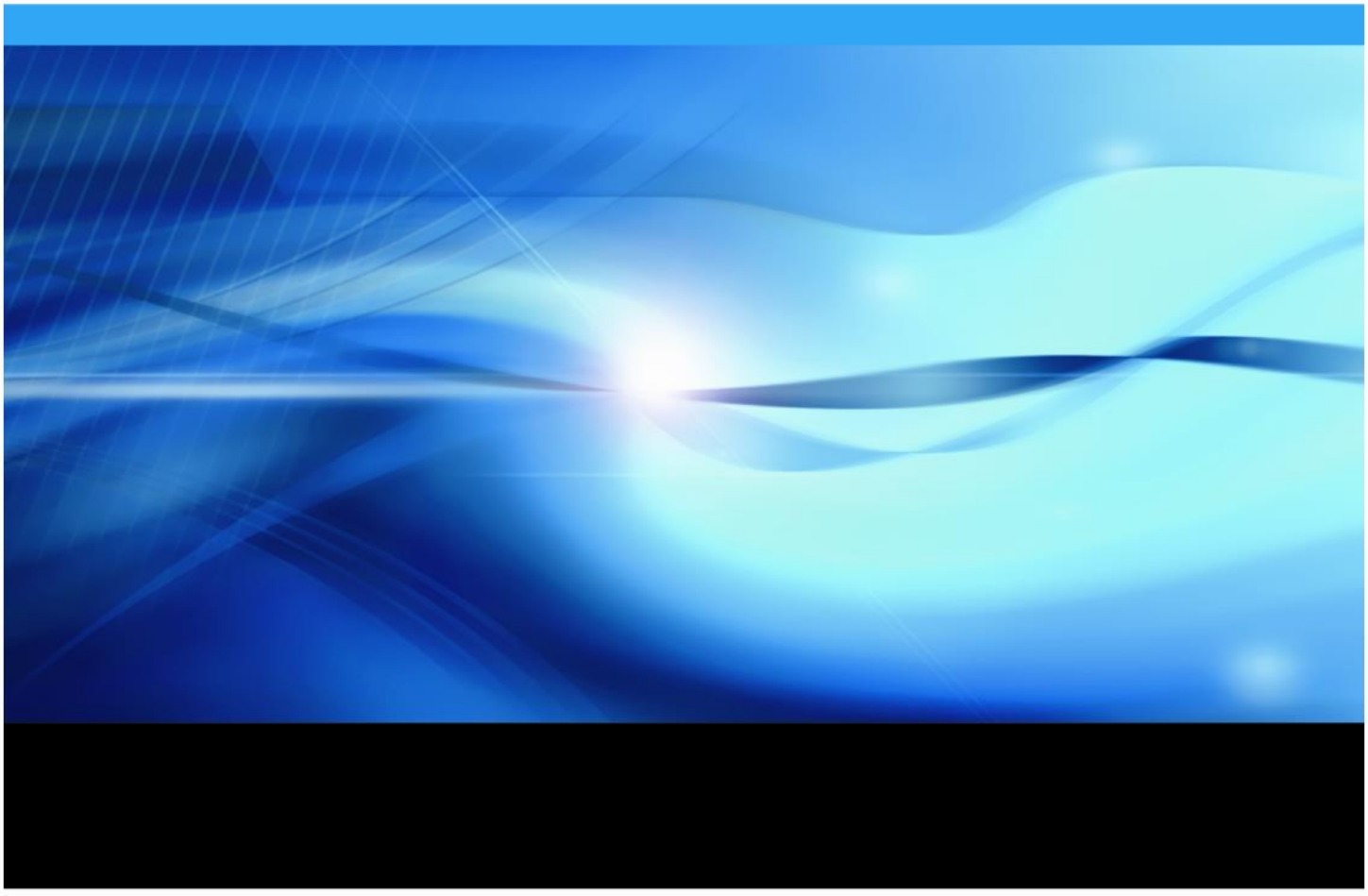
# Integrating Search Interface to SAS® Content 3.4



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# Chapter 1 — Initial Integration

## *Integrating with Search Engines*

### Integrating Search Interface to SAS Content with SAS Information Retrieval Studio

Refer to "Chapter 2 — Configuring and Feeding SAS Contents to the Index of SAS Information Retrieval Studio" for the procedure to feed the SAS contents to the index server of SAS Information Retrieval Studio.

### Integrating Search Interface to SAS Content with Google Search Appliance

Search Interface to SAS Content can be integrated with the Google Search Appliance by integrating it as an OneBox module. Refer to "Chapter 3 — Registering Search Interface to SAS Content as Google OneBox Module."

### Integrating Search Interface to SAS Content with Microsoft SharePoint Search Server

Refer to "Chapter 4 — Registering Search Interface to SAS Content as a Federated Location in Microsoft SharePoint Search" for the procedure to integrate Search Interface to SAS Content with a Microsoft SharePoint Search Server.

### Integrating Search Interface to SAS Content with Apache Lucene

If SAS Information Retrieval Studio is not available in the package or a customer wants to use a different index server, follow these steps to switch to Apache Lucene:

1. Launch SAS Management Console and login with administrator credentials.
2. Go to the **Plug-ins** tab.
3. Navigate to **SAS Management Console→Application Management** and select **Configuration Manager**.
4. Right-click on **Search Interface to SAS Content 3.4** and select **Properties** and then click on the **Advanced** tab in the dialog.

Ensure that the property `searchsas.irstudio.is_`available is set to false. Also, check the default value of `searchsas.lucene.index.default.dir` so you will know where index data will be stored. Change it if required.

# Chapter 2 — Configuration Information for SAS Information Retrieval Studio and Feeding SAS Contents

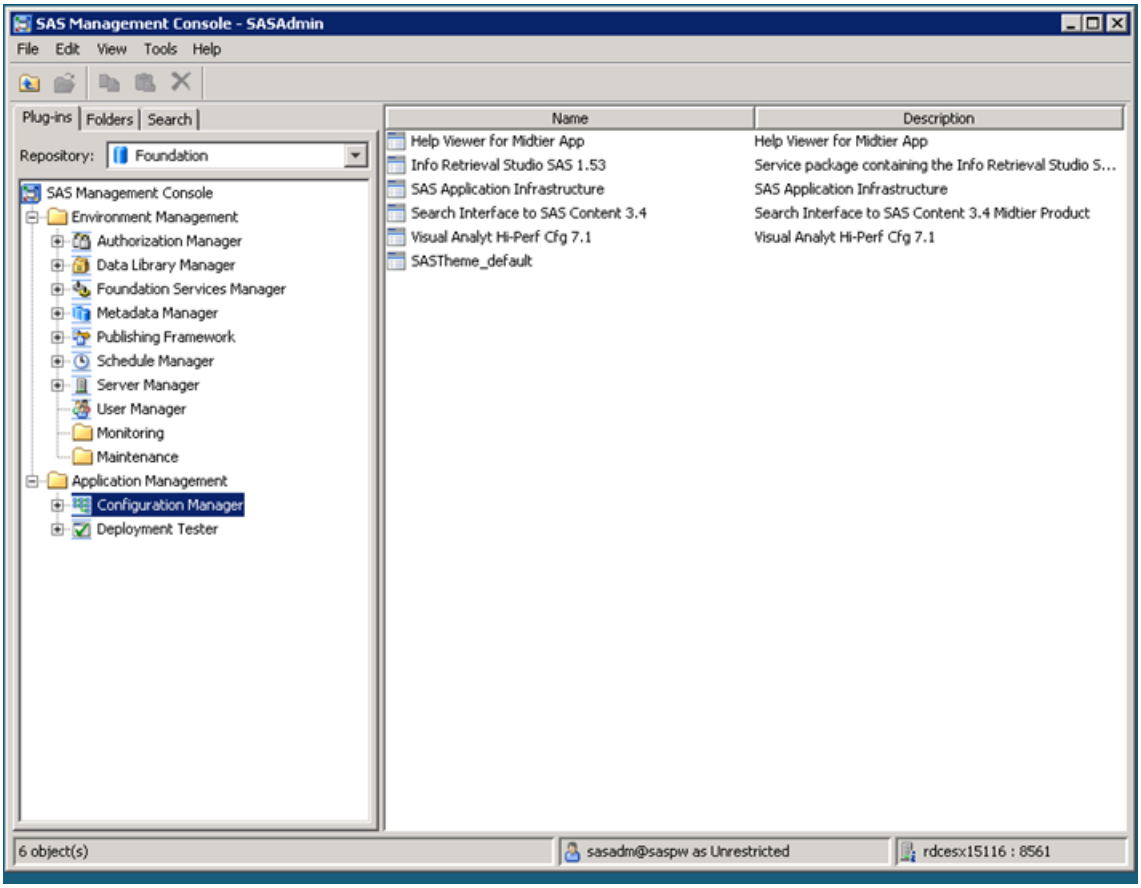
Search Interface to SAS Content 3.4 now supports feeding SAS contents to the index of SAS Information Retrieval Studio 1.53 and searching from it with authorization. Users will be able to view results based on their roles. Configuration is fully automated through the SAS Deployment Wizard (SDW). If any part is not working, follow the steps below to verify the configuration.

