SAP Enterprise Portal Concepts
Version --7.0 to 7.4

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1. SAP EP

SAP stands for Systems Applications and Products in data processing. SAP R/3 system is a business package designed to integrate all areas and modules of business. SAP provides end to end solutions for financial, manufacturing and logistics etc...

SAP R/1 is first version and called as one tier architecture.
Presentation+Application+Database
SAP R/2 is second version and called as two tier architecture.
Server One -->Presentation   Server Two--> Application+Database
SAP R/3 is third version and called as three tier architecture.
SO-->Presentation ST--> Application ST--Database

Key Capabilities:
Unification
Single Sign On
Collaboration
Knowledge Management

2. SAP Net weaver

SAP Net weaver Architecture : SAP Net Weaver Architecture mainly includes 4 components :
People Integration :   Multichannel Access
Portal
Collaboration
Information Integration :   Bus Intelligence
KM
Master Data Management
Note: In the latest version KM is integrated into People Integration.
Process Integration :   Integration Broker
Business Process Management
Application Platform :   J2EE, ABAP
DB and OS Abstraction
SAP Enterprise Portal

3. Difference between 7.0, 7.01, 7.3, 7.4, 7.5

<table>
<thead>
<tr>
<th>SAP NetWeaver portal version differences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>7.01</strong></td>
</tr>
<tr>
<td>In 7.0 we are using Visual admin, Sdm, Jspm tools for deployment and undeployment</td>
</tr>
<tr>
<td>In 7.0 we don't have PAR migration tool</td>
</tr>
<tr>
<td>Only PAR files are supported</td>
</tr>
<tr>
<td>Advanced wizard for role upload, content creation &amp; transports</td>
</tr>
<tr>
<td>Dedicated editor for role following the UX guidelines for work center roles of SAP Business suit</td>
</tr>
<tr>
<td>Hot folders – automatic transports</td>
</tr>
</tbody>
</table>

Prepared By
Vamshi Krishna Katta
<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Out-of-the-box support for 3rd party portal integration</td>
<td>UI Theme Designer Easy theming of the portal experience</td>
<td>Administrators can configure a News iView to run as a news tile that displays article feeds to end users in the SAP Fiori launchpad.</td>
</tr>
<tr>
<td>Enhanced FPN framework</td>
<td>Supports integration of SAPUI5-based applications via new iView template from the portal’s GPAL repository</td>
<td>End users can set the theme in the SAP Fiori launchpad.</td>
</tr>
<tr>
<td>Modular installation approach allowing to install only those services which are needed</td>
<td>Fully integrated with portal and work spaces via pre-configured iViews, SSO, universal worklist and search</td>
<td>Administrators can now configure iViews and pages to appear as links or tiles in the home page.</td>
</tr>
<tr>
<td>Enhanced browser support IE8, Firefox &amp; safari</td>
<td>Foundation for SAP Business Suite on SAP HANA</td>
<td>End users can now drag dynamic navigation popups to a new location.</td>
</tr>
<tr>
<td>Support for JDK 6</td>
<td>It is support for fiori application and integration</td>
<td>Quick links are now supported in the Fiori Framework Page.</td>
</tr>
<tr>
<td>Avg. response time for a reference scenario significantly reduced compared to 7.01 SP5</td>
<td>We have fiori launchpad configuration so that we can display the applications as Tile format.</td>
<td>mobile, cloud, big data and analytics and offers a foundation for the easy and fast development of simple business applications</td>
</tr>
<tr>
<td>BOBJ Portal integration kit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New web page composer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>We have wikis in collaboration</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. PCD Objects

**Iviews**: Program that retrieves the data from content sources in company and on the internet and displays in content area of EP

**Pages**: Consist layouts and assigned iviews

**Worksets**: Specific collection of tasks, Services and information that is part of a role.

**Roles**: A collection of task services and information that is available for users or groups.
5. Types of iview templates

Iview from Template:
- KM iviews
- SAP BSP iview
- Fiori iview
- SAP RFC iview
- URL iview
- Workset map iview

Iview from Remote source:
- SAP Portal component iview
- Transaction
- Web Dynpro ABAP
- Web Dynpro JAVA

6. Branding

Portal Theme
- Desktop
- Master Rule Collection: Portal Administration -> Super Administration

How to change HTML header title:
- NWA->Configuration->Infrastructure->Java System Properties->Services Tab -> Portal Runtime Container Extension -> Portal.html.head.title

How to change the loading image.
- Export the Theme -> ur.zip -> common ->loading -> change the image loading_ani.gif

7. System Object

System Object is a set of connection properties to represent an external or SAP systems, used to retrieve data into portal iviews.

System Alias settings
- They are a means of retrieving the information stored on database servers without having to know the name of the server.

Connector settings
- ITS settings: Maintained for displaying SAP transactions in the portal as an iviews.
- WAS settings: TO display BW reports and BSP applications.
- User Management Settings: UID/PWD or Logon ticket
8. SSO

1. Set the following profile parameters in RZ10.
   Login/create_sso2_ticket = 2;
   Login/accept_sso2_ticket = 1;

2. NWA -> Configuration --> Security --> Certificates and Keys
   select the ticket keystore in the key storage.
   select the SAPLogonticketpair-cert in the “View Entries” and click on Export
   Select export format-Base64 type and click on Download

3. STRUSTSSO2 -> import certificate
   Add to Certificate List and add to ACL

4. NWA -> Configuration --> Security --> Trusted Systems --> Add Trusted Systems
   select the By Querying System
   If the backend system is already maintained in the tech systems of SLD it will come in the list other wise you have to enter the following details and click on Next
   After the next the ECC system certification will be added.

5. Now make RFC connection between ECC and EP.


   NWA -> Configuration --> Connectivity --> JCO RFC provider
   Create Program
   SM59 -> TCP/IP Connection and Click on Create button
   Provide Program name and Gateway host details.

9. Masthead Customization

1. Download from your SAP NW 7.31 Server this WAR
   File: com.sap.portal.navigation.afp.masthead.war
   Path: C:\usr\sap\<SID>\<Instance>\j2ee\cluster\apps\sap.com\com.sap.portal.navigation.afp.masthead\servlet_jsp\com.sap.portal.navigation.afp.masthead

2. Download from your SAP NW Server these JAR Files:
   common.jar
   com.sap.portal.useragent_api.jar
   com.sap.portal.search.service_api.jar
   com.sap.portal.search.provider_api_api.jar
   com.sap.portal.runtime.system.favorites_api.jar
   com.sap.portal.productivity.resolverservice_api.jar
   com.sap.portal.pcd.glservice_api.jar
   com.sap.portal.navigation.service_api.jar
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- com.sap.portal.navigation.helper service_api.jar
- com.sap.portal.navigation.api_service_api.jar
- com.sap.portal.core.utils_api.jar
- com.sap.portal.contenttaggingservice_api.jar
- com.sap.portal.common.commonservices_api.jar

Notice: Most of them you will find in following path:
C:\usr\sap\<SID>\<Instance>\j2ee\cluster\apps\sap.com

3. Open your NetWeaver Developer Studio (NWDS)
   Import the WAR File com.sap.portal.navigation.afp.masthead.war
   In NWDS: File -> Import and choose your WAR File

4. To fix errors you have to configure your build path and import the JAR Files
   Right click on your import WAR file and choose Build Path -> Configure Build Path in context menu.

5. Select all JAR Files on your file system and paste the files into the lib folder.
   Right click on your import WAR file and choose Build Path -> Configure Build Path in context menu. click button Add Jars...and add all JAR Files from lib.


7. Right click on your web module and choose Export. Export as WAR File.
   Switch to Deployment Perspective and import your new WAR File for deployment.
   Click on button Import, choose File System and select your WAR File.

8. Content administration -> select portal application search for the war file
   Select Header iView
   Assign the iview to Framework page.

