What is the Process Center?

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Outline:
1. Install Products
2. Spreadsheet
3. Deploy Mgr
4. Cust. Node
5. Deploy Env

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Guideline:
1. Initialize Products
2. Spreadsheet
3. Deploy Mgr
4. OUs
5. Deploy

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Process Center Configuration on Linux with DB2 on Z/OS - Unit 4

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Linux on System z

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z/OS

DB2 Database

Process Center

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JDBC connect
Software Requirements

Installing Process Center on zLinux

Supported OS:
- SUSE Linux Enterprise Server 10 and 11
- RedHat Enterprise Linux 5 and 6
- SUSE Linux Enterprise Server 10 and 11

Our lab environment: SLES 10 SP3 -- WpspCtr
- RedHat Enterprise Linux 5 and 6
- SUSE Linux Enterprise Server 10 and 11

Supported OS:

Increase maximum open files to at least 8799

Shared Resources:

Install the software:
- IBM Installation Manager
  /opt/IBM/InstallationManager/eclipse
- IBM WebSphere Application Server - ND
- IBM Business Process Manager Advanced 8.0
- IBM DB2 UDB Advanced Enterprise Server 9.7
  Installed at: /opt/ibm/db2/V9.7 (DB2 admin id: db2inst1)
- IBM WebSphere Application Server 9.7

Increase maximum open files to at least 8799
ulimit -n 9000

After installation:
- WAS 8.0.0.5
- BPM Advanced 8.0.1

Process Center Software for zLinux
Start with the Spreadsheet C1CELL.BPM801.xls (in Techdoc WP102075)

• Enter Environment Specific Customization Variables
  – WAS, BPM, DB2, Topology
  – Outputs (save in /home/user1/wpswork/):
    – Deployment Manager: pccell_DMgr.rsp
    – Empty Managed Node: pccell_EmptyNode.rsp
    – Data Base Design file: pccsr01.dbDesign
    – Deployment Environment Description: processcenter.deploy
    – Database Setup: processcenter.sql
  – Database and StoGroup Creation
  – GRANT statements
  – Database Setup (processcenter, sq1)
  – Deployment Environment Description (processcenter, deploy)
  – Data Base Design file (processcenter, dbdes39)
  – Empty Managed Node: pccell-EmptyNode.rsp
  – Deployment Manager: pccell-Dmgr.rsp
  – Outputs (save in /home/user1/wpswork/)

• Database and StoGroup Creation
• GRANT statements
• Deploy BPM Product
  – mount -o loop bpmPC.dvd.8000.1inux.x86_64.iso pc

Use the WCT Profile Management Tool (PMT)
**Database Creation Notes**

- **Two Databases:**
  - **Cell-scoped:** Common DB "PCCELLDB"
    - Must be created after DMgr is created, before DMgr is started.
  - **Cluster-scoped:** all others "PCSR01DB"

- Some SQL statements exceed 72 character lines
  - SPUFI will encounter line length limitations
  - Use `createDB2.sh` which uses DB2 Command Line Processor (db2clp)

- FTP files in above directory to z/OS (/n/user1/mpwork/pcelldb/)
  - May need to correct createDB2.sh (CR/LF) and some sql files
  - Setup DB2 CLP properties

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**Cell-scoped Database Details**

1. **Generate database scripts (sql files) on zLinux:**
   - Change directory to:
     ```bash
cd /opt/IBM/WebSphere/AppServer/util/dbUtils
   ```
   - Execute script:
     ```bash
./DbDesignGenerator.sh -g /home/user1/pcsr01.dbDesign
   ```
     
   `[info] running DbDesignGenerator in generating mode...`
   ```bash
[info] generating database scripts from /home/tai/pcsr01.dbDesign
[info] The script(s) have been generated in /opt/IBM/WebSphere/AppServer/util/dbUtils/../../profiles/default/dbscripts/PCSR01DB
   ```
   - Files generated for:
     - BPM_ProcessServer_ME
     - BPM_PerformanceDW_ME
     - BPM_PerformanceDW
     - BPM_BPC_ME
     - BPM_BPC
     - WBI_CommonDB
     - WBI_SCA_SYS_ME
     - WBI_SCA_APP_ME
     - WBI_BSPACE
     - WBI_BPC
     - WBI_BPC_ME

2. **FTP all files in above directory to z/OS (/u/user1/wpswork/PCCELLDB/)**

3. **Create the DB2 artifacts on z/OS:**
   - Database, Storage Groups & Grants (see Database Worksheet)
   - Tables, Indexes, etc.