## *Step 1 - Verify the Registration Information in Metadata*

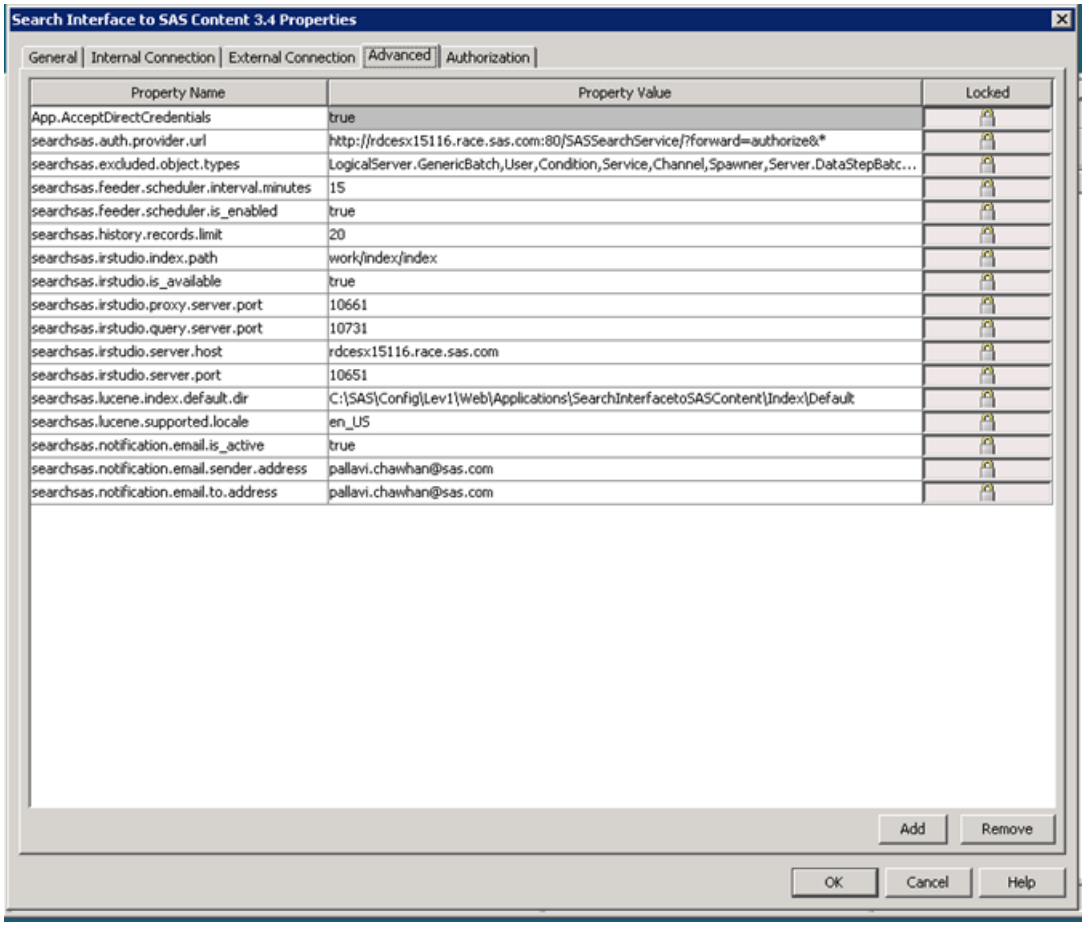
Make sure Search Interface to SAS Content and SAS Information Retrieval Studio are installed and running. Also verify that the correct information is used by Search Interface to SAS Content 3.4 to connect to SAS Information Retrieval Studio 1.53.

Use the following steps for verification:

1. Launch SAS Management Console and login with administrator credentials.
2. Go to the **Plug-ins** tab.
3. Navigate to **SAS Management Console→Application Management** and select **Configuration Manager**.



4. Right-click on **Search Interface to SAS Content 3.4** and select Properties and then click on the **Advanced** tab in the dialog.




5. Ensure that the following properties have correct information, which should have been used while installing and configuring SAS Information Retrieval Studio:

   - **searchsas.irstudio.server.host:** the host name of the machine on which SAS Information Retrieval Studio servers are running.
   - **searchsas.irstudio.server.port**: the port number of the machine on which SAS Information Retrieval Studio is running.
   - **searchsas.irstudio.query.server.port**: the port number of the machine on which the query server of SAS Information Retrieval Studio is running.
   - **searchsas.irstudio.proxy.server.port**: the port number of the machine on which the proxy server of SAS Information Retrieval Studio is listening.

   ***Note:*** *If you are unsure of the correct values, see the configuration document of SAS Information Retrieval Studio.*

   **The following are internal properties and should never be changed**:

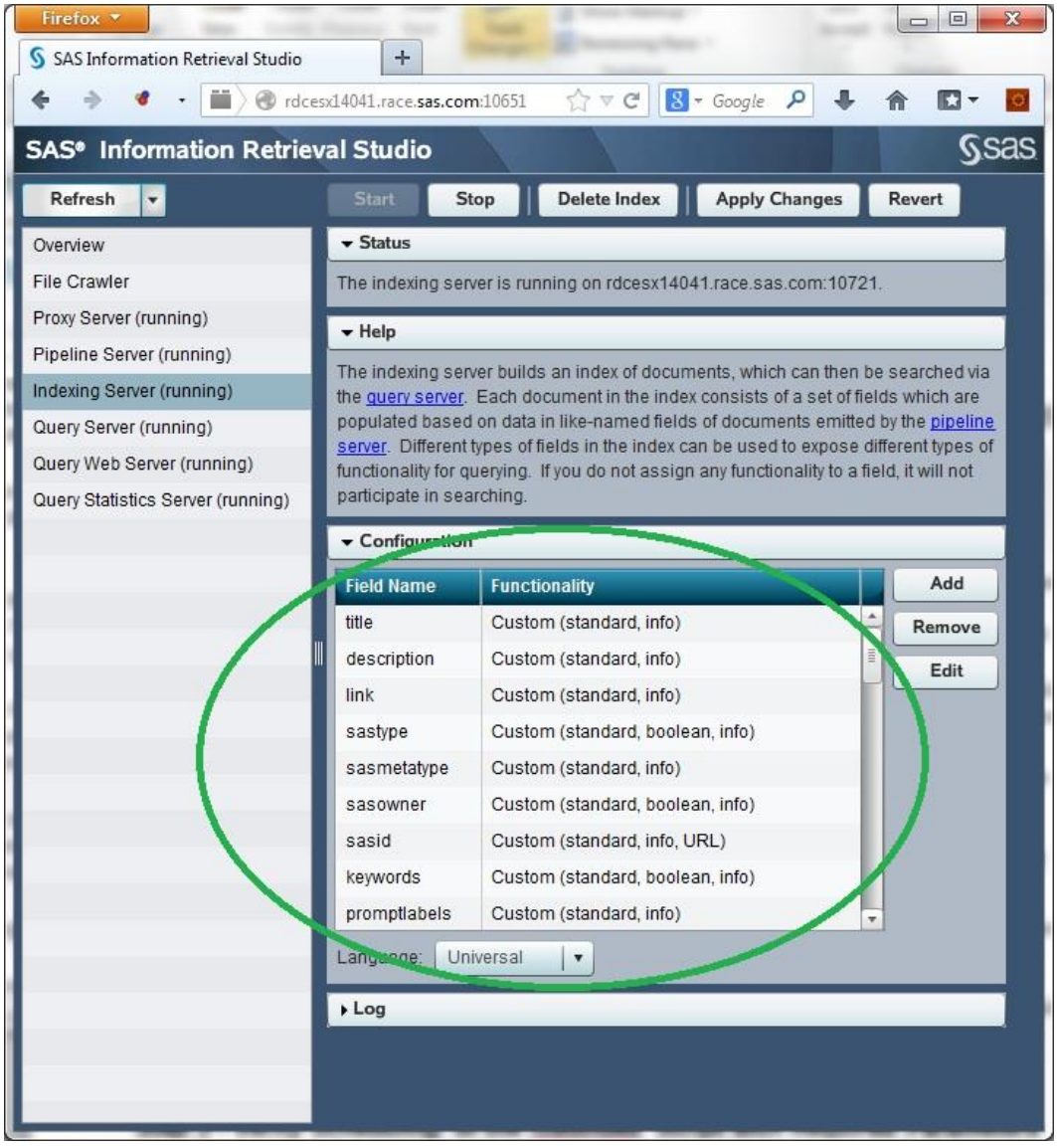
   - **searchsas.auth.provider.url**: Search Interface to SAS Content uses this URL for authorization.

