

# Content Manager

Software Version 9.4

Content Manager ArchiveLink



Document Release Date: November 2021  
Software Release Date: July 2022

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# Content Manager SAP ArchiveLink

## Introduction

Content Manager has an accredited SAP ArchiveLink interface which allows the SAP system to be configured to use the Content Manager records and document management capabilities for managing electronic documents. This document describes how to install and configure the various software components, and also outlines the options available for managing how the Content Manager records associated with SAP documents are created.

## KGS Content Server

A key element of the Content Manager SAP ArchiveLink module is a third-party middleware component providing the connectivity between SAP and Content Manager. This middleware is provided by an SAP consulting company called KGS. The software they provide is called the KGS ContentServer.

Figure 1a provides a general outline of how the components are combined together to provide the software solution. The services layer is required to handle interoperability between the SAP environment (platform independent, and can therefore be UNIX-based) and Content Manager - a Microsoft Windows product.

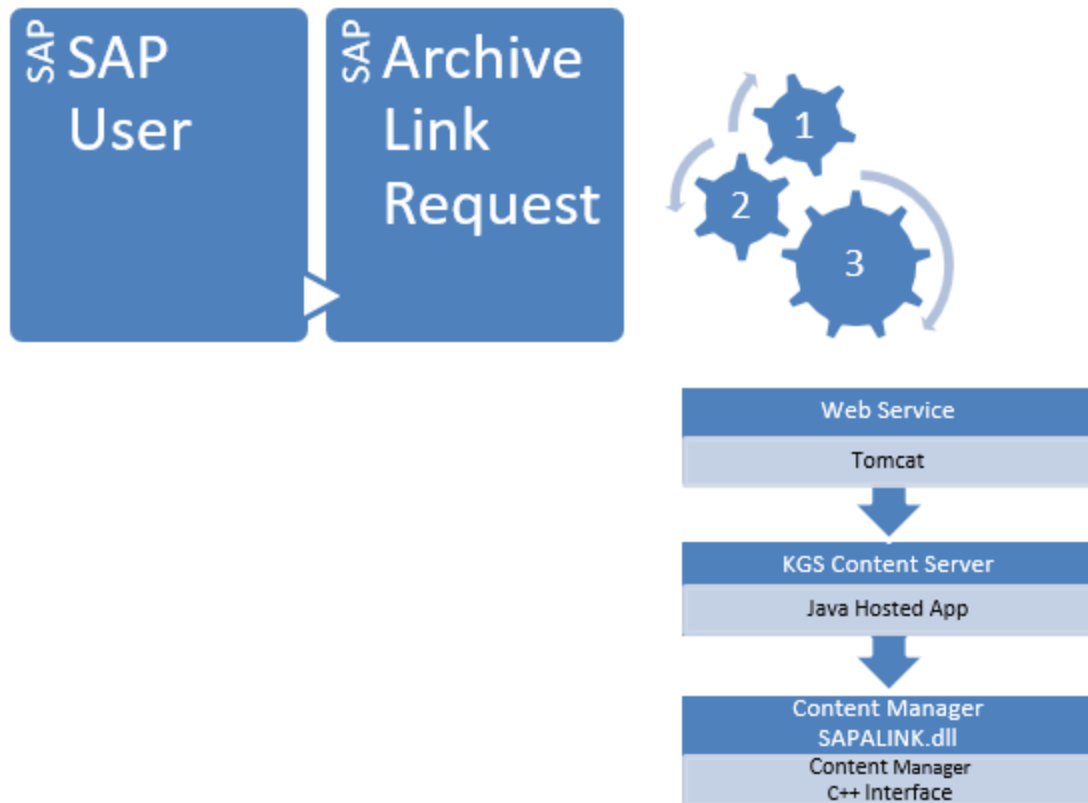


Figure 1a - Communication of software components in Content Manager SAP ArchiveLink

The KGS Content Server software is a java application which needs to be hosted within an Apache Tomcat Web Server.

## Installing the Content Manager SAP ArchiveLink Components

### Introduction

This documentation describes the setup of a single Tomcat Server to handle all SAP ArchiveLink requests (hereafter referred to as the ArchiveLink server). Once the procedure is followed and understood, it will be possible to extend the implementation to support vertical or horizontal scaling for situations requiring higher levels of throughput. If you need assistance in extending the implementation, contact Micro Focus Professional Services. To undertake the implementation you will need to obtain/download:

1. Java VM (64-bit)
2. Apache Tomcat 9.0
3. The ContentManagerSAPArchiveLink package for 5.2 (SAPArchiveLink\_5.2).

These installation instructions are provided for use with the KGS ContentServer 5.2 – contact KGS Customer Support for inquiries relating to later versions.