10. Logon Page customization

   Portal 7.0:

   1. Download the com.sap.portal.runtime.logon.par.bak file from portal
      a) Goto>System Admin>Support>Portal Runtime>Browse Deployment

   2. Save it on your local machine
   3. Rename it to com.sap.portal.runtime.logon.zip
   4. Extract the files while keeping the directory structure
   5. Modify the appropriate files
   6. Put modified files back into the PAR file
   7. Deploy/Upload the new PAR file
Portal 7.3 and 7.4:

1. First step is to get the WAR file `tc~sec~ume~logon~ui.war` from
   `<Installation
   drive>:\usr\sap\<SID>\j00\j2ee\cluster\apps\sap.com\com.sap.security.core.logon
   \servlet_jsp\logon_ui_resources\tc~sec~ume~logon~ui.war`

2. NWDS -> File -> Import -> Web -> War File
   check the “Add project to an EAR “check box and specify suitable name in “EAR
   project name “based on the
   WAR project name.
   Click Finish to create both WAR and EAR projects.
   Expand the WAR project.

3. Adding the required JAR file to remove the Errors.
   a. Copy the “tc~sec~ume~logon~logic_api.jar” file to
      the WebContent\WEB-INF\lib folder of the WAR project in NWDS.
   b. Right Click the WAR project and select Build Path -> Configure Build Path.
   c. Click on Libraries tab.Click on “Add External Jars” and select the JAR file
      “tc~sec~ume~logon~logic_api.jar” from local system and “Add”

4. Make Changes to Layout
   a. Now its time to start making the desired changes to the layout.
   b. Right Click on WAR project and select Java EE Tools ->Update EAR Libraries.

5. Configuring deployment descriptors
   a. Configuring application-j2ee-engine.xml
   We have to provide this alias name later in NWA.

6. Creating the deployable EAR file
   Next we need to create a deployable EAR file. For this right Click on EAR project
   and select Export ->SAP EAR file

7. Deploying the EAR file
   Right click on the EAR project and select Run As -> Run on server
   Enter the credentials of the server and file will get deployed on the server with a
   success message.

8. Configuring UME properties in NWAs
   http://<host>:<port>/nwa/auth
   a. Change the property Alias of the application for customizing login pages
      (ume.logon.application.ui_resources_alias)
      to custom application “ new_logon” which we mentioned previously in the
      Context root of application.xml
11. UWL Configuration

UWL is centralized access point for work flow items.

1. Assign the standard UWL iView to role.
2. Create 2 system Objects
   - Second system object WAS properties to be pointed to portal
     Create System alias as “SAP_Webdyncrpo_XSS”
3. System Administration -> System Configuration -> Universal worklist - Administration
   Click on NEW button
4. Give system alias name
   - Connector type: WebFlowConnector
     Webdynpro Launch System: as “SAP_Webdynpr_XSS”
5. Save and Re-Register the connector
6. Clear the cache in Cache Administration page.

How to hide Tabs in UWL
System Administration -> System Configuration -> UWL work list and work flow ->
Click to configure item Types and customize views using a wizard -> Customize the look of the UWL main page.

Troubleshoot UWL
System Administration -> System Configuration -> UWL work list and work flow ->
Click to manage Item types and views definitions -> To trouble shoot the configure content click here
Select User, role or group
Show Configuration

To see UWL Support Information
System Administration -> System Configuration -> UWL work list and work flow ->
Optional Universal worklist service configuration
Set parameter “Display support information=true”

12. UME Configuration

1. Use transaction SU01 to create a user of type System and assign it one of the following roles:
   For read-only access from the AS Java to the ABAP system, choose the role SAP_BC_JSF_COMMUNICATION_RO
   For read-write access from the AS Java to the ABAP system, choose the role SAP_BC_JSF_COMMUNICATION
   Ensure that the role is assigned and generated
SAP Enterprise Portal

Use transaction PFCG to generate the authorization profile and assign the user. See under the tabs Authorization and Users → User Comparison

2. On the AS Java, start user management configuration
3. Choose the Data Sources tab
4. Choose Modify Configuration
5. From Data Source, select ABAP System
6. Choose the ABAP Server tab and Enter connection data as required
7. Set the indicator Connection to a specific application server
8. Enter the application server data
9. Choose Test Connection
If the test fails, go back and reenter the connection data and test the connection until you are successful
10. Choose Save All Changes
11. Restart the AS Java.

13. LDAP

Lightweight Directory Access Protocol, is an Internet protocol that email and other programs use to look up information from a server

1. Start the UME Configuration
2. Choose the Modify Configuration button
On the Data Sources tab page, select the data source that best matches your LDAP directory
3. Choose the LDAP Server tab page, enter connection data as required
4. The settings for configuring the LDAP directory connection
5. Choose the Validate Configuration button
6. If the test fails, user management configuration displays the entry from the security log. The monitoring tools of your LDAP directory can also help you determine the cause of the problem. If necessary, go back and reenter the connection data and test the connection until you are successful
7. Enter the rest of the data as required
8. Save your entries.
9. Restart the AS Java.

14. Collaboration

Collaboration acts as forums, instant messenger, rooms etc.. Which helps the users of project group in different geographical locations to collaborate each other effectively both in real time and synchronously.

Collaboration content mainly includes collaboration objects such as People, Rooms, Discussions etc...

Room Creation in Collaboration:
- In the Top Level Navigation area go to Content Administration→Collaboration Content.
On the left side Detailed Navigational area you will find Room Creation link.
Click it. That will open a New view on right side panel where you provide the details to create a Collaboration Room.

15. Forums

Forums allow portal users to share information and opinions about specific subjects or questions.

**Portal 7.0 Steps:**

1. Download and deploy the FORUMS and KMCUI SCA files.

2. Creating Forum iViews:

After deploying the forums application to your portal, you need to make the forums Home page and administration functions accessible from portal iViews.
In the portal, choose Content Administration -> Portal Content.
In the Portal Content Studio, open the folder Portal Content Provided by SAP -> iView Templates.
In the context menu of the Collaboration Forums iView, choose Copy.
Locate the target folder (a folder of your choice) and choose Paste as Delta Link in its context menu.
Rename the custom iView template so that you can distinguish the specific iView template from the default one in the iView creation wizard.
Create the Minimal Set of Forums iViews
Create the required Forums iViews on the basis of the custom iView template for forums.
To work with forums in the portal you need at least the following views of the Forums application:
- User view (Forums Home page)
- Administrator view (Admin Console)

The procedure for creating these three iViews is the same, but their configuration differs. To create each of the Forums iViews, proceed as follows:

Procedure Forum iView for providing a user view (Forums Home page)  
Select the Forums Configuration property category.
For the View on Forums property, select Forums.
Select the Navigation property category.
For the Quick link property, enter forums. configuration.
Forum iView for providing an administrator view (Admin Console)

Select the Forums Configuration property category.
For the View on Forums property, select Forums Administration.
Select the Navigation property category.
For the Quick link property, enter forums admin.
If the forums admin quick link is configured for another iView in your portal, change the configuration. Otherwise, your portal users may be redirected to the wrong iView.

Forums iView for assigning an initial forums system administrator

Select the Forums Configuration property category.
For the View on the forums property, select Add Forums Administrator User.

3. Create Portal Roles and Assign Forums iViews to Them

To make the Forums iViews accessible from the portal, you need to create specific portal roles. These portal roles must be created as portal content, not as UME roles. You can either assign single iViews to portal roles or integrate iViews into pages, worksets, or layouts and assign these objects to the required portal roles.

Assigned iViews
- Forums Administration
- Add Forums Administrator User
- Forums Home
- Forums Moderation

Portal 7.4 Steps:

1. Download and deploy the FORUMS and KMCUI SCA files.

2. Forum iViews:

- User view (Forums Home page)
- Administrator view (Admin Console)
- Special administrative iView (u need this iView to access admin console)

Creation of User iView:
Content Administration -- Portal Content Management -- Portal Content -- User
Required folder -- rightclick -- New -- iView -- iView from template -- Select
Collaboration Forum iView -- iView ID -- Next -- Ok
Select collaboration forum iView
Edit the properties of User iView:
Now go to select the property category in that dropdown select Forums Configuration then edit the property View on SAP forum to Forums And then select navigation in select property category edit the property Quick link to forums and save the changes by click on Save button. Follow the above steps for creating the administrator iView and Special administrator iView.

| Admin iView                                                                 | 1. Select the property category Forums Configuration.  
                                                                                  | 2. For the property View on Forums, select Forums Administration.  
                                                                                  | 3. Select the property category Navigation.  
                                                                                  | 4. For the property Quick link, enter forums admin. |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Special Admin iView                                                          | 1. Select the property category Forums Configuration.                        
                                                                                  | 2. For the property View on the forums, select Add Forums Administrator User. |

Creation of forum admin role and forum end user role:
Now we need to create two roles(Forum admin role and Forum end user role) and assign iViews to the roles.