- **searchsas.irstudio.index.path**: Search Interface to SAS Content uses this path to initialize SAS Information Retrieval Studio index path.

## *Step 2 - Verify Configuration of SAS Information Retrieval Studio to Support Feeding SAS Contents into the Index*

Search Interface to SAS Content 3.4 needs to configure SAS Information Retrieval Studio to support authorization and feed SAS contents into the index. The configuration will be done automatically when the loadindex program runs for the first time.

To verify the configuration, open the admin console of Information Retrieval Studio and go to Indexing Server. The configuration section should show the fields populated for the information to be indexed.



# Chapter 3 — Registering Search Interface to SAS Content as Google OneBox Module

The Search Interface to SAS Content searches all generic metadata types excluding those mentioned in the excluded list property of software component.

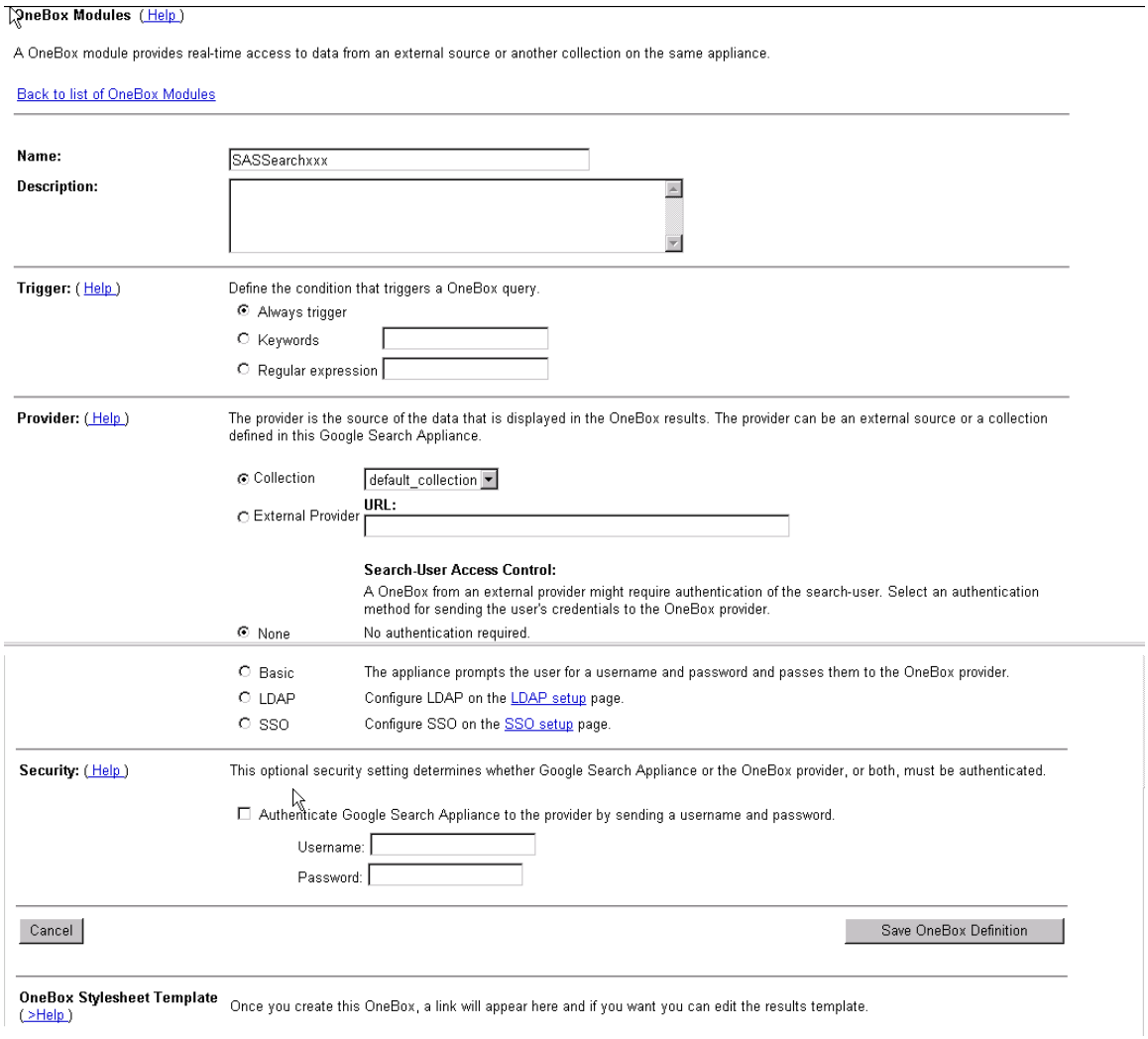
To search both types of content together, Search Interface to SAS Content must be registered as OneBox module. The sections below describe the steps required to use the Google Search Appliance (GSA) Administrative User Interface to perform the registration.

## *Define the OneBox Module to the GSA*

Go to the OneBox Module definition screen in the Serving section of the interface.


At the bottom of this page there is an entry form to create a new OneBox module definition. While you can enter any name, it is recommended that you select a name that is generic enough to cover the triggers and items to be searched, but unique enough so that this module can be easily identified later from a list.


After you create the OneBox module definition, the next window asks you to enter details about the module.




Fill in the following fields.

## Trigger

The only option currently supported is Regular expression. In the **Regular expression** field, a regular expression should be entered. When the input search matches the regular expression, this module will be called. The regular expression must contain a "parenthesized" field which will be passed as the search term to the module.

***Note:*** *Regular expression processing can be expensive, so try to keep the regular expression simple.*

### *Examples*

`(.*) report` – would match any search phrase that has the word report in it, and it would pass as the search string the phrase before that word. The phrase "sales report" would search for reports that have the word "sales" in it. The phrase "new sales report" would search for reports that have the phrase "new sales" in it.

`^report (.*)` – would match any search phrase where the first word in the search is "report" and it would pass as the search string the phrase after that word. The phrase "report sales" would search for reports that have the word "sales" in it. The phrase "report new sales" would search for reports that have the phrase "new sales" in it. Note that this definition is equivalent to

using the keyword trigger option; however, the keyword trigger option does not pass the appropriate phrase to the module, and thus cannot be used as a replacement for this syntax.

`^(.*sales.*)` – would match any search phrase that has the word "sales" in it. In addition, it will pass the entire entered search string to the module. Thus, if the user enters "new sales in US" that entire phrase will be passed, and only results that match the entire phrase will be returned.

`^promotions|promotion(.*)` – would match any search phrase where the first word in the search is either "promotion" or "promotions" and it would pass the search string the phrase after that word.

## Provider

In the provider section, select **External Provider** and enter a URL that points to the location where you deployed the `sas.searchsas.ear` file.

For example, if you have deployed the EAR file to a Web server on *`yyy.mycompany.com`* that is listening on port 8080, you would enter

```
http://yyy.mycompany.com:8080/SASSearchService/?forward=Search&searchType=reports
```

The HTTP protocol should only be used if you are using none for the Authentication value. If you are using Basic Authentication, then it is preferable to use HTTPS (HTTP would also work but the credentials would be visible in the URL), such as:

```
https://yyy.mycompany.com:8443/SASSearchService/?forward=Search&searchType=data
```

## Authentication

The GSA supports multiple types of authentication for OneBox providers. At this time, only None and Basic are supported for the Search Interface to SAS OneBox provider.

**None** - No Authentication is required to use this module. Thus, when a user does a search with only "Public Content" selected, this module will be called. If you choose this option, then Search Interface to SAS Content provides search results for user SAS Web Anonymous user. If you want to change the user to some other user, then you will have to append the username and password in the parameter as below:

```
http://yyy.mycompany.com:8080/SASSearchService/?forward=Search&searchType=reports&userName=sasguest@saspw&password=xxxxxx
```

***Note:*** *If you provide the user name and password in the URL, all users will have the access to see all the results accessible for this user.*

**Basic** – The GSA will prompt the user for a user ID and password and will pass these values to the provider. When a user is doing a search, the user must have selected "Public and Secure content" to be searched for this module to be invoked. The authentication scheme allows for the results to be limited to just what that individual user is authorized to access.