## Prerequisites

Where a required version of the above listed software components is not specified herein, refer to **CM9.4\_Spec.pdf** for supported versions of operating system, Java, Apache Tomcat and KGS ContentServer.

## Installation steps

### Installing Java

The Java runtimes are required in order to install Apache Tomcat. The latest Java version can be downloaded from:

<https://www.java.com/en/download/manual.jsp#win>

Download the 64-bit Windows offline installer (e.g. jre-8u191-windows-x64.exe). Install by right-clicking the executable, selecting “Run as Administrator” and following the prompts.

### Installing Apache Tomcat Web Server

The first step for setting up the ArchiveLink server is to install a copy of the Apache Tomcat Web Server. At time of writing, the KGS ContentServer requires you to specifically install Apache Tomcat 9.0.

Apache Tomcat 9.0 can be downloaded from <https://tomcat.apache.org/download-90.cgi>. Choose the Windows service installer, 64 bit.

#### Tomcat Service Account

The account used to run the Tomcat service will need to have relevant permissions in order to run the Content Manager component to store documents and communicate with the Content Manager database. It is recommended you use the same account that you would use to run a Content Manager workgroup server (e.g. MYDOMAIN\CMServices), as this account will already have the necessary permissions to the Content Manager document store and database.

The account that runs the Tomcat service will also need local administrator privilege to access the local machine registry entries used in the configuration.

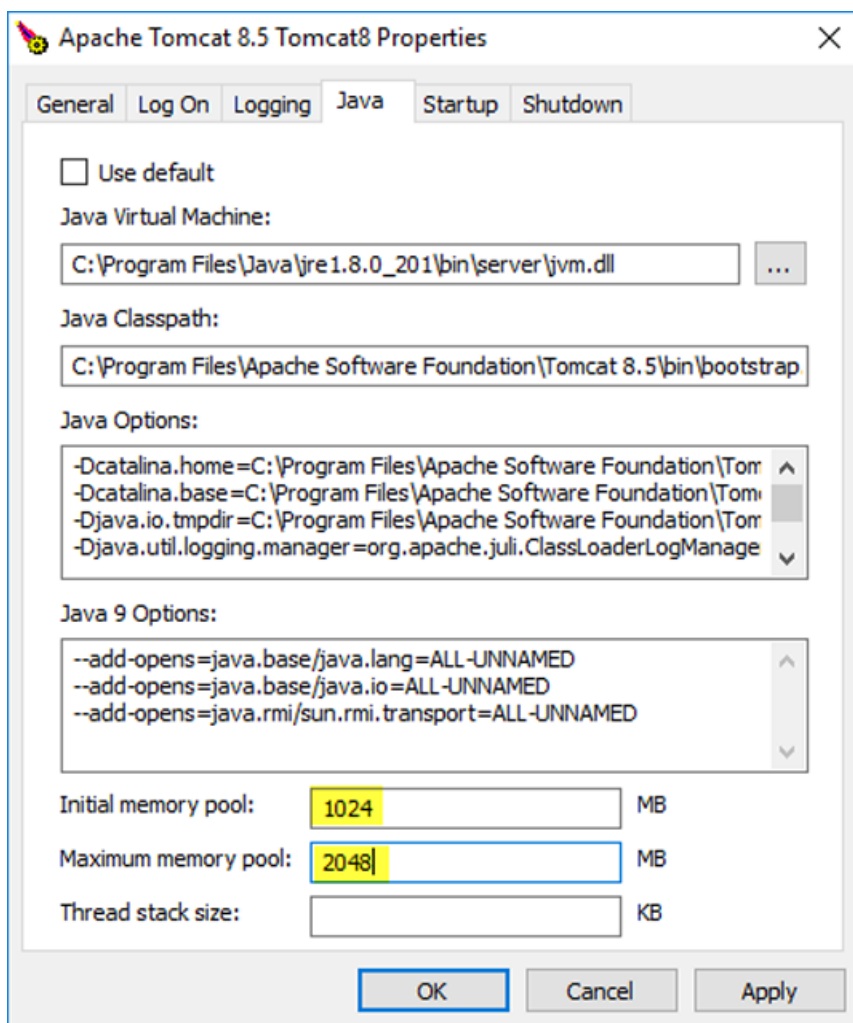
The account that runs the Tomcat Service will also need to be registered in Content Manager as an administrator user type. The Content Manager SAP Integration needs this user to have an active login as the SAPALINK integration uses Integrated Windows Authentication, passing through the credentials from the Tomcat Service.