<table>
<thead>
<tr>
<th>Roles</th>
<th>iViews</th>
</tr>
</thead>
</table>
| Forum admin role          | 1. Administration iView                     
                                                                                  | 2. Special administration iView |
| Forum End user role       | 1. User iView                                |

3. Forum Role creation:
Content Administration→Portal Content Management→Portal Content→User folder→Roles→Right click on folder→new→Role→Free Style→Role ID→Ok. In the same way we should create Forum end user role also then we need to assign the iViews which we create before to the roles.

<table>
<thead>
<tr>
<th>Roles</th>
<th>iViews</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Forum admin role

1. Administration iView
2. Special administration iView

Forum End user role

1. User iView

After assigning the iViews to roles we should assign those roles to portal users. After selecting the required roles click on Add button and then Save the modifications of user details. After assigning the roles to the user he can able to see the Forums home page for admin and End user.

16. WIKI’s

The wiki application allows portal users to create author information collaboratively using Web pages. A single page in a wiki is referred to as a wiki page, whereas the entire body of pages, which are usually interconnected by means of hyperlinks, is "the wiki". A wiki is essentially a database for creating, browsing, and searching for information.

- Collaborative information - such as proposed product plans which have multiple authors
- Information with a longer life - such as a schedule of training classes
- Information to be reviewed - such as documentation
- Wiki technology supports many document types as attachments

17. KM

- SAP NetWeaver provides a central, role-specific point of entry to unstructured information from various data sources with the knowledge management. This unstructured information can exist in different formats such as text documents, presentations, or HTML files.
- Workers in an organization can access information from different source such as file servers, their intranet, or the World Wide Web. A generic framework integrates these data sources and provides access to the information contained in them through the portal.
- The Knowledge Management functional unit supports you in structuring information and making it available to the correct target audience. You can use the different functions on all content of integrated data sources, as long as the technical conditions are met.
- Document creation and publishing
- Taxonomies and classification
- Search
- Navigating in Folders
18. UME Roles, Portal Roles

In the portal, you can manage both user management engine (UME) roles and portal roles. Both types of roles determine what users can do, but each with a different focus. The following table lists the main differences between these types of roles.

<table>
<thead>
<tr>
<th>UME Roles</th>
<th>Portal Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are a container for UME actions (actions are sets of Java permissions).</td>
<td>Are a container for portal content (iViews, Worksets, folders, and so on).</td>
</tr>
<tr>
<td>Define a set of authorizations. By assigning a UME role, you define what</td>
<td>Defines how content is grouped together and how it is displayed in the portal.</td>
</tr>
<tr>
<td>authorizations a user has to run applications on SAP NetWeaver Applications</td>
<td>By assigning a portal role to a user or group, you define which content a</td>
</tr>
<tr>
<td>Server (AS) Java. The authorizations are defined by the UME actions in</td>
<td>user sees in the portal. Like UME roles, you can assign UME actions to portal</td>
</tr>
<tr>
<td>the role.</td>
<td>roles.</td>
</tr>
<tr>
<td>Are stored in the user management tables of the database of the AS Java.</td>
<td>Are stored in the Portal Content Directory tables of the database of the</td>
</tr>
<tr>
<td>Are created with identity management.</td>
<td>AS Java.</td>
</tr>
<tr>
<td>Protect access to applications on the AS Java.</td>
<td>Constitute a small part of the authorization concept of the portal. When</td>
</tr>
<tr>
<td></td>
<td>you assign a portal role to a user or group, they get end user permission</td>
</tr>
<tr>
<td></td>
<td>on the role.</td>
</tr>
<tr>
<td></td>
<td>You can define role assigner permission on a portal role. Users or groups</td>
</tr>
<tr>
<td></td>
<td>that are granted role assigner permission on a portal role can assign the</td>
</tr>
<tr>
<td></td>
<td>portal role to users or groups.</td>
</tr>
</tbody>
</table>

19. UME Actions

- The user management engine (UME) uses UME actions to enforce authorizations. An action is a collection of Java permissions that define which activities a user can perform. UME actions can be assigned to UME roles or portal roles.
- If a role with a UME action is assigned to a user, the user gains the authorizations provided by the action. The UME verifies that users have the
appropriate UME actions assigned to them before granting them access to UME iViews and functions. Other applications can also define or check for actions.

- The following table lists the UME actions assigned to portal roles by default.

<table>
<thead>
<tr>
<th>Portal Role</th>
<th>Assigned UME Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delegated User Administrator</td>
<td>Manage_Users</td>
</tr>
<tr>
<td></td>
<td>Manage_Role_Assignments</td>
</tr>
<tr>
<td>Every User Core Role</td>
<td>Manage_My_Profile</td>
</tr>
<tr>
<td>Standard User Role</td>
<td>Manage_My_Profile</td>
</tr>
<tr>
<td>Super Administrator</td>
<td>AclSuperUser</td>
</tr>
<tr>
<td></td>
<td>Manage_All</td>
</tr>
<tr>
<td>System Admin</td>
<td>System_Admin</td>
</tr>
<tr>
<td>User Administrator</td>
<td>Manage_All</td>
</tr>
</tbody>
</table>

20. ESS/MSS BP’s

**Employee Self Service** is an web enabled tool used to update their own data by the employee itself.

**Manager Self Service** is an web enabled tool used for managers to take report or update the data of subordinates.

**ESS/MSS(Web Dynpro ABAP):**
BPERPESWDA 1.50,
BPERP05COMMON1.61,
MSS Addon 1.0

**ESS/MSS(Web Dynpro Java):**
WD Java ESS 633, MSS 630, PCUI_GP 633 versions
BP for ESS - 1.41
BP for MSS - 1.41

21. ESS SPRO

- SPRO -> SAP Reference IMG -> Cross Application Component -> Home page framework
- Create Resource -> Provide Path of iview
- Create Service -> Provide Resource Name, Description and link name
- Create Sub Area
- Assign the Service to Sub area -> Provide the Position
- Assign the Service to area

22. ESS LPD CUST

- LPD_CUST -> New Launch Pad -> ZESS -> Copy from Other Launch pad -> Copy the roles from ESS role (Instance MENU)
23. FPM

- Floorplan Manager (FPM) is a highly configurable user interface (UI) framework for easy and efficient application development and adaptation based on Web Dynpro ABAP.
- With the help of predefined elements such as floorplans, toolbars and generic user interface building blocks, FPM provides you with consistency across applications and compliance with SAP UI design guidelines, as well as greatly reducing the time required to create such applications.

**Below are the steps to create a FPM application.**
- Create a Web Dynpro Component with the required UIBBs and implement the Web Dynpro interface IF_FPM_UI_BUILDING_BLOCK.
- Create a Web Dynpro Application and specify parameters according to which floorplan instance you are using.
- Using the FPM Configuration Editor, create a configuration for the application.
- Test your application.

[http://www.saptechnical.com/Tutorials/WebDynproABAP/FloorPlanManager/Page2.htm](http://www.saptechnical.com/Tutorials/WebDynproABAP/FloorPlanManager/Page2.htm)

24. GUIBB

- GUIBBs make it possible to improve the uniformity of these user-specific views; they provide an application with a harmonized look and feel.
- GUIBBs are fully integrated into the FPM framework. Amongst other things, they take care of the UI layout, spacing, and certain product standards such as accessibility. GUIBBs provide you with a ‘code-free’ configuration of the UI.
- GUIBBs are generic configurations based on feeder classes. There is a complete separation of the UI and the business logic; the business logic is contained in the feeder class. The application, at design time, defines the data to be displayed along with a configuration. The concrete display of the data on the UI is only determined by the GUIBB at runtime; this is done automatically using the configuration provided and with the data, to be displayed, specified by the feeder class.
- GUIBBs can also be created dynamically at runtime; the FPM framework indicates the presence of such GUIBBs at design-time in the Message Area of the FPM configuration editor, FLUID.
25. POWL

The Personal Object Worklist (POWL) is a Web Dynpro application that has to run in an Enterprise Portal environment. To use the worklist in an enterprise-specific portal role a POWL work center is required.

