IBM Cognos Business Intelligence for IBM Rational System Architect

Installation and Configuration

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Overview

System Architect 11.3.1.1 and beyond provides native Cognos-based reporting. Users are provided with a copy of Cognos Business Intelligence (BI) 8.4 for use with System Architect data. Appropriate Cognos BI 8.4 installation files are grouped with the System Architect 11.3.1 and later download on Passport Advantage. Licensing specifies that only SA data can be used with the instance of Cognos provided; to use Cognos with other data sources beyond SA data, you need to purchase a full license of Cognos.

To install Cognos, you should normally consult the Cognos installation guides, as the installation specifics are dependent on the environment you are installing it to. Cognos installation has numerous steps and prerequisites and is normally done by a systems administrator. This document provides instructions for a typical System Architect user – who is not necessarily a system administrator – to install Cognos to a laptop – the theory being, if you can install it to a laptop, than you can install it to any machine and environment, if you extrapolate from these instructions and use the full Cognos installation instructions as a guide. To that end, this document describes a prototypical example of the overall process on how to download, install, and configure Cognos for use with System Architect using SQL Server as the underlying database for encyclopedias, in a Windows environment.

This document is not meant to replace Cognos installation documents.

Pre-Requisite Steps

There are a number of prerequisite steps that should be taken to reduce the overall steps of the Cognos installation. Please ensure that you have done the following before proceeding with the actual Cognos installation and configuration.

Optional: Download and Install Microsoft SQL Server Management Studio Express

You will need to create a SQL Server database for the Cognos Content Store and set up SQL Server Authentication user accounts. It is possible to do this in System Architect's Encyclopedia Manager (SAEM) tool (databases can be created via a SQL query command), but SQL Server Management Studio provides menu choices to make it easier.

1. Download a free copy of SQL Server Management Studio Express (SQLServer2005 SSMSEE.msi for a 32-bit environment or SQLSErver2005 SSMSEE_x64.msi for a 64-bit environment) from this website.

   Note that on that website, it is suggested that you download and install the 32-bit version of the Microsoft .NET Framework 2.0 and the Microsoft Core XML Services (MSXML) 6.0. However, if you have installed System Architect with SQL Server 2005 Express, you already have these installed.

2. Install SQL Server Management Studio Express by running the SQLServer2005 SSMSEE.msi or SQLSErver2005 SSMSEE_x64.msi that you downloaded, and choosing the defaults for all options in the installation wizard.

Create Two SQL-Server-Authentication Login Accounts

We will need two user accounts with SQL Server Authentication – one for creating and configuring the Cognos Content Store, and one for configuring the ODS data store. In these steps, we will:

- Log into our SQL Server instance using SQL Server Management Studio Express with our normal user login and Windows authentication that we use to access System Architect encyclopedias,
- Create a new login that will use SQL Server Authentication (and specify a password for that login),
- Create a second new login that will use SQL Server Authentication (and specify a password for that login).

Create a SQL-Server-Authentication Login Account for the Cognos Content Store

Note: the following instructions for creating a SQL-Server-Authentication account are provided for Microsoft SQL Server Management Studio Express. It is possible to create a SQL-Server-Authentication account with SAEM (select Server, Logins, and then select the Create a New Login button. Specific instructions for creating a SQL-Server-Authentication account in SAEM are not provided in this version of this document.)

1. Start and Login to the Microsoft SQL Server Management Studio Express using your existing, default credentials (typically Windows Authentication credentials).
2. Create a new user login with SQL Server Authentication and administrative roles, as follows:
    i. Right-mouse click on **Security**, and select **New, Login**.
    ii. In the **Login – New** dialog, type in a **Login name**, for example, **SACognosUser**, toggle on **SQL Server authentication**, and provide a password (two times to verify it). Record and store this password in a safe place. (Note: if you tried to use Windows Authentication, SQL Server would try to match up your security access with the Windows authentication mechanism in use on your workstation.)
    iii. Toggle off the choice **Enforce Password Policy**.
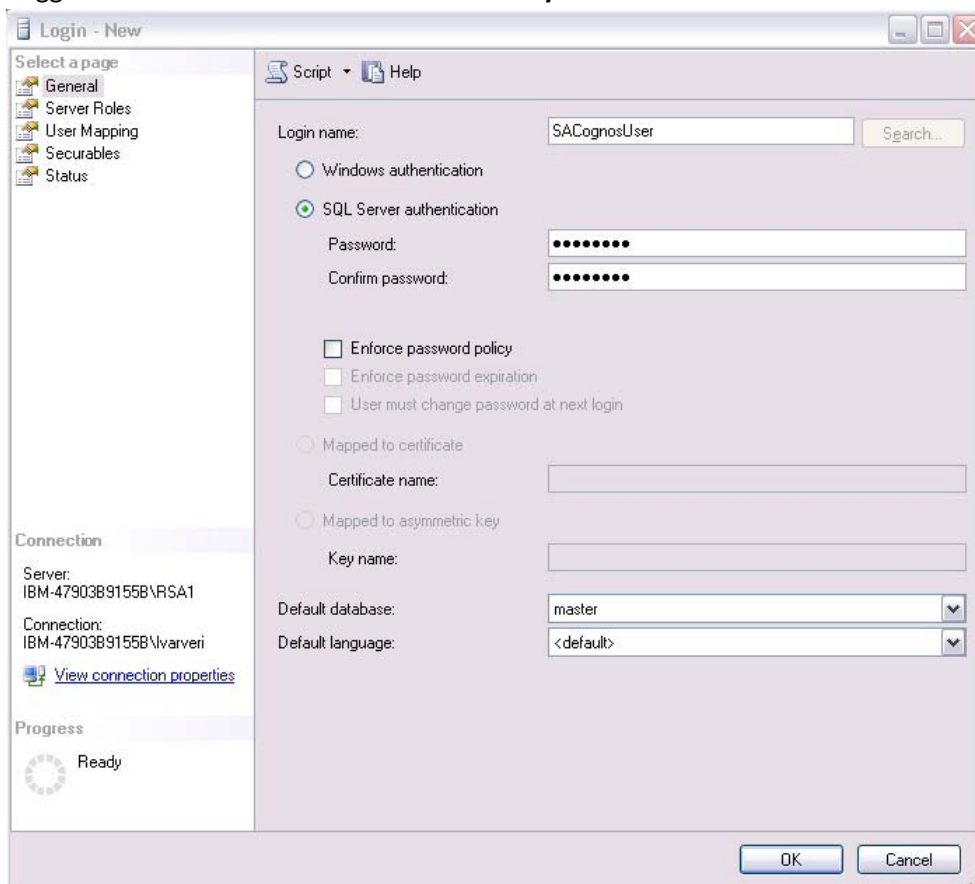
    iv. In the left -hand pane, select **Server Roles**, and toggle on all the Server roles (in the right pane).
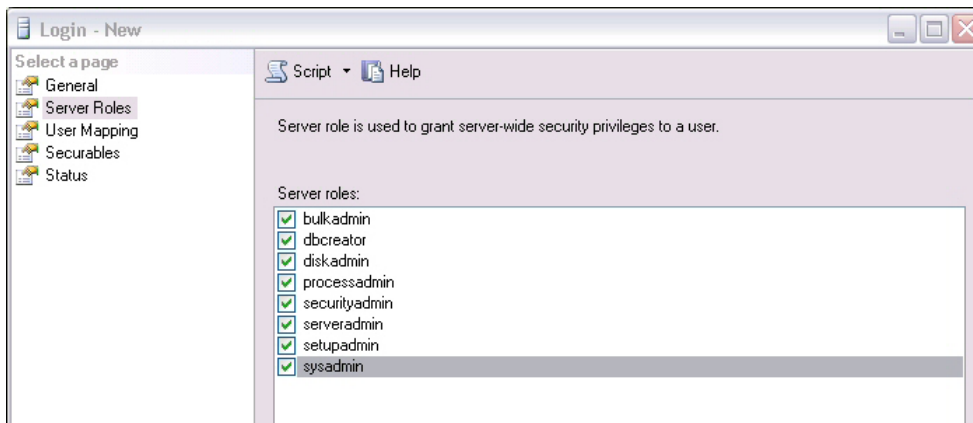
v. Click **OK** to close the dialog. The new login is created.

vi. Make sure that your server instance has its Server Authentication mode set to **SQL Server and Windows Authentication Mode**. To verify this, select your server instance at the top of the hierarchy in the left-hand pane, right-mouse click on your server instance and select **Properties** (as shown in the following image).
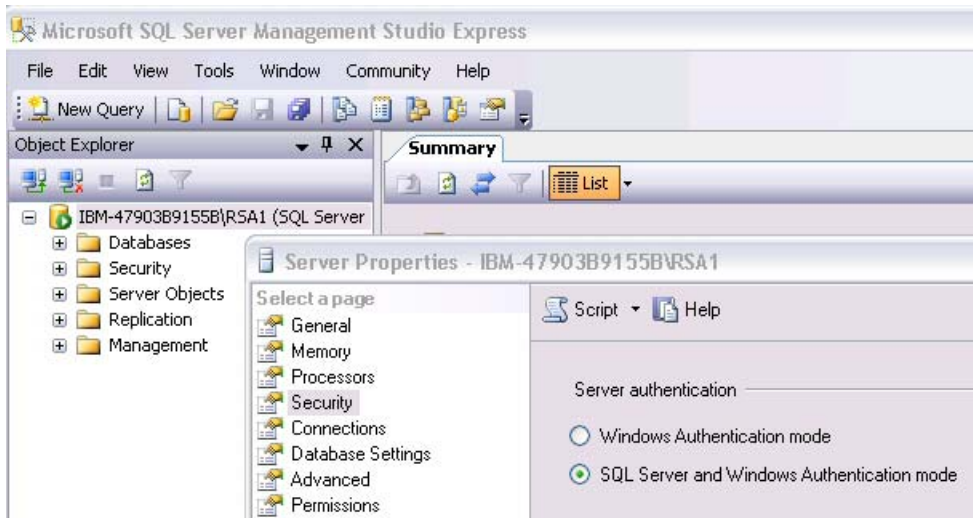
vii. Within the **Server Properties** dialog, select Security in the left pane. In the right pane, make sure that **SQL Server and Windows Authentication** mode is toggled on.

viii. Click OK to close all windows, and close Microsoft SQL Server Management Studio Express.

ix. Take note of the username and password you just created, as you will need to use them when you create and configure the Cognos Content Store.

Create a SQL-Server-Authentication Login Account for the ODS – Cognos Single Login (CSUSER)

1. Repeat the above steps to create another **username** and **password** with SQL authentication – for our example, it is named **csuser** – with following options:
   - Do not Enforce Password policy.
   - Provide Server roles Public and sysadmin.

2. Take note of the username and credentials you just created, as you will need to use them later as the system's Single Sign On when you Configure the Cognos ODS Data Source.

Set the Java Environment Variable

Specifically, set the JAVA_HOME environment variable to point to the installation location of your Java Runtime Environment (JRE), i.e. "C:\Program Files\cognos\c8\bin\jre\1.5.0".

1. Right click on My Computer and select Properties.

2. In the Advanced tab of the System Properties dialog, click on the Environment Variables button to open the Environment Variables dialog.
3. In the System variables section of this dialog (lower section), click the New button to open the New System Variable dialog. (If the Environment variable already exists, select it and Click Edit.)
4. For **Variable Name**, type in **JAVA_HOME**, and for **Variable Value:** type in the path to the install directory of Java that you have installed with Cognos, which by default is: **C:\Program Files\cognos\c8\bin\jre\1.5.0**
5. Click **OK** to close all open dialogs.

Configure Windows Internet Information Server (IIS) 5.1 (XP) and IIS6 (Server)

Since Cognos 8.0 is used through a browser, an IIS web server must be configured for the Cognos 8 server. If you have IIS installed, skip to step "2" below. If you do not have IIS installed you will need to install it using the steps starting with step "1" below.

