IBM Maximo Asset Management

V7.5 DIRECT Cognos Integration Installation Instructions

Table of Contents

Overview 3
Maximo Cognos Integration Options 4
Integration Installation Overview 5
Integration Architecture 6
1. Install Cognos 8.4SP1 for Direct Maximo Cognos Integration 7
2. Create Unique Database User for use in Cognos Authorization 8
3. Configure and Copy mxcognosdatasources.properties file 11
4. Copy CSP and Database Jar Files from Maximo to Cognos 13
5. Create 2 Namespaces in Cognos Configuration for Security and Metadata 15
Cognos Namespace Reference Materials 19
6. Configure Maximo Properties in Maximo System Property application 20
7. Create a Data Source in Cognos Administration 24
Troubleshooting Tips 29
Missing dll's 29
8. Configure Cognos SDK for Metadata 30
9. Set End Point properties 31
Reference: How to create a Folder Location in Cognos 34
10. Publish Cognos Packages 36
Notes on Publishing Cognos Packages 39
Troubleshooting 39
Publishing Package for Test Reports 41
11. Register Cognos Reports in Maximo's Report Administration 42
12. Import Report Designs, Templates into Cognos. Test Integration 45
Install Test 50
Troubleshooting Notes on Executing Cognos reports from Maximo 51
Troubleshooting: Logging Features 52
Maximo Logging Features 52
Cognos Logging Features 54
Database Logging Features 55
Troubleshooting: Frequently Seen Error Messages 56
Cognos: Namespace Property Setting 56
Cognos: Namespace Jar File Extraction 57
Reference Materials 58
Trademarks 62

Overview

Within the Maximo® Base Services 7.5 Releases, an IBM Cognos ® Reporting Integration is enabled. This integration extends the current suite of reporting tools that Maximo enables into a deeper level of Strategic Reporting. This document details the installation steps required for the integration, the synchronization of the security groups, enabling of Maximo based Object structures to be published as Cognos metadata packages, and creation of Cognos Namespaces.

Due to the extent of this integration, it is highly recommended that you first review all aspects of the Maximo Cognos Integration. These are detailed for you in the Maximo Cognos Integration Guide. This guide can be found at the url below.
http://www.ibm.com/support/search.wss?q=7cognos

Additionally, the user performing the Integration Installation must be very experienced and knowledgeable with both the Maximo Architecture, and the Cognos Reporting Products. The integration installation requires in depth knowledge of Maximo Integration Applications, include Object Structures and End Points, as well as in depth knowledge in Cognos Administration Functionality, including defining data sources and creating namespaces.

Information at the end of the guide includes details on various logging features you can enable within Maximo, Cognos and your database, along with other troubleshooting techniques. This information will be updated as often as possible, so please be sure to check that you have the most recent revision of this document before starting the integration.

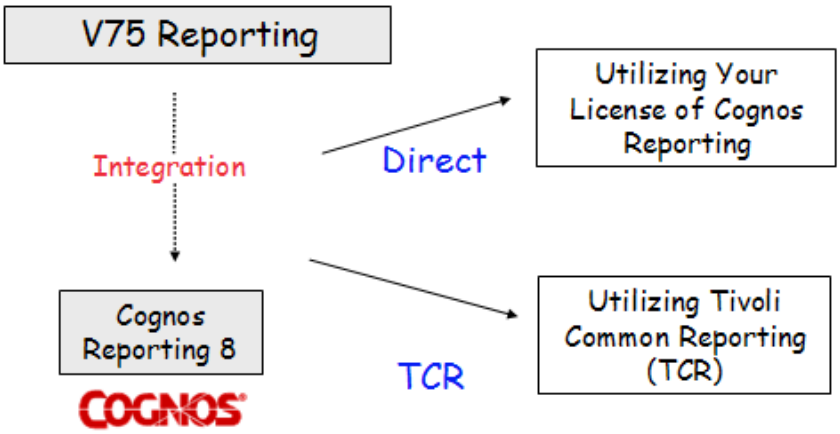
Finally, you can enable the Maximo Cognos Integration in two different ways - either through your existing license of Cognos Reporting, or through your utilization of Tivoli Common Reporting. If you utilize your own license of Cognos, without TCR, it will be referred to as a *Direct Integration*. If you use Cognos thru TCR, it will be referred to as the *TCR integration*.