- Create a new iView using the iView Wizard.
- Choose the Source Type iView template – create an iView from an existing iView template. This template includes specifying all relevant portal data.
- Enter SAP Web Dynpro iView for Select Type and type ABAP.
- **Enter the following parameters of the application:**
  - Portal system alias
  - Select the system in which you have registered your feeder class.
  - Application Name
  - Enter POWL.
  - Namespace
  - Enter SAP
  - Application Parameters
  - Enter the Application ID you defined in the Customizing activity Define Personalization Hierarchy
  - It is WebDynpro ABAP based
  - Connect different backend system to inbox and retrieve workitems from that system
  - Standard actions (Forward, resubmit) available for tasks
  - Additional actions can be configured for tasks
  - Additional POWL queries can be added

26. JCO Destinations

If you are using an adaptive RFC model in a Web Dynpro application, two JavaConnector (JCo) destinations are required. The application receives the metadata over the first connection, and application data is supplied to the Web Dynpro application over the second connection.

- The data for JCo destinations is stored in the System Landscape Directory (SLD).
- startPage -> Web dynpro -> Content Administration -> Maintain Jco Destinations
- Choose Create JCo Destination. Either copy the data required for the JCo destination from an existing destination, or define a new connection with new data.
- To define general data, create a logical name for the JCo destination. Alternatively, you can specify a client.
- Specify the configuration of the JCo pool for a JCo destination.
- Define cluster
- Assign the JCo destination to a Java Engine cluster. A cluster means a distributed system of the Java Engine Dispatcher and further server elements. This system identifies the client as one unit. By default the locally installed Java Engine is selected.
Define the data type and connection type
Select the data type for the JCo destination. The destination type for data type Dictionary metadata can only be a load-balanced connection. You therefore cannot select a single server connection.
There are two destination types available for data type Application data.
You then define the destination type. It can be one of the following:
Load-balanced connection
Single server connection

27. SLD Configuration

The System Landscape Directory (SLD) of SAP NetWeaver is the central source of system landscape information relevant for the management of your software life-cycle.
Since the system information is updated automatically, the SLD provides reliable and up-to-date information with minimized effort for you. In this way, the SLD acts as a central information provider for SAP and third-party tools that use this data to deliver the services you need to keep your landscape up and running.

Configure SLD User authorization:

- Configuration of SLD security - Assigning SLD security roles and actions to users and user groups:
- Open the SLD home page http://<host>:<port>/sld in a Web browser.
- Navigate to Administration Settings and choose tab page Server Configuration to apply the standard SLD role mapping.

Configuring the server parameters - Starting the SLD server:

- Open the SLD home page http://<host>:<port>/sld in a web browser.
- Choose Administration Settings Server Settings.
- Enter a name for the Object Server. Preferably use a prefix that has been reserved on SAP Service Marketplace as an Object Server name.
- Start the SLD server.

Performing initial data import:

- On the SLD home page, choose Administration Import.
- Press Import CR Content.

Configuring the SLD Bridge:

- If you have already performed the initial configuration of SLD as part of the AS Java system installation, ignore the steps below.
- You need to change these settings only if the RFC server configuration needs to be changed.
To check the current settings on the SLD home page, choose Administration Details Data Suppliers.
On the SLD home page, choose Administration Settings and from the Section field choose data supplier.
Maintain the gateway host and a name of the gateway service. The SAP NetWeaver AS for Java standalone includes a gateway on the Central Services Instance, which is used if no gateway is configured explicitly.

28. RFC Destinations

When calling a function module using the RFC interface, the calling program must specify the parameters of the connection in the form of a destination. This destination defines the type of connection, the partner program, and the target system. You can manage it using transaction SM59, and it distinguishes between a variety of connections, such as TCP/IP or SAP connections.

NWA -> Configuration -> Connectivity -> JCO RFC provider
Create Program
SM59 -> TCP/IP Connection and Click on Create button
Provide Program name and Gateway host details.

29. BCM

Using the Broadcast Message editor, administrators can send messages to groups of portal users at run time.

Broadcast messages can be sent immediately to the defined portal users, or you can specify that the message only be displayed to users during a given time frame. When the message is active, portal users receive notification in the portal masthead.

Copy Sample_BroadcastMessageIview, Broadcast message Framework iview under Portal Content--->Portal Applications-->
com.sap.portal.broadcast.message.framework to Portal Content --> <Any Folder>
and paste it as pcd object with the same name or choose different name.

Open Ajax Framework Page and add Broadcast Message Framework and Broadcast Message iviews as delta link to the page. Make sure it is under Masthead Container and Visible.

Enable Broadcast Messaging service:

Access SAP NetWeaver Administrator >> Configuration >> Infrastructure >> Application Modules >> search for <com.sap.portal.broadcast.message.service>
In Web Module Details click broadcast message service
In Portal Service Details change BCM is Active property to true
Assign the user broadcast messaging role
  a. Access User Administration
Creating Broadcast Messaging
- Login to portal-->
  Click on Broadcast messages-->
  New
- Add Broadcast Message Name >> click Next >> You can choose the message
  Priority <High, Normal> Write the Broadcast Message in the Message Box and
  set the time frame and click Next
- Assign role or group to display the message for certain users or groups then click
  Next and then click Finish
- Enter role or group to display the broadcast message.
- Now you can check the message status from the Broadcast Message Overview
- After the creation of broadcast message we need to restart the Broadcast
  message services
- When the message is active it will show Next to the user name at the Masthead.

30. Creating Mass Users
- First of all create a master user based on which you can create multiple users.
- When you are done with it export (by selecting the option at user creation) it.
- We can see some text in a window copy it create a txt file with it, and add as
  many users as you want by copy pasting the text multiple times and making
  necessary change as per the names etc...
- save the txt file.
- Goto import option you were talking about and import the text file and update
  it.
- As it gets updated you are done with the creation of multiples users.

31. Permissions

Permission levels for the administrator of portal content are as follows.

<table>
<thead>
<tr>
<th>Permission Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>Provides all permissions permitted by full control and also enables the authorized user/group/role to modify the permissions of the object.</td>
</tr>
<tr>
<td>Full Control</td>
<td>Provides all permissions permitted by read/write (next row), and also enables the authorized user/group/role to delete the object. The use of the Cut action in the Portal Catalog requires at least administrator full control permission to an object or folder being cut to the portal clipboard.</td>
</tr>
<tr>
<td>Read/Write</td>
<td>Provides all permissions permitted by read and write (next row), and also enables the authorized user/group/role to: Add to and remove</td>
</tr>
<tr>
<td>Child objects from a parent object</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td></td>
</tr>
<tr>
<td>Edit the object properties</td>
<td></td>
</tr>
<tr>
<td>The use of the Paste action in the Portal Catalog require at least administrator read/write permission to the destination folder in which an object or folder is being pasted.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Write</th>
</tr>
</thead>
<tbody>
<tr>
<td>This permission setting is not select table from Permission Editor. It is relevant only to folders in the Portal Catalog and not to objects in the folder.</td>
</tr>
<tr>
<td>The permission level is transparently applied by portal applications at the API level to folders that require it.</td>
</tr>
<tr>
<td>A Folder with write permissions allow authorized users to create objects in it.</td>
</tr>
<tr>
<td>This permission can be used to allow the end user to create and share content. To support this, the Everyone group could be granted write permission to a particular folder intended as a container for all users in the group to share any content they create in it.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enables the authorized user/group/role to:</td>
</tr>
<tr>
<td>View the object in the Portal Catalog using the browse and search capabilities.</td>
</tr>
<tr>
<td>Open the object in its respective primary and secondary editors in read-only mode; the object cannot be modified.</td>
</tr>
<tr>
<td>To create instances (delta links and copies) from the object.</td>
</tr>
<tr>
<td>To gain access to and choose templates in the object creation wizards.</td>
</tr>
<tr>
<td>The use of the Copy action in the Portal Catalog requires at least administrator read permission to an object or folder being copied to the portal clipboard.</td>
</tr>
<tr>
<td>This permission level can be used to prevent portal administrators from editing a particular object, while still allowing them create an instance of the source and use the new instance in any way. For example, if you create a delta link instance of an object with read permission and place it in a folder with read/write permissions, you may fully edit the delta</td>
</tr>
</tbody>
</table>
link object.
The user is not granted access to the object or folder in any administrator tool displaying the Portal Catalog.