1. Install Windows Internet Information Services (IIS) or inetmgr:
   a. Select **Start, Control Panel**, and in the **Control Panel** dialog, double click on **Add/Remove Programs**.
   b. In the **Add or Remove Programs** dialog, click on the **Add/Remove Windows Components** button to open the **Windows Components Wizard**.
   c. Toggle on **Internet Information Services (IIS)** and click **Next** to go through the process of installing it.
2. Launch Internet Information Services Manager – select **Start, Run** and type **inetmgr** .
3. Navigate to <Your Machine Name**>, Web Sites, Default Web Site**.
4. Right click on **Default Web Site** and select **New, Virtual Directory**.
5. Click **Next**.
6. Type in the Alias Name, **cognos8**, and click **Next**.
7. For the **Directory** property, browse to **C:\Program Files\cognos\c8\webcontent**, and click **Next**.
8. Ensure that only **Read** checkbox is checked and click **Next**.
9. Click **Finish**.
10. Create **cgi-bin** Virtual Directory under cognos8 directory
    a. Right click on **cognos8** and select **New Virtual Directory**.
    b. Click **Next**.
    c. Provide the Alias Name **cgi-bin**, and click **Next**.
    d. For the Directory property, browse to **C:\Program Files\cognos\c8\cgi-bin**, and click **Next**.
    e. Toggle on the **Read** and **Execute** checkboxes and click **Next**.

f. Click **Finish**.
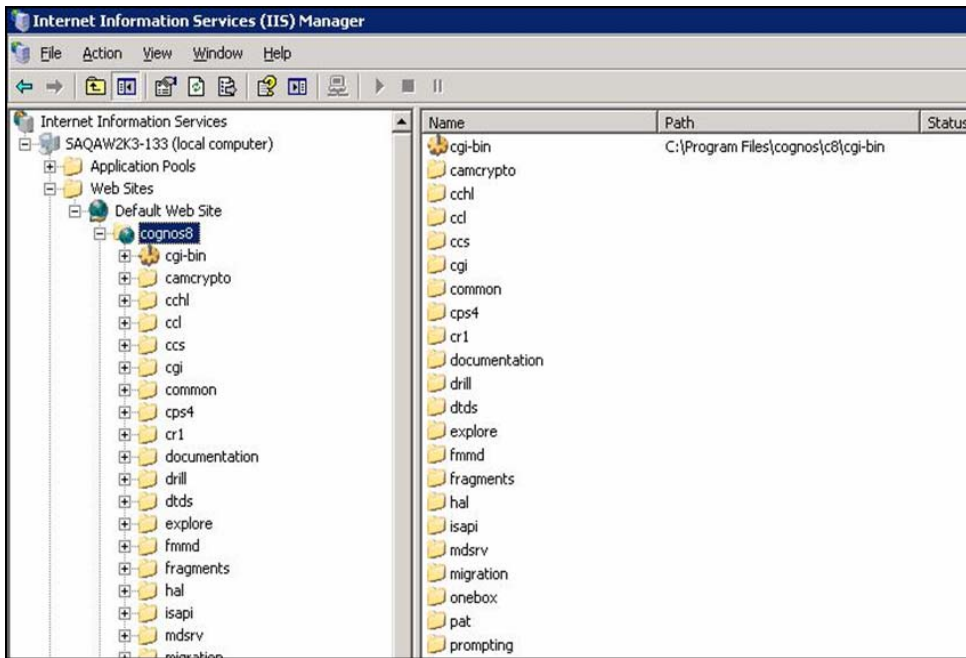
11. Edit configuration to allow Web Service Extensions (this step not necessary in Windows XP with IIS 5.1)
    a. Click on **Web Service Extensions** node.
    b. On the right hand side, select **All unknown CGI Extensions** and click **Allow**.
12. Exit the Internet Information Services (IIS) tool.

Additional Step if you are using IIS6.0 (not necessary in Windows XP with IIS 5.1)

1. Edit configuration to allow Web Service Extensions
2. Click on Web Service Extensions node.
3. On the right hand side, select **All unknown CGI Extensions** and click **Allow**.
4. Exit the Internet Information Services (IIS) tool.

Download Cognos BI. 8.4 Product for System Architect

For the convenience of System Architect users, applicable installation components of Cognos BI 8.4 have been provided within the System Architect 11.3.1 or later download installation package on Passport Advantage. You need to download and install these components.

For Installation into 32-bit environments

1. Find the System Architect V11.3.1 or later eAssembly on the Passport Advantage website.
2. Open the eAssembly and navigate to the following downloads:
   - IBM Cognos 8 Business Intelligence **Modeling** 8.4.1 Windows English (CZAJ7EN) – Note that this is also referred to in this document as the *Framework Manager*, and its installation screens call it *IBM Cognos 8 Business Intelligence Modeling*.
   - IBM Cognos 8 Business Intelligence **Reporting** 32-bit 8.4.1 Windows Multilingual (CZAG1ML) – Note that this is also referred to in this document as the *Report Studio,* and its installation screens call it *Cognos 8 Business Intelligence Server*.

- IBM Cognos 8 Business Intelligence **Samples** 8.4.1 Multiplatform Multilingual (CZAJ9ML) – *Optional* to download and install.
- IBM Cognos 8 Supplementary Languages **Documentation** 8.4.1 Multiplatform Multilingual (CZAK0ML) – *Optional* to download and install.

Note that the first two downloads are similarly named, but the first is the **Modeling** part of the install, and the second is the **Reporting** part of the install.

For Installation into 64-bit environments

1. Find the System Architect V11.3.1 or later eAssembly on the Passport Advantage website.
2. Open the eAssembly and navigate to the following downloads:
   - IBM Cognos 8 Business Intelligence **Modeling** 8.4.1 Windows English (CZAJ7EN) – Note that this is also referred to in this document as the *Framework Manager*, and its installation screens call it *IBM Cognos 8 Business Intelligence Modeling*.
   - IBM Cognos 8 Business Intelligence **Reporting** 64-bit 8.4.1 Windows Multilingual (CZAG2ML) – Note that this is also referred to in this document as the *Report Studio,* and its installation screens call it *Cognos 8 Business Intelligence Server*.
   - IBM Cognos 8 Business Intelligence **Samples** 8.4.1 Multiplatform Multilingual (CZAJ9ML) – *Optional* to download and install.
   - IBM Cognos 8 Supplementary Languages **Documentation** 8.4.1 Multiplatform Multilingual (CZAK0ML) – *Optional* to download and install.

Note that the first two downloads are similarly named, but the first is the **Modeling** part of the install, and the second is the **Reporting** part of the install. There is also a 64-bit version of the Reporting part of the install (the third download in the list).

Install Cognos

Extract the Downloaded Files

1. Download the packages listed above appropriate for your environment.

2. Unzip the packages – you may unzip these .gz files with a product such as PKzip or Winzip, or a free open-source product such as Gzip (http://www.gzip.org/). Note that the built-in file compression capabilities of the Windows XP operating system will not be able to unzip these files.

Install the Cognos Modeling Component

These instructions suggest installing the Modeling component first, and the Reporting component second, but this is arbitrary – you may install the Reporting section before the Modeling section.

1. Install the **Modeling** download by finding and double-clicking on the iisetup.exe in the Win32 folder, and following the wizard, accepting all the defaults. The default path to install either software is <C>:\Program Files\cognos\C8. To install, find and double-click on the iisetup.exe in the Win32 folders of each.
2. Follow the wizard, accepting all defaults.

Install the Cognos Reporting Component

1. Install the **Reporting** download by finding and double-clicking on the iisetup.exe in the Win32 folder, and following the wizard. accepting all defaults. The default path to install the software is the same as for the Modeling component, <C>:\Program Files\cognos\C8.
2. When you install the second of the two installs, you will receive two Warning message boxes that tell you that you are installing to a location where an installation already exists, and that the second installation will replace existing files. Click Yes to both of these messages.
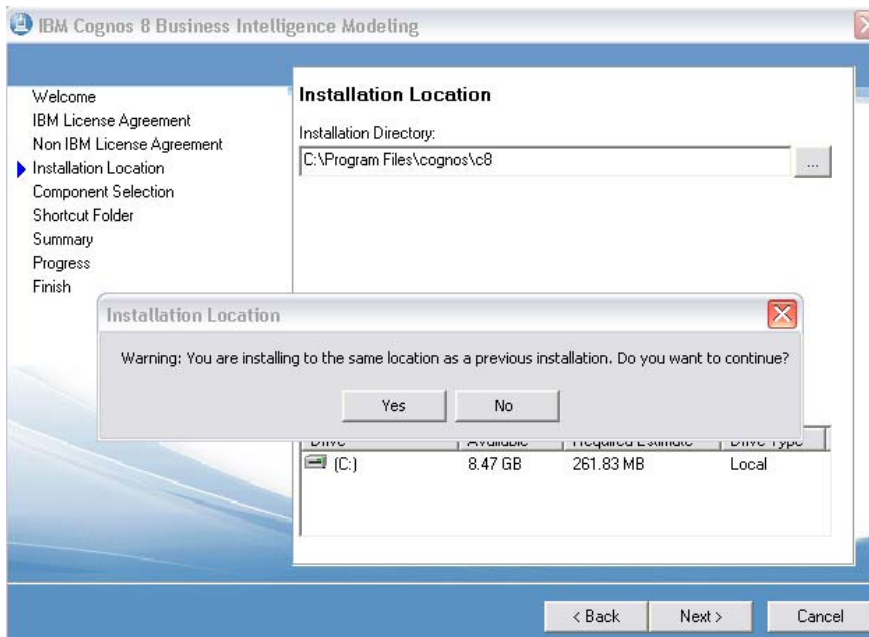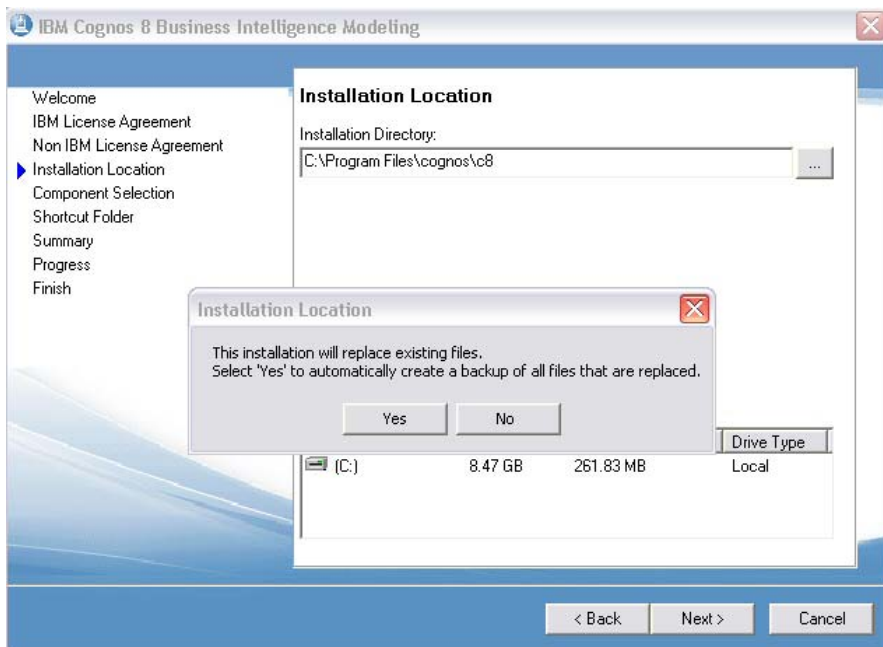
Optionally Install Cognos Documentation and Samples

1. Download the Cognos documentation – IBM Cognos 8 Supplementary Languages **Documentation** 8.4.1 Multiplatform Multilingual (CZAK0ML). Unzip and install by finding and double-clicking on the iisetup.exe in the Win32 folder. The default path to install either software is <C>:\Program Files\cognos\C8.
2. Again you will receive a message that warns you that you are about to install into a directory that already has software installed in it, and you may overwrite files. Click OK.
3. Optionally install the Cognos samples – IBM Cognos 8 Business Intelligence **Samples** 8.4.1 Multiplatform Multilingual (CZAJ9ML). These are not System Architect data samples, these are Cognos data store samples. A sample of System Architect sample data is available on the EA Wiki of the myDeveloperWorks website.