Due to the variations in the architecture of these two setups, two separate guides are provided detailing the unique installation steps. *This guide is for the Maximo-Cognos Direct Integration.* For information on accessing the installation guide for the Maximo-Cognos TCR Integration, access the reference materials at the end of this guide.

Note: This document is specific for the 7.5 Releases

Maximo Cognos Integration Options

You can enable the Maximo Cognos Integration in two different ways - either through your existing license of Cognos Reporting, or through your utilization of Tivoli Common Reporting.



Corporate Licensing of Cognos Reporting

If you have Cognos Reporting Licenses, you can enable the Maximo Cognos Integration through the use of these licenses within the Maximo framework. You can then begin creating reports against the powerful Maximo data, along with any other relevant corporate data you may have.

This integration uses the Maximo Security Authentication (identified as CSP or MXCSP) to authenticate your users to Cognos. This enables a seamless integration with no separate log-in required for users to access their Cognos reports.

Utilization of Tivoli Common Reporting

With the Maximo 7.5 Release, you are entitled to Tivoli Common Reporting (TCR) 2.1 Release, or TCR 2.1. TCR 2.1 includes the Cognos 8.4 Service Pack 1 Reporting Products. TCR is designed for Tivoli Cross Product reporting. It utilizes the Tivoli Integrated Portal (TIP) as its platform basis.

Utilizing TCR 2.1 enables you a license to the Cognos 8.4 SP1 Reporting products for Tivoli Software Products only. If you wish to use Cognos 8.4 SP 1 Reporting against other databases in your corporate environment, you would need to acquire additional licensing. Additional information on TCR, including platform restrictions, is noted in the documentation referenced at the end of this guide.

Which Option is best for Your Environment

Determining which integration option is best for you, depends on your unique business environment.

If you have existing Cognos licenses, utilizing the Maximo-Cognos direct integration will give you the most flexible, streamlined integration.

If you do not have Cognos licenses, and utilize multiple Tivoli Products, utilizing TCR can enable you to begin working with the Cognos Reporting Products.

Integration Installation Overview

The integration installation includes the steps to dynamically create the Cognos metadata layer, synchronize security groups, pass information from Maximo to Cognos at run time and register utility reports within Maximo and Cognos. Due to the wide variety of tasks being performed, the integration steps below must be carefully performed.

