

# Tungsten Invoice Workflow

## SAP Integration Guide

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## ArchiveLink

Tungsten ArchiveLink is a service integrated in the SAP Web Application Server for linking archived documents and the application documents entered in the SAP system. Linking documents according to content guarantees long-term easy access to the documents. From the screen of the application document, the stored document that is associated with it can be directly displayed. The attributes can be used to search for documents. This replaces time-consuming processes, such as making copies of originals, searching for procedure-related information, etc.

ArchiveLink is a third-party solution that allows Content Manager to store SAP-linked content in Tungsten Invoice Workflow. ArchiveLink implements the standard ArchiveLink HTTP interface (v0045) as defined by SAP.

ArchiveLink also provides some useful “extensions” in addition to standard ArchiveLink functionality, such as attribute indexing of content. The ArchiveLink Interface can be broken down into two major components:

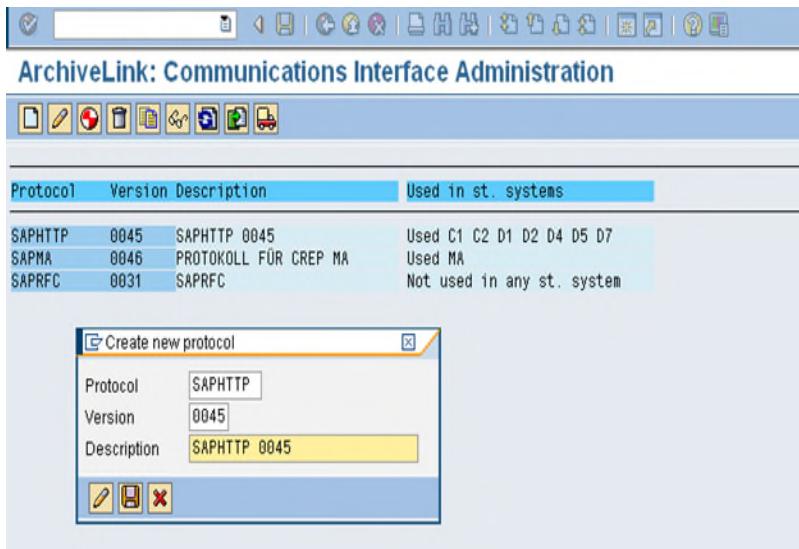
- **ArchiveLink HTTP Interface:** Stores SAP outbound content, content viewer, and other standard ArchiveLink functionality.
- **ArchiveLink Router:** Early and late archiving scenarios (bar-coding), supplemental content links, and spawn SAP workflows from Content Manager.

## Initial ArchiveLink Setup

This section describes the general customizations required to setup ArchiveLink in SAP. These configurations are required for all Archivelink scenarios.

### General Configuration of ArchiveLink in SAP

First, create the archive link HTTP protocol in transaction ‘OAA3’ in SAP as shown below.

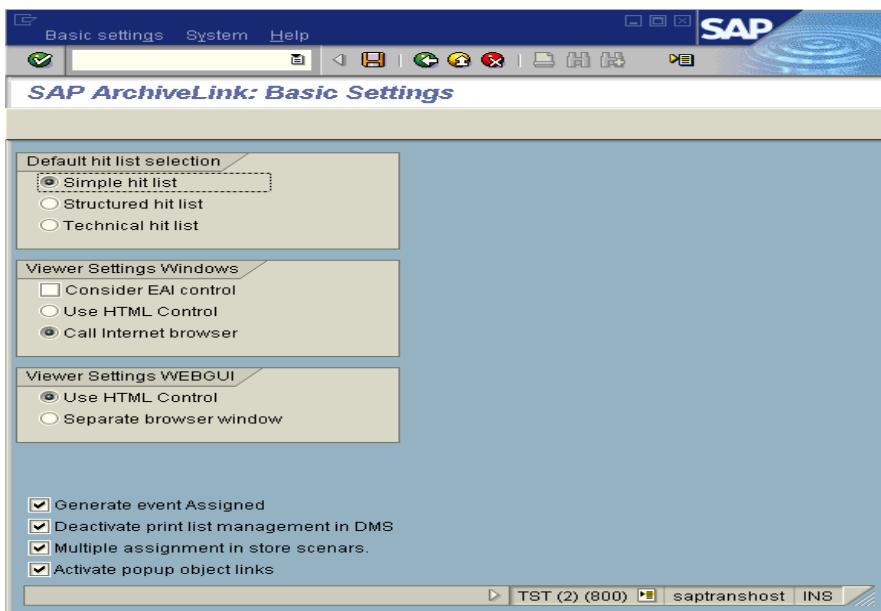


ArchiveLink in SAP

Once the ArchiveLink protocol has been created, generate it '  ' as shown in the figure above.

## Maintain the General ArchiveLink Parameters

Secondly, the general ArchiveLink parameters need to be maintained. For more detailed information, see SAP ArchiveLink documentation. The ArchiveLink Basic Settings - Transaction code OAG4 screen is shown in the figure below.



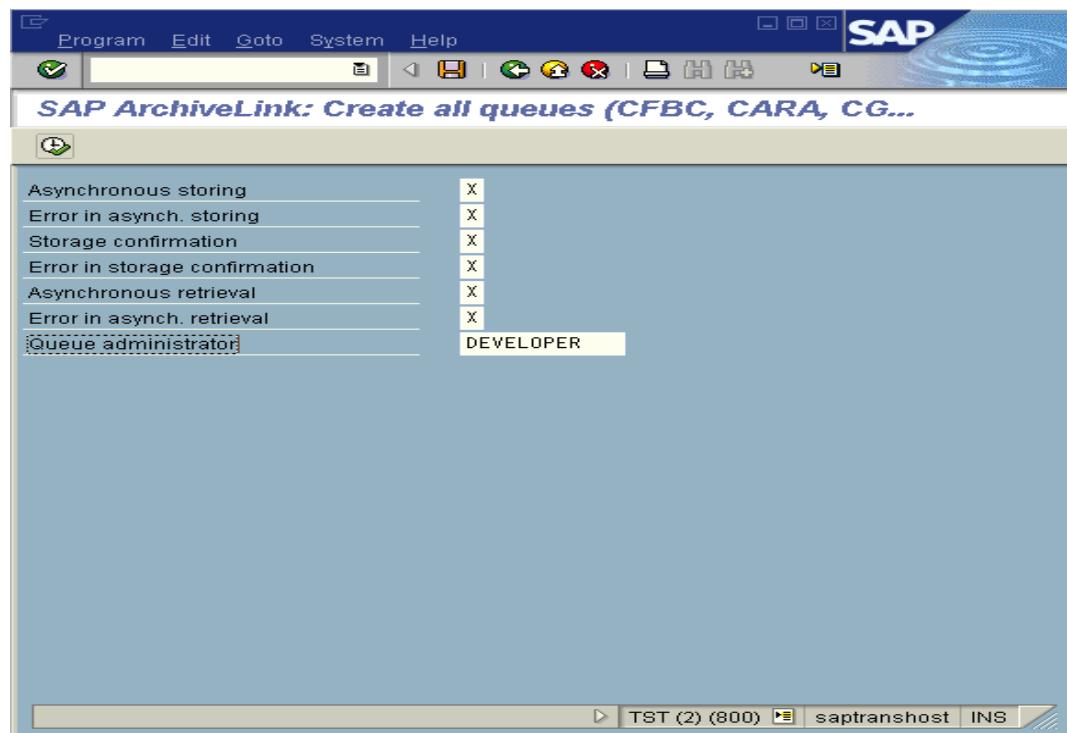
ArchiveLink Basic Settings

Next, maintain Content Repositories using transaction OAC0 as shown below.

Content Repository					
Content Repository	Document ...	Storage type	Ver...	Description	
ASAPCONTENTDB	IVVBASAP	R/3 database	0045	Repository for Roadmap Documents - Database R...	
BDSCONTENT3		R/3 database	0045	Database storage for BDS	
BDS_DB1		R/3 database	0045	Database storage for BDS	
BDS_DB10	BVV	R/3 database	0046	Data Storage of BDS for BW	
BDS_DB11		R/3 database	0045	Data Storage of BDS for BW	
BDS_DB12		R/3 database	0045	Storage for BDS: Excel Templates for Planning	
BDS_DB14		R/3 database	0045		
BDS_DB16		R/3 database	0045	Database storage for BDS	
BDS_DB20		R/3 database	0045	Database storage for BDS	
BDS_DB21		R/3 database	0045	Database storage for BDS	
BDS_DB24		R/3 database	0045	Database storage for BDS	
BDS_DB25		R/3 database	0045	Database storage for BDS	
BDS_DB26		R/3 database	0045	Database storage for BDS	
BDS_DB2_R		R/3 database	0045	Database storage for BDS	
BDS_DB30	IVVBASAP	Logical Repository		Scrap	
BDS_DB31		R/3 database	0045	Storage for BDS: Comments for STS	
BDS_DB6		R/3 database	0045	Database storage for BDS	
BDS_DB7		R/3 database	0045	Database storage for BDS	
BDS_DB8	BVV	R/3 database	0046	Database Storage for BDS	
BDS_DB9		R/3 database	0045	Database Storage for BDS	
BIE_NET		HTTP content ser...	0046	Knowledge Warehouse: Intranet	
BIE_QMM		HTTP content ser...	0046	Knowledge Warehouse: Quality Management Man...	
BTX_DB_01	SRM	R/3 database	0045		
BW_HIER	BW	R/3 database	0046	CONTENT BW_HIER	
BW_MAST	BW	R/3 database	0046	CONTENT BW_MAST	
BW_TMPL	BW	R/3 database	0046	CONTENT BW_TMPL	
C1	ARCHLINK	HTTP content ser...	0045	Commscope Test Content Rep for AP	
C2	ARCHLINK	HTTP content ser...	0045	Commscope Test Content Rep for AR	
CD		HTTP content ser...	0046		
CFF	CFF	R/3 database	0046	Collaborative File System	
CFURL	CFF	R/3 database	0046	CFF: URL Storage	
CUSTCONTDB		R/3 database	0045	Storage of content objects in the database	
CUSTSTRUCT		Structure storage...	0045	Structure storage system	
D1	ARCHLINK	HTTP content ser...	0045	SAP A/P INVOICES	
D2	ARCHLINK	HTTP content ser...	0045	SAP A/P INVOICES	
D3	ARCHLINK	Logical Repository		DocuSphere ArchiveLink 3.1	
D4	ARCHLINK	HTTP content ser...	0045	SAP A/P INVOICES	

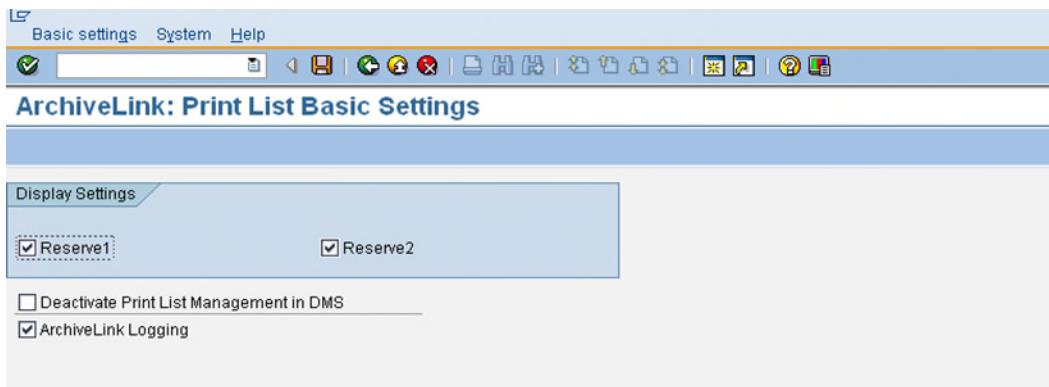
## OAC0 Content Repositories

Then, check the ArchiveLink queue settings using transaction code OAQI.



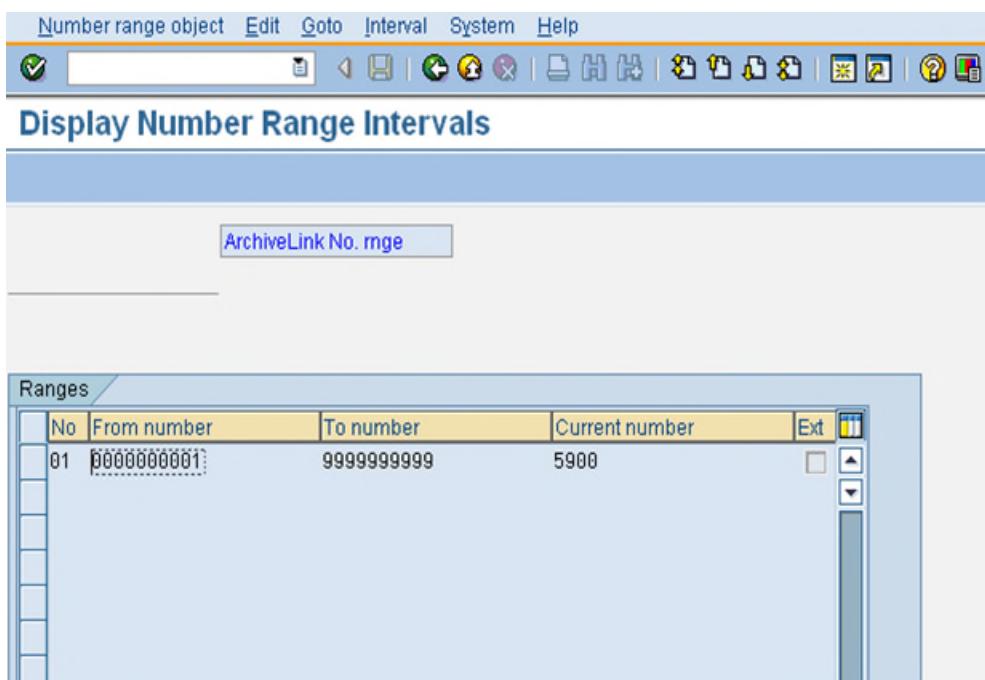
## OAQI ArchiveLink Queue Settings

Activate or deactivate the DMS option for Print List using transaction code OAG2.



#### Activate/Deactivate DMS Option

Maintain Number Ranges for Print List using transaction code OANR.

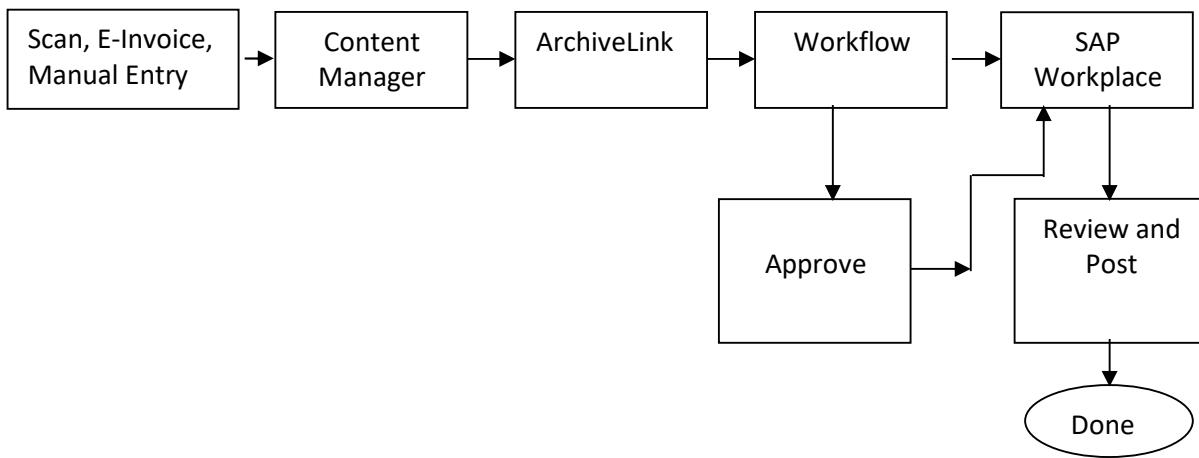


#### Maintain Number Ranges for Print List

## ArchiveLink Scenarios

### Early Archiving with Integration of Workflow

This scenario (as shown in the flow diagram below) represents the complete integration between Workflow and SAP. When the invoice is scanned (or captured through e-invoicing), a work item is created in Content Manager. The captured data are mapped to Workflow and the work item goes through the workflow for the approval of the invoice expense. Once the invoice is approved in Workflow, a work item is generated in SAP to post the document. Once the document is posted, the process is completed.