Create the Cognos Content Store Database and the ODS Database

SA Cognos Integration: Architecture
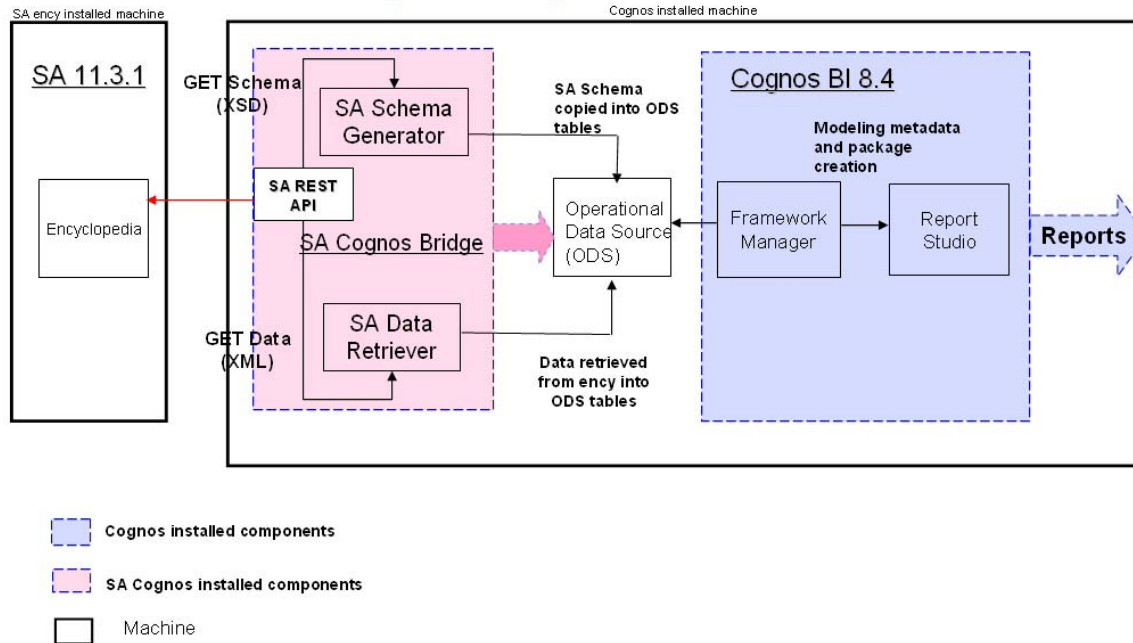
There are three databases involved in Cognos reporting:

1. **Cognos Content Store –** The Cognos Content Store is where Cognos stores packages (physical metadata, logical metadata, and report templates) that are used to work on the actual data housed in an ODS database (specified below). The Content Store is shown as a dashed blue box in the figure above. Packages can be loaded and unloaded from a Content Store if you want different sets of reports. **This Content Store database must be configured** – this section will give you a brief cheat sheet on how to do this, but you should consult Cognos help for full instructions on configuring the content store database (http://publib.boulder.ibm.com/infocenter/c8fpm/v8r4m0/index.jsp?topic=/com.ibm.swg.im.cognos.qrc_inst.8.4.0.doc/qrc_inst_id746inst_CreatetheContentStore.html).

   Once you have configured the Content Store, you may create new packages or use existing packages.

   a. You may create and publish **new packages** (where publishing one means loading it into a Content Store). Steps on how to create and publish new packages are provided in the SA/Cognos bridge help (accessed y selecting Start, All Programs, IBM Rational, IBM Rational Lifecycle Solutions Tools, IBM Rational System Architect 11.3.1 (or later), SA Cognos Schema Generator and clicking the Help button in the application that opens).

   b. You may use existing packages you have created. IBM is providing a **sample package** on the EA Wiki of the myDeveloperWorks site (https://www.ibm.com/developerworks/mydeveloperworks/wikis/home?lang=en_US#/wiki/Rational%20Enterprise%20Architecture%20Wiki/page/Cognos%20Reports/attachments). An instruction document is provided with this sample package, which explains how to load/unload it into the content store database. This document will take you through loading these sample reports as a representative example of using the SA Cognos-based reporting.

2. **Operational Data Store (ODS)** – The ODS contains the data to report on, output from the System Architect encyclopedia. This is pictured as a white box in the figure above. The SA/Cognos Bridge help explains how to

generate an ODS automatically using the SA/Cognos Bridge software. We will also cover this in the representative example provided in this document.

3. **System Architect encyclopedia** – Not to be forgotten, the System Architect encyclopedia is also a database on your SQL Server instance. The data and metamodel of your encyclopedia are mapped into the ODS, and reported upon by reports in the Cognos Content Store.

Create and Configure the Cognos Content Store

You will need to create a SQL Server database for the Cognos Content Store – this is done via SQL Server Management Studio. Specific steps will follow, but in short, we will:

- Log into our SQL Server instance using SQL Server Management Studio Express with the first of two new SQL Server Authentication logins we created in the pre-requisite steps (above),
- Create a SQL Server database that will act as the Cognos Content Store, and enable remote connections.
- Configure that Content Store, and check the configuration.
- Start the Cognos Service, and check to see if everything's running properly.

(**Note:** It is possible to create and configure the Cognos Content Data Store with SAEM. Specific instructions for doing so in SAEM are **not** provided in this version of this document, but in short you would a) Login, b) select **Query, New**, c) type in **Create Database XXXX**, and d) press F5 to execute the query.)

I. Create the Cognos Content Data Store

In this step we create a database on your SQL Server instance that will serve as the content store for Cognos. As previously mentioned, this is different than the ODS data source database that will be created on your SQL Server instance to hold SA data (described later in these instructions), and it is also different than your typical SA encyclopedia, which is also a database on your SQL Server instance.

1. Start Microsoft SQL Server Management Studio Express, and log in using the login name and password of the first SQL Server Authentication user account created above – in our example, the **SACognosUser** account.
2. In Microsoft SQL Server Enterprise Studio Express, right click on **Databases (in the left hand pane)** and select **New Database from the resulting context menu**.
3. Select the **General** page in the left frame, and in the right frame, within the Database name field, type in a database name for your new content store – for example **Cognos8**. (**DO NOT** CLICK THE **ADD** BUTTON YET.)
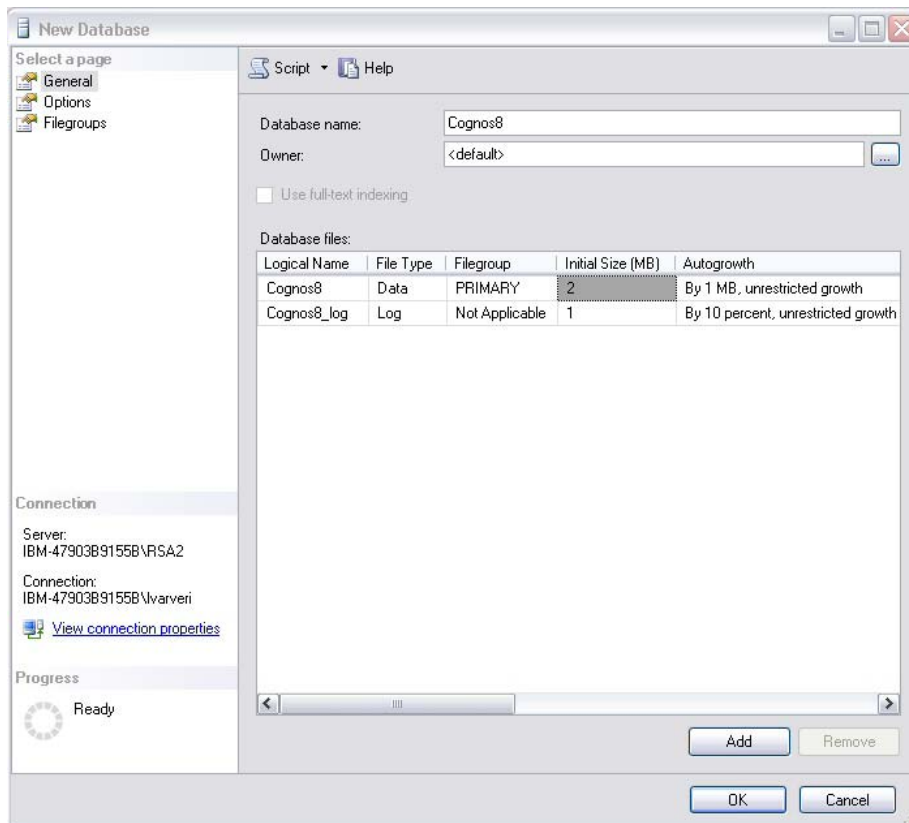
4. Select **Options** in the left frame, and set the **Collation** to **Latin General CI AS,** leaving the other options as default.