1. Install Cognos

2. Create Unique Database User for use in Cognos Authorization

3. Configure and Copy mxcognosdatasources.properties file

4. Copy CSP and Database Jar Files from Maximo to Cognos

5. Create two Namespaces in Cognos Configuration for Security and Metadata Publishing

6. Configure Maximo Properties for Cognos

7. Create a Data Source in Cognos Administration

8. Configure Cognos SDK

9. Set End Point Properties

10. Publish Cognos Packages

11. Register Cognos Test Reports in Maximo's Report Administration application

12. Import Test Report Designs, Templates into Cognos. Verify Integration

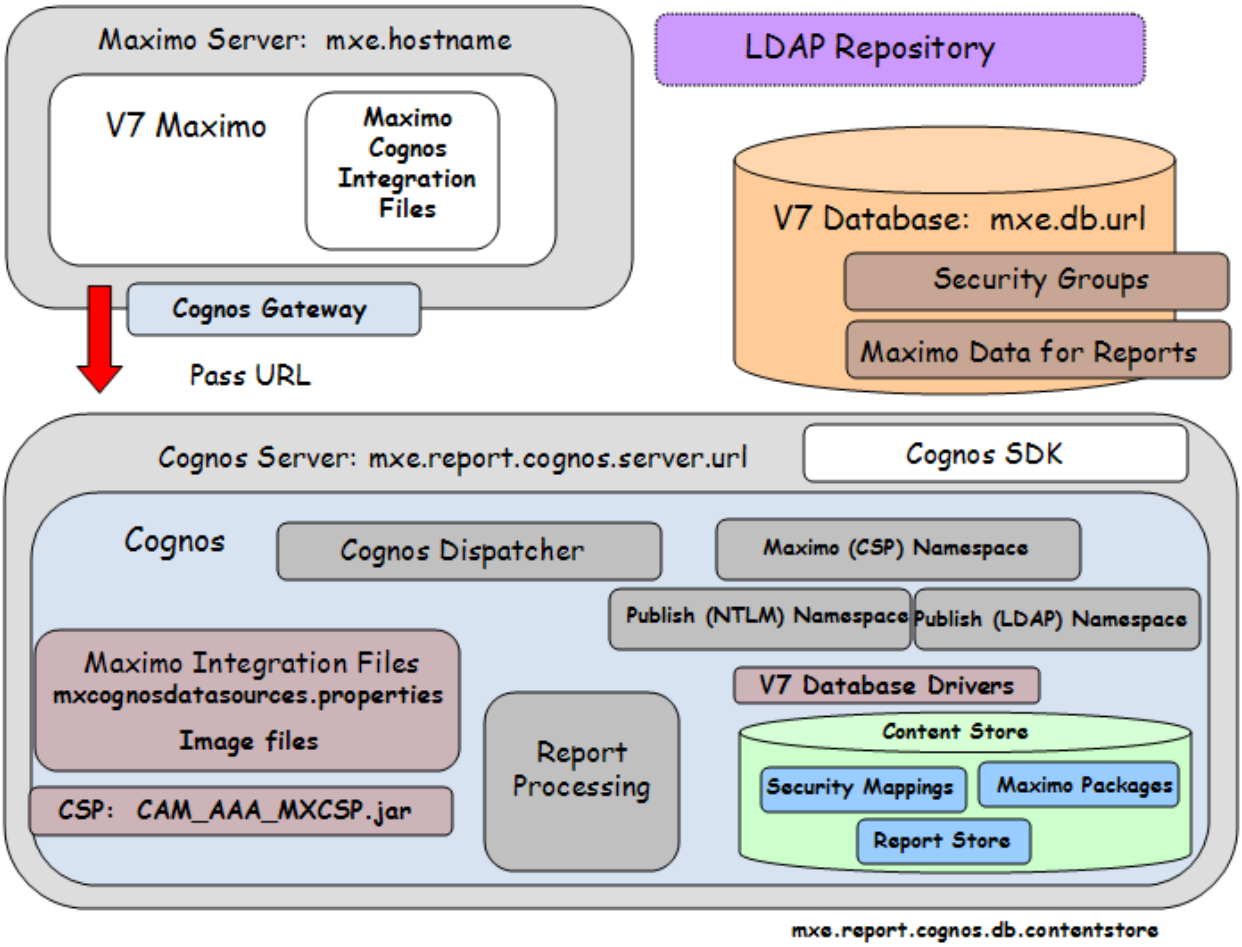
Install	SetUp	Configure	Meta Data	Admin
Install V7.5	2. V7.5 Create Unique Database User for use in Cognos Authorization	5. Cognos: Create Namespaces. 1 for CSP, 1 for MetaData	8. Configure Cognos SDK	11. V7.5 Report Admin: Register Cognos Test Reports
1. Cognos: Install Cognos 8.4 SP1	3. V7.5: Edit & Copy mxcognosdatasources .properties file	6. V7.5: Configure Maximo Property Files for Cognos	9. Set End Point Properties	12. Cognos: Import Report Test Design Files to Cognos
	4. V7.5: Copy to Cognos (1) CSP Jar (2) Database Drivers (3) Images	7. Cognos: Create Data Source	10. Publish Cognos Packages	

*Note: Black Text indicates the work is done on the V7 Server, Red Text is for Cognos.

Integration Architecture

As you use this guide to enable the integration, you will be building an architecture similar to what is shown below. Your specific architecture may vary from the diagram shown below depending on factors including your security group repository and your application server.

The key components that you will be enabling thru this integration install including the namespaces, components of the Content Store, CSP Jar files and Cognos SDK, are highlighted in the diagram below.