This is just an example of the integration between an SAP workflow and Tungsten Invoice Workflow workflow. This integration can be customized to any level based on requirements of the customer.

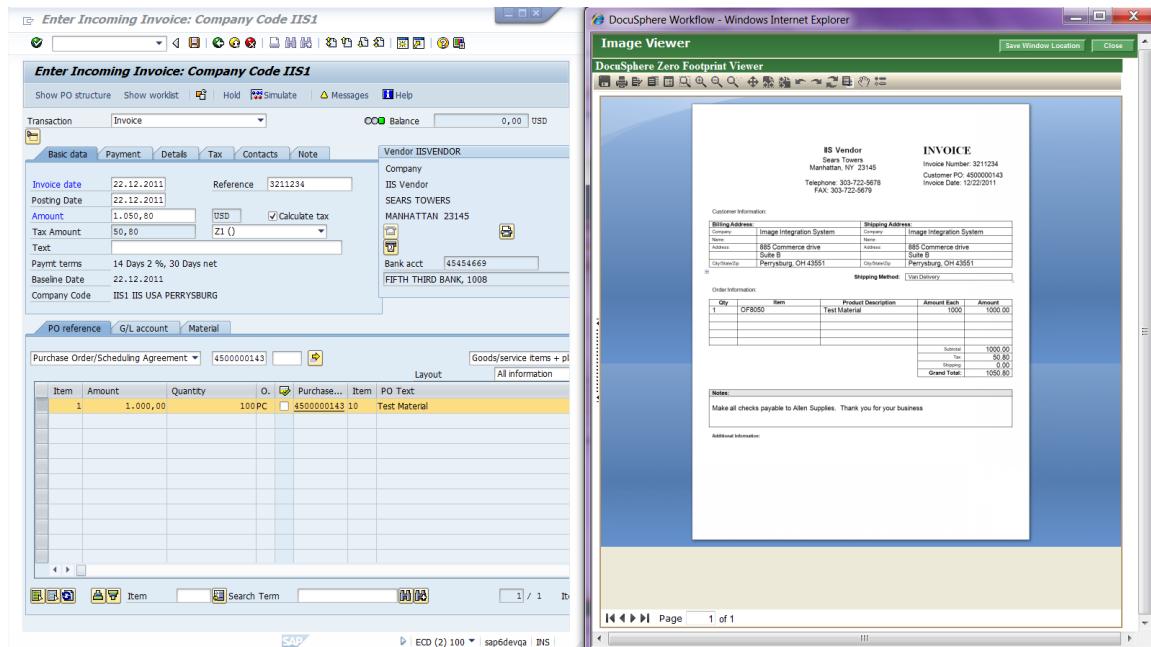
Described below is the same example with screenshots.

- Scan the document into Content Manager.
- It will also create a work item in SAP for invoice posting.

The screenshot shows the SAP Business Workplace interface. The title bar reads 'Business Workplace of IIS user'. The main area is a 'Workflow' list with the number '91' displayed. The list table has columns for 'Type', 'Title', 'Last modified', 'Created on', 'Status', and 'Actions'. The first item in the list, 'Create Invoice without verification', is highlighted with a yellow background, matching the color of the 'Workflow' box in the flowchart. The left sidebar shows a navigation tree with 'Inbox' selected, containing sub-folders like 'Unread Documents', 'Documents', 'Overdue entries', 'Deadline messages', and 'Incorrect entries'. Other sections like 'Outbox', 'Resubmission', 'Private folders', 'Shared folders', 'Folders subscribed to', 'Trash', and 'Shared trash' are also visible.

#### SAP Work Item

- Open the work item in SAP and post the document as shown below.



### Post the Document

The following SAP Configuration is required for the above scenario:

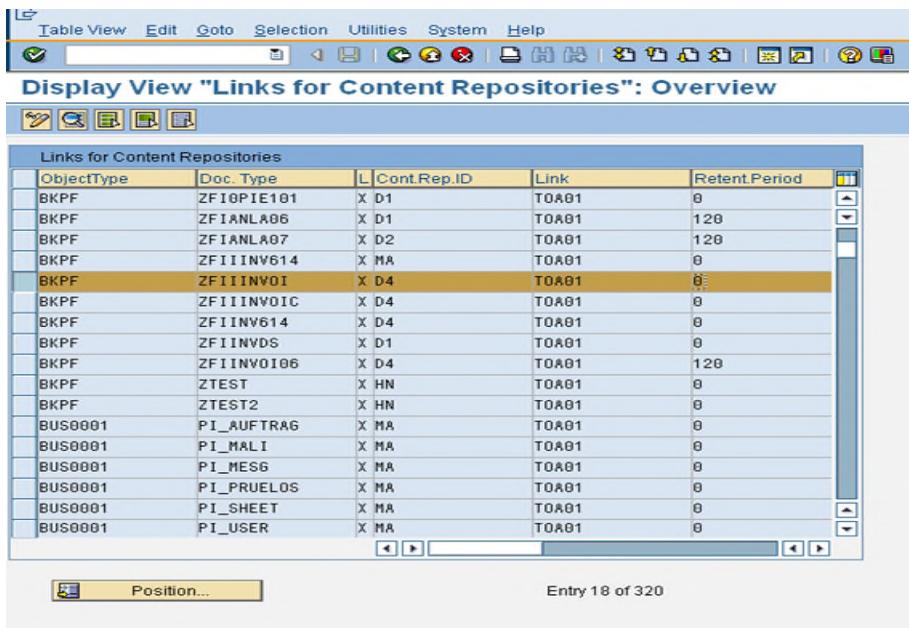
- Maintain the document type in transaction OAC2.

The SAP transaction OAC2 'Global document types' overview screen shows the following data:

Document type	Description	Document Class
ZFIANLA07	Attachments for incoming invoice 07	TIF
ZFIIINV614		JPG
ZFIIINVOI	Incoming invoice w/o verification	TIF
ZFIIINVOIC	Incoming invoice w/o verification	FAX
ZFIINV614	Incoming Test Invoice for Bar Code	FAX
ZFIINVAPPR	Approval Document	FAX
ZFIINVDS	Incoming Invoice (DSWF)	TIF

### OAC2 Document type

- Maintain the linkage in object type, document type, content repository, link table, etc., in transaction OAC3.:



Display View "Links for Content Repositories": Overview

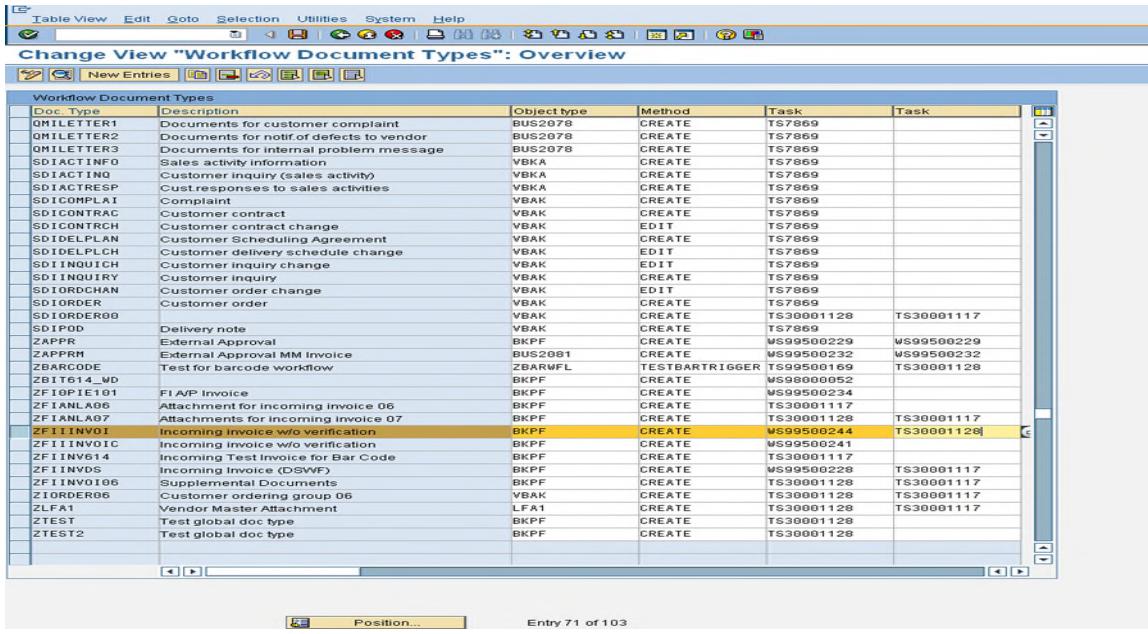
Links for Content Repositories

ObjectType	Doc_Type	L	Cont.Rep.ID	Link	Retent.Period
BKPF	ZFI0PIE101	X	D1	TOA01	0
BKPF	ZFIANLA06	X	D1	TOA01	120
BKPF	ZFIANLA07	X	D2	TOA01	120
BKPF	ZFIINV614	X	MA	TOA01	0
<b>BKPF</b>	<b>ZFIINVOI</b>	<b>X</b>	<b>D4</b>	<b>TOA01</b>	<b>0</b>
BKPF	ZFIINVOIC	X	D4	TOA01	0
BKPF	ZFIINV614	X	D4	TOA01	0
BKPF	ZFIINVDS	X	D1	TOA01	0
BKPF	ZFIINV0106	X	D4	TOA01	120
BKPF	ZTEST	X	HN	TOA01	0
BKPF	ZTEST2	X	HN	TOA01	0
BUS0001	PI_AUFTRAG	X	MA	TOA01	0
BUS0001	PI_MALI	X	MA	TOA01	0
BUS0001	PI_MESS	X	MA	TOA01	0
BUS0001	PI_PRUELOS	X	MA	TOA01	0
BUS0001	PI_SHEET	X	MA	TOA01	0
BUS0001	PI_USER	X	MA	TOA01	0

Position... Entry 18 of 320

### OAC3 Maintain Linkage

c. Maintain the workflow parameters for early archiving in transaction SOA0.



Change View "Workflow Document Types": Overview

Workflow Document Types

Doc_Type	Description	Object type	Method	Task	Task
QMILETTER1	Documents for customer complaint	BUS2078	CREATE	TS7869	
QMILETTER2	Documents for return of defects to vendor	BUS2078	CREATE	TS7869	
QMILETTER3	Documents for internal problem message	BUS2078	CREATE	TS7869	
SDIACTINFO	Sales activity information	VBAK	CREATE	TS7869	
SDIACTINFO	Customer inquiry (sales activity)	VBAK	CREATE	TS7869	
SDIACTRESP	Cust responses to sales activities	VBAK	CREATE	TS7869	
SDICOMPLAIS	Complaint	VBAK	CREATE	TS7869	
SDICONTRAC	Customer contract	VBAK	CREATE	TS7869	
SDICONTRCH	Customer contract change	VBAK	EDIT	TS7869	
SDIDELPLAN	Customer Scheduling Agreement	VBAK	CREATE	TS7869	
SDIDELPLCH	Customer delivery schedule change	VBAK	EDIT	TS7869	
SDIINQUICH	Customer inquiry change	VBAK	EDIT	TS7869	
SDINQUIRY	Customer inquiry	VBAK	CREATE	TS7869	
SDIORCHAN	Customer order change	VBAK	CREATE	TS7869	
SDIORDER	Customer order	VBAK	CREATE	TS30001128	TS30001117
SDIORDER00		VBAK	CREATE	TS30001128	TS30001117
SDIPOD	Delivery note	VBAK	CREATE	TS7869	
ZAPPR	External Approval	BKPF	CREATE	WS99500229	WS99500229
ZAPPRM	External Approval MM Invoice	BUS2081	CREATE	WS99500232	WS99500232
ZBARCODE	Test for barcode workflow	ZBARWFL	TESTBARTRIGGER	TS99500169	TS30001128
ZBIT614_WD		BKPF	CREATE	WS98000052	
ZFI0PIE101	FI A/P Invoice	BKPF	CREATE	WS99500234	
ZFIANLA06	Attachment for incoming invoice 06	BKPF	CREATE	TS30001117	
ZFIANLA07	Attachments for incoming invoice 07	BKPF	CREATE	TS30001128	TS30001117
<b>ZFIINVOI</b>	<b>Incoming invoice w/o verification</b>	<b>BKPF</b>	<b>CREATE</b>	<b>WS99500244</b>	<b>TS30001128</b>
ZFIINVOIC	Incoming invoice w/o verification	BKPF	CREATE	WS99500241	
ZFIINV614	Incoming Test Invoice for Bar Code	BKPF	CREATE	TS30001117	
ZFIINVDS	Incoming Invoice (DSWF)	BKPF	CREATE	WS99500228	TS30001117
ZFIINV0106	Supplemental Documents	BKPF	CREATE	TS30001128	TS30001117
ZIORDER06	Customer ordering group 06	VBAK	CREATE	TS30001128	TS30001117
ZLFA1	Vendor Master Attachment	LFA1	CREATE	TS30001128	TS30001117
ZTEST	Test global doc type	BKPF	CREATE	TS30001128	
ZTEST2	Test global doc type	BKPF	CREATE	TS30001128	

Position... Entry 71 of 103

### Workflow Parameters for Early Archiving

In this example, the task 'TS30001128' is for early archiving and the workflow 'WS99500244', is the workflow that gets triggered.

d. Workflow pre-settings using transaction code OAWS as shown below.

Table View Edit Goto Selection Utilities System Help

Change View "Entries": Overview

Dialog Structure Default setting E004 Financial Accounting

Entries

Doc_type	Ob	Agent ID	Stor...	Stor...	Store ...	Store ...
FIICREDIT	S	50010048	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FIIINVOICE	S	50010048	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FIIINVOICE	US	IISSAP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
FIIINVPREL	US	WF-FI-C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FIIPAYMEN2	S	50010048	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FIIPAYMENT	S	50010048	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ZFIIINVOI	US	BIT601-06	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ZFIIINVOI	US	IISSAP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ZFIIINVOIC	US	IISSAP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ZFIIINVOI06	US	IISSAP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

#### OAWS Workflow Pre-settings

e. Maintain workflow parameters: Initial values of the workflow container elements can be defined here using transaction code OACA.

