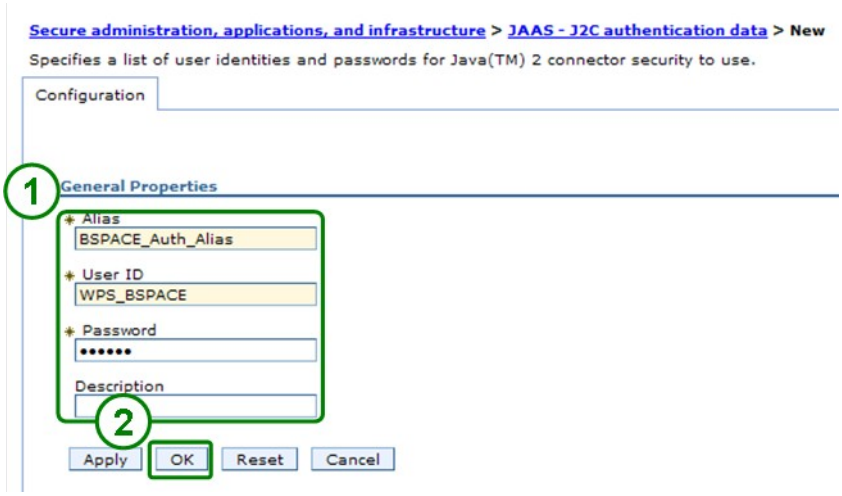
If WebSphere Business Monitor is supposed to be installed and configured as well this step has to be skipped. Business Space has then to be installed on Web Dashboard Cluster.

15.1 Create Business Space authentication alias

To create the BSpace authentication alias navigate to:

```
Security
  -> Secure administration, applications, and infrastructure
    -> JAAS - J2C authentication data
      -> New
```

The "JAAS - J2C authentication data New" page is displayed:



1. Type in the following values for:
   - a.) Alias: BSPACE_Auth_Alias
   - b.) UserID: WPS_BSPACE
   - c.) Password: <password>
   - d.) Description

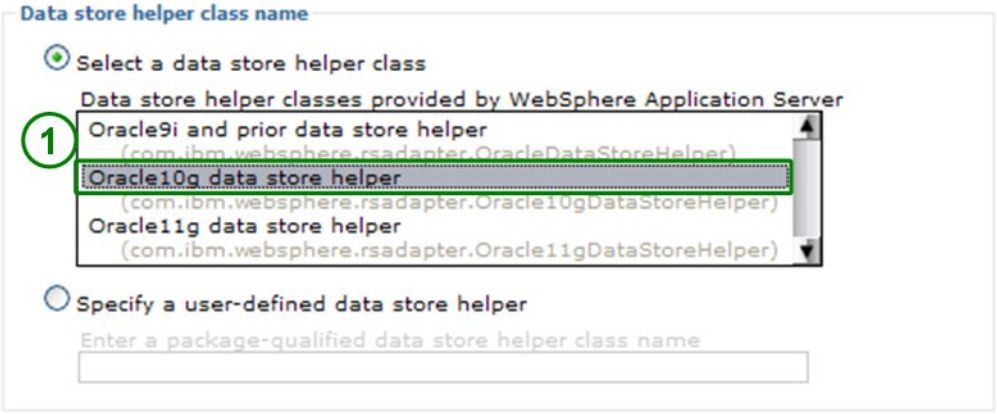
2. Click **Ok**, save and synchronize

15.2 Install Business Space applications

Navigate to the WBI datasource and change the datastore helper to Oracle 10g.

```
Resources
  -> JDBC
    -> Data sources
      -> WBI_DataSource
```

The "WBI_DataSource configuration" panel is displayed:



1. Select "Oracle10g data store helper"

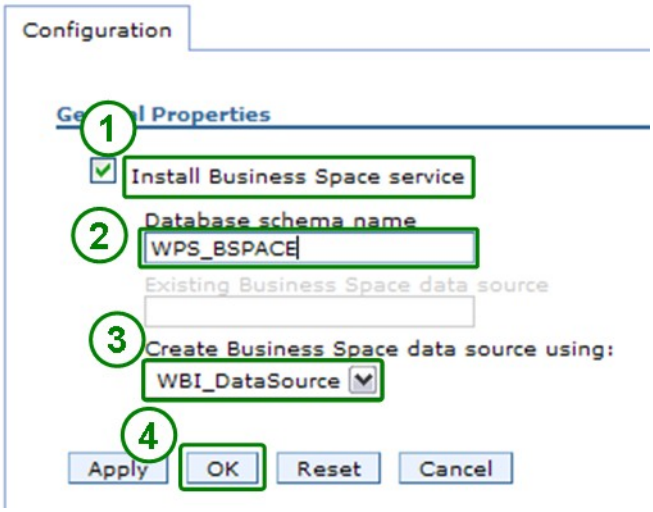
Press Ok, save and synchronize

Not changing the data store helper class to Oracle10g will lead to a Null Pointer Exception during the installation of the Business Space applications.

To install the Business Space applications navigate to:

```
Servers
  -> Cluster
    -> SupportCluster
      -> Business Space Configuration
```

The "Business Space Configuration" page is displayed:



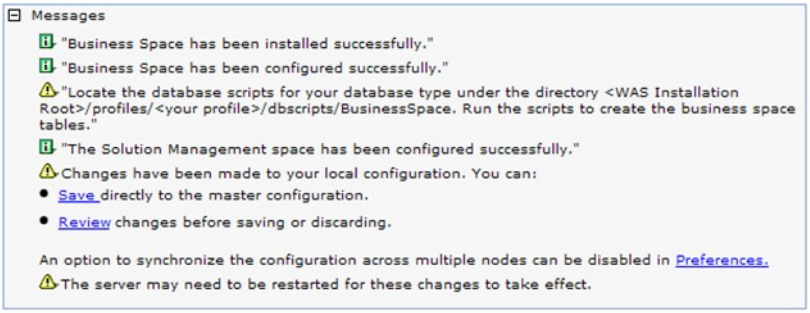
1. Select "Install Business Space service".

2. Type in the database schema name, in this case WPS_BSPACE.

3. Select "WBI_Datasource".

4. Click **Ok**

You will get the following message:

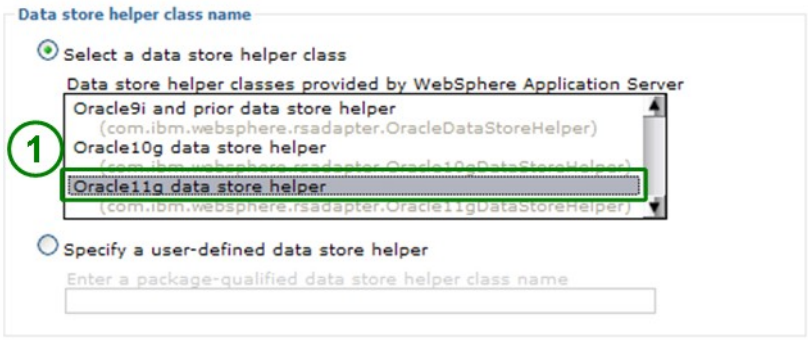


Save and synchronize the configuration

Navigate to the WBI datasource and change the datastore helper back to Oracle 11g.

```
Resources
  -> JDBC
    -> Data sources
      -> WBI_DataSource
```

The "WBI_DataSource configuration" panel is displayed:



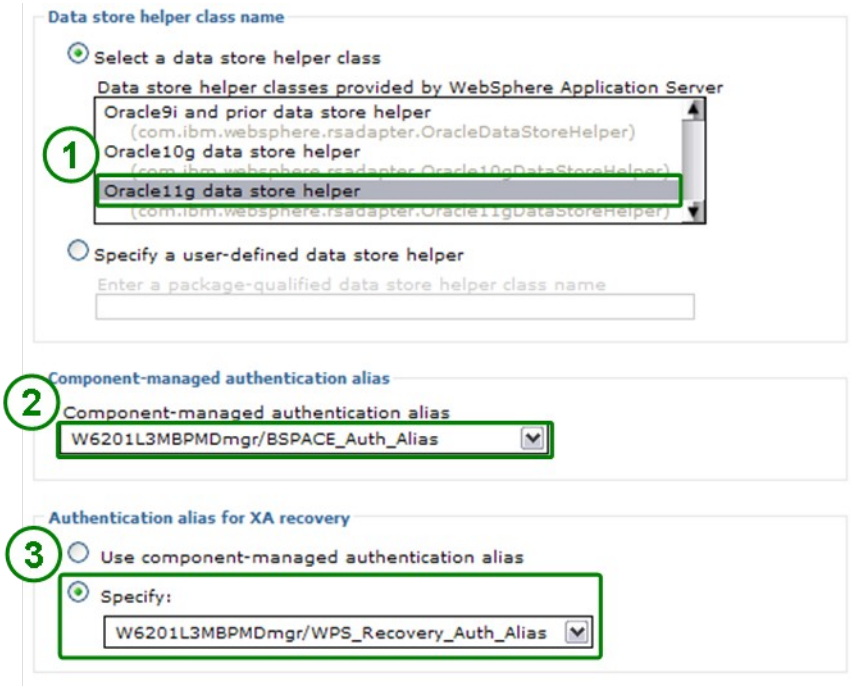
1. Select "Oracle11g data store helper"

Press Ok, save and synchronize

Navigate to the "Business Space Datasource" to change the datastore helper to Oracle 11g and the authentication alias to "<hostname>/BSPACE_Auth_Alias".

```
Resources
  -> JDBC
    -> Data sources
      -> Business Space Datasource
```

The "Business Space Datasource configuration" panel is displayed:



1. Select "Oracle11g data store helper"

2. Select "<hostname>/BSPACE_Auth_Alias"

3. Select specify and then "<hostname>/WPS_Recovery_Auth_Alias"

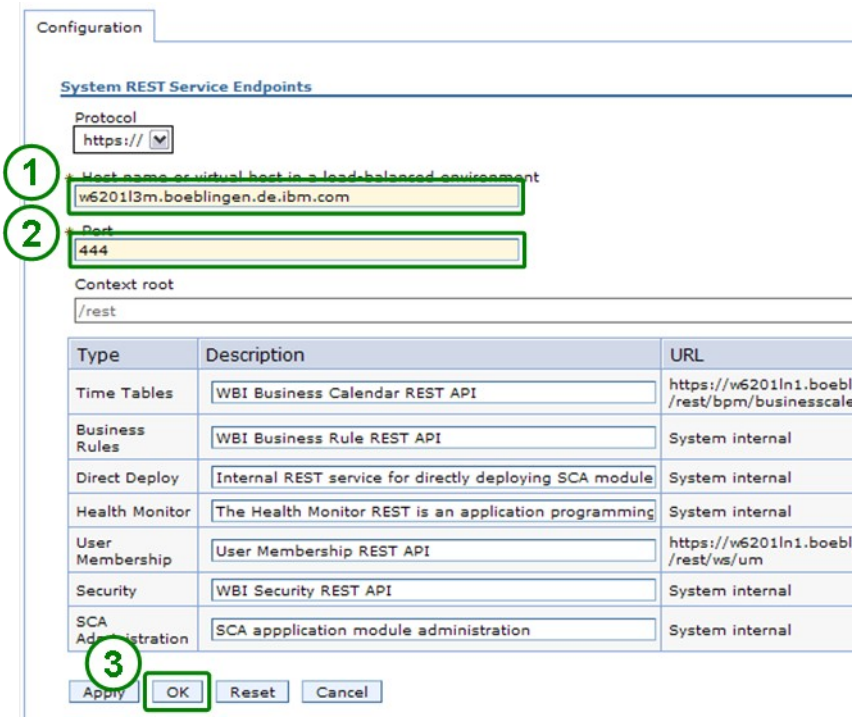
Press Ok, save and synchronize

15.3 Enable business rules for Business Space

In the admin console navigate to:

```
Servers
  -> Clusters
    -> SupportCluster
    -> System REST Service Endpoints
```

The "System REST Service Endpoints" panel is displayed:



1. Type in the proxy host, in this case "w6201l3m.boeblingen.de.ibm.com".

2. Type in the proxy port, in this case "444".

3. Click **Ok**

Save and synchronize the configuration

Recycle the entire cell (clusters, nodes and deployment manager) and verify output messages for successful startup.