## Installing Apache Tomcat 9.0

1. Right-click on the installer executable and select **Run as Administrator**.
2. For later in the configuration process, take note of the HTTP Connector Port number used for the Apache Web Service (by default 8080).
3. Enter your own choice of Tomcat Administrator Login username and password for the 'manager-gui' role for use at a later step, and take note of these details (both the username and password are case-sensitive).
4. The path of your existing Java installation should be automatically detected and populated, so there is no need to change this.
5. At the end of the installation, disable **Run Apache Tomcat**. The service account will be changed to the Content Manager service account and appropriate local NTFS permissions granted before starting the service.
6. In Windows File Explorer, navigate to the Tomcat 9.0 installation folder (by default C:\Program Files\Apache Software Foundation\Tomcat 9.0). In the security permissions for this folder, grant the Content Manager service user full control.
7. In the Windows Services console, modify the properties of the **Apache Tomcat 9.0 Tomcat9** service to allow automatic startup, and **set the logon to use an account that has a login in Content Manager**. Since the Tomcat service will be launching the components that connect with Content Manager, this is essential. It is recommended that after you install Tomcat, login to this machine using the Tomcat Service account and test that you can run trim.exe and connect to the required dataset.

**NOTE:** If NOT running a Content Manager Workgroup service on this server the Content Manager service account does not need local administrator permissions.

8. To run the ArchiveLink software at a later step, there are some memory settings that are recommended for the Tomcat Server. From the **Windows Start Menu**, run **Configure Tomcat**. Update the Java tab with the recommended minimum memory pool settings:
  - **Initial Memory Pool** - 1024 MB
  - **Maximum memory pool** - 2048 MB (assuming enough memory is available on the server) and then click **Apply**.



9. Start the Tomcat service (this can be done from the General tab of the above dialog, or from the Windows services console).

## Installing and Configuring the Content Manager C++ SDK

The Content Manager C++ SDK is included in a client installation of Content Manager. So this step simply involves installing a Content Manager 64-bit client on the ArchiveLink server. Whilst it is possible to configure the Content Manager ArchiveLink server to connect to a remote Content Manager Workgroup Server, for best performance it is recommended that you also install and configure a Content Manager Workgroup Server to run on the ArchiveLink server.

1. Once you have installed the Content Manager client (and ideally workgroup server), run the client (login using Integrated Windows authentication and using the Tomcat Web Service account) to check that it happily accesses the Content Manager functionality.
2. In order that the KGS component can find the required Content Manager SAPALINK.dll, it is simplest to edit the global PATH environment variable (Control Panel – System – Advanced System Settings - Environment Variables) and add the name of the folder where the Content



Manager 64-bit binaries have been installed (e.g. C:\Program Files\Micro Focus\Content Manager\).

3. In order for the SAPALINK.dll to find the correct Content Manager dataset and workgroup, you need to add some registry key values. Using the 64-bit registry editor:

- a. Create the following registry key:

HKEY\_LOCAL\_MACHINE\SOFTWARE\Micro Focus\Content Manager\SAP

**NOTE:** For Content Manager version 9.2 and earlier, it is HKEY\_LOCAL\_MACHINE\SOFTWARE\Hewlett-Packard\HP TRIM

- b. Within this new key, create the following three key values:

- **Database** (String Value) - set it to the 2-character dataset id of the Content Manager database to use for storing SAP documents
- **Workgroup** (String Value) - set it to either Local or the name of the remote Content Manager workgroup server
- **Port** (DWORD 32-bit value) - set it to the port number used to communicate with the workgroup server (usually 1137 decimal).

This should allow the ArchiveLink machine to connect up with the correct Content Manager dataset to store SAP documents.