Table view Edit Goto Selection criteria Utilities System Help

Change View "Parameter Definition Workflow": Overview

Entries

Doc_type	Parameter	Contents
SDICOMPLAI	SALESDOCUMENTTYPE	G2
SDICOMPLAI	TRANSACTIONCODE	VA01
SDICONTRAC	SALESDOCUMENTTYPE	KM
SDICONTRAC	TRANSACTIONCODE	VA41
SDIDELPLAN	SALESDOCUMENTTYPE	LP
SDIDELPLAN	TRANSACTIONCODE	VA31
SDIDELPLCH	TRANSACTIONCODE	VA32
SDIINQUICH	TRANSACTIONCODE	VA12
SDIINQUIRY	SALESDOCUMENTTYPE	AF
SDIINQUIRY	TRANSACTIONCODE	VA11
SDIORDCHAN	TRANSACTIONCODE	VA02
SDIORDER	SALESDOCUMENTTYPE	TA
SDIORDER	TRANSACTIONCODE	VA01
ZAPPR	TRANSACTIONCODE	FBV2
ZFIOPIE101	TRANSACTIONCODE	FB60
ZFIINV01	TRANSACTIONCODE	F-63
ZFIINVDS	TRANSACTIONCODE	FV60

#### OACA Workflow parameters

### Early Archiving with Barcode

In this scenario, the paper document is scanned, first entering the barcode number, and the application is created in SAP with the barcode details later. If the paper barcode number matches the SAP barcode number, then the document gets attached to the desired SAP transaction.

The process is explained below with screenshots:

a. Scan (or manually insert) the document into Content Manager and enter the barcode number.

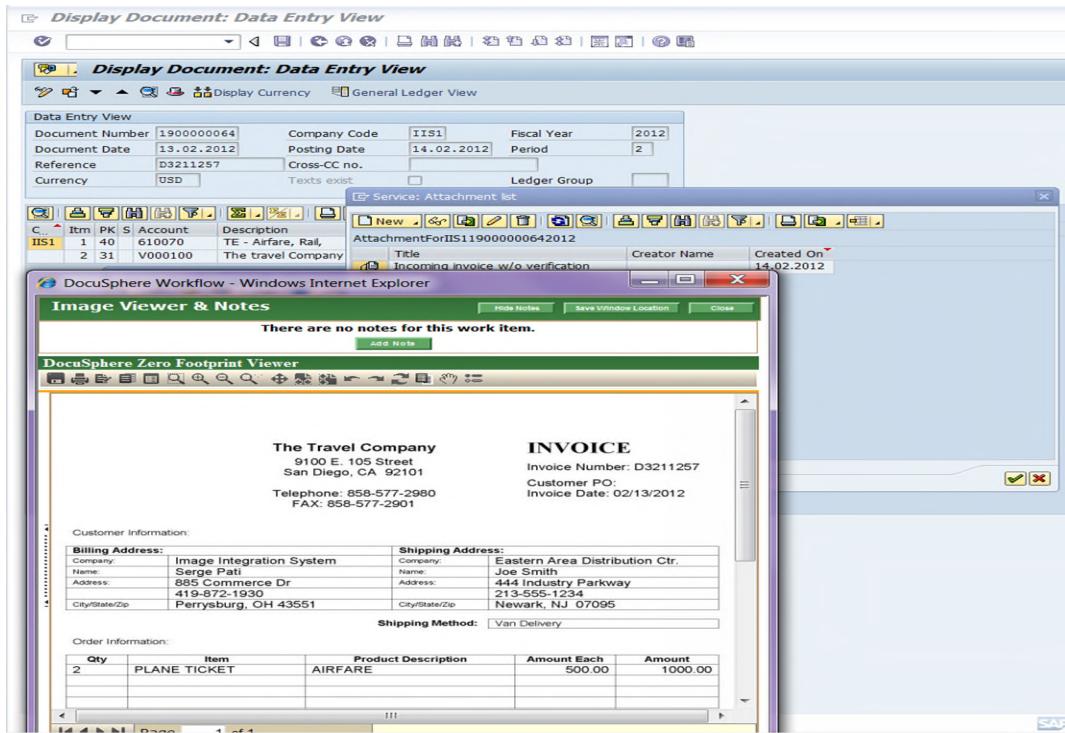
**Note:** The SAP Process Flag will need to be a "B" upon release to Content Manager.  
The ArchiveLink Router will create the preliminary link (pending link).

b. Enter the same barcode number while entering the transaction. Here this barcode can be automatically populated by a barcode wand USB instrument.

S..	G/L acct	Short Text	D/C	Amount in doc.curr.	Loc.curr.amount	T	Tax Jurisdictn c...	Assignment r...
	610070		Debit	1000	0,00	10	CA00000000	
			Debit		0,00			
			Debit		0,00			
			Debit		0,00			
			Debit		0,00			
			Debit		0,00			
			Debit		0,00			
			Debit		0,00			
			Debit		0,00			
			Debit		0,00			

#### Enter Barcode

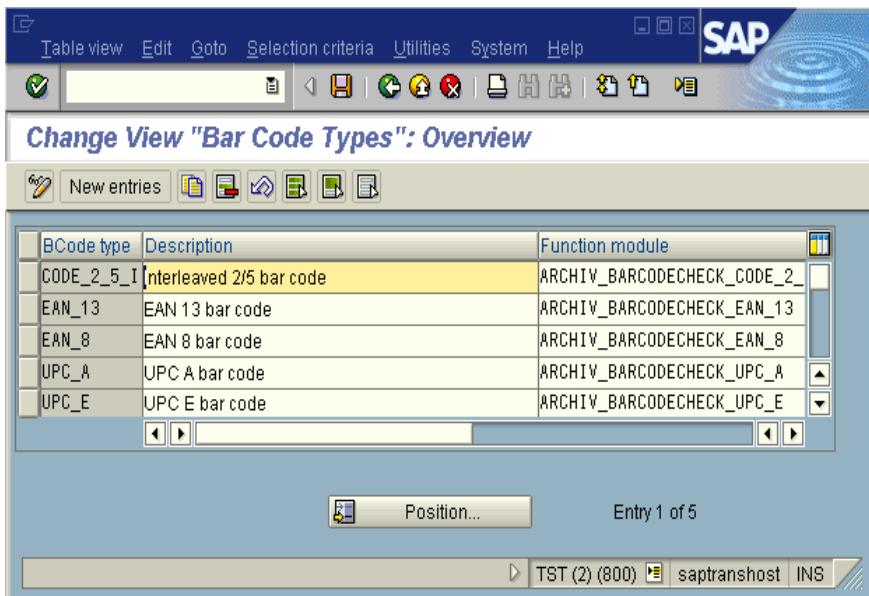
The document can be viewed from the SAP transaction as shown below.



#### View Document from SAP Transaction

The steps required for configuration for Archiving with barcode are shown below:

- Maintain barcode types using transaction code OAD4.



#### OAD4 Maintain Barcode Types

- Define the linkage between business object, document type, barcode type and other details in the transaction OAC5.

Display View "Settings for Bar Code Entry": Details

Object Type: BKPF  
Document type: ZFIINV614  
User:

Settings for Bar Code Entry

BCode type: EAN\_13

Bar code active  
 Check is active  
 No cancel  
 Multiple entry  
 Hold R/3 entry  
 Hold externally  
 Popup in Workflow  
 Doc. Type Not Modifiable

#### Define Linkage OACS

C. Configure the barcode popup based on Company Code, SAP Document Type (RE, KR) and Archive Document Type (ZFIINV614, ZMMINVOICE) using transaction OBD5.

Change View "Object Types for Early Entry in Financial Acctng": Overview

New Entries

Co...	Type	Doc. type
1000	KR	ZFIINV614
2700	KA	FIIINVOIO
5400	KA	FIIINVOIO
5401	KA	FIIINVOIO
6001	KA	FIIINVOIO
6002	KA	FIIINVOIO
6003	KA	FIIINVOIO
9000	KA	FIIINVOIO
AA00	KA	FIIINVOIO
AA01	KA	FIIINVOIO
AA02	KA	FIIINVOIO
AA03	KA	FIIINVOIO
AA04	KA	FIIINVOIO
AA05	KA	FIIINVOIO
AA06	KA	FIIINVOIO
AA07	KA	FIIINVOIO
AA08	KA	FIIINVOIO

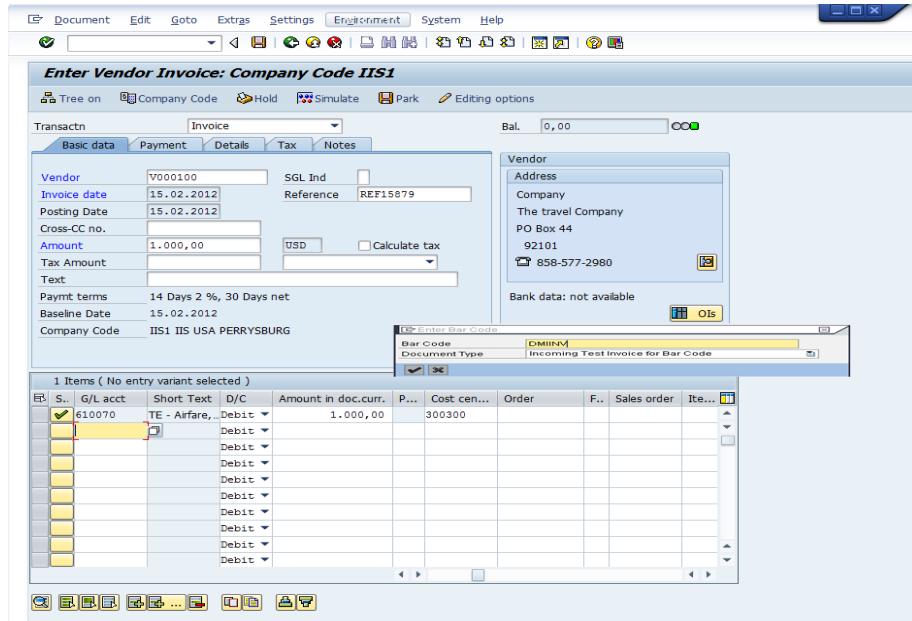
Position... Entry 1 of 78

#### Archive Document Type OBD5

#### Late Archiving with Barcode

In this scenario, the application is first created in SAP with barcode details and later the paper document is scanned. If the barcode number entered in SAP transaction matches with the barcode number of the paper entered at scan or insertion time, then the document is linked with the transaction.

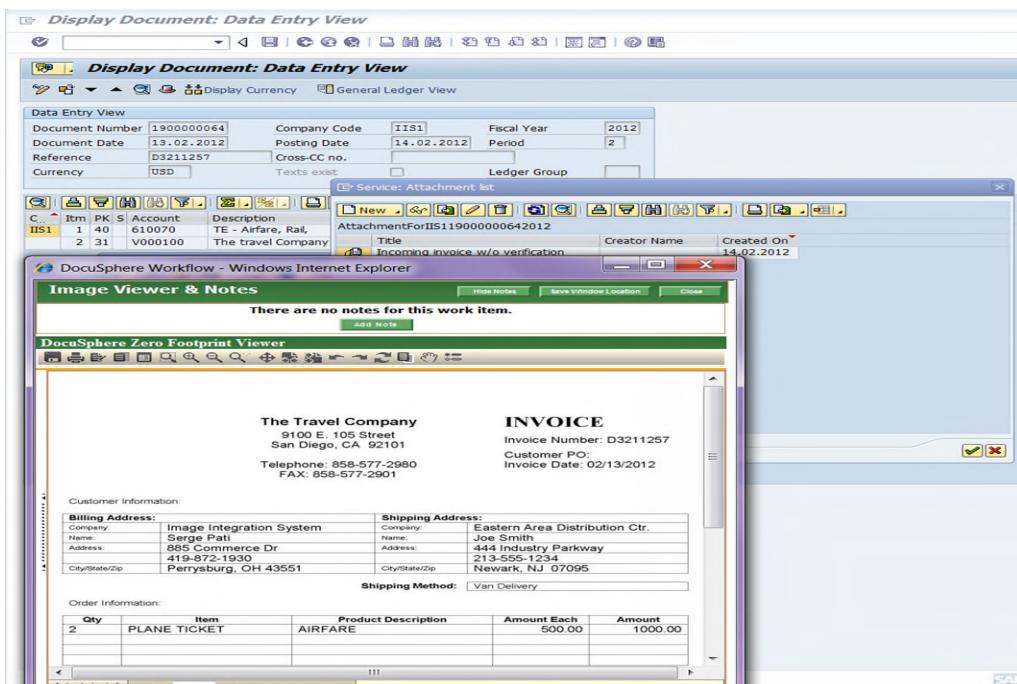
The barcode number displayed here can be filled from a barcode wand USB instrument, as shown in the figure below.



#### Display Barcode Number

After the transaction is created in SAP, the document and barcode coversheet can be sent to the scan station. Upon scan and release to Workflow, the link will be made by the ArchiveLink Router. **Note: The SAP Process Flag will need to be a "B."**

After the link is made, the document can then be displayed by SAP, as shown in the figure below.

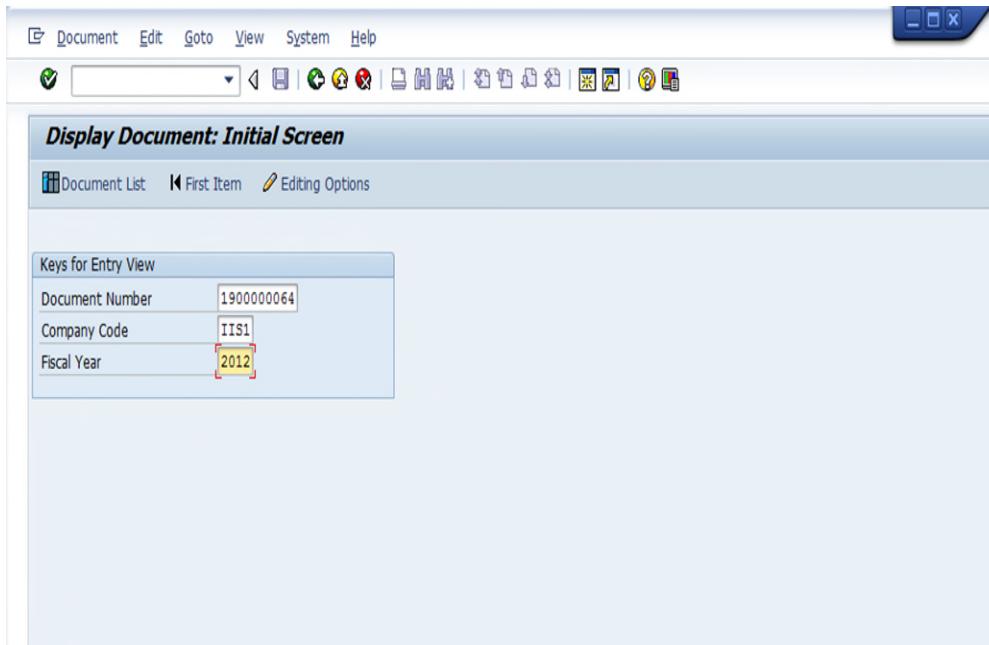


#### Display Document in SAP Application

## Manual Storing

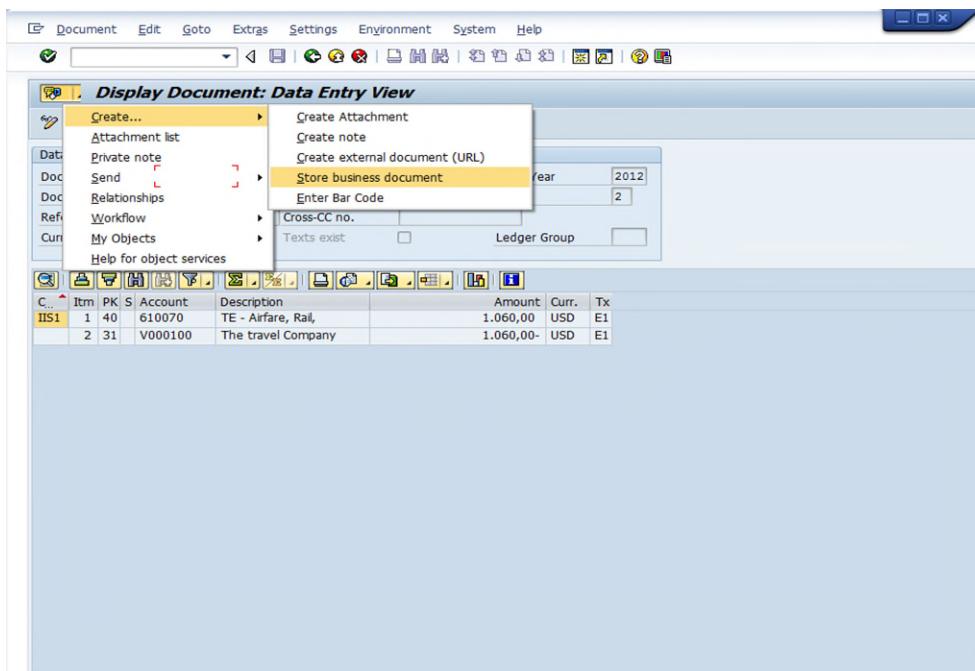
In manual storing, you can attach documents to a posted document directly from an SAP application on a local desktop (local drive).

