

EMC Documentum Content Services for SAP CRM Usage and Future Prospects

A Detailed Review

Abstract

The EMC[®] Documentum[®] Content Services for SAP (CSSAP) application integrates the Documentum content management system with the SAP R/3 system. Both server and client versions of the product are available. In addition, Content Services for SAP also includes the agent component that runs background jobs on linking and replication of data from Documentum to SAP, or vice-versa. The agent service automates the linking process between SAP objects and documents and maintains those links. CSSAP CRM is a natural extension of the existing CSSAP Agent functionality. CRM support is made available for the Business Partner and Opportunities SAP object types by the Replicate SAP functionality, while the Bar Code and Image assign SAP workflow SAP object types are supported by the Link Documentum functionality. This white paper provides an introduction to CSSAP support for an SAP CRM system.

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Executive summary

EMC® Documentum® Content Services for SAP (CSSAP) enables enterprises to automate document-driven tasks faster and more efficiently. You can use CSSAP to manage important business documents and content within the context of SAP application objects such as transactions, records, and workflows.

SAP query types and the Business Partner and Opportunities SAP object types are supported for CRM systems for a Replicate SAP configuration, and the Bar Code 4.5 and Image assign SAP workflow SAP object types are supported for CRM for Link Documentum. However, the Document Info Record (DIR) object is not created in any of these scenarios.

Replicate SAP can create Documentum objects such as a document or folder. It also updates the attribute of the Documentum object using attributes of SAP objects. Both these conditions depend on the configuration of the Replicate SAP action implemented in CSSAP WebAdmin. The WebAdmin includes relevant changes that support SAP CRM. In the Replicate SAP action page of CSSAP WebAdmin, when users select CRM in the SAP System Type drop-down list, the corresponding values in the SAP Query drop-down are listed.

The Enterprise Integration Core DAR installs the Business Partner and Opportunities SAP object types. The SAP queries for the types Business Partner and Opportunities execute successfully at WebAdmin.

Introduction

This white paper provides an introduction to the support that Replicate SAP extends for the Business Partner and Opportunities CRM object types, and the support that Link Documentum extends for the Bar Code 4.5 and Image assign SAP workflow object types.

Audience

This white paper is intended for EMC support personnel, developers, and architects. This paper will also be helpful to managers and decision-makers for future development.

Terminology

CRM: Customer Relationship Management

CSSAP: Content Services for SAP provides content-management functionality in SAP. It is sometimes used as an umbrella term to refer to all products that are related to SAP integration.

EI: Enterprise Integration

WebAdmin: Web-based administration tool for CSSAP

SAP query for the CRM Business Partner

Documentum Foundation Classes (DFC) interacts with the SAP CRM system through JCO 2.1.8 libraries. The CRM Business Partner of the type `sap_query_pm_type_table` invokes the functional module `RFC_READ_TABLE` using the table name, `BUT000`, as an argument in the SAP CRM system and retrieves the table results using JCO libraries.

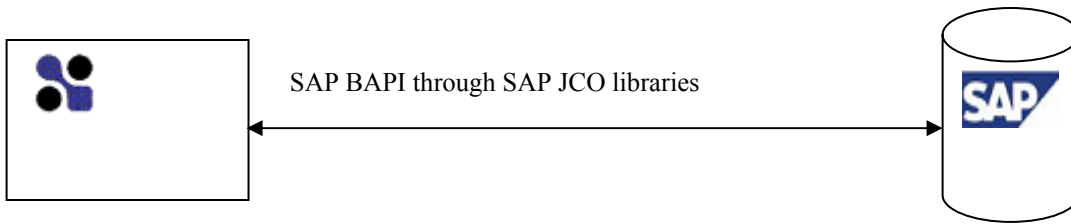


Figure 1. DFC interaction with the SAP CRM system through JCO libraries

Say, for example, that you want to replicate the Business Partner table BUT000 information into document attributes in Documentum, for instance, to replicate the title of the workflow.txt document with a specific Business Partner name from SAP CRM. The SAP query must be configured for the Business Partner SAP query type specifying filter query conditions using Query Condition Composer. You can execute the query and view the result. Here, the CSSAP SAP query passes parameters to JCO, and JCO executes the corresponding functional module in SAP to read the table and returns the result.

Figure 2 displays the SAP Query Composer. When you select **Business Partner** in the SAP Query Type drop-down, the corresponding parameters are listed in the **Query Condition composer** drop-down list.

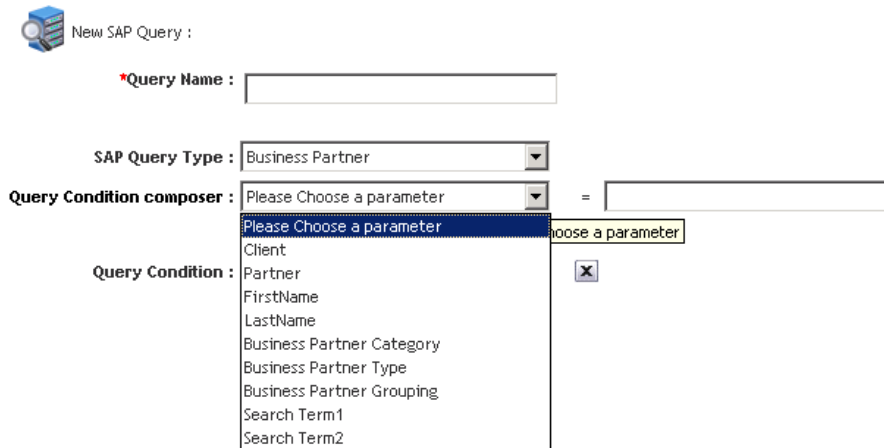


Figure 2. New SAP Query screen for Business Partner query configuration

You can then, for example, execute a search for the following Query Condition: LastName = Fitchel.

SAP Query: BusinessPartn

*Query Name : BusinessPartn

SAP Query Type: Business Partner

Query Condition composer: Please Choose a parameter =

Query Condition: LastName=Fichtel

Figure 3. Sample Business Partner query configuration

When the sample Business Partner query is executed in CSSAP WebAdmin, corresponding results are returned from SAP. In the next figure, CRM Serv is the server configuration for CRM. This configuration contains the CRM Server IP, System Name, and System Number. CRMUsr is the user configuration for CRM and contains the SAP User ID, Password, and Client Number.

Select SAP Query Type: Business Partner

Select SAP Query: BusinessPartn

Select SAP Server: CRM Serv

Select SAP User: CRMUsr

Show Items 10

<u>Client</u>	<u>Partner</u>	<u>FirstName</u>	<u>LastName</u>	<u>Category</u>	<u>Type</u>	<u>Grouping</u>	<u>System</u>	<u>Term1</u>
300	0000000421	Ferdinand	Fichtel	1		0001		FICHTEL

Figure 4. Result of the Business Partner query configuration

Executing jobs

The following illustration shows the workflow for a job execution.