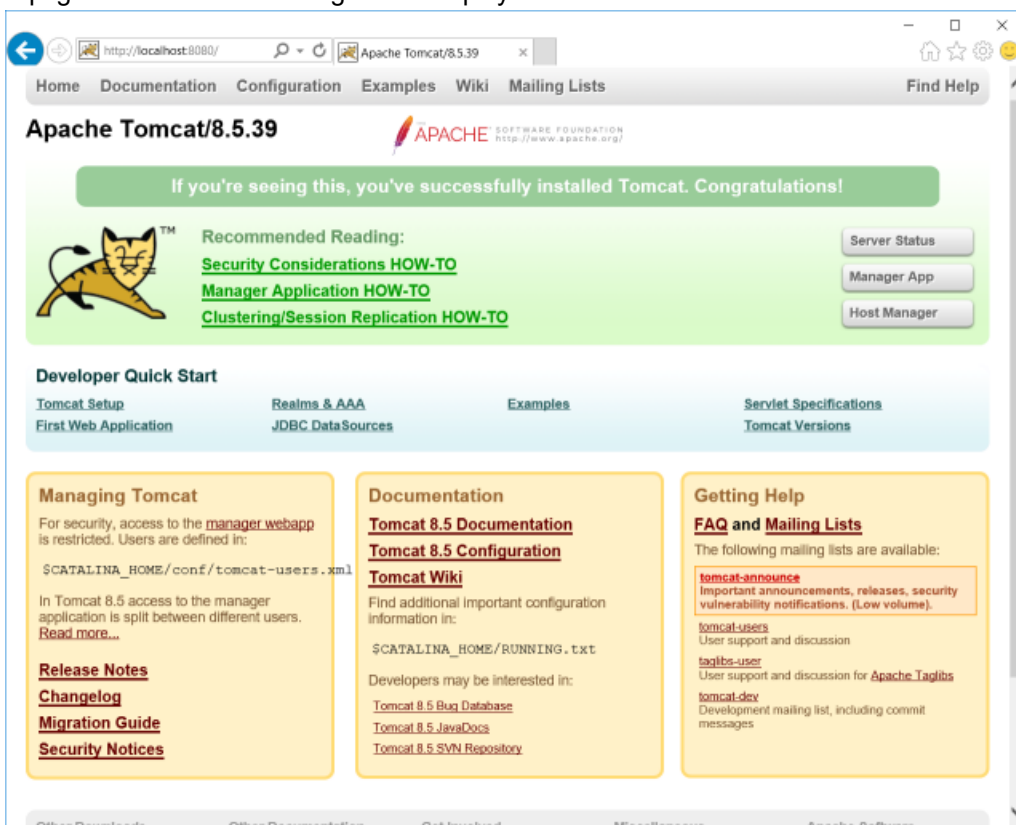
## Installing KGS ContentServer and Content Manager SAP Archive link

1. Download the KGS ContentServer4Storage from the KGS web site (you will need to register to access the Members Area under SUPPORT – Downloads). Install the KGS software as per their installation instructions.
2. Stop the Tomcat Service.
3. Navigate to the SAPArchiveLink sub folder in the installation folder (for example, C:\Program Files\Micro Focus\Content Manager\SAPArchiveLink). You should have the following files available:
  - DMSEException.class
  - JavaDMSLink.dll
  - SAPALink.class
  - SAPALink.war
4. Create a folder in the Tomcat install folder called KGS Files (e.g. C:\Program Files\Apache Software Foundation\Tomcat 9.0\KGS Files). Copy the two java class files (**SAPALinkDLL.class** and **DMSEException.class**) into this new folder.
5. Copy the JavaDMSLink.dll file to the Content Manager installation folder e.g. C:\Program Files\Micro Focus\Content Manager (double check that you have included this folder in the PATH environment variable).

6. Open the file called **Catalina.properties** inside the **conf** folder under the Tomcat installation folder with a text editor. If necessary edit the **server.loader** value so that it is empty. The line should look like:  
`server.loader=`
7. Restart the Tomcat Service.

At this stage, you should be able to do a basic verification that everything is running. To check the Tomcat service, (substituting your configured port number if it's different than 8080):  
<http://localhost:8080/>