5. Click **OK**. The content store database is created.

II. Enable Remote Connections

1. In the Windows Start menu, select All **Programs, Microsoft SQL Server XXXX (2005, 2008, etc), Configuration Tools, SQL Server Surface Area Configuration** to launch that application.
2. Click on the **Surface Area Configuration for Services and Connections** link in the lower portion of the opening window.
3. Click on the **<Your Server>, Database Engine, Remote Connections** node and toggle on **Local and remote connections** and **Using both TCP/IP and named pipes** options.
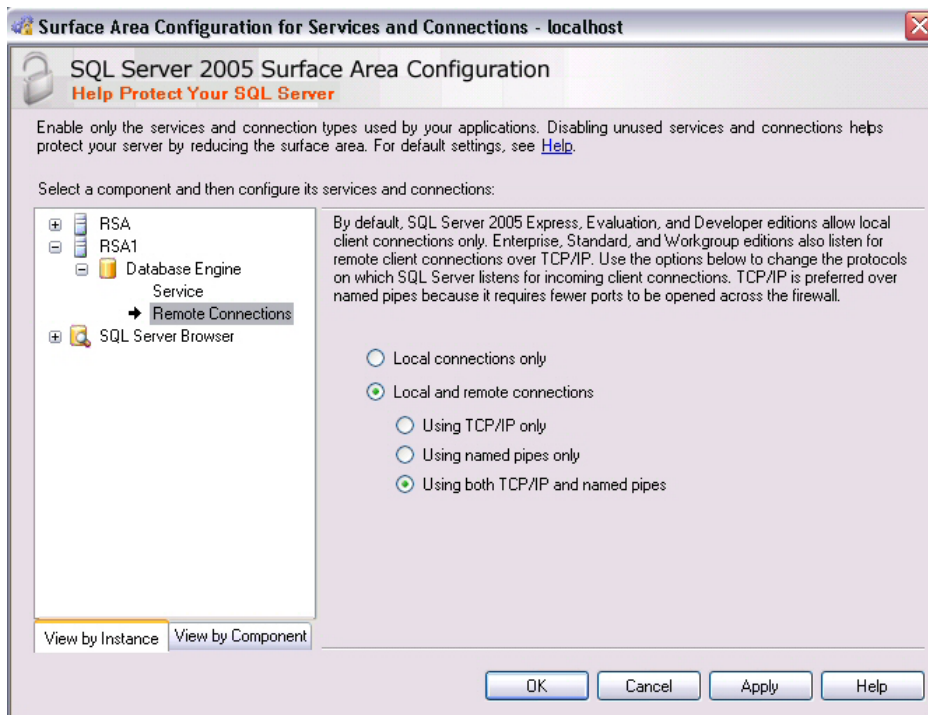
4. Restart **SQL Server *Browser*** service– in the left pane of the Surface Area Configuration for Services and Connections tool, select **SQL Server Browser, Service**, and change the **Startup Type** from **Disabled** to **Manual**, and then click the **Start** button.
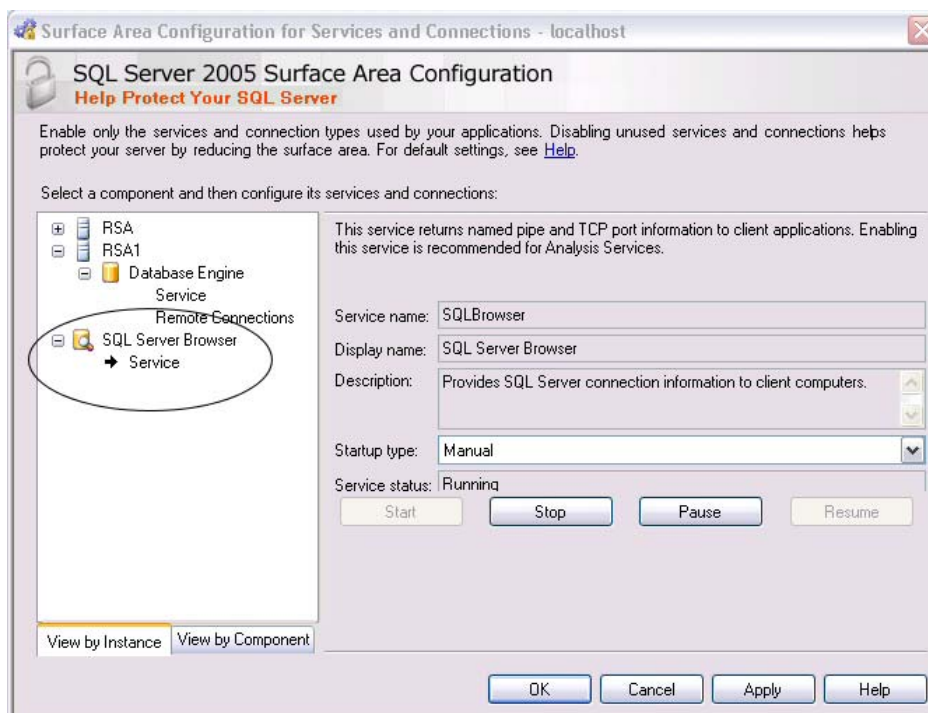
5. Restart the ***Database Engine*** service – in the left pane of the Surface Area Configuration for Services and Connections window, select **<Your Server>, Database Engine, Service** and click the **Stop** button to stop it, then click the **Start** button to restart it.
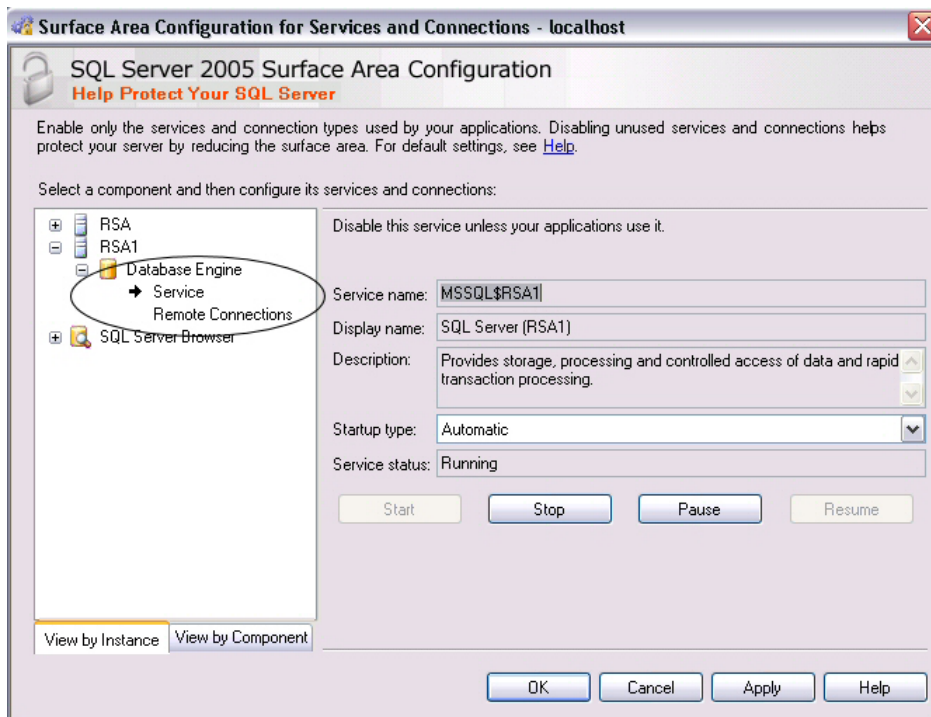
6. Click **OK**, and then exit this tool.

III. Configure the Content Store

1. Run the **Cognos Configuration Explorer**, by selecting **Start, All Programs, IBM Cognos 8, IBM Cognos Configuration**.
2. In the Cognos Configuration Explorer, navigate to **Data Access, Content Manager** selection in the left panel.
3. Select **Content Store** underneath this choice - will be of type **DB2** – right-mouse click on the **Content Store** and choose **Delete** from the popup menu.
4. Right click on **Content Manager** and select **New Resource, Database**.
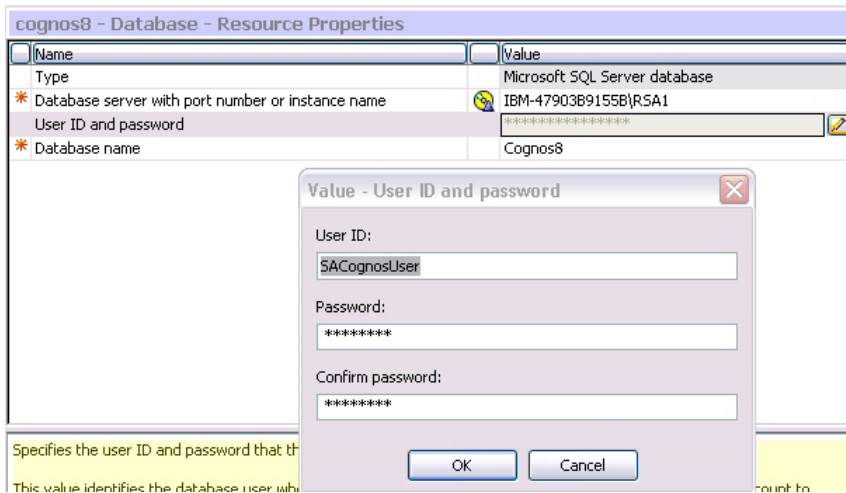5. Type in a name – for example, **cognos8** – and select the **Type** as **Microsoft SQL Server database**. Click **OK**. Note that the name of this Content Store doesn't have to be the same as the database it points to.
6. For the property Database server with port number or instance name, either leave the default of localhost:1433 (if SQL Server is located on the same machine as the one you've installed Cognos to), or type in your machine name and SQL Server instance name in the form <MachineName\InstanceName> (especially if SQL Server is located on a different machine, or also optionally, if it is on the same machine), for example, **<Your Machine Name>\RSA1**.

   Note: You can find out what your machine and server instance name is by using SAEM to connect to your SQL Server – select Start, Programs, IBM Rational, IBM Rational Lifecycle Tools, IBM Rational System Architect, SAEM for SQL Server. In SAEM, connect to your server (Server, Connect, or click on the server name in the left-hand pane). In the Message Center at the bottom of SAEM you will see the name of your Machine Name\SQL Server instance name.

7. Click on the edit icon (the Pencil) and provide the **SQL user name** and **password** created above (on page 4), replacing the asterisks that appear by default.

cognos8 – Database – Resource Properties

Name	Value
Type	Microsoft SQL Server database
* Database server with port number or instance name	IBM-47903B9155B\RSA1
User ID and password	**************
* Database name	Cognos8

Value - User ID and password

User ID:
SACognosUser

Password:
****

Confirm password:
****

OK   Cancel

Specifies the user ID and password that th...
This value identifies the database user wh...

8. For the **Database Name** field, type in the name of the database you created above – in our example, **cognos8**.
9. Click **OK**.
10. Right click on the newly created content store under **Content Store** in the left pane – in our example, **cognos8** – and select **Test** from the popup menu to test the Connection. Verify that the connection is successful. You should receive green checkmarks to signify a successful test.

IBM Cognos Configuration

IBM Cognos Configuration is performing the following tasks:

✔ Generating cryptographic information
✔ Testing Content Manager database connection.

Close   Details >>

IV. Check the Environment Configuration

The verification step below will verify whether or not this will work for your installation.

1. Click on the **Environment** node at the top of the left pane of the Cognos Configuration Explorer.
2. Find the Dispatcher Settings in the right pane of the dialog, and click in the **Dispatcher** password field to change it to the SQL Server Authentication Login User password created above for the Content Store database – in our example, the password created for the SACognosUser.
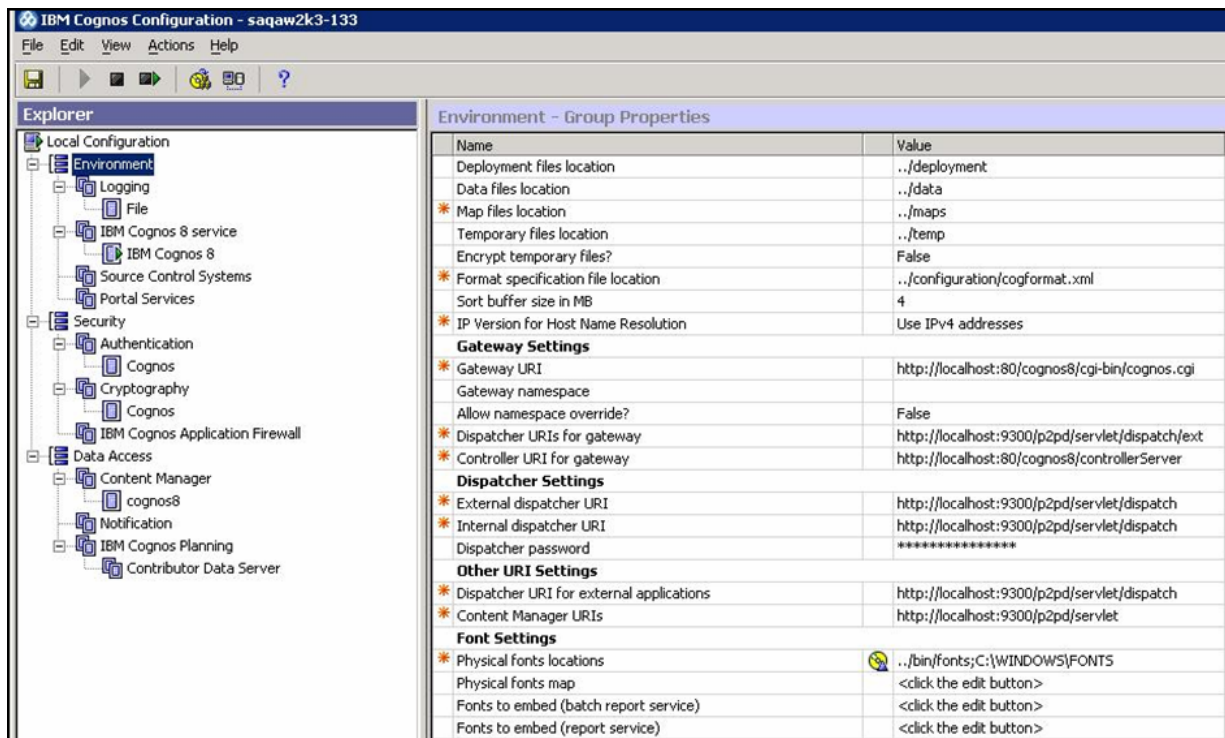
V. Start the Cognos Service

1. Save the configuration by selecting **File, Save** or by clicking on the save button in the toolbar at the top of the tool.
2. Start the Cognos service by clicking on the start button on the toolbar. You may receive a warning on the test of the Mail Server Connection. If you do, simply disregard the message and click **Continue** to continue the steps to start the Cognos 8 service.
3. Verify that the IBM Cognos8 service starts.