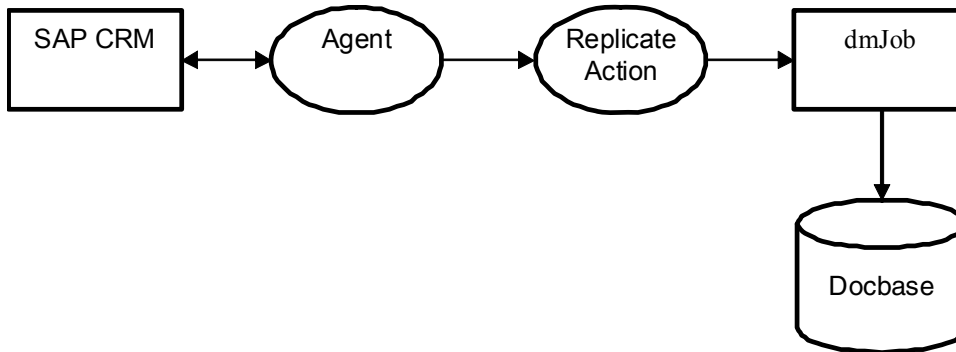


Figure 5. Job execution workflow

Sample test case

Assume that you upload the workflow.txt document in Documentum Administrator (DA). The title of the uploaded document will appear blank initially. To update the title of the document, you replicate the title with the partner attribute of the SAP query result as illustrated in Figure 6 by executing the Replicate SAP job.

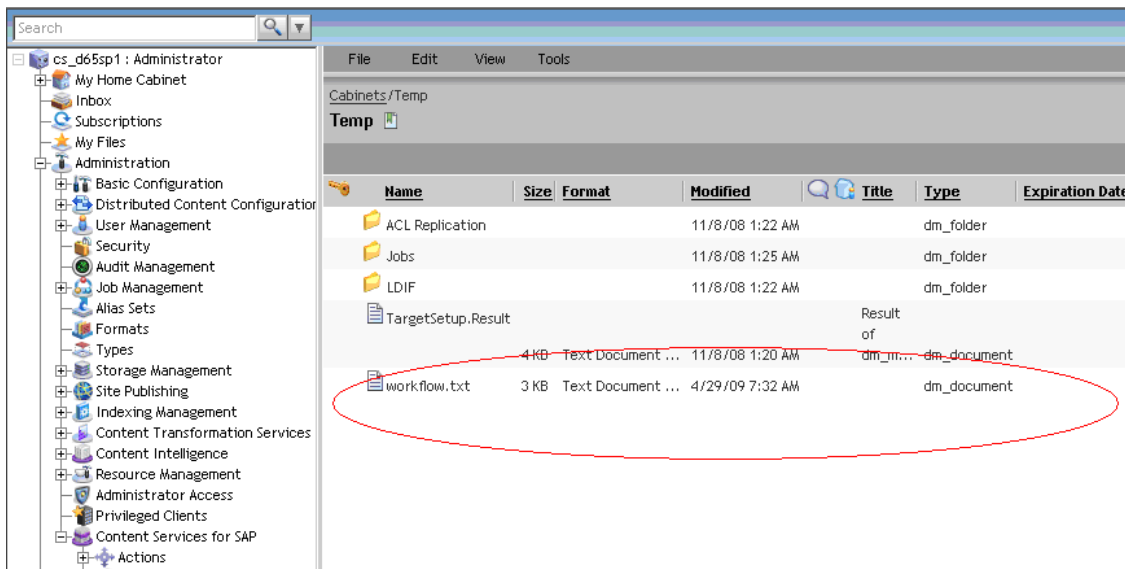


Figure 6. The title of the document is blank before the execution of the Replicate SAP job

You create the Replicate SAP action with the following configuration:

1. Configure the Object Key with the following value: `object_name="workflow.txt"`.
workflow.txt indicates the document whose title will be replicated.
2. Configure the map rule with the following value: `title="%s",Partner`
The title of the document is mapped with the Partner attribute of the SAP query.

Replicate SAP: SingleDocReplAction

* Action : SingleDocReplAction

Linked Items:

SAP@ System Type: CRM

Object type: dm_document

SAP@ Query: BusinessPartn

Link Workflow: No Workflow

Update object: Create object:

Replication Condition:

Rule Composer	Variables	Format	Parameters
	a_application_type	=	1

Object Key Add > : object_name="workflow.txt"

Update Condition Add > :

Defined Map Rules Add > : title="%",Partner

Figure 7. A Replicate SAP action configuration to replicate the title of the document with the Business Partner attribute

Now create an agent associated with the Replicate SAP action that you created and associate it with the required user and server configuration.

New Agent:

*Agent Name: SingleDocReplAgent

Rule's Composition:

SAP System Type: CRM

Action: SingleDocReplAction Which action will this agent execute?

SAP@ Server: CRMServ On which server does this agent runs?

SAP@ User: CRMUscr Under which user (rights) does this agent runs?

Figure 8. Agent configuration

After the job is executed, the title of the document is replicated successfully with the Business Partner attribute you specified.

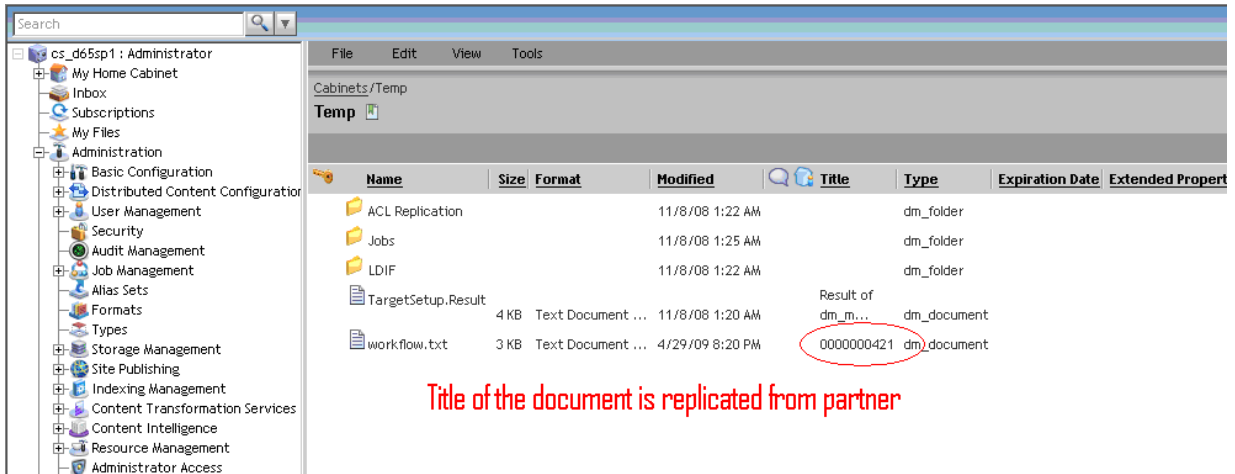


Figure 9. After the job is executed the title of the document is replicated with the Business Partner attribute

Now, consider another SAP query that returns multiple results. Using these results, you can create folders in the Documentum repository by executing the Replicate SAP job.

Figure 10 shows a sample SAP query that will return multiple results.