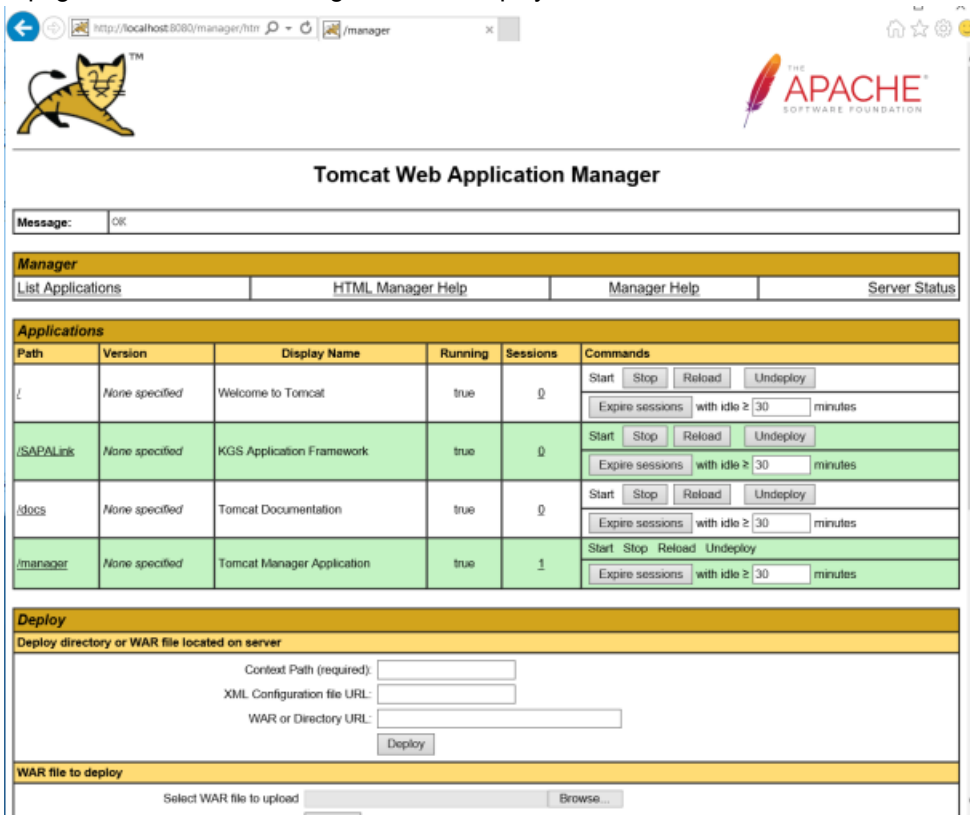
A page similar to the following will be displayed:



From this page, click **Manager App**.

**TIP:** When you go to this URL for the first time the browser will put up a login screen, asking for the user name and password for the Tomcat Web Application Manager. This is the username and password you entered during the Tomcat installation. You may wish to select “Remember my credentials” at this point.

A page similar to the following should be displayed:

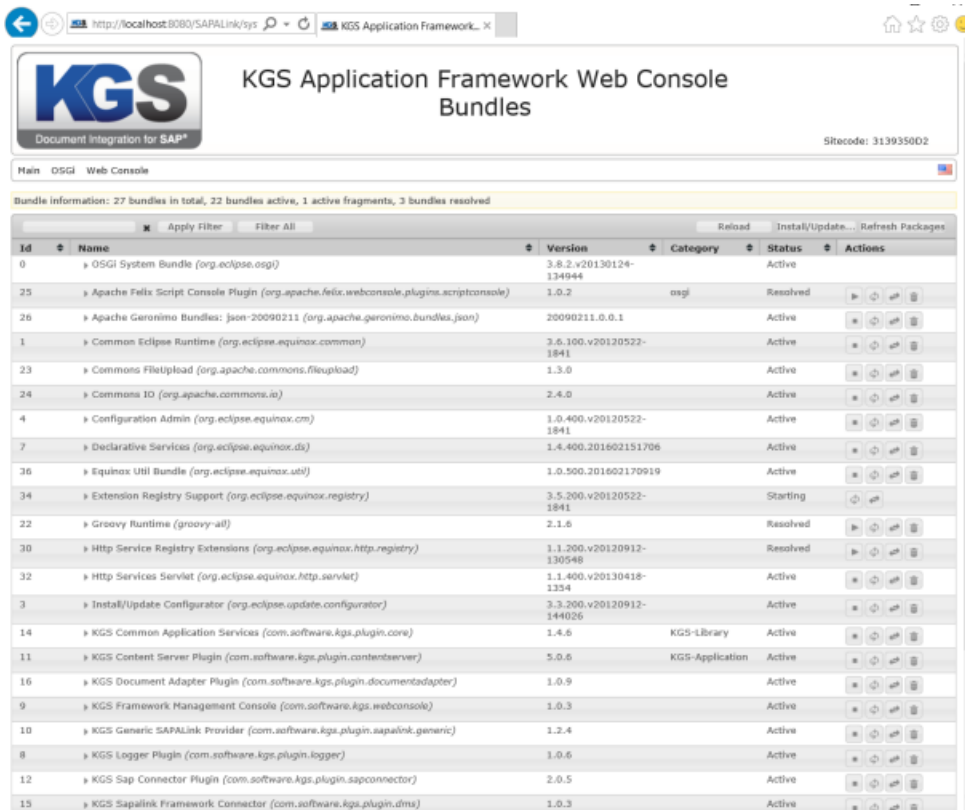


From this page, select the /KGSAdmin-CS hyperlink on the left to access the KGS Application Framework Web Console.

