OPTIMAL SYSTEMS

# Software Documentation

# enaio® repository-manager

Version 8.50

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27.09.2017

Version 8.50

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# Introduction

## Tasks

enaio® repository-manager establishes a connection between SAP and the enaio® system.

## History

The enaio® repository-manager component used to be named SAPALink Java or OSR3 so that existing documentation may apply to the enaio® repository-manager component.

# Installation

## Requirements

The following prerequisites have to be fulfilled for the installation of enaio® repository-manager:

§ Web server

This application requires the Tomcat Web server version 6 or greater. The current installation data is available in the partner portal.

Additionally, C++ Runtime is required.

§ Java

This application requires Java JDK version 6 or greater. The current installation data is available in the partner portal.

§ enaio®

The enaio® system, including all core services, and enaio® repository-manager must be installed in the same version. The object definition has to be adapted according to the chapter 'Preparing enaio®' and a technical user with the respective rights to the object definition has to be installed.

Additionally, the enaio® system needs the licenses 'OLS' and/or 'LR3'.

§ SAP system

An installed and configured SAP system with appropriate content repositories is considered to be provided. Detailed information can be found in the respective SAP documentation.

## Installation Java JDK and Apache Tomcat

A Java Development Kit (JDK) followed by Apache Tomcat has to be installed. Information about the currently necessary versions can be obtained from the OPTIMAL SYSTEMS consulting department.

When installing Tomcat, it has to be ensured that the service is installed as well. The service has to be started after the installation. Enter the path for the previously installed Java JDK in the 'Java Virtual Machine Path Selection' dialog.

## Licenses

### License for enaio® repository-manager

The license for the module 'L3R' is required to run enaio® repository-manager.

It can be obtained from the sales department of OPTIMAL SYSTEMS.

### Licenses for the Content Server

To perform COLD capture of print lists of the SAP system from the proprietary ALF, it is necessary to have a corresponding license for the KGS component.

The license for the module 'COL' is required to enable capture of COLD data (print lists) of the SAP system.

### Licenses for Additional Modules

The license for the module 'IR3' is required to run enaio® repository-manager-indexexport for the export of index data from the SAP system.

A KGSIDX key is also required. This license key is created with a KGS SiteCode which can be found in the 'ContentServer.log' file. Communicate the SiteCode when requesting a license from the sales department of OPTIMAL SYSTEMS.

The license for the module 'SR3' is required to run enaio® stammdatenexport for the export of master data from the SAP system to the KGS Content Server.

## Installing enaio® repository-manager

### Installation Files

enaio® repository-manager is delivered as a WAR archive. The archive is part of the …`\Components\OS[Repository-Manager]\OSR3.war` directory of the installation data.

The WAR archive is a compressed package in ZIP format so that the WAR archive can be opened with a software like WinZip or WinRAR.

Before installing, you must ensure that the enaio® server is running and available.

> Do not install enaio® repository-manager at a workstation where an SAP GUI has already been installed as this may lead to library version conflicts.

### Web Server Deployment

The installation of the WAR archive depends on the servlet container. Most of the application servers provide an administration console for this purpose. If Apache Tomcat is used as a servlet container, it is enough to copy the WAR archive to the …`\<tomcatroot>\webapps` directory. Apache Tomcat will unpack the file to the `...\OSR3` subdirectory.

> Please note that there must be no directory in the `webapps` directory with the same name as the WAR archive, because in such a case the WAR archive could not be correctly unpacked.
>
> The same archive also must not be deployed several times, as this may lead to irregularities.

> The WAR archive provides all sources at once. It is not possible to install older sources (e.g. the configuration file) as a separate archive at a later time. Data may be lost in this case. Configuration data may be overwritten and get lost.
>
> Also note that if the WAR archive is deleted while the servlet container is running, the present installation will be undeployed. Next to the deployed application, all configuration data will also be lost.

If you want to update an existing installation, read the chapter 'System Update.'

## Adjusting Environment Variables

In order for the content server to load `oxsaplink.dll`, the `...\<tomcatroot>\OSR3\MISC` directory has to be added to the `Path` environment variable.

> Please note, that no blank character is allowed after the separator ';' in the PATH variable.

You can adjust the environment variables in Start > Control Panel > System > Advanced. No further DLLs have to be registered or indicated as environment variable.

## Checking the Installation

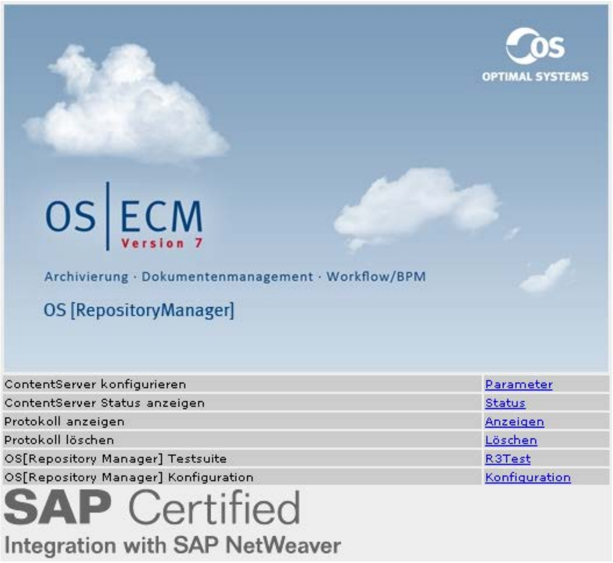
You can check afterwards, if enaio® repository-manager has been correctly installed by calling the Web application with the following URL:

```
http://<host>:<port>/<Archive Name>
```

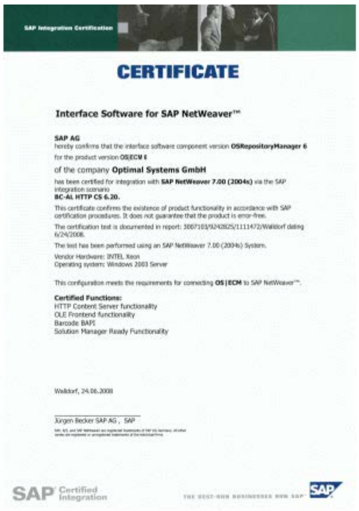
The default port for Apache Tomcat Web applications is `8080` and the default name of the archive is `OSR3`. The URL for a default installation therefore is:

```
http://<host>:8080/OSR3
```

If the installation has been successful, the following page will be displayed:


OS
OPTIMAL SYSTEMS
OS | ECM
Version 7
Archivierung · Dokumentenmanagement · Workflow/BPM
OS [RepositoryManager]
SAP Certified
Integration with SAP NetWeaver

| | |
|---|---|
| ContentServer konfigurieren | Parameter |
| ContentServer Status anzeigen | Status |
| Protokoll anzeigen | Anzeigen |
| Protokoll löschen | Löschen |
| OS[Repository Manager] Testsuite | R3Test |
| OS[Repository Manager] Konfiguration | Konfiguration |


SAP Integration Certification
SAP Certified Integration
THE BEST-RUN BUSINESSES RUN SAP
SAP

CERTIFICATE

Interface Software for SAP NetWeaver™

SAP AG
hereby confirms that the interface software component version **OSRepositoryManager 6**
for the product version **OS|ECM 6**
of the company **Optimal Systems GmbH**
has been certified for integration with **SAP NetWeaver 7.00 (2004s)** via the SAP integration scenario
**BC-AL HTTP CS 6.20.**

This certificate confirms the existence of product functionality in accordance with SAP certification procedures. It does not guarantee that the product is error-free.

The certification test is documented in report: 3007103/9242825/1111472/Walldorf dating 6/24/2008.

The test has been performed using an SAP NetWeaver 7.00 (2004s) System.

Vendor Hardware: INTEL Xeon
Operating system: Windows 2003 Server

This configuration meets the requirements for connecting **OS|ECM** to SAP NetWeaver™.

**Certified Functions:**
HTTP Content Server functionality
OLE Frontend functionality
Barcode BAPI
Solution Manager Ready Functionality

Walldorf, 24.06.2008

Jürgen Becker SAP AG , SAP

# System Update

enaio® and enaio® repository-manager are required to have the same version. When updating enaio® thus enaio® repository-manager must be updated too.

Before you start to update enaio® repository-manager, you must save all configuration files, otherwise you will loose the existing configuration:

- `OSR3\Web-inf\oxsaplnk.properties`
- `OSR3\ContentServer-config.properties`

To update enaio® repository-manager, follow these steps:

1. Save the configuration files `oxsaplnk.properties` and `ContentServer-config.properties`.
2. Delete the former WAR archive and the corresponding unpacked `OSR3` directory from the `webapps` directory of the Tomcat installation.
3. Deploy the new WAR archive in the Apache Tomcat Web application server.
4. Write back the saved configuration files.

Updating enaio® repository-manager is then completed.

Please note that potential changes to the configuration which may occur depending on the enaio® versions have to be manually adjusted when the saved configuration files are imported. Therefore, make sure that the 'Compressionstring' field with the 'Field11' database field exists in the 'Generic ContentRepository' OSR3 cabinet (see chapter ''Data Model in enaio® '') and, if not, add it.

Please note that passwords are shown unencrypted by default on the configuration site of the content server.
If you want passwords to be displayed encrypted on the configuration page, add the entry `ContentServer.ConfigPassword=<password>` to the configuration file `ContentServer-config.properties` (see 'Configuration Possibilities').

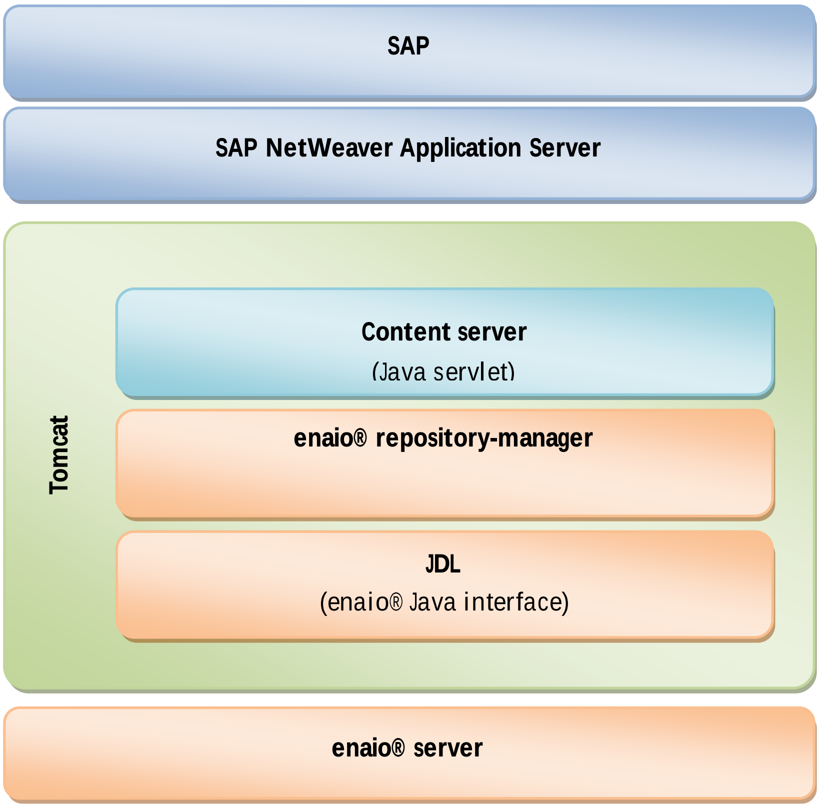
# System Architecture

## General

enaio® repository-manager basically represents an SAP content server that has been implemented by the company KGS. The functionality of the content server is encapsulated by enaio® repository-manager and called up by the content server.

In this case, the content server is a Web application operated in an Apache Tomcat Web server. The Web application serves as the final point for the communication with SAP and is called by the SAP NetWeaver system.

The following diagram shows the system architecture for the enaio® repository-manager component in context.



enaio® repository-manager is called by the content server as a component of a Web application. Communication with the enaio® system is established by the JDL interface, which represents the Java interface implementation of the enaio® system and finally encapsulates the enaio® system.

The content server communicates with the SAP system through an HTTP log.

# Configuration

## Preparing enaio®

### Technical User Account

In order for enaio® repository-manager to establish a connection with your enaio® system, it is necessary to create a technical user that is used by enaio® repository-manager to log on and get access to the technical cabinets. The default installation of enaio® repository-manager requires a user called `SAP` with the password `optimal`.

The technical user has to be assigned the previously defined cabinets and substructures through object groups. In the object groups, the structures have to be given full object authorizations.

> Please note that the technical user has access rights to the object types of the object definition described in chapter 'Customization of the Object Definition.'

The SAP ILM scenario requires the technical user for enaio® repository-manager to have all rights necessary for ADO executor calls.

## Setting up the Web Server

As the configuration files saved in the Apache Tomcat `webapps` directory affect security (passwords stored in plain text, etc.), the directory structure must be protected with corresponding file system rights.

> Please note that if you use network paths anywhere in the configuration, the Apache Tomcat service is not to run under a system account but under a network account. You can make the corresponding configuration if you go to Control Panel > Administrative Tools > Services.

## enaio® repository-manager Setup

### General

Basically, two configuration files have to be adjusted when enaio® repository-manager is set up. How this is done will be explained below.

| File name | Directory | Usage |
|---|---|---|
| oxsaplnk.properties | OSR3\Web-inf | Configuration of enaio® repository-manager and integration with the enaio® system |

| | | |
|---|---|---|
| ContentServer-config.properties | OSR3 | Configuration of the content server (KGS specific) and integrationn with the SAP system. |

> Please note that changes made to these configuration files only become effective after the servlet container has been restarted.
>
> Please note furthermore that if you provide paths in the configuration files, you must not use a backslash character ('\'). A backslash character has to be replaced with two backslashes '\\' or a normal slash '/'.

## Backwards Compatibility/Update of 'oxsaplnk.cfg'

Before version 6.0 SPII of the enaio® repository-manager component, the CFG file `oxsaplnk.cfg` located in the `OSR3\Web-inf\classes` directory, among other things, was used for configuration. From version 6.0 SPII only `oxsaplnk.properties` located in the `OSR3\Web-inf` directory will be used for configuration purposes.

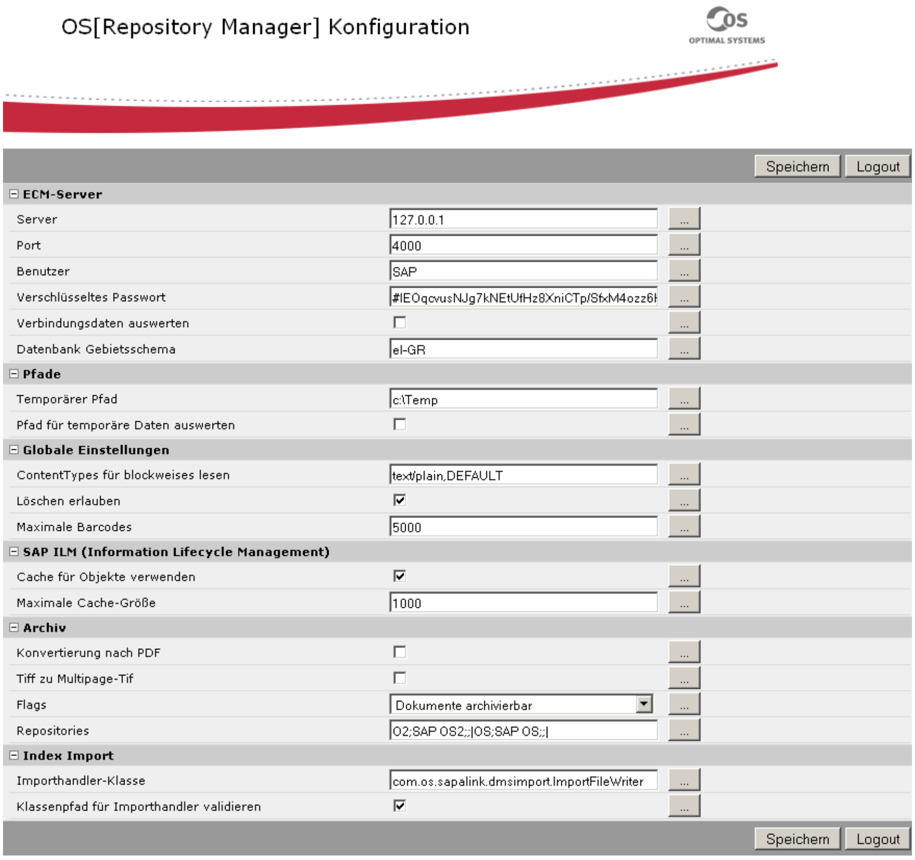
Therefore, the old configuration file will be converted into the new `oxsaplnk.properties` file, the first time the content server servlet container is started. However, settings concerning the structure of the technical object definition as contained in the old `oxsaplnk.cfg` file will not be applied as the new configuration does not allow customizations of the technical object definition. Only the configuration parameters described in chapter 'Configuration for enaio® Integration' will be applied.

> Please note that conversion is only done if no `oxsaplnk.properties` file exists in the `OSR3\Web-inf` directory. If the new configuration file exists in this directory, `oxsaplnk.cfg` can be considered obsolete. From version 6.0 SPII only `oxsaplnk.properties` will be used.

A Web interface is provided for the configuration of the new format.

## enaio® repository-manager Configuration Interface

You are provided with a web application to configure the integration in the enaio® system (`oxsaplnk.properties`). You can open it by opening the first page of the enaio® repository-manager Web application and selecting **OS[RepositoryManager] configuration**. The following page will then be shown.



OS[Repository Manager] Konfiguration

| | |
|---|---|
| **⊟ ECM-Server** | |
| Server | 127.0.0.1 |
| Port | 4000 |
| Benutzer | SAP |
| Verschlüsseltes Passwort | #IEOqcvusNJg7kNEtUfHz8XniCTp/SfxM4ozz6I |
| Verbindungsdaten auswerten | □ |
| Datenbank Gebietsschema | el-GR |
| **⊟ Pfade** | |
| Temporärer Pfad | c:\Temp |
| Pfad für temporäre Daten auswerten | □ |
| **⊟ Globale Einstellungen** | |
| ContentTypes für blockweises lesen | text/plain,DEFAULT |
| Löschen erlauben | ☑ |
| Maximale Barcodes | 5000 |
| **⊟ SAP ILM (Information Lifecycle Management)** | |
| Cache für Objekte verwenden | ☑ |
| Maximale Cache-Größe | 1000 |
| **⊟ Archiv** | |
| Konvertierung nach PDF | □ |
| Tiff zu Multipage-Tif | □ |
| Flags | Dokumente archivierbar |
| Repositories | O2;SAP OS2;;\|OS;SAP OS;;\| |
| **⊟ Index Import** | |
| Importhandler-Klasse | com.os.sapalink.dmsimport.ImportFileWriter |
| Klassenpfad für Importhandler validieren | ☑ |

On this page you can configure the enaio® repository-manager settings. When you move the mouse over a configuration step, you will be informed about the current the setting. Changed settings must be saved.

You can specify connections to multiple enaio® servers with connection probability in the **Server** field using the following syntax:

`Server1:Port:Wahrscheinlichkeit#Server2:Port:Wahrscheinlichkeit`

Upon entering this syntax, the **Port** field will be ignored.

> Please note that if you have activated validators (e.g. evaluation of connection data) and validation is not performed successfully, the configuration will not be saved. If you want to save a configuration although validation has not been performed successfully, deactivate the corresponding validators.

# Configuration for SAP Integration

## General

The configuration of the connection between the SAP system's content repository and enaio® repository-manager is depicted in the `ContentServer-config.properties` configuration file.

## Configuring enaio® repository-manager Servlets

So that the enaio® repository-manager servlet is able to use the `ContentServer-config.properties` configuration file, where the file can be found has to be specified. This is done in the `web.xml` file which is located in the `OSR3\Web-inf` subdirectory.

> Bear in mind to use slashes ('/') instead of backslashes ('\').

The `web.xml` file registers the content server servlet with the Apache Tomcat servlet container and passes certain contextual parameters to the servlet. One of these parameters is the path to the configuration file of the content server.

To verify whether the path is correctly set, look for the following section in the XML file.

```
<servlet>
      <servlet-name>ContentServer</servlet-name>
      <servlet-class>ContentServer</servlet-class>
      <init-param>
            <param-name>CSConfigFile</param-name>
            <param-value>./webapps/OSR3/ContentServer-
config.properties</param-value>
      </init-param>
      <load-on-startup>1</load-on-startup>
</servlet>
```

The section is marked by the servlet name `ContentServer`. Especially interesting is the value of the `CSConfigFile` initialization parameter with a default relative reference to the `webapps/ORS3` directory.

> Please note that the `web.xml` file in any case has to be edited with a qualified XML editor and not with a text editor like Notepad, because this bears the risk of damaging the encoding of the file so that it can no longer be read by Apache Tomcat Web server.
>
> Also note that the indication of relative paths for the configuration file may be problematic as these paths refer to the particular working directory of the Apache Tomcat Web server instance, which may vary under certain circumstances. It has been noted that the execution file is different when Apache Tomcat is called with `startup.bat` than it is when it is called as a service instance. Therefore it is recommended to use an absolute path for the configuration file whenever it is possible. To check which working directory (environment variable) the process of the Apache Tomcat Web server uses, it is recommended to use the tool 'Process Explorer[1].'

[1] Process Explorer - http://technet.microsoft.com/en-us/sysinternals/bb896653.aspx

## Configuration Possibilities

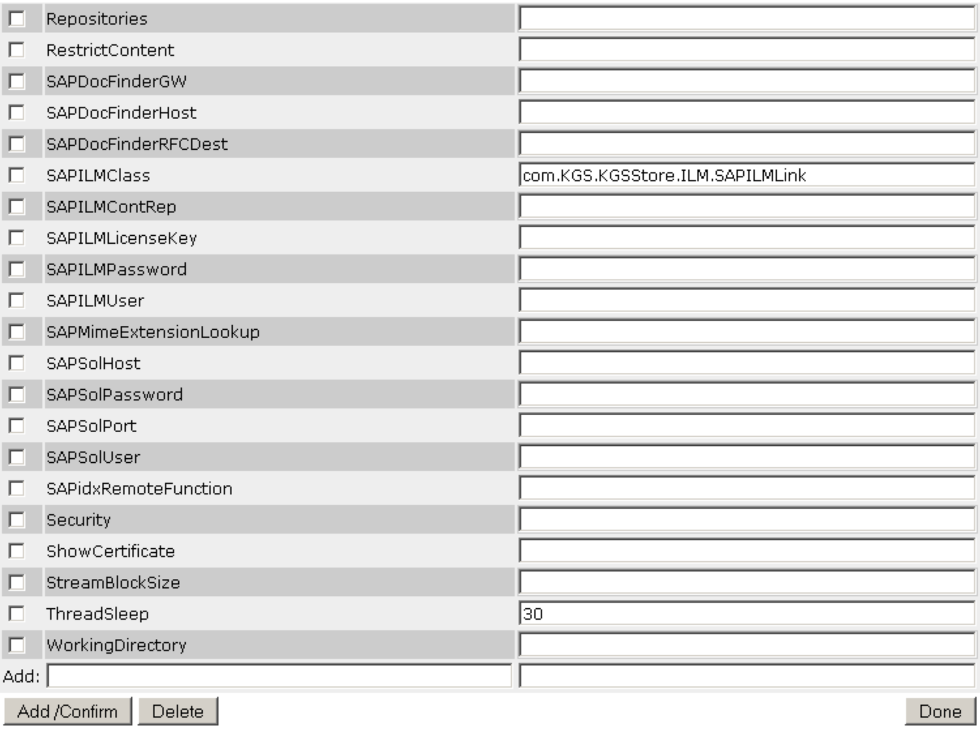
There are two possibilities for configuration.

On the one hand, you can directly edit the configuration file with any text editor. This scenario is recommended as it turned out to be the most effective way to make adaptations.

On the other hand, you can also modify the configuration through the Web application by opening the first page of the enaio® repository-manager component and selecting **Configure ContentServer - Parameters**.

> Please note that on the configuration site passwords are visible as they are not masked.
> If you want passwords to be displayed in masked form on the configuration site, add the entry `ContentServer.ConfigPassword=<password>` to the configuration file `ContentServer-config.properties`.

You will see the following configuration page:



| | | |
|---|---|---|
| □ | Repositories | |
| □ | RestrictContent | |
| □ | SAPDocFinderGW | |
| □ | SAPDocFinderHost | |
| □ | SAPDocFinderRFCDest | |
| □ | SAPILMClass | com.KGS.KGSStore.ILM.SAPILMLink |
| □ | SAPILMContRep | |
| □ | SAPILMLicenseKey | |
| □ | SAPILMPassword | |
| □ | SAPILMUser | |
| □ | SAPMimeExtensionLookup | |
| □ | SAPSolHost | |
| □ | SAPSolPassword | |
| □ | SAPSolPort | |
| □ | SAPSolUser | |
| □ | SAPidxRemoteFunction | |
| □ | Security | |
| □ | ShowCertificate | |
| □ | StreamBlockSize | |
| □ | ThreadSleep | 30 |
| □ | WorkingDirectory | |
| Add: | | |

On this page settings are configured and then applied by clicking **Done**.

If required, add individual configuration steps and values and apply them by clicking **Add/Confirm**. You must enter the password, which was set as the value of the `ContentServer.ConfigPassword=<password>` entry in the configuration file `ContentServer-config.properties`.

Click the checkboxes in front of the configuration steps to select some of them and, if necessary, delete them by clicking **Delete**.

> Please note that sometimes this configuration page cannot be displayed and that errors may occur when opening this page. This is due to the fact that the

configuration page requires certain settings in the configuration like temporary directories and log directories. They have to be made before the configuration page can be used. To do so, edit the configuration file directly.

An overview over possible configuration parameters can be found in the KGS documentation (KGS SAPALINK 4.5 – Installation Guide) which can be found in the WAR archive in the `doc` subdirectory. A selection of the configuration parameters will be described in detail in the chapter 'Structure of the Configuration Files.'

# Setting up the Log

## Logging of the Content Server

Logging of the content server can be specified in its configuration file `ContentServer-config.properties`.

The default path for content server logs is the directory `C:\\Programs\\Apache\\Tomcat<version>\\logs`. This means that the `ContentServer.log` log file will be written directly to the working directory. If you want to change the directory, you have to change the log path (configuration step `LogFile`) in the `ContentServer-config.properties` configuration file. Using the DEBUG property, you can specify how detailed logging is going to be.