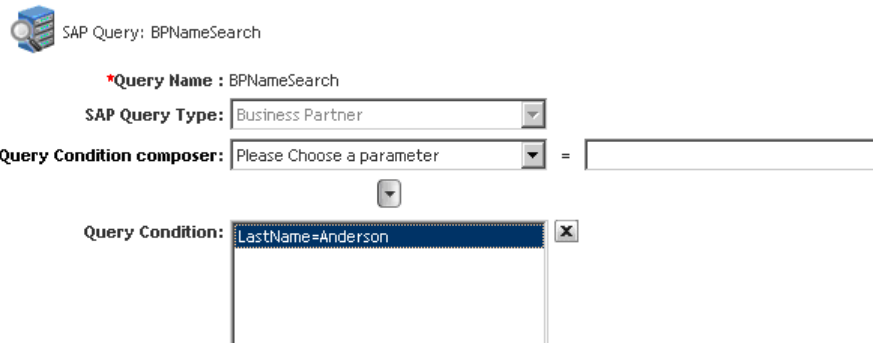


Figure 10. A sample query configuration that returns multiple values

The search result is illustrated in Figure 11. .

Select SAP Query Type: Business Partner
 Select SAP Query: BPNameSearch
 Select SAP Server: CRMServ
 Select SAP User : CRMUsr

Show Items: 100

Client	Partner	FirstName	LastName	Category	Type	Grouping	System	Term1	Term2	Types	Key	Flag	Block	Group	Salutation
800	0000000512	Anne	Anderson	1		0001		IST			0001				
800	0000000130	Neal	Anderson	1		0001					0002				
800	0000400428	Patricia	Anderson	1		0001		INS			0001				
800	0000402346	Sarah	Anderson	1		0001		M-CRM							
800	0000402037	Patricia	Anderson	1		0001		M-CRM							
800	0000401728	David	Anderson	1		0001		M-CRM							
800	0000402140	Gina	Anderson	1		0001		M-CRM							
800	0000401831	John	Anderson	1		0001		M-CRM							
800	0000402243	Peter	Anderson	1		0001		M-CRM							
800	0000401934	Robert	Anderson	1		0001		M-CRM							
800	0000402655	Omar	Anderson	1		0001		M-CRM							
800	0000402449	Robert	Anderson	1		0001		M-CRM							
800	0000402552	Anne	Anderson	1		0001		M-CRM							
800	0000406399	Vicki	Anderson	1		0001		JBS	JIM SMITH						
800	0000406735	Ann	Anderson	1		0001					0001				
800	0000408787	Cheryl	Anderson	1		0001		VOYNOW			0001				
800	0000408555	Maria	Anderson	1		0001		MEDDEV			0001				

Figure 11. Search result of the query configuration that returns multiple values

You can view these values in the SAP user interface as well, as shown in Figure 12.

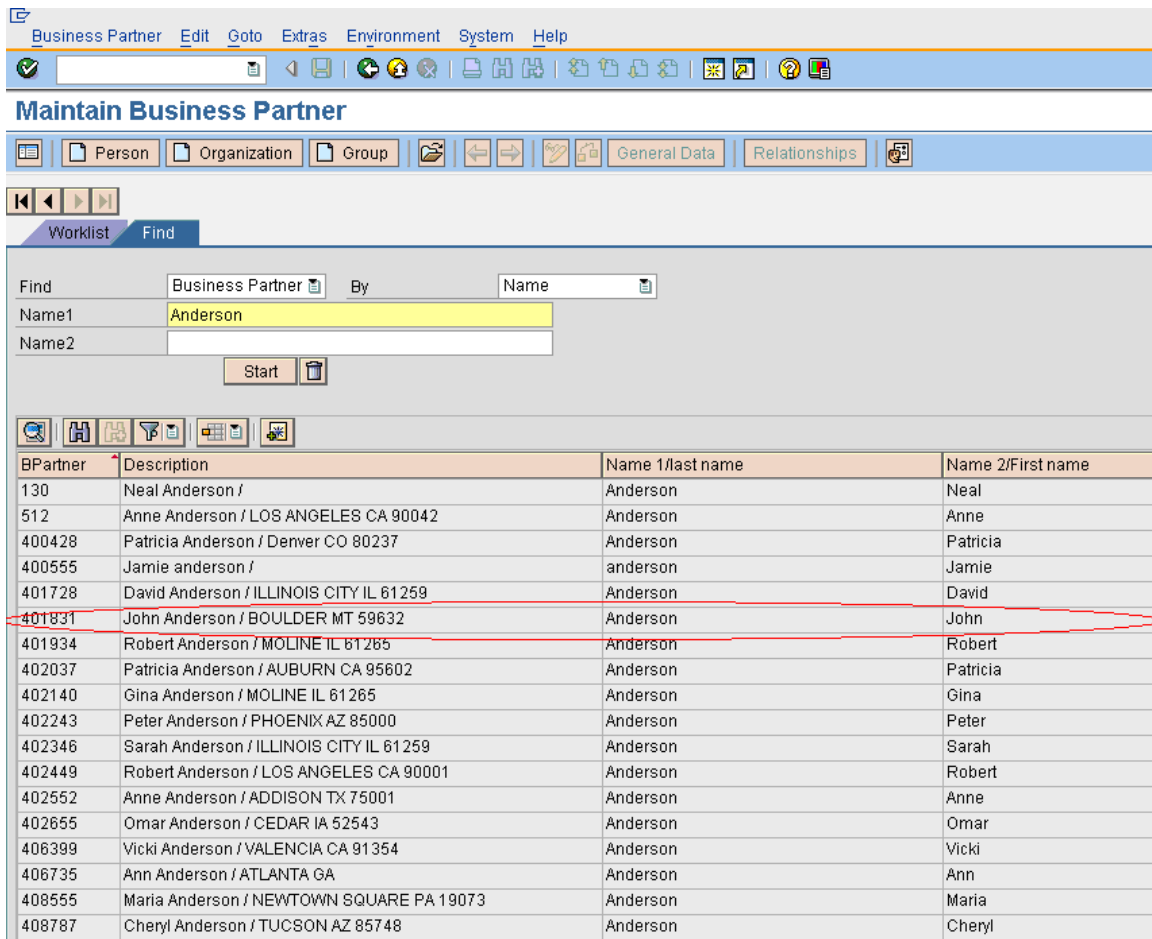


Figure 12. Business Partner value when the Last Name is “Anderson” in SAP GUI

Figure 13 illustrates the tasks you must perform to create folders.

You create the Replicate SAP action with the following configuration:

1. Configure the Object Key with the following values:
 - object_name="%s",Partner
 - FOLDER="/Temp/test"

The mapping above means that the folders will be created for the corresponding Business Partners and their location in the Documentum repository will be /Temp/test.

2. Configure the map rules with the following values:
 - title="%s",firstName
 - object_name="%s",Partner
 - FOLDER="/Temp/test"

The map rules above mean that the title attribute of the folder will contain the firstName of the Business Partner.

Replicate SAP: BPFolderCreationActn

*** Action :** BPFolderCreationActn

Linked Items:

SAP@ System Type: CRM

Object type: dm_folder

SAP@ Query: BPNameSearch

Link Workflow: No Workflow

Update object: Create object:

Replication Condition:

Rule Composer:	Variables	Format	Parameters
	a_application_type	=	
			1

Object Key Add > : object_name="%",Partner

Update Condition Add > : object_name="%",Partner
FOLDER="/Temp/test"

Defined Map Rules Add > : title="%",FirstName
object_name="%",Partner
FOLDER="/Temp/test"

Figure 13. A Replicate SAP action configuration to create folders

Figure 14 lists the folders that are created after the job that creates folders is executed successfully.