15.4 Enable widgets in Business Space

Login to W6201LN1WPSNode1 server in our case it is the server w6201ln1.boeblingen.de.ibm.com as user root and navigate to the following directory:

```
cd /WPS62/BusinessSpace/registryData
```

Edit the following file:

```
bpcEndpoints.xml
```

Change all the <tns:url> tags to point to the default secure port of the proxy server e.g.

```
<tns:url>https://<proxy-host>:444/rest/bpm/htm</tns:url>
```

Edit the following file:

```
wpsEndpoints.xml
```

Change the <tns:url> tags to point to the default secure port of the SupportCluster e.g.

```
<tns:url>https://<proxy-host>:444/rest/bpm/brules/v1</tns:url>
```

Copy all xml files from

```
/WPS62/BusinessSpace/registryData
```

to the **W6201LN1WPSCustom01** profile in the directory

```
/WPS62/profiles/W6201LN1WPSCustom01/BusinessSpace/registryData
```

Note: Create the directory <profile_home>/BusinessSpace/registryData if it does not exist.

Do the same steps on the W6201LN2WPSNode01 server and copy it to the W6201LN2WPSCustom01 profile.

15.4.1 Map Business Space

Navigate to:

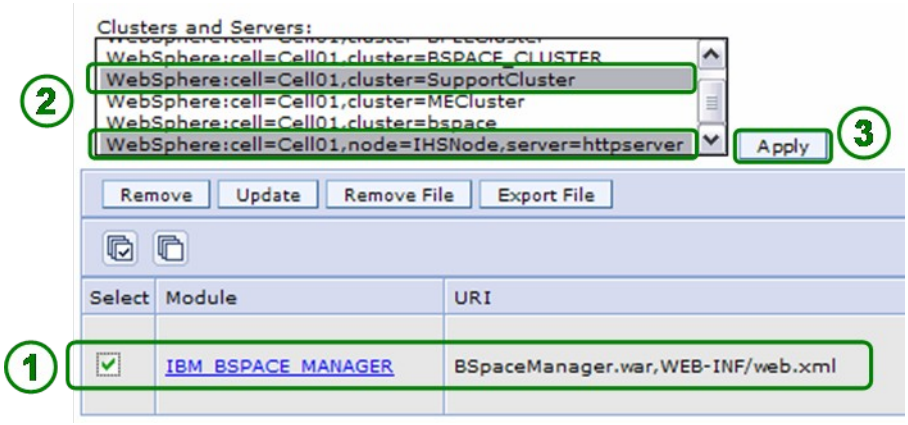
```
Applications
  -> Enterprise Applications
```

and select “BusinessSpaceManager”.

The "BusinessSpaceManager configuration" panel is displayed:

1. Select “Manage Modules”

The "BusinessSpaceManager Manage Modules" panel is displayed:



1. Select Module “IBM_BSPACE_MANAGER”.

2. Select both “WebSphere:cell=Cell01, cluster=SupportCluster” and “WebSphere:cell=Cell01, node=IHSNode, server=httpserver”.

3. .Press **Apply**, then **OK** and then **Save**

The module should now be mapped to the Support Cluster and the HTTP server:

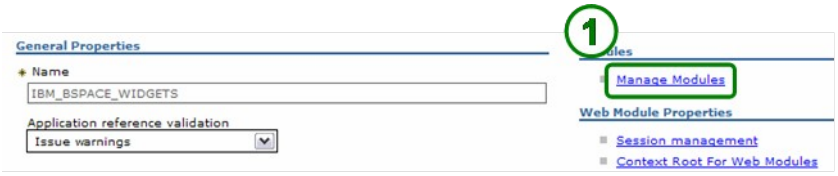
Select	Module	URI	Module Type	Server
☐	IBM_BSPACE_MANAGER	BSpaceManager.war,WEB-INF/web.xml	Web Module	WebSphere:cell=Cell01,node=IHSNode,server=httpserver WebSphere:cell=Cell01,cluster=SupportCluster

Open the deployment manager integration solution console, navigate to

```
Applications
  -> Enterprise Applications
```