By adjusting the `LogFile` configuration step, the content server is going to write a special log file which contains every single command which is processed in a different line. The command as well as its return code will be logged.

> Please note that due to the size of the log files which grows rapidly, a balanced value has to be found for the `KeepLogfileDays` setting.

For further information about configuration setting values please refer to the chapter Content Server (ContentServer-config.properties).'

## enaio® repository-manager Logging

enaio® repository-manager uses the `Commons-Logging` interface for logging. The `commons-logging.properties` configuration file is in the `webapps/OSR3/WEBINF/classes` directory. It uses the Log4J framework which can be configured using the `log4j.properties` file. The default configuration file is delivered as follows:

```
log4j.rootLogger=ERROR , R, stdout
log4j.category.com.os.osdrt = DEBUG, R, stdout
log4j.category.com.os.sapalink = DEBUG, R, stdout
log4j.category.org.apache.catalina=DEBUG, R, stdout
log4j.category.Tools = ERROR, R, stdout

log4j.appender.R=org.apache.log4j.RollingFileAppender
log4j.appender.R.File=${catalina.base}/logs/OSR3.log
log4j.appender.R.MaxFileSize=10MB
log4j.appender.R.MaxBackupIndex=10
log4j.appender.R.layout=org.apache.log4j.PatternLayout
log4j.appender.R.layout.ConversionPattern=%d [%t] %-5p %c - %m%n
```

```
log4j.appender.stdout=org.apache.log4j.ConsoleAppender
log4j.appender.stdout.layout=org.apache.log4j.PatternLayout
log4j.appender.stdout.layout.ConversionPattern=%d [%t] %-5p %c -%m%n
```

Logging is output to the `${catalina.home}/logs/OSR3.log` file. The entry `${catalina.home}` describes a placeholder for the Apache Tomcat Web server system directory. You can specify the logging levels `DEBUG`, `INFO`, `WARN`, and `ERROR` for the single modules.

| module | Log path |
|---|---|
| Apache Tomcat | log4j.category.org.apache.catalina |
| Content Server (KGS) | log4j.category.Tools |
| JDL | log4j.category.com.os.osdrt |
| Root Logger (all other methods) | log4j.rootLogger |
| SAPALink (enaio® repository-manager) | log4j.category.com.os.sapalink |

# SAP ArchiveLink

## Task

enaio® repository-manager ArchiveLink organizes and administers filing in both systems and the provision of documents from the enaio® system to SAP and the transfer of index data from SAP to the enaio® system.

## Data Model in enaio®

### General

The data model in enaio® consists of two structures. One is the technical structure, which is generic and responsible for actual data storage, and the other is the public structure, which consists of a customer-specific object definition. The actual documents (which can be found in the technical structure) are referenced in the public structure with reference documents.

The technical object definition contains one or several folders of a type, which should be known according to the SAP content repository. Specific documents, e.g. invoices, can be found in such a folder.

A reference to these documents can be made from the customized object definition (also named 'descriptive structure', for example customer – project – invoice) with a reference object (shown as green arrow).

The creation of these references is done with the enaio® repository-manager-indexexport module, either synchronously by linking an ECM document with an SAP object using a Java import class, or asynchronously with the standard data and document import.

> The name of the descriptive and technical object definition also refers to the access rights of the user accounts. Thus, only technical user accounts should be given access to the technical object definition (also refer to 'Technical User Account').
>
> You can install more than one repository in the enaio® system, each of which represents a separate technical cabinet which should be given a name which allows to establish a relation to the SAP repository (e.g. FI, FI-customerB-Prod).

### Technical Object Definition

As the technical object definition is generic, it will be enclosed to the enaio® repository-manager WAR archive in the form of an XML file. The XML file can be found in the WAR subdirectory `MISC` under the file name `asobjdef_GenericCR.xml` and it can be imported to the enaio® system from there.

The technical object definition consists of a cabinet which contains the following fields:

| Field name | Description |
|---|---|
| Content repository | Name of the content repository |
| ArchiveLink[2] version | Archive Link version number (e.g. 0046) |
| Document protection | A user-defined combination of the document flags 'r' (read), 'c' (create), 'u' (update), 'd' (delete) defines the ArchiveLink ACL (AccessControlList). If SAP does not provide information when a document is created, the default value as defined in the `ContentServer-config.properties` configuration file will be valid (normally 'rcud,' i.e. all access rights to the object are granted). |
| DocID | Document ID which unambiguously identifies the SAP document. |
| Creation Date/Time | Date and time of creation |
| Last modification Date/Time | Date and time of the last modification |
| Barcode | An ID under which the document filed in enaio® can be unambiguously assigned to the SAP system. |
| Barcode sent to R/3 | This document flag indicates whether the barcode and thus the document have already been reported to SAP. |
| Legal hold lock[3] | Specifies that the document has to be retained due to legal reasons (legal hold) so that the document or its components cannot be deleted. |
| Expiration date[4] | Retention period for the document and its components |

[2] ArchiveLink is the name of the log between SAP and the content server. There are different versions available. Currently available versions are 3.1, 4.5 and 4.6. An HTTP content server is the implementation of the log 4.5/4.6. Version 3.1 is an RFC content server. Accordingly, HTTP is a log and IIS an implementation (in the widest sense).

[3] This property was introduced with version 7.0. It is available for SAP ILM functionality only.

[4] This property was introduced with version 7.0. It is available for SAP ILM functionality only.

The cabinet contains the following three document types.

| Document type | Main type | Description |
|---|---|---|
| Default components | W-document | Used for TIFF documents |
| Scanned components | B/W-Document | Used for FAX documents. |
| Text components | W-document | Used for text documents |

As can be seen from the table, depending on the document type of the SAP system ('image/tiff', 'fax' or 'text') the documents will be saved in the enaio® system with the according document types.

Determining which MIME type will be saved in which enaio® object type is done by configuring the enaio® repository-manager. This separation offers advantages, especially when it comes to administration and performance.

The structure of the single document types is always the same:

| Field name | Description |
|---|---|
| Component_ID | Component ID ('data' for multipage TIFF files or data, data1, data2 ... for single page TIFF files) |
| Content type | MIME type (e.g. FAX for AL 3.1 or image/tiff for AL 4.5) |
| FileName | File name of the 'source file'. As it is always filed through Apache Tomcat's working directory, the name is always a temporary file name. |
| Creation Date/Time | Date and time of creation |
| Last modification Date/Time | Date and time of the last modification |
| ArchiveLink version | Archive Link version number (e.g. 0046) |
| Application Version | Version number of the application (e.g. 1.0) |
| Charset | Character set (optional) |
| Compressionstring | Compression with `gzip` is done by the content server for components with a size bigger than the adjustable threshold value `CompressionSize` (see Content Server (ContentServer-config.properties)). This offers advantages for storing, especially for storing print lists which have an uncompressed size bigger than 2 GB (bigger than the upper limit for enaio® objects). With previous compression they are usually reduced to 10 % of the original size.<br>With this administrative information, the content |

| | |
|---|---|
| | server is able to determine the uncompressed size of the component and which compression parameters have been used. |

## Assignment of SAP Structures to enaio®

As the task of enaio® repository-manager is to depict SAP structures in enaio®, it is necessary to depict SAP structures in the technical object definition.

| enaio® object | SAP object |
|---|---|
| Folder | Document |
| Document | Component |

# enaio® repository-manager ArchiveLink Functionality

## Inserting a Document in enaio®

### The Document and its Data

If a document is inserted into the technical cabinet in the enaio®, e.g. with enaio® capture, the corresponding document will be given a barcode and an ArchiveLink version (AL version) is created. The barcode is specified during the capture process (e.g. a barcode label is applied to a document).

The barcode links the document with a business process until the SAP system has linked an SAP business object to the document ID.

At this point it is not yet allowed to set the 'Barcode sent to R3' document flag.

In regular intervals, the content server determines all documents (folders) which have a barcode and no document flag 'Sent to R3'. For these documents, an entry will be inserted in the barcode file which is written in the configured `Work/Barcode` directory. In the framework of this process, the content server will provide a unique DocID, which, together with the barcode, the SAP name of the content repository and the type, will be written to the barcode file.

### Reporting the Document to the SAP System

By calling the function `WriteBarcodeFile`, the content server determines in cyclic intervals all barcodes and document IDs which have not yet been reported to the SAP system. For this purpose, the function gives enaio® repository-manager a reference to a file to which the corresponding values of the documents to be reported will be written. This file contents may look as follows:

```
<Barcode1> FI <Document-ID1> 20090623 FAX
<Barcode2> FI <Document-ID2> 20090623 FAX
<Barcode3> FI <Document-ID3> 20090623 FAX
```

The documents concerned by this process can be specified using the 'Barcode sent to R/3' field as otherwise this field's value is set to `true`. By reporting the barcode to the SAP system, this field will be created in enaio® repository-manager. In return, the content server will provide a unique document ID.

By creating a file with the same name as the barcode file, but the extension `txt`, the content server is signaled that new documents are available.

The barcode file is read again and contained information reported to SAP. For each reported document, the 'Barcode sent to R3' document flag will then be set in enaio®. This is a sign that the barcode has been reported successfully. Additionally, all information about the sent barcode will be entered in the current barcode file of the `Success` subdirectory of the `Work/Barcode` directory. If errors occur, an entry will be made in the current barcode file in the `Error` directory parallel to the `Success` directory. There also exists an RDY file in this context.

## Referencing a Document in the SAP System

When the barcode is reported to SAP, the document ID and the barcode will be entered into the SAP table `BDS_BAR_EX` for open external barcodes. This table includes all externally captured documents which own a barcode and are therefore identified by a document ID but could not have been internally assigned to an SAP object and a business process respectively in the SAP system.

Barcode files are exchanged in the `<WorkingDirectory>` in the subdirectory `barcode`. If the exchange file has been processed correctly by the content server, the barcodes will be entered in the `<WorkingDirectory>\barcode\successful\yyyymmdd.txt` file.

If barcodes have not been processed correctly, they will be entered in the `<WorkingDirectory>\barcode\error\yyyymmdd.txt` file.

> Please note that the barcodes in these files will be deleted from the `ContentServerconfig.properties` configuration file according to the configuration settings configured in `BCLogAgeOK` or `BCLogAGeERR` (see 'Content Server (ContentServer-config.properties)').

In a reporting interval, a maximum of 5,000 barcodes can be reported (see 'Configuration for enaio® Integration').

## Linking a Document to an SAP Object

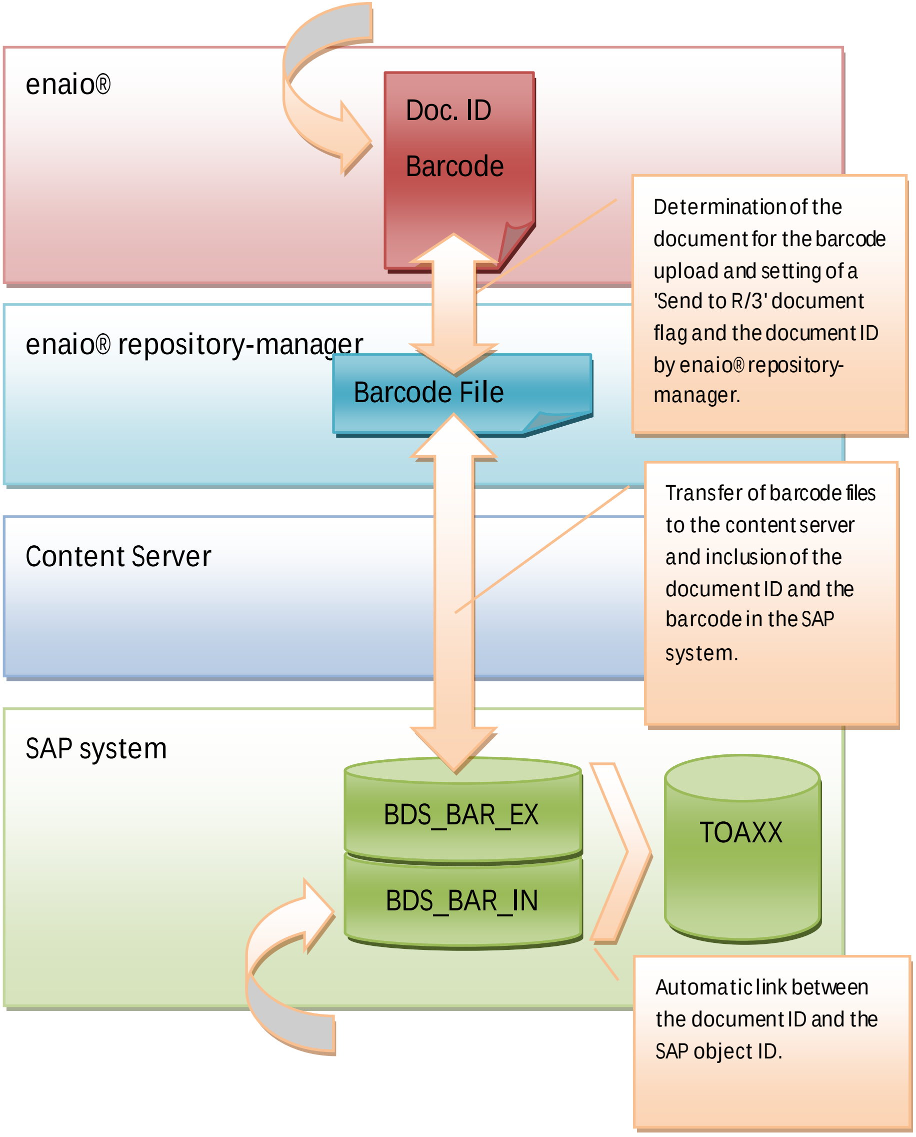
In the SAP system, a business process (SAP object) can be assigned to a document. For example the booking of a payment transaction. During this process, the barcode of a business transaction will be filed together with the SAP object ID in the SAP table `BDS_BAR_IN` of open internal barcodes.

The document ID is referenced with the barcode in the SAP table for the open external barcodes and the barcode is referenced with an SAP object ID in the table for the open internal barcodes. Thus, the SAP object ID and the document ID can be linked. This is done automatically. Thereby, SAP object ID and document ID will be included in the SAP link table `TOAXX` taking into account the repository.

Linking an enaio® document to an SAP process is thus completed. After linking, the barcode is no longer known to the SAP system and can only be searched in the enaio® system.

## Data Flow Diagram

The following diagram depicts the data flow when a document is given to the SAP system.


enaio®
Doc. ID
Barcode
Determination of the document for the barcode upload and setting of a 'Send to R/3' document flag and the document ID by enaio® repository-manager.
enaio® repository-manager
Barcode File
Transfer of barcode files to the content server and inclusion of the document ID and the barcode in the SAP system.
Content Server
SAP system
BDS_BAR_EX
BDS_BAR_IN
TOAXX
Automatic link between the document ID and the SAP object ID.

# Archiving of Data from the SAP System

Receipts (documents), print lists and data backups may be stored. In this case, the document ID is transferred to the enaio® system. Barcodes are not transferred here.

## Adopting Index Data from the SAP System

Generally there are two possibilities to adopt data from the SAP system:

- The customer provides ABAP reports, which contain the required data in a file. They can then be imported with the standard file and document export.

  Thus, structures can be build for enaio® (folders, registers and documents) and documents can be only filed into certain registers.
- The KGS function module reports data directly from the SAP system to the content server. Depending on its settings, the content server can provide a file for the normal file and document import as well as directly create the documents and structures in enaio® using a JAVA class which has to be individually developed.

Which one of the alternatives is chosen, often depends on the required degree of synchronization. The KGS function module transfers data more or less synchronously, so that they can be immediately searched in enaio®. The second alternative is recommended when for example meta data are to be updated by nighttime jobs.

A corresponding license is necessary for the KGS index data download.

# Configuration

## Preparing enaio®

### Customization of the Object Definition

The `asobjdef_GenericCR.xml` file is in the `MISC` directory of the deployed OSR3 servlet. This file contains the object definition to which the enaio® repository-manager component refers. Import the objects of this object definition into your enaio® system. Detailed information on editing the object definition can be found in the enaio® editor manual.

As the cabinet of the object definition which is to be imported adheres to the 'Generic ContentRepository' naming convention, it should be given the same name as the Content Repository in SAP (e.g. FI).

> Please note case sensitivity for repository names.

If you use several repositories, you also have to create several cabinets for the single repositories. Apply the above-mentioned object definition to each of the repositories used and rename the corresponding cabinet.

> Please note that the created cabinets are technical cabinets and access should only be given to the technical user (see Technical User Account'). Publishing in enaio® has to be done with descriptive cabinets with reference objects (see 'Data Model in enaio®').

## enaio® repository-manager Setup

### Configuration for enaio® Integration

The following chapters describe individual configuration aspects which are found on the enaio® repository-manager configuration interface (see enaio® repository-manager Setup).

§ Server

IP address or name of the ECM server

§ Port

Port of the ECM server

§ Users

Name of the technical user for server login

§ Password

Server login password of the technical user.

§ Analyze connection data

If this option is activated, server connection data will be verified during the saving process and it will be checked whether the technical user can log on. If this is not the case, no data will be saved.

§ Database locale

Locale of the database

§ Temporary path

Path which will be used for file transfer.

§ Analyze temporary file path

If this option is activated, the existence of the specified directory and read/write rights will be verified.

§ ContentTypes to be read block by block

Specify for which ContentTypes block-by-block reading is permitted (ComponentRead).

If no specification has been made here, SAP will return to ComponentGet. However, ComponentRead offers advantages in this case.

§ Deletion permitted

Specifies whether the commands ComponentDelete and DocumentDelete are permitted.

Usually, enaio® is an archiving system where deletion is not permitted. For test scenario (traffic light test), which will be described later, it will be necessary to permit deletion for the time of the test as the test otherwise would fail. Otherwise the test will fail.

§ Maximum barcode number

Upper limit for reported barcodes. In a reporting interval, a maximum of 5,000 barcodes can be reported. Enter the value -1 to report all barcodes.

- Cache objects

  SAP ILM setting. To increase performance all objects to be processed can be cached. Please note that this option requires more memory space (see 'Configuration for enaio® Integration').

- Maximum cache size

  SAP ILM setting. Set the maximum size for the object cache (see 'Configuration for enaio® Integration').

- Conversion to PDF

  'ComponentGet' converts documents to PDF documents when they are returned.

- Tiff to multi-page Tiff

  'ComponentGet' converts Tiff documents to multipage Tiff documents.

- Flags

  Specifies whether the documents have to be archivable in an audit-proof way or not.

- Repositories

  Here you can indicate repositories in the following format:

```
Repository;Cabinet;Export  file  for  ASCII  data;Export  file  for  index
data|...
```

  Please note that the repository name must consist of two characters only. If you do not want to specify files for exporting do not specify any parameter. Example for a configuration:

```
01;SAP OS1;;|02;SAP OS2;;|
```

```
01;01;;|
```

- Import handler class

  Import class which will be used for index data import.

  Please note that the class has to be indicated with the complete namespace. Case sensitivity must be taken into consideration.

- Validate class path for import handler

  If this option is activated, it will be verified whether the indicated import class exists and can be read by the JVM and whether it satisfies the class signature of the 'ImportHandlerDrtImpl' class.

### Configuration of the SAP System

To connect the SAP system with the HTTP content server and make all necessary settings, it is recommended to follow the SAP guidelines using the SPRO transaction under SAP Netweaver > Application Server > Basis Services > ArchiveLink.

For customizing the interface for print lists and outgoing documents, we recommend attending the SAP course BIT615.

For filing reorg data, we recommend attending the SAP course BIT615.

The main transactions required to establish a connection are listed below:

Transaction OAC0 defines one or several repositories.

This and all further activities within the SAP system have to be undertaken by the SAP system administrator or another authorized user of the customer.
These activities include:

§ for the first time:

  § Creation of a communication user (SU01) with the corresponding authorizations (SAP_BC_ENDUSER, SAP_BC_SRV_ARL_ADMIN, SAP_BC_SRV_ARL_USER, SAP_BC_SRV_COM_ADMIN)

  § ArchiveLink: maintenance of basic settings (OAG1)

  § Creation of number range intervals (OANR) for print lists

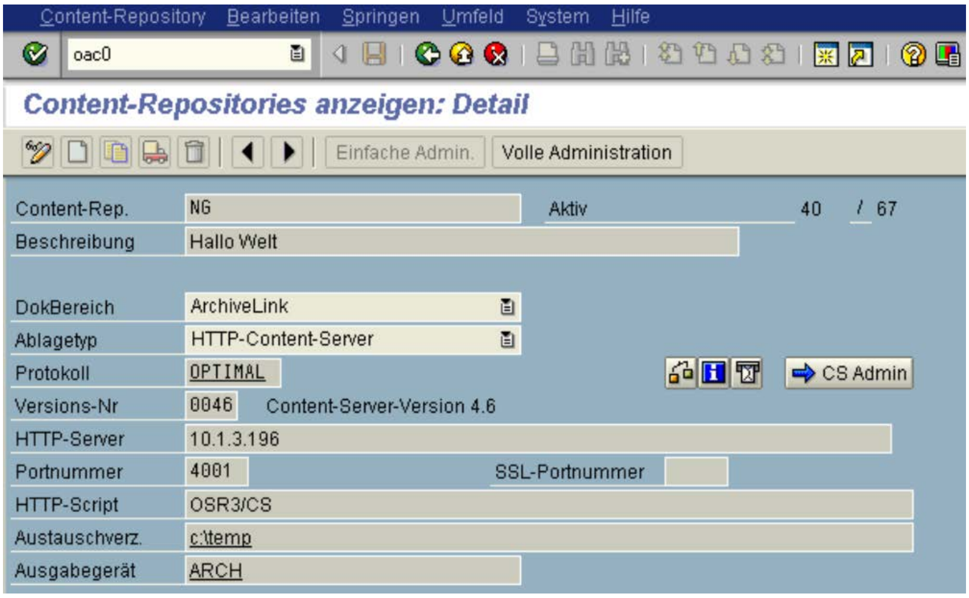
  § Creation of a protocol (OAA3) – name 'OPTIMAL'

  § Creation of an archive device (name ARCH) as output device (SPAD), assignment of the SAP ArchiveLink archiver, hostspool access method (I: archiver)

§ one or several times; depending on how many content repositories have to be defined

  § Creation of a content repository (OAC0)
  DocArea – ArchiveLink
  Filing method – HTTP – content server
  Log – OPTIMAL
  http script – OSR3/CS
  Output device – ARCH
  HTTP server – name or IP address of the server on which enaio® repository-manager is running
  Port number – Port under which the enaio® repository-manager can be reached (see `server.xml` of the ServletContainer).

  § After successful configuration of enaio® repository-manager the certificate (OAC0) has to be sent and activated.



Content-Repositories anzeigen: Detail

Content-Rep. NG  Aktiv 40 / 67

Beschreibung Hallo Welt

DokBereich ArchiveLink

Ablagetyp HTTP-Content-Server

Protokoll OPTIMAL

Versions-Nr 0046 Content-Server-Version 4.6

HTTP-Server 10.1.3.196

Portnummer 4001 SSL-Portnummer

HTTP-Script OSR3/CS

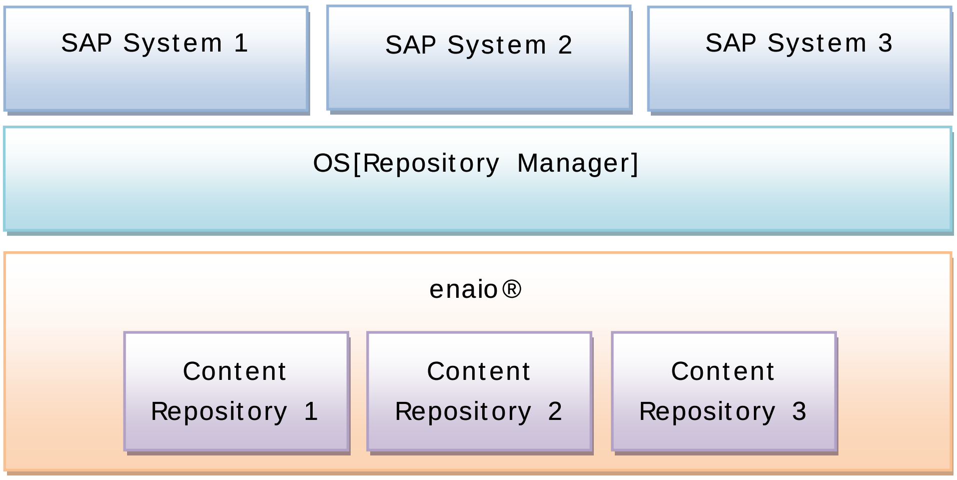
Austauschverz. c:\temp

Ausgabegerät ARCH

## Special Configuration Scenarios

### Supporting Several SAP Systems

It may be useful that several SAP systems which are operated independently use the same enaio® repository-manager.



If more than one SAP system is to be called, the `ContentServerConfig.properties` configuration file has to be adapted.

Additional content repositories are included in the `repositories` parameter. The various repositories have to be separated by a comma.

Settings which have to be made for additional SAP systems can be found in the KGS SAPALINK documentation (Installation Guide).

The documentation is copied to the `doc` directory of the ServletContainer.