After you complete the Security settings, click **Save OneBox Definition**. The main page then appears, and you can find your newly added module in the list. If you want to change/edit the 'OneBox Stylesheet Template', click on the **Edit** link that corresponds to the module listing. At the bottom of the configuration page, you will see the **Edit XSL** link.

***Note:*** *When using Basic Authentication, Search Interface to SAS Content should use the HTTPS protocol to protect the user ID and password that is being passed to the provider.*

## OneBox Stylesheet Template

When the results are returned from the module to the GSA, the GSA can apply an XSL style sheet to the results to format them for display. You should provide a style sheet to make the user experience more robust than is provided by the GSA's default XSL. To edit the XSL, use the **Edit XSL** link at the bottom of this area of the administrative page. The following is a sample XSL:

```
<xsl:template name="results">
 <xsl:variable name="searchLink"><xsl:value-of
select="title/urlLink"/></xsl:variable>
    <table border="0">
      <tr>
      <td>
      <xsl:if test="//IMAGE_SOURCE">
      <xsl:variable name="imageSource"><xsl:value-of
select="//IMAGE_SOURCE[1]"/></xsl:variable>
      <xsl:variable name="imageData">
      <xsl:for-each select="MODULE_RESULT">
            <xsl:choose>
            <xsl:when test="Field[@name='URI'] = $imageSource">
            <xsl:variable name="link"><xsl:value-of
select="U"/></xsl:variable>
            <xsl:choose>
                  <xsl:when test="$link=''">
                  ||||||||<xsl:value-of select="Field[@name='Name']"/>
                  </xsl:when>
                  <xsl:otherwise>
                  ||||<xsl:value-of select="$link"/>||||<xsl:value-of
select="Field[@name='Name']"/>
                  </xsl:otherwise>
            </xsl:choose>
            </xsl:when>
            <xsl:otherwise></xsl:otherwise>
            </xsl:choose>
      </xsl:for-each>
      </xsl:variable>
      <xsl:choose>
      <xsl:when test="$imageData!=''">
            <xsl:choose>
                  <xsl:when test="starts-with(normalize-
space($imageData),'||||||||')">
                        <xsl:variable name="title">
                              <xsl:choose>
                                    <xsl:when test="contains(substring-
after($imageData,'||||||||'),'||||')">
                                     <xsl:value-of select="substring-
before(substring-after($imageData,'||||||||'),'||||')"/>
                                    </xsl:when>
                                    <xsl:otherwise>
                                    <xsl:value-of select="substring-
after($imageData,'||||||||')"/>
                                    </xsl:otherwise>
                              </xsl:choose>
                        </xsl:variable>
                  <xsl:element name="img">
```

```
                              <xsl:attribute name="src"><xsl:value-of
select="$imageSource"/></xsl:attribute>
                              <xsl:attribute name="alt"><xsl:value-of
select="$title"/></xsl:attribute>
                              <xsl:attribute name="title"><xsl:value-of
select="$title"/></xsl:attribute>
                        </xsl:element>
                  </xsl:when>
                  <xsl:otherwise>
                        <xsl:variable name="link">
                        <xsl:value-of select="substring-before(substring-
after($imageData,'||||'),'||||')"/>
                        </xsl:variable>
                        <xsl:variable name="title">
                        <xsl:choose>
                              <xsl:when test="contains(substring-
after(substring-after($imageData,$link),'||||'),'||||')">
                                    <xsl:value-of select="substring-
before(substring-after(substring-
after($imageData,$link),'||||'),'||||')"/>
                              </xsl:when>
                              <xsl:otherwise>
                                    <xsl:value-of select="substring-
after(substring-after($imageData,$link),'||||')"/>
                              </xsl:otherwise>
                        </xsl:choose>
                        </xsl:variable>
                        <a><xsl:attribute name="href">
                              <xsl:value-of select="$link"/>
                              </xsl:attribute><xsl:attribute
name="target">_parent</xsl:attribute>
                              <xsl:element name="img">
                                          <xsl:attribute
name="src"><xsl:value-of select="$imageSource"/></xsl:attribute>
                                          <xsl:attribute
name="alt"><xsl:value-of select="$title"/></xsl:attribute>
                                          <xsl:attribute
name="title"><xsl:value-of select="$title"/></xsl:attribute>
                                          </xsl:element>
                        </a>
                  </xsl:otherwise>
            </xsl:choose>
            </xsl:when>
      <xsl:otherwise>
            <xsl:element name="img">
                  <xsl:attribute name="src"><xsl:value-of
select="$imageSource"/></xsl:attribute>
                  <xsl:attribute name="alt">Powered by SAS</xsl:attribute>
                  <xsl:attribute name="title">Powered by
SAS</xsl:attribute>
            </xsl:element>
      </xsl:otherwise>
      </xsl:choose>
      </xsl:if>
      </td>
                  <td>
```

```
                <!-- The oneBox style guide says to only show 3 responses
at most -->
             <xsl:for-each select="MODULE_RESULT[position() &lt;=3]">
             <xsl:variable name="Type"><xsl:value-of
select="Field[@name='Type']"/></xsl:variable>
             <xsl:choose>
                  <xsl:when test="$Type!='Document'">
                  <a><xsl:attribute name="href"><xsl:value-of
select="U"/></xsl:attribute><xsl:attribute
name="target">_parent</xsl:attribute><b> <xsl:value-of
select="Field[@name='Name']"/></b></a><br/>
                  <!-- If there is a RELATED field, then add the Similar
Reports hyperlink -->

                  <font size="-1"><xsl:value-of
select="Field[@name='Desc']"/>
                  <xsl:if test="Field[@name='RELATED']">
                  <a class="fl"><xsl:attribute name="href"><xsl:value-of
select="Field[@name='RELATED']"/></xsl:attribute><xsl:attribute
name="target">_parent</xsl:attribute> <xsl:value-of
select="Field[@name='SimilarLabel']"/></a>
                  </xsl:if>

                  </font>

                  <br/>
            </xsl:when>
            <xsl:otherwise>
            </xsl:otherwise>
            </xsl:choose>
            </xsl:for-each>
            <xsl:if test="count(MODULE_RESULT) > 3">
                        <!-- Since there are more results than can fit on
one OneBox result, issue the same query and show all the results -->
                 <!-- The search criteria is the same in all
MODULE_RESULTS, so just get it from the first one -->
                  <xsl:if test="$searchLink != ''">
                  <font size="-1"><a><xsl:attribute name="href">
                  <xsl:value-of
select="$searchLink"/></xsl:attribute><xsl:attribute
name="target">_parent</xsl:attribute><xsl:value-of
select="MODULE_RESULT[1]/Field[@name='MoreLabel']"/></a></font>
                  <br/>
                  </xsl:if>
        </xsl:if>
        </td>
      </tr>
</table>
</xsl:template>
```

***Note:*** *There are limitations imposed by the GSA on the XSL used here. For more information, see the Google Enterprise Web site,* www.google.com/Enterprise.

## Additional Authentication Steps

If you used a value of Basic Authentication for the Authentication option, you will need to perform an additional step in setting up a Google One-Box to use Basic Authentication.

In the Google Admin UI, go to **Crawl and Index→Crawler Access**.

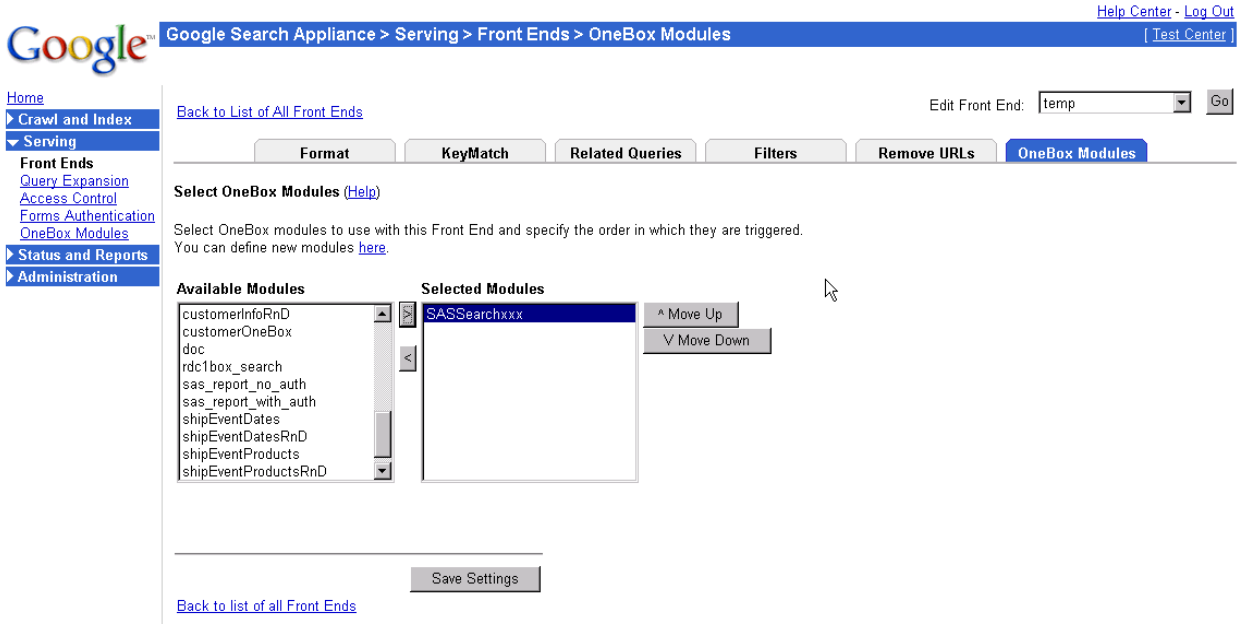
Make sure that the URL pattern of the One Box provider resides there, with a user ID and the "public" checkbox NOT checked. For example, if the web application is deployed to `http://yyy.mycompany.com:8080/SASSearchService`, then this same string needs to be used in the URL pattern line.