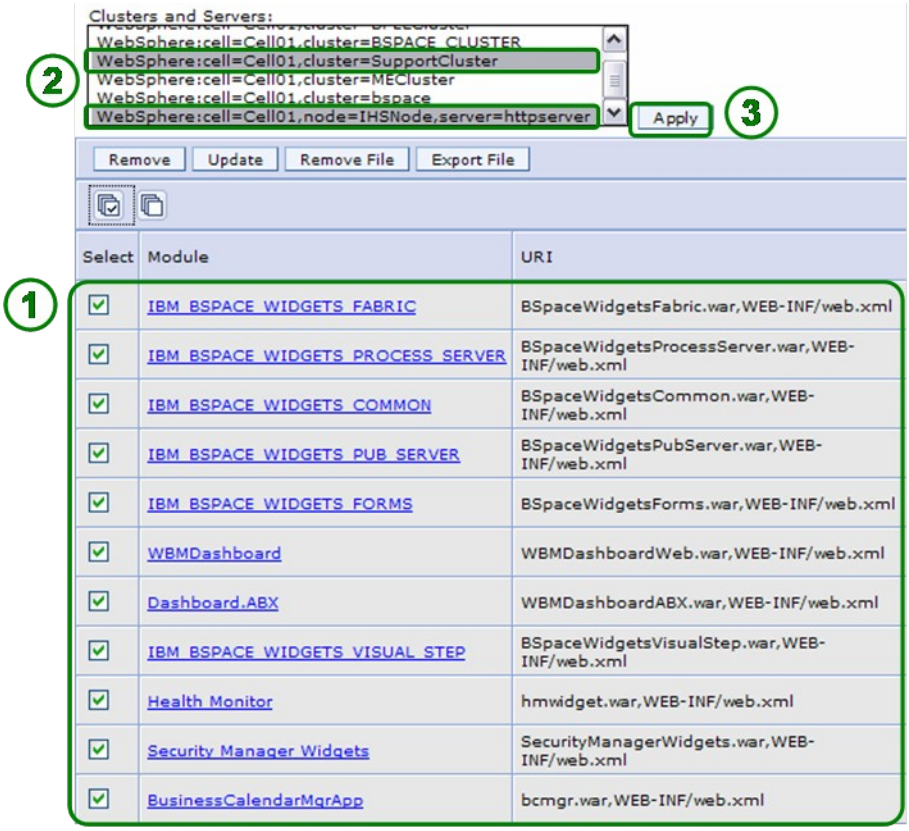
and select “IBM_BSPACE_WIDGETS”.

The "IBM_BSPACE_WIDGETS configuration" panel is displayed:



1. Select “Manage Modules”.

The "IBM_BSPACE_WIDGETS Manage Modules" panel is displayed:

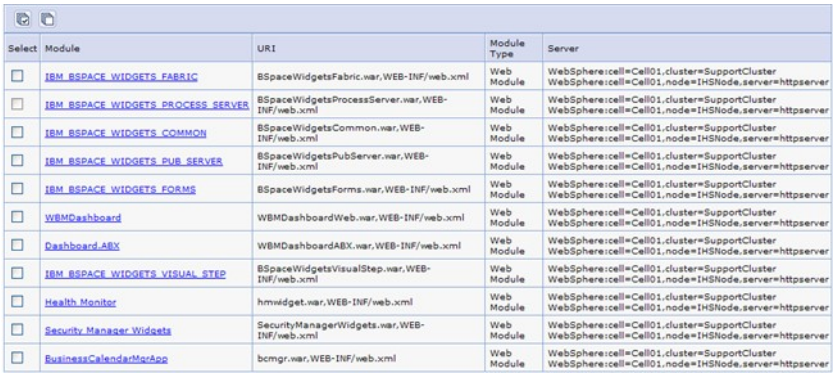


1. Select all modules.

2. Select both “WebSphere:cell=Cell01, cluster=SupportCluster” and “WebSphere:cell=Cell01, node=IHSNode, server=httpserver”.