The names for the following parameters for every repository have to be specifically adapted:

BCSAPClient, BCSAPUser, BCSAPPassword, BCSAPLanguage, BCSAPHost, BCSAPSysNr

To set a specific value for a repository use `BCSAPClient_<Repository name>` (e.g.: BCSAPClient_FI=000 for Repository FI)

Your specifications will have to look as follows:

```
ContentServer.BCSAPClient_01=203
ContentServer.BCSAPUser_01=OPTIMAL
ContentServer.BCSAPPassword_01=optimal
ContentServer.BCSAPLanguage_01=DE
ContentServer.BCSAPHost_01=193.11.11.111
ContentServer.BCSAPSysNr_01=00
ContentServer.BCSAPClient_02=001
ContentServer.BCSAPUser_02=ALE-OS
ContentServer.BCSAPPassword_02=aleadm
ContentServer.BCSAPLanguage_02=DE
ContentServer.BCSAPHost_02=193.22.22.222
ContentServer.BCSAPSysNr_02=02
```

## Testing the Configuration

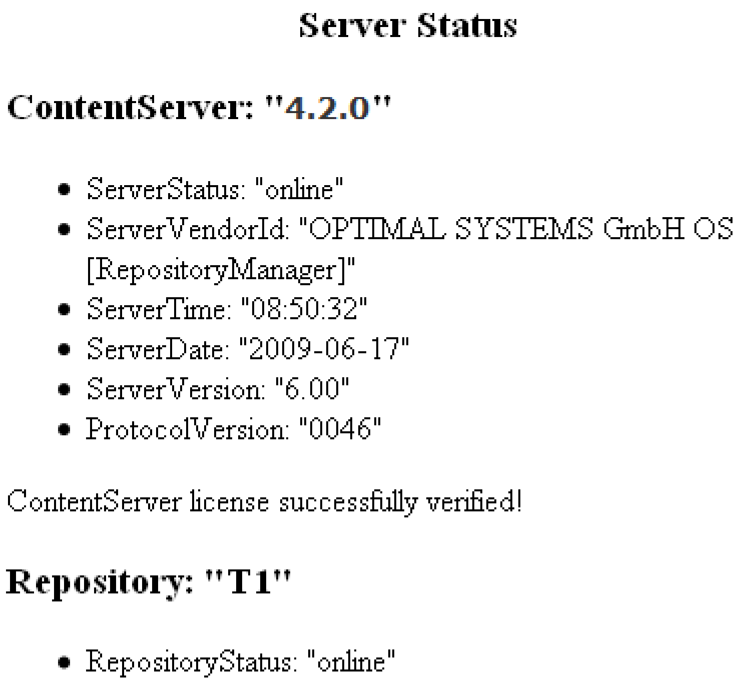
For all problems occurring during the test, it is useful to analyze the log files of enaio® repository-manager (`ContentServer.log`, `OSR3.log`, `ContentServer.txt`) and, if necessary, Tomcat log files (e.g. `stdout.log`, `catalina.log`).

### Testing enaio® Integration

#### Repository Integration

After configuration you can test enaio® integration. It is tested if the content server is able to call the enaio® repository-manager component without any problems, if enaio® repository-manager repositories have been configured correctly and if enaio® correctly depicts the structures in the back end.

Select **Show ContentServer Status – Status** on the first page of the enaio® repository-manager Web application (see 'Checking the Installation') to carry out this test. If the configuration has been made correctly, the following page will be displayed:



## Server Status

### ContentServer: "4.2.0"

- ServerStatus: "online"
- ServerVendorId: "OPTIMAL SYSTEMS GmbH OS [RepositoryManager]"
- ServerTime: "08:50:32"
- ServerDate: "2009-06-17"
- ServerVersion: "6.00"
- ProtocolVersion: "0046"

ContentServer license successfully verified!

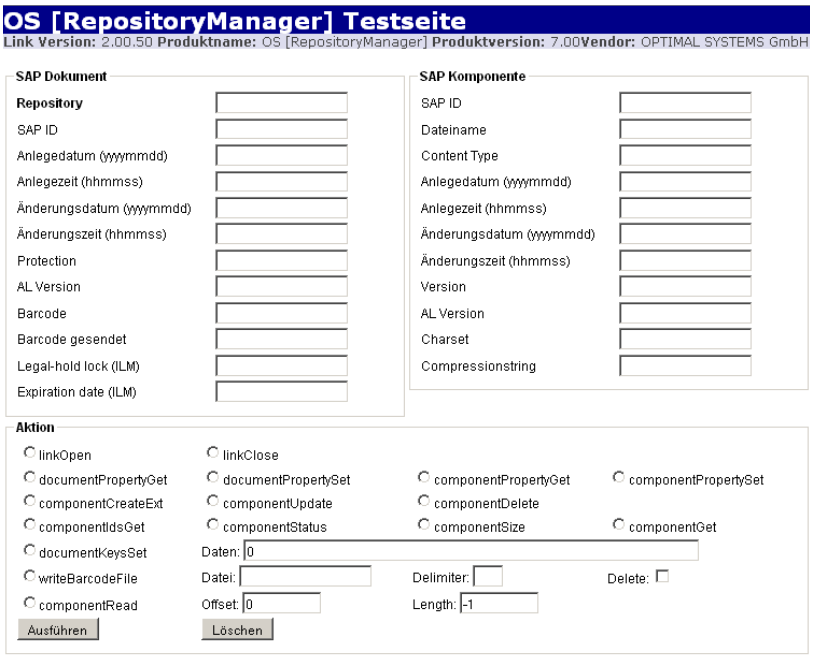
### Repository: "T1"

- RepositoryStatus: "online"

The repository configured in this example had the status `online` and was ready for operation. If the test fails, the repository status will be changed to `offline`. If this is the case, please check again if the configuration settings are correct. Information on error analysis can be found in the chapter 'Problems and Solutions.'

### enaio® repository-manager Test Page (Functionality Tests)

While the test described in the chapter 'Repository Integration' is used to check the repositories' availability, you can use the enaio® repository-manager test page to directly simulate function calls of the content server. For this purpose, call **enaio® repository-manager test suite – R3Test** on the first page of the enaio® repository-manager Web application.



**OS [RepositoryManager] Testseite**

**Link Version:** 2.00.50 **Produktname:** OS [RepositoryManager] **Produktversion:** 7.00**Vendor:** OPTIMAL SYSTEMS GmbH

**SAP Dokument**

**Repository**
SAP ID
Anlegedatum (yyyymmdd)
Anlegezeit (hhmmss)
Änderungsdatum (yyyymmdd)
Änderungszeit (hhmmss)
Protection
AL Version
Barcode
Barcode gesendet
Legal-hold lock (ILM)
Expiration date (ILM)

**SAP Komponente**

SAP ID
Dateiname
Content Type
Anlegedatum (yyyymmdd)
Anlegezeit (hhmmss)
Änderungsdatum (yyyymmdd)
Änderungszeit (hhmmss)
Version
AL Version
Charset
Compressionstring

**Aktion**

○ linkOpen ○ linkClose
○ documentPropertyGet ○ documentPropertySet ○ componentPropertyGet ○ componentPropertySet
○ componentCreateExt ○ componentUpdate ○ componentDelete
○ componentIdsGet ○ componentStatus ○ componentSize ○ componentGet
○ documentKeysSet Daten: 0
○ writeBarcodeFile Datei: Delimiter: Delete: □
○ componentRead Offset: 0 Length: -1

In the upper part of the test page, you can either manually define the data which you want to use for the simulated function calls of the content server to the enaio® repository-manager component, or the values returned by the various functions will be automatically entered.

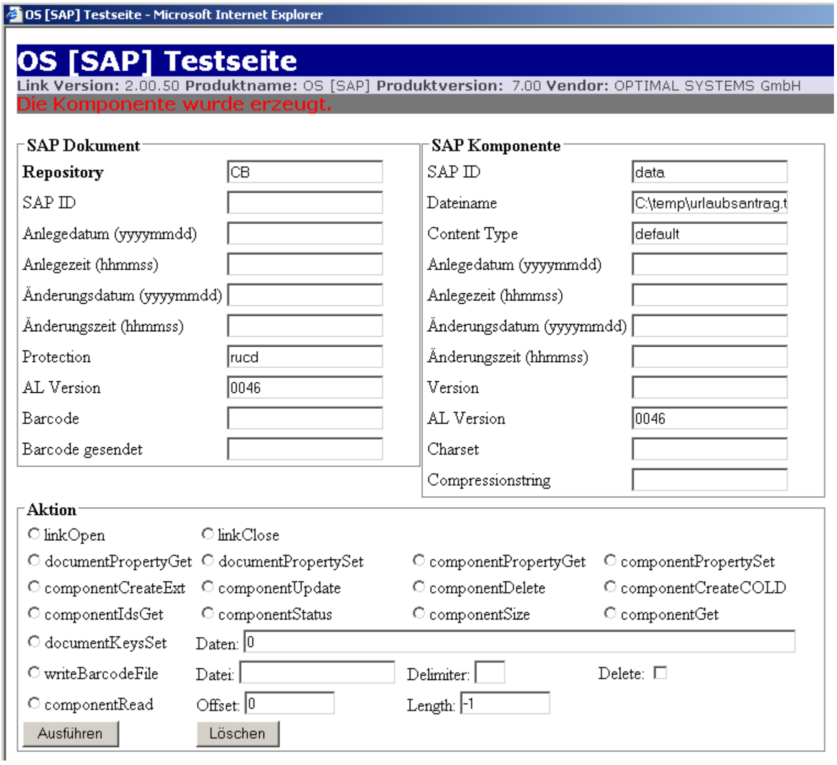
> Please note that function calls are only possible when the `'linkOpen'` function has been called before. This establishes a connection to the enaio® system which is the basis for all further function calls. So you can only test function calls if you are provided with a running and available enaio® system.

The test page is especially recommended for analyzing errors or simulating errors, because irrespective of the context or the SAP environment, a content server can be simulated.

Find some test scenarios below:

Test: creation of a document including a component in enaio®

Select a file and enter the file name in the component field. Select all further information as depicted below (AL version etc.) and create the document and the corresponding component in enaio® with the 'ComponentCreateExt' function.



OS [SAP] Testseite - Microsoft Internet Explorer

OS [SAP] Testseite

Link Version: 2.00.50 Produktname: OS [SAP] Produktversion: 7.00 Vendor: OPTIMAL SYSTEMS GmbH

Die Komponente wurde erzeugt.

**SAP Dokument**

| | |
|---|---|
| **Repository** | CB |
| SAP ID | |
| Anlegedatum (yyyymmdd) | |
| Anlegezeit (hhmmss) | |
| Änderungsdatum (yyyymmdd) | |
| Änderungszeit (hhmmss) | |
| Protection | rucd |
| AL Version | 0046 |
| Barcode | |
| Barcode gesendet | |

**SAP Komponente**

| | |
|---|---|
| SAP ID | data |
| Dateiname | C:\temp\urlaubsantrag.t |
| Content Type | default |
| Anlegedatum (yyyymmdd) | |
| Anlegezeit (hhmmss) | |
| Änderungsdatum (yyyymmdd) | |
| Änderungszeit (hhmmss) | |
| Version | |
| AL Version | 0046 |
| Charset | |
| Compressionstring | |

**Aktion**

○ linkOpen ○ linkClose

○ documentPropertyGet ○ documentPropertySet ○ componentPropertyGet ○ componentPropertySet

○ componentCreateExt ○ componentUpdate ○ componentDelete ○ componentCreateCOLD

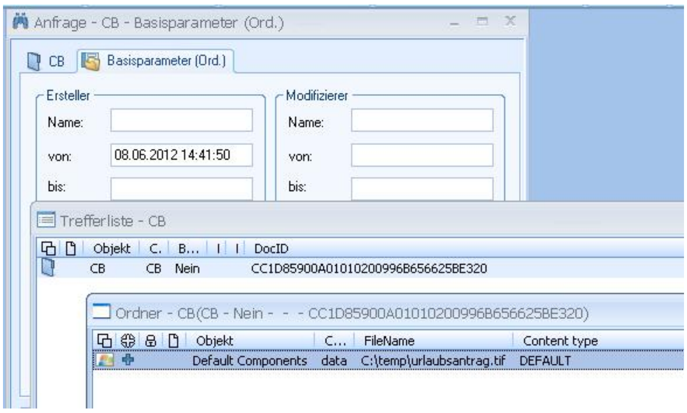
○ componentIdsGet ○ componentStatus ○ componentSize ○ componentGet

○ documentKeysSet Daten: 0

○ writeBarcodeFile Datei: Delimiter: Delete: □

○ componentRead Offset: 0 Length: -1

Carry out a check in enaio® by searching the document, e.g. by using the basic parameters in the corresponding repository.



Anfrage - CB - Basisparameter (Ord.)

Ersteller

Name:
von: 08.06.2012 14:41:50
bis:

Modifizierer

Name:
von:
bis:

Trefferliste - CB

| Objekt | C. | B... | I | I | DocID |
|---|---|---|---|---|---|
| CB | CB | Nein | | | CC1D85900A01010200996B656625BE320 |

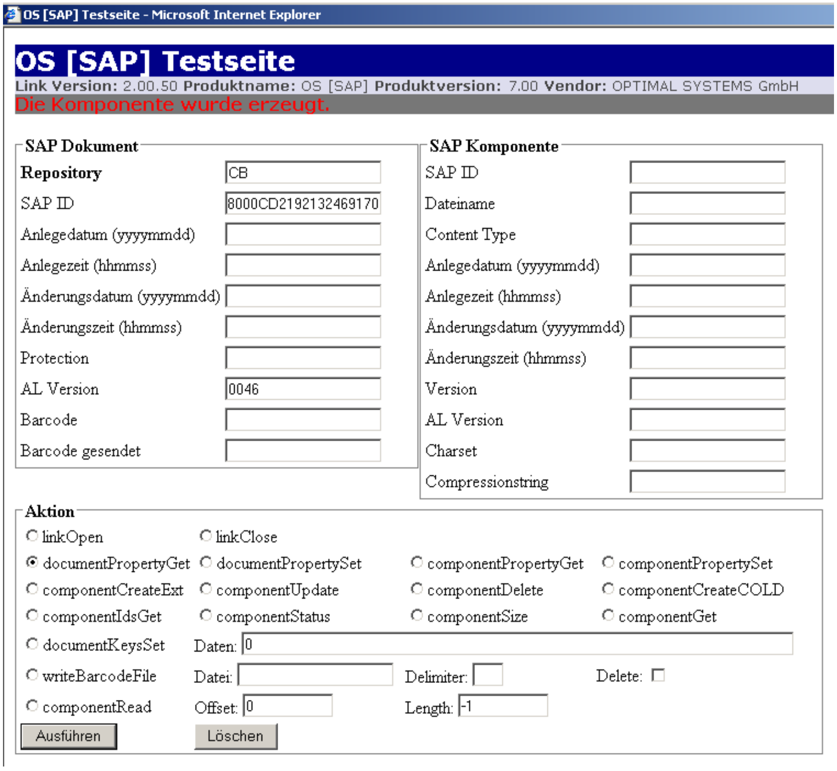
Ordner - CB(CB - Nein - - - CC1D85900A01010200996B656625BE320)

| Objekt | C... | FileName | Content type |
|---|---|---|---|
| Default Components | data | C:\temp\urlaubsantrag.tif | DEFAULT |

Determine document and component properties

Determine the DocID from the recently filed document in the repository and enter it as SAP ID of the document. The 'AL version' of the document is also necessary.

The 'DocumentPropertyGet' function determines the document's (folder's) properties in SAP.



OS [SAP] Testseite - Microsoft Internet Explorer

OS [SAP] Testseite

Link Version: 2.00.50 Produktname: OS [SAP] Produktversion: 7.00 Vendor: OPTIMAL SYSTEMS GmbH

Die Komponente wurde erzeugt.

**SAP Dokument**

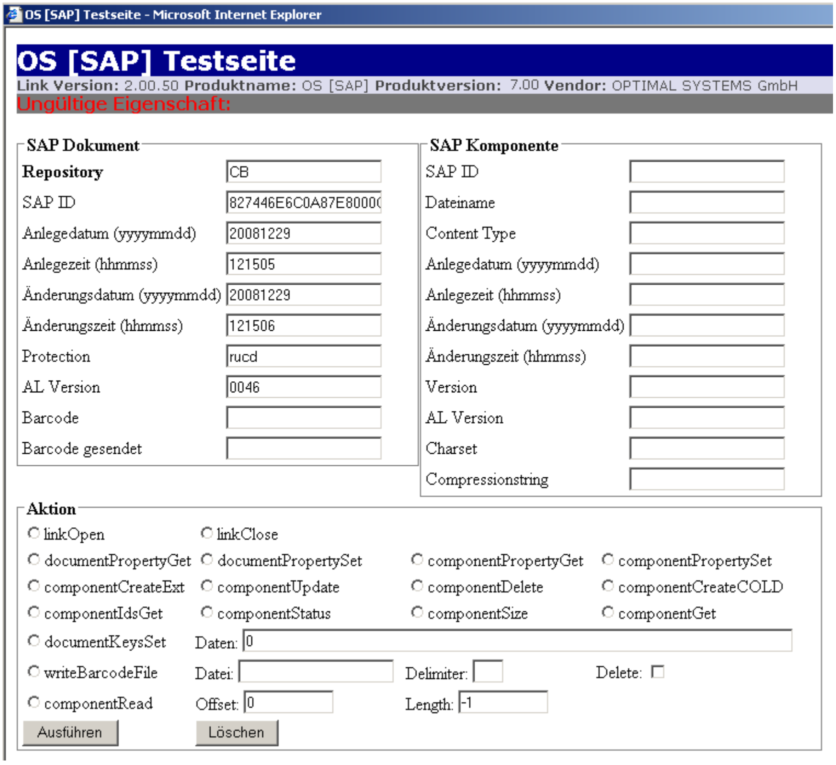
| | |
|---|---|
| **Repository** | CB |
| SAP ID | 8000CD2192132469170 |
| Anlegedatum (yyyymmdd) | |
| Anlegezeit (hhmmss) | |
| Änderungsdatum (yyyymmdd) | |
| Änderungszeit (hhmmss) | |
| Protection | |
| AL Version | 0046 |
| Barcode | |
| Barcode gesendet | |

**SAP Komponente**

| | |
|---|---|
| SAP ID | |
| Dateiname | |
| Content Type | |
| Anlegedatum (yyyymmdd) | |
| Anlegezeit (hhmmss) | |
| Änderungsdatum (yyyymmdd) | |
| Änderungszeit (hhmmss) | |
| Version | |
| AL Version | |
| Charset | |
| Compressionstring | |

**Aktion**

○ linkOpen ○ linkClose
● documentPropertyGet ○ documentPropertySet ○ componentPropertyGet ○ componentPropertySet
○ componentCreateExt ○ componentUpdate ○ componentDelete ○ componentCreateCOLD
○ componentIdsGet ○ componentStatus ○ componentSize ○ componentGet
○ documentKeysSet Daten: 0
○ writeBarcodeFile Datei: Delimiter: Delete: □
○ componentRead Offset: 0 Length: -1



OS [SAP] Testseite - Microsoft Internet Explorer

OS [SAP] Testseite

Link Version: 2.00.50 Produktname: OS [SAP] Produktversion: 7.00 Vendor: OPTIMAL SYSTEMS GmbH

Ungültige Eigenschaft:

SAP Dokument

| | |
|---|---|
| **Repository** | CB |
| SAP ID | 827446E6C0A87E8000( |
| Anlegedatum (yyyymmdd) | 20081229 |
| Anlegezeit (hhmmss) | 121505 |
| Änderungsdatum (yyyymmdd) | 20081229 |
| Änderungszeit (hhmmss) | 121506 |
| Protection | rucd |
| AL Version | 0046 |
| Barcode | |
| Barcode gesendet | |

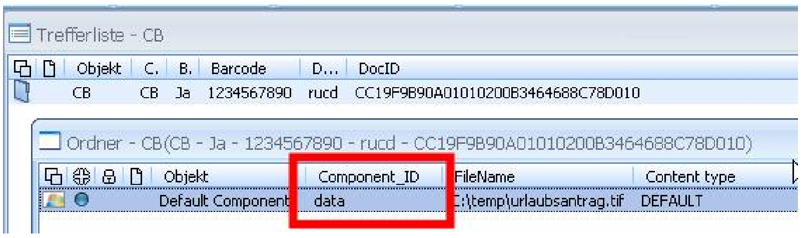
SAP Komponente

| | |
|---|---|
| SAP ID | |
| Dateiname | |
| Content Type | |
| Anlegedatum (yyyymmdd) | |
| Anlegezeit (hhmmss) | |
| Änderungsdatum (yyyymmdd) | |
| Änderungszeit (hhmmss) | |
| Version | |
| AL Version | |
| Charset | |
| Compressionstring | |

Aktion

○ linkOpen ○ linkClose
○ documentPropertyGet ○ documentPropertySet ○ componentPropertyGet ○ componentPropertySet
○ componentCreateExt ○ componentUpdate ○ componentDelete ○ componentCreateCOLD
○ componentIdsGet ○ componentStatus ○ componentSize ○ componentGet
○ documentKeysSet Daten: 0
○ writeBarcodeFile Datei: Delimiter: Delete: □
○ componentRead Offset: 0 Length: -1

Determine the component's ID



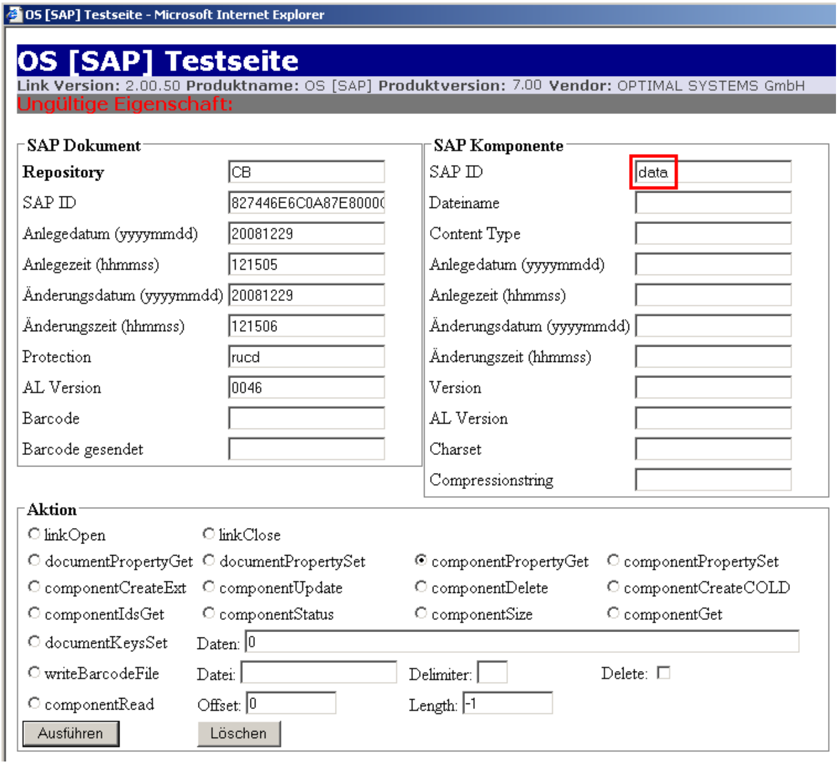
Trefferliste - CB

| Objekt | C. | B. | Barcode | D... | DocID |
|---|---|---|---|---|---|
| CB | CB | Ja | 1234567890 | rucd | CC19F9B90A01010200B3464688C78D010 |

Ordner - CB(CB - Ja - 1234567890 - rucd - CC19F9B90A01010200B3464688C78D010)

| Objekt | Component_ID | FileName | Content type |
|---|---|---|---|
| Default Component | data | C:\temp\urlaubsantrag.tif | DEFAULT |

and enter it as SAP ID of the component.



OS [SAP] Testseite

**Link Version:** 2.00.50 **Produktname:** OS [SAP] **Produktversion:** 7.00 **Vendor:** OPTIMAL SYSTEMS GmbH

Ungültige Eigenschaft:

**SAP Dokument**

| | |
|---|---|
| **Repository** | CB |
| SAP ID | 827446E6C0A87E8000( |
| Anlegedatum (yyyymmdd) | 20081229 |
| Anlegezeit (hhmmss) | 121505 |
| Änderungsdatum (yyyymmdd) | 20081229 |
| Änderungszeit (hhmmss) | 121506 |
| Protection | rucd |
| AL Version | 0046 |
| Barcode | |
| Barcode gesendet | |

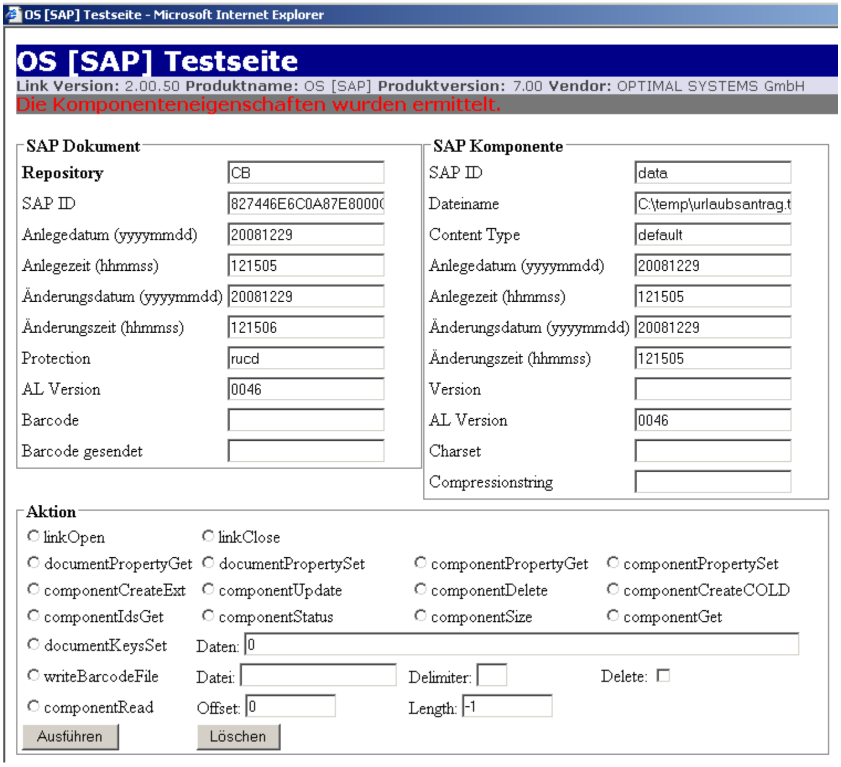
**SAP Komponente**

| | |
|---|---|
| SAP ID | data |
| Dateiname | |
| Content Type | |
| Anlegedatum (yyyymmdd) | |
| Anlegezeit (hhmmss) | |
| Änderungsdatum (yyyymmdd) | |
| Änderungszeit (hhmmss) | |
| Version | |
| AL Version | |
| Charset | |
| Compressionstring | |

**Aktion**

○ linkOpen ○ linkClose
○ documentPropertyGet ○ documentPropertySet ● componentPropertyGet ○ componentPropertySet
○ componentCreateExt ○ componentUpdate ○ componentDelete ○ componentCreateCOLD
○ componentIdsGet ○ componentStatus ○ componentSize ○ componentGet
○ documentKeysSet Daten: 0
○ writeBarcodeFile Datei: Delimiter: Delete: □
○ componentRead Offset: 0 Length: -1

Determine the component's properties with the 'ComponentPropertyGet' function.