## Add the OneBox Module Definition to a Front End

For the OneBox module to be called when a user does a query, the OneBox module must be attached to a Front End (for more information on what a Front End is, see `www.google.com/Enterprise`).

To add a OneBox module to a Front End, follow these steps:

1. Go to Google Admin UI→**Serving→Front Ends**.
2. Select the front end by clicking the edit link in front of it.
3. Go to the **OneBox Modules** tab and select your OneBox Module from the list.
4. If required, the sequence of OneBox modules can be changed by using the **Move Up** or **Move Down** buttons.
5. Click the **Save Settings** button to implement the changes.



# Chapter 4 — Registering Search Interface to SAS Content as a Federated Location in Microsoft SharePoint Search Server

Search Interface to SAS Content can be integrated with Microsoft SharePoint Search Server as a federated search location. All SharePoint Search products that support integrating federated search locations can be integrated with Search Interface to SAS Content.

The sections below describe the steps required to configure Search Interface to SAS Content as a federated location. There are two steps to configure Search Interface to SAS Content with Microsoft SharePoint Search Server:

1. Import and modify the federated location.
2. Add the federated location WebPart with the search results.

***Note:*** *By default, Microsoft SharePoint Search Server is installed at port 80 in Windows Server.*

## *Importing and Modifying the Federated Location*

As a first step to integrate Search Interface to SAS Content with Microsoft SharePoint Search Server, Search Interface to SAS Content has to be registered as a federated location with Microsoft SharePoint Search Server. To ease the registration process, a Federated Location Definition (FLD) file is included with the installer, and you can import this FLD file and modify the necessary configuration.

To import and modify the federated location, follow the steps below.

***Note:*** *Currently, importing the same FLD file provided with the installer to add more than one location is not supported. The workaround is to import once and create copies of the same, and make necessary changes to add more than one location.*

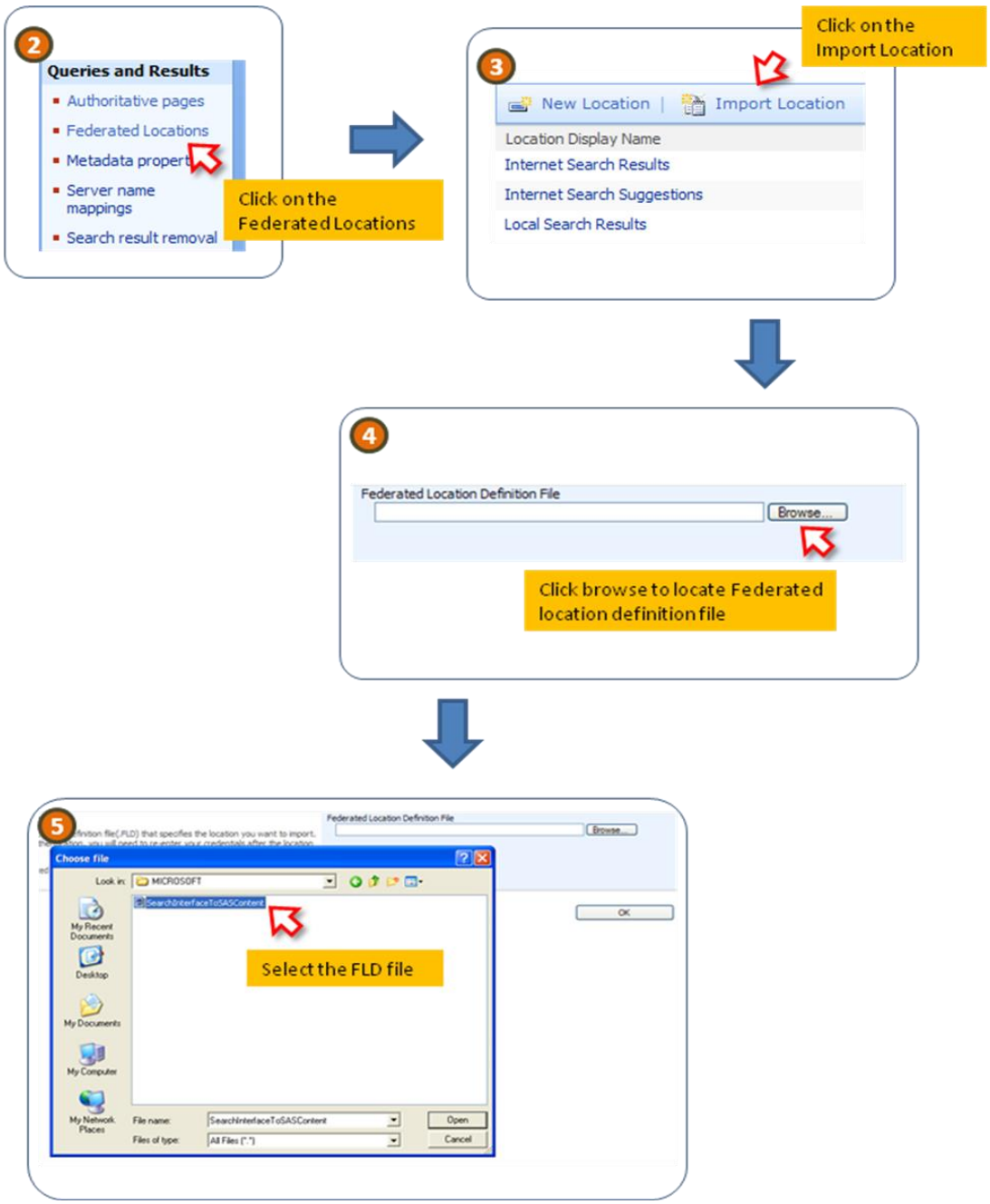
1. Open the Search Server administration page.
2. At the left side of the page under the **Queries and Results** section, click on the **Federated Locations** link.
3. On the **Manage Federated Location** page, click on the **Import Location** link.
4. On the **Import Federated Location** page, click the **Browse** button to import the Federated Location Definition File.
5. Point to the `SearchInterfaceToSASContent.FLD` file that resides under the `MICROSOFT` subdirectory of your Search Interface to SAS Content home directory. You can locate the `SearchInterfaceToSASContent.FLD` file in the following default locations:
   - For Windows:

     ```
     C:\Program Files\SAS\SearchInterfaceToSASContent\3.4\MICROSOFT\
     SearchInterfaceToSASContent.FLD
     ```

   - For UNIX:

     ```
     /usr/local/SAS/SearchInterfaceToSASContent/3.4/MICROSOFT/
     SearchInterfaceToSASContent.FLD
     ```

Steps 2 to 5 are illustrated in the following diagram.




6. After the FLD file is imported successfully, you receive a success message:

   ***The location "Search Interface to SAS 3.4" was successfully imported.***

   Click **OK** to proceed.

7. After the FLD file is imported successfully, click the **Edit Location** button.
8. In the **Edit Federated Location** page, expand the **Location Information** Section.