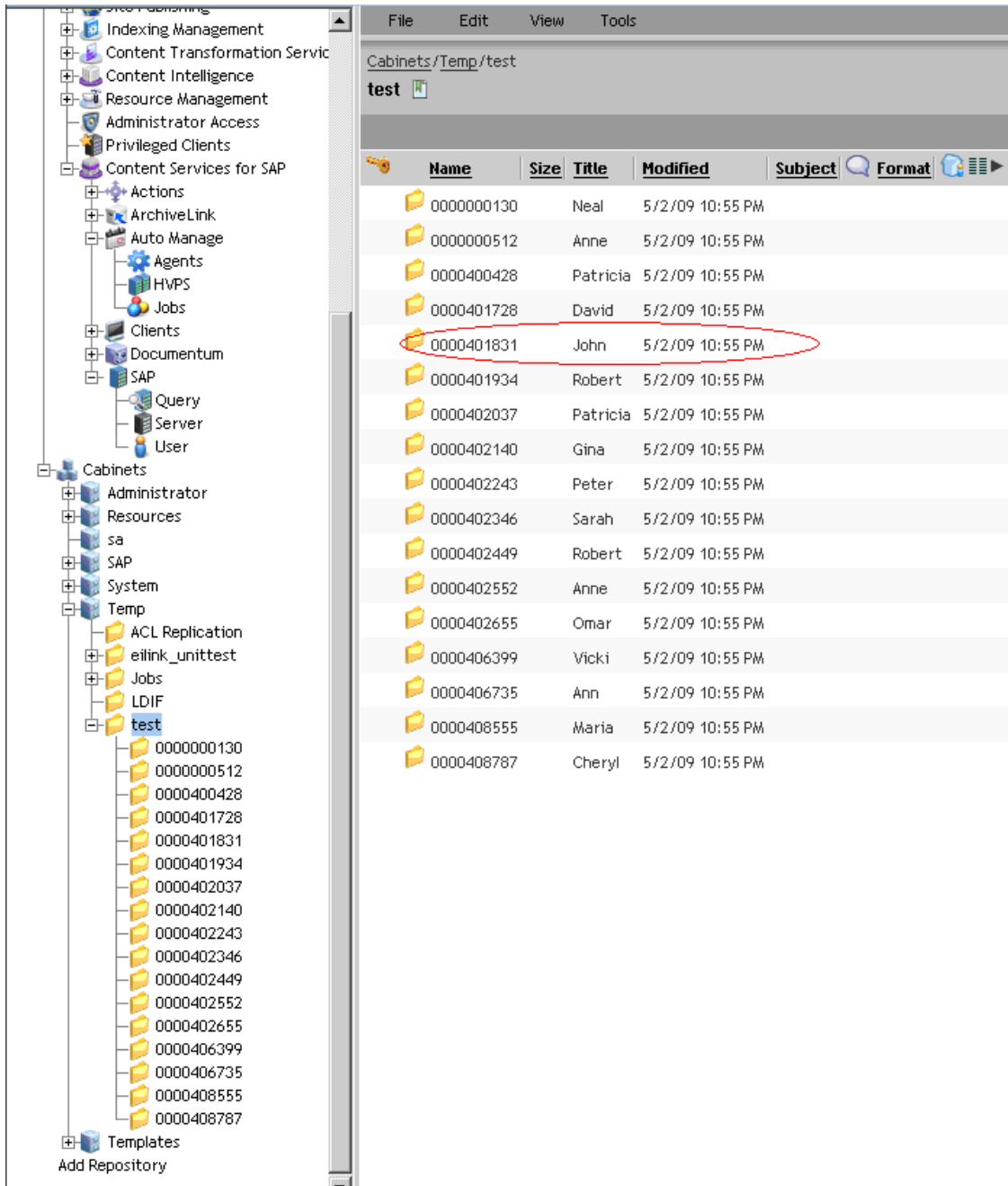


Figure 14. Result set for the Replicate SAP action configuration to create folders

You can modify the folder structure and values on the basis of map rules. You can import documents and mails related to the relevant Business Partner into the folder that you create.

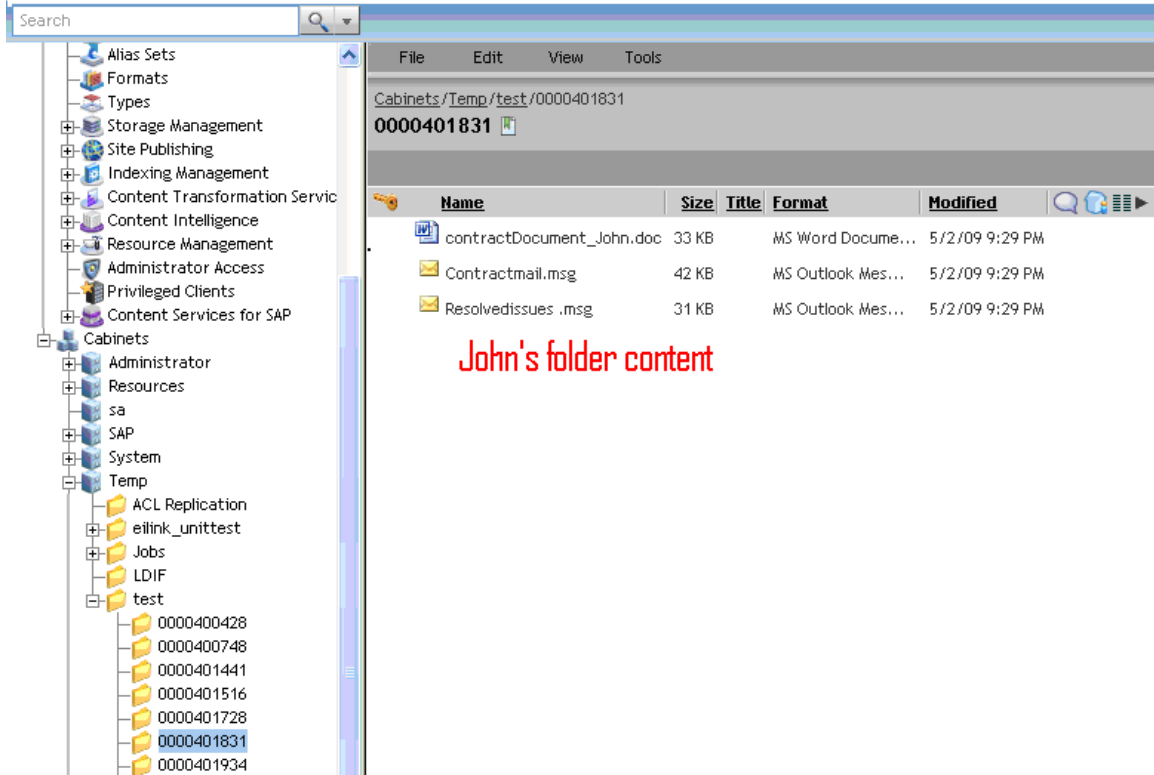


Figure 15. Page listing documents for the Business Partner “0000401831”

CRM support for Barcode by CSSAP Link Documentum

This section explains how you can use the CSSAP Link Documentum functionality for the Barcode 4.5 SAP object type:

1. Log in to Documentum Administrator (DA) and access the CSSAP WebAdmin node.
2. Open the **ArchiveLink** node and access the **Archive** node.
3. Create an archive configuration using the following details for the fields:
 - Archive Name: Barcode 4.5 (BQ)
 - Archive ID: BQ
 - SAP Document Type: FAX (Tiff)
 - Documentum Type: sap_incoming_invoice
 - Defined map rules: FOLDER="/SAP/Archive/BQ" and a_content_type="tiff" are added automatically when you click **OK** to save the archive configuration.