This setting is useful if you are providing content to a role that is purely runtime-based. If this is the case, you need to assign end-user permissions.

32. Infotypes

Steps to create a HR Infotype:
1) Go to Transaction PM01.
2) Enter the custom Infotype number which you want to create
3) Select the 'Employee Infotype' radio button.
4) Select the 'PS Structure Infotype'.
5) Click on Create... A separate table maintenance window appears...
6) Create a PS structure with all the fields you want on the Infotype
7) Save and Activate the PS structure
8) Go back to the initial screen of PM01.
9) Click on 'All' push button. It takes a few moments.
10) Click on 'Technical Characteristics'. Infotype list screen appears
11) Click on 'Change'(pencil) button
12) Select your Infotype and click on 'Detail' (magnifying glass) button
13) Give 'T591A' as subtype table
14) Give 'T591S' as subtype txt tab
15) Give your subtype field as subtype field
16) Save and come back to PM01 initial screen
17) Click on 'Infotype Characteristics' ... Infotype list screen appears
18) Click on 'Change' (pencil) button
19) Click on 'New Entries'
20) Enter your Infotype number and short text
21) Here we have to set different Infotype Characteristics as per the requirement. (Better open another session with some standard Infotype's infotype characteristics screen and use as the reference to fill yours)
22) Save your entries.
23) Now the Infotype is created and ready to use.
24) If you want to change the layout of the Infotype as per your requirement...
25) In the PM01 initial screen...Select 'Screen' radio button and give 2000 as the screen name, then click on edit.
26) In the next screen.. Select 'Layout Editor' and click 'Change'.
27) Screen default layout appears...here you can design/modify the screen..change the attributes of the fields..etc.
28) Save and activate. (Don't forget to 'Activate at every level)
Subtype Creation:

- Transaction PM01 Goto Subtype Characteristics. Click on Append and then subtype. Enter the name and description of subtype on screen.
- Then goto technical Characteristics and maintain the details of subtype there. I.e name of subtype i.e. component name defined in PSnnnn. Subtype table is T591A.
- Subtype text tab is T591S and time const tab is T591A.

33. Framework page customization

We recommend that you base your framework page on the provided Ajax Framework Page.
1. Go to > Content Administration -> Portal Content Management
3. In the context menu of the Ajax Framework Page -> select -> Copy
4. In the context menu of the folder in which you want to create your framework page, select -> Paste -> Create a Copy
5. Recommendation: Change the name, ID, and prefix of the new framework page by selecting -> Change ID -> from the context menu


34. Integration with SRM

1. Deploy SRM BPs in portal.
   To check BP deployment: Go to content administration > Portal Content > Business Object--->SRM

2. Add SRM system in SLD.

3. Create a new system in portal under System Administration -> System Landscape with SRM as backend.

4. Configure SSO between portal and SRM.

5. Assign required roles to user at the backend (SRM) and also in portal.

6. Configure the Universal Worklist for the Business Package for SAP SRM
   A system connection for the SRM backend is already exist with alias SAP_SRM.
35. Integration with CRM

1. Deploy SRM BPs in portal.
   To check BP deployment: Go to content administration > Portal Content > Business Object --> CRM

2. Add SRM system in SLD.

3. Create a new system in portal under System Administration -> System Landscape with CRM as backend.

4. Configure SSO between portal and CRM.

5. Assign required roles to user at the backend (CRM) and also in portal.

6. Configure the Universal Worklist for the Business Package for SAP CRM
   A system connection for the CRM backend is already exist with alias SAP_CRM.

36. Integration with BW

1. Create System object
   - System alias should be SAP_BW.
   - Web AS Path --> usually /sap/bw/bex.

2. Creating BW iView
   - Right Click on Portal Content, a Panel is displayed select New --> IView
   - Select IView template, click next
   - Select BEx Web Application IView from the list of templates available. Click next.
   - Give the IView name and IView ID. Incase you want to give any brief notes about the IView then give it in Description field. Click next.
   - Select the appropriate BW version. Click next.
   - Now to get the information "BEx Web Application Query String". open the SAP Log on and open the BW Browser, double click any of the queries available, this will open a window and select the Query String (it should be between & to end &). Click Next
   - Now Preview the IView
   - We can see a new Window where in the selected BW report is seen.

37. Integration with BI

We can integrate Business Intelligence (BI) content from Business Objects into the SAP NetWeaver Portal. With this integration, customers are able to mix BI content and other applications easily.

They can also personalize delivery of content based on SAP user roles and groups. Having enterprise-wide access to relevant business information from a standard
SAP Enterprise Portal

Enterprise portal allows customers to make better-informed decisions. Consolidating the infrastructure for application and BI content delivery leads to reduced cost and time savings.

We integrated Portal 7.3 SP 7 with BOBJ Version: 4.0 SP 4 Patch 3 using below steps. The steps are more or less similar for other portal versions. Use references section for other versions of portal & BOBJ.

Steps:

1. Get the com.sap.businessobjects.iviews.par and com.sap.businessobjects.iviews.templates.epa files from below BOBJ BI server location:
   - [BI4_INSTALL_PATH]/SAP BusinessObjects Enterprise XI 4.0/warfiles/portlet/iviews
2. Import EPA file to Portal as shown below. Wait till import gets completed successfully (avg. 1 minute) and then restart portal.
   - Follow instructions in SAP Note “1672422 – It’s not possible to create an iView using the Business Objects Document List Template iview and the Enterprise Portal 7.3” to correct com.sap.businessobjects.iviews.par file and then migrate to EAR file.
4. Deploy the EAR file to portal using NWDS.
5. Create System Object using new system template: SAP BusinessObjects System Template
   - Maintain the properties – Group, Logical System name, Message Server, SAP Client, SAP System ID, Server Port, and System Type
   - Connector system is nothing but SAP system (most cases BW) used for SAP authentication of BOBJ. Contact your basis team for these details.
6. Make sure SSO is configured between Portal and SAP System mentioned in connector properties of System Object in last step.
   - Connection test shall work fine for SAP_BOBJ system which we created in earlier step.
   - Update the Business Objects properties of iView
   - Preview iView and you will directly get logged into BI launch pad. We are done!


38. Integration with UI5

Prerequisites:

a. Make sure you install the SAPUI5 Application Development feature as well as the SAPUI5 ABAP Repository Team Provider feature in you Eclipse installation.
SAP Enterprise Portal

b. Make sure that the software component SAP UI5 TEAM PROVIDER ON 731 (UI5_731) is installed on the 7.31 ABAP backend.

c. 7.31 ABAP backend.

Sharing the SAPUI5 Application Project with the SAP Gateway (ABAP) Server:

Create a SAPUI5 project in Eclipse and test locally.

Sharing the project:

Right click on the Application created, Team and select share project.
Select SAPUI5 ABAP Repository and click on next

Provide the ABAP system details to which you are going to upload the data and click on Next.
The SAPUI5 application project can either be shared with an existing or with a newly created BSP application.

Select Create a New BSP Application and enter name, description, and package.
Create a new transport request or select an existing request and then click on finish.

Submitting the SAPUI5 Application Project to the ABAP Repository

Right click on the project which has been shared in Eclipse, Go to Team and select Submit.
Select all files and click on Finish.

This will created as an BSP Application in ABAP System.

Now logon to the ABAP system to see our application.

Go to the transaction SCIF

Enter the created Application name in Service name field and execute.

You would see the submitted application as shown.
Integrating SAPUI5 Application in Portal:

1. Navigate to the Portal System administration and create a system object pointing to the target ABAP system
2. Create an SAPUI5 iView with properties(System, UI5 Relative Path, HTTP Request Method) in Content Admin


Copy the UI5 application iView and paste it in your own folder.

Open the iView and Provide the following properties.

HTTP Request Method: HTTP GET
39. Integration with Fiori

- Create a system object and give it an alias, such as ‘WEBSIDP’. This system will actually points to on the same URL we are using to access the portal – the web dispatcher.
- Enter the following mandatory settings for this system object:
  - SAP Client: 123
  - ICM Protocol: http
  - Web AS Host Name: dispatcher.sap.com
  - Set the system HTTP Security Session to be on. You can set other properties too according to your needs.
- Create a Fiori iView.
In Content Administration, create a new iView from template and select SAP Fiori iView.