By default the Federated Location will be registered for Report Search. For report search, the Query template will be as follows:

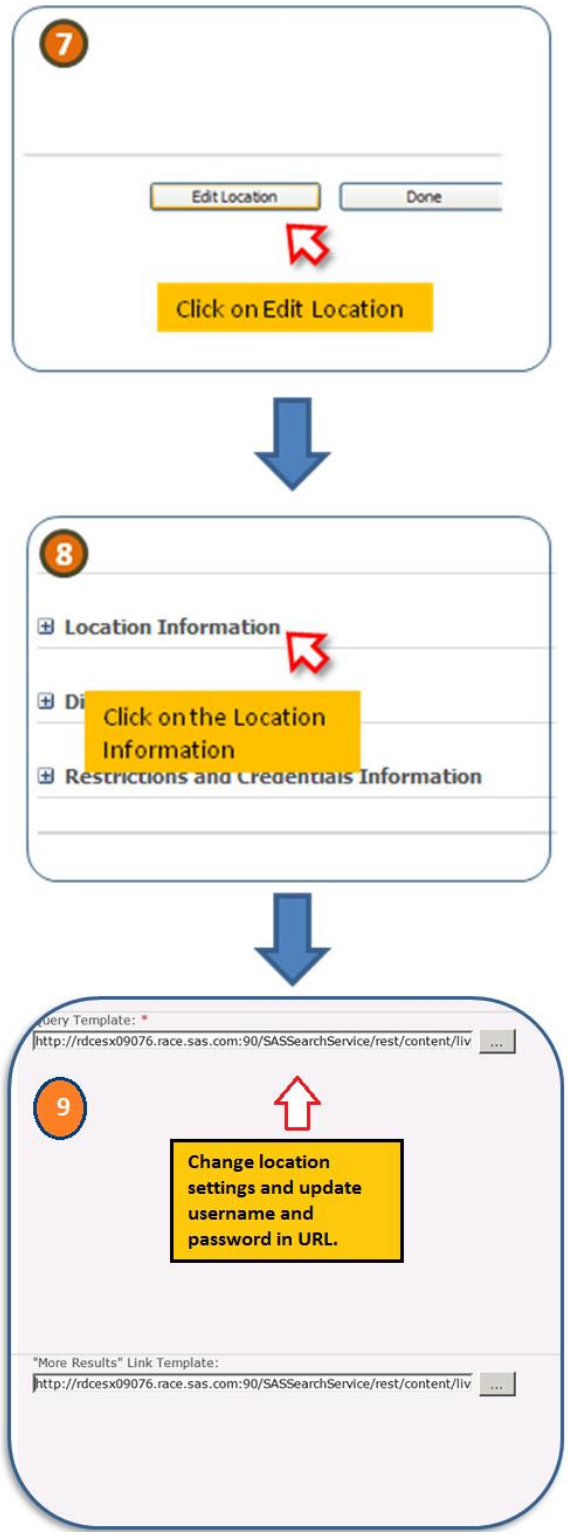
```
http://<host>:<port>/SASSearchService/rest/content/search?text={s
earchTerms}&userName=sassearch@saspw&password=xxxx&limit=500
```

Change the host name to the server name where Search Interface to SAS Content is deployed. Similarly, replace the port, username, and password with the actual values used in the SAS deployment. By default, the limit is defined as 500, but this can be changed as required.

For example, if you deploy the Search Interface to SAS Content in a server having the host name *yyy.mycompany.com* and port *7001*, then the Query template will be as follows:

```
http://yyy.mycompany.com:7001/SASSearchService/rest/content/searc
h?text={searchTerms}&userName=sassearch@saspw&password=xxxxxxx&li
mit=500
```

Steps 7 to 9 are illustrated in the following diagram.




9. Click **OK** to save the changes. If the configuration is successful, the "Manage Federated Locations" page will be displayed. If it is not successful, modify the necessary changes and continue.

.

10. In the list of Federated Locations, "Search Interface to SAS 3.4" also will be listed.

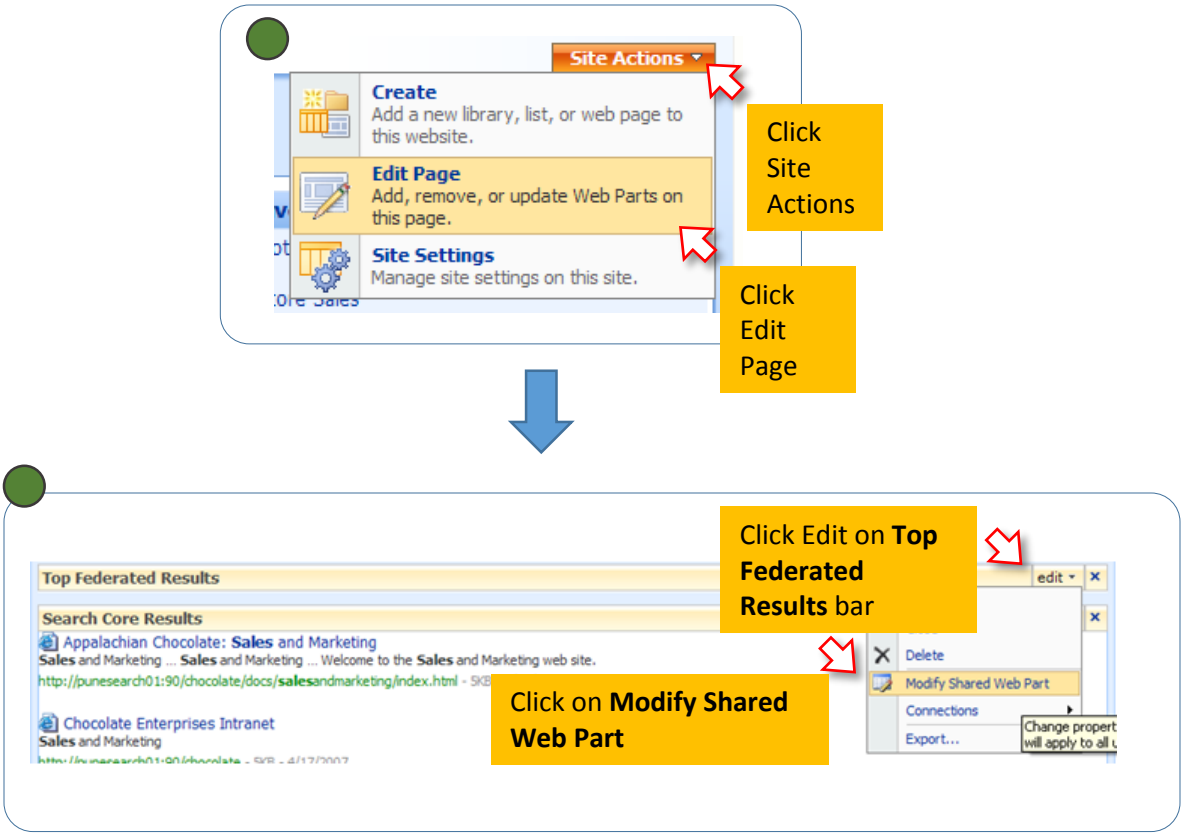
Steps 10 is illustrated in the following diagram.


## *Adding the Federated Location WebPart with the Search Results*

To include the Search Result from Search Interface to Content with your default search result, you will have to add the Search Interface to SAS Federated Location to a Top Federated Results WebPart. Follow the steps below to perform this task:

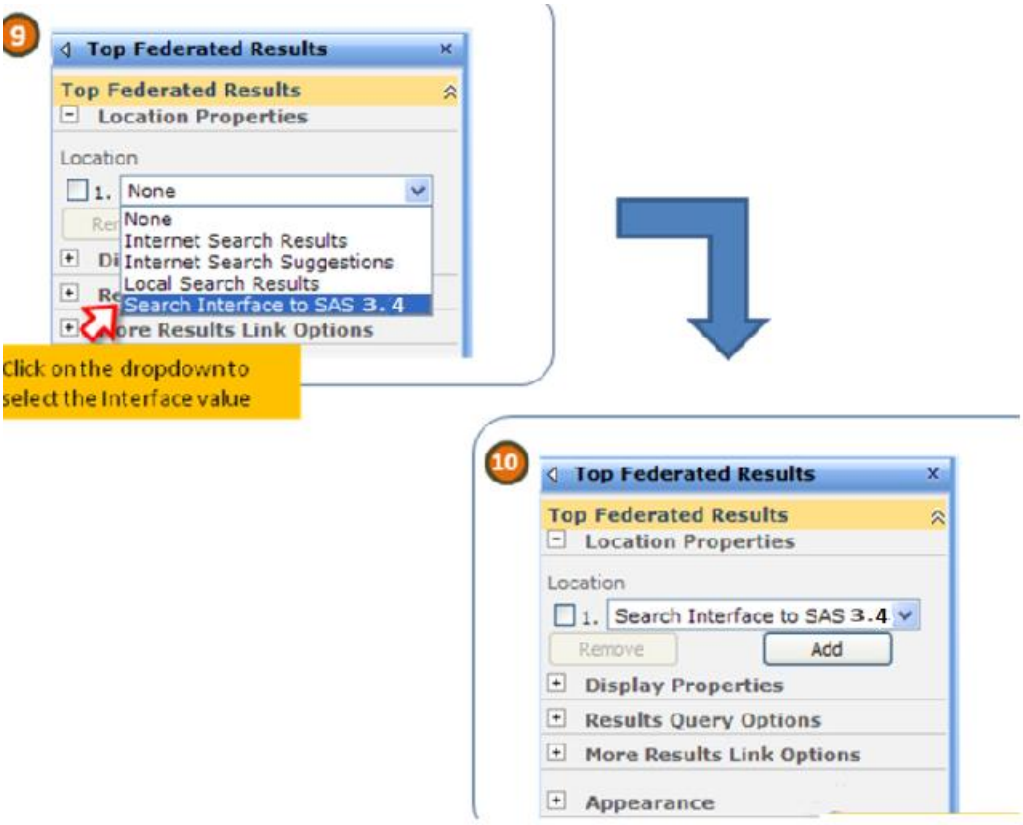
1. Open the search home page, `http://hostname/default.aspx` to reach the Search Results page.
2. Search for any string. The results page appears next.
3. Click on the **Site Actions** link in the top right corner of the search page. Click on the **Edit page** menu item from the expanded menu.
4. Check whether "Top Federated Results" WebPart is already available on the page. If it is available, proceed to step 7. If it is not available continue with the next step.
5. Click on the **Add a Web Part** link on the Bottom Zone.
6. A popup window containing the list of WebParts opens.
7. Expand all WebPart sections and select the **Top Federated Results** WebPart under the **Search** sub-section. Click **Add** to continue.
8. Click on the **Edit** link provided in the **Top Federated Results** WebPart. Click on the **Modify Shared WebPart** from the expanded menu.

Steps 2 and 7 for adding Federated Locations in the WebPart are illustrated in the following diagram.




9. The property of Shared WebPart will be displayed in the right-hand side of the page.
10. From the Location List, Select **Search Interface to SAS 3.4**.

Steps 9 to 10 for adding Federated Locations in the WebParts are illustrated in the following diagram.




11. Modify the Display Properties, if required.
12. Click **Apply** and then **OK** to continue.
13. Click **Exit Edit Mode** on the top right side of the page.

# Chapter 5 — Logging for Search Interface to SAS Content and loadindex

## *Logging for Search Interface to SAS Content*

Logging has been enabled for Search Interface to SAS Content. The log4j root level is set at *error* which can be changed to *warn, info* as required. The configuration file for Search Interface to SAS Content can be found at this location:

*SAS-Configuration-Directory*`/Lev`*n*`/Web/Common/LogConfig/SASSearchService-log4j.xml`

Logs are generated at this location:

*SAS-Configuration-Directory*`/Lev`*n*`/Web/Logs`

# Appendix — Troubleshooting (Q&A)

## 1. How do I validate that Search Interface to SAS Content has been installed properly?

When Search Interface to SAS Content has been installed and configured, the REST-based "Live" search URL can be used to search the query string in the metadata directly. This query does not require any other software component to be installed. You will need to provide the appropriate host, port, and credential information in the URL:

*http://**yyy.mycompany.com:7001**/SASSearchService/rest/content/search?text=sample&userName=sassearch@saspw&password=xxxxxxx&limit=500*

If you are able to get some response, it means that Search Interface to SAS Content has been installed correctly and its REST interface is working.

## 2. How do I validate that the integration between Search Interface to SAS Content and SAS Information Retrieval Studio is working?

Two conditions must be met in order for the integration between Search Interface to SAS Content and SAS Information Retrieval Studio to provide results in response to a search query:

A. SAS Information Retrieval Studio is configured at runtime by Search Interface to SAS Content whenever the indexing process runs for the first time. The configuration can be validated at the admin page of SAS Information Retrieval Studio as described below.
B. The index of SAS Information Retrieval Studio must be populated with the Feed Extract from the Search Interface to SAS Content. The feed is pushed into the index after scheduled intervals by the web application.

You can test the integration with the following URL, including the appropriate host, port, and credential information:

```
http://<hostname>:<port>/SASSearchService/rest/content/search?query=
and(matchAny("Sample"))&userName=<UserName>&password=<password>
```

## 3. I do not see any result when I'm trying to search a query string in the HUB. What can I do?

First you need to validate that Search Interface to SAS Content and SAS Information Retrieval Studio have been appropriately installed and configured.

When you have validated that both are installed and configured, the only remaining issue could be the query string, which may not have any matching record for the user (keeping the authorization constraints in mind). Try using `'*'` as the query string, which should return some results.

## 4. Why is the administration console for SAS Information Retrieval Studio not up and running? How can I enable/disable it?

SAS Information Retrieval Studio's administrator interface is disabled by default so that the settings cannot be changed by an anonymous user. The interface uses port 10651.

You might need to enable the interface if SAS Information Retrieval Studio is running abnormally. The administrator interface enables you to check server status.

To enable the SAS Information Retrieval Studio administrator interface, follow these steps:

A. Open the file `[SAS-Configuration-directory]/Levn/Applications/SASInformationRetrievalStudioforSAS/work/information-retrieval-studio.conf`.
B. Add the line `enable-web-admin-interface=true`
C. Save the file and close it.
D. Restart the SAS Information Retrieval service.

To disable the SAS Information Retrieval Studio administrator interface, follow these steps:

A. Open the file `[SAS-Configuration-directory]/Levn/Applications/SASInformationRetrievalStudioforSAS/work/information-retrieval-studio.conf`.
B. Remove the line `enable-web-admin-interface=true`
C. Save the file and close it.
D. Restart the SAS Information Retrieval service.

## 5. How can I validate that SAS Information Retrieval Studio Server is installed correctly?

To verify that the SAS Information Retrieval Studio is installed correctly, go to the web admin client of SAS Information Retrieval Studio and check the server status. Use the following test with the appropriate host and port:

`http://<host name>:<port>/`

If the web admin console of SAS Information Retrieval Studio is not accessible, ensure that server is UP and the admin console is enabled by following the steps mentioned above.

If the default values of the installation have not been altered, the default port for the admin client of SAS Information Retrieval Studio is 10651.

The following servers must be listed as up and running on the admin page that opens:

- Proxy Server
- Pipeline Server
- Indexing Server
- Query Server


The servers listed above are required for the Search applications to work. If any of them are missing from the admin page, this might be due to a license issue. Please contact SAS Technical Support.

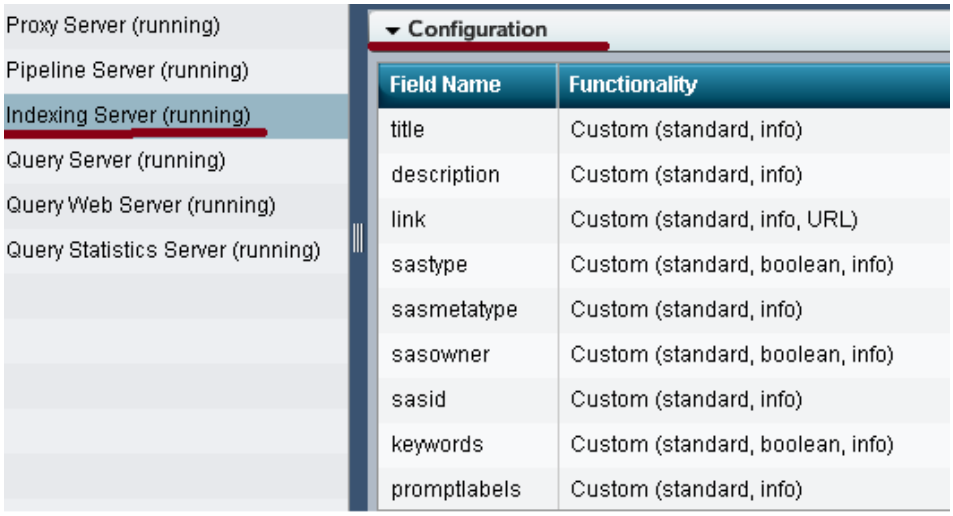
If a server is not listed as running, start the server by clicking on the **Start** button on the top right side of that server's details page. Each of these servers must be in running mode.

If each of these servers is listed and in running mode, SAS Information Retrieval Studio has been appropriately installed.