Info

Archive : Barcode 4.5 (BQ)

Specify Archive:

*Archive Name : Barcode 4.5 (BQ)

* Archive ID : BQ

SAP® Document Type : FAX (Tiff)

Documentum Type : sap_incoming_invoice

Workflow : No Workflow.

Attribute Map:

Rule Composer : [] = []

Defined map rules :

```
FOLDER="/SAP/Archive/BQ"
a_content_type="tiff"
```

Filtering

Custom Filter : [] agent_exec_method

Server_method / Executable (begin with "!")

Built in Filters : Make Text : Make PDF : Make HTML :

Figure 16. Archive configuration performed in WebAdmin

4. In the SAP user interface, create the corresponding Content Repository configuration using the **noac0** transaction.

Content Rep.:	BQ	Active	32 / 119
Description	barcode test		
Document Area	ArchiveLink		
Storage type	HTTP content server		
Protocol	SAPHTTP		
Version no.	0045	Content Server version 4.5	
HTTP server	10.31.159.219	Test connection	
Port Number	8080	SSL Port Number	
HTTP Script	assap/archivelink/cs_d65sp2		
Transfer drctry	C:\usr\sap\C50\SYSGlobal\		
Phys. path	C:\usr\sap\C50\SYSGlobal\		

Figure 17. Content Repository configuration in the SAP user interface

5. Start the **assap** service.
6. Click the **Test Connection** icon in the SAP system.
7. Send a certificate from the SAP user interface and set the **Status** to **Active** in CSSAP WebAdmin.

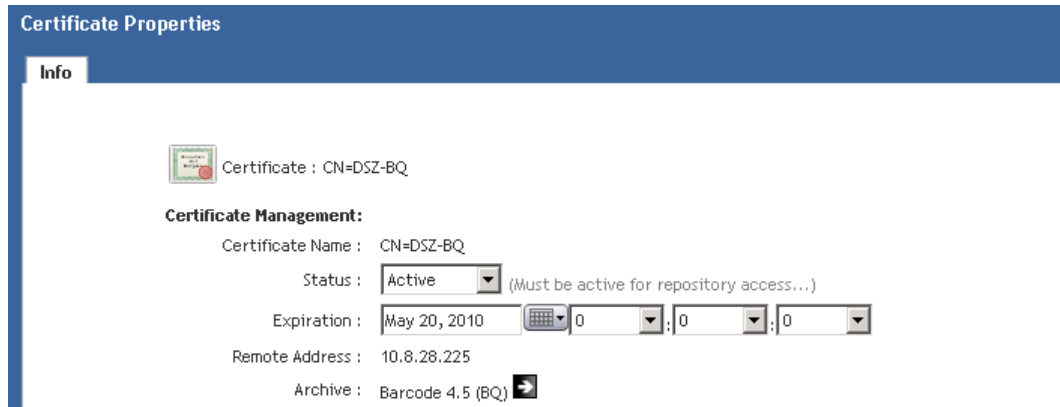


Figure 18. An activated certificate in WebAdmin

8. Import a .tif file into the repository using Documentum Administrator (DA). For example, import **EMC.tif**.

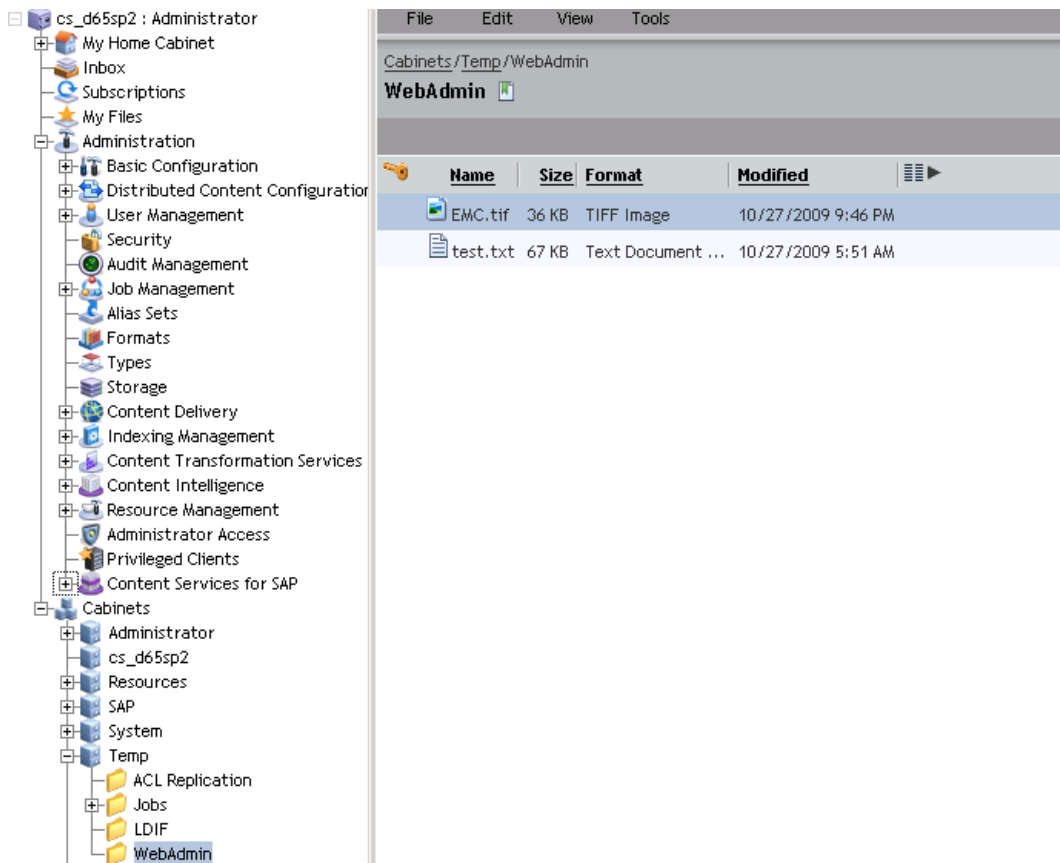



Figure 19. Tiff image imported to the repository

9. Configure the SAP Connection details in CSSAP WebAdmin.
10. Configure a SAP Server config object. In Figure 20, the SAP Server config object is configured as “CRM server”.

SAP Server Properties

Info

 SAP Server : CRM server

*Server Name : CRM server

*Host Name/IP :

*System Name :
(3 characters)

*System Number :
(Range 00 - 99)


Enable load balancing

Figure 20. SAP Server Properties for CRM server

11. Configure a SAP User config object. In Figure 21, the SAP User config object is configured as “CRM user”.

SAP User Properties

Info

 SAP User : CRM user

*User Name : CRM user

*User ID :

*Password :

*Client No :
(Range 000 - 999)

Language :

Figure 21. SAP User Properties for CRM user

12. Click to expand the **Documentum** subnode and select the **Query** subnode. The Documentum Query screen is displayed.
13. Select **File > New > Documentum Query** from the menu at the top of the Documentum Query screen. The Documentum Query Properties screen is displayed.
14. Create a query that retrieves a .tif image that will be linked as a Barcode SAP object type.