VI. Verify Everything Is Running

1. Launch Internet Explorer or Firefox.
2. Type the following in the address bar http://localhost/cognos8.
3. The Cognos home page should appear.

Install SA/Cognos Bridge

1. Install the Rational System Architect Cognos Bridge on top of your already-installed version of System Architect, by running the SA/Cognos Bridge installer and choosing default options.

Specify the Encyclopedia You Want to Run Cognos Reports On

The reports that you build in Cognos will act upon the metamodel of the System Architect encyclopedia that you want to report on. Once you build Cognos reports based on a System Architect encyclopedia metamodel, then all other encyclopedias that you wish to report upon with those Cognos reports should share the same metamodel.

For the example presented in this paper, we will use pre-built example reports provided for you via the IBM DeveloperWorks website (url provided below). If you wish to use these report templates, you must adjust the metamodel of your encyclopedia(s) and add relevant data that the reports are looking for. The website url also provides an example encyclopedia that has been aptly pre-configured with metamodel additions and data added, **JK Enterprises - Cognos Version 1.0.mdf**, and an instruction guide on how to apply this example encyclopedia, the ***IBM Rational System Architect Cognos Reports Quick Start Guide.pdf***. That user guide also instructs you on how to configure any of your System Architect encyclopedias for use with these example reports.

https://www.ibm.com/developerworks/mydeveloperworks/wikis/home?lang=en_US#/wiki/Rational%20Enterprise%20Architecture%20Wiki/page/Cognos%20Reports

Attach the Example Encyclopedia

1. Launch SAEM by selecting Start, Programs, IBM Rational, IBM Rational Lifecycle Tools, IBM Rational System Architect, SAEM for SQL Server.

2. Use SAEM to attach the example encyclopedia, **JK Enterprises - Cognos Version 1.0.mdf**, to your SQL Server instance (will work with either a full-blown SQL Server or SQL Server Express). Specific steps on how to do this are provided in SAEM's help, System Architect's help, and also in the *IBM Rational System Architect Cognos Reports Quick Start Guide (referenced above),* in the section titled "Using the predefined packages and reports" .

Optional – Modifying an Existing Encyclopedia

If you wish to modify any of your existing encyclopedias to work with the pre-built example Cognos reports we are providing, you should consult the *IBM Rational System Architect Cognos Reports Quick Start Guide (available at the url listed above)*. The sections "*Configuring the encyclopedia property set*" and "*Modifying the USRPROPS.TXT file*" detail how to modify the metamodel of your encyclopedia so that it can be talked to by the pre-built Cognos report templates provided (above).

Generate Encyclopedia Schema to ODS Database

This process creates the ODS schema for the selected encyclopedia. While the schema is being generated, status messages are displayed beneath the Generate Schema button. A confirmation dialog informs you when the SA Schema is generated successfully, and provides the name and path of the XML configuration file that you need to use to configure your SA Data Retriever which can be run from the command line or from the Windows scheduler.

1. Select **Start, All Programs, IBM Rational, IBM Rational Lifecycle Solutions Tools, IBM Rational System Architect 11.3.1** (or later), **SA Cognos Schema Generator**.

    a. On the **SA Repository** tab, enter the "Server Name" and "Encyclopedia"for the server that houses your System Architect encyclopedias and the Encyclopedia that will provide SA data for the reports– for this example, the name of our SQL Server instance is RSA1, and the encyclopedia is the one we have just attached to that SQL Server instance – *JK Enterprises – Cognos v1.0.*

Note: You may have to type these names in from scratch if the program does not automatically provide them in its list.

Note: You can find out what your machine and server instance name is by using SAEM to connect to your SQL Server – select Start, Programs, IBM Rational, IBM Rational Lifecycle Tools, IBM Rational System Architect, SAEM for SQL Server. In SAEM, connect to your server (Server, Connect, or click on the server name in the left-hand pane). In the Message Center at the bottom of SAEM you will see the name of your Machine Name\SQL Server instance name.
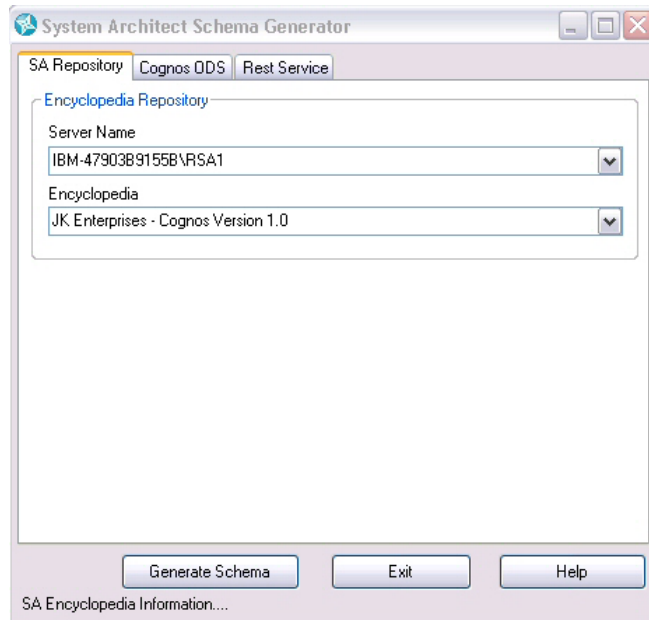
b. On the **Cognos ODS** tab, type in the **Server Name** (machine name and SQL Server instance name, as specified in the previous tab), and in the **Database Name** field, type in the name of a <u>new</u> database that will be created by the schema generator, and select the authentication information you choose to use. For this example, we type in the machine name\SQL Server instance name, and specify a **Database Name** of **SACognosODS**.
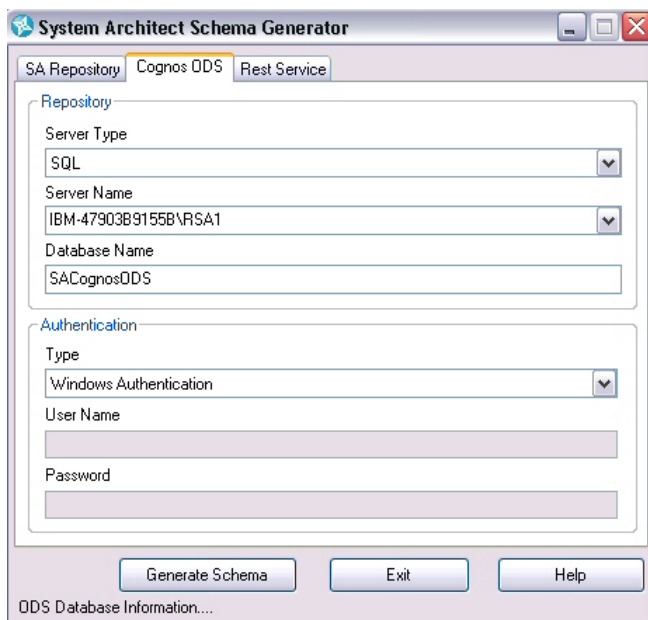
c. On the **Rest Service** tab, leave the **Port number** at its default and click **Start Service**.
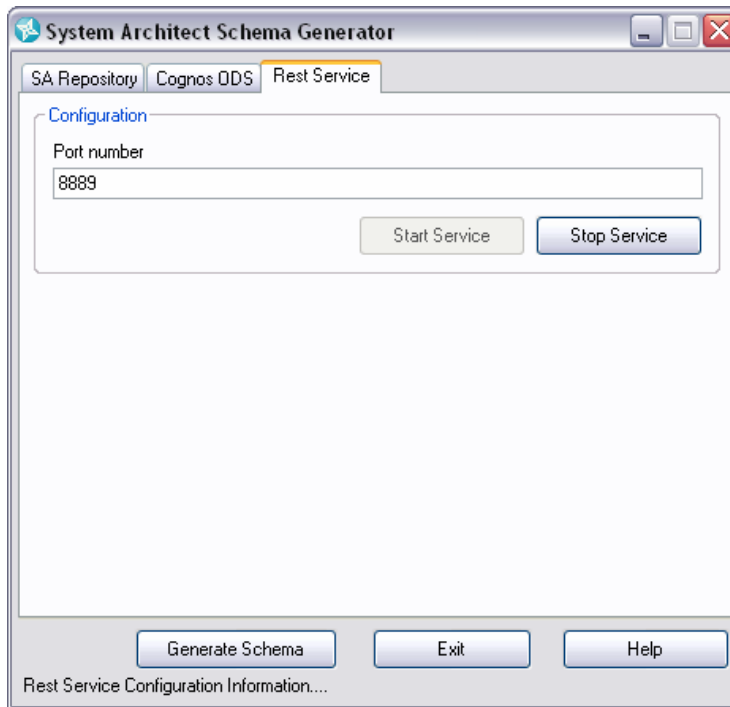
Click on **Generate Schema** to start the generation of the schema XML file (see the following note). Note the path to the new XML file as you will need to provide it for the SA Data Retriever addressed later in this document.

NOTE 1: The options that you select in the SA Cognos Schema Generator are stored in an XML configuration file. This file contains the server type, server name, encyclopedia name, ODS database name, and the ODS authentication type information that the SA Data Retriever needs to get the encyclopedia data. Whether the data is retrieved manually from a command line option, or scheduled via the Windows Task Scheduler, the information that the SA Data Retriever needs to get encyclopedia data is obtained from this XML configuration file.

By default, that file is created in the 'Conf' folder in the Rational System Architect Cognos Bridge installation folder (C:\Program Files\IBM\Rational\System Architect Suite\11.3.1\SA-Cognos, by default). You can manually change the folder to which the file is created by opening the SASchemaGenerator.exe.config file in a text editor and editing the path to your preferred directory.

NOTE 2: You may decide to select **Control Panel, Administrative Tools, Services** to run an applet to set the "**IBM Rational System Architect Rest Service**" to "**Automatic**" so you don't have to worry about starting it in the future. It's a very small service.

Generate Encyclopedia Data to the ODS Data Source with the SA Data Retriever

Now that the XML definition of your SA encyclopedia and ODS has been created, data can be imported into the ODS for reporting purposes. To do this you use the SA Data Retriever.

Retrieving Encyclopedia Data

The SA Data Retriever executable populates the ODS database with encyclopedia data. A prerequisite for running the data retriever for a particular encyclopedia is that the schema for that encyclopedia has already been generated, which is done by running the SA Schema Generator, which was done in the previous section. Another prerequisite is that the SA REST service has already been started. Finally, the client running the SA Data Retriever must have sufficient access to the encyclopedia.

The SA Data Retriever uses the XML configuration file (which holds the values that you entered in the SA Schema Generator dialog for a given encyclopedia) to retrieve the data from the encyclopedia (through the REST API) to populate the ODS tables. Framework Manager uses those tables to create the packages that you need to generate reports. You can run the SA Data Retriever from a command line or schedule it to run through the Windows Task Scheduler (to ensure that your data is regularly refreshed).

IMPORTANT: The processes described below are based on Microsoft Windows XP. The actual command line and dialog options that you need to use may vary on other operating systems, such as Microsoft Widows Server 2008.