## 6. How can I validate that SAS Information Retrieval Studio has been configured correctly?

When you have validated that SAS Information Retrieval Studio is installed correctly, and that the search application has been installed correctly (done by using the REST URL for search, which also silently configures the SAS Information Retrieval Studio for Search), verify the SAS Information Retrieval Studio configuration by checking the following elements in the **Configuration** section of the Indexing Server:

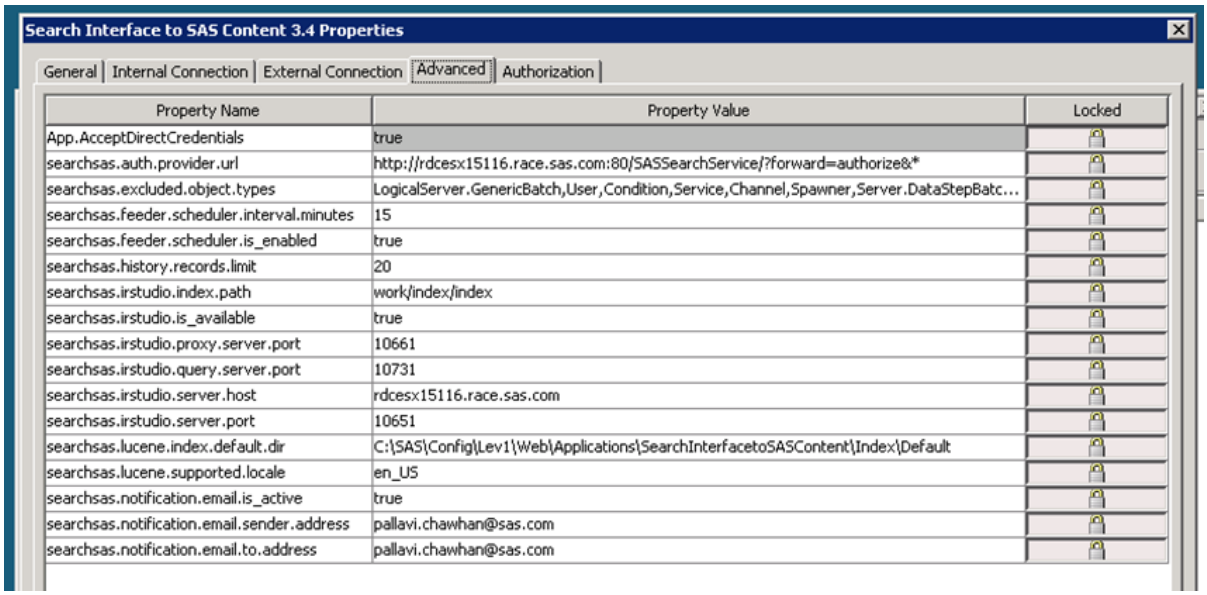
- title
- description
- link
- sastype
- sasmetatype
- sasowner
- sasid
- keywords
- promptlabels




The elements shown in the **Configuration** section of the image must be present in the **Configuration** section of the target set-up. This ensures that the configuration of SAS Information Retrieval Studio was invoked by Search Interface to SAS Content. Note that there may be more field names than shown above.

## 7. How can I verify the host and port of SAS Information Retrieval Studio?

The host and port of SAS Information Retrieval Studio for the admin page can be taken from the properties of the metadata software component of Search Interface to SAS Content.




**searchsas.irstudio.server.host**: The host name of the machine on which SAS Information Retrieval Studio servers are running.

**searchsas.irstudio.server.port**: The port number of the machine on which SAS Information Retrieval Studio's Web admin client is running.

**searchsas.irstudio.proxy.server.port**: The port number on which we push the feed in SAS Information Retrieval Studio. We use this port for the LoadIndex script.

**searchsas.irstudio.query.server.port**: The port number on which query to Index are sent.

## 8. Some of the required fields are missing from the 'IR Studio' schema so its content are not searchable. How can I get the missing fields added to the schema so those fields are indexed and available for searching?

If a few fields are missing from the configuration of 'Indexing Server' of 'IR Studio' then the content of those fields would neither be indexed or available in response. In this scenario it is important to get the 'Indexing Server' re-configured.

Follow these steps to re-configure schema:

A. Stop the 'Search Interface to SAS Content' application/ Web Application Server.

B. Stop the IR Studio server.

C. Go to the following location relative to the configuration directory: `Lev*N*/Applications/SASInformationRetrievalStudioforSAS/work`

D. Open file `pipeline-server.db` and replace the text '`BIRD`' with '`BIRD1`'.

E. Indexed content is located in the 'index' folder inside the current directory of IR Studio (work). Delete all the files present in this folder manually.

F. Save the file and restart the IR Studio server.

G. Start the 'Search Interface to SAS Content' application/ Web Application Server.

After these steps are completed, before content is pushed to IR Studio, the IR Studio would be reconfigured with latest information available through 'Index Data Service' schema API.

## 9. What should I do if I get error message similar to the one below in my log file?

```
Please check that the host/port are correct and the Server is running
Message = Connection refused : status = SOCKET_PROTOCOL_ERROR
```

As the message indicates, either the host and port used to push feed to SAS Information Retrieval Studio are not correct or the proxy server of SAS Information Retrieval Studio is down. Check the server status and start it if necessary. If you provided an incorrect port, correct it by verifying the port against the metadata.

## 10. I am receiving automated emails alerting "Search Interface to SAS Content encountered error while feeding the index to index server." What does this mean?

**10 a) Error Message: com.sas.svcs.search.client.IndexServiceException: com.sas.svcs.search.client.SearchServiceException: IR Studio query Server not reachable.**

You are receiving this e-mail because Search Interface to SAS Content failed to connect to IR Studio. Make sure IR Studio is up and running. (Refer to **questions 4 & 5.**) Also verify that the correct values for the IR Studio host and port are being used. (Refer to **question 7.**)

**10 b) Error Message: com.sas.svcs.search.client.IndexServiceException: Exception encountered related to Index Path of Lucene.**

You are receiving this e-mail because Search Interface to SAS Content could not access the Lucene index directory. Make sure that `searchsas.lucene.index.default.dir` has a valid directory path. (Refer to **question 7** above and the SAS Management Console's screenshot.) You also need to verify that the SAS install user has write access on the specified directory.

**10 c) Error Message: com.sas.svcs.search.client.IndexServiceException: An error occurred while retrieving data from Index Data Service.**

If you receive this e-mail, make sure that the Web Infrastructure Platform Data Server is running. If not, then start it and restart all web application server instances. If Web Infrastructure Platform Data Server is already up, check SASSearchService log file for the exact cause for the failure.

## 11. What changes are required in the configuration for a reverse proxy environment?

If a reverse proxy (internal/external) is used, ensure that the JVM parameter is set as described below:

- For Windows, add
  `wrapper.java.additional.XX=-Dsas.retry.internal.url=true`
  to this file:
  `config/LevN/Web/WebAppServer/SASServer/conf/wrapper.conf`
- For Linux for x64, add
  `-Dsas.retry.internal.url=true`
  to this file:
  `config/LevN/Web/WebAppServer/SASServer1_1/bin/setenv.sh`

## 12. After an indexing failure, how do I recover lost index data for the Indexing Server?

It is quite unlikely that Search Interface to SAS Content will lose data after indexing failure. After the cause of the indexing failure has been found and rectified, all missing index will be populated automatically.

However, if you face a problem like corrupted IR Studio indexes, then you need to re-index all SAS data again. To re-index all the data again follow these steps,

A. Stop Web Application Server.
B. Stop IR Studio.
C. Delete the IR Studio index.
D. Start the Web Application Server.

This will cause Search Interface to SAS Content to index all data.

## 13. Search does not work on SSL environment. What could go wrong?

SAS Information Retrieval Studio requires manual configuration for SSL setup. Ensure that it has been configured properly. For details, refer to the chapter "Setting Up Certificates for SAS Deployment" in *SAS Visual Analytics 7.1 Installation and Configuration Guide* available at `http://support.sas.com/documentation/solutions/va/index.html`

# Technical Support

If you need assistance with the software, we ask that only SAS support personnel call our Technical Support Division.

- For U.S. and Canadian customers, support is provided from our corporate headquarters in Cary, North Carolina. You may call (919) 677-8008, Monday through Friday.
- Customers outside of the U.S. can obtain local-language technical support through the local office in their countries. Customers in these locations should contact their local office for specific support hours. See http://support.sas.com/techsup/contact/index.html for contact information for local offices.

Before you call, you may want to explore the SAS Support Web site at http://support.sas.com/techsup/

This site offers access to the SAS Knowledge Base, as well as discussion forums, Technical Support contact options, and other support materials that may answer your questions.


SAS is the leader in business analytics software and services, and the largest independent vendor in the business intelligence market. Through innovative solutions delivered within an integrated framework, SAS helps customers at more than 50,000 sites improve performance and deliver value by making better decisions faster. Since 1976, SAS has been giving customers around the world THE POWER TO KNOW®.