Figure 22. Documentum Query properties for “barcode dql”

15. Create a Link Documentum action associated with the Documentum query you created and map the rule as follows:
- key.Barcode=“%s”, object_name
 - key.ContentRepository=“BQ”
 - key.Drl=“%s”, Drl
 - key.ArchiveDate=“%s”, r_creation_date
 - key.DocumentClass=FAX

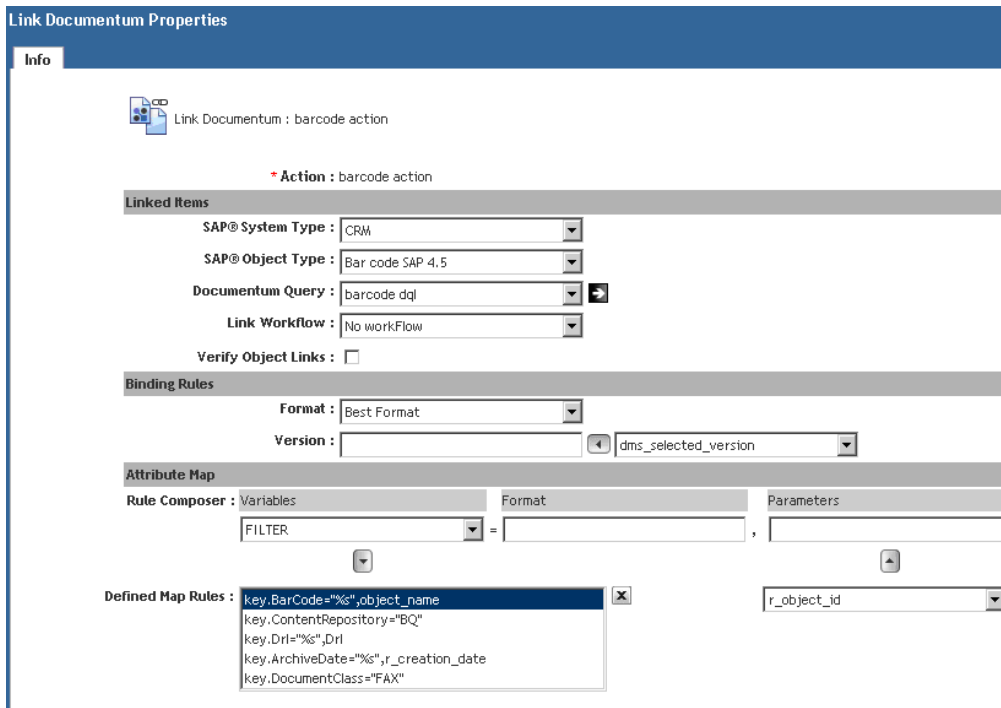


Figure 23. Link Documentum Properties for “barcode action”

16. Configure the agent by expanding the **Auto Manage** subnode and select the **Agents** subnode. The Agents screen is displayed.
17. Select **File > New > Agent** from the menu at the top of the Agent screen. The Agent Properties screen is displayed.
18. Specify the required server and user configuration details.

The screenshot shows the 'Agent Properties' window with the 'Info' tab selected. The agent is named 'barcode agent'. Under 'Rule's Composition', the following settings are visible:

- SAP System Type:** CRM
- Action:** barcode action (with a help icon and text: 'Which action will this agent execute?')
- SAP@ Server:** CRM server (with a help icon and text: 'On which server does this agent runs?')
- SAP@ User:** CRM user (with a help icon and text: 'Under which user (rights) does this agent runs?')

Figure 24. Agent Properties for “barcode agent”

19. Register the HVP Worker by expanding the **Auto Manage** subnode in the Content Services for SAP node, and select the **HVPS** subnode. The HVPS screen is displayed.
20. Select **File > New > Register HVP Worker** from the menu at the top of the HVPS screen. The screen to register the HVP Worker is displayed.

The screenshot shows the 'HVP Worker' registration screen. The worker is named 'Worker'. The 'Worker URL' is set to 'http://WIN2K3_D65_SP2:8080/HvpWorker/hvpCommand'. The 'Is Available' checkbox is checked.

Figure 25. Registering the HVP Worker

21. Enter a name for the Worker in the **Name** field.
22. Enter the web address for the Worker in the **Worker URL** field.
23. Select the **Is Available** checkbox if required.
24. Click **OK** to save the Worker registration information.
25. Run the Barcode job from the **Job** node. After the completion of the job the sap_link_relation entry is registered in the repository.

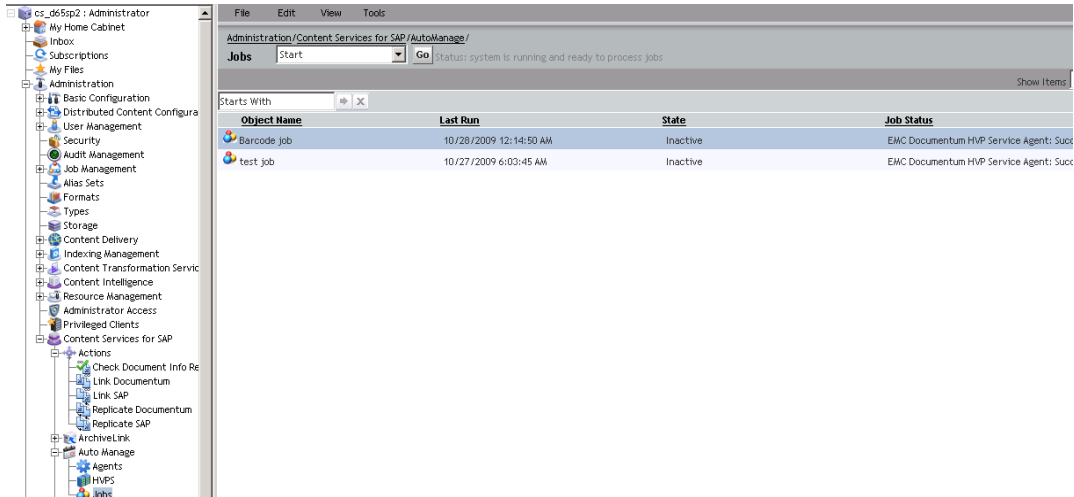


Figure 26. Job status is indicated as successful

26. In the SAP user interface, execute the **oam1** transaction.
27. Click the **Display all Barcodes** icon in the Bar Codes area to refresh the external bar codes.