OS [SAP] Testseite

**Link Version:** 2.00.50 **Produktname:** OS [SAP] **Produktversion:** 7.00 **Vendor:** OPTIMAL SYSTEMS GmbH

Die Komponenteneigenschaften wurden ermittelt.

**SAP Dokument**

| | |
|---|---|
| **Repository** | CB |
| SAP ID | 827446E6C0A87E8000( |
| Anlegedatum (yyyymmdd) | 20081229 |
| Anlegezeit (hhmmss) | 121505 |
| Änderungsdatum (yyyymmdd) | 20081229 |
| Änderungszeit (hhmmss) | 121506 |
| Protection | rucd |
| AL Version | 0046 |
| Barcode | |
| Barcode gesendet | |

**SAP Komponente**

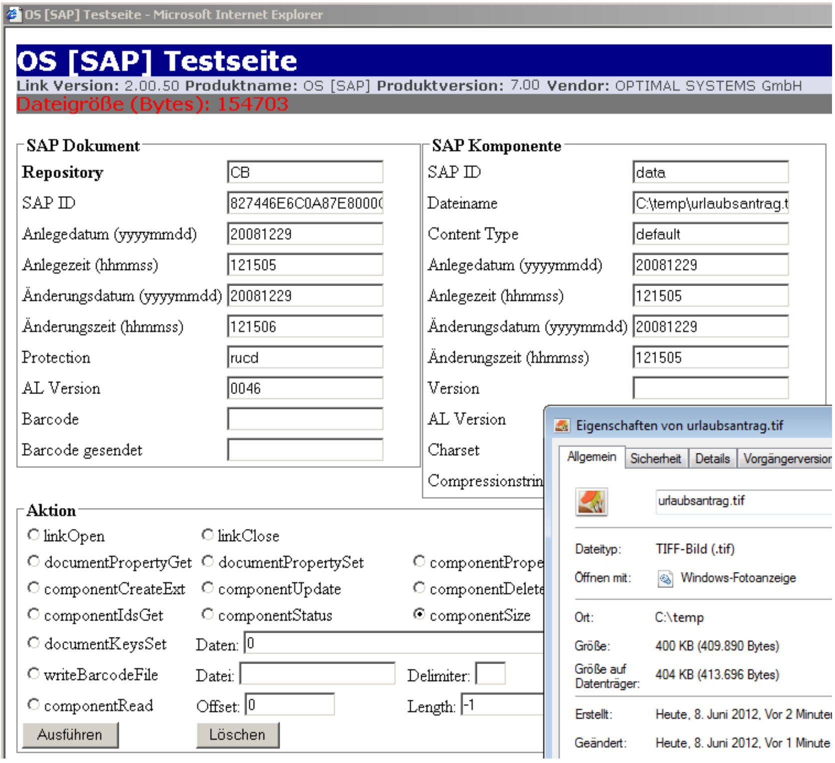
| | |
|---|---|
| SAP ID | data |
| Dateiname | C:\temp\urlaubsantrag.t |
| Content Type | default |
| Anlegedatum (yyyymmdd) | 20081229 |
| Anlegezeit (hhmmss) | 121505 |
| Änderungsdatum (yyyymmdd) | 20081229 |
| Änderungszeit (hhmmss) | 121505 |
| Version | |
| AL Version | 0046 |
| Charset | |
| Compressionstring | |

**Aktion**

○ linkOpen ○ linkClose
○ documentPropertyGet ○ documentPropertySet ○ componentPropertyGet ○ componentPropertySet
○ componentCreateExt ○ componentUpdate ○ componentDelete ○ componentCreateCOLD
○ componentIdsGet ○ componentStatus ○ componentSize ○ componentGet
○ documentKeysSet Daten: 0
○ writeBarcodeFile Datei: Delimiter: Delete: □
○ componentRead Offset: 0 Length: -1

Determine the component's file size

With the 'ComponentSize' function you can determine the size of a component. Here it has the same size as the original document.



OS [SAP] Testseite - Microsoft Internet Explorer

OS [SAP] Testseite

**Link Version:** 2.00.50 **Produktname:** OS [SAP] **Produktversion:** 7.00 **Vendor:** OPTIMAL SYSTEMS GmbH

Dateigröße (Bytes): 154703

**SAP Dokument**

| | |
|---|---|
| **Repository** | CB |
| SAP ID | 827446E6C0A87E8000( |
| Anlegedatum (yyyymmdd) | 20081229 |
| Anlegezeit (hhmmss) | 121505 |
| Änderungsdatum (yyyymmdd) | 20081229 |
| Änderungszeit (hhmmss) | 121506 |
| Protection | rucd |
| AL Version | 0046 |
| Barcode | |
| Barcode gesendet | |

**SAP Komponente**

| | |
|---|---|
| SAP ID | data |
| Dateiname | C:\temp\urlaubsantrag.t |
| Content Type | default |
| Anlegedatum (yyyymmdd) | 20081229 |
| Anlegezeit (hhmmss) | 121505 |
| Änderungsdatum (yyyymmdd) | 20081229 |
| Änderungszeit (hhmmss) | 121505 |
| Version | |
| AL Version | |
| Charset | |
| Compressionstrin | |

**Aktion**

○ linkOpen ○ linkClose
○ documentPropertyGet ○ documentPropertySet ○ componentPrope
○ componentCreateExt ○ componentUpdate ○ componentDelete
○ componentIdsGet ○ componentStatus ● componentSize
○ documentKeysSet Daten: 0
○ writeBarcodeFile Datei: Delimiter:
○ componentRead Offset: 0 Length: -1

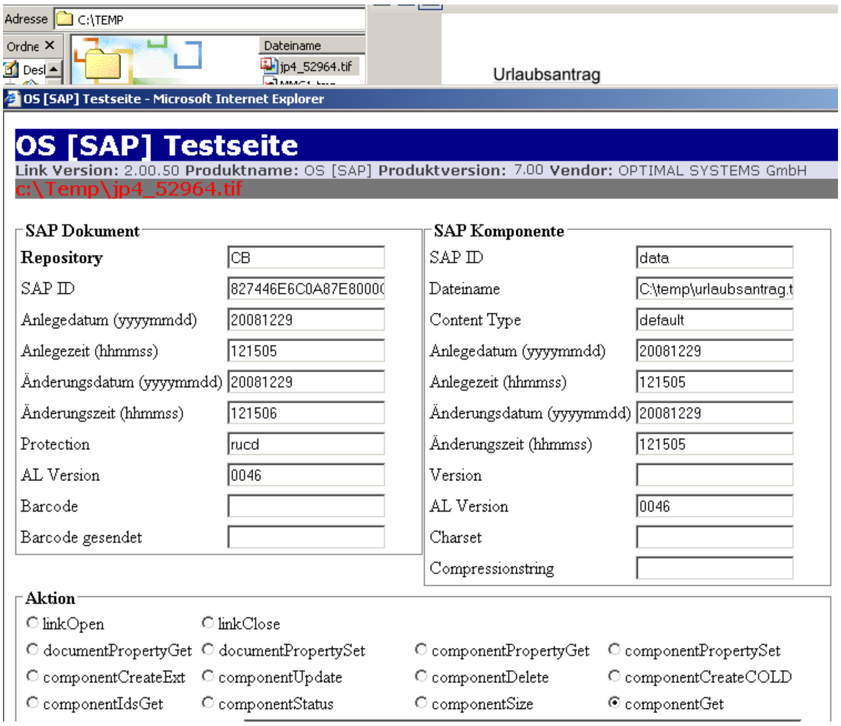
Eigenschaften von urlaubsantrag.tif

urlaubsantrag.tif

| | |
|---|---|
| Dateityp: | TIFF-Bild (.tif) |
| Öffnen mit: | Windows-Fotoanzeige |
| Ort: | C:\temp |
| Größe: | 400 KB (409.890 Bytes) |
| Größe auf Datenträger: | 404 KB (413.696 Bytes) |
| Erstellt: | Heute, 8. Juni 2012, Vor 2 Minuten |
| Geändert: | Heute, 8. Juni 2012, Vor 1 Minute |

Read and provide the component

The file is provided with the 'ComponentGet' function.



OS [SAP] Testseite - Microsoft Internet Explorer

OS [SAP] Testseite

**Link Version:** 2.00.50 **Produktname:** OS [SAP] **Produktversion:** 7.00 **Vendor:** OPTIMAL SYSTEMS GmbH

c:\Temp\jp4_52964.tif

**SAP Dokument**

| | |
|---|---|
| **Repository** | CB |
| SAP ID | 827446E6C0A87E8000( |
| Anlegedatum (yyyymmdd) | 20081229 |
| Anlegezeit (hhmmss) | 121505 |
| Änderungsdatum (yyyymmdd) | 20081229 |
| Änderungszeit (hhmmss) | 121506 |
| Protection | rucd |
| AL Version | 0046 |
| Barcode | |
| Barcode gesendet | |

**SAP Komponente**

| | |
|---|---|
| SAP ID | data |
| Dateiname | C:\temp\urlaubsantrag.t |
| Content Type | default |
| Anlegedatum (yyyymmdd) | 20081229 |
| Anlegezeit (hhmmss) | 121505 |
| Änderungsdatum (yyyymmdd) | 20081229 |
| Änderungszeit (hhmmss) | 121505 |
| Version | |
| AL Version | 0046 |
| Charset | |
| Compressionstring | |

**Aktion**

○ linkOpen ○ linkClose
○ documentPropertyGet ○ documentPropertySet ○ componentPropertyGet ○ componentPropertySet
○ componentCreateExt ○ componentUpdate ○ componentDelete ○ componentCreateCOLD
○ componentIdsGet ○ componentStatus ○ componentSize ● componentGet

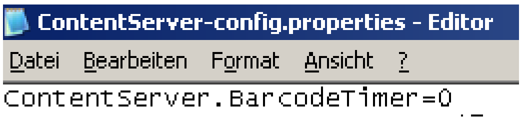
Test: barcode upload

For the test, it is important to know in which time intervals the barcodes are reported.

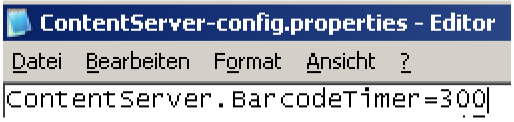
The time interval between two barcode uploads is controlled here with the `BARCODETIMER` parameter in the `ContentServerConfig.properties` configuration file.

In a productive environment where barcodes are uploaded, it is recommended to set a high value for this test in order to prevent accidental upload of the test document.

After such a change, it is necessary to start the content server so that this parameter can be read again.

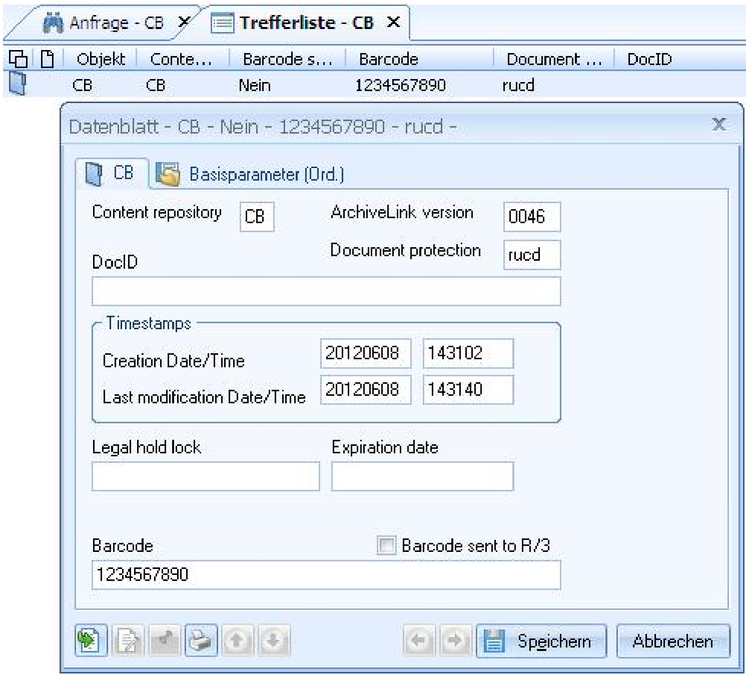

ContentServer-config.properties - Editor
Datei Bearbeiten Format Ansicht ?

```
ContentServer.BarcodeTimer=0
```


ContentServer-config.properties - Editor
Datei Bearbeiten Format Ansicht ?

```
ContentServer.BarcodeTimer=300
```

Now a barcode can be entered in the data form of the document from the first test, and the 'Barcode sent to R3' document flag can be removed. The DocID does not have to be removed. Immediately afterwards, the test can be carried out on the test page.



| Objekt | Conte... | Barcode s... | Barcode | Document ... | DocID |
|---|---|---|---|---|---|
| CB | CB | Nein | 1234567890 | rucd | |

Content repository: CB

ArchiveLink version: 0046

Document protection: rucd

DocID:

Timestamps

Creation Date/Time: 20120608 143102

Last modification Date/Time: 20120608 143140

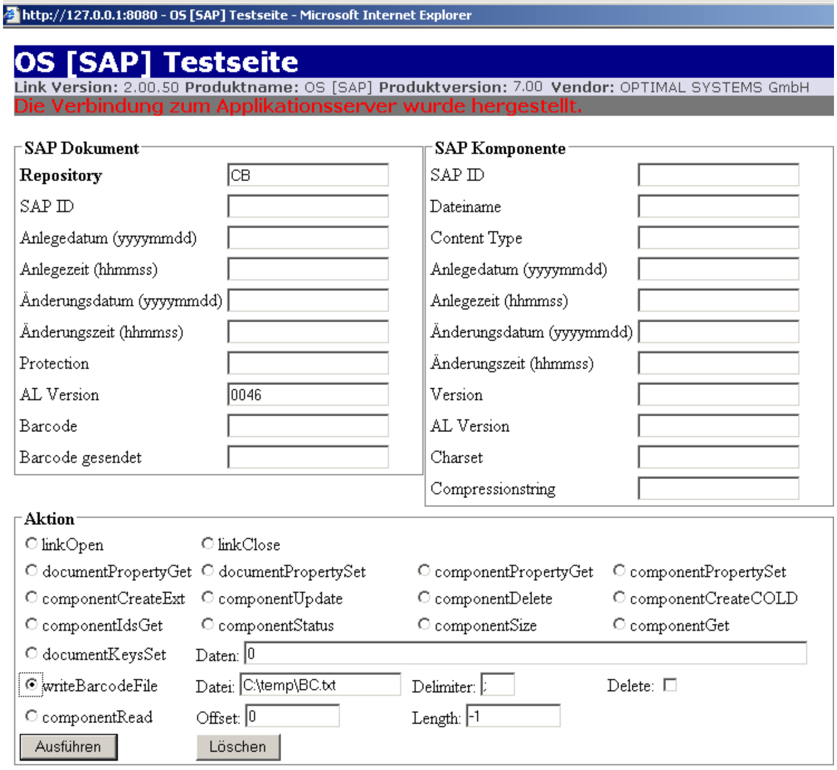
Legal hold lock:

Expiration date:

Barcode: 1234567890

□ Barcode sent to R/3

After the connection to the application server has been established, enter a file in a valid path, specify a delimiter, e.g. a semicolon, and chose the 'Writebarcodefile' function and press 'Execute'.



http://127.0.0.1:8080 - OS [SAP] Testseite - Microsoft Internet Explorer

OS [SAP] Testseite

Link Version: 2.00.50 Produktname: OS [SAP] Produktversion: 7.00 Vendor: OPTIMAL SYSTEMS GmbH

Die Verbindung zum Applikationsserver wurde hergestellt.

**SAP Dokument**

| | |
|---|---|
| **Repository** | CB |
| SAP ID | |
| Anlegedatum (yyyymmdd) | |
| Anlegezeit (hhmmss) | |
| Änderungsdatum (yyyymmdd) | |
| Änderungszeit (hhmmss) | |
| Protection | |
| AL Version | 0046 |
| Barcode | |
| Barcode gesendet | |

**SAP Komponente**

| | |
|---|---|
| SAP ID | |
| Dateiname | |
| Content Type | |
| Anlegedatum (yyyymmdd) | |
| Anlegezeit (hhmmss) | |
| Änderungsdatum (yyyymmdd) | |
| Änderungszeit (hhmmss) | |
| Version | |
| AL Version | |
| Charset | |
| Compressionstring | |

**Aktion**

○ linkOpen ○ linkClose

○ documentPropertyGet ○ documentPropertySet ○ componentPropertyGet ○ componentPropertySet

○ componentCreateExt ○ componentUpdate ○ componentDelete ○ componentCreateCOLD

○ componentIdsGet ○ componentStatus ○ componentSize ○ componentGet

○ documentKeysSet Daten: 0

● writeBarcodeFile Datei: C:\temp\BC.txt Delimiter: ; Delete: □

○ componentRead Offset: 0 Length: -1

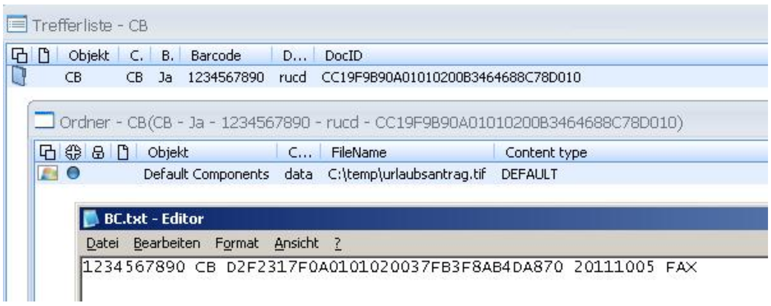
All documents of the specified repositories which have a barcode and for which no 'Barcode sent to R/3' document flag has seen set will be determined.

The barcodes of these documents will be written to the specified barcode file.

At least one data set for the edited document will be written into the mentioned file. All other documents result from documents which have reached the system in the meantime and whose barcodes have to be uploaded.

However, as the 'Barcode sent to R3' document flag is not set by the test page this causes no problem.

The 'Barcode sent to R3' document flag has to be set immediately for the test document in enaio® client or the barcode has to be removed as otherwise barcodes would be uploaded for this document.



Trefferliste - CB

| Objekt | C. | B. | Barcode | D... | DocID |
|---|---|---|---|---|---|
| CB | CB | Ja | 1234567890 | rucd | CC19F9B90A01010200B3464688C78D010 |

Ordner - CB(CB - Ja - 1234567890 - rucd - CC19F9B90A01010200B3464688C78D010)

| Objekt | C... | FileName | Content type |
|---|---|---|---|
| Default Components | data | C:\temp\urlaubsantrag.tif | DEFAULT |

BC.txt - Editor

```
1234567890 CB D2F2317F0A0101020037FB3F8AB4DA870 20111005 FAX
```

This action therefore has to be done within the period between two regular barcode uploads of the content server.

The initial value for the barcode timer can then be reset.

For the simulation you can create demo datasets for the index data iport with the 'documentKeySet' function and you can call data from the enaio® system with the 'componentRead' function.

Please note that the SAP ID and the repository have to be manually written to an export file and that the entry [AXIMPEX] in the export CFG file has to be changed to [ASIMPEX].

## Testing SAP Integration

### Setting up the Content Repository (OAC0)

After setting up the content repository and after successfully calling the status page, the connection between the SAP content repository and enaio® repository-manager has to be tested.

This is done with the SAP transaction 'OAC0' under 'Test connection'.

If connection problems occur, necessary measures for error recovery have to be taken.

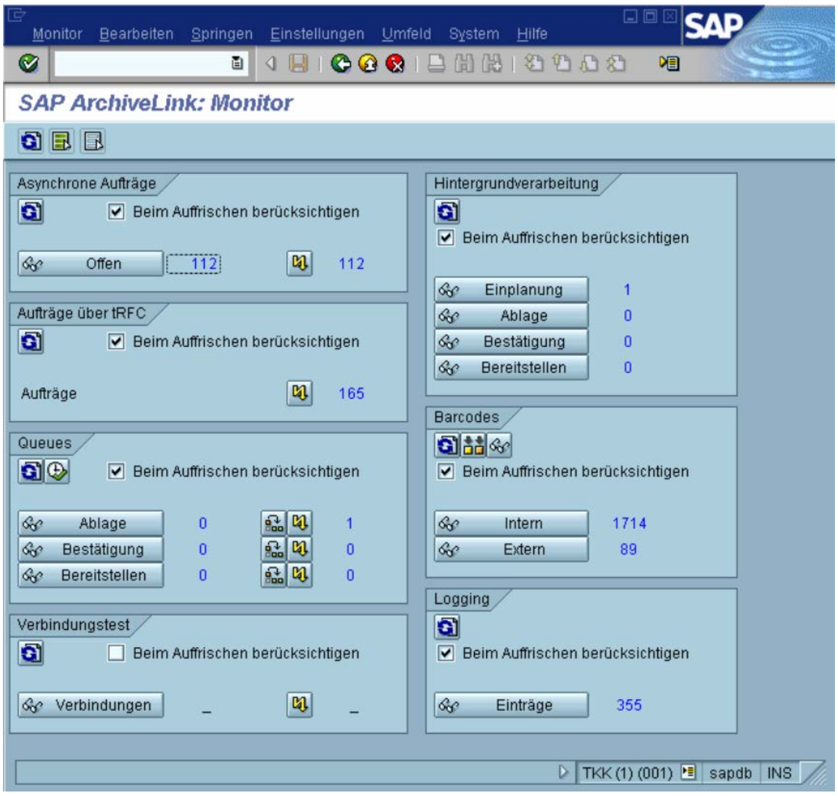
### ArchiveLink Monitor

Central contact point for monitoring proper functioning of the set up ArchiveLink interface is the ArchiveLink monitor in SAP. It can be accessed with the transaction 'OAM1'.

The monitor is divided into the following sections.

- Asynchronous orders (e.g. relevant for print list filing)
- Orders with tRFC (outgoing SAP documents, PDF)
- Queues (set up ArchiveLink queues)
- Connection test (availability of set up content repositories)
- Background processing (e.g. relevant for print list filing)
- Barcodes (relevant for early/late capture scenarios with barcode)
- Logging

Entries in the error log in the corresponding sections become visible by clicking the button.



SAP ArchiveLink: Monitor

Asynchrone Aufträge

☑ Beim Auffrischen berücksichtigen

Offen 112 112

Aufträge über tRFC

☑ Beim Auffrischen berücksichtigen

Aufträge 165

Queues

☑ Beim Auffrischen berücksichtigen

Ablage 0 1

Bestätigung 0 0

Bereitstellen 0 0

Verbindungstest

□ Beim Auffrischen berücksichtigen

Verbindungen _ _

Hintergrundverarbeitung

☑ Beim Auffrischen berücksichtigen

Einplanung 1

Ablage 0

Bestätigung 0

Bereitstellen 0

Barcodes

☑ Beim Auffrischen berücksichtigen

Intern 1714

Extern 89

Logging

☑ Beim Auffrischen berücksichtigen

Einträge 355

TKK (1) (001) sapdb INS

# Import Class

## General

Alternatively, you can display the import scenario with a separate Java implementation instead of importing index data from SAP to the enaio® system. To do so, you have to derive an existing class and implement a method.

This procedure offers advantages compared to the import scenario with an import file and enaio® import-export.

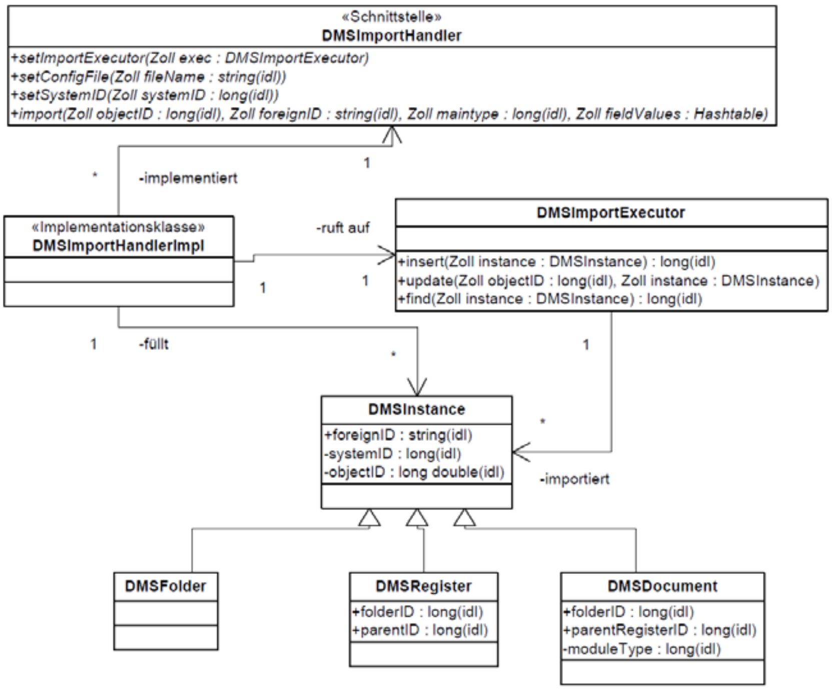
§ With the options of the enaio® Java API (JDL), more complex scenarios than with the standard data and document import can be realized.

§ Import is done synchronously with the opportunity to react on errors.

In order to realize customers' requirements immediately, an implementation of the basic import functionality is provided from the beginning, i.e. searching for, refreshing and inserting enaio® objects.

## Classes

The following diagram offers an overview over the provided classes.


«Schnittstelle»
DMSImportHandler
+setImportExecutor(Zoll exec : DMSImportExecutor)
+setConfigFile(Zoll fileName : string(idl))
+setSystemID(Zoll systemID : long(idl))
+import(Zoll objectID : long(idl), Zoll foreignID : string(idl), Zoll maintype : long(idl), Zoll fieldValues : Hashtable)
*
-implementiert
1
«Implementationsklasse»
DMSImportHandlerImpl
-ruft auf
1
1
DMSImportExecutor
+insert(Zoll instance : DMSInstance) : long(idl)
+update(Zoll objectID : long(idl), Zoll instance : DMSInstance)
+find(Zoll instance : DMSInstance) : long(idl)
1
-füllt
*
1
DMSInstance
+foreignID : string(idl)
-systemID : long(idl)
-objectID : long double(idl)
*
-importiert
DMSFolder
DMSRegister
+folderID : long(idl)
+parentID : long(idl)
DMSDocument
+folderID : long(idl)
+parentRegisterID : long(idl)
-moduleType : long(idl)

The classes 'DMSInstance', 'DMSFolder', 'DMSDocument' and 'DMSRegister' are pre-implemented and can be reused. They store index data as well as the class 'DMSImportExecutor' which is used to call import actions.