Go to transaction FB03 or FB02 and enter the required invoice number as shown in the figure below.



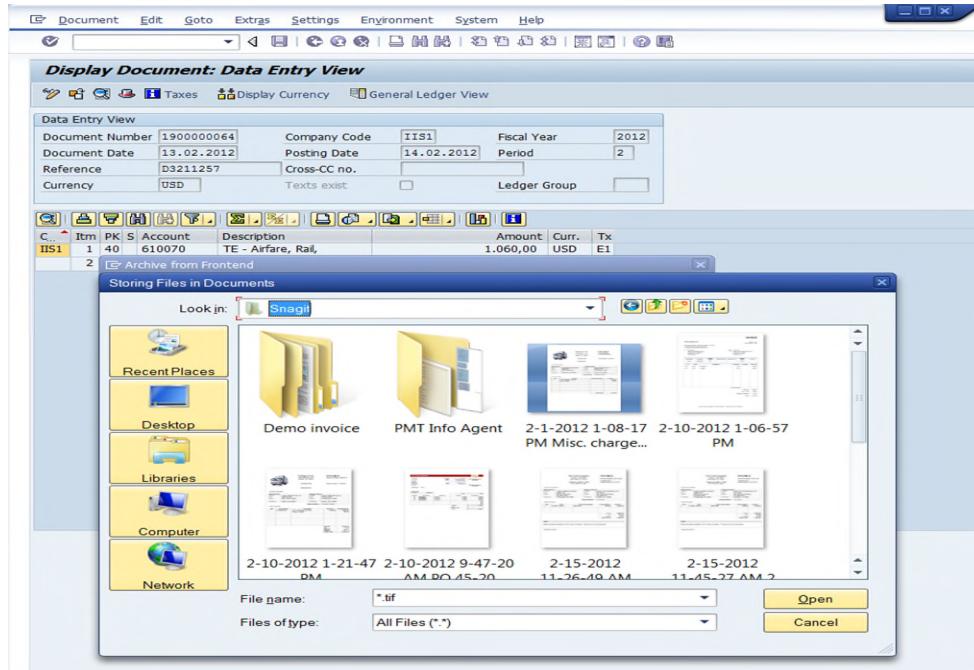
### FOB02 Enter Invoice Number

To attach a document from desktop, follow the path shown by the screen shots below.



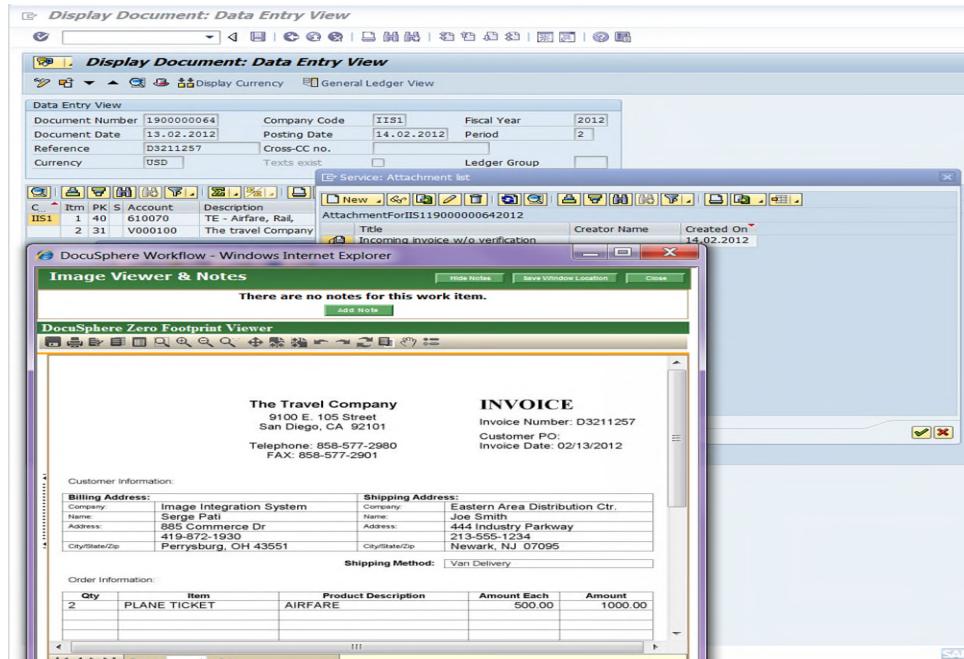
### Attach Documents from Desktop

Attach the required document from desktop or from local hard drive.



#### Attach Documents from Desktop or Local Hard Drive

Now the document is linked to the transaction.



Documents are now linked

Summary of the configuration required for manual storing:

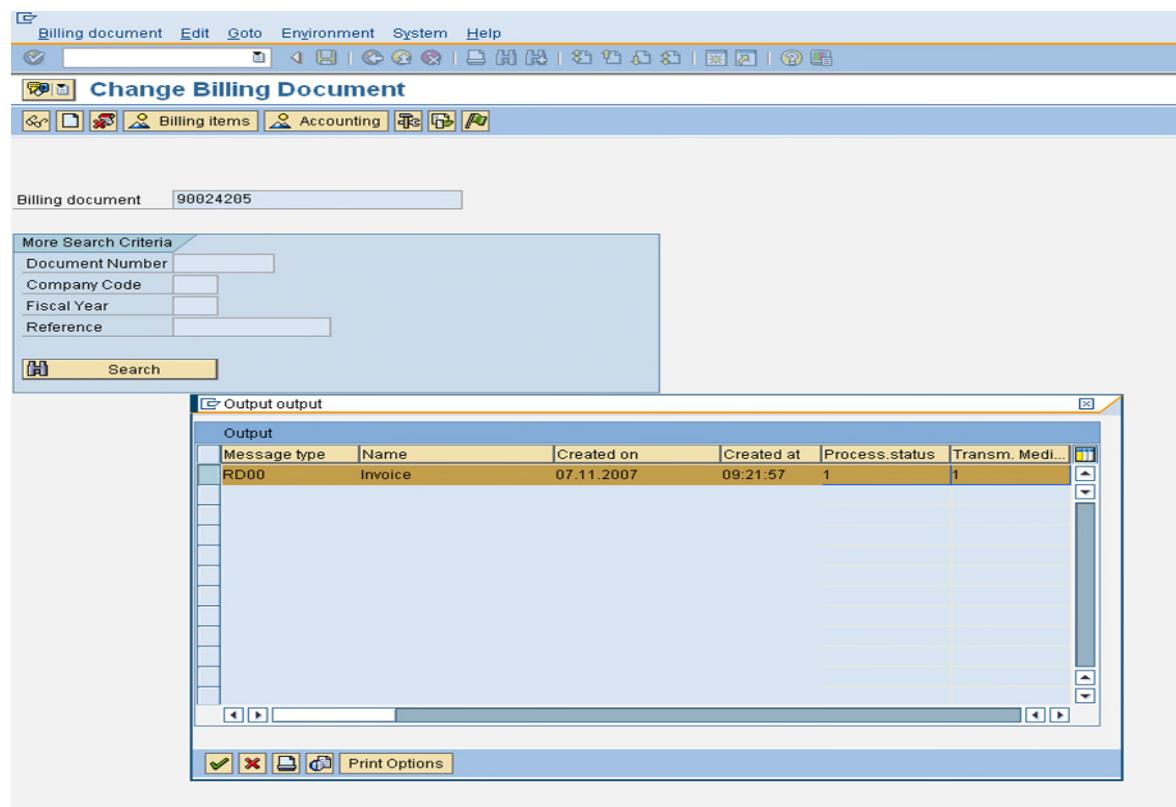
- Maintain the document type in OAC2.

- b. Maintain the linkage between document type, business object, content repository, etc., in transaction OAC3.
- c. Maintain the workflow document type customizing as mentioned earlier. Refer to the section [Early Archiving with Integration of Workflow](#).

## Storing Outgoing Documents

Outgoing documents are all documents that have been created in a SAP system using SAP script or SAP Smart Forms. For example, these include correspondence, invoices, order confirmations, etc. This process is useful to store outgoing documents in a storage system and link them to the appropriate application documents.

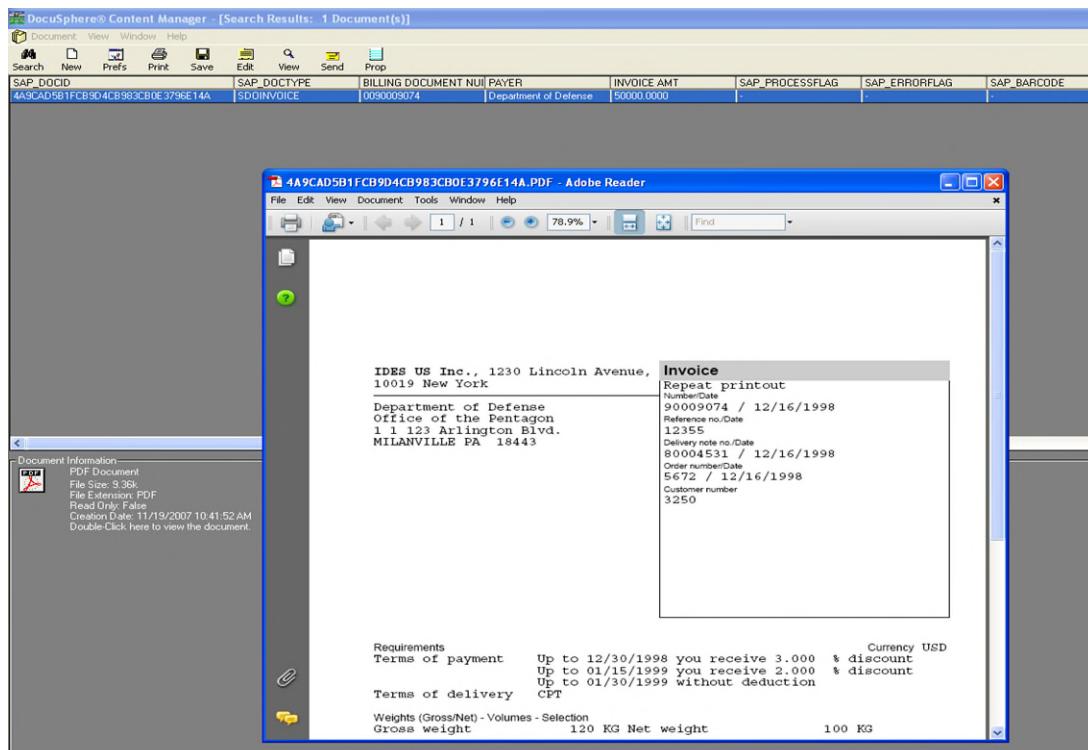
Here is an example for a billing document.



### Outgoing Billing Documents

Select the required output type and click on the Print button on the screen as shown in the figure below. This will store the PDF generated from the billing document to Content Manager with the indexing details.

**Note:** Here the output type should be configured with SAP script program or Smart Form details. The storage system of the output type should be 'Print and archive' or 'Archive only'. The 'Document type' should be configured for archiving with content repository details.



### PDF stored in Content Manager

Summary of the configuration required:

- Create the Document Type in transaction code OAC2.
- Create the Object Type and Document Type linkage in transaction code OAC3.
- Mention the Document Type in the Output Type that is going to be used.
- Create the Device Type 'ARCH'.

### Storing Print Lists

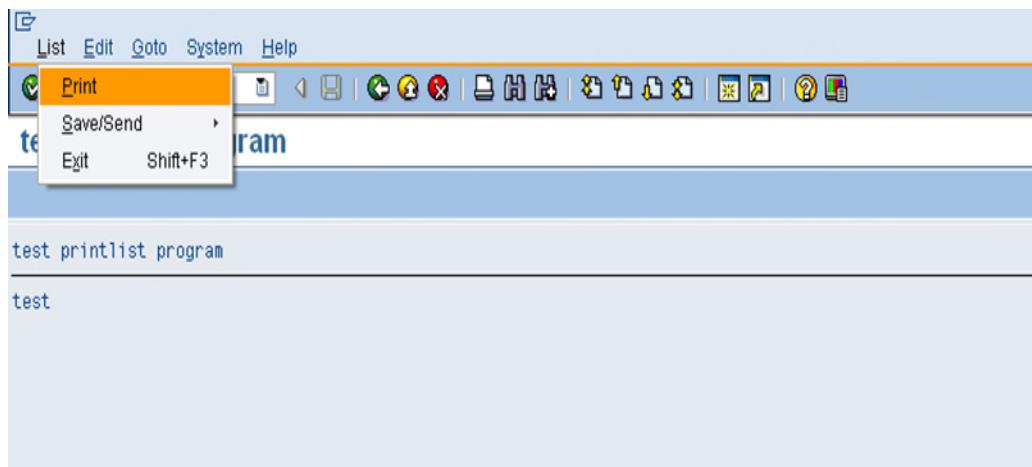
Print lists are the result of report runs in the SAP System. For example, cumulative audit trails, batch where-used lists, object service specifications, balance sheet valuations, and cost center reports are examples of Print Lists.

Storing print lists has the following advantages:

- More compact storage compared to voluminous paper output.
- Simultaneous access from different workplaces.
- Index or free text search to target specific information.

