HOW TO USE THE WEB DYNPRO CONTENT ADMINISTRATOR.

SAP NetWeaver '04 SP Stack 9

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Introduction

The Web Dynpro Content Administrator is part of the standard NetWeaver 04 Stack 09 installation and can be used to administrate the deployed Web Dynpro content. It could be seen as an additional tool besides the Visual Admin of the SAP J2EE Engine.

The Web Dynpro Content Administrator provides a whole bunch of functionalities:

- Enabling and disabling Web Dynpro applications.
- Browse the deployed Web Dynpro content.
- Search for specific content types like Web Dynpro applications, Web Dynpro components or Web Dynpro models.
- Check the references defined between Web Dynpro applications and other deployed content like J2EE libraries or services J2EE.
- Maintain the defined JCo destinations needed by the Web Dynpro (adaptive) RFC model.
- Start a Web Dynpro application in an external window or as an preview.
- Check the destination to the assigned System Landscape Directory (SLD).
- Start the used System Landscape Directory (SLD) User Interface.
- Maintain needed text mappings (this is described in another document).

The following document describes in details all these features on basis of NetWeaver04 Stack 09.

Prerequisites

As mentioned earlier the Web Dynpro Content Administrator is part of the standard installation of NetWeaver 04 Stack 09. Therefore you can start it directly using a URL like http://<YourHost>:<YourPort>/webdynpro/dispatcher/tc~wd~toos/ContentAdministrator

Additionally you can use the Web Dynpro welcome page under http://<YourHost>:<YourPort>/webdynpro/welcome to start it.

Furthermore you need a user with administrator permissions. Besides, you are not allowed to start the Web Dynpro Content Administrator. In this case you get the following error screen:
Overview

The Web Dynpro Content Administrator has in general three areas. On the left side there is the browse and search area. Second there is an area showing details about the actual selected object and third there is an optional working area, which displays additional tools like an application preview window or a wizard to create and maintain the needed JCo destinations.

Enable and disable Web Dynpro applications

Some general words

Before 6.40 a J2EE application (and therefore also Web Dynpro applications) could be started or stopped. A stopped application was not callable by the user. Therefore an administrator was able to make sure, that certain applications could not be called by the user. Additionally an application was stopped, if there were errors during starting the application like missing references.

If a Web Dynpro application was stopped when a user tries to call it, you get an error message that the application was stopped and therefore could not be called.

This behavior works well but not if you redeploy a Web Dynpro application, which is referenced by other Web Dynpro applications. During redeployment the Web Dynpro application is stopped (and that means, that all referencing Web Dynpro applications are stopped also). The redeployed Web Dynpro application is started after the successful redeployment (if it was started also before it was redeployed), but all refer-
encing Web Dynpro applications, which was started, are not started, because the Web Dynpro container does not have any knowledge about the state before the redeployment.

To improve this behavior there are two new states defined. A J2EE application and therefore every Web Dynpro application could now be enabled or disabled.

If an application is enabled, the user could call it. If it is disabled, the user could not call it. Therefore the start and stop states are not needed any more to define this. These two states describe the “runtime state” of an application. If an application is stopped and enabled for example, and the user tries to call it, the responsible container could start the application “on demand”.

The consequences for Web Dynpro

Using the Web Dynpro Content Administrator the administrator can enable or disable a Web Dynpro application. The displayed state in the content browser is the enable / disable state, i.e. a displayed Web Dynpro development component is red, if it is disabled and green if it is enabled. To enable or disable it you can use the toolbar menu of the details viewer component.

Another consequence is that every Web Dynpro application is started “on demand” now. That means, that during the start up of the engine NO Web Dynpro application is started. If the user tries to call a Web Dynpro application the following process is started:

1. If the Web Dynpro application is disabled you get an error message and the Web Dynpro application is not called.
2. If the Web Dynpro application is enabled, the Web Dynpro container tries to start it. Referenced Web Dynpro applications are started also if necessary. If an error occurs you get an error message and the Web Dynpro application is not called.

The following table summarizes the possible combinations:

<table>
<thead>
<tr>
<th>Enable / Disable</th>
<th>Runtime State</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabled</td>
<td>Started</td>
<td>The Web Dynpro container executes the requested Web Dynpro application.</td>
</tr>
<tr>
<td>Enabled</td>
<td>Stopped</td>
<td>The Web Dynpro container tries to start the requested Web Dynpro application. If some error occurs during starting the Web Dynpro application the user gets an error message.</td>
</tr>
<tr>
<td>Disabled</td>
<td>Started</td>
<td>The user gets an error message, thus a disabled Web Dynpro application could not be called.</td>
</tr>
<tr>
<td>Disabled</td>
<td>Stopped</td>
<td>The user gets an error message, thus a disabled Web Dynpro application could not be called.</td>
</tr>
</tbody>
</table>
Browse and search the deployed content.