IMPORTANT NOTE: In the current version of the SA/Cognos reporting bridge, running the SA Data Retriever can take many hours, even on a small encyclopedia. When you issue the command line program, expect it to remain with the message **"ODS Database cognos8_ods connection is opened"** for several hours. Expect the processor to be pegged at 100% utilization during this time as well. When the process finishes, you will receive the message **"ODS Database cognos8_ods connection is closed"** and you will get back the **C:** prompt.

Note: The instructions in this section are also provided in the "IBM Rational System Architect Cognos Bridge" help file, accessed by selecting Start, All Programs, IBM Rational, IBM Rational Lifecycle Solutions Tools, IBM Rational System Architect 11.3.1 (or later), SA Cognos Schema Generator and clicking the "Help" button in application that opens. That help file is also found in the C:\Program Files\IBM\Rational\System Architect Suite\11.3.1\SA-Cognos folder as sacognos.chm.

Running the SA Data Retriever from the Command Line

When you run the SA Data Retriever from the command line, you need to use the 'C' command line option, followed by the full path and name of the XML file that was generated by the SA Schema Generator.

1. Open the Command Prompt by clicking **Start**, **Run** to open the Run dialog.

2. In the Run dialog, type in **cmd**, and click **OK**.

3. In the DOS Command Window, at the prompt C:\Documents and Settings\Administrator\, type in the following and hit your Enter key: CD C:\

4. At the C:\ prompt, type in the following and hit your Enter key:

```
C:\Program Files\IBM\Rational\System Architect Suite\11.3.1\SA-
Cognos\SADataRetriever.exe /C "C:\Program Files\IBM\Rational\System Architect
```

```
Suite\11.3.1\SA-
Cognos\Conf\MyServerName_MySQLServeInstanceName_Samples_ODS.xml"

Note that the last part of this command should match the .xml file that you
have generated – you can find this file in your C:\Program
Files\IBM\Rational\System Architect Suite\11.3.1\SA-Cognos\Conf directory.
```

The process will start and you will receive the message **"ODS Database cognos8_ods connection is opened".** Depending on the processing speed of your computer, this process will last for many hours – from 4-5 hours up to as many as 24 or more hours. Expect the processor to be pegged at 100% utilization during this time as well. When the process finishes, you will receive the message **"ODS Database cognos8_ods connection is closed"** and you will get back the **C:** prompt.

For Workspace Enabled Encyclopedias:

The above command line example retrieves data from workspace-enabled and non-workspace-enabled encyclopedias. For workspace-enabled encyclopedias, it retrieves the data from all workspaces by default. Optionally, for workspace-enabled encyclopedias, you can retrieve data for a particular workspace by providing its ID after the command line switch '/W,' as in the following example:

```
C:\Program Files\IBM\Rational\System Architect Suite\11.3.1\SA-
Cognos\SADataRetriever.exe /C "C:\Program Files\IBM\Rational\System
Architect Suite\11.3.1\SA-
Cognos\Conf\MyServerName_MySQLServeInstanceName_Samples_ODS.xml" /W 1
```

Additionally, for workspace-enabled encyclopedias, you can retrieve data from more than one workspace by providing the workspace IDs, separated by commas, after the command line switch '/W,' as in the following example:

```
C:\Program Files\IBM\Rational\System Architect Suite\11.3.1\SA-
Cognos\SADataRetriever.exe /C "C:\Program Files\IBM\Rational\System
Architect Suite\11.3.1\SA-
Cognos\Conf\MyServerName_MySQLServeInstanceName_Samples_ODS.xml" /W 1,3
```

Optional: Running the SA Data Retriever with the Windows Task Scheduler

You can automate the SA Data Retriever using the Windows Task Scheduler. Consecutive runs of the SA Data Retriever, if scheduled, flushes out the data from the ODS database (if it has already been created) and writes fresh data to it from the encyclopedia.

NOTE: Windows provides detailed documentation on creating tasks with the Scheduler. The scope of the information below only covers how to schedule a task to run the SA Data Retriever.

1. Click **Start**, and select **Control Panel**.
2. Click **Schedule Tasks**.
3. Click **Add Scheduled Task**.
4. Click Next in the Scheduled Task Wizard.
5. Click Browse, and navigate to the folder where the IBM Rational System Architect Cognos Bridge is installed (C:\Program Files\IBM\Rational\System Architect Suite\11.3.1\SA-Cognos by default).
6. Select SADataRetriever.exe and click OK. The 'task wizard' takes the name of the executable as the name of the task by default. Optionally, you can change the name to your preference.
7. In the *Perform this Task field,* select the frequency to run the task from the available options. The option you select here determines the scheduling options available to you in the ensuing screen. For example, if you select

'Weekly', in the next screen, you would need to choose the day (or days) of the week, and whether the task should run every one week, two weeks, and so on.

8. Click **Next**. Select the frequency to run the task.
9. Click **Next**.
10. Enter your domain and user name combination (in the format: DomainName\UserName), and your password.
11. Click **Next**. The 'task wizard' informs you that you have successfully scheduled the task, and provides a summary of your schedule (For example, "Windows will perform this task: At 7:04 PM every Mon of every week, starting 1/20/2010").
12. Click **Open advanced properties for this task when I Click Finish,** and click on **Finish**.
13. In the Run field, append the XML file name (the location you should have from the generation of the schema) to the SA Data Retriever executable, as follows:

```
SADataRetriever.exe /C "C:\Program Files\IBM\Rational\System
Architect Suite\11.3.1\SA-
Cognos\Conf\MyServerName_MySQLServeInstanceName_Samples_ODS.xml"
```

The above command line example retrieves data from workspace-enabled and non-workspace-enabled encyclopedias. For workspace-enabled encyclopedias, it retrieves the data from all workspaces by default. Optionally, for workspace-enabled encyclopedias, you can retrieve data for a particular workspace by providing its ID after the command line switch '/W,' as in the following example:

```
SADataRetriever.exe /C "C:\Program Files\IBM\Rational\System
Architect Suite\11.3.1\SA-
Cognos\Conf\MyServerName_MySQLServeInstanceName_Samples_ODS.xml" /W 1
```

Additionally, for workspace-enabled encyclopedias, you can retrieve data from more than one workspace by providing the workspace IDs, separated by commas, after the command line switch '/W,' as in the following example:

```
SADataRetriever.exe /C "C:\Program Files\IBM\Rational\System
Architect Suite\11.3.1\SA-
Cognos\Conf\MyServerName_MySQLServeInstanceName_Samples_ODS.xml" /W
1,3
```

14. Click **OK**.
15. In the Set account information dialog, enter your domain and user name combination (in the form DomainName\UserName), and your password.
16. Click Finish. In the Scheduled Tasks window, the task you just created now appears as task, displaying the Schedule properties, such as 'Next Run Time', 'Last Run Time', and so on.

Building Reports in Cognos

An IBM Cognos Administrator uses Framework Manager to create a project and point it the ODS database (populated with encyclopedia data). The ODS database table structure is replicated in the project, where users can customize and filter the required data set. Further, in Framework Manager, you can model the metadata, which means that you create new relationships, delete existing relationships among tables, create query subjects, and build some intelligence logic, (filtering data, casting, and so on) on the model query subject. The Framework Manager is then used to create a package, which is a set of compiled metadata that uses the ODS database as the data source, and publish it in a portal. A package is required to run a report.

Once you start the Framework Manager, you need to execute the tasks below to publish a package:

- Create or open a project.

- Create a new query subject on a project.

- Create and publish a new package.

Building New Reports

Help on how to create a package and build reports against that package on System Architect data is provided in the SA-Cognos help – available by running the SA Cognos Schema Generator (select **Start, IBM Rational, IBM Rational Lifecycle Solution Tools, IBM Rational System Architect, SA Cognos Schema Generator**), and selecting the **Help** button.

Using Pre-Built Reports

This paper will describe the steps necessary to use a set of pre-built example reports provided on the IBM website.

1. Download and Install the Example Reports

1. Download the **SA-Cognos OOTB.zip** file from the EA Wiki on the MyDeveloperWorks Wiki site (https://www.ibm.com/developerworks/mydeveloperworks/wikis/home/wiki/Rational%20Enterprise%20Architecture%20Wiki?lang=en_US).

2. Extract the contents of the **SA-Cognos OOTB.zip** file. Within the extracted folder, you will find a **TOGAF** folder which contains a **TogafContentDeployment.zip** and another folder named **Framework Manager Project**. Copy and paste the **TogafContentDeployment.zip** file and the **Framework Manager Project** folder into the **deployment** folder of the Cognos installation folder (by default C:\ProgramFiles\cognos\c8\deployment) If done properly, the **TogafContentDeployment.zip** and the **Framework Manager Project** folder should sit directly within the **deployment** folder as shown in the following image.
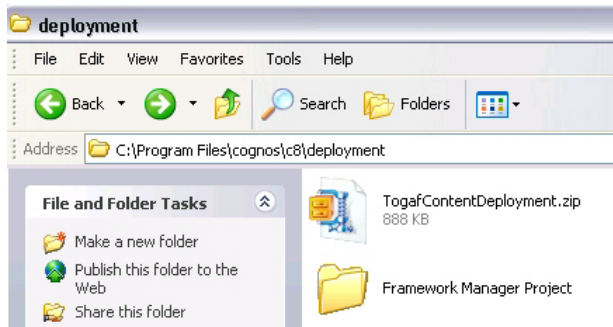
3. Start your Internet Browser (IE or Firefox) and go to **http://localhost/cognos8** .

   - Note: If this url does not load successfully, may need to restart the Cognos service. To do so, relaunch the IBM Cognos Configuration tool, log into your server using either your Windows or SQL Server Authentication login, and click the Start button to start the service.
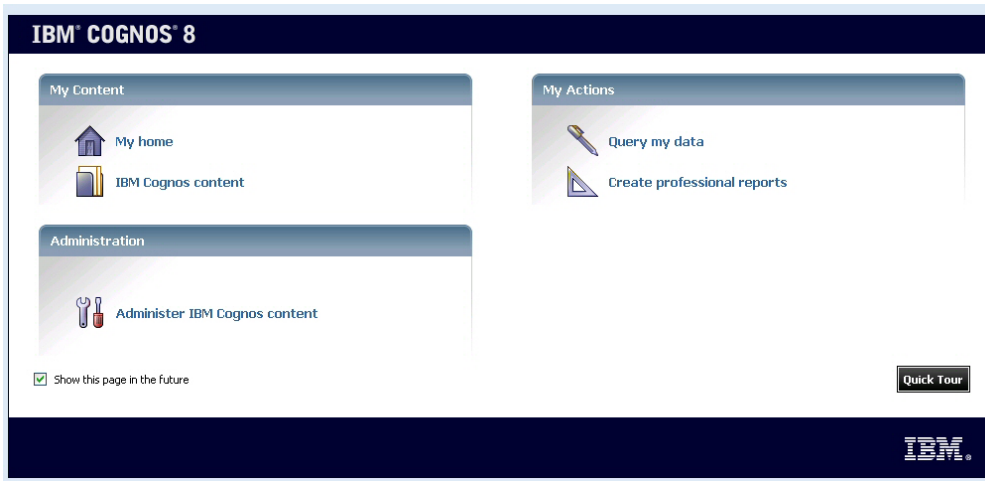

4. Click on **Administer IBM Cognos Content**, to open the **IBM Cognos Administration** page.

5. On the **IBM Cognos Administration** page, click the **Configuration** tab, and in the left frame of the ensuing page, click **Content Administration**.