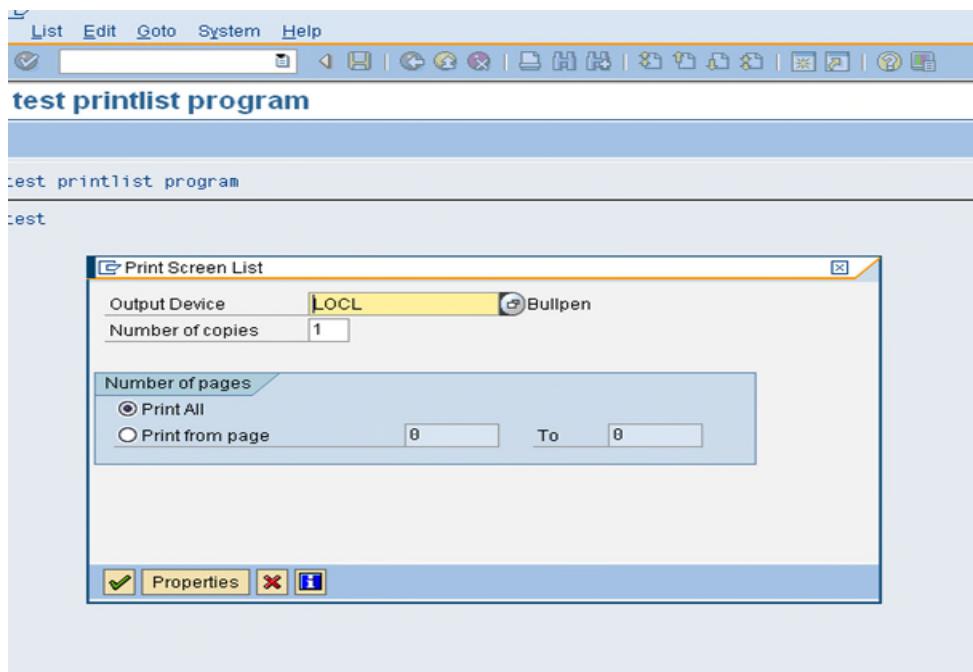
Procedure for storing print lists:

- In the report output, print the output to the spool request as shown in the figure below.



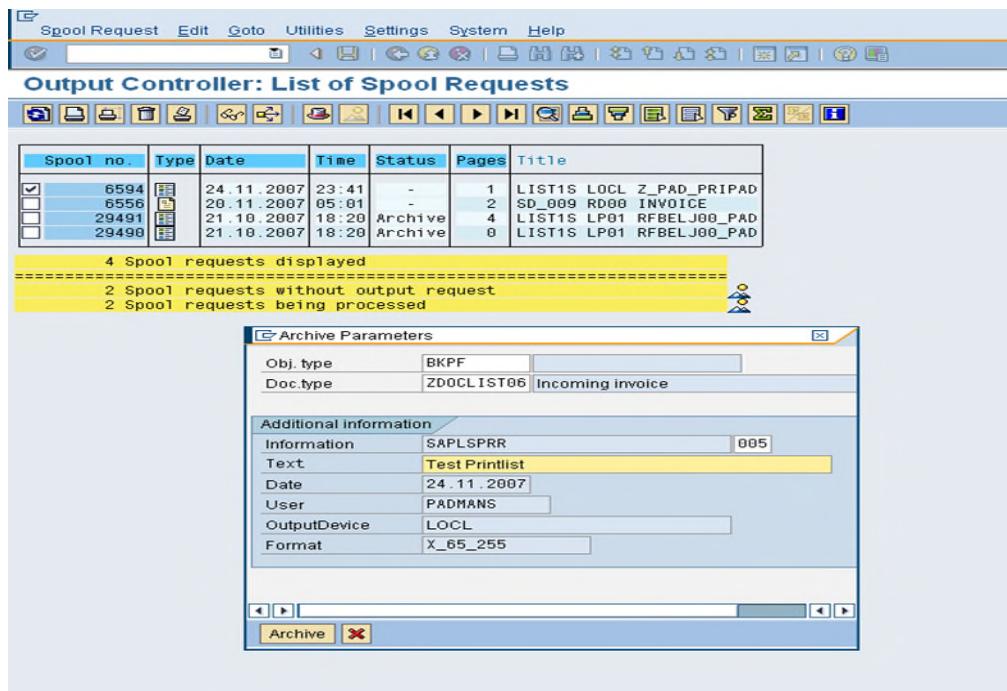
### Print Output

Once the Print Output screen comes up, you then are presented with the screen below, which allows you to print to a local device.



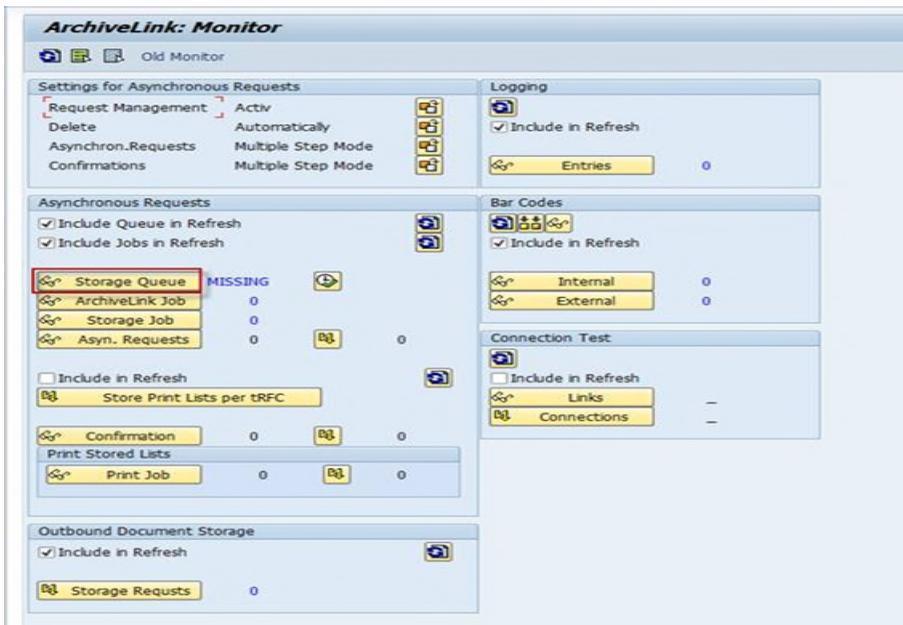
### Print to Local Device

b. For the above scenario to occur, you must first select the particular spool from the spool request and click on the 'Print with the change parameters' button (  ) and mention the archiving parameters (  ) as shown below.



#### Print from Archive

c. Go to the ArchiveLink monitoring screen (below) using transaction code OAM1 and click on the Storage Queue button (  ). Select the required printlist from the queue, see the details and execute (  ). When finished executing from the Storage Queue, click on Storage Requests (  ) to confirm the sending of the printlist to Content Manager.



#### ArchiveLink Monitoring Screen

d. Select the request from the Request Queue and confirm (  ) as shown in the figure below.

Request Edit Goto System Help

Asynchronous Storage Requests

Request Type Request to Store a Print List  
 Request Number 5C01C07833FB4D488E52C94B47880ABE  
 Request Date 25.11.2007  
 Request Time 00:55:29  
 Spool Request Number 0000006594\_00001  
 Object Type BKPF  
 Document Type ZDOCLIST06  
 Content Repository D4  
 Document Category ALF  
 Request Client 800  
 Report SAPLSPRR  
 Information 005  
 Text Test Printlist  
 Date 24.11.2007  
 Request User PADMANS  
 Printer LOCL  
 Form X\_65\_255  
 File Name Spool c:\temp\000000659400001.TST  
 File Accessible

Order History  
 25.11.2007 00:55:29 Request Created

Confirmation No Confirmation Found

#### Archive Request Confirm

e. The data file and the description file is now stored in Content Manager as shown below.

DocuSphere® Content Manager - [Search Results: 2 Document(s)]

Document View Window Help

Search New Prefs Print Save Edit View Send Prop

SAP_DOCID	SAP_COMPID	SAP_COMPDATETIMEC	SAP_COMPDATETIMEM	SAP_CONTENTTYPE
029D16A10968FE4780B707FBC929E4B9	data	2007-11-25 00:07:42	2007-11-25 00:07:42	.
029D16A10968FE4780B707FBC929E4B9	descr	2007-11-25 00:07:42	2007-11-25 00:07:42	.

#### Listed in Content Manager

### Storing Supplemental Documents

For storing supplemental documents, the required parameter like Object Key, Document Type, etc., the supplemental document must be entered in the ascent and the image will be linked to the SAP transaction by calling the RFC 'ARCHIV\_CONNECTION\_INSERT.'

### ArchiveLink Router Configuration

The ArchiveLink configuration application can be launched from the Tungsten ArchiveLink Program Group.

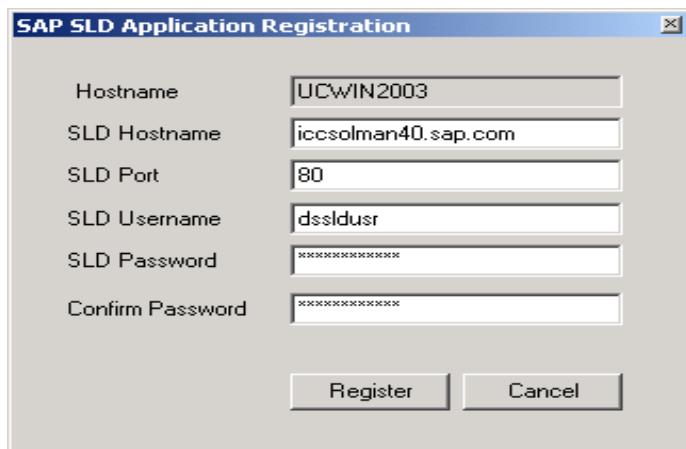
## ArchiveLink Configuration

This section explains how to install and configure the Tungsten ArchiveLink software.

**Note:** The ArchiveLink configuration application is titled "Tungsten Network ArchiveLink Configuration," but in reality the configuration application configures both HTTP and Router interfaces.

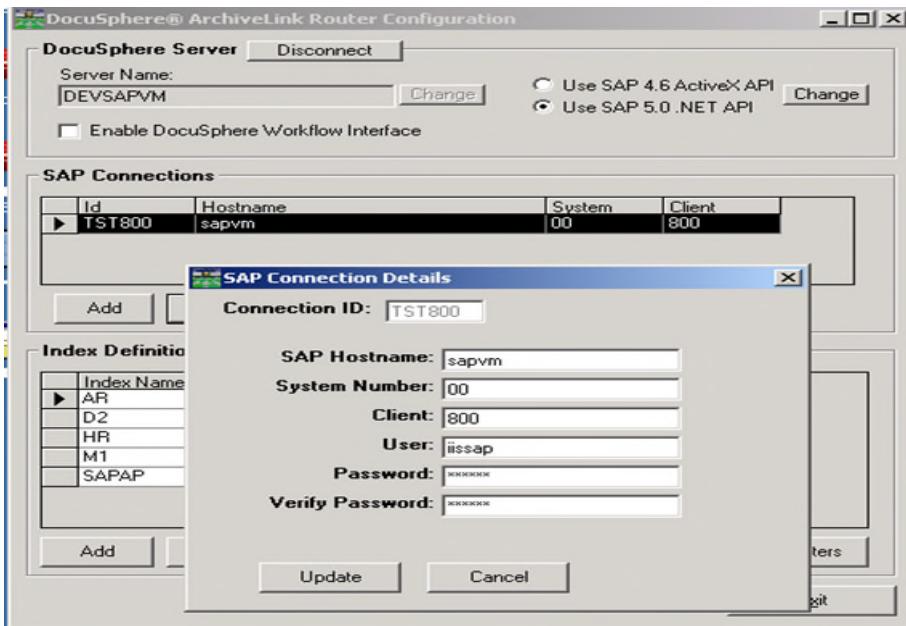
To accomplish this:

- a. Run setup.exe to install ArchiveLink onto the Workflow server.
- b. Start the ArchiveLink Configuration application. When the application starts for the first time it will launch the SLD (System Landscape Directory) registration form as shown below. SLD registration is part of the SAP support infrastructure that they ask all certified vendors and their products to adhere to. The ArchiveLink application will register itself into this infrastructure upon completing the configuration on this form for SAP implementations ECC 6.0 or higher. This registration and procedure will allow SAP support to see what components (both SAP and third-party certified components) that are installed at your site, as well as access to the Workflow log and configuration files. If SAP support is called for an ArchiveLink issue, they will have all the information they need about Workflow and our certified solution. If you don't have the necessary information to complete the SLD registration at this time, it can be cancelled and performed later by using the SLD registration button on the main configuration page.



**SLD Registration**

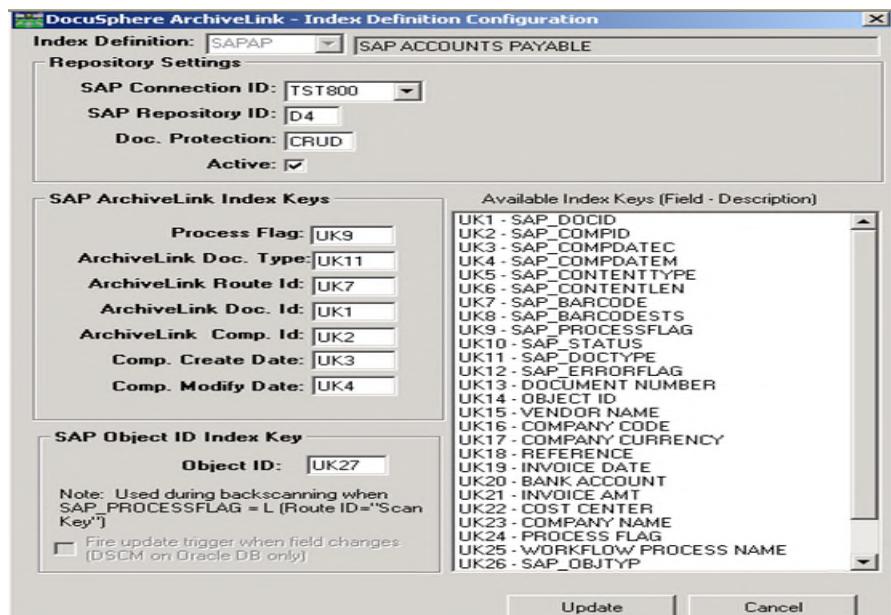
- c. Using the ArchiveLink Router Configuration application, define the SAP servers and their logon details (server name, client, system number, etc.) as shown below.



#### ArchiveLink Router Configuration

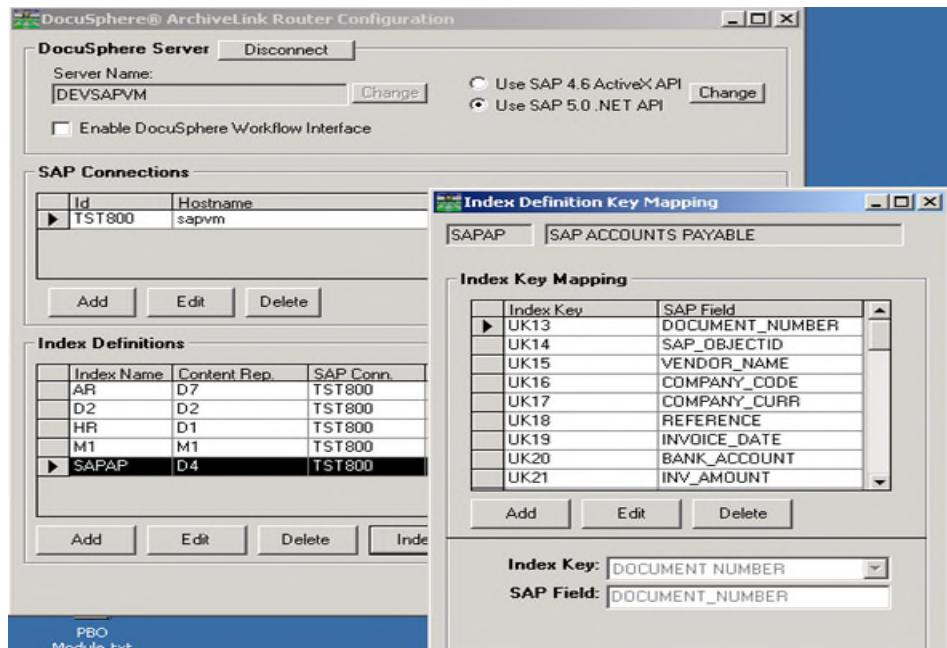
- d. Configure the index definition that is required to setup in ArchiveLink as shown in the figure below.
- e. Define the Connection ID that is created above.
- f. Define the content repository that is going to be used.
- g. Define the 'Doc. Protection' as always 'CRUD' i.e. Create, Read, Update and Delete.
- h. Define the 'SAP ArchiveLink Index Keys' like 'SAP Process flag', 'ArchiveLink Doc ID'.
- i. Also map the 'SAP Object ID Index Key'.