## DMSInstance

The class 'DMSInstance' is the basic implementation for all objects of the enaio® object definition (folders, registers, documents). As such it has certain properties which can be set and read.

| Field | Data type | Description |
|---|---|---|
| ObjectID | Long | The 'ObjectID' indicates the object's ID which is necessary for uniquely identifying the enaio® object. |
| InstanceClass | Int | Indicates the type of the used enaio® object (cabinet, register type, document type). Here, the values are indicated additionally in the static fields of 'DMSObjectClass':<br>Folder = 1<br>Register = 2<br>Document = 3 |
| Archives | String | Name of the content repository |
| DMSName | String | Object type assigned to the content repository |
| ForeignID | String | Indicates the external ID (object ID) for the original enaio® document in the technical |

| | | |
|---|---|---|
| | | cabinet of the enaio® object definition for enaio® repository-manager. |
| FieldValues | Hash<String,String> | Indicates the field values for the instance. The key in this case matches the field name and the value matches the field value. |
| SearchValues | Hash<String,String> | Indicates fields for search operations. The key in this case indicates the field name. The value indicates the field value which is searched. |
| SystemValues | Hash<String,String> | Indicates fields which represent system fields (e.g. external IDs or certain document flags). These fields are used for specific operations. |

## DMSFolder

The DMSInstance class is directly derived from the DMSFolder class and folder logic is implemented.

## DMS Register

The DMSRegister class is directly derived from DMSInstance and implements the logic for a register. The DMSInstance class is thereby extended by the following information.

| Field | Data type | Description |
|---|---|---|
| ParentRegisterID | Long | Returns the ID of the superior register. If the register is not located in a superior register, the value 0 will be returned. |
| ParentFolderID | Long | Returns the ID of the superior folder. The default value is 0. |

Please note that IDs cannot be determined dynamically, but have to be explicitly set for the corresponding instance before.

## DMS Document

The DMSDocument class is directly derived from DMSInstance and implements the logic for a register. The DMSInstance class is thereby extended by the following information.

| Field | Data type | Description |
|---|---|---|
| ParentRegisterID | Long | Returns the ID of the superior register. If the document is not located in a superior register, the value 0 will be returned. |
| ParentFolderID | Long | Returns the ID of the superior folder. The default |

| | | |
|---|---|---|
| | | value is 0. |

Please note that IDs cannot be determined dynamically, but have to be explicitly set for the corresponding instance before.

## ImportExecutor

The ImportExecutor represents a class which is used to facilitate the implementation of certain standard functions regarding the interaction with enaio®. These are especially functions such as finding, inserting and updating enaio® objects and creating querys for JDL.

The functions of the ImportExecutor class are listed and described below:

| Function | Parameter | Description |
|---|---|---|
| Constructor | Session | Use the constructor to create a new ImportExecutor object. However, this will not be necessary as the class which has to be implemented will already have a derived ImportExecutor instance. The parameter will indicate a valid JDL session to an enaio® system. |
| SetTableFieldSeparator | String | Here you can define a separator for the indication of table field values. |
| FindInstance | DMSInstance | You can search for an enaio® object whose ID will be returned as 'Long'. The enaio® object will be characterized by the 'DMSInstance'. |
| InsertInstance | DMSInstance | Here you can insert an enaio® object which is defined by DMSInstance to the enaio® system. The ID of the new enaio® object will be returned as 'Long'. |
| UpdateInstance | DMSInstance | Thus you can update an enaio® object whereby the object is characterized by DMSInstance.<br>Please note that the searched enaio® object is identified by the indication of search fields. |
| BuildInstanceQuery | DMSInstance | With this method, you can create a query for the JDL which is based on DMSInstance. |

Please note that the described functions display error and inconsistencies with an import exception of which your implementation has to take care.

## ImportHandlerDrtImpl

The ImportHandlerDrtImpl class represents the class from which you have to derive your implementation of the import class. The following methods, which you require for your implementation and which will be overwritten, are therefore all the more important. Basically, you have to overwrite the doImport method as this method is called by enaio® repository-manager for the actual import of the index data.

| Method | Parameter | Description |
|---|---|---|
| SetUp | ImportExecutor<br>SystemID (long)<br>ConfigFile(String) | The method is called to initialize the import class. The system ID and the path to the configuration file of the import class will passed to the method. An ImportExecutor instance will be provided by enaio® repository-manager and also passed to this initialization method. |
| TearDown | | This method is called when the import class is terminated. |
| SetIndexExportPath | IndexExportPath (String) | This method can be used to set a path for exporting index data. |
| DoImport | RepositoryName (String)<br>SapDocID (String)<br>ComponentID (String)<br>KeyValues (Hash<String,String>) | This method is called for every import of index data. You absolutely have to overwrite this method as your import logic has to be implemented here.<br>The KeyValues hash table contains the index data with the key corresponding to the index data field and the value corresponding to the index value. |

Please note, if you overwrite methods in your own implementation, make sure to invoke the overridden methods, because certain values have been set there and a corresponding logic has been implemented. To overwrite the doImport method, the call would have to look as follows:

```
@Override
public void doImport(String repositoryName, String sapDocID, String
compID, Hashtable<String, String> keyValues) throws ImportException
{
      super.doImport(repositoryName, sapDocID, compID, keyValues);
}
```

## Developing an Import Class

To implement your own import class, you have to reference the Java namespace com.os.sapalink.dmsimport to get access to the classes and methods described before.

> It is recommended to set up the development environment in such a way that the compiled Java classes (Java class files) are accessible using the class path of the development environment, at compilation time at the latest.

Afterwards you have to derive the ImportHandlerDrtImpl class and overwrite the doImport method. Invoke the overwritten method in the super class before the implementation follows its logic.

You can now access the 'exec' field in your import class, which represents an instance of ImportExecutor and thus offers support for displaying your enaio® operations.

## Integrating an Import Class in enaio® repository-manager

After you have written your own import class, you have to successfully compile it and afterwards file the result of the compilation (<class name>.class) in the corresponding structure of the `Web-inf\classes` directory of enaio® repository-manager.

> Please note that when you choose subdirectory structures in the `Web-inf\classes` path, you have to reproduce or use the structure of the used namespace. If necessary, refer to the JAVA specification.
>
> After you have published your class, it is absolutely necessary to restart the Apache Tomcat Web server so that the class can be read by the JVM (Java Virtual Machine).

Afterwards you can specify your class as import class with its full namespace in the configuration of the enaio® integration (see 'Import handler class'). Here you can also check whether your class can be found by the JVM and whether it corresponds to the ImportHandlerDrtImpl class signature.

# SAP Information Lifecycle Management (ILM)

## Task

SAP Information Lifecycle Management (ILM) functionality is implemented by enaio® repository-manager.

## Requirements

SAP ILM requires SAP NetWeaver 7.0 Application Server Java (AS_JAVA 7.01) with the SAP Enhancement Package 1 (EhP 1).

## Data Modelling

### Data Model in SAP ILM

#### Structure

The data management structure of SAP ILM is similar to the structure of a file system. SAP ILM knows two object types: collections and resources.

Collections resemble directories. They do not contain own data but resources and other collections.

Resources contain data content, which nevertheless can be empty (0 bytes). Unlike collections, they cannot contain other SAP ILM objects.

#### SAP ILM Object Properties

Each SAP ILM object, i.e. collections and resources, has the following properties:

##### URI

Within the SAP ILM directory tree each SAP ILM object is identified by a unique Uri. The Uri structure follows the hierarchical structure of its parent elements and their Uri. The virtual root node to which no existing SAP ILM object can be assigned, is '/'.

##### Retention period

Each SAP ILM object has a date defining its retention period. Neither a SAP ILM object nor its subordinated objects can be deleted unless this period has expired. Only their contents can be modified.

##### Retention due to legal reasons (legal hold)

This property, for example file numbers, may be represented by a string. If the value is not empty, the SAP ILM object is locked. Thus, it cannot be deleted even if the retention period has already expired. For example, in the framework of litigation means of evidence can be prevented from being deleted (legal hold).

### Properties

SAP ILM objects can have several properties, each being a pair of property key and its value, which do not need to be specified further. These properties are kept in a list of every SAP ILM object.

## Data Model in enaio®

Filing SAP ILM data into enaio® by enaio® repository-manager requires a specific generic object definition. This is composed of the following objects:

| Object type | Internal name | SAP ILM object |
|---|---|---|
| Cabinet | SAPILM_COLLECTION | Collection |
| W-document | SAPILM_RESOURCE | Resource |

Registers are not used. Both cabinet and document type must have the same fields.

| Field | Internal name | Data type | Description |
|---|---|---|---|
| Uri | URL_ADDRESS | All characters (Length 1024) | Unique identification of the SAP ILM object |
| Expiration date | EXPIRATION_DATE | Date | Retention period of the SAP ILM object |
| Legal hold | LEGAL_HOLD | All characters (Length 1024) | Retention due to legal reasons (legal hold) |
| Marked as deleted | DELETED | Boolean (Checkbox) | SAP ILM object marked as deleted |
| Properties | PROPERTIES | All characters (Length 2000) | Properties of the SAP ILM object |

Please note that for identification enaio® repository-manager SAP ILM uses internal object type and field names. Thus, these must not be changed.

# Functionality

## Create Objects

By using the content server, enaio® repository-manager allows you to archive objects from the SAP system as SAP ILM objects. These objects are organized in a directory structure so that each object, no matter if its a collection or a resource, has a unique URI assigned. All objects belong to a logical repository that precedes the URI. Each SAP ILM objects then has a URI structured like this:

```
/<Repository>/<Path>/<Path>/<Object name>
```

When creating new objects all objects at the parent path are assumed to exist. As the sole exception, the repository root is implicitly created if it does not exist.

```
/<Repository>/
```

To not corrupt filing integrity you are strongly advised against modifying the enaio® filing structure by hand.

## Deleting Objects

When deleting a SAP ILM object, all subordinated objects are deleted as well except that one of the following exceptions apply:

- If the object to be deleted has a retention period not yet expired or is subject to legal hold, neither the object nor its subordinated objects are deleted.
- If a subordinated object cannot be deleted as it is subject to a valid retention period or legal hold, its subordinated objects and parent objects are not deleted either.

> When deleting objects with enaio® repository-manager, they will not be deleted from the enaio® system but only marked as 'deleted'.
>
> These objects can be removed from enaio® with the automatic action 'Delete objects' `axacdel.dll`. Automatic actions are set up in enaio® administrator.

# Configuration

## Preparing enaio®

### Deleting Marked Objects With an Automatic Action

Collections and resources which have been marked as 'deleted' by enaio® repository-manager, can be removed from enaio® with the automatic action 'Delete objects' `axacdel.dll`.

For this purpose, use enaio® administrator and set up an action sequence that runs the 'Delete objects' action for both collections and resources. Detailed information on the setup of automatic actions can be found in the administration handbook.

In the `...webapps\OSR3\MISC` directory of the Web application server, you will find pre-defined queries – `SAPILM Deleted Collections Query.txt` and `SAPILM Deleted Resources Query.txt` – in order to determine collections and resources that are marked as 'deleted.'

> It is recommended to delete determined objects permanently; the documents can otherwise be restored from the enaio® trash can.

## enaio® repository-manager Setup

The enaio® repository-manager SAP ILM function is activated by entering the following values in the `ContentServer-config.properties` configuration file in the `...webapps\OSR3` directory of the Web application server:

| Key | Value | Description |
|---|---|---|
| ContentServer.SAPILMClass | com.os.osr3.sapilm.SAPILMLink | Class which contains the implementation of the SAP ILM feature. |
| SAPILMContRep | XX | Repository to which SAP ILM objects are assigned. |
| SAPILMUser | XMLDAS | User name for communication with the content server |
| ContentServer.SAPILMPassword | ?;89khi | Password for communication with the content server |
| SAPILMLicenseKey | XXX | License key for the SAP ILM feature on the content server |
| SAPILM_AL_RefCheckDisable | 0 | Specifies whether the ArchiveLink document has to be locked (=1) or if there is a connection between an SAP ILM object and an ArchiveLink document (=0). |

Furthermore configure enaio® repository-manager SAP ILM in the Web application as follows:

| Key | Value | Description |
|---|---|---|
| Cache objects | Yes | To increase performance all objects to be processed can be cached. Please |

| | | |
|---|---|---|
| | | note that this option requires more memory space. |
| Maximum cache size | 1000 | Set the maximum size for the object cache. |
| Locale of the database | de-DE or en-EN | Locale of the enaio® database server according to ISO/EN 639 or ISO/EN 3166. German (Germany), for example, is indicated as de-DE and English (USA) is indicated as en-US. If you do not specify a locale, the locale of the Web application server will be used. |

# Setting up SAP

## Default configuration

### XMLDAS User Account and Its Rights

- Use the SAP J2EE user administration (http://<hostSAPJ2EEengine>:<HTTPport>/useradmin) to configure the user account. Log in as Administrator.

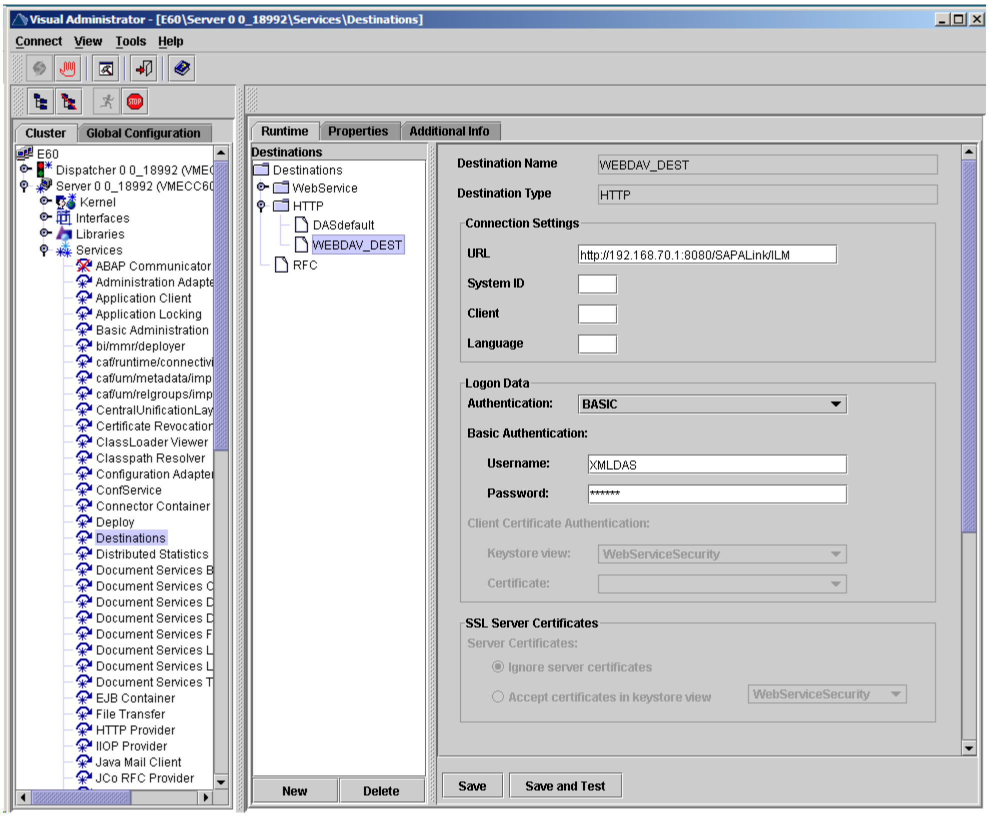
  Create a new user account named XMLDAS with the password 'abc123' and assign 'technical user' the security policy to it in order to suppress password change requests. Add the 'UME' role to 'SAP_ARCH_SUPERADMIN'.

- In the Visual Administrator open your server under the point 'Cluster' and select the entries 'Services' and 'Security Provider'. Activate the 'Policy Configurations' tab and select the 'sap.com/tc~TechSrv~XML_DAS*DataArchivingService' entry under 'Components'. On the right side of the interface, activate the 'Security Roles' tab, select the 'XMLDASSecurityRole' role and switch to edit mode.

  Please make sure that under 'Security' the 'Role' entry is selected. Assign the 'XMLDASSecurityRole' role to the XMLDAS user by pressing 'Add' for 'Mappings'. Mark the XMLDAS user and press OK.

### Connections

All this is need even though no XML DAS Archiving Connector is supposed to run. Instead, the Certification Suite relies on the DAS default destination. Another destination is used to connect XML DAS to the WebDAV server.



Destination Name: WEBDAV_DEST

Destination Type: HTTP

Connection Settings

URL: http://192.168.70.1:8080/SAPALink/ILM

System ID:

Client:

Language:

Logon Data

Authentication: BASIC

Basic Authentication:

Username: XMLDAS

Password: ******

Client Certificate Authentication:

Keystore view: WebServiceSecurity

Certificate:

SSL Server Certificates

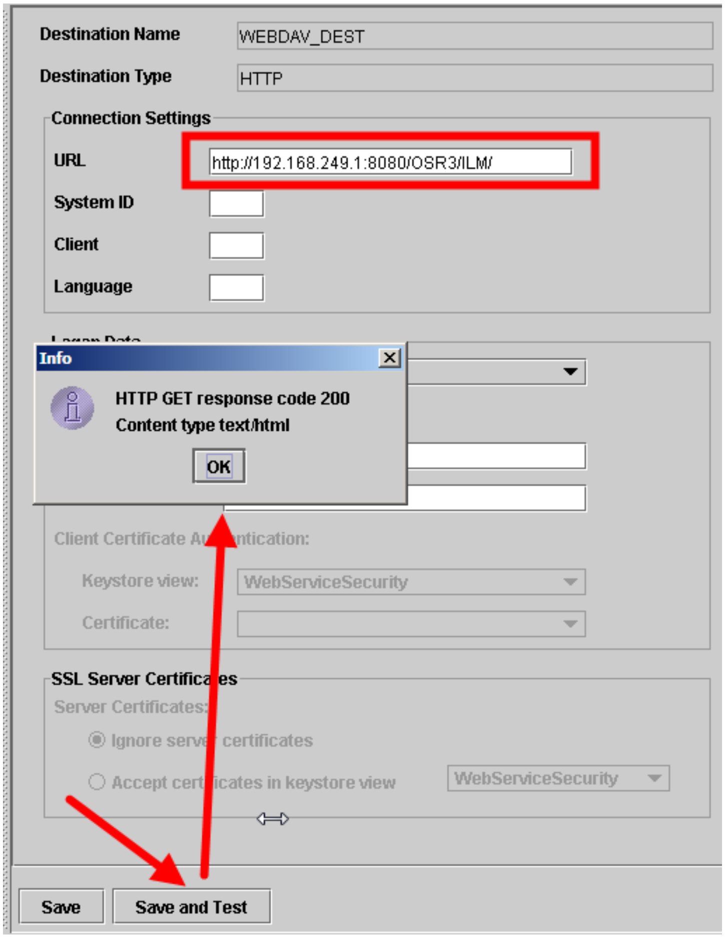
Server Certificates:

● Ignore server certificates

○ Accept certificates in keystore view WebServiceSecurity

For configuration use the Visual Administrator.

- § Select your server from the cluster and navigate to Services > Destinations. Select HTTP and create a new destination named DASdefault. Note that case sensitivity must be considered. Type the URL of your local XML Data Archiving Service (`http://localhost:<HTTP-Port>/DataArchivingService/DAS`). Select 'Basic' as authentication method, type 'XMLDAS' and 'abc123' as the username and the password, respectively, and save your changes.
- § Repeat the preceding steps for a another account named 'WEBDAV_DEST'. As the URL specify your WebDAV server including the root collection you have created as well as required basic access data (e.g. WEBDAV/abc123) for your WebDAV server.



Destination Name: WEBDAV_DEST

Destination Type: HTTP

Connection Settings

URL: http://192.168.249.1:8080/OSR3/ILM/

System ID:

Client:

Language:

Info

HTTP GET response code 200
Content type text/html

Client Certificate Authentication:

Keystore view: WebServiceSecurity

Certificate:

SSL Server Certificates

Server Certificates:

● Ignore server certificates

○ Accept certificates in keystore view WebServiceSecurity

§ Again configure a new account named 'WRONG_DEST', but enter wrong access data (e.g. WEBDAV/xyz4711).

### XML Data Archiving Service Configuration (XML DAS)

Open the XML DAS Administration URL and log in to the XMLDAS user account:

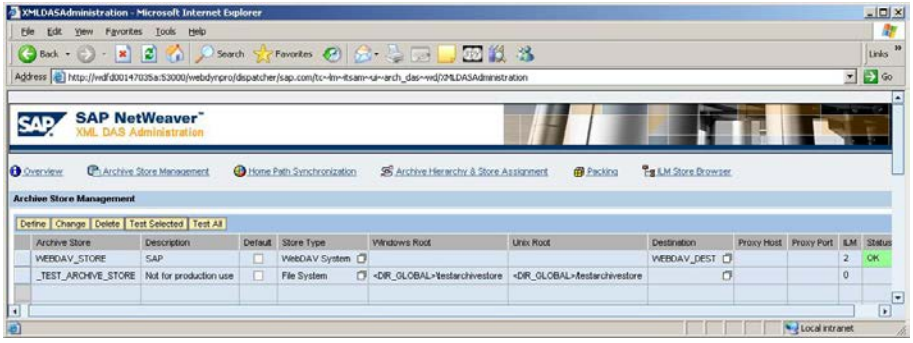
http://<host sapj2ee engine>:<port>/dataarchivingservice/das

§ Create a new archive store in the 'Define' Archive Store Management:

Archive store: WEBDAV_STORE
Description: SAP
Store type: Select WebDAV System
Destination: Select WEBDAV_DEST

Then click OK.

The archive store status must switch to OK (green), and the ILM conformity value must be set to 2.


XMLDASAdministration - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://wdfd00147035a:53000/webdynpro/dispatcher/sap.com/tc~lm~itsam~ui~arch_das~wd/XMLDASAdministration
Links Go
SAP NetWeaver
XML DAS Administration
Overview
Archive Store Management
Home Path Synchronization
Archive Hierarchy & Store Assignment
Packing
ILM Store Browser
Define Change Delete Test Selected Test All
Local intranet

**Archive Store Management**

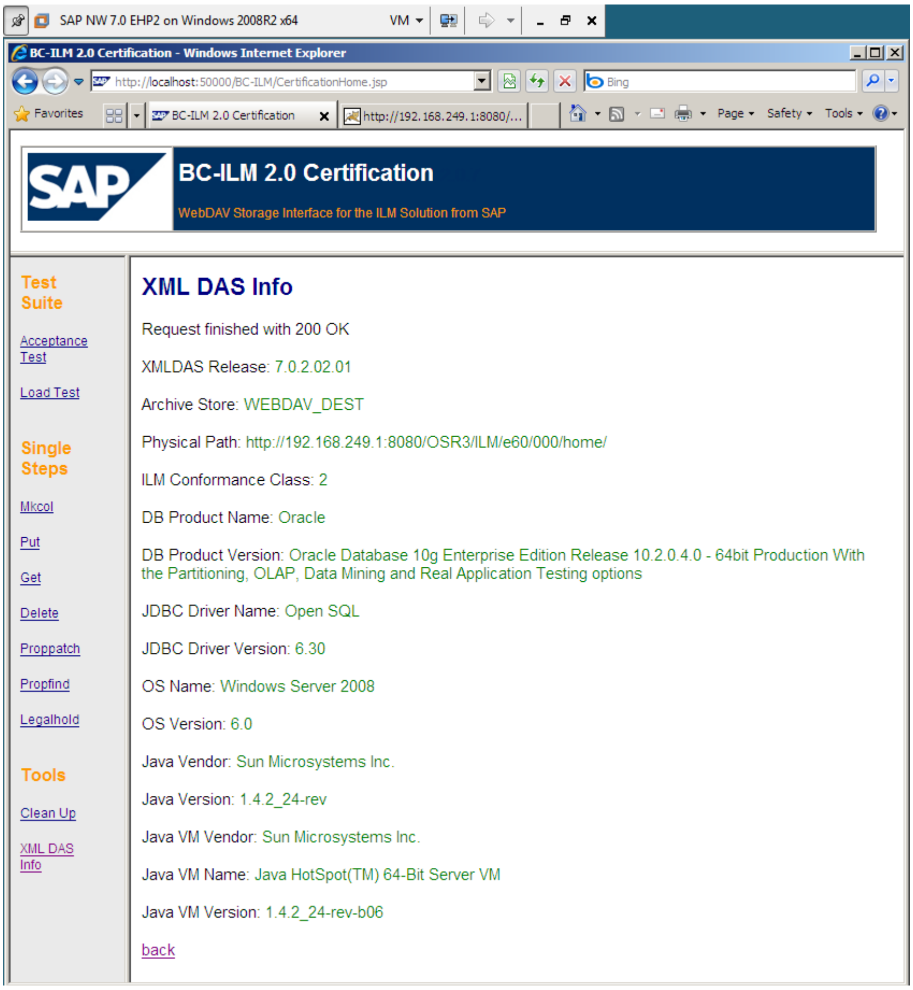
| Archive Store | Description | Default | Store Type | Windows Root | Unix Root | Destination | Proxy Host | Proxy Port | ILM | Status |
|---|---|---|---|---|---|---|---|---|---|---|
| WEBDAV_STORE | SAP | □ | WebDAV System |  |  | WEBDAV_DEST |  |  | 2 | OK |
| _TEST_ARCHIVE_STORE | Not for production use | □ | File System | <DIR_GLOBAL>\testarchivestore | <DIR_GLOBAL>/testarchivestore |  |  |  | 0 |  |

§ Check the certification suite connection to the XML DAS and synchronize the home path for certification automatically.

Open the certification suite URL and log in to the XMLDAS user account:

http://<host sapj2eeengine>:<http-port>/bc-ilm

Check the configuration (Tools > XML DAS Info > Start). Do not start any certification action yet. If the XML DAS connection test does not return any details, restart your J2EE engine.