Browsing ...

Using the content browser you can browse the complete Web Dynpro content, which is deployed on the NetWeaver 04. The deployed content is sorted in the first level by the vendor name. The second level is sorted by the name of the development component (or the name of the Eclipse project, if you work without the Design Time Repository (DTR)). If you select any Web Dynpro object you can check the details in the details viewer component on the right side.

Furthermore there is a top-level node called “System Defined Content”. Under this node all Web Dynpro related objects are listed, which are not deployed with a specific development component but defined for
the “whole system”. At the moment there are only JCo destination available on this level (please have a look to the chapter describing the usage and the maintenance of JCo destinations in detail).

... and Searching.

If you switch to the search tab you can search for certain object (types). There are the following object types available:

- Application
- Component
- Component Interface
- Model
- JCo destination

Furthermore you can define whether you want to search the whole deployed content or just one single development component (or only the system defined content if you search for JCo destinations).

If your search is successful you get the result list. You then can select any object of the result list, and can check the details of the selected object in the details viewer component.
Check the references

If you have selected a certain Web Dynpro object you can display the defined references using the details viewer component. You can display the following types of references:

- **Is using**
  Choosing this type of reference all the needed references to other Web Dynpro applications or any other J2EE application are listed.

- **Is used by**
  Using this type of references all Web Dynpro applications or any other J2EE applications using the selected Web Dynpro application are displayed.

- **Libraries**
  All needed J2EE libraries are listed.

- **Services**
  All needed J2EE services are listed.

- **Interfaces**
  All needed J2EE interfaces are listed.

Using this part of the details viewer you can check why your Web Dynpro application could not be started for example. Please keep in mind, that the displayed states are the “runtime states”, i.e. started or stopped.
Maintain JCo destinations defined by a development component

Using the detail viewer

If your Web Dynpro application is using the (adaptive) RFC model, you have to define two JCo destinations – a first one to get the meta data of the RFC call itself and a second one for the real application data.

To display the current status of a JCo destination you can use the search component or you can select the Web Dynpro application containing the JCo destination definition and use the “JCo destinations” tab in the details viewer to display the status.

If you want to create a new JCo destination, the JCo destination wizard is started in a creation mode. To edit an existing JCo destination the wizard is started in an edit mode. In both cases the wizard is started beyond the details viewer component.

Using the details viewer component you can check the “status” of the needed JCo destination of a selected Web Dynpro object. The “status” of a JCo destination depends whether or not the JCo destination is maintained in the assigned System Landscape Directory (SLD). A “red” JCo destination is not maintained in the SLD, a “green” one is ready to use.

Furthermore there is a “yellow” state, which defines an “invalid” JCo destination definition. This could happen only for JCo destinations using a defined user. In this case the needed password is defined in the secure storage and not in the SLD itself. After re-installation the needed entry in the secure storage is not defined and therefore this JCo destination is not usable because of the missing password definition. To enable this JCo destination you have to edit it using the JCo destination wizard.
You can use the buttons to create, to edit or to remove a JCo destination. Additionally you can test, if a defined JCo destination works well for your environment using the “Test” or “Ping” button.

The “Preview” button displays the defined parameters for a selected JCo destination.

Create a new JCo destination

To create a new JCo destination you have to go through the following wizard steps:

First you have to define the logical name of the JCo destination. This name must be unique for the whole engine so please choose you a meaningful name like “ESS_BACKEND_SYSTEM”.

As at runtime the JCo destination is realized as a JCo.Pool you have to define some settings for this pool. There are the following parameters available:

- **Maximum Pool Size**
  
The maximum pool size is the maximum number of destinations managed by the pool. All destinations in the range between 1 and the maximum pool size are still open for the defined destination timeout.

- **Maximum Connections**
  
The maximum destinations are the maximum numbers of destinations that could be requested at one point in time at all. If you try to get one more destination from the pool you will get an exception after the defined maximum wait time.
- **Connection Timeout**
  The destination timeout defines how long the pool waits before a destination, which is in the range between 1 and the maximum pool size, is closed by the pool.

- **Maximum Wait Time**
  The maximum wait time defines how long you can wait before you get an exception after trying to get an destination although the maximum destinations are open.

Furthermore you have to define the used client.

Besides the possibility to create a complete new JCo destination, you can copy an existing one. You can change single parameters later one of course. Therefore the copy is an easy way to define some kind of an JCo destination template.