**IMPORTANT:** Please reference the ***Workflow Administration Guide*** for information on creating Content Manager index definitions and their defined index keys (i.e., metadata). Index definitions should be created to specification before running the ArchiveLink Configuration program. If index keys move around after creation, this can cause issues with the ArchiveLink field mappings.



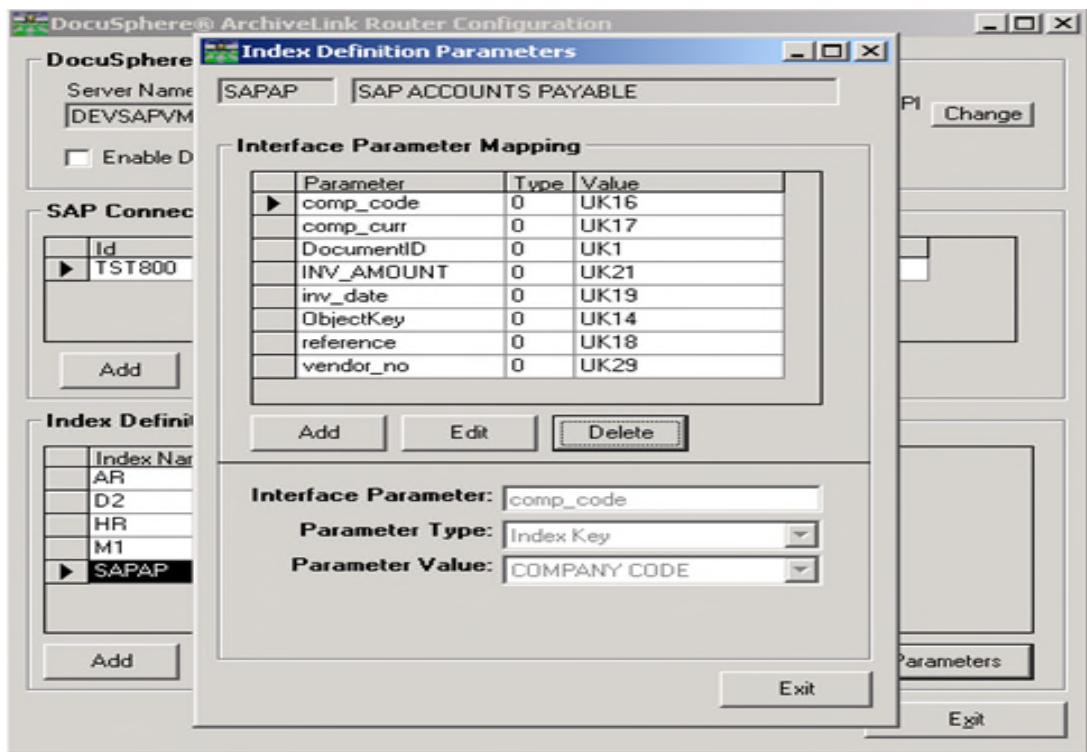
### ArchiveLink Mapping

j. Configure the ArchiveLink HTTP interface for updating Content Manager indices with SAP metadata. To update Content Manager with SAP metadata, select the index definition row and click on the 'Index Key Mapping' button as shown in the figure below. Enter the Content Manager field and the corresponding field in SAP. (These fields are part of the container element of RFC function module for indexing.)



### Content Manager/SAP XRef Mapping

k. Configure the Router Interface for uploading SAPWF Container Data. Define the workflow container elements that the ArchiveLink Router will pass to the SAP workflow that is going to be triggered as shown below.

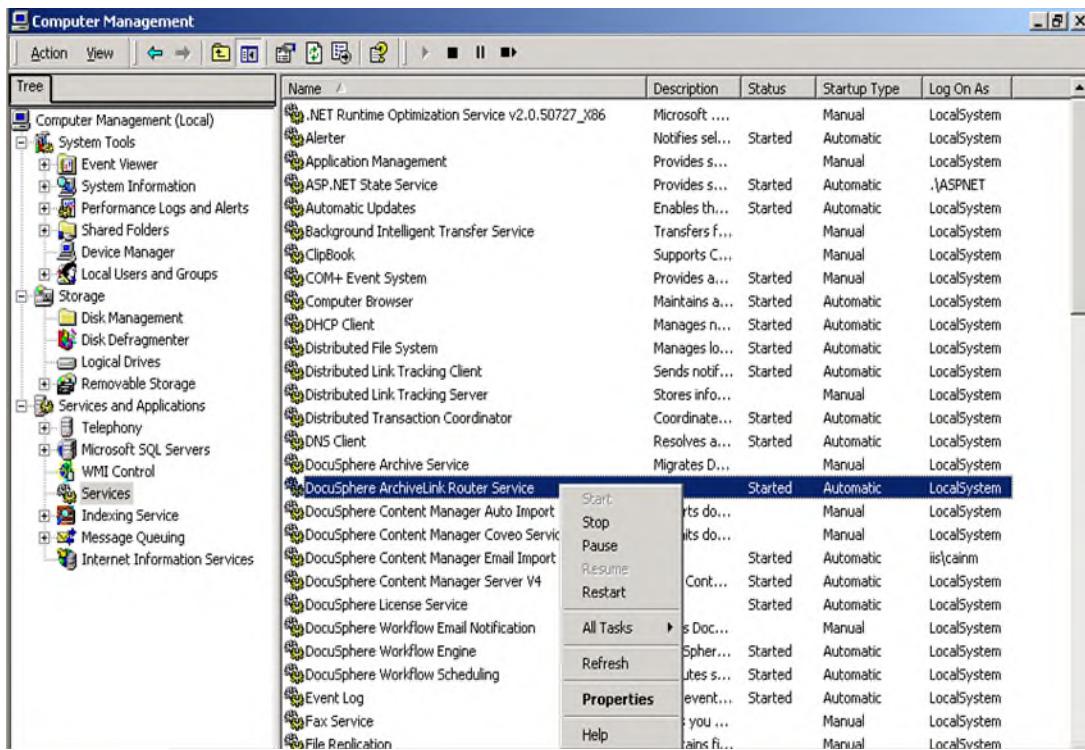


ArchiveLink Router Mapping

## ArchiveLink Router Service

The Tungsten ArchiveLink Windows service must be running. The service is set to start manually by default and can be changed to automatic startup after configured and tested.

To start the ArchiveLink router service, go to 'My Computer' and 'Manage'. Click on 'Services' and start the 'ArchiveLink Router Service' as shown below.

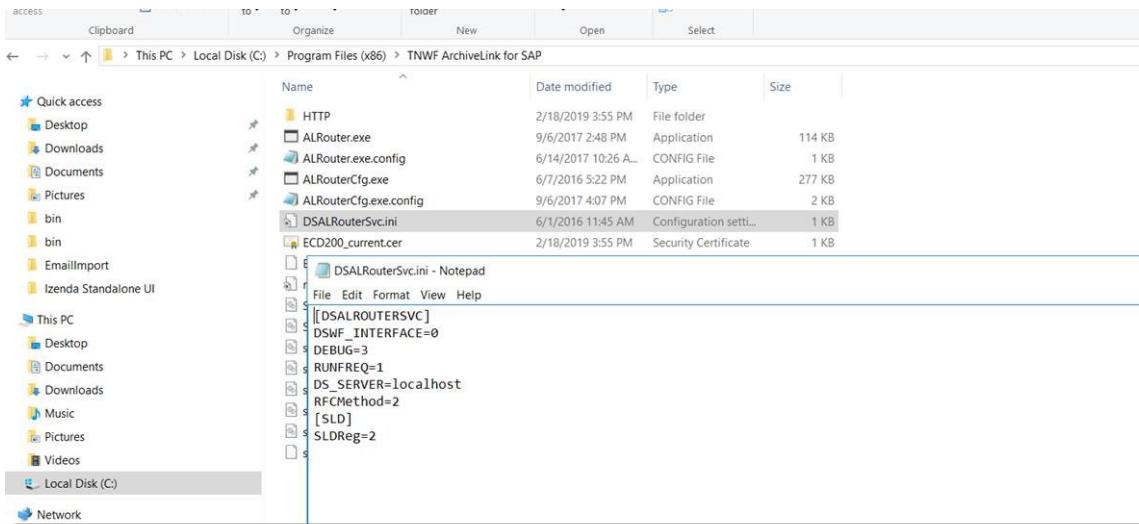


## Start Services

### Debugging in ArchiveLink router

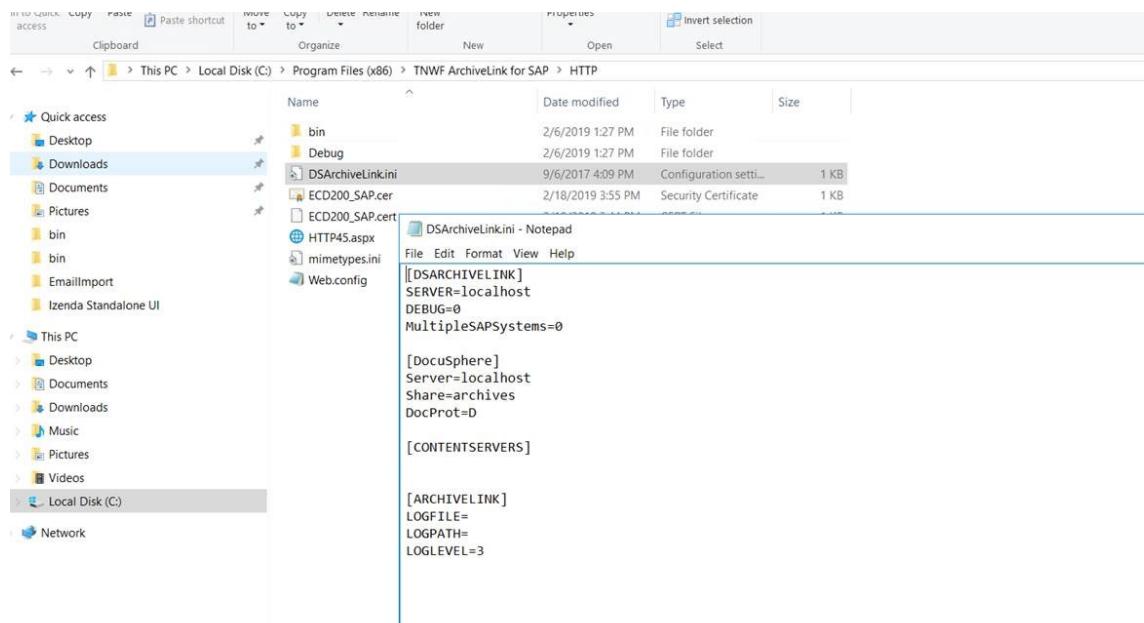
To debug the ArchiveLink router, go to the ArchiveLink folder present in the Tungsten ArchiveLink router. The path is: 'TNAL Installation Folder]\Router'. Then, open the 'DSALROUTERSVC.INI' file as shown in the figure below and make the debug option to '1' (DEBUG = '1').

Once debugging is turned ON, a text log file will be generated in the ArchiveLink installation or HTTP folders respectively.



## Starting Debug

To debug the HTTP Interface, go to the folder '[TNAL Installation Folder]\Http' as shown below and make the debugging flag of the file 'TNArchiveLink.ini' to '1' (DEBUG = 1).



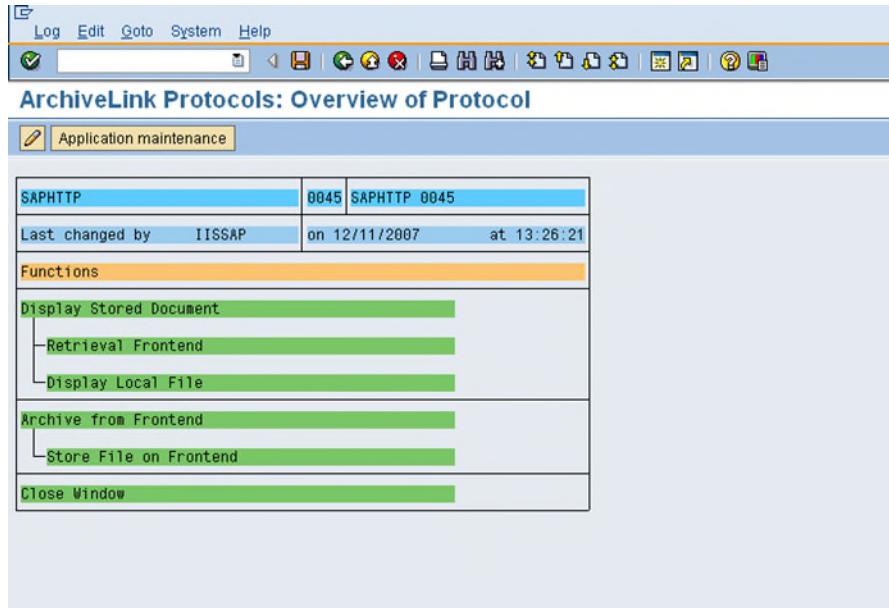
## DS ArchiveLink Debug

# Using the Workflow Workstation Client Viewer (OLE/COM)

For viewing images and content from SAP, the Tungsten Zero Footprint Viewer can be used.

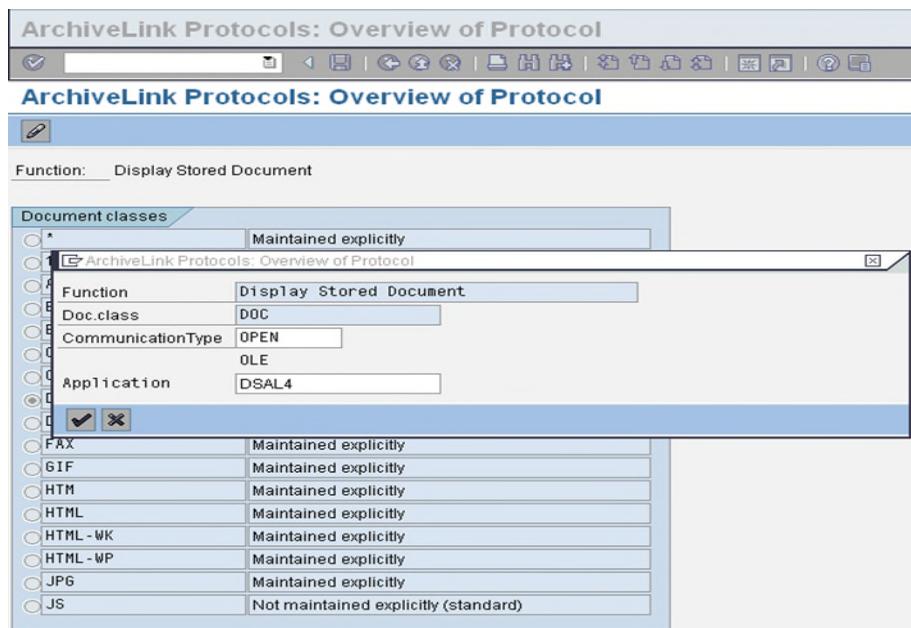
## Maintain OLE Option for each Document Type

Using transaction code OAA3, open the HTTP protocol as shown below. Open the 'Display Stored Document' option and maintain the OLE settings for each document type.