SAP NW 7.0 EHP2 on Windows 2008R2 x64
VM
BC-ILM 2.0 Certification - Windows Internet Explorer
http://localhost:50000/BC-ILM/CertificationHome.jsp
Bing
Favorites
BC-ILM 2.0 Certification
http://192.168.249.1:8080/...
Page Safety Tools
BC-ILM 2.0 Certification
WebDAV Storage Interface for the ILM Solution from SAP
Test Suite
Acceptance Test
Load Test
Single Steps
Mkcol
Put
Get
Delete
Proppatch
Propfind
Legalhold
Tools
Clean Up
XML DAS Info

**XML DAS Info**

Request finished with 200 OK

XMLDAS Release: 7.0.2.02.01

Archive Store: WEBDAV_DEST

Physical Path: http://192.168.249.1:8080/OSR3/ILM/e60/000/home/

ILM Conformance Class: 2

DB Product Name: Oracle

DB Product Version: Oracle Database 10g Enterprise Edition Release 10.2.0.4.0 - 64bit Production With the Partitioning, OLAP, Data Mining and Real Application Testing options

JDBC Driver Name: Open SQL

JDBC Driver Version: 6.30

OS Name: Windows Server 2008

OS Version: 6.0

Java Vendor: Sun Microsystems Inc.

Java Version: 1.4.2_24-rev

Java VM Vendor: Sun Microsystems Inc.

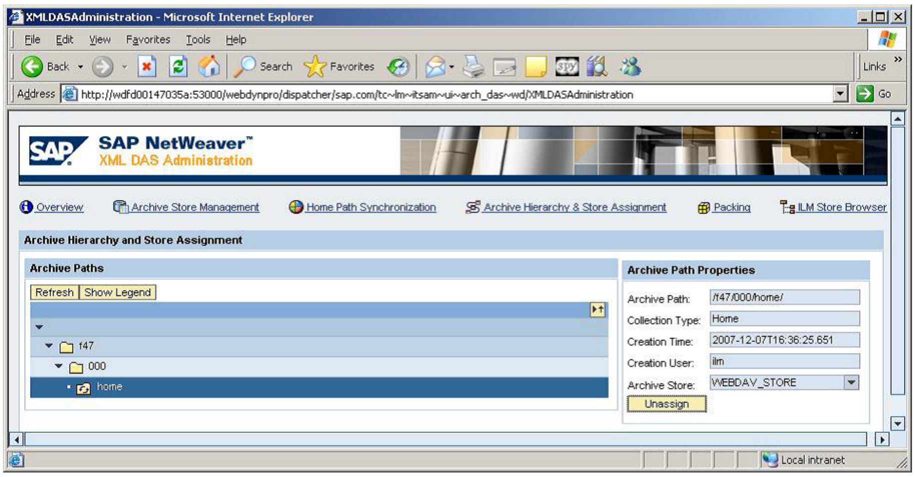
Java VM Name: Java HotSpot(TM) 64-Bit Server VM

Java VM Version: 1.4.2_24-rev-b06

back

§ Assign your home path to the archive store. To do so, open the XML DAS Administration, navigate to the 'Archive Hierarchy & Store Assignment' area and expand the structure tree until you find the entry named 'home'. Select this node.

On the right side of the interface select the 'WEBDAV_STORE' archive store and press 'Assign'.


XMLDASAdministration - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Links
Address http://wdfd00147035a:53000/webdynpro/dispatcher/sap.com/tc~lm~itsam~ui~arch_das~wd/XMLDASAdministration
Go
SAP NetWeaver™
XML DAS Administration
Overview
Archive Store Management
Home Path Synchronization
Archive Hierarchy & Store Assignment
Packing
ILM Store Browser
Archive Hierarchy and Store Assignment
Archive Paths
Refresh
Show Legend
f47
000
home
Archive Path Properties
Unassign
Local intranet

Archive Path: /f47/000/home/

Collection Type: Home

Creation Time: 2007-12-07T16:36:25.651

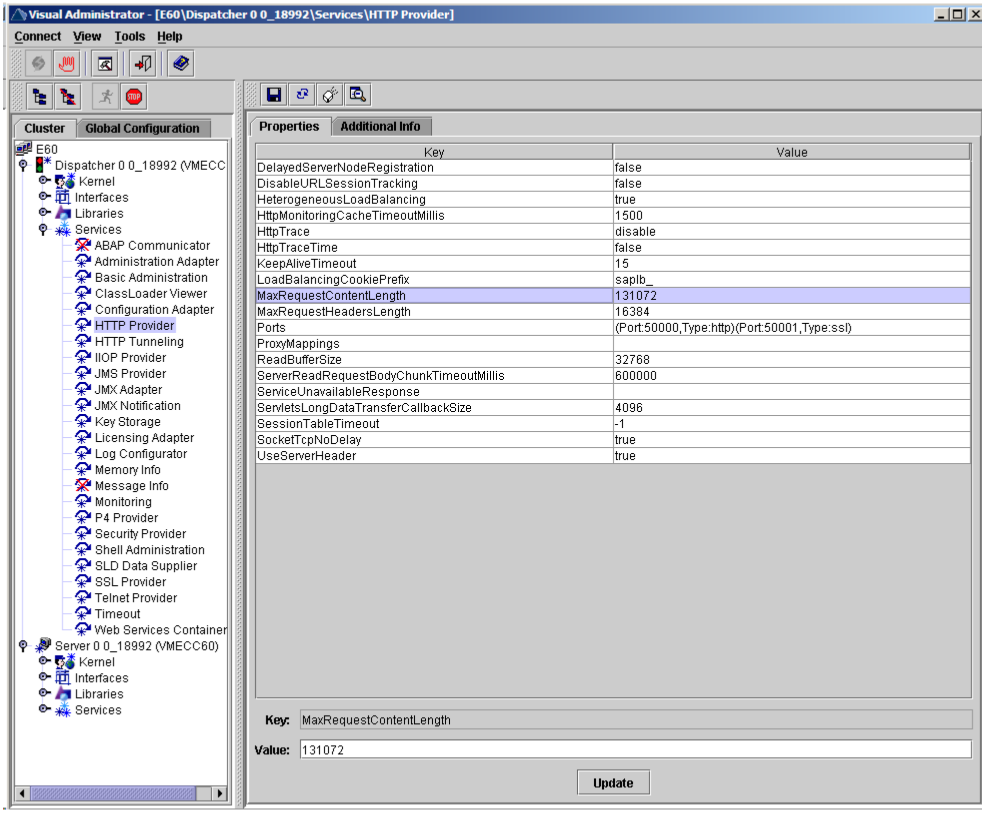
Creation User: ilm

Archive Store: WEBDAV_STORE

When reading XML DAS details using XML DAS Info of the certification suite again, you will receive additional information on the assigned archive store.

## Certification-based Configuration

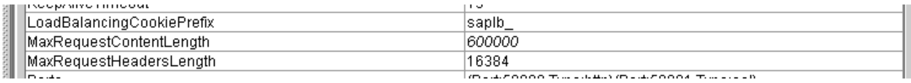
Certification of the SAP ILM interface by SAP requires specific configuration. The certification process includes a mass test sending a 500 MB resource to the WebDAV server. For that reason, you must increase the server's default limit of 128 MB.



| Key | Value |
|---|---|
| DelayedServerNodeRegistration | false |
| DisableURLSessionTracking | false |
| HeterogeneousLoadBalancing | true |
| HttpMonitoringCacheTimeoutMillis | 1500 |
| HttpTrace | disable |
| HttpTraceTime | false |
| KeepAliveTimeout | 15 |
| LoadBalancingCookiePrefix | saplb_ |
| MaxRequestContentLength | 131072 |
| MaxRequestHeadersLength | 16384 |
| Ports | (Port:50000,Type:http)(Port:50001,Type:ssl) |
| ProxyMappings | |
| ReadBufferSize | 32768 |
| ServerReadRequestBodyChunkTimeoutMillis | 600000 |
| ServiceUnavailableResponse | |
| ServletsLongDataTransferCallbackSize | 4096 |
| SessionTableTimeout | -1 |
| SocketTcpNoDelay | true |
| UseServerHeader | true |

Key: MaxRequestContentLength

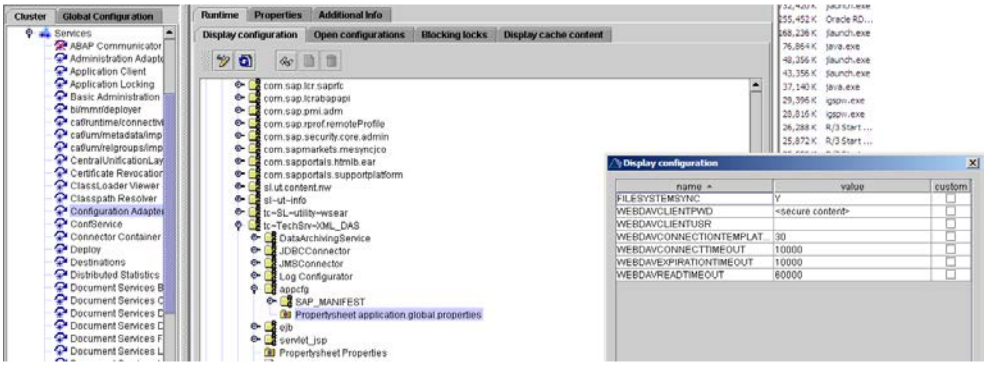
Value: 131072

- Start the Visual Administrator.
- Under the 'Cluster > Dispatcher > Services > HTTP Provider' area select the 'MaxRequestContentLength' property.
- At the bottom of the page set the 'MaxRequestContentLength' entry to 600000 and press 'Update'.
- 

| | |
|---|---|
| LoadBalancingCookiePrefix | saplb_ |
| MaxRequestContentLength | 600000 |
| MaxRequestHeadersLength | 16384 |

- Save your changes.

If your WebDAB needs more than 1 minute to write a resource (e.g. 500 MB) or more than 10 minutes to delete 100,000 resources (100 KB each) from a collection, increase the default XML DAS timeout.



Display configuration

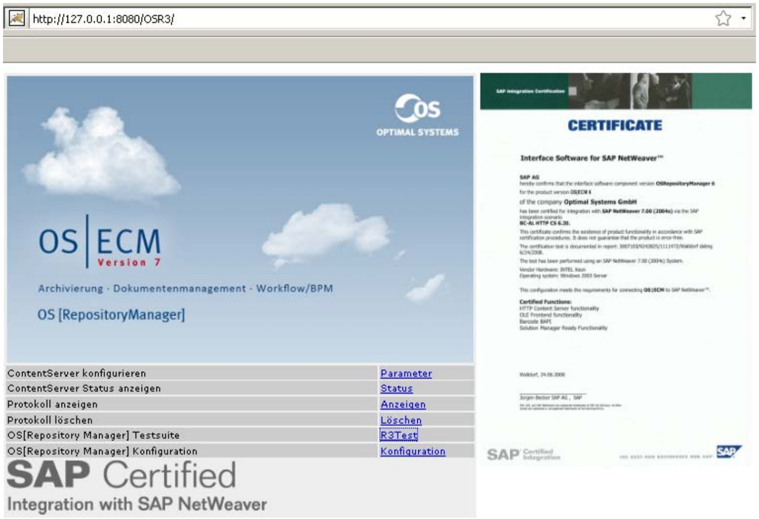
| name | value | custom |
|---|---|---|
| FILESYSTEMSYNC | Y | □ |
| WEBDAVCLIENTPWD | <secure content> | □ |
| WEBDAVCLIENTUSR | | □ |
| WEBDAVCONNECTIONTEMPLAT... | 30 | □ |
| WEBDAVCONNECTTIMEOUT | 10000 | □ |
| WEBDAVEXPIRATIONTIMEOUT | 10000 | □ |
| WEBDAVREADTIMEOUT | 60000 | □ |

- To do so, open your server under the point 'Cluster' and select the entries 'Services' and 'Configuration Adapter'. Switch to edit mode.
- Under 'Configurations' select the 'apps > sap.com > tc~TechSrv~XML_DAS > appcfg' entry.
- Double-click the 'application.global.properties' properties page.
- Select the 'WEBDAVREADTIMEOUT' entry and define a timeout value.
- Note that the timeout value is specified in milliseconds and used as read timeout. In addition, the value is multiplied by ten and then used as delete timeout. For example, the value 240,000 indicates a read timeout of 4 minutes and a delete timeout of 40 minutes.
- Press 'Apply custom' and then OK.
- Restart your J2EE engine.

# Annex

## Problems and Solutions

### Content Server Configuration Page Does Not Load



http://127.0.0.1:8080/OSR3/

OS OPTIMAL SYSTEMS
OS | ECM Version 7
Archivierung · Dokumentenmanagement · Workflow/BPM
OS [RepositoryManager]

| | |
|---|---|
| ContentServer konfigurieren | Parameter |
| ContentServer Status anzeigen | Status |
| Protokoll anzeigen | Anzeigen |
| Protokoll löschen | Löschen |
| OS[Repository Manager] Testsuite | R3Test |
| OS[Repository Manager] Konfiguration | Konfiguration |

SAP Certified
Integration with SAP NetWeaver
SAP Integration Certification

CERTIFICATE

Interface Software for SAP NetWeaver™

SAP AG
hereby confirms that the interface software component version OSRepositoryManager 6
for the product version OS|ECM 6
of the company Optimal Systems GmbH
has been certified for integration with SAP NetWeaver 7.00 (2004s) via the SAP integration scenario
BC-AL HTTP CS 6.20.

This certificate confirms the existence of product functionality in accordance with SAP certification procedures. It does not guarantee that the product is error-free.

The certification test is documented in report: 3007103/9242825/1111472/Walldorf dating 6/24/2008.

The test has been performed using an SAP NetWeaver 7.00 (2004s) System.

Vendor Hardware: INTEL Xeon
Operating system: Windows 2003 Server

This configuration meets the requirements for connecting OS|ECM to SAP NetWeaver™.

Certified Functions:
HTTP Content Server functionality
OLE Frontend functionality
Barcode BAPI
Solution Manager Ready Functionality

Walldorf, 24.06.2008

Jürgen Becker SAP AG , SAP

Please check in the `web.xml` file whether the `ContentServer-config.properties` configuration file is correctly given to the content server servlet. In particular, it must be ensured that in relative path statements, the working directory can be another one as assumed in `web.xml`. If necessary, check the working directory of the running enaio® repository-manager instance. However, it is recommended to use an absolute path instead of a relative path.

Please also check whether values have been added to the following configuration values in the `ContentServer-config.properties` configuration file. Note that the following configuration values must not be empty.

§ BCSAPClient

§ BCSAPUser

§ BCSAPPassword

§ BCSAPLanguage

§ BCSAPHost

§ BCSAPSysNr

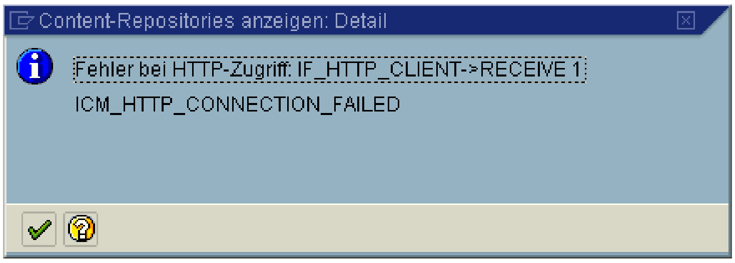
§ LogFile

If the checks have not been successful, please check the log files, especially the one of the content server on possible errors or inconsistent information. Log entries in the `stdout.log` file are also significant, especially concerning problems which are not directly connected to the content server, e.g. problems concerning storage capacity.

## Failed Connection Test in SAP (TA OAC0)

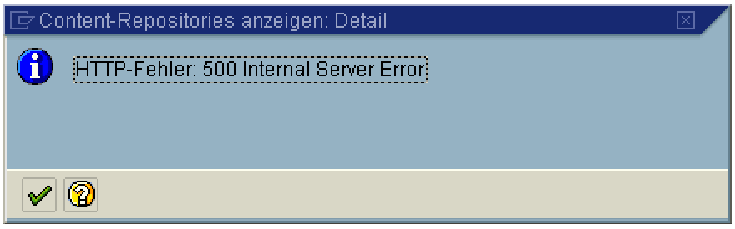
Possible errors and their causes

- Server cannot be reached/OSR3 is not installed/Tomcat is not running



Fehler bei HTTP-Zugriff: IF_HTTP_CLIENT->RECEIVE 1
ICM_HTTP_CONNECTION_FAILED

- OSR3.war deployed and `ContentServer-config.properties` configured incorrectly



HTTP-Fehler: 500 Internal Server Error

## Administrating Open Barcodes

### Problem Description

Open internal barcodes indicate that for SAP transactions which have to be posted, i.e. for transactions which are to be linked to a scanned document using barcode, the scanned document is yet unknown.

Open external barcodes on the other hand indicate that a barcode document has been scanned but not yet linked to an object (e.g. accounting record) in SAP.

Such entries do not necessarily have to represent an error as one side (SAP or enaio®) always knows the barcode first – depending on the scenario, i.e. early or late capture. However, the following errors have to be identified and fixed:

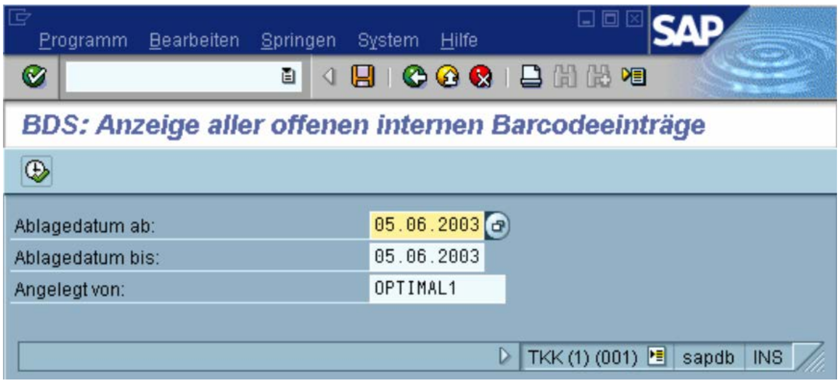
- The barcode has been captured incorrectly (e.g. due to a manual entry in the barcode popup). The consequence is that there is an internal as well as an open external barcode.
- Barcode captured or posted in SAP: `12356`, barcode captured (scanned) in enaio®: `123456`. As both barcodes cannot be matched, they will remain open internally and externally. The error can be fixed by deleting the internal open barcode and capturing it again (capture barcode for the SAP document).
- The barcode has been recognized incorrectly by enaio®. The consequence is that there is an internal as well as an open external barcode (see above).
- The paper document has not been scanned yet or got lost so that there is an internal open barcode. Example: Barcode captured (posted) in SAP: `12356`. It is considered to be open until it has been scanned. Whether an error exists has to be heuristically determined by the age of the barcode (see below).

§ No posting has been made: an open external barcode exists. Example: barcode captured (scanned) in enaio®: `123456`. It is considered to be open externally until an offsetting entry has been made in SAP. Due to technical requirements, an error has to be assumed, as SAP postings are normally made before scanning.

It depends on the circulation period of papers whether an entry has to be classified as error or normal state. It can for example be defined that paper files have to be scanned not later than one month after the posting: open internal barcodes younger than one month are then considered to be normal.

## Administrative Job For Open Internal Barcodes

After clicking the **Internal** button under **Barcodes** in the SAP ArchiveLink monitor (see 'ArchiveLink Monitor'), the following link will be displayed:



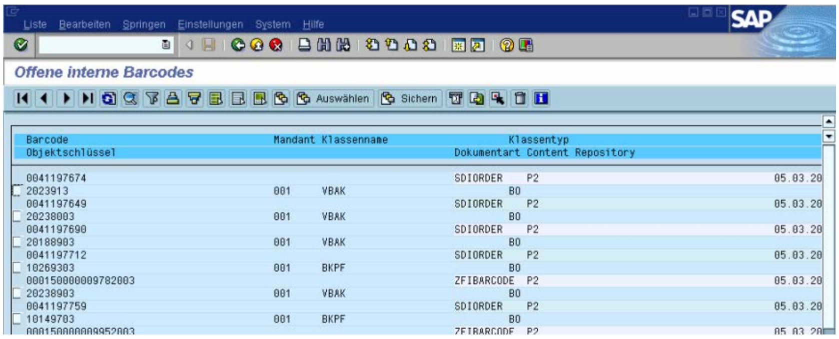
BDS: Anzeige aller offenen internen Barcodeeinträge

Ablagedatum ab: 05.06.2003

Ablagedatum bis: 05.06.2003

Angelegt von: OPTIMAL1

The list can be limited to a time period and an SAP user. After executing the query (F8 or ⊕) the following hit list will be displayed:

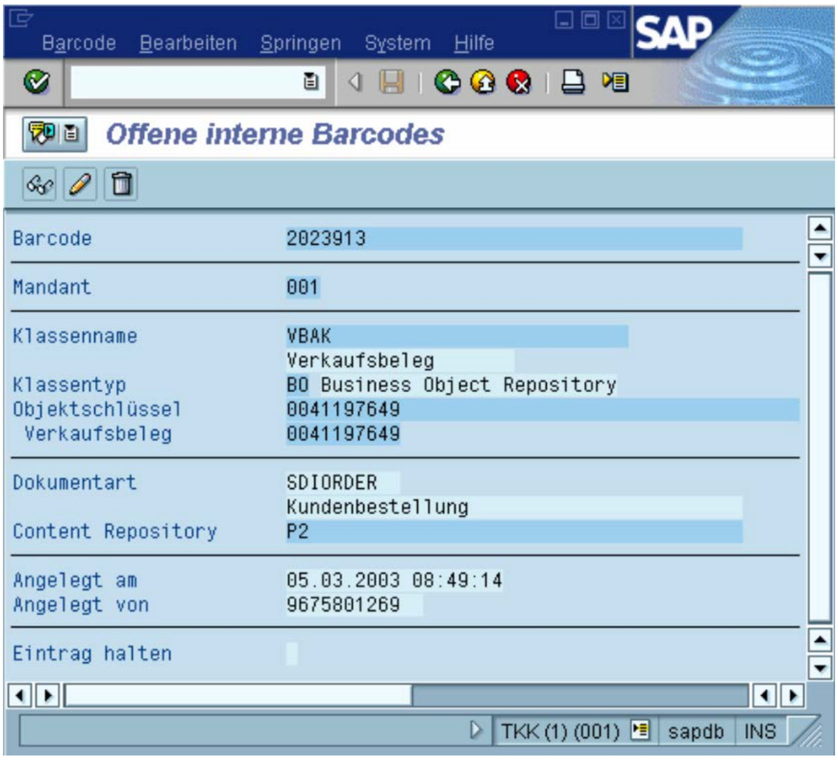


Offene interne Barcodes

```
Barcode                                   Mandant Klassenname                    Klassentyp
Objektschlüssel                                                         Dokumentart Content Repository

0041197674                                                              SDIORDER    P2                                        05.03.20
□ 2023913                                 001     VBAK                           BO
0041197649                                                              SDIORDER    P2                                        05.03.20
□ 20238003                                001     VBAK                           BO
0041197690                                                              SDIORDER    P2                                        05.03.20
□ 20188903                                001     VBAK                           BO
0041197712                                                              SDIORDER    P2                                        05.03.20
□ 10269303                                001     BKPF                           BO
00015000000009782003                                                    ZFIBARCODE  P2                                        05.03.20
□ 20238903                                001     VBAK                           BO
0041197759                                                              SDIORDER    P2                                        05.03.20
□ 10149703                                001     BKPF                           BO
00015000000009952003                                                    ZFIBARCODE  P2                                        05.03.20
```

Double clicking an entry or line will open the following dialog:



Offene interne Barcodes

| | |
|---|---|
| Barcode | 2023913 |
| Mandant | 001 |
| Klassenname | VBAK<br>Verkaufsbeleg |
| Klassentyp | BO Business Object Repository |
| Objektschlüssel | 0041197649 |
| Verkaufsbeleg | 0041197649 |
| Dokumentart | SDIORDER<br>Kundenbestellung |
| Content Repository | P2 |
| Angelegt am | 05.03.2003 08:49:14 |
| Angelegt von | 9675801269 |
| Eintrag halten | |

By clicking the button 👓 in the dialog you will get to the underlying SAP document.

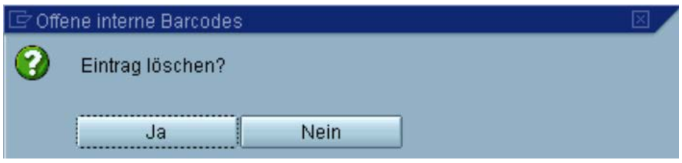
If a barcode has been captured incorrectly in SAP, there are two alternatives for error recovery:

- § Deleting and recapturing the barcode of the SAP document.
- § Changing the barcode already captured.

> Please note that if the OS[Repository Manager Indexdatenexport] module is used, the first alternative has to be chosen as otherwise no index would be downloaded.

## Deleting and Recapturing the Barcode of the SAP Document

The following security prompt will be displayed after clicking the 🗑 button.

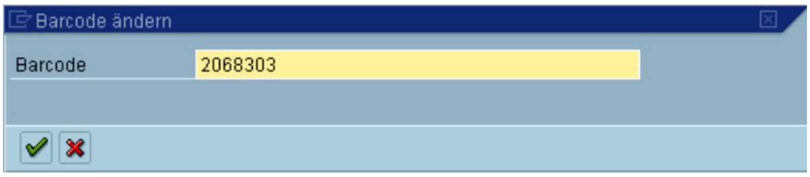

Offene interne Barcodes

Eintrag löschen?

After pressing yes, the internal open barcode will be deleted.

## Changing a Barcode Which Has Already Been Captured

After clicking the ✎ button, the dialog for changing the barcode will be displayed.

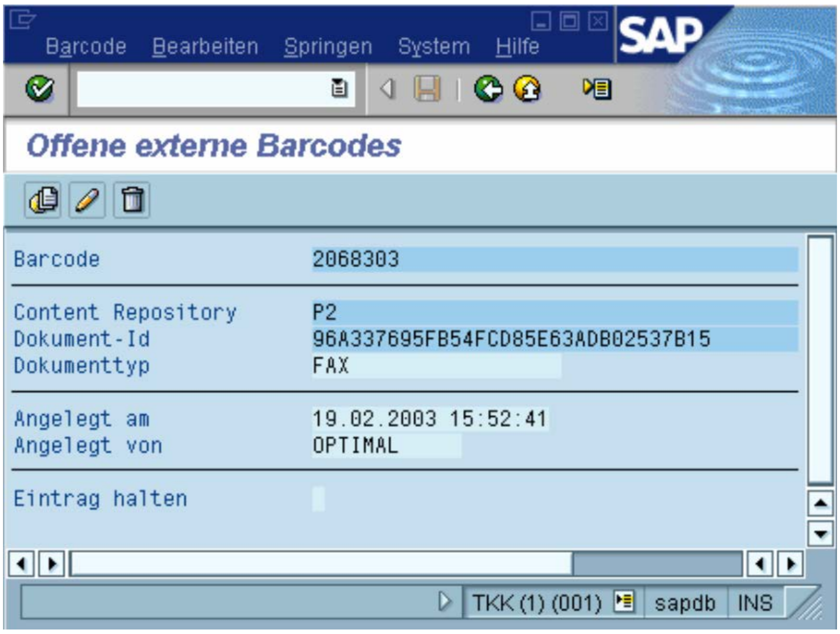


Barcode ändern

Barcode: 2068303

## Administrative Job For Open External Barcodes

Unlike open internal barcodes, open external barcodes are always created with a fix user, the system user of the content server (CPIC user). The user name for standard installations is 'optimal'.