Go through the wizard, choose a name for your iView, and then click Next.

In the next screen, fill in the details as follows (according to the example):

- System: WEBSIDP (this is the system alias we defined before)
- Relative Path for SAP Fiori Application:
  `sap/bc/ui5_ui5/ui2/ushell/shells/abap/FioriLaunchpad.html`
- Parameters to Pass on the Location String in the URL:
- If you leave this field blank you will simply get the SAP Fiori Launchpad (FLP).
- SAP Fiori Application Header: You can choose one of the following:
  - No Header – you will not see the FLP header, personalization will be off (disclaimer: supported as of ABAP Add-on SP10)
  - Minimal Header – You will have the FLP header with functions that match embedded mode, personalization will be enabled (supported as of ABAP add-on SP9)
- Click Next, then Finish.

Once this is done you can preview the iView. All the properties that you entered with the wizard are still available via the iView property editor under the category ‘Content – Fiori’

Unless you have a custom theme maintained in the portal that is suitable for an SAPUI5 application, set the Hand Over Portal Style Sheet property on the iView to false. The Fiori application will be rendered with the default theme of the application, as it is on the back-end system.

### 40. Fiori Launchpad on Portal

SAP Fiori Launchpad on Portal is available only for newer Product Version(s) Release(s)

- Netweaver (NW) 7.31 Support Package (SP) 12+
- Netweaver (NW) 7.4 Support Package (SP) 7+

**Configuration Setup:**

1. **Overview**

The first point of configuration in terms of setting the SAP Fiori Launchpad on Portal up is to enable the property settings accordingly and this will be performed by a validated System Administrator who holds valid authorizations.

- To permit the enable of the Launchpad a new URL alias needs to be created and maintained.
- This “URL Alias” is used in association to the Fiori Desktop and “Master Rule Collection”.
SAP Enterprise Portal

- Through creating the new URL Alias for the “Fiori Desktop” you then need to set the conditions via the “Master Rule Collection”.
- For comprehensive guidance on the URL Setup and Master Rule Collection the following help documentation can be cross-referenced:
  - Defining URL
    Alias: https://help.sap.com/saphelp_nw74/helpdata/en/48/1d5d0171364269e10000000a421937/content.htm
  - Defining Portal Display
    Rules: https://help.sap.com/saphelp_nw74/helpdata/en/48/1f04f680093184e10000000a42189b/content.htm

2. iViews

Now after the URL Alias has been defined and the Master Rule Collection has been reviewed and checked in accordance to business standards and requirements the next steps are regarding the iView and Page Setup.

The SAP Fiori Launchpad adds a fresh dimension to iView display as such a presentation is returned to the End-User in the form of Fiori Tiles as opposed to the familiar Portal iView standard.

In this phase we define which iViews & Pages are going to be defined and returned to End-Users in the form of Tiles & Catalogs. There are two types of tiles which can be defined in association to iView displays with each offering their own sense of suitability for business preference:

- Static Tiles: consistent and standard information which maintains a defined display.
- Dynamic Tiles: as the name suggest the setup here is based on regularly changing information through oData.

In order to determine the Tiles (iViews) and define the setup:

1. Login to the Enterprise Portal
3. Navigate to “Content Administration” & then “Portal Content Management”.
4. Locate the “Portal Catalog”
5. Select the iView of interest (from Portal standpoint) and open the context menu.
6. Open the iView properties through “Open”, “Properties” and make the change for FLP (Fiori Launchpad) display.
7. Once the change is made you need to select “Modify Properties” and Save your changes.

3. Catalogs & Categories
In high level terms we can refer to “Catalogs” & “Categories” as the means of grouping applications. Let us revert back for a second and re-reference the types of applications we can use in association to SAP Fiori.

- Analytical Applications
- Transaction Applications
- Fact-sheet Applications

The three application types are diverse and can be tailored dependent on your own business requirements within an organizational establishment.

- 20 Categories can be holstered within the Properties Editor (2 of which are default standard).

There are two application listing types here:

- General: unassigned applications which are not explicitly defined in correlation to a category.
- Recommended: suggested and advocated applications which appear as potential tags.

From personal experience there is a very important point to highlight here.

- A category will not be displayed if there is no applications defined in its association.

To set Catalogs & Categories:

1. Login to the Enterprise Portal
3. Navigate to “Content Administration”, “Portal Content Management”.
4. Locate the “Portal Catalog”
6. Select & Open the “Fiori Launchpad Category”.

Within the editor you need to ensure that each of the following are defined:

- Category ID which is the unique identifier.
- Category Order which determines the precedence and order of categories within the tile catalog.
- Category Title i.e. the name of the catalog.

Now you need to assign an iView to the category which has just been defined in order to get it to display and return it to end-users.

1. Open the iView properties through “Open”, “Properties”.
SAP Enterprise Portal

2. Select “Personalized Launcher” within “Category Assignment” and fill in the identifier ID’s
3. Any category definition should be separated through the use of a semi-colon.

4. Navigation & the FLP

In this section we are going to determine the way in which the FLP returns its element in window display to our end users. From a high level perspective we need to consider this in terms of work feasibility and requirement suitability.

Some of the options available here include:

- FLP within the Portal Content Area (central window element of the Enterprise Portal) where standard applications are rendered.
- Display within a separate Window (newly opened tabular window)
- Separate headerless Window (conjoined to the Portal Session, but opened within a headerless framework window) quirks mode (older)
- Separate headerless Window (conjoined to the Portal Session, but opened within a headerless framework window) standards mode (newer)

Setting the Navigation Type

1. Login to the Enterprise Portal
3. Navigate to “Content Administration” & then “Portal Content Management”.
4. Locate the “Portal Catalog”
5. Select the iView of interest
6. Open the “Properties Editor” and select “Show Category” and click “Navigation”
7. Determine and define the navigation means of preference as described above and save your changes.

5. Resetting User Displays Personalization

If you wish to reset the display settings for users i.e. personalized settings this can be done through property editing or removing the personalization property data for com.sap.portal.navigation.flp.pl.UserData.

41. NWBC

- NWBC for HTML is a browser based version using HTTP/s for connecting to a SAP NetWeaver Application Server ABAP backend. SAP GUI transactions are rendered using the SAP GUI for HTML.
- Download NWBC for Desktop client installation from SAP(service Market place)
- Install the NWBC for Desktop 4.0
- Activate the NWBC on ABAP system in T-code SICF “/default_host/sap/bc/nwbc
42. Transport

- System Administration -> Transport -> Export -> Create Transport Packages -> Add content -> Click on Export button -> Download .epa File
- System Administration -> Transport -> Import -> Source for package files : Client -> Browse .epa file -> Click on Upload -> Import the file.

43. Translation

The SAP NetWeaver Portal provides a process for translating the text of portal objects such as iViews, pages, work sets, roles, and systems. Multilingual object metadata for portal objects is stored in the database of the Portal Content Directory (PCD). If a property of a portal object has the type text attribute, it is marked as text and can be translated (for example, the name and description properties).

Steps:
- Create worklist and add content
- Generate Translation data
- Release for translation
- Search worklist and define source and target languages
- Load worklist for translation
- Translate worklist
- Mark worklist as translated
- Publish Translation

44. Remove irj/portal

NWA-> Configuration-> Connectivity -> HTTP provider configuration
Start page = irj/portal

IRJ:
The SAP NetWeaver Portal is a J2EE application that is designed to handle HTTP requests for portal components. A portal component is a Java class written and packaged specifically to run in the portal. The portal application is deployed under the URL /irj. Therefore, IRJ is the SAP Enterprise Portal running under SAP NetWeaver Java Application Server.

45. External Facing Portal
Web Dynpro Java:

46. Component

- **Web Dynpro Component**: Component is a reusable object mainly for business process. A component is a set of views, controllers, models, and windows. Component is a central unit of Development Component. Component acts as a global data unit where it can be used by all the controllers and views.

- **Development Component**: A Development Component contains several web dynpro components. We can have any number of Development Components.