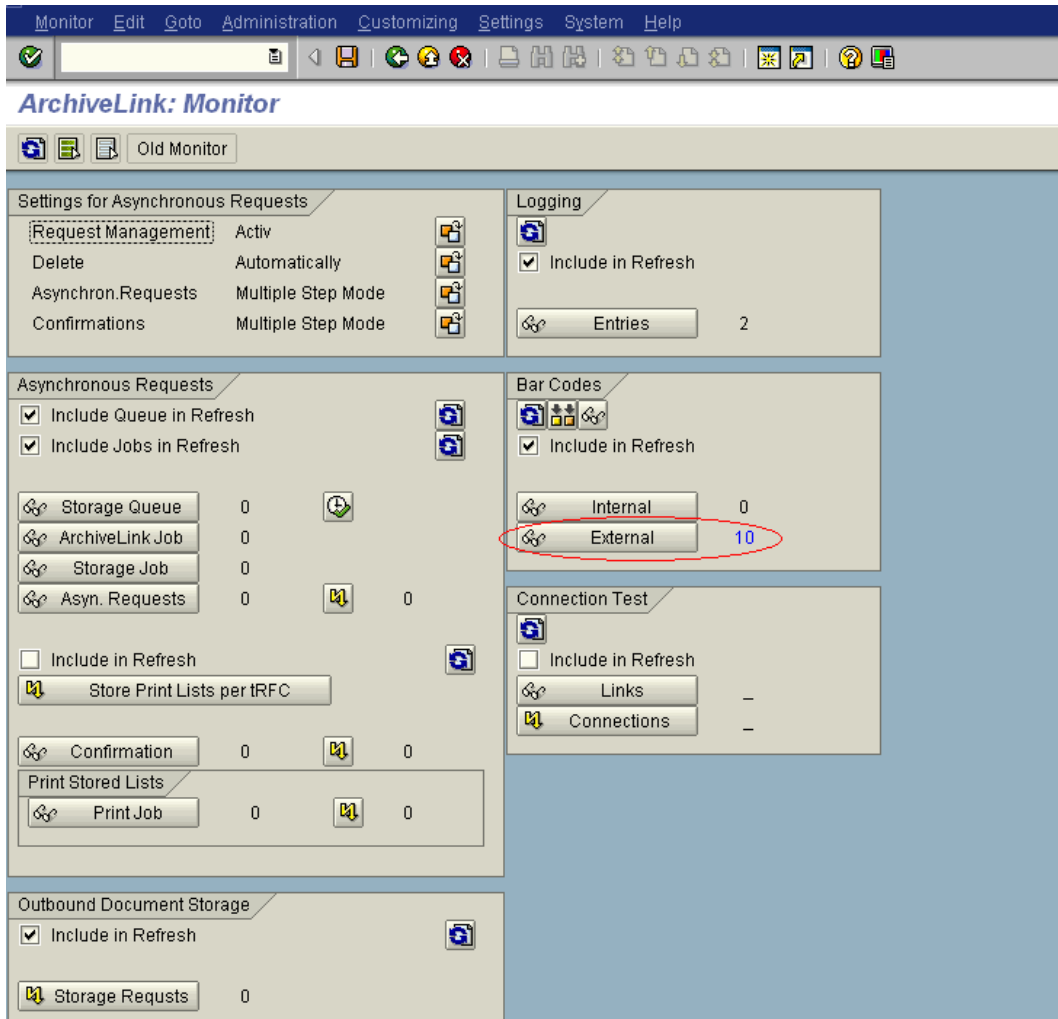


Figure 27. ArchiveLink Monitor

28. Click **External**. The Open external bar codes screen is displayed. Barcode is created as an external Barcode. The Content Repository column will include the same entry as the Archive ID created in Step 3.

Bar Code	Created on	Content Repository	Created by	Document ID
090a595a80002b35	22.10.2009 13:29:33	BC	JINDAN	upgradedoc:/DCTM370A595A80001D0B
1234567890	22.10.2009 13:18:40	BC	JINDAN	upgradedoc:/DCTM370A595A80001D0A
1234567890	22.10.2009 13:36:27	BC	JINDAN	upgradedoc:/DCTM370A595A80001D0C
BARCODE2.TIF	16.10.2009 19:32:20	BQ	JINDAN	CS_D65SP2:/DCTM379961A980002515
EMC.tif	27.10.2009 10:20:07	BQ	JINDAN	cs_d65sp2:/DCTM37F5B27980000528
barcode.tif	07.10.2009 10:58:19	BQ	DWAJAA	cs_d65sp2:/DCTM379961A980002514
barcode1.tif	08.10.2009 13:43:49	BQ	DWAJAA	cs_d65sp2:/DCTM379961A980002D0A
barcode_test_1.GIF	12.10.2009 07:26:51	BC	DWAJAA	upgradedoc:/DCTM370A595A8000150A
mm03.GIF	09.10.2009 10:25:20	BC	DWAJAA	upgradedoc:/DCTM370A595A8000090A
pdf_sample_1.pdf	12.10.2009 08:38:17	BC	DWAJAA	upgradedoc:/DCTM370A595A8000150B

Figure 28. External bar code for the tiff image “EMC.tif”

29. Click **Display Document**. The linked Barcode document is displayed.

Bar | Display Document (F5) | EMC.tif

Content Repository	BQ
Document ID	barcode test
Doc. class	cs_d65sp2:/DCTM37F5B27980000528
Created on	27.10.2009 10:20:07
Created by	JINDAN
Keep entry	<input type="checkbox"/>

Figure 29. The linked Barcode document

If CSSAP is running, the .tif file is opened in the browser window as illustrated in Figure 30.

Note: You can change the setting using transaction oag1 to open the file in ECL viewer (Check the ECL Viewer Control using **Display Settings > Windows Viewer Settings**.)

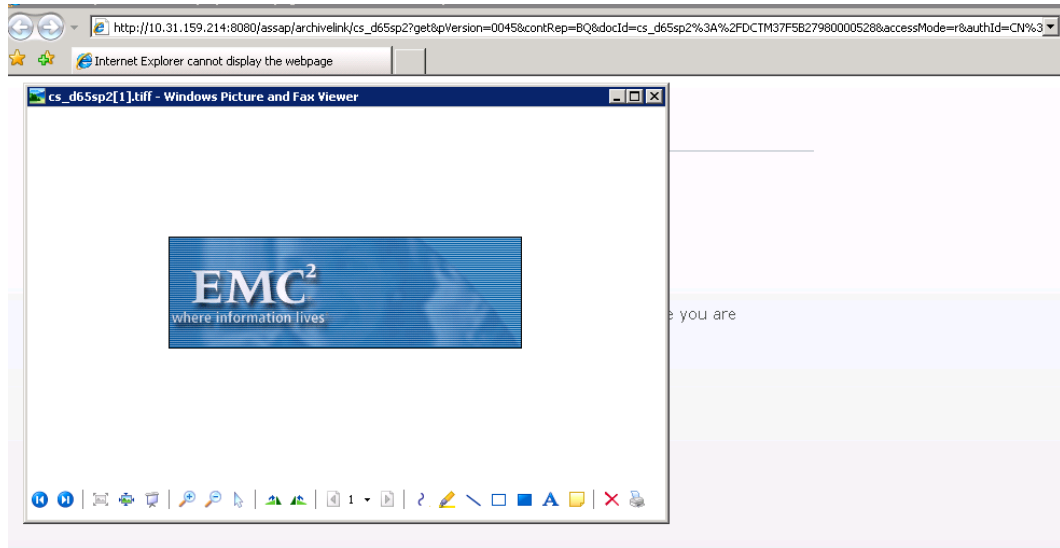


Figure 30. The .tif image is opened in the Windows default viewer through the browser

Support for customization

You can write a **custom.xml** to create Replicate SAP and Link Documentum action configurations for CRM. The `sap_system_type` attribute in `custom.xml` can take the CRM or R/3 value. You can also create SAP query type objects that can be used in actions.