Offene externe Barcodes

| | |
|---|---|
| Barcode | 2068303 |
| Content Repository | P2 |
| Dokument-Id | 96A337695FB54FCD85E63ADB02537B15 |
| Dokumenttyp | FAX |
| Angelegt am | 19.02.2003 15:52:41 |
| Angelegt von | OPTIMAL |
| Eintrag halten | □ |

With the ▣ button, the scanned document can be displayed. Additionally, after deleting the open external barcode, the document which has been scanned can still be deleted in SAP (if allowed in enaio®, e.g. it has not yet been archived in an audit-proof way).

> Please note that the document is only deleted in the 'technical cabinet' of the enaio® object definition for this content repository. Potential linked documents, which are created in customized 'descriptive' cabinets when the enaio® repository-manager-indexexport module is used, will not be deleted. Generally, the deletion of filed documents should be prevented by a job-related instruction (or appropriate SAP authorization) or it should be carefully considered.

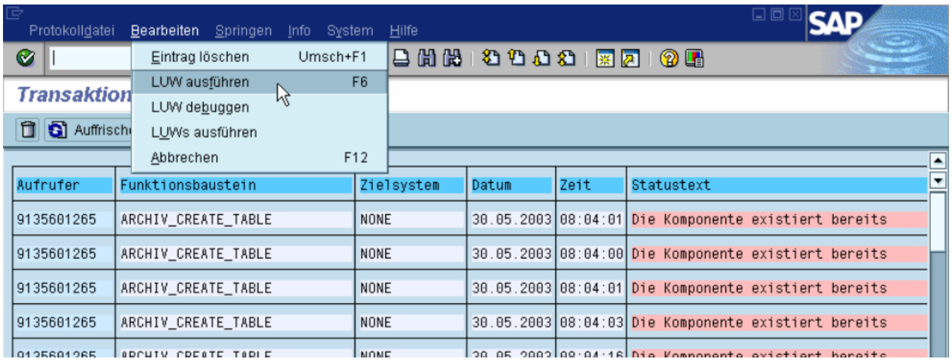
## Barcode Retrieval in enaio®

As the SAP system 'forgets' barcodes after the document ID has been linked to the ID of the SAP object, but it may be necessary to retrieve documents or SAP objects on the basis of their barcodes, you can search for barcodes in enaio®.

Therefore, barcodes can be searched in enaio® even after they have been linked to an SAP document. The (renewed) reporting of the barcode to SAP can be controlled by changing the document property 'Barcode sent to R/3'. With an appropriate query it can thus easily be understood in enaio® which barcodes have already been reported to SAP and which have not. If barcodes have not been reported, a reporting interval which has not yet expired ('barcodeTimer' parameter in the content server) or general unavailability of the content server service may be the reasons (error).

### Processing Incorrect tRFCs

If due to overload or unavailability of the content server service, tRFCs[5] have not been processed, the orders can be post-processed when the server load is lower or when the service is available again.



| Aufrufer | Funktionsbaustein | Zielsystem | Datum | Zeit | Statustext |
|---|---|---|---|---|---|
| 9135601265 | ARCHIV_CREATE_TABLE | NONE | 30.05.2003 | 08:04:01 | Die Komponente existiert bereits |
| 9135601265 | ARCHIV_CREATE_TABLE | NONE | 30.05.2003 | 08:04:00 | Die Komponente existiert bereits |
| 9135601265 | ARCHIV_CREATE_TABLE | NONE | 30.05.2003 | 08:04:01 | Die Komponente existiert bereits |
| 9135601265 | ARCHIV_CREATE_TABLE | NONE | 30.05.2003 | 08:04:03 | Die Komponente existiert bereits |
| 9135601265 | ARCHIV_CREATE_TABLE | NONE | 30.05.2003 | 08:04:16 | Die Komponente existiert bereits |

After selecting an entry, you can try to process the order again by clicking **F6** or with the **Edit/Execute LUW** menu option. With **Execute LUW** this can be done for several objects.

## Traffic-Light Test

This connection test has to be carried out by the SAP system administrator or another authorized person.

The following points have to be observed during the configuration of enaio® repository-manager. It may be necessary to make settings especially for the test and undo them later.

§ Configuration of the SAP/content server connection à **ContentServer-config.properties**

Set **MaxProcessCount** to 1 so that serial processing of commands coming from the SAP system is guaranteed.

Commands are used for creating documents and their components, for reading properties and components, and for deleting documents and their components.

[5] tRFC: transactional remote function call in SAP. Indicates a transactional function call from a remote system.

If a deletion command is executed before a document has been created, because of parallelization, errors may occur.

§ Configuration of the connection between the content server and enaio® à **oxsaplnk.cfg**

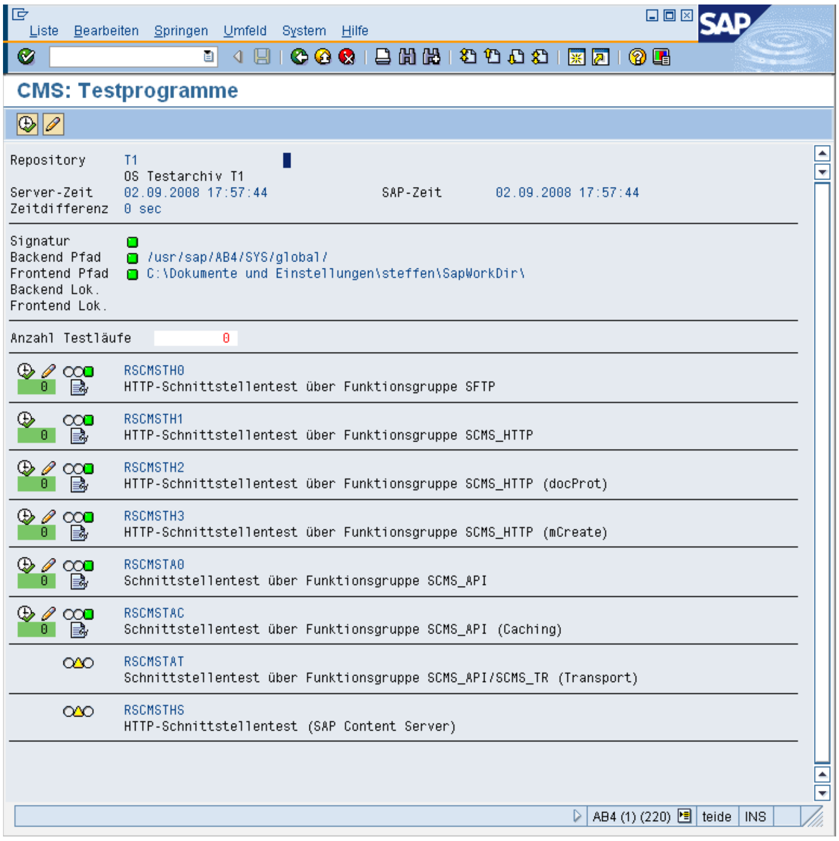
As documents and their components are deleted when the traffic-light test is carried out, **DeleteAllowed** has to be set to 1.

The traffic-light test is the ABAP program RSCMSST which is called by the transactions SE38 or SA38.

The repository for which the traffic-light test is to be carried out has to be selected.

The basis administrator is supposed to know how to proceed further.

Besides that, the result is supposed to look as follows:



CMS: Testprogramme

```
Repository     T1
               OS Testarchiv T1
Server-Zeit    02.09.2008 17:57:44              SAP-Zeit       02.09.2008 17:57:44
Zeitdifferenz  0 sec

Signatur       🟩
Backend Pfad   🟩 /usr/sap/AB4/SYS/global/
Frontend Pfad  🟩 C:\Dokumente und Einstellungen\steffen\SapWorkDir\
Backend Lok.
Frontend Lok.

Anzahl Testläufe          0

0              RSCMSTH0
               HTTP-Schnittstellentest über Funktionsgruppe SFTP
0              RSCMSTH1
               HTTP-Schnittstellentest über Funktionsgruppe SCMS_HTTP
0              RSCMSTH2
               HTTP-Schnittstellentest über Funktionsgruppe SCMS_HTTP (docProt)
0              RSCMSTH3
               HTTP-Schnittstellentest über Funktionsgruppe SCMS_HTTP (mCreate)
0              RSCMSTA0
               Schnittstellentest über Funktionsgruppe SCMS_API
0              RSCMSTAC
               Schnittstellentest über Funktionsgruppe SCMS_API (Caching)
               RSCMSTAT
               Schnittstellentest über Funktionsgruppe SCMS_API/SCMS_TR (Transport)
               RSCMSTHS
               HTTP-Schnittstellentest (SAP Content Server)
```

Using the log icon, errors can be analyzed in detail.

The following section contains error codes of SAP ArchiveLink.

After carrying out the traffic-light test, possible changes made to the configuration files of enaio® repository-manager may have to be reversed.

## Error Codes of the Content Server

| HTTP status code | Description | Used with |
|---|---|---|
| 200 (OK) | OK, information/component has been returned/transferred/changed/ | info, get, docGet, update, append, |

| | | |
|---|---|---|
| | attached/deleted | delete, putCert, search, attrSearch |
| 201 (created) | Ok, component(s) has/have been created (with create)<br>Ok, (all) document(s) has/have been created (with mCreate) | create, mCreate |
| 250 (missing documents created) | Ok, all missing documents have been created | mCreate |
| 400 (bad request) | Unknown function or parameter | all functions |
| 401 (unauthorized) | Security breach | info, get, docGet, create, update, append, delete, mCreate, search, attrSearch |
| 403 (forbidden) | Document/component exists already | create, mCreate |
| 404 (not found) | Document/component/content repository not found | info, get, docGet, update, append, delete, search, attrSearch |
| 406 (not acceptable) | Certificate cannot be verified | putCert |
| 409 (conflict) | Document/component/administration data cannot be accessed | info, get, docGet, update, append, delete, search, attrSearch |
| 500 (Internal Server Error) | Internal content server error | all functions |

In case of an error, the content server also has to return an ASCII string containing a description of the error. The error has to be entered into the header `x-ErrorDescription`.

# Parameters of the Configuration Files

## Structure of the Configuration Files

The configuration files are structured as properties files which means that the configuration settings are structured as follows: `<Section>.<Key>=<Value>`. Only one configuration setting is allowed in each line. By placing '#' in front of a line, you can make the line a comment line.

> Please note that you have to restart enaio® repository-manager or Apache Tomcat Web server in case any changes have been made, so that the changes will be applied.
>
> Please also note that backslashes ('\') in the configuration files have to be indicated with '\\' or '/'. In general, it is recommended to use common slashes.

## Content Server (ContentServer-config.properties)

The `ContentServer-config.properties` configuration file provides the configuration of the content server (servlet). It is internally structured as a properties file (refer to 'Structure of the Configuration Files').

> Please ensure that the structure of the configuration entries in the `ContentServer-config.properties` file has the schema:
> `ContentServer.<Key>=<Value>`

Selected configuration settings are listed below.

Please note that this only a selection. For a complete list of the parameters refer to the KGS documentation (KGS SAPALINK 4.5 – Installation Guide).

| Key | Value | Description |
|---|---|---|
| ALFDescriptionFile | <File name> | Path to a control file with instructions how to reindex print lists. The content server is also able to create attribute files after print lists have been filed. Further information about this feature can be obtained on request. |
| ALFLicenseKey | <String> | The license key which has to be used for the optional function 'ALF conversion' (print list format of SAP) can be obtained from OPTIMAL SYSTEMS GmbH. The SiteCode necessary for activation can be found in the content server log. |
| AllowedClients | <String> | Write access (create, update, etc.) is only given to computers with these IP addresses/computer names. To limit access only for certain repositories, enter the parameter for the corresponding content repository as follows:<br>`AllowedClients_<RepositoryName>`.<br>Example: `AllowedClients_FI=192.168.1.13`<br>Write access to the repository `FI` is only given |

| | | |
|---|---|---|
| | | to host `192.168.1.13`, others will obtain the error message `error #401 -> not authorized` |
| AllowedCSAdmin | <String> | Only IP addresses listed here can use the CSAdmin function (transaction OAC0). Other computers are denied access with `error #401 ->not authorized`.<br>The value must not contain space characters. |
| BarcodeTimer | <Integer> | Enabling the barcode upload from the enaio® system into the SAP system. The value indicates the time intervals (in seconds) at which the enaio® system queries for unprocessed barcodes. These barcodes are transferred to the SAP system.<br>This functionality uses a subdirectory relative to the `WorkingDirectory`. The parameters 'BCSAPxxx' are used by default for communication with the SAP system.<br>From version 2.6.0 this timer will also be used to control the intervals for SAP index export file creation when the index export is activated.<br>If the value is `0`, no barcodes are reported to the SAP system. |
| BCLogAgeERR | <Integer> | Indicates the time in days for which failed barcodes will be saved. |
| BCLogAgeOK | <Integer> | Indicates the time in days for which the transferred barcodes will be saved. |
| BCSAPHost | <String> | SAP server IP address for RFC communication. The address will be used for all repositories defined in `Repositories`.<br>To use a special value for a repository, use the BCSAP client.<br>Please note that it is only allowed to use valid IP addresses. Names are not allowed. |
| BCSAPLanguage | <String> | Language for RFC communication with the SAP system. The address will be used for all repositories defined in `Repositories`.<br>To use a special value for a repository, use the BCSAP client. The value for German is 'DE', |

| | | |
|---|---|---|
| | | the value for English is 'EN'. Note case sensitivity. |
| BCSAPPassword | <String> | Password for RPC communication with the SAP system. The address will be used for all repositories defined in `Repositories`.<br>To use a special value for a repository, use the BCSAP client. |
| BCSAPSysNr | <String> | System number for RFC communication with the SAP system. The address will be used for all repositories defined in `Repositories`.<br>To use a special value for a repository, use the BCSAP client. |
| BCSAPUser | <String> | User name for RFC communication with the SAP system. This will be used for all repositories defined in `Repositories`.<br>To use a special value for a repository, use the BCSAP client. |
| ConnectionKeepAlive | <Integer> | Indicates whether the connection to enaio® will be closed in case of ECM errors.<br>0: Do not close<br>1: Close |
| ContRepsForIndexExport | <String> | List of the content repositories (subset of 'Repositories') for which index data export is to be activated. The parameters 'BCSAPxxx' are used for the necessary RFC connection. To use this function, a special function module has to be installed in SAP additionally to correct licensing. |
| CSConfigFile | <File name> | Here you can refer to an alternative configuration for the content server. The configuration must have the same structure. |
| Debug | <Integer> | 0: No detailed log information. Only error messages are logged.<br>1: Logging of detailed log information, however only in the log file.<br>2: Logging of detailed log information, in the log file as well as on the console.<br>3: Highest logging level with performance |

| | | |
|---|---|---|
| | | tracking. |
| DocFinderLicenseKey | <String> | The license key which has to be used for the optional function 'DocumentFinder' can be obtained from OPTIMAL SYSTEMS GmbH. |
| DocProtection | <String> | If 'DocProtection' has not been provided by SAP, the value specified here will be used. Combination of the characters 'r', 'c', 'u', 'd'. |
| IndexLicenseKey | <String> | The license key which has to be used for the optional function 'Index data export' can be obtained from OPTIMAL SYSTEMS GmbH. The SiteCode necessary for activation can be found in the content server log. |
| KeepLogfileDays | <Integer> | Creates single files for the log files for each day and retains them for the indicated number of days.<br>If the value is `0`, the log file will be written continuously. If the value is greater than `0`, a new log file will be created for each day. With the value `30` for example, the log files will be kept for one month. |
| LogFile | <File name> | Name and path for error and debug logging. |
| MaxCache | <Integer> | Maximum number of documents to be kept in the cache for full text search. The cache is structured as follows:<br>`<WorkingDirectory>\Cache\<ContRep>`<br>The value `0` indicates that caching is switched off. |
| MaxProcessCount | <Integer> | Maximum number of parallel threads within the content server.<br>Please note: the barcode upload forms a separate thread.<br>0: No limit for the number of parallel threads<br>1: SingleThreaded, with parallel editing of all queries apart from enaio® queries, e.g. network queries<br>>1: enaio® must be able to edit several 'LinkOpen' calls |
| PABName | <File name> | File name and path to the private address book |

| | | |
|---|---|---|
| | | where all certificates of the connected SAP systems are saved. The default value is 'ContentServer.PSE'. |
| PABPassword | <String> | Password for accessing the private address book. Please note that the password length has to be greater than `0`. |
| ProcessTimeout | <Integer> | If an enaio® query does not return results while new queries are already blocked ('MaxProcessCount' has been reached), this parameter allows to edit further queries after reaching this timeout.<br>0: Timeout deactivated, queued queries wait until enaio® processes become available. |
| ProtocolFile | <File name> | Indicates the qualified name of a file into which the content server writes single-line log entries for each content server call. A log entry consists of:<br>Date<br>Time<br>Return value<br>Call duration<br>Command<br>Repository<br>SAP document ID<br>SAP component ID<br>Remote address |
| Repositories | <ContRep1>,<br><ContRep2>,<br><ContRep3> | Name of all R/3 content repositories which are linked to the content server. The single names are separated by commas. For example: `FI,SD,CO,HR`. |
| SAPDocFinderGW | <String> | SAP Gateway name of the DocumentFinder RFC target |
| SAPDocFinderHost | <String> | Server name or IP address of the DocumentFinder RFC target |
| SAPDocFinderRFCDest | <String> | Name of the DocumentFinder RFC target on the SAP side |

| | | |
|---|---|---|
| SAPSolHost | <String> | Host name for the Customer Landscape Directory (SLD) to establish a connection with the SAP Solution Manager[6] in order to use the Ready functions. |
| SAPSolPassword | <String> | Password for the Customer Landscape Directory (SLD) to establish a connection with the SAP Solution Manager in order to use the Ready functions. |
| SAPSolPort | <String> | Port for the Customer Landscape Directory (SLD) to establish a connection with the SAP Solution Manager in order to use the Ready functions. |
| SAPSolUser | <String> | User name for the Customer Landscape Directory (SLD) to establish a connection with the SAP Solution Manager in order to use the Ready functions. |
| Security | <Integer> | Encrypted message transfer is activated. It has to correspond to the setting in SAP (signature).<br>0: Signature off<br>1: Signature on<br>2: Signature on, administration of SAP certificates with CSAdmin (transaction OAC0) |
| ShowCertificate | <Integer> | Determines whether a certificate will be shown in a message box before it is saved:<br>0: new certificate will be saved without further confirmation<br>1: the content server will display the certificate |

[6] The SAP Solution Manager supports you throughout the entire lifecycle of your solutions, from the business blueprint through configuration to production operation. It provides central access to tools methods and preconfigured content, that you can use during the evaluation, implementation, and productive operation of your systems. It is used to integrate OS[Repository Manager] into SAP's surface. For example, the content server log can be seen at a central part of the SAP system and its status can be verified.

| | | |
|---|---|---|
| | | for confirmation in a message box |
| StreamBlockSize | <Integer> | Buffer space in kilobyte for content server answer data to SAP. In case of network problems, the right choice may guarantee better throughput. The default value is `100`. |
| Working Directory | <Path> | Directory for temporary files. It has to be large enough for print list processing, which may take up several gigabytes. |

## enaio® repository-manager

The `oxsaplnk.properties` configuration file contains all data necessary for configuration in order to establish a connection between the content server and the enaio® system.

The following list contains the configuration entries:

| Key | Value | Description |
|---|---|---|
| alversion | <String> | Version number of the used SAP ArchiveLink. The default value is 0046. |
| charset | <String> | Indicates the charset which has to be used for the corresponding field in the enaio® object defintion. The default value is 'Charset001'. |
| componentid | <String> | The default value is 'data'. |
| deleteallowed | true/false | Specifies whether the commands ComponentDelete and DocumentDelete are permitted. |
| filename | <String> | Indicates the entry for a field in the enaio® object definition. The default value is 'Optimal_AS1'. |
| flags | <Integer> | Specifies if the documents are archivable (=1) or not archivable (=2). Default is '1.' |
| importhandler | <String> | Import class which will be used for index data import. The default value is 'com.os.sapalink.dmsimport.ImportFileWriter.' |
| map_ct2doctype | <String> | Indicates the assignment of SAP content types to MIME types. This is a list separated by '\|'. The default value is 'DEFAULT\:tif\|IMAGE/TIFF\:fax\|' |
| port | <Integer> | Port of enaio® |
| protection | <String> | Indicates the value which has to be used for the corresponding field in the enaio® object definition. The default value is 'rucd'. |

| | | |
|---|---|---|
| pwd | <String> | Encoded enaio® password from the database. |
| rename000topdf | true / false | ComponentGet returns PDF in case of Tiff documents. The default value is 'false'. |
| rename000totif | true / false | ComponentGet converts Tiff documents into multipage Tiff files. The default value is 'false.' |
| repositories | <String> | Indication of the repositories in the following format: <Repository-Name>;<Cabinet Name>;<Export File for ASCII Data>;<Export File for Index Data>\|.<br>Please note that the repository name must consist of two characters only. If you do not want to specify files for the export of ASCII or index data do not specify any parameter. The default is: 'OS;SAP OS;;\|' |
| server | <String> | enaio® host |
| supportedcomponentreadcontenttype | <String> | Indication of the content types which are supported by the 'ComponentRead' function. They have to be separated by commas. The default value is 'text/plain,DEFAULT'. |
| temppath | <String> | Path which will be used for file transfer. The default value is 'c\:\\Temp.' |
| user | <String> | User for the enaio® system. The default is 'SAP.' |
| version | <String> | Indicates the entry for the 'Application' field in the enaio® object definition. The default value is 'Application V1.00'. |
| adminpage.login.user | root | User name for accessing the configuration page. |
| adminpage.login.password | optimal | Password for accessing the configuration page. |

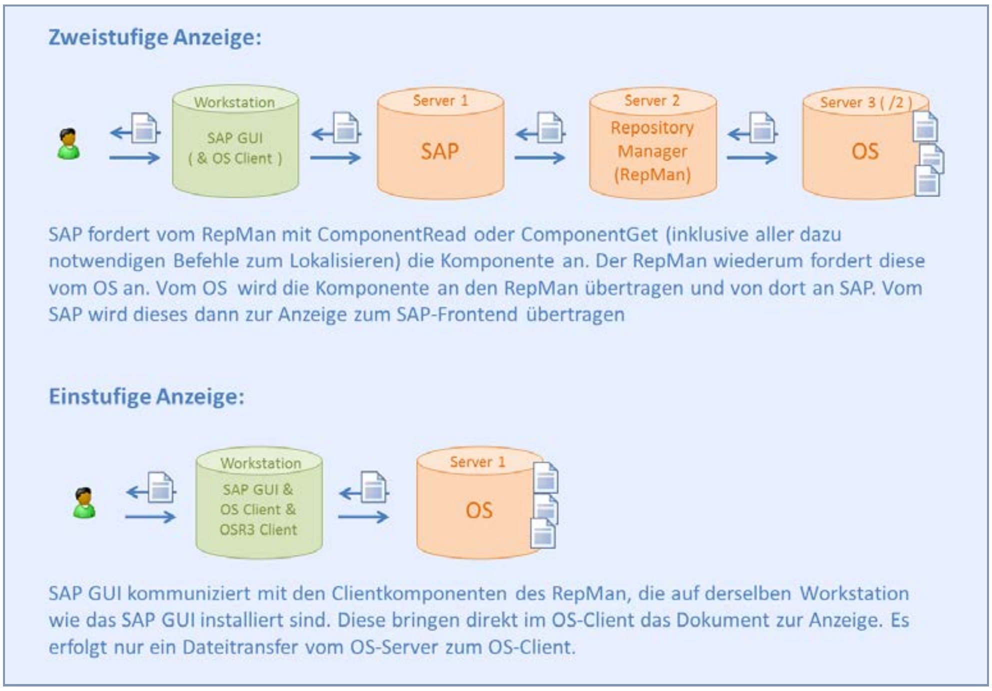
Control access to the configuration file. The user name and the password for accessing the configuration page are not encoded. Change the user name and the password during the first configuration.

## Configuration and Use of Client Components

The client components of enaio® repository-manager are used for single-stage display and for direct document storage (SCANQUEUE) from the SAP transaction OAWD.

§ Single-stage display

There are two ways of displaying SAP documents: either through the two-stage display installed as standard, in which the document is opened directly through SAPGUI, or through the optional single-stage display, in which the document is opened in enaio® client.



SAP fordert vom RepMan mit ComponentRead oder ComponentGet (inklusive aller dazu notwendigen Befehle zum Lokalisieren) die Komponente an. Der RepMan wiederum fordert diese vom OS an. Vom OS wird die Komponente an den RepMan übertragen und von dort an SAP. Vom SAP wird dieses dann zur Anzeige zum SAP-Frontend übertragen

SAP GUI kommuniziert mit den Clientkomponenten des RepMan, die auf derselben Workstation wie das SAP GUI installiert sind. Diese bringen direkt im OS-Client das Dokument zur Anzeige. Es erfolgt nur ein Dateitransfer vom OS-Server zum OS-Client.

§ Direct document storage (SCANQUEUE)

For example, if the clerk scans incoming invoices, these can be stored directly through the OAWD transaction from the SAP GUI. This bypasses the ContentServer. The scanned documents are stored using mass storage in the archiving system. In this case, each incoming invoice is linked with a SAP workflow process, which could result in an incoming invoice being parked.

The same components must be integrated for both the single-stage display and for direct document storage (SCANQUEUE) (cf. 'Integrating Client Components').

Other configurations are necessary for document storage (cf. 'Configuration of Document Storage').