- **Software Component**: A Software Component contains several Development Components. We can have any number of Software Components depending upon our requirement. Several Software Components makes a Software.

47. DC’s

**Development Component**: A Development Component contains several web dynpro components. We can have any number of Development Components.

48. Controllers

Controllers are the active parts of web dynpro components which holds the data in the context. Controllers are of 5 types:

- Component Controller
- View Controller
- Window Controller
- Custom Controller
- Interface Controller

49. Supply functions

It is used to populate the entire node collection. A single ton node should contain supply function. Supply Functions are called automatically at run time. Supply Function can be called in the following scenarios:

- It has never been populated before.
- The lead selection in the parent node is changed or deleted.
- If we are explicitly calling invalidate method.
50. Dispose functions

Before calling Supply Functions to populate the node the node collection should be saved. This is done by using Dispose Functions.

51. Cardinality

Cardinality is a property which is used to control the elements in a Node. It defines node collection at run time which specifies max and min number of elements.

**Cardinality is of two types:**
- Collection Cardinality: It specifies how many number of elements can be stored in a node.
- Selection Cardinality: It specifies how many number of elements can be selected from a node.

Cardinality values are of 4 types:
1) 0 to 1: The value can be 0 or 1.
2) 0 to n: The value can be 0 or more.
3) 1 to 1: The value is only 1.
4) 1 to n: The value can be 1 or more.

If Cardinality value begins with 1, it means that after context is initialized there will be at least one element acts as the default element.

52. Simple Types

**Simple Types:** These are the parts of dictionaries which include SVS, EVS and OVS.

- **Simple Value Selector (SVS):** SVS is used for specifying the key UI elements for drop down list. It can hold up to 50 elements.
- **Extended Value Selector (EVS):** EVS is an extension of SVS which can hold more than 50 elements.
- **Object Value Selector (OVS):** SVS and EVS are used to store the values where OVS is used to store the objects.

53. Models

It is an object which contains the data and functions of ECC system.

- **Types of Models:** Models are of 4 types:
  - Adaptive RFC2:
  - Adaptive web service:
  - Enterprise Java Bean:
  - Java bean:

54. Context binding, Model binding
Context is a hierarchical representation of data storage. Data present in the context of component controller will have the life span of controller. Data is stored in the form of Nodes and Attributes where Nodes contains Attributes and Attributes contains values.

**Model Binding**: It is process of binding the model object attributes to controller context attributes.

**Context Binding**: It is the process of binding between UI elements and attributes of context controller.

**Mapping**: It is the process of binding one controller context elements to another controller context elements.

55. **RFC**

It is a function call which is used to connect from one SAP system to another SAP system.

56. **BAPI**

BAPI is also a function call which is used to connect from SAP to SAP as well as SAP to SAP to NON SAP systems. Every RFC is not a BAPI but every BAPI is an RFC. Every RFC can be converted into BAPI by placing the RFC into Business Object Repository (BOR) and then by releasing it.

57. **Messaging**

**Message Pool**: It is used to display messages and alert information. Messages are of 5 types:
1) Text  2) Success  3) Warning  4) Error  5) Fatal

**Dictionaries**: Dictionary acts as a repository for the data types and structures.

58. **Creating a DC with Model**

- Create a model that is used to connect to the SAP backend from the Web Dynpro project
- Implement access to remote function modules in an SAP system
- Implement custom controllers for specific tasks that cannot be assigned to a single view
- Create contexts for the custom controller and bind them to the model
- Create view contexts and map them to the custom controller context
- Bind UI controls to view context elements

59. **Web Dynpro JAVA vs Web dynpro ABAP**
WebDynpro for ABAP and WebDynpro JAVA use the same declarative meta model concept based on MVC pattern to create web applications. Everything about WebDynpro ABAP is same as WebDynpro JAVA, except that it uses ABAP as programming language instead of JAVA. It also has a graphical interface tool that is integrated with the ABAP Workbench (Transaction Se80). Both WebDynpro ABAP and WebDynpro JAVA applications are run in the Enterprise Portal.

Developing with Web Dynpro ABAP offers the following advantages for application developers:

- Declarative and graphical tools minimize the implementation effort
- Support of a structured design process
- Strict separation between layout and business data
- Reuse and better maintainability through use of components
- Layout and navigation are easily changed using Web Dynpro tools
- Support of stateful applications because when paging is used, the data required again is kept, which means the whole application can be accessed at any time.
- Data binding enables automatic data transport
- Automatic input checks
- Support of accessible user interfaces
- Full integration into established ABAP development environment

Web Dynpro JAVA:

Web Dynpro JAVA is available from the year 2004 with Net Weaver 2004 and Web Application Server (WAS) 6.40, and is used to create applications such as the Employee Self Service (ESS) and Manager Self Service (MSS). SAP has reduced the promotion of Web Dynpro Java; however, they are going to support it till 2018. This makes it clear that Web Dynpro ABAP will be the preferred UI Technology.

Web Dynpro ABAP:

Web Dynpro ABAP is available from Oct-2005 with Net Weaver 7.0 and Web Application Server (WAS) 7.0, from the day of its availability it is widely used and preferred UI Technology.

60. NWDI

It provides an infrastructure for developing applications centrally where multiple developers can work on the components of the application. Used for custom development and webDynpro development.

Prerequisites for nwdi
SAP Enterprise Portal

Usage type AS java must be installed for nwdi
Installation of DI( CMS, DTR AND CBS)

- **A software Component (SC)** defines a deliverable, deployable unit. It consists of a number of development components (DC). A SC is basically only a logical shell around a number of DCs.

- **Development components (DCs)** are the reusable building blocks for software components. A DC is a named container for arbitrary objects, e.g. Java source files, JSPs, dictionary definitions, deployment descriptors, etc.

- **The Design Time Repository (DTR)** is a source code management (SCM) or version control system (VCS) like Perforce, ClearCase, CVS and others. The DTR operates on files or folders. All files that make up development components are stored and versioned in a DTR.

- **The Component Build Service (CBS)** is a central service that builds your development components. When you activate an activity - automatically after check-in or manually from the Activation View - the CBS builds the modified DCs and all DCs that depend on them.

- **The Change Management Service (CMS)** is a central service which is responsible for definition and administration of a development landscape consisting of one or several CBS and DTR servers and a Name Server. Development Configurations are created by a CMS administrator.

**Steps:**

- http://<host name>:<port number>/devinf

1. **Creating and assigning required Roles and Actions in portal UME**

   - Create two groups for NWDI users in Portal UME.
     NWDI.Administrators
     NWDI.Developers
   - Create NWDI_Admin and NWDI_Developer users and add these users to corresponding groups NWDI.Administrators and NWDI.Developers simultaneously.
   - Search for NWDI.Administrator Role else Create and Assign it to NWDI.Administrators Group. Similarly search for NWDI.Developer Role else create and assign it to NWDI.Developers Group.
   - Open NWDI.Administrator Role and assign following Actions
     CBS.Administrator
     CMS.Administrate
   - Open NWDI.Developer Role and assign following Actions
     CBS.Developer
     CMS.Display
2. Assigning SLD Roles to Groups
   For respective groups assign corresponding security roles.
   NWDI.Administrators        LcrInstanceWriterAll
   NWDI.Developers            LcrInstanceWriterNR

   To assign above said security roles to NWDI groups, Go to Visual Administrator
to set up user privileges for J2EE Engine. Visual Administrator can be opened via
following path <SAP-install-dir>\<SID>\JC<instance no.>\j2ee\admin\go.bat

   Login as Administrator
   Open the navigation tree on left side of screen and
go Server -> Services -> Security Provider
   In the right-hand window, choose the tab Runtime -> Policy
   Configuration -> Security Roles.
   In the Components section, choose the application sap.com/com.sap.lcr*sld.
   Under Security Roles, select the security role LcrInstanceWriterAll.
   Under Mappings you find the Groups field. Choose Add. The dialog window
   Choose Users or Groups appears.
   Select the Groups tab page.
   Choose Search. A list of the available UME groups appears.
   Choose the NWDI.Administrators group and then OK.
   Your data is being saved.
   Now assign the LcrInstanceWriterNR security role to the JDI.Developers group.