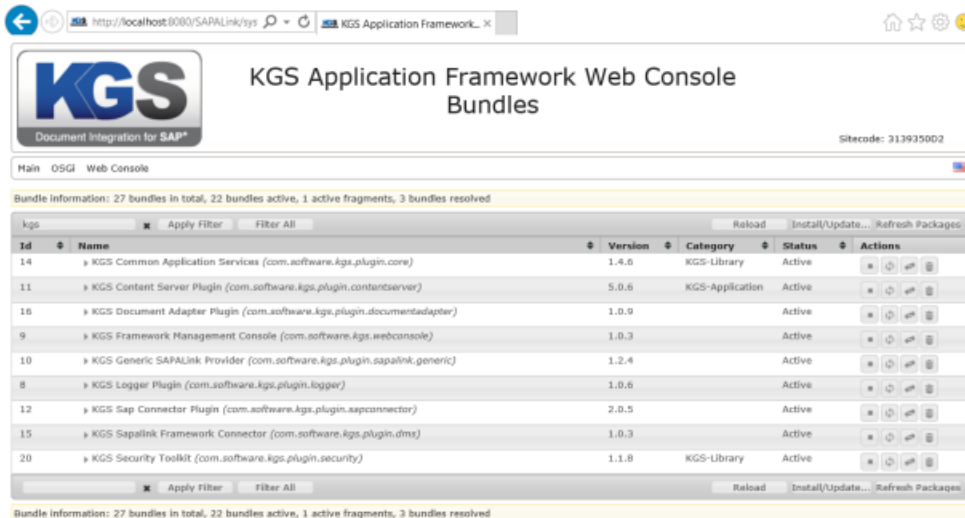
**TIP:** When you go to this URL for the first time the browser will put up another login screen, asking for the user name and password for the KGS ContentServer application. The default for username is admin and password is admin. You may wish to select “Remember my credentials” at this point.

**NOTE:** These credentials only apply to the running of the KGS ContentServer Java application. The Content Manager connection will connect using the same account as the Tomcat Service.

After you get past the login screen, you should see the following KGS Content Server admin console screen:



In the search control on the top left, enter the search string “kgs” and select Apply Filter. You should see the following web applications:



You should see all the components displaying a status of Active.

## Configuring and Licensing the KGS ContentServer

You now need to obtain a license from KGS to run the ContentServer correctly. The KGS Software uses a Site Code based on details of the ArchiveLink machine. This means that if you configure new or additional servers, you will also need to obtain a new license because the Site Code will be different.

- From the **Main** drop-down menu, click **ContentServer4ArchiveLink**. The following server information screen will be displayed:

The screenshot shows the KGS Application Framework Web Console interface. The title bar indicates the URL is `http://localhost:8080/SAPALink/sys`. The main header displays the KGS logo and the text "KGS Application Framework Web Console ContentServer4ArchiveLink". A yellow box in the top right corner shows the Sitecode: 3139350D2. The left navigation menu includes "Administration" with sub-items: "Server Status", "Certificates", and "Edit Configuration". The main content area shows "ContentServer: 5.0.6" with the following details:

- ServerStatus: running
- ServerVendorId: KGS Software GmbH & Co.KG KGS ContentServer4Storage (FS)
- Server Date Time 2019-04-08 05:34:27
- ServerVersion: 3.5.3
- ProtocolVersion: 0946
- No ContentServer license! Please request for a license for SiteCode 3139350D2
- Module IndexExport running but disabled due to invalid license
- Module KeyFetch running but disabled (BarcodeTimer= 0)
- Module Barcode running and disabled (BarcodeTimer=0,EnableBarcode=false)

Below the details is a table with the following structure:

| Id                         | Description | Security | Modules | Status | Action |
|----------------------------|-------------|----------|---------|--------|--------|
| No data available in table |             |          |         |        |        |

At the bottom, it shows "Showing 0 to 0 of 0 entries" and navigation buttons for "Previous" and "Next".

The Site Code can be seen in the top right corner and also in the license line (which should indicate that you are yet to supply a license key).

Using this Site Code go to the **KGS** web site (<https://www.kgs-software.us/licensekey/>) and request a license for this Site Code.