6. Click the **New Import** button in the top-right corner of the screen.

7. Select **TogafContentDeployment.zip as shown below**. The **Deployment Archive** field will be populated with this file.
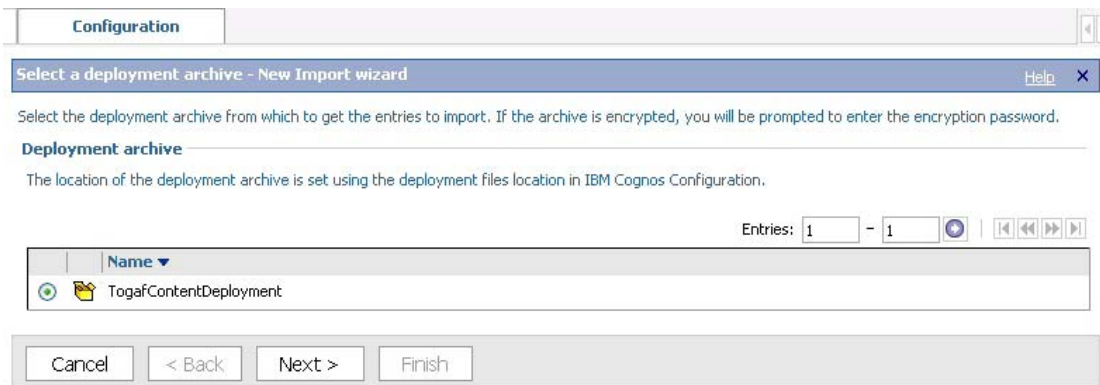
8. Click **Next**.

9. In the **Password** field, type in the password **TogafContent** and click **Next**.

10. In the **specify Name and Description** page, you can leave the default name **TogafContentDeployment** (and leave **Description** empty) and click **Next**.

11. Select the public folder **…> SaCognos Reporting Data Model (IBM Rational System Architect)** and click **Next**. (Leave all options untoggled.)
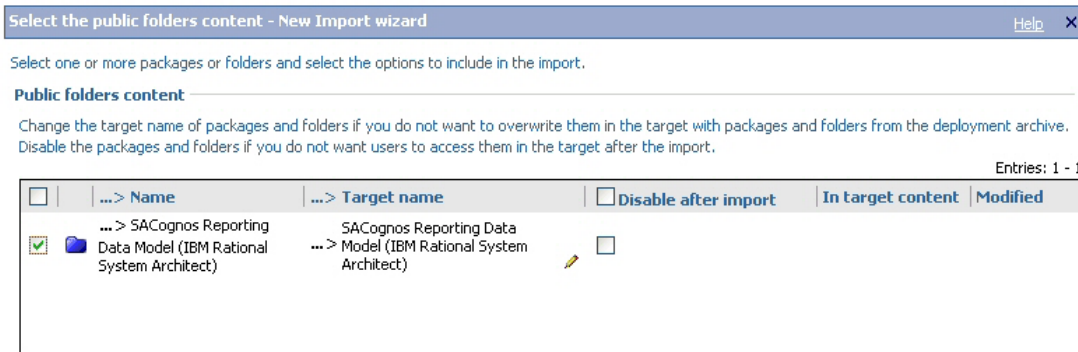
12. On the **Select the Directory Content** page, make sure the **Include data sources and connections** and **Include signons** options are checked (see picture below). Leave all other options unchanged and click **Next**.
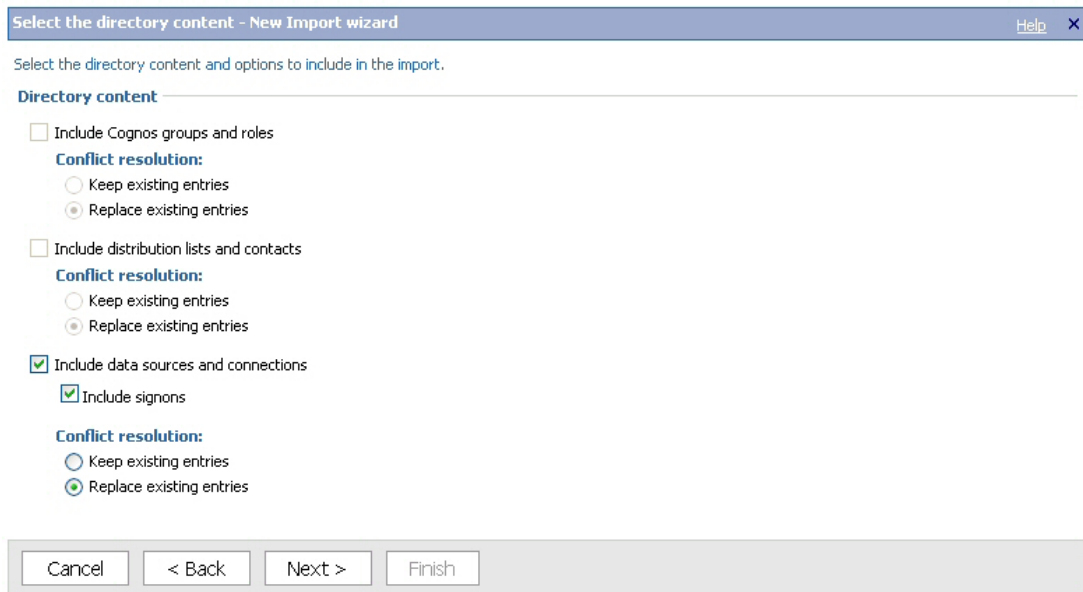
13. Leave all of the default choices as is on the **Specify the general options** page, and simply click **Next**.

14. Review the **Summary** page, and click **Next**.

15. Select the **Save and Run Once** option and click **Finish**.

16. In the **Run with Options** page, select a time to run the import (for example, **Now**). Leave the **Report specification upgrade** field at its default value, **Keep the existing report specification versions**, since this is the first time you are running this import. (Note: If you have the package SaCognos Reporting Data Model (IBM Rational System Architect) due to an earlier import, select **upgrade all report specifications to the latest version**).

Run with options - TogafContentDeployment

Select when you want to run this import.

Time:
- ⦿ Now
- ○ Later:
  - May 9, 2010 ▦▾
  - 5 : 44 PM ▲▼

Content:

Name
✔ Content store
✔ Directory
✔ Cognos namespace
✔ Public Folders
✔ ... > SACognos Reporting Data Model (IBM Rational System Architect)

Report specification upgrade

You may want to keep existing report specification versions for compatibility with existing applications.

- ○ Upgrade all report specifications to the latest version
- ⦿ Keep the existing report specification versions

17. Click **OK** to the final confirmation page.

IBM Cognos 8

(i) You selected to run 'TogafContentDeployment' as follows:
Time: now
Report specification upgrade: Keep the existing report specification versions

☐ View the details of this import after closing this dialog

Click OK to run the import or click Cancel to return to your selection.

[OK] [Cancel]

The **View Run History Details** page will open. The Status field should say **Executing**.

View run history details - TogafContentDeployment   Help ✕

View the details of this particular run.   Refresh

Start time: **Completion time:**   Click to refresh
May 9, 2010 5:46:22 PM   Unavailable

Status:
Executing

Messages

Severity: (All) ▼   Entries: [   ] – [   ] ⊙ | |◀ ◀◀ ▶▶ ▶|

| Time ⬍	Message
	No entries.

[Close]

18. Click the **Refresh** link in the top right-hand corner of the screen. The status should change to **Succeeded**, and a message will display specifying how many objects were successfully imported, and how many failed. In this example, 37 objects were imported; 0 objects failed.
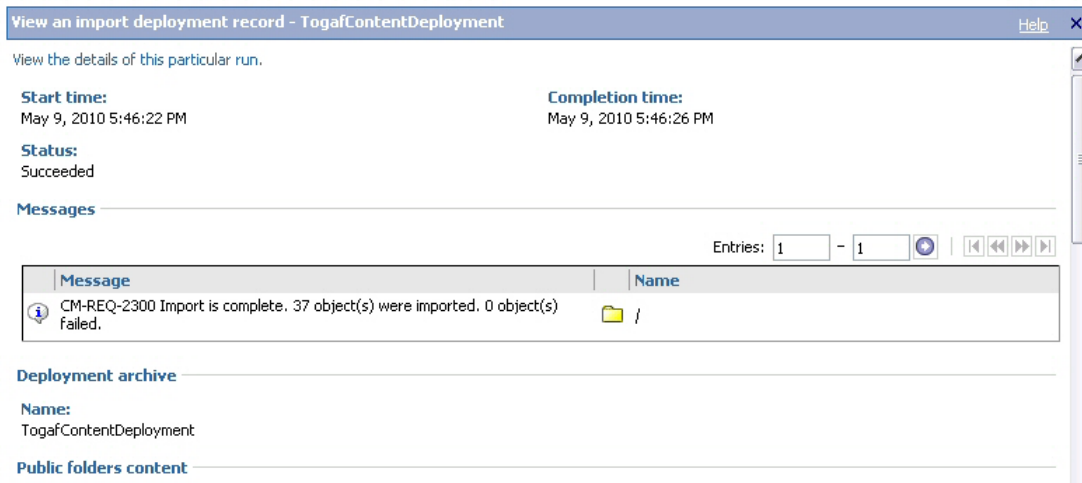

2. Configure the ODS Data Source

To configure the data source proceed as follows:

1. Open your browser (IE or Firefox) and navigate to **http://localhost/cognos8** .
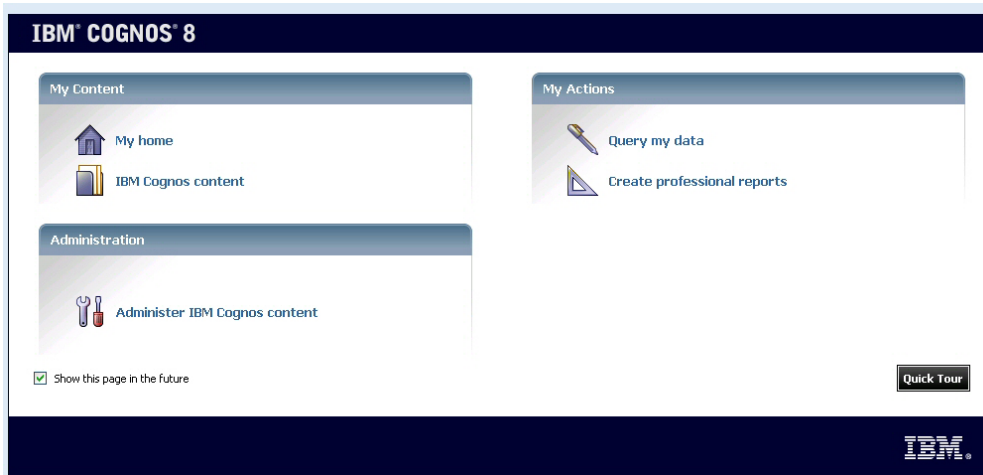
2. Click **Administer IBM Cognos Content** to open the **IBM Cognos Administration** page.

3. On the **IBM Cognos Administration** page, click the **Configuration** tab, and in the left frame of the ensuing page, click **Data Source Connection**.