   ```bash
cd /u/user1/wpswork/PCCELLDB
createDB2.sh -DBAlias PCADMIN -RunSQL
   ```

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**Misc.**

- Add Buffer Pools (BP8K1, BP16K1, BP32K1)

- Correct createDB2.sh (CR/LF) and some sql files

- Use createDB2.sh which uses DB2 Command Line Processor (db2clp)

- SPUFI will encounter line length limitations

- Some SQL statements exceed 72 character lines

- Must be created after DMgr is created before DMgr is started.

- Cluster-scoped: "PCSR01DB"
- Cell-scoped: "Common DB PCCELLDB"

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**Database Creation Notes**
Generate database scripts (created earlier):

```
[info] generating database scripts from /home/tai/pcsr01.dbDesign

[info] The script(s) have been generated in /opt/IBM/WebSphere/AppServer/util/dbUtils/../../profiles/default/dbscripts/

...for WBI_CEI_ME
...for BPM_ProcessServer
...for WBI_BPC_ME
...for BPM_PerformanceDW
...for WBI_BPC
...for WBI_BSPACE
...for WBI_SCA_APP_ME
...for BPM_ProcessServer_ME
...for WBI_SCA_SYS_ME

[info] thanks, quitting now ...
```

FTP all files in above directory to z/OS

```
/u/user1/wpswork/PCSR01DB

Create the DB2 artifacts on z/OS:

- Database, StoGroup & GRANTs
  - (done earlier - See Database Worksheet)
- Tables, tablespaces, etc.: 
  - CD /u/user1/wpswork/PCSR01DB
  - createDB2.sh -DBAlias PCADMIN –RunSQL

Profile Management Tool (PMT)

PMT details

- Profile Management Tool (PMT)
  - /opt/IBM/WebSphere/AppServer/bin/ProfileManagement/pmt.sh
  - Create BPM Advanced Process Center DMGR
  - Cell: pccell
  - Node: pcdmnode
  - Profile: dmgr
  - User name: pcadmin
  - Password: pcadmin
Create Custom Node

- Mount DVD (ISO) Image (already done for DMgr)

- Install BPM (already done for DMgr)

- Start DMgr

- Review create.log & Start DMgr

- Login to ISC (Admin Console):
  - username: pcadmin
  - password: pcadmin

- Start/Stop DMGR:
  - /opt/IBM/WebSphere/AppServer/profiles/dmgr/bin/startManager.sh
  - /opt/IBM/WebSphere/AppServer/profiles/dmgr/bin/stopManager.sh

- Profile Management Tool (PMT)

- Custom Installation

- Create BPM Advanced Process Center - Empty Managed Node

- Cell: pccell

- Node: pcnodea

- Profile: pcnodea
**Deployment Environment**

- Create Single Cluster Topology
  - Deployment Environments
    - Import Deployment file exported from Spreadsheet
    - Validate Configuration in Panels
    - Use DatabaseDesign file from Spreadsheet
    - Generate Cluster
      - Create Cluster Scoped Database (see previous foil)
      - Bootstrap ProcessServer Database
        - cd to profiles/pcdmnode/bin
        - bootstrapProcessServer.sh -clusterName pcsr01

**BPM URL's**

- Start Cluster Member

**Process Environment**

- Start Cluster Member
- BPM URL's
  - http://wpspctr:9080/pcadmin/login.jsp
  - Signon with pcadmin/pcadmin
Deployment Tuning

- Bind options on DB2 JCC Collection

DB2 ZPARMS
- RELEASE ( commute )
- CONNECTIONRESPONSETIMEOUT on the webcontainer default 300 seconds
- DB2 zPARMS
  - NUMLKTS Can be > 20k causing lock escalation
  - NUMLKUS Can be > 80k
  - SKIPUCI = true
  - RELEASE (commit)

WebSphere

Deployment Manager
- NodeAgent
- AppServer
- BPM Cluster
- Deployment Manager
- NodeAgent
- PCCELL
- PCAGNTA
- V2NODEA
- Deployment Tuning
- Bind options on DB2 JCC Collection

PCCELL Cluster (PCCELL)

Note: Consider using a separate DB2 subsystem if these ZPARMS conflict with other applications sharing DB2.

JVM Heap (2 Gigs)

Connection Response Timeout on the webcontainer default 300 seconds

- Release (commit)
Topology Considerations

- **HeartBeating**
  - Increase `repository-server-interval`

- **Servants Increase (z/OS)**

- **Cluster Members**

- **Start w/ 120 seconds in Process Servers**

Use Offline Servers in Production

- Create/Extract Installation Package

- Add OFFLINE Process Servers (ENVNAME) to your Process Center

- Increase Repository-Server-Interval

- Heartbeating