### OAA3 OLE settings

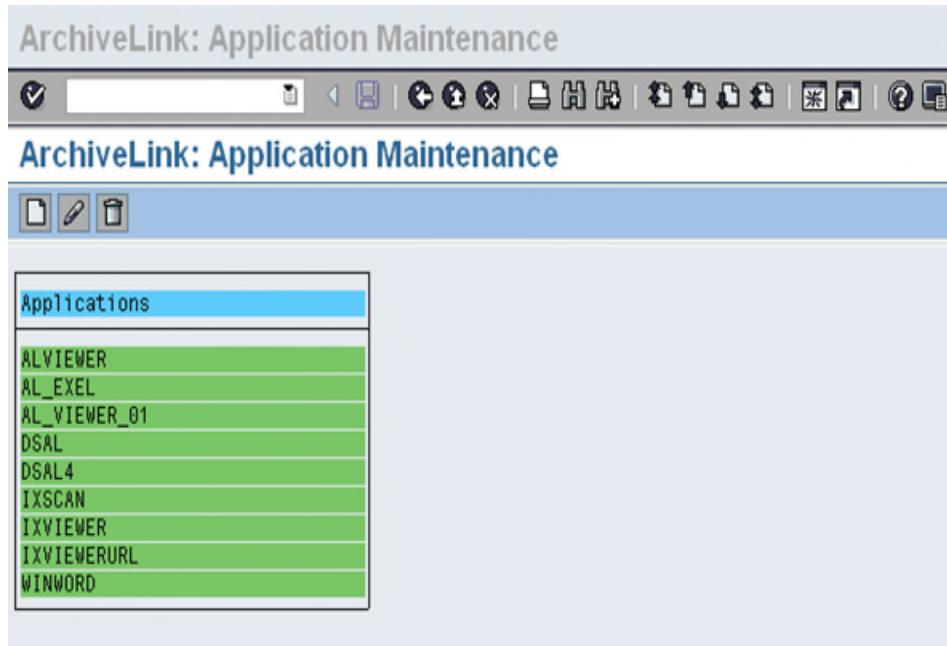
**Note:** Create the application first as shown in the figure below; here it is 'DSAL4'. Creation of application is mentioned in the next section.



### OLE Settings for each Document Type

## Maintain the Application

- a. Create the ArchiveLink Application as shown below; in this case it will be 'DSAL4'.



### Create DSAL4 Application

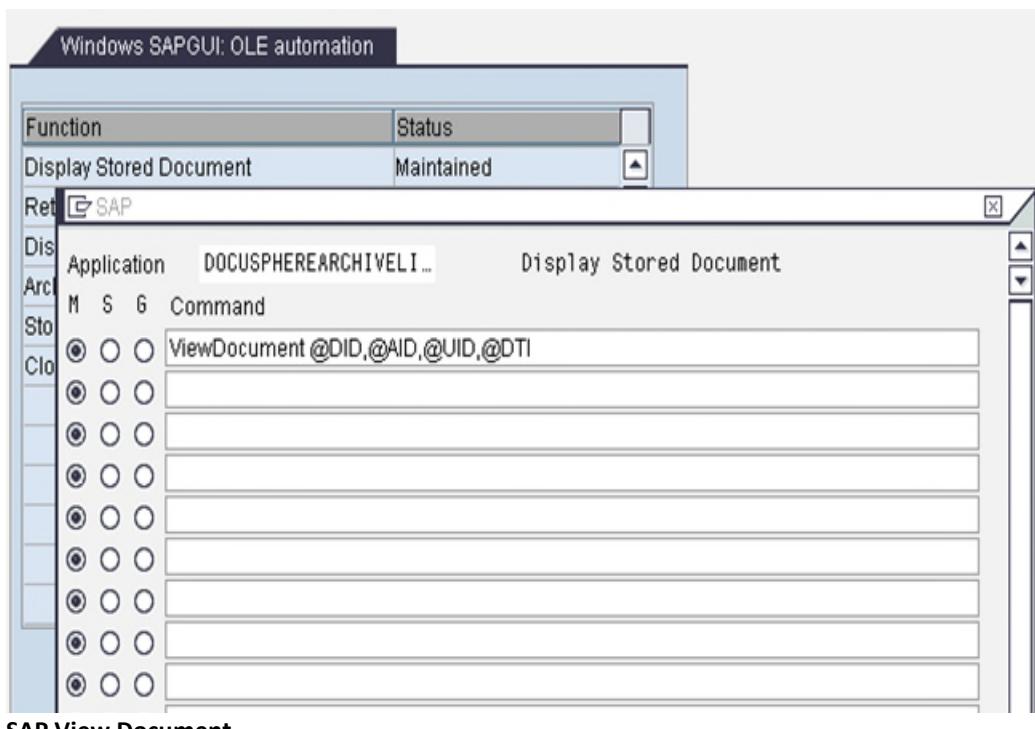
- b. Open the application as shown below and click on 'Display Stored Document'. Define the OLE/COM method to be used for display.

ArchiveLink Viewer COM ProgramID.Class:

DOCUSPHEREARCHIVELINK4.ALVIEWER

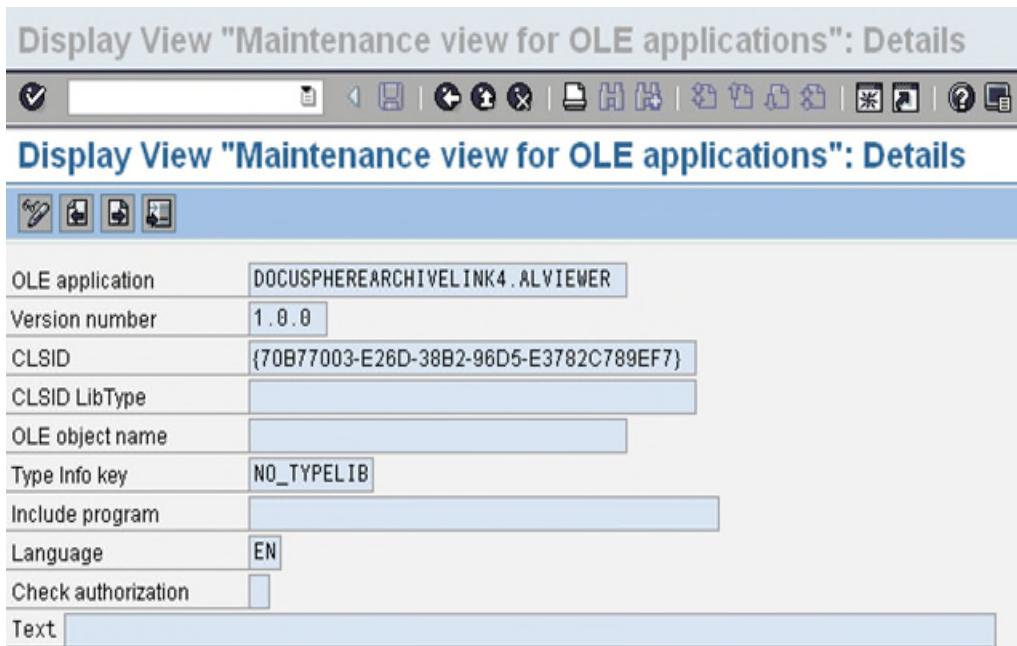
ArchiveLink Viewer COM method (M) for display with required parameters:

ViewDocument @DID,@AID,@UID,@DTI



**SAP View Document**

c. Maintain the registry key of the COM DLL in SOLE transaction of SAP as shown in the figure below.



**SOLE Maintain Registry Key**

# Debugging

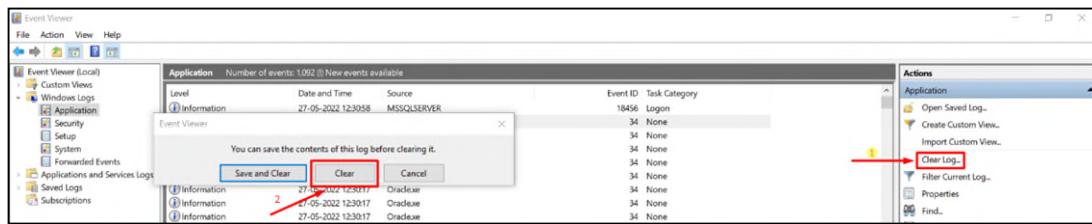
## Collecting event logs and debugging using SAP

Debugging is an integral part of troubleshooting an issue. This section will discuss how to collect SAP Web Service logs, fetch the input parameters from the logs, and how to read them for further debugging.

### Collecting event logs

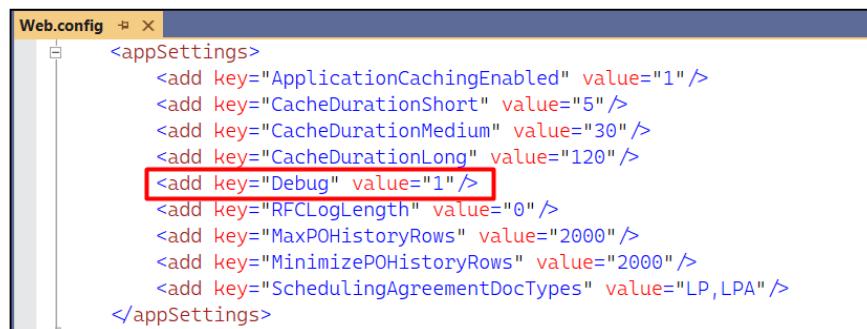
Before you start reproducing any erroneous scenario, make sure you perform the following two steps:

1. Clear the Windows event viewer so the event viewer contains related logs only.



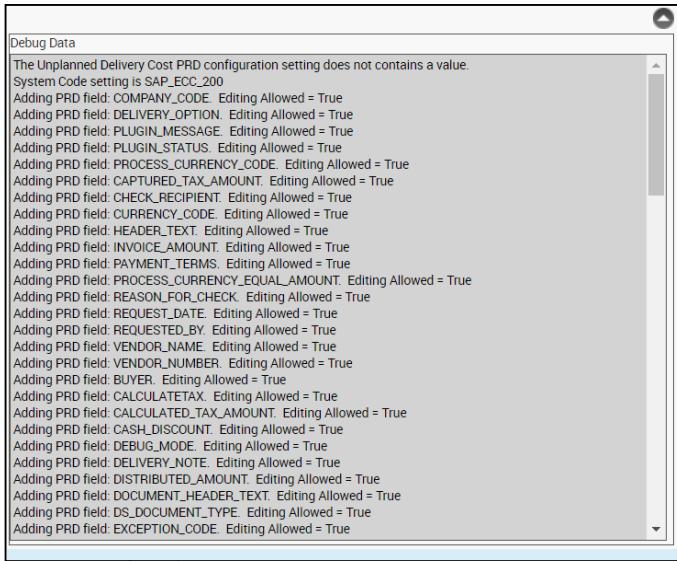
2. Turn "ON" debug mode in the agent/plug-in and the SAP Web Service.

- a. For the agent/plug-in, make sure the Debug setting is configured as "True" or "Y".
- b. For SAP Web Service, the "Debug" key in the web.config file should be configured as "1".

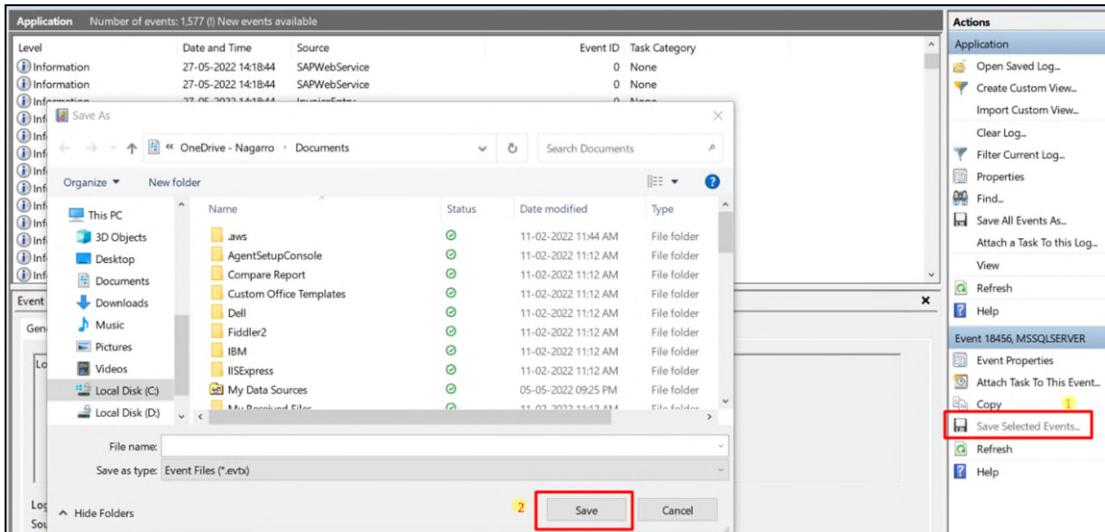


Once the above steps are done, reproduce the scenario and collect the logs as follows:

1. Get all text from “Debug Data” on the plugin screen.



2. Export the event log.



### Viewing/Reading the logs

To view the SAP service logs, see/filter the logs in the event viewer with source ‘**SAPWebService**’. Here we can find the sequence of web method and RFC calls and the log corresponding to it as below.

Application Number of events: 131					
Level	Date and Time	Source	Event ID	Task Category	
Information	02-06-2022 16:29:17	InvoiceEntry	0	None	
Information	02-06-2022 16:29:17	SAPWebService	0	None	
Information	02-06-2022 16:29:17	InvoiceEntry	0	None	

Event 0, SAPWebService

General Details

5039 : Completed GetLineTaxAmount()

Input Parameters:

```
systemCode: SAP_ECC_200
companyCode: IIS1
taxCode:
taxJurCode:
currencyCode: USD
netAmount: 0.57
dtInvoiceLines: C:\Windows\TEMP\SapWebServiceLogs\GetLineTaxAmount_dtInvoiceLines_02292022162917.xml
isTaxDetailRequired: True
```

Additional RFC information:

```
RFC called: /DCSPHR/CALC_TAX_FROM_NET_AMT
RFC User: Commuser2
```

Output Values:

```
taxAmount: 0
strErrorMessage:
dsTaxData: C:\Windows\TEMP\SapWebServiceLogs\GetLineTaxAmount_dsTaxData_02292022162917.xml
Return Value: True
```

The SAP service event log contains three sections:

- Input Parameters:** Lists all the input parameters being passed to the method. Values for all primitive types are in the event log itself whereas complex types are logged in an external XML file whose path is mentioned in the event log (shown in the above screenshot “*dtInvoiceLines*”).
- Additional RFC Information:** Includes the name of the RFC being called along with the username used to connect to the RFC.
- Output Values:** Similar to input parameters, logs all the output parameters (i.e., either ByRef or Return Parameter if present). Here also primitive types are logged in the event log itself whereas complex types are logged as an XML file with the corresponding file path listed in the log.