3. Prepare System Landscape Directory (SLD)
   Reach initial page of SLD under URL http://<server>:<port>/sld
   Go to Products link under Software Catalog section.
   To define New Product Version click on button available for same. Fill
   parameters and click create.
   Product “Training, abc.com, 1.0” is created and define SAP Software Unit for
   same as shown below. Click Create button.
   Add Software Component to created Product “Training..”.
   Define SC Name, Version and set Production State parameter to Started from
   Drop Down list. Click on create to complete this step.
   New Product and corresponding Software Component is created in SLD.

4. Defining Software Component Dependencies
   Go to Software Component to see created SC.
   For this select Software Component value from drop down list of Software Type
   as mentioned in screen below.
   Search for your SC in available components list. In our case it is “Demo”.
   In SC, go to Dependencies Tab
   Now, we need to define Build Time dependency on components
   like SAP-JEE, SAP_BUILD, SAP_JTECHS.
   To perform this select Build Time value from drop down and click Define
   Prerequisite Software Component Version button.
Following pop up screen appears displaying all available Software Components available.
Search for SAP-JEE component to define Build Time dependency for our SC.
Click on Define Prerequisite Software Components to add selected component.
Multiple selections are possible.
Similarly, Repeat above-mentioned step for SAP_BUILDT and SAP_JTECHS components and add one by one.
All added components would be enlisted in table under dependency tab.
By completion of this step, SLD configuration for NWDI use is over.

5. Configuration of Change management System or CMS
- In the browser, start the initial page of the SAP NetWeaver Java Netweaver Development Infrastructure with the following URL http://<host>:<port number>/devinf
- Login using NWDI_Admin user. Following Home Page appears.
- Click Change Management Service. System may prompt to re-enter user and password. Login using NWDI_Admin user. Following screen appears

6. Create a Domain and Track in CMS
- Go to Landscape Configurator to Define Domain and Track for CMS Configuration.
- Go to Domain Data tab to define a Domain in landscape for SC development.
- Fill up required parameters with essential and correct information and click Save button to create a Domain.
- Note: In transport directory, keep the default path as /usr/sap/Jtrans
- Go to Track Data tab and create New Track.
- Define Track Id, Track Name and Track Description for New Track
- Define Development Configuration Path usually <TrackId>/1.0
- In Software Component section, Add SC in Developed Software Component Table.
- New window pop up appears. Look for Software Component, which you have defined in SLD.
- Select SC and click Add. Click Close to close window.
- Software Component is added to Developed Software Components under Software Component Section.
- Click on Save to Finish Track Creation.
- Select Track on left side table and Go to Runtime Systems Tab on same Track Data Page.
- Click on change button.
- Check Development option.
- There appears Runtime System Configuration Wizard.
- Fill up required parameters and click next button.
- In next screen fill required parameters and finish.
- Runtime System for Development is configured.
- With this “Training” Track is configured.
- On completion of Track creation, DTR and CBS are also configured.
7. Verify CBS and DTR Configuration
   - To check DTR contents use following link http://<host>:<port>/dtr
   - Or use Design Time Repository link available on CMS home page.
   - “Training” Track is available in DTR for use.
   - To check DTR contents use Component Build Service link available on CMS home page.

8. Import Software Components into this track
   - The Software Component archives (.sca files) must be downloaded from the Service Marketplace (http://service.sap.com/patches) and placed into the inbox folder of the CMS. The inbox folder can be found under the following path: <CMS Transport Directory>\CMS\inbox, where the <CMS Transport Directory> is specified in the “Domain Data” tab of the CMS Landscape Configurator).
   - In our case, this path is /usr/sap/JTrans/CMS/inbox Or
   - The .sca archive files can be picked from j2ee server from following location /usr/sap/NWD/SYS/global/CMS_CBCS/plugins Or /usr/sap/NWD/DVEBM GS00/SDM/root/origin_sc.sap.com
   - The following .sca files must be placed into the CMS inbox folder:
     - SAP_JTECHS.sca
     - SAP_BUILDT.sca
     - SAP-JEE.sca
   - Note: The names of .sca files could be different. They may include version numbers, vendor name etc.

9. Check-In archives
   - Now we will resume CMS configuration and again go to CMS home page.
   - Open Transport Studio.
   - Select your defined track.
   - Go to Check in tab.
   - Select all available .sca archive components in table and click Check-In button.
   - On successful completion, you will get system acknowledgment.

10. Import the checked in archives into the Development system
    - Now go to Development tab, you will see all Checked-In archive components with following parameters for all:
      - State Import Check: Not Executed
      - State: Waiting for Import
      - Select a components and click on Import-Check button.
      - You will get confirmation dialog to proceed further.
      - After successful completion you will get State Import Check parameter as Check Finished.
    - Perform above step one by one for other available components also.
    - Select all components and click Import Button after completion of above steps.
    - It may take some time.
11. Import the checked in archives into the Consolidation system

- Now go to Consolidation tab of Transport Studio and import checked in archives as done in development tab.
- Repeat all steps mentioned above to complete this step.
- By performing above steps, CMS is configured.

12. Configuring Design Time Repository (DTR) in SAP NWDS

- Open SAP Netweaver Developer Studio on your client machine.
- Go to Windows -> Preferences -> Java Development Infrastructure -> Development Configuration
- Enter J2EE server URL http://<host>:<port> and Ping Server.
- On successful connection, system will acknowledge with following message.
- Go to Windows -> Preferences -> Team -> Ignored Resources
- Make sure that “.classpath” & “.project” resources are checked. This is to avoid their entry to DTR. See below fig for reference.
- Go to Windows -> Open Perspective -> Others -> Design Time Repository
- Repeat same step to open Development Configurations Perspective.
- Now Go to Design Time Repository Perspective by clicking on “dtr” icon as shown above in second fig.
- Right click on offline and click on Create Client.
- Fill all parameters in prompt screen. Click Ok.
- After client creation, Right click on Offline and Login to DTR system.
- Note: Use CMS_Developer User for login to DTR.
- You can see created track in your DTR perspective.
- Note: If your created track is not available in DTR, It will be available after following below steps
- Switch Development Configurations Perspective.
- Go to Local DC Section, shown in the middle of screen.
- Right click to Import Configuration.
- Following screen appears shown below.
- Select remote option to get all configurations from DTR.
- All available tracks in DTR get displayed.
- Select your tracks. Open it to level of <Track Name>_dev.
- Select <Track Name>_dev and click next.
- Click Finish button to complete remote configuration import.
- On completion of this step, your imported track “DEMO” is available in DC perspective.
- Left most area of above screen shows inactive DC’s. Here you can right click on DEMO track to create your new DC.
- Active DC tab shows all available active DC’s in DTR. This tab also shows defined Software Component Dependencies available under track.

By performing above steps your NWDS is configured with DTR and is ready for use.
13. **Import of Development Configurations**
- Click on remote.
- Provide the credentials username and password select ok.
- Select the track.
- Click on Next and Finish button.
- Right click on the application and select sync DC and after that create DC

14. **Go to Web Dynpro Explorer**
- Build the particular track
- Once it is build deploy and run the application
- Perform the steps for all the applications to build and deploy, run.
- Here we completed the testing of the tracks in development system.

15. **Testing in quality and production systems.**
- Before we test the tracks in the quality and production systems we need to configure the portal details in the landscape configurator for the track.
- Test Runtime System - Quality System
- Production runtime System - Production System
- Then go to Transport Studio click on assembly tab
- Select Assembly Components
- Select the track.
- Then move to Test
- Click on the Import and import all the SCA’s files related to track.
- Perform the procedure to test all the tracks in quality system.
- To perform the in production system click on the Approval tab and select all SCA’s files and click on Approve tab
- Then the state will be changed to Approved.
- Test the application again the production environment.

**FAQ:**
https://wiki.scn.sap.com/wiki/display/Java/NWDI+FAQ

61. **Upgrade Issues**


62. **Project Implementation steps**
- SSO Configuration
- Create a System Object (Integrating with ECC System)
- Creating Users and Groups
SAP Enterprise Portal

- Create PCD Objects
- SLD Configuration
- Create JCO Destinations
- UME Configuration
- UWL Configuration
- Deploy ESS/MSS Business Packages
- Launchpad customization for ESS/MSS
- Assigning Permissions
- Logon page customization

63. FAQ’s

http://onlysaep.blogspot.in/p/blog-page.html