A sample **custom.xml** used to create the Business Partner_Test SAP query type is as follows:

```
<?xml version="1.0"?>
<REQUEST ON_ERROR="abort" NOTE="put your own methods inside this
request">
  <OBJECT_CREATE ON_EXIST="version">
    <API_CONFIG TYPE="sap_query_plm_type_table" CLASS="sap">
      <ATTRIBUTE NAME="object_name"
IS_KEY="true">BusinessPartner_Test</ATTRIBUTE>
      <ATTRIBUTE NAME="table_name">BUT000</ATTRIBUTE>
      <ATTRIBUTE
NAME="function_module">RFC_READ_TABLE</ATTRIBUTE>
      <ATTRIBUTE NAME="sap_object_type">BUT000</ATTRIBUTE>
      <ATTRIBUTE NAME="sap_system_type" IS_REPEATING="true">
        <VALUE>CRM</VALUE>
      </ATTRIBUTE>
      <ATTRIBUTE NAME="query_parameters" IS_REPEATING="true">
        <VALUE>Client=CLIENT</VALUE>
        <VALUE>Partner=PARTNER</VALUE>
      </ATTRIBUTE>
      <ATTRIBUTE NAME="parameter_defaults"
IS_REPEATING="true"></ATTRIBUTE>
      <ATTRIBUTE NAME="result_parameters" IS_REPEATING="true">
        <VALUE>Client=CLIENT</VALUE>
        <VALUE>Partner=PARTNER</VALUE>
      </ATTRIBUTE>
      <ATTRIBUTE NAME="key_attributes" IS_REPEATING="true">
        <VALUE>Partner=PARTNER</VALUE>
      </ATTRIBUTE>
    </API_CONFIG>
  </OBJECT_CREATE>
</REQUEST>
```

```

<ATTRIBUTE NAME="methods" IS_REPEATING="true">
  <VALUE>Link</VALUE>
</ATTRIBUTE>
</API_CONFIG>
</OBJECT_CREATE>
</REQUEST>

```

Known limitation and future prospects

CRM does not include the Document Info Record (DIR) object. For more information, see the SAP support notes 985793 and 632877. In CRM, job execution for the Business Partner SAP object type can be performed in the same way as SAP Image Assign workflow. You can attach the URL to the Business Partner SAP object type. You can use ASSAP GET URL and retrieve a specific document from the repositories, in the same way as the SAP Image Assign workflow. You can also use some BAPIs to attach a URL to the Business Partner SAP object type.

Use BAPI_BUPA_CENTRAL_CHANGE (containing the table parameter) to pass the URL for the Business Partner SAP object type.

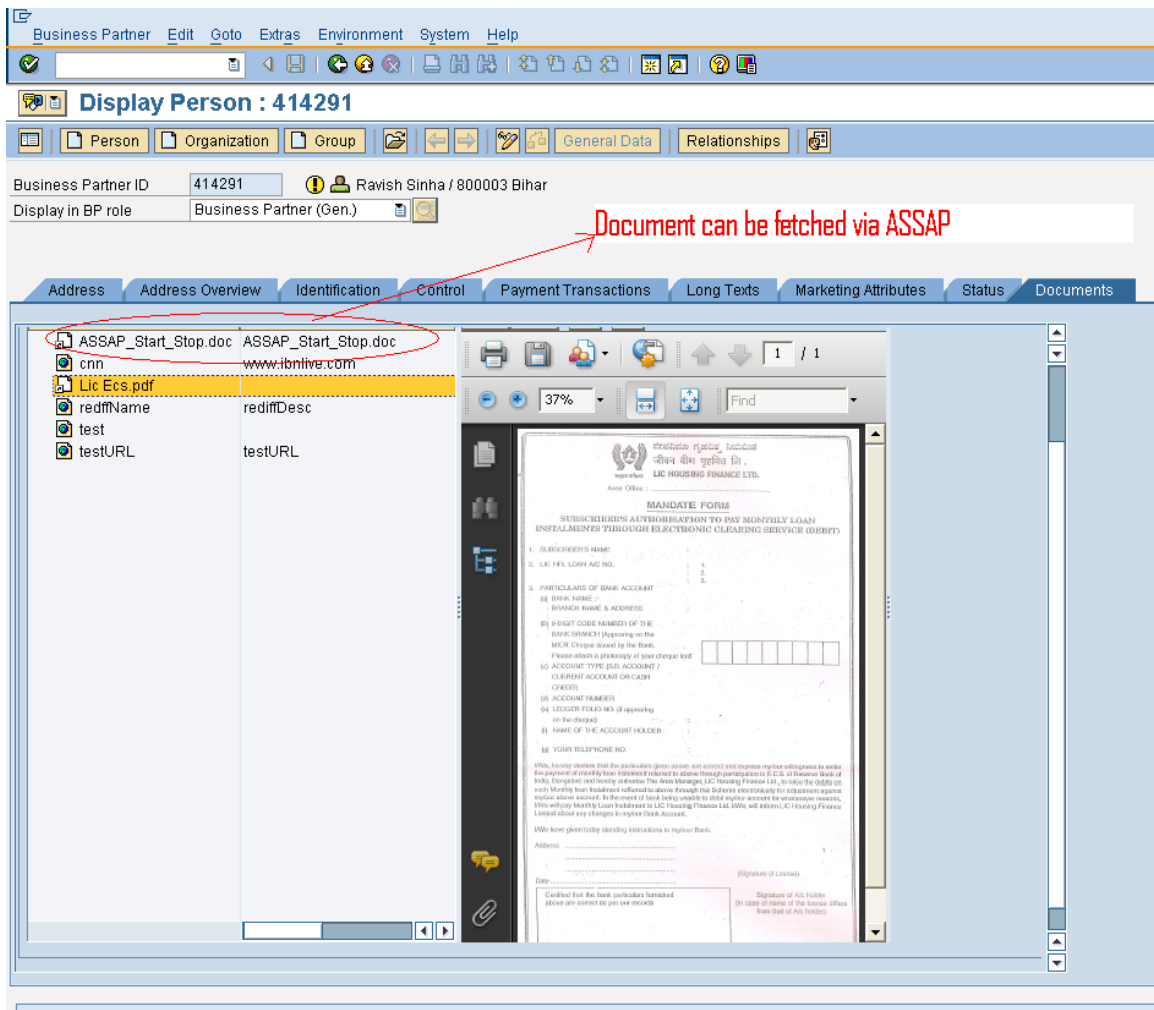


Figure 31. The Business Partner SAP object type

For CASE Management, BAPI is CRM_CMG_ADD_DOCUMENT. This BAPI is using the LINK method of CL_CRM_DOCUMENTS.

You can also use CL_CRM_DOCUMENTS. Besides, you can also try writing a wrapper BAPI around CRM_CMG_ADD_DOCUMENT and use its LINK method for implementing general linking.

Conclusion

Documentum Content Services for SAP provides a facility for maintaining the integrity of documents held in SAP CRM with those stored in Documentum. Replication is the duplication of data held in one system into another system. The replication process, once started, updates all objects according to the rules set in WebAdmin. The barcode is stored as an object attribute. CSSAP can directly process “barcoded documents” and link them to SAP CRM.

Initially, the Content Services for SAP Agent supported the SAP R/3 system only. CSSAP now also provides support for an SAP CRM system, enabling users to replicate metadata from CRM to Documentum using a Replicate SAP action, and create barcodes and configure workflows using a Link Documentum action.

However, CSSAP does not support SAP CRM linking because the two systems handle SAP RFC system functions and BAPIs differently. Moreover, since DIR attributes are not available in SAP CRM, some of the actions are rendered inapplicable in SAP CRM.