Select the NEW LICENSE KEY option, fill in the form to create a support ticket with KGS, and in due course you will receive a license key.

Enter this license key as follows:

- Select the Edit Configuration link in the left hand side of the above information screen. The following licensing screen will be displayed:

The screenshot shows the KGS Application Framework Web Console interface with the "Edit Configuration" option selected. The main content area displays the "License" configuration screen. The title bar indicates the URL is `http://localhost:8080/SAPALink/sys`. The main header displays the KGS logo and the text "KGS Application Framework Web Console ContentServer4ArchiveLink". A yellow box in the top right corner shows the Sitecode: 3139350D2. The left navigation menu includes "Administration" with sub-items: "Server Status", "Certificates", and "Edit Configuration". The main content area shows "Configuration Values:" with the following fields:

- License Key:
- IndexLicenseKey:
- ILMLicenseKey:

At the bottom right, there is a "Save" button.

- Copy and paste the License Key value provided by KGS in the **License Key** field and then click **Save**.

## Configuring KGS ContentServer for Content Manager

From the above screen, select the **OSGi** menu drop down from the Menu Bar and select the **Configuration** menu option. Select the **Generic Store Service**, set the following properties:

- Archive Link Implementation Class: SAPALinkDLL
- Implementation Folder: the KGS Files folder created in Step 4
- Use internal implementation: false

It should look like this:

Press **Save**, and restart the Tomcat Service and recheck everything is working correctly.

From the KGS admin Console, select **ContentServer4ArchiveLink** from the **Main** menu drop down, make sure that The Content Server is running and that it has picked up Micro Focus Content Manager as the ServerVendorId.

## Troubleshooting

There are a number of things that can go wrong when setting up the SAPALINK configuration. Generally, problems will be indicated by the Tomcat main console screen not displaying or the KGS ContentServer4ArchiveLink Main screen showing an exception such as “noArchiveLink” or not showing vendor ID of Micro Focus Content Manager. Here’s a quick checklist:

- Make sure all components are 64-bit Windows, including Java, Content Manager.
- Check that the Content Manager install folder is in the PATH environment variable.
- Check that you have configured Content Manager **SAPALink.dll** by specifying the Database Id, Workgroup Server and Port in the registry.
- Check that there are no copies of **JavaDMSLink.dll** installed in other folders that appear in the PATH environment variable (best to only have one copy on this machine).
- Check that Content Manager is running correctly with the Tomcat Service user account. To do this, login to the machine using this account and run trim.exe from the Content Manager install folder, connecting up with the same Database Id and Workgroup as you have set up in the

registry.

6. Check the Windows Event Viewer for any Application errors that may be generated by **SAPALINK.dll** when starting up.
7. Check the SAPALINK log for any errors there. This log will be in the same folder as the Content Manager Workgroup Server log (you can find this folder by looking at Setup Information in trim.exe). It will have a name like SAPALINK\_YYYY\_MM\_DD.log. You can tell Content Manager to add extra details to this log file by adding a registry key value to the same registry key used to configure the SAP connection (see Step 3.3 in [Installing and Configuring the Content Manager C++ SDK, on page 8](#)). The key is a DWORD key called LogMode, set it to 1 for more details, 2 for extensive details.

To determine whether the problem lies with the KGS Content Server setup or the way Content Manager has been installed or configured, there is a diagnostic version of the SAPALINK.dll. This is in the SAPArchiveLink\_5.2 zip package and called SAPALINK\_diagnostic.dll. If you rename this to SAPALINK.dll and copy it to the Content Manager installation folder, it will be run up instead of the normal connection. It is basically a non-operational stub and will display a blank Vendor Id – it is just to diagnose where the fault lies. If it runs up happily, then the problem is with the Content Manager configuration, if it fails to start properly, the problem will most likely be with the way KGS components have been installed.

## SAP ArchiveLink

SAP ArchiveLink is an interface specification, describing a number of methods that an integrated archiving component must provide in order to conform to the specification. The interface primarily provides functions for storage and retrieval of documents, although it can be extended to deal with viewing of documents and barcode processing. The SAP ArchiveLink considers a document to be a structured entity, consisting of a header (called the document) and one or more parts (called components). Content Manager has a simple flat structure for documents and typically does not support a record having multiple documents.

To facilitate the SAP multiple component structure, a special record type behavior exists in Content Manager called **SAP Document**. All records created via the ArchiveLink interface will have a record type that implements this behavior.