3. .Press **Apply**, then **OK** and then **Save**

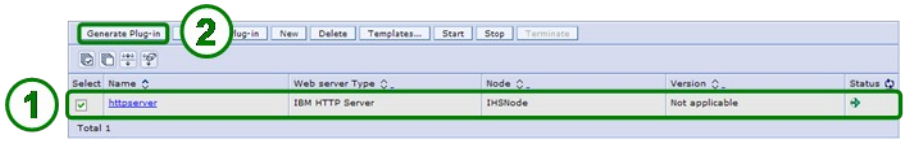
All modules should now be mapped to the Support Cluster and the HTTP server:



Select	Module	URI	Module Type	Server
☐	IBM_BSPACE_WIDGETS_FABRIC	BSpaceWidgetsFabric.war,WEB-INF/web.xml	Web Module	WebSphere:cell=Cell01,cluster=SupportCluster WebSphere:cell=Cell01,node=IHSNode,server=httpserver
☐	IBM_BSPACE_WIDGETS_PROCESS_SERVER	BSpaceWidgetsProcessServer.war,WEB-INF/web.xml	Web Module	WebSphere:cell=Cell01,cluster=SupportCluster WebSphere:cell=Cell01,node=IHSNode,server=httpserver
☐	IBM_BSPACE_WIDGETS_COMMON	BSpaceWidgetsCommon.war,WEB-INF/web.xml	Web Module	WebSphere:cell=Cell01,cluster=SupportCluster WebSphere:cell=Cell01,node=IHSNode,server=httpserver
☐	IBM_BSPACE_WIDGETS_PUB_SERVER	BSpaceWidgetsPubServer.war,WEB-INF/web.xml	Web Module	WebSphere:cell=Cell01,cluster=SupportCluster WebSphere:cell=Cell01,node=IHSNode,server=httpserver
☐	IBM_BSPACE_WIDGETS_FORMS	BSpaceWidgetsForms.war,WEB-INF/web.xml	Web Module	WebSphere:cell=Cell01,cluster=SupportCluster WebSphere:cell=Cell01,node=IHSNode,server=httpserver
☐	WBMDashboard	WBMDashboardWeb.war,WEB-INF/web.xml	Web Module	WebSphere:cell=Cell01,cluster=SupportCluster WebSphere:cell=Cell01,node=IHSNode,server=httpserver
☐	Dashboard ABX	WBMDashboardABX.war,WEB-INF/web.xml	Web Module	WebSphere:cell=Cell01,cluster=SupportCluster WebSphere:cell=Cell01,node=IHSNode,server=httpserver
☐	IBM_BSPACE_WIDGETS_VISUAL_STEP	BSpaceWidgetsVisualStep.war,WEB-INF/web.xml	Web Module	WebSphere:cell=Cell01,cluster=SupportCluster WebSphere:cell=Cell01,node=IHSNode,server=httpserver
☐	Health Monitor	hmwidget.war,WEB-INF/web.xml	Web Module	WebSphere:cell=Cell01,cluster=SupportCluster WebSphere:cell=Cell01,node=IHSNode,server=httpserver
☐	Security Manager Widgets	SecurityManagerWidgets.war,WEB-INF/web.xml	Web Module	WebSphere:cell=Cell01,cluster=SupportCluster WebSphere:cell=Cell01,node=IHSNode,server=httpserver
☐	BusinessCalendarMgrApp	bcmgr.war,WEB-INF/web.xml	Web Module	WebSphere:cell=Cell01,cluster=SupportCluster WebSphere:cell=Cell01,node=IHSNode,server=httpserver

15.5 Generate and propagate IHS Plug-in

Navigate to "Servers → WebServers"

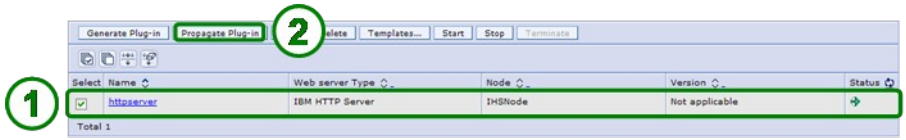


1. Select "httpserver".

Press **Generate Plug-in**

A message indicates that the plug-in (plugin-cfg.xml) was created:

Navigate to "Servers → WebServers" (if not already there)



1. Select "httpserver".

2. Press **Propagate Plug-in**

A message indicates that the plug-in (plug-cfg.xml) was propagated.

Navigate to "Servers → WebServers" (if not already there)

1. Select "httpserver".

2. Press **Stop** (wait until the server is stopped).

3. Press **Start** (wait until the server is started).

15.6 Verify the Business Space

Open a http browser and navigate to the Business Space website, e.G.

```
https://<webserver>/BusinessSpace
```