4. In the right pane, click **SAODS** and **SAODS** again.

5. On the ensuing page, select **more**, on the right and then select **Set Properties**.
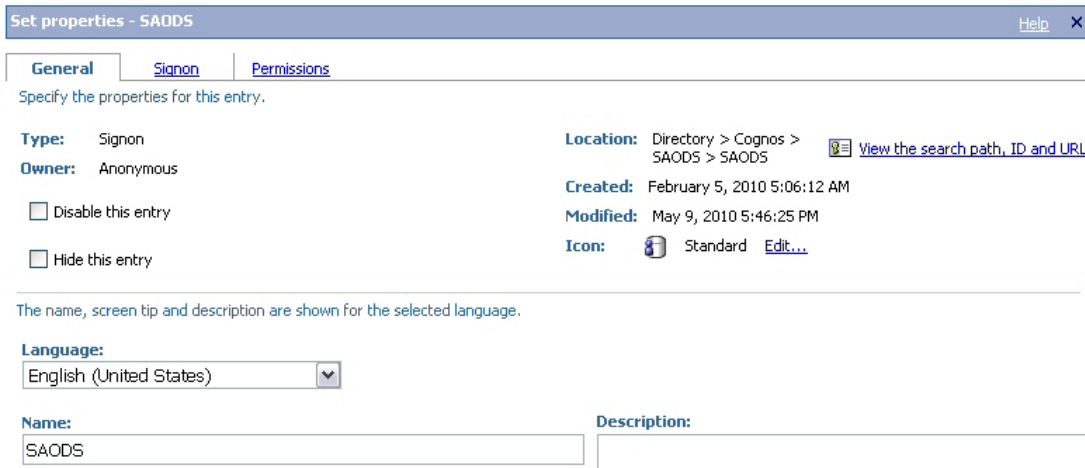
6. Select the **Signon** tab and click **Edit the Sign-on**.
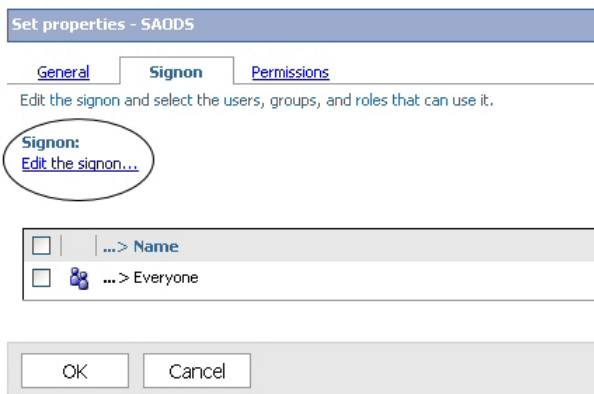
7. Enter the same password for the **csuser** user as you configured in **SQL Server**, and click **OK** to complete the change.

   a. **Note**: You can change the sign-on user name to something other than **csuser**, as long as you apply the change both in Cognos administration and in the SQL Server Management Studio.

8. Return to the **Data Source Connections** list.

9. Click **SAODS**, and select **more** on the right.

10. On the ensuing page, select **Set Properties**.

11. On the **Set Properties** page, select the **Connection** tab, and edit the connection string by clicking on the Edit (pencil) button to the right of the property **Connection String**.
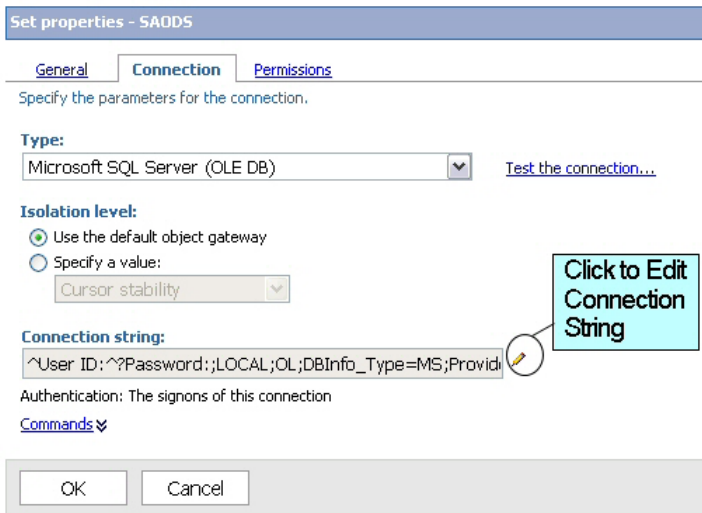
12. Change the server name to the SQL server instance you are using.

13. Provide the database name as the ODS database you created above – in our example, **SACognosODS**.
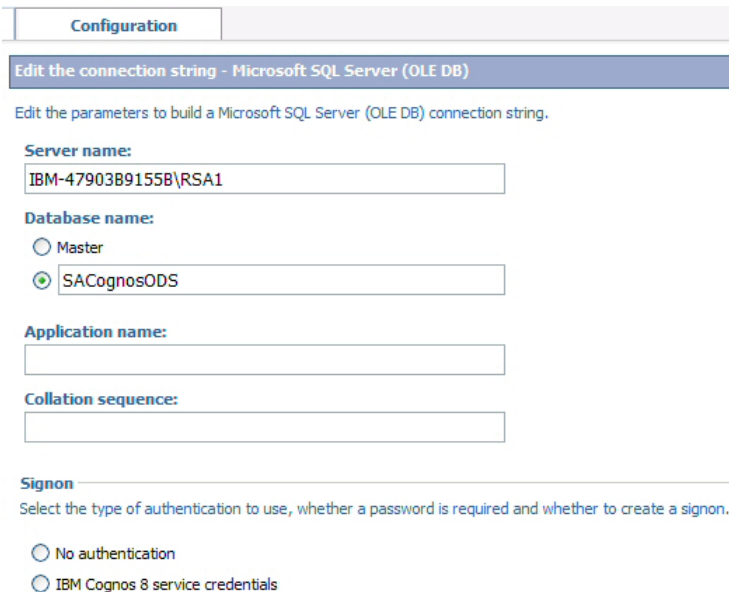
14. Keep the sign-on at its default value, **The signons of this connection**, with **Password** toggled on.

15. Click on **Test the Connection** at the bottom of the page, to open a dialog that will provide your connection string. Press **Test**. You should receive a **Successful** connection.
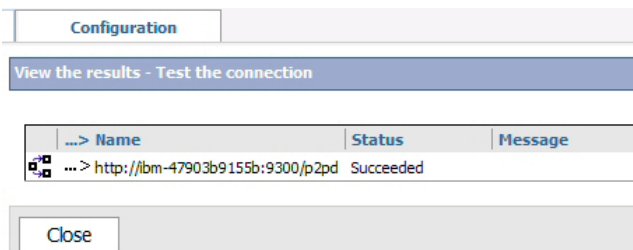
16. Click **Close** to close the Test Connection page.

17. Click **OK** repeatedly at the bottom of each dialog until you complete the configuration – this will save your changes.

18. From the main Configuration page, click **Launch, IBM Cognos Connection**, in the top right corner.

19. Click **SACognos Reporting Data Model (IBM Rational System Architect)** and click the individual reports in the package to execute them.

Cognos Viewer - Application Cost Details   🏠 ↩ Abo

Keep this version ▾ | ▶ | 🔖 🔖 📊 ▾ | ⊙ ▾ | 📄 Add this report ▾ | ▷

Application Cost Details

Select Workspace   WorkspaceName   ▼
All Workspaces

Workspace Name	Full Pathname	Application Rank	Application Name	Description	Is Physical	Perpetual License Cost	Yearly Maintenance Cost	Yearly Rental Cost	Build Cost	Total Cost	Cost Center	In Service Date	Effective Date	Initial liv date
A JK Enterprises	\\Root\A JK Enterprises	1	AccMan		T	200	100	200	200	700	Accounts	12/31/2007	12/31/2009	12/31/20
			Accounts Receivables	Management of receivables	F	200	0	2,000	200	2,400		12/31/2007	12/31/2009	12/31/20
			Remote Sales	Sales activities conducted of site and remotely	F	0	10,000	0	0	10,000				
			Risk Management	Manage and mitigate risks	F	10,000	0	0	0	10,000				
		1				10,400	10,100	2,200	400	23,100				
		2	Marketing System	Marketing campaign management	F	0	0	0	0	0				
			SoftImage		T	0	0	0	0	0				

Publishing Reports

Reports can be published through several starting points. One way is to go directly to the Cognos 8 website, review your report folders, and execute a report from that folder. Rational System Architect and Rational System Architect XT can also serve as the starting point for running reports.

Configuring SAEM for SQL Server to Access IBM Cognos

For each encyclopedia for which you want IBM Cognos reports, a Rational System Architect user needs to use SAEM for SQL Server to configure the encyclopedia to point to the IBM Cognos server and port number.

To configure encyclopedias to point to the IBM Cognos server, proceed as follows:

1. Click Start, and select Programs, IBM Rational, IBM Rational Lifecycle Solutions Tools, IBM Rational System Architect 11.3.1, SAEM for SQL Server.
2. Connect to the server where the encyclopedia for which you want to generate reports resides.
3. Click the List of databases on the server drop-down field and select the encyclopedia database from which you want to generate reports. This should be the encyclopedia for which you generated the ODS schema.
4. Click Tools, and select Cognos Server Configuration.
5. Enter your values for the Cognos server configuration fields as follows:
   a. Cognos Server Name/IP - Enter the server name or IP address.
   b. Port Number - The default port number is 8080 for Tomcat servers. Microsoft IIS servers may use different port number, such as 80.

Click OK. The information entered here is saved to the 'CognosServerInfo.xml' file, which is stored inside the encyclopedia database. The presence of this file in an encyclopedia database enables the Cognos Reports menu under the Reports menu in Rational System Architect.

a. Generate Reports Directly through Cognos 8

Reports can be run directly from Cognos by opening an Internet Explorer browser window to http://localhost/cognos8. Click on the "My Home" link. Cognos displays the sample report folder "SACognos Reporting Data Model (IBM Rational System Architect)" you imported and configured earlier. Select that folder link and then any report within that folder can be run immediately or schedule.

b. Generate Reports from Rational System Architect

Rational System Architect users can run IBM Cognos reports through the "Cognos Reports" option, under the Reports menu. The presence of the menu option relies on the encyclopedia having been configured in SAEM to point to the IBM Cognos server. Additionally, whether the "Cognos Reports" menu option is visible or enabled is subject to access control, as administered through Rational System Architect Catalog Manager, which Administrators can use to show or hide or menu options based on user roles, for a given encyclopedia.

To generate IBM Cognos reports, proceed as follows:

1. Click Reports menu and select Cognos Reports. This launches your browsers and connects you to the IBM Cognos Report Server.
2. Navigate to the desired package to create or generate reports

IMPORTANT: The IBM Cognos features and processes to create or generate reports within IBM Cognos are beyond the scope of this help file. Please see the IBM Cognos documentation for comprehensive information on using IBM Cognos features for reports.

c. Generate Reports from Rational System Architect XT

Rational System Architect XT users can run IBM Cognos reports from the home page. The presence of the COGNOS REPORTS button relies on the encyclopedia having been configured in SAEM to point to the IBM Cognos server. Additionally, whether the COGNOS REPORTS is visible is subject to access control, as administered through Rational System Architect Catalog Manager, which Administrators can use to show or hide options based on user roles, for a given encyclopedia.

To generate IBM Cognos reports, proceed as follows:

1. In the Rational System Architect XT home page, click the COGNOS REPORTS button. This launches your browsers and connects you to the IBM Cognos Reportal Server.
2. Navigate to the desired package to create or generate reports.

NOTE: The IBM Cognos features and processes to create or generate reports within IBM Cognos are beyond the scope of this help file. Please see the IBM Cognos documentation for comprehensive information on using IBM Cognos features for reports.

Appendix A: Reference Documents

- *IBM Rational SA_and_SAXT_Installation_Guide.pdf*
  http://publib.boulder.ibm.com/infocenter/rsdp/v1r0m0/topic/com.ibm.help.download.sa.doc/pdf11311/English/SA_and_SAXT_Installation_Guide.pdf

- IBM Rational System Architect Cognos Bridge help file – found in SA Schema Generator Help (to access, select Start, IBM Rational, IBM Rational Lifecycle Solution Tools, IBM Rational System Architect, SA Cognos Schema Generator), and in the application that opens, select the **Help** button.)

- IBM Rational Enterprise Architecture Wiki – Cognos Reports: Attachments
  https://www.ibm.com/developerworks/mydeveloperworks/wikis/home?lang=en_US#/wiki/Rational%20Enterprise%20Architecture%20Wiki/page/Cognos%20Reports