Records with this behavior have the following characteristics:

Each record corresponds to a SAP Document and has the following additional properties that are equivalent to the corresponding property in the SAP system:

|                         |
|-------------------------|
| SAP Repository          |
| SAP Document            |
| SAP ArchiveLink Version |
| SAP Document Protection |
| SAP Archived Date       |

|                      |
|----------------------|
| SAP Modified Date    |
| SAP Document Type    |
| SAP Customer ID      |
| SAP Customer         |
| SAP Creator Name     |
| SAP Creator Location |
| SAP Business Object  |
| SAP Business ID      |

Each record has a child list called **SAP Components** which has an entry for each component in the SAP system. The SAP component object has a document attached which is stored in the Content Manager document store. The component also has the following metadata properties (derived from the equivalent property in SAP):

|                     |
|---------------------|
| Component ID        |
| ArchiveLink Version |
| Application Version |
| Content Type        |
| Character Set       |
| Archive Date        |
| File Name           |

For convenience, the record exposes the normal Content Manager document functionality by using the first component in the SAP documents array. For example, if you choose to view the record it will open up the viewer and display the first component in the SAP Components list. If you access the SAP Components list, you can select components to individually view should that be necessary.

## Configuring the Record Type for SAP Documents

Content Manager will select the record type based on the SAP Repository ID. Before running SAP ArchiveLink for the first time you should set up a record type for each SAP repository that will be using ArchiveLink.

**NOTE:** Before creating Record Types in Content Manager, ensure the **SAP integration** feature is enabled in the **System Options - Features** tab.

In Content Manager, on the **Home** tab, click **New** and then click **Record Type**. The **Content Manger - New dialog** will be displayed.

**From the list of record type behaviors, select SAP Document and click OK.**



The record type can be configured in the same way as a Document record type, with the addition of a special **SAP Settings** tab. This tab provides the following additional elements specifically for SAP ArchiveLink documents:

|   |
|---|
| Use for SAP Repository                          |
| Template for record title                       |
| Template for record title (extra metadata)      |
| Create and attach a contact for SAP Customer    |
| Use SAP Creator as record creator               |
| Create containers for each SAP customer         |
| Use SAP country code for record jurisdiction    |
| Use SAP delete date for record destruction date |

Edit these settings to work as you would like for documents sourced from the nominated SAP repository ID.

**TIP:** To get more information on how these settings work refer to the Content Manager Help by clicking Help.

**NOTE:** If no record type is found to match a SAP repository ID, then the Content Manager SAP ArchiveLink software will automatically create a new record type with default settings. You can edit this record type later if it needs adjustment.

## Additional Content Manager Configuration Options for SAP Documents

The KGS ContentServer provides a feature for extracting extra metadata from SAP during record creation. The type of metadata provided by KGS is configurable, and this feature is a separately licensed module of the KGS Content Server. Refer to the KGS Content Server documentation of “SAPALINK Add On” for more information.

Once the initial record is created in Content Manager (a short time after the ComponentCreate operation), the KGS software will call back into SAP to obtain extra metadata relating to the SAP document. It then passes this metadata through to Content Manager using a special DocumentKeySet function. This basically passes a set of name-value pairs to Content Manager which can be handled in a number of ways.

Content Manager has an intrinsic understanding of the following key-values:

| Key Value | Content Manager Property |
|-----------|--------------------------|
| AR_OBJECT | SAP Document Type        |

|            |   |
|------------|---|
| SAP_OBJECT | SAP Business Object                                       |
| OBJECT_ID  | SAP Business ID   |
| KUNNR      | SAP Customer Number                                       |
| NAME1      | SAP Customer Name   |
| ERNAM      | SAP Creator Name  |
| LAND1      | Jurisdiction (if used in record type setting)             |
| DEL_DATE   | Date Due for destruction (if used in record type setting) |

Additionally, any Key Value can be inserted into the record title using the template settings. You specify *&keyvalue%* in the title and the value of this key will replace the text.

For key values not specified above, you can choose to store the value as an additional field value. To do that, create an additional field, set the SAP KeySet field property to be the Key Value and associate that additional field with the SAP Record Type.

You can also use the SAP Business Object to determine a classification for the record. This is done by entering one or more values for the SAP Business Object (SAP\_OBJECT) into the list of SAP Business Object Links for the required classification.

**IMPORTANT:** If you make any configuration changes as described above, you will need to restart the Tomcat server for the changes to take effect. The Content Manager SAP ArchiveLink software caches all the settings on initial load for performance reasons.