Other configurations are optional for single-stage display (cf. 'Configurations of Single-Stage Display').

## Integrating Client Components

The following steps are required for setting up the client components:

§ Copying the MISC directory

§ Adjusting the path variable

§ Registering the library `dmsautom.dll`

§ Adjusting the configuration file `oxsaplnk.cfg`

### Copying the MISC directory

The MISC directory is also extracted in the deployment of enaio® repository-manager in Apache Tomcat. This directory contains all necessary client components. It has to be copied to the computer on which it will be used.

The directory can be renamed after the copying, e.g. `OSR3_Client`.

### Adjusting the path variable

The directory containing the client components must be entered into the PATH variable of the system as a system variable through the control panel.

### Registering the library 'dmsautom.dll'

The library `dmsautom.dll` has to be registered. `regsvr32.exe` is used to do this. This can be found in the System32 directory within the Windows installation directory. If enaio® client is not installed on the workstation or was not yet restarted with administrative rights, the file `oxsvrcom.dll` must also be registered.

When operating with 32-bit client components on a 64-bit system, `regsvr32.exe` has to be started from the Syswow64 directory.

### Adjusting the configuration file 'oxsaplnk.cfg'

The configuration file `oxsaplnk.cfg` is in the MISC directory. Communication between enaio® repository-manager and the repositories is controlled with this file. There is a graphical interface for entering the basic settings: `axvbRLinkConfig.exe`.

Important: The call `axvbRLinkConfig.exe` results in errors if there is already an `oxsaplnk.cfg` in which the connection to a server other than the enaio® server to be addressed is configured. An earlier `oxsaplnk.cfg` must be renamed or moved before the call.

Within the configuration file `oxsaplnk.cfg` there are different areas: [Globals], [Archive], [DB], [Repositories], [DbaseScan]. The various areas are to be configured partly for display and partly for storage of documents. The configuration is mostly made using the configuration tool `axvbRLinkConfig.exe`.

## Configuration of Document Storage

Document storage is the storage of documents directly through SAP using the SAP transaction OAWD, where the link with the SAP process is already marked.

The section [DbaseScan] in the `oxsaplnk.cfg` must also be extended. If this section is not yet available, it must be added. This entry is removed again once the configuration tool `axvbRLinkConfig.exe` is saved again. Backing up the configuration file before creating the other configuration is recommended.

```
[DbaseScan]
ImportDirectory=C:\Temp\Import\
ImportFieldPicture=BITMAPS
ImportFieldBarcode=BARCODE
DbaseActionNumber=2
NoEntryFoundReturn=1
```

| Parameter | Description |
|---|---|
| DbaseActionNumber | 1 Single scan mode (enaio® client is opened with scan window)<br>2 DEFAULT – batch scan mode (with us, no difference to N=1)<br>-1 Opens file selection dialog (dialog from KGS-DLL dmsautom, no enaio® client required)<br>-2 Folder as Scanqueue |
| ImportDirectory | The 'ImportDirectory' specifies the folder containing the Dbase files. |
| ImportFieldBarcode | Same as 'ImportFieldPicture' |
| ImportFieldPicture | The 'ImportFieldPicture' denotes the column of the image file name in the DBF file, as the index exports it. They must always have the same name; this is as a precaution but it can be configured. |
| NoEntryFoundReturn | '0' is always returned for a correct import. If no other dataset was found, but you need to deliver a return value, you can set the value to '1' by default. Alternatively, the value can be set manually, if another return value is required. |

Import procedure:

- Once the function is called, this searches for Dbase files in the ImportDirectory.
- If no file is found, it returns the 'NoEntryFoundReturn' value.
- If it finds a file, it takes the next free dataset and imports it.
- It is imported through 'ComponentCreate()' with subsequent update on the dataset so that the barcode can be saved.
- This dataset is then deleted – Dbase marks the dataset with an asterisk (*).
- In the case of an error, a negative value is returned, which renames the Dbase file as `[Name].db!` or `[Name].db!###  (# = num. value)` and the import returns '0' back.
- You only get a message if there is no new DBF file available after the next call.
- Following successful processing, the Dbase file is renamed `[Name].bak`.

The ADO Microsoft Jet Engine and the Dbase III OLE DB Provider are used to access the DBF file. This means that the Microsoft Data Access Components (MDAC) should be installed. Scanning also requires the Borland Database Engine, which is installed with some programs (such as SQL Explorer). Alternatively, you can find the Borland Database Engine in the enaio® Setup (under `Components/bde_5`).

## Configurations of Single-Stage Display

No further configurations are required for the single-stage display. The way in which documents are called in enaio® client can be specified per document type in the configuration file `oxsaplnk.cfg`. The various options for calling the display client and the advantages and disadvantages are to be explained here.

| **Parameter** | **Description** |
|---|---|
| ViewMode<br>(Must be maintained per repository in the section [Repositories]) | Specifies how the file should be displayed:<br>0 DEFAULT with enaio® client<br>1 With ShellExecute (linked Windows application shows the document).<br>2 With a program set through the 'ViewServer' entry.<br>3 enaio® client is called up through ShellExecute on a temporarily created .os link file (thus no COM communication to enaio® client). |
| ViewServer | Only with ViewMode 2<br>Name of the program which is started (default: empty)<br>Example: Viewserver=C:\OSR3Client\sapview.exe |
| UseClient<br>(In the section [Globals]) | Only with ViewMode 0<br>When should the COM object 'optimal-AS.Application' be created (for document display in enaio® client):<br>0=never<br>1=on initialization<br>2=if necessary (first use) |

Difference between ViewMode 0 and 3:

- ViewMode = 0

  Call through client COM. When ending enaio® client, this doesn't end correctly due to the open COM connection and `ax.exe` remains as a process.

  Advantage: High-performance, enaio® client is always immediately available for many document calls.

  Disadvantage: The existing process may cause problems when shutting down.

- ViewMode = 3

  Call through a generated .os object. A link is thus created which calls enaio® client at the right point.

Advantage: enaio® client is always ended correctly and restarts completely on the next call.

Disadvantage: Does not perform well with many calls – For every call, enaio® client must completely restart if it was not ended beforehand (running clients are used directly).

## Logging

Two sides must be taken into account in logging. On one hand, communication with the SAP GUI. On the other, communication with enaio® client.

> The logfiles should be backed up in the case of errors. If the logfiles do not provide enough information about the error, it is recommended that you raise the log level to debug mode (flow level 6), provoke the error, and then reset the log level to the normal value.
>
> Note: If the log levels are left at debug, several gigabytes of data per day develop in parts. High performance losses are also to be expected.

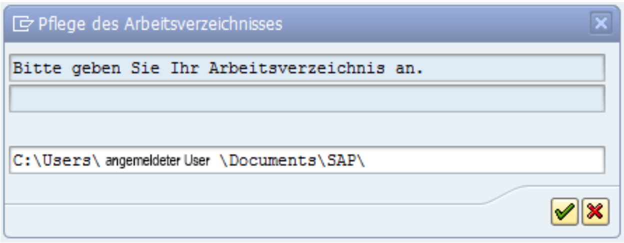
The communication with enaio® is logged as usual through `oxrpt.dll`. This and the relevant configuration file `oxrpt.cfg` are located directly in the MISC directory.

The communication with the SAP GUI is logged in the file `msautom.log`. Settings for this logging are made in the file `ALDMSacc.ini`. The `ALDMSacc.ini` is located in the operating system directory (e.g. `C:\Windows`). The log level is set through the `Log Mode` parameter.

Content of the `ALDMSacc.ini`

```
[DMSAUTOM]
Log-File=msautom.log    # Name of the logfile
Log-Mode=4  # 0: off; 1: errors; 2: dbg-info lvl1; 4: dbg-info lvl2
Log-ModeScreen=1
DebugLevel=0     # default:0; logwindow off=0 on=1
WorkitemCreateFct=
Log-WindowPos=44,0,1,-1,-1,-1,-1,640,331,1040,679
```

The `msautom.log` is stored in the directory from which the function call is made. So if the call takes place from the SAP GUI, then the `msautom.log` is located in the user directory of the SAP GUI. The storage location of the SAPWORKDIR can be identified in the SAP GUI following the registration through transaction 'so21.'



Bitte geben Sie Ihr Arbeitsverzeichnis an.

C:\Users\ angemeldeter User \Documents\SAP\

## Troubleshooting

Essentially, you should check the logfiles for what these say.

The following points should be checked:

- Is the `dmsautom.dll` registered?
- Are the settings in the `oxsaplnk.cfg` correct? (User, server in area [Archive]).
- Is the path to 'ImportDirectory' in the [DbaseScan] section of the `oxsaplnk.cfg`?
- Can the operating system user access this 'ImportDirectory' directory?
- Does the user have the required permissions/system roles?

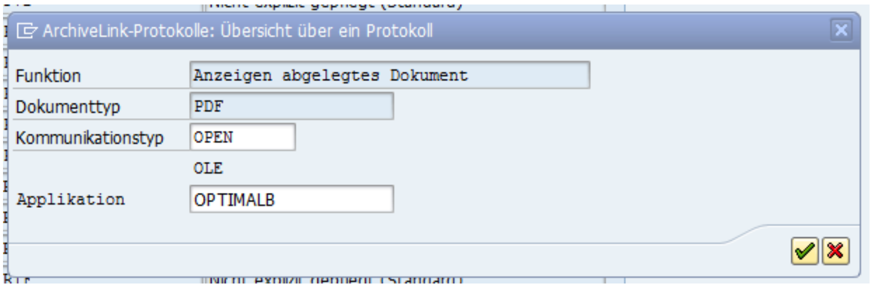
## Configuration of SAP

In customizing the SAP frontend communication, the applications can be entered with which the display and storage should take place. The maintenance can take place explicitly per document type. For the basic settings, there is a predefined transport which should be brought in by the customer's system administrator. You will receive the transport on request.

This transport provides two logs. OPTIMALA and OPTIMALB. OPTIMALA is provided for the double-stage display. OPTIMALB is the log for the single-stage display described here. Following the transport, the parameters can be adjusted as follows if necessary.

### Maintaining the parameters for storing and displaying documents

The display can be maintained explicitly for the individual document types. An application must be defined for this. Maintaining the application is necessary if display or capturing components are addressed through OLE automation. That is the case in the single-stage display (through the `dmsautom.dll`). The application maintenance is necessary for functions for which the communication type 'OPEN' was selected in the logs.



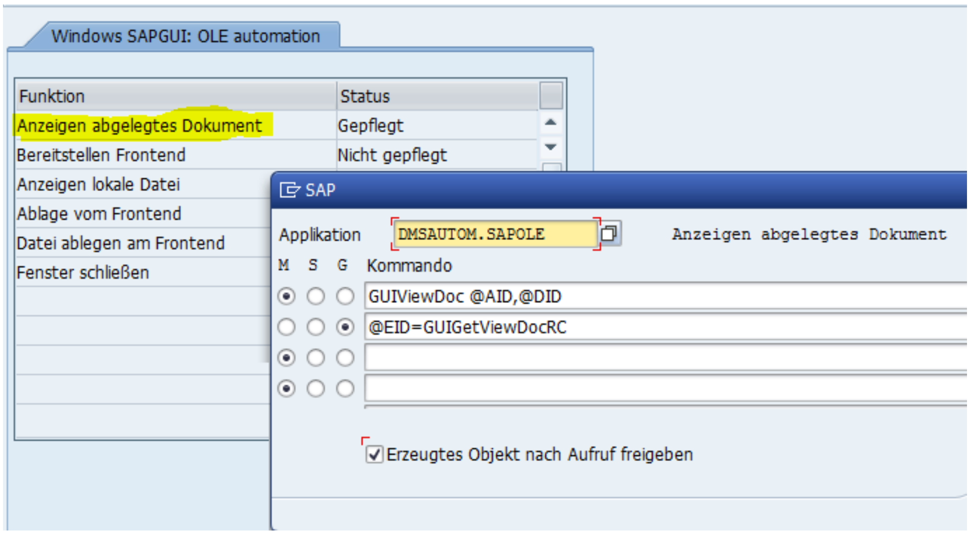
ArchiveLink-Protokolle: Übersicht über ein Protokoll

|  |  |
|---|---|
| Funktion | Anzeigen abgelegtes Dokument |
| Dokumenttyp | PDF |
| Kommunikationstyp | OPEN<br>OLE |
| Applikation | OPTIMALB |

### Defining an application

In the SAP transaction OAA4, select the application 'OPTIMALB' and double-click. This brings you to 'Windows SAPGUI: OLE automation.' Here the parameters can be changed for both 'Display stored document' and for 'Storage from frontend.'

### Standard parameter 'Display stored document'



Windows SAPGUI: OLE automation

| Funktion | Status |
|---|---|
| Anzeigen abgelegtes Dokument | Gepflegt |
| Bereitstellen Frontend | Nicht gepflegt |
| Anzeigen lokale Datei | |
| Ablage vom Frontend | |
| Datei ablegen am Frontend | |
| Fenster schließen | |

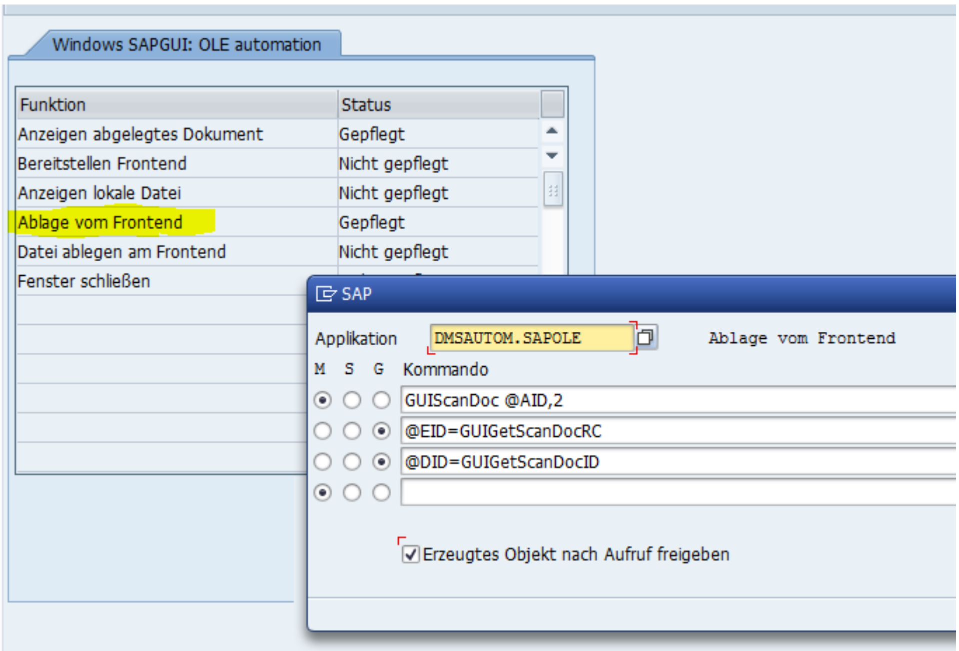
SAP

Applikation DMSAUTOM.SAPOLE Anzeigen abgelegtes Dokument

| M | S | G | Kommando |
|---|---|---|---|
| ● | ○ | ○ | GUIViewDoc @AID,@DID |
| ○ | ○ | ● | @EID=GUIGetViewDocRC |
| ● | ○ | ○ | |
| ● | ○ | ○ | |

☑ Erzeugtes Objekt nach Aufruf freigeben

### Standard parameter 'Storage from frontend'



Windows SAPGUI: OLE automation

| Funktion | Status |
|---|---|
| Anzeigen abgelegtes Dokument | Gepflegt |
| Bereitstellen Frontend | Nicht gepflegt |
| Anzeigen lokale Datei | Nicht gepflegt |
| Ablage vom Frontend | Gepflegt |
| Datei ablegen am Frontend | Nicht gepflegt |
| Fenster schließen | |

SAP

Applikation DMSAUTOM.SAPOLE Ablage vom Frontend

| M | S | G | Kommando |
|---|---|---|---|
| ● | ○ | ○ | GUIScanDoc @AID,2 |
| ○ | ○ | ● | @EID=GUIGetScanDocRC |
| ○ | ○ | ● | @DID=GUIGetScanDocID |
| ● | ○ | ○ | |

☑ Erzeugtes Objekt nach Aufruf freigeben

Settings for storage from frontend:

For the following commands, option 'G' is necessary:

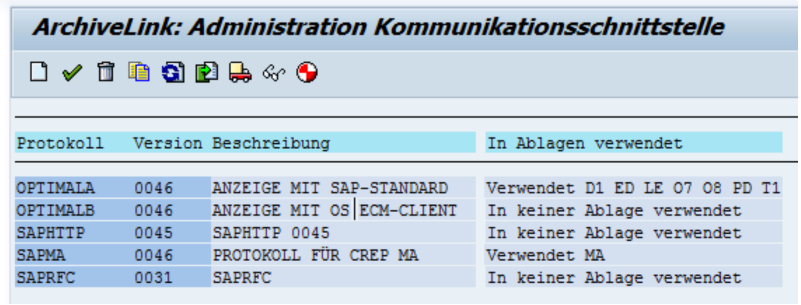
- @EID=GUIGetScanDocRC
- @DID=GUIGetScanDocID

The command 'GUIScanDoc@AID,#' has the following parameters:

- # = 1: Scanmode Single
- # = 2: Scanmode Batch
- # = -1: Open File Dialog Instead of Scanning
- # = -2: Folder as Scanqueue

Change the configuration on the example 'PDF'

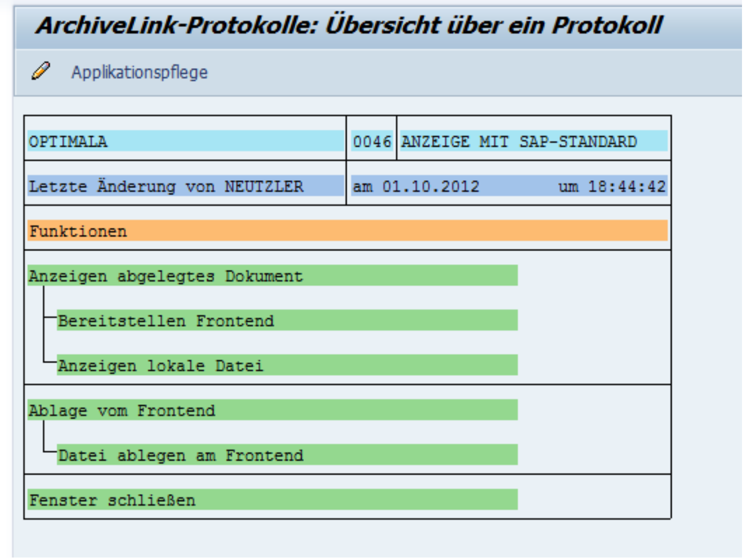
The right log must be selected in the transaction OAA3 (OPTIMALB).



**ArchiveLink: Administration Kommunikationsschnittstelle**

| Protokoll | Version | Beschreibung | In Ablagen verwendet |
|---|---|---|---|
| OPTIMALA | 0046 | ANZEIGE MIT SAP-STANDARD | Verwendet D1 ED LE 07 08 PD T1 |
| OPTIMALB | 0046 | ANZEIGE MIT OS ECM-CLIENT | In keiner Ablage verwendet |
| SAPHTTP | 0045 | SAPHTTP 0045 | In keiner Ablage verwendet |
| SAPMA | 0046 | PROTOKOLL FÜR CREP MA | Verwendet MA |
| SAPRFC | 0031 | SAPRFC | In keiner Ablage verwendet |

Double-clicking on OPTIMALB takes you to 'Overview of a log.'



**ArchiveLink-Protokolle: Übersicht über ein Protokoll**

OPTIMALA | 0046 | ANZEIGE MIT SAP-STANDARD

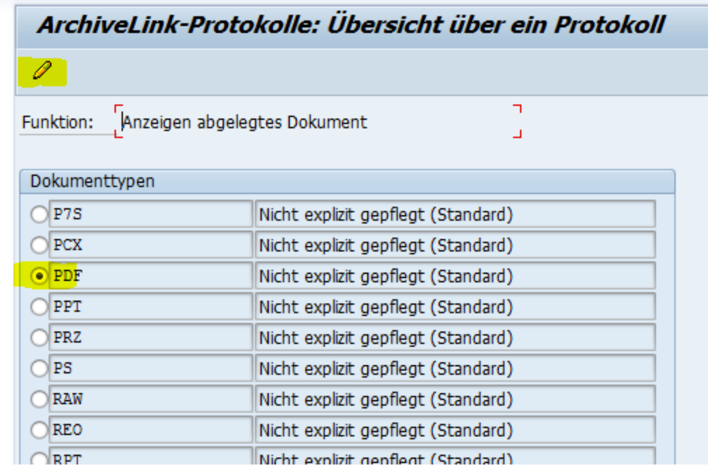
Letzte Änderung von NEUTZLER | am 01.10.2012 | um 18:44:42

Funktionen

- Anzeigen abgelegtes Dokument
  - Bereitstellen Frontend
  - Anzeigen lokale Datei
- Ablage vom Frontend
  - Datei ablegen am Frontend
- Fenster schließen

Double-clicking on 'Display stored document' takes you to the overview of the document types.

Warning: This point is confusing as the scrollbar for the small table is at the edge of the screen on the right. The option 'PDF' has to be set so that you can actually edit the PDF.



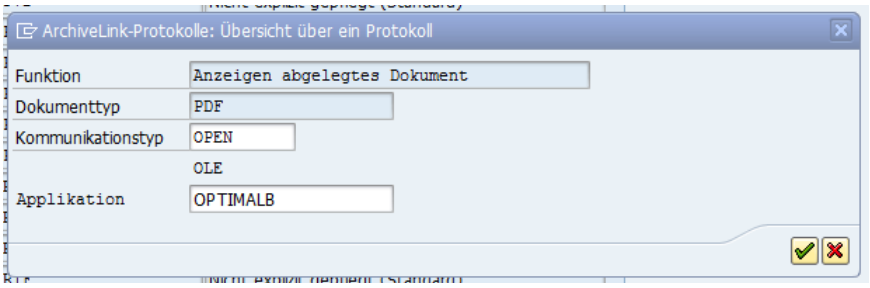
**ArchiveLink-Protokolle: Übersicht über ein Protokoll**

Funktion: Anzeigen abgelegtes Dokument

Dokumenttypen

| | | |
|---|---|---|
| ○ | P7S | Nicht explizit gepflegt (Standard) |
| ○ | PCX | Nicht explizit gepflegt (Standard) |
| ● | PDF | Nicht explizit gepflegt (Standard) |
| ○ | PPT | Nicht explizit gepflegt (Standard) |
| ○ | PRZ | Nicht explizit gepflegt (Standard) |
| ○ | PS | Nicht explizit gepflegt (Standard) |
| ○ | RAW | Nicht explizit gepflegt (Standard) |
| ○ | REO | Nicht explizit gepflegt (Standard) |
| ○ | RPT | Nicht explizit gepflegt (Standard) |

Now you can click on 'Change' (F2).



ArchiveLink-Protokolle: Übersicht über ein Protokoll

Funktion: Anzeigen abgelegtes Dokument
Dokumenttyp: PDF
Kommunikationstyp: OPEN
OLE
Applikation: OPTIMALB

Here the communication type is set to 'OPEN' (confirm with ENTER) and 'OPTIMALB' is entered as the application.

The change is entered once it is confirmed. In the future, the single-stage display will be used for 'PDF' through the settings just made.

# Relevant SAP Transactions

Below you will get a short overview of the relevant transactions in SAP which can be useful for administrating enaio® repository-manager in SAP.

## Administration

| Transaction | Description |
|---|---|
| SE01 | Transport Organizer |
| STMS | Transport Management System |
| SU01 | User Maintenance |
| SM21 | Syslog |
| SLG1 | Application Log |
| SCMSMO | KPRO: Monitor |
| SPAD | Spool Administrator Access (Output Device Configuration) |

## enaio® repository-manager

| Transaction | Description |
|---|---|
| SE38 | ABAP-Editor |
| SE16 | Table Display (TOA01, VBRK, EKKO, ...) |
| OAM1 | ArchiveLink Monitor |
| OAAD | Display of filed documents (also print lists) |
| OADD | Display of filed print lists |

| | |
|---|---|
| OAC0 | Content Repositories Maintenance |
| OAC3 | Content Repositories Links |
| OAA3 | Administration of the communication interface (log maintenance) |
| OBD5 | Early storing with barcodes |
| OAA4 | Application maintenace (OLE-DLL) |
| OAC5 | Settings for barcode capture |
| OAG1 | ArchiveLink basic settings |
| OAC2 | Document types global |
| OAQI | Attachment queues |

### Application

| Transaction | Description |
|---|---|
| FB03 | Document display financial accounting |
| ME21N | Capture/change purchase order |
| ME23 | Display purchase order (change ME22) |
| VA02 | Change sales order |
| VA22 | Change quotation |
| VL03N | Display delivery document (change: VL02N) |
| VF03 | Display invoice (VF02) |

## SAP GUI Scripting

SAP offers SAPGUI scripting for automation. The following script example shows how a material master (transaction 'mm02') is opened for a material number (can be transferred as parameter 'Vs_MaterialCode').

```
Function LaunchMaterialSAP(Vs_MaterialCode)
If Not IsObject(application) Then
   Set Wrp = CreateObject ("SapROTWr.SapROTWrapper")
   Set SapGui = Wrp.GetROTEntry ("SAPGUI")
   Set application = sapgui.GetScriptingEngine
End If
If Not IsObject(connection) Then
   Set connection = application.Children(0)
End If
If Not IsObject(session) Then
   Set session    = connection.Children(0)
End If
If IsObject(WScript) Then
   WScript.ConnectObject session,     "on"
   WScript.ConnectObject application, "on"
End If
session.findById("wnd[0]").maximize
session.findById("wnd[0]/tbar[0]/okcd").text = "/Nmm02"
session.findById("wnd[0]").sendVKey 0
session.findById("wnd[0]/usr/ctxtRMMG1-MATNR").text = Vs_MaterialCode
session.findById("wnd[0]/usr/ctxtRMMG1-MATNR").caretPosition = 7
session.findById("wnd[0]").sendVKey 0
session.findById("wnd[1]/usr/tblSAPLMGMMTC_VIEW").getAbsoluteRow(0).selected = true
session.findById("wnd[1]/tbar[0]/btn[0]").press
End Function
```

If a separate window is to be opened ("Mode") '/Nmm02' has to be replaced with '/Omm02'.