On the next wizard step you have to define to which engine installation the created JCo destination should be assigned. By default you should assign it to the local engine, but in some cases it could be helpful to assign it to another engine.
After that you choose the type of the destination. To use an adaptive RFC model within your Web Dynpro application you have to define two destinations: First a destination to get the needed (dictionary) meta data information and second a destination to read the application data. As a meta data destination must be a load-balanced destination, it is not possible to choose a single server connection for that.

In the next step you have to define the needed security settings. First you have to choose the authentication method for the user authentication. There are the following options available:

- **User / Password**
  You have to specify the user with password, which is used for the defined JCo destination. Using such a so-called “defined user” or “service user” makes sense for a meta data destination. The defined user should be in this case a technical user without any dialog permissions. On the backend this user needs the permissions to access all DDIC function modules.

  Using a define user for an application data connection makes only sense during the development phase. For productive and real-life scenarios you should use another available authentication method.

- **Ticket**
  Using the ticket authentication there is no need to define a user, because this is defined at runtime by the SAP logon ticket, which is assigned to the current user. To enable the usage of these SAP logon tickets for your system landscape you have to do some configurations. In general you
have to make sure that the logon ticket that, which is created by the J2EE engine running the Web Dynpro application, is accepted by the used backend system. Furthermore you have to provide the same user definitions both for the Web Dynpro J2EE engine and for the used backend system.

Please have a look to the related documentation.

- **Client Certificate (X509)**

  It is also possible to use a client certificate for the authentication. As for the ticket authentication there is no need to define a user. Please have a look to the related documentation to get the details about the needed configurations to use client certificates.

Besides that you could define the needed secure network destination (SNC) settings. Please keep in mind, that you must do additional configurations to enable SNC on your engine. Please check the available SNC documentation.

Besides the authentication method and optional SNC settings you can define the needed language. If you want to make sure, that at runtime the current user language is automatically used (i.e. the language which is assigned to the user as a default or the language, which is defined using the SAP Logon screen), you do not have to define a language. This makes of course especially sense if you use ticket authentication or a client-certificate.

As last wizard step you get an overview over the chosen parameters. You can navigate back if you want to change some parameters again of course. Furthermore you can edit a created JCo destination whenever you want.
Edit an existing JCo destination

To edit an existing JCo destination a reduced JCo destination wizard is displayed because during editing it is not possible to change the assigned engine installation and the used destination type. All other steps could be performed as during the creation.

Remove an existing JCo destination

If you want to remove an existing JCo destination you just use the “Remove” button in the object details viewer.

Ping an existing JCo destination

To ping a defined JCo destination you use the “Ping” button in the object details viewer. The ping only checks whether or not the defined connection parameters (like message server host name, etc.) are correct.

Test an existing JCo destination

To test a defined JCo destination you use the “Test” button in the object details viewer. To test a certain JCo destination a connection to the defined system is opened and a logon is tried with the defined user.

Please keep in mind, that in case of using the ticket authentication or client certificate, the test could fail, because the J2EE administrator user, which is used to run the Web Dynpro Content Administrator, is normally not valid in the backend system.

Changing the declared JCo destinations

As mentioned above you have to define two JCo destinations for a (adaptive) RFC Web Dynpro model. You define the names of these two destinations during the import of the model into the Web Dynpro IDE.

It is possible to change the default names of the JCo destinations later one. If you redeploy your Web Dynpro application after that, the Web Dynpro Content Administrator automatically displays the new JCo destinations. Please keep in mind, that the old destinations are still valid until you delete them explicitly.
(you can use them of course to create the new destinations by copying them). These old destinations do not break the Web Dynpro application but could confuse the administrator. Therefore you should delete them.

As a meta data destination is used to gather dictionary information, the name is not configured in the model, but in the dictionary. Using the adaptive RFC, each model automatically has a dictionary carrying the same name as the model.

You will find this dictionary under the **Dictionary** entry in the **Project Hierarchy** (with the same name as your model). As soon as you select your model’s dictionary, you will see the property **Logical System Name**. You can edit this value and replace it with the new logical name.

The following picture visualize this:

![Dictionary entry in Project Hierarchy](image)

If you want to change the name of the application data destination you have to precede the following steps:

1. Select and open an arbitrary ModelClass within the AdaptiveRFC Model of which wish to change the default logical system name (the name of the JCo destination).
2. When selecting the **Properties** editor on the lower right hand part of the IDE, you will see 2 categories: **ModelClass Settings** and **Model Settings**.
3. In the category **ModelSettings** (the lower part) you will find the property **modelInstance_defaultLogicalSystem**.
4. You can edit this value and replace it with the new name.
The following screenshot visualizes this:

Please keep in mind that it is not enough to maintain the list of used JCo destinations using the Web Dynpro References dialog. Changing the names in this list does not have an effect for the adaptive RFC models.