## Reading the XML File

The input XML file could be as simple as below with just two values, e.g., GL\_ACCOUNT & COMPANY\_CODE

```
<?xml version="1.0" standalone="yes"?>
<NewDataSet>
  <dtNonPoTable>
    <GL_ACCOUNT>111000</GL_ACCOUNT>
    <COMPANY_CODE>IIS1</COMPANY_CODE>
  </dtNonPoTable>
</NewDataSet>
```

Or it could be as complex as below with a table with three rows as an input parameter.

```

<?xml version="1.0" standalone="yes"?>
<NewDataSet>
  <Table1>
    <GL_Account>111000</GL_Account>
    <Company_Code>IIS1</Company_Code>
    <Fiscal_Year>2020</Fiscal_Year>
    <Tax_Code />
    <TaxJurCode />
    <Assignment_Number />
    <Doc_Curr_Amount>100</Doc_Curr_Amount>
    <Debit_Credit_Indicator>S</Debit_Credit_Indicator>
    <Acc_Doc_LineItem>000000001</Acc_Doc_LineItem>
    <Posting_Date>11/16/2020</Posting_Date>
  </Table1>
  <Table1>
    <GL_Account>111000</GL_Account>
    <Company_Code>IIS1</Company_Code>
    <Fiscal_Year>2020</Fiscal_Year>
    <Tax_Code />
    <TaxJurCode />
    <Assignment_Number />
    <Doc_Curr_Amount>100</Doc_Curr_Amount>
    <Debit_Credit_Indicator>S</Debit_Credit_Indicator>
    <Acc_Doc_LineItem>000000002</Acc_Doc_LineItem>
    <Posting_Date>11/16/2020</Posting_Date>
  </Table1>
  <Table1>
    <GL_Account>111000</GL_Account>
    <Company_Code>IIS1</Company_Code>
    <Fiscal_Year>2020</Fiscal_Year>
    <Tax_Code />
    <TaxJurCode />
    <Assignment_Number />
    <Doc_Curr_Amount>0,57</Doc_Curr_Amount>
    <Debit_Credit_Indicator>S</Debit_Credit_Indicator>
    <Acc_Doc_LineItem>000000003</Acc_Doc_LineItem>
    <Posting_Date>11/16/2020</Posting_Date>
  </Table1>
</NewDataSet>

```

The user will need to pick each value corresponding to each node and place it in SAP for further debug.

## External debugging of an RFC

### When to use external debugging?

External debugging makes it possible for you to stop and debug function modules, BAPIs and any ABAP programs that are running in the context of another user's session by setting break points. When there is an issue in any function module or BAPI, external debugging can be used to identify and understand the logic behind that. External debugging is specially intended for debugging ABAP programs that process the following request types:

- RFC requests
- HTTP requests

In DOCSPHER, RFC requests are used for the communication between SAP and .NET front end.

### Can we do external debugging in a production environment?

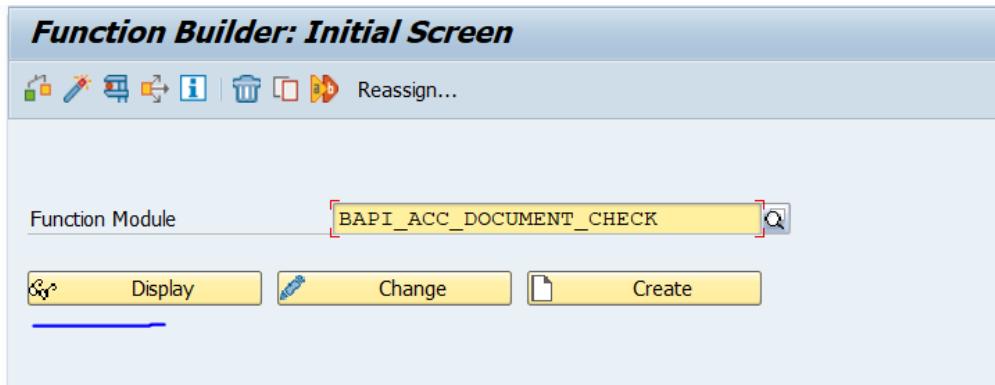
External debugging can be done in any environment (Dev, QA, Prod). However, it is NOT recommended to debug in the Production environment since it will stop the processing of RFCs due to the debug point in the code. Best practise is to replicate the issue in a non-production environment and do the external debugging.

### Who is responsible for doing external debugging?

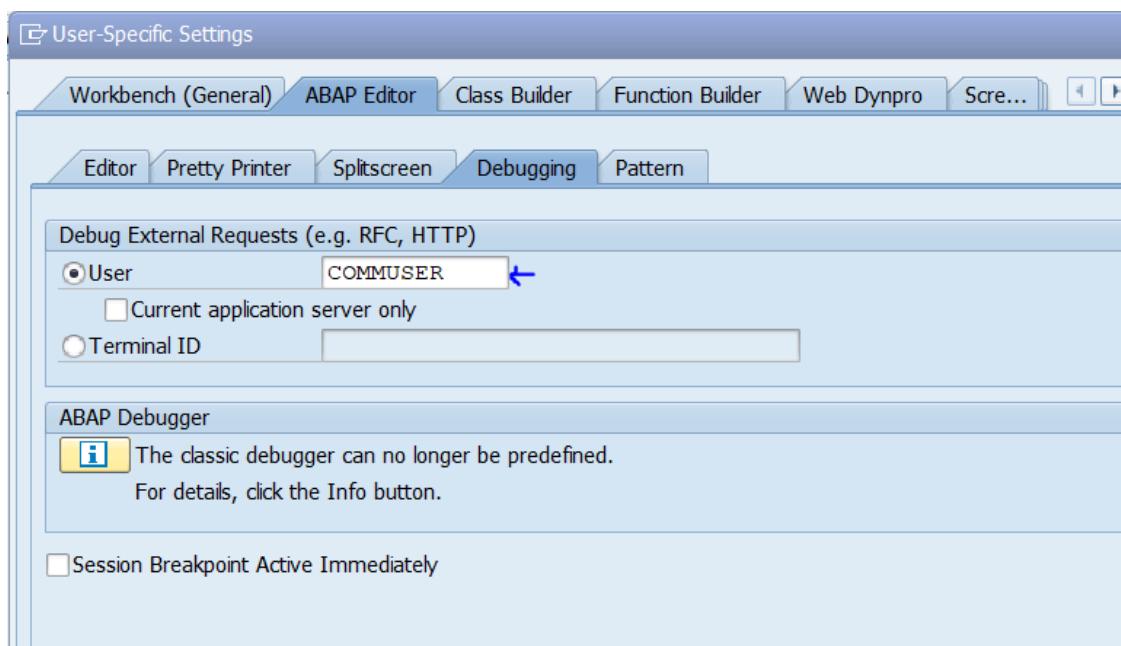
ABAP consultants / Basis consultants

## How to do external debugging?

1. Identify which RFC needs to be debugged.
2. Go to SE37 transaction and open the code.



3. Select from the menu bar Utilities > Settings > ABAP Editor > Debugging. Enter 'COMMUSER' (communication user between SAP and .NET) as the User. 'COMMUSER' should have SAP\_ALL or S\_DEVELOP authorization assigned.



4. Select the line on which you need to stop the processing and click the External Debugging icon.

The below message should be visible, if the above steps were followed correctly.

Function module BAPI\_ACC\_DOCUMENT\_CHECK Active

Attributes Import Export Changing Tables Exceptions Source code

```
14  ** ACCOUNTANT STRUCTURE BAPIACTK09 OPTIONAL
15  ** CURRENCYAMOUNT STRUCTURE BAPIACCR09 OPTIONAL
16  ** CRITERIA STRUCTURE BAPIACR09 OPTIONAL
17  ** VALUEFIELD STRUCTURE BAPIACREV9 OPTIONAL
18  ** EXTENSION1 STRUCTURE BAPIACEKTC OPTIONAL
19  ** RETURN STRUCTURE BAPIRET2
20  ** PAYMENTCARD STRUCTURE BAPIACPC09 OPTIONAL
21  ** CONTRACTITEM STRUCTURE BAPIACCAIT OPTIONAL
22  ** EXTENSION2 STRUCTURE BAPIAPAREX9 OPTIONAL
23  ** REALESTATE STRUCTURE BAPIACRE09 OPTIONAL
24  ** ACCOUNTWT STRUCTURE BAPIACTWT09 OPTIONAL
25
26
27  DATA ld_currency.
28
29  * generate test data record
30  fbgenmac 'BAPI_ACC_DOCUMENT_CHECK'. "note 2286603
31
32  * AFLE INBOUND MAPPING
33  DATA: ls_return LIKE LINE OF return.
34  "accountpayable
35  DATA(lt_accountpayable) = accountpayable{}.
36  DATA(lt_fnames_ap) = VALUE cl_afle_chk_mapper->tt_amt_bapi_fname(
37  ( short = 'PYMT_AMT' long = 'PYMT_AMT_LONG' comp_length = 13 curr = 'P
38  ).

39
40  LOOP AT lt_accountpayable ASSIGNING FIELD-SYMBOL(<fs_ap>).
41    CLEAR ls_return.
42    cl_afle_chk_mapper->bapi_struct_inbound( EXPORTING it_fnames = lt_fnam
43    IMPORTING return = ls_return
44    CHANGING cs_amt_ext = <fs_ap>
45
46  IF ls_return-type = 'E'.
47    APPEND ls_return TO return.
48  ENDIF.
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5. Trigger the RFC from .NET front end and the program will make a hard stop there.

The screenshot shows the SAP ABAP IDE interface. The code editor displays ABAP code for a function named 'VALDAT\_TAXIRSDN\_TAXCDE'. The code handles tax code validation, including checking if a tax code is valid and selecting a tax code from a table if it is not. The ABAP and Screen Stack view on the right shows the call stack, with the current step being 'PAI SCREEN'. The Variables view at the bottom shows the current values of variables like 'lv\_txjcd', 'return\_code', and 'wa\_a053'.

```

17:     lv_txjcd TYPE a053-txjcd ,
18:     return_code TYPE sy-subrc VALUE '0'.
19:
20: DATA: it_a053 TYPE STANDARD TABLE OF a053 ,
21:       wa_a053 TYPE a053.
22:
23: DATA: it_return TYPE STANDARD TABLE OF /dcspchr/message,
24:       wa_return TYPE /dcspchr/message.
25:
26: lv_mwszk = tax_code .
27: lv_txjcd = tax_jrsdn_code .
28: indicator = lv_indicator .
29:
30: SELECT SINGLE mwszk FROM t007s INTO lv1_mwszk
31: WHERE mwszk EQ lv_mwszk "#EC CI_NOORDER
32:
33:
34: IF sy-subrc <> 0 .
35:   CONCATENATE 'Tax Code' tax_code ' is not valid'
36:   INTO wa_return-message_1 SEPARATED BY space.
37:   lv_indicator = '1'.
38:   APPEND wa_return TO it_return.
39:   return[] = it_return[] .
40:   indicator = lv_indicator.
41:   return_code = 2 .
42:
43: ELSE .
44:   SELECT * FROM a053
45:     INTO TABLE it_a053
46:     WHERE mwszk EQ lv1_mwszk
47:     AND txjcd EQ lv_txjcd ORDER BY PRIMARY KEY.
48: ENDIF.

```

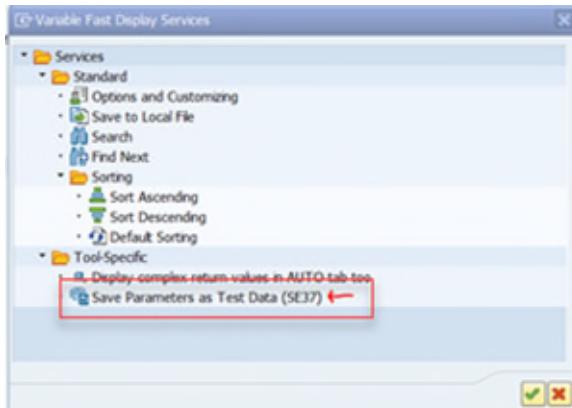
Use the F5 key to process line by line. Use the F6 key to process subroutines directly (without going inside the subroutine). The right side view is available to check the values inside each variable, parameter or table used inside the program. Use the F8 key to execute the RFC at once.

## Save Parameters as Test Data

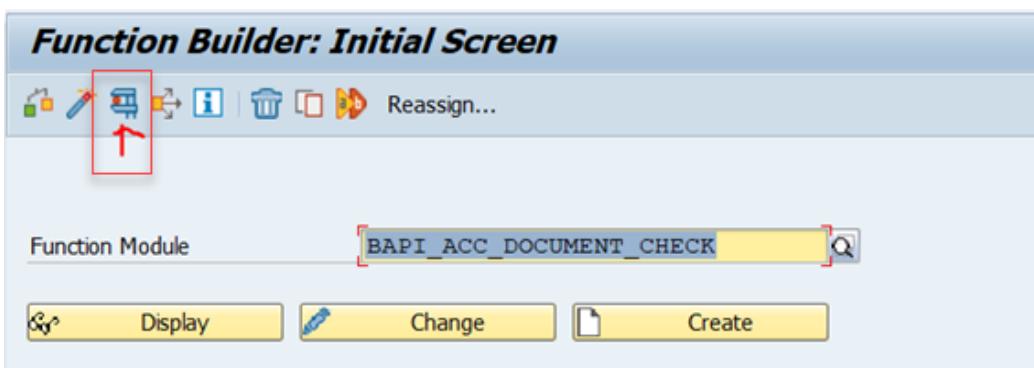
Import tables and parameters can be saved directly inside the RFC as a test variant; if you need to reprocess the same RFC this method can be used.

1. Press the button at the bottom right corner and select Save Parameters as Test Data (SE37).

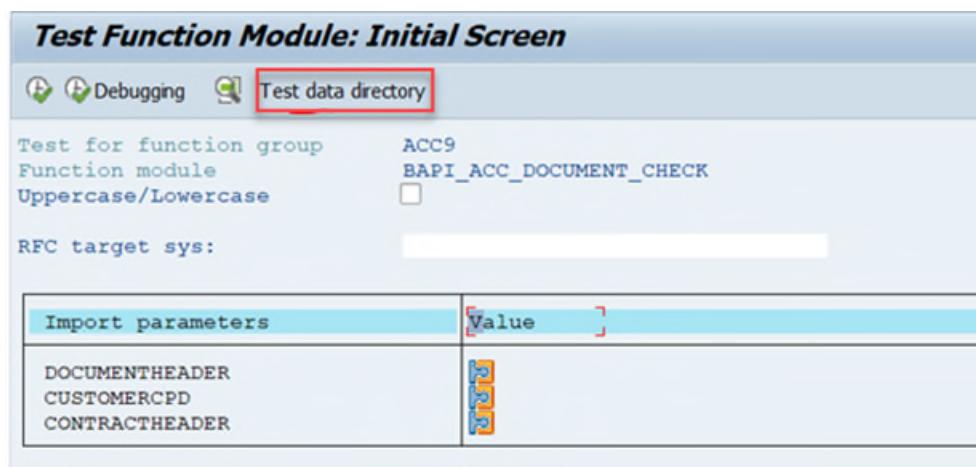
The screenshot shows the SAP ABAP IDE interface, similar to the previous one, but with a red box highlighting the 'Save Parameters as Test Data' button in the bottom right corner of the IDE window.



2. Provide a name for the test variant and it will be automatically saved in SE37 under that RFC name with all the import parameters and tables. This is helpful while doing the reprocessing of the RFC in SE37.
3. The saved variant can be accessed through the SE37 transaction by pressing the execute option (F8).



4. From the next screen, select Test Data Directory. You'll find the already saved variant inside with all the tables and input parameters.



## Agents and Plug-ins

See the ***SAP Agents and Plug-ins Guide*** for information about configuring SAP agents/plug-ins and using SAP plug-ins, and ***Workflow Agents and Plug-ins Guide*** for more information about registering agents and plug-ins and assigning them to workflow activities.