Maintain system defined JCo destinations

Motivation

Deploying a Web Dynpro application using an adaptive RFC model, the needed JCo destinations are defined in the associated development component (i.e. the development component, which contains the adaptive RFC model). Such JCo destinations could be maintained using the Web Dynpro Content Administrator as it is described above. Beside that there is sometimes the need to define additional JCo destinations, which are not deployed with a Web Dynpro development component but which are defined independently. These JCo destinations are called “system defined “ JCo destinations.

Using the JCo destinations details viewer

To start the JCo destinations details viewer please use the “Maintain JCo destinations” button in the overall toolbar.

The JCo destinations details viewer displays all defined JCo destinations. You can select whether you want to display JCo destinations defined by a certain development component or the system defined JCo destinations using the “Define Source” dropdown box.
To create a system defined JCo destination you could use the “Create” button in the JCo destinations details toolbar or the “Create JCo destination” in the overall toolbar.

The creation, editing or all other functions behaves in the same way as described above.

Mapping the used JCo destinations

The main reason to defined system defined JCo destinations is to provide the possibility to map at runtime the declared destination names to other ones.

If you want to define such a mapping you have to call your Web Dynpro application with the following URL parameter:

```
sap-wd-arfc-useSys=<DEFAULT_SYSTEM>:<SUFFIX_OF_MAPPED_SYSTEM>
```

The following URL starts the application FlightApp and maps the logical system WD_MODELDATA_DEST to the logical system WD_MODELDATA_DEST_B20, as well as mapping the logical system WD_RFC_METADATA_DEST to the logical system WD_RFC_METADATA_DEST_B20:

```
```

Some remarks: the new system name used in the URL must begin with the previous system name and be at most 3 characters longer than the previous name. The full system name must be configured properly in the Web Dynpro Content Administrator. In the URL parameter, you must only use the suffix, not the full name. These restrictions were required to enforce security guidelines as well as to help keep URLs as short as possible.

Please keep in mind the following restrictions:

- You cannot change the mapping of destinations within a running application instance, i.e. concurrent access to different backend systems within an application instance is not possible.
- The JCo destination for application data **MUST** point to the same Technical System as the JCO destination used for getting the meta data. In other words, you cannot get your application data from one system (lets say "HRX") and configure the metadata to be fetched from a different system (lets say "CRM"). This will raise an exception because the metadata is inconsistent with the system you are fetching the data from.

If you require running an application against a different backend system than configured by de-
fault, then this is possible by specifying the alternative destination via URL parameter when starting the application.

**Start a Web Dynpro application**

If you want to start a Web Dynpro application you can use also the Web Dynpro Content Administrator. Just select the needed Web Dynpro application and press “Run” or “Run as Preview” in the details viewer. The first button starts the application in a new browser window the second one starts the application in the preview window.

**Check the connection to the used System Landscape Directory (SLD)**

To check if the connection to the used System Landscape Directory works well, you can use the “Check SLD Connection” button in the overall toolbar.

A popup window is opened showing all defined connection parameters (besides the defined password – this is not displayed for security reasons).

Using the “Start SLD” button you can start the SLD viewer application in an external window. To test only the destination you should use the “Test Connection” button.

If the Web Dynpro Content Administrator failed to get a connection to the SLD during the startup the following error message is displayed at the bottom of the page:

⚠️ Connection to System Landscape Directory (SLD) could not be opened successfully.
As one consequence almost all button in the overall toolbar are disabled. Only the Check SLD Connection button is enabled to make sure, that you can check the defined SLD connection parameters.

If there is no working connection to the SLD it is not possible to maintain any JCo destination at all.

**Start the used System Landscape Directory (SLD)**

As mentioned above you can start the assigned SLD from the popup displaying the defined destination parameters. Additionally you can start it directly from the overall toolbar using the “Start assigned SLD”.

Define the used System Landscape Directory (SLD)

If there are problems connection the SLD you can change the used connection parameters using the Visual Admin.

Please choose the SLD Data Supplier service and select the CIM Client Generation Settings tab. You can now define the connection parameters. After that you have to save your settings. You can test also the connection now using the “CIMClient Test” button.

After saving and restarting the Web Dynpro Content Administrator uses the changed connection parameters automatically. There is no need to restart the whole SAP J2EE Engine for that.

The following screenshot shows the SLD Data Supplier service.