1. Install Cognos 8.4SP1 for Direct Maximo Cognos Integration

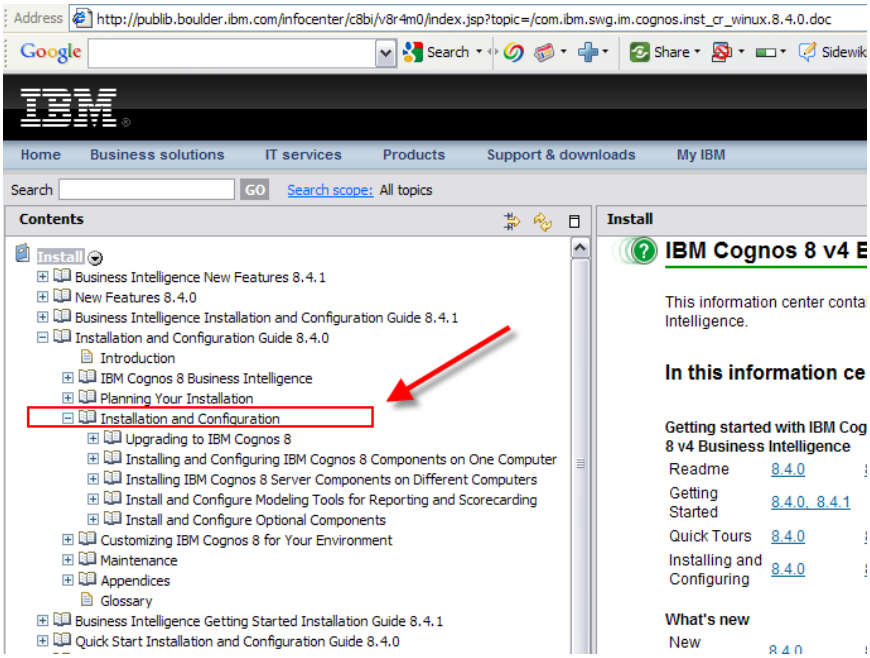
This integration is developed for the Maximo Base Services 7.5 and later Releases with Cognos 8.4 Service Pack 1 Reporting Release (Cognos 8.4SP1). Before beginning this integration installation, Cognos 8.4 SP1 Reporting must be installed and operational.

NOTES:

1. You must not install Cognos under a directory with any spaces. For Example, if you install Cognos under <c>\Program Files, problems will occur. Cognos must be installed in a directory path without any spaces.

2. For more details and troubleshooting techniques on installing Cognos, reference this online link to Cognos guides

http://bit.ly/aaJYTs

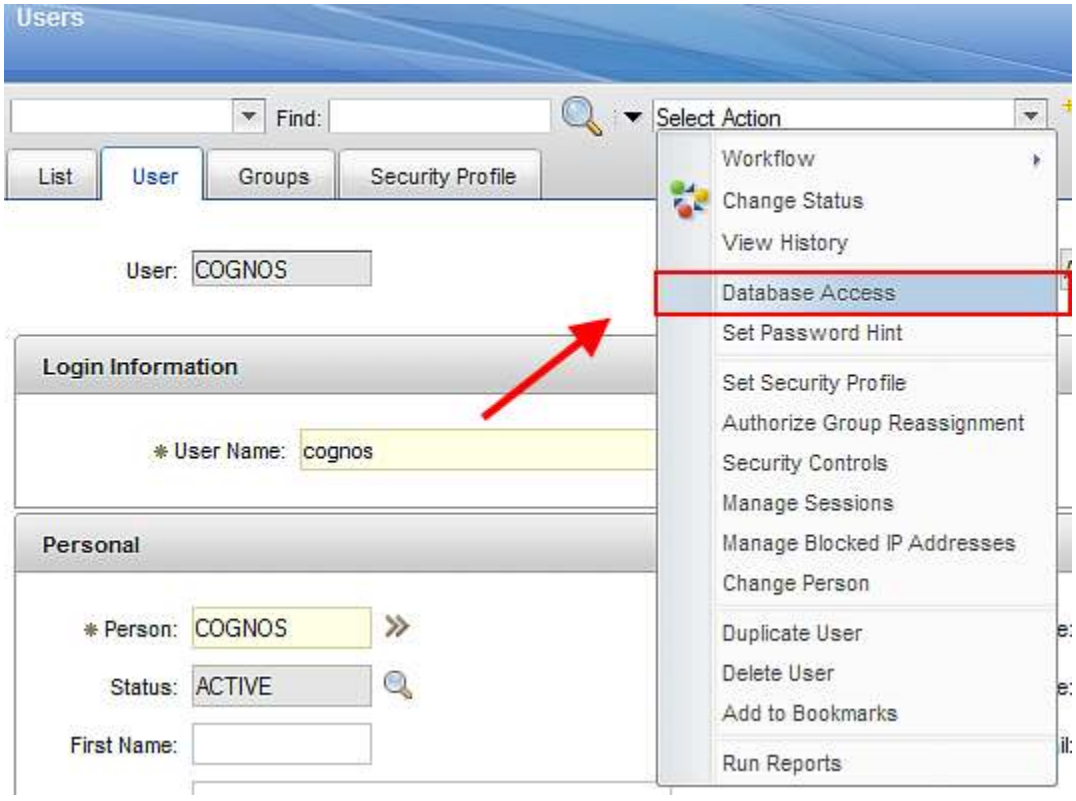


2. Create Unique Database User for use in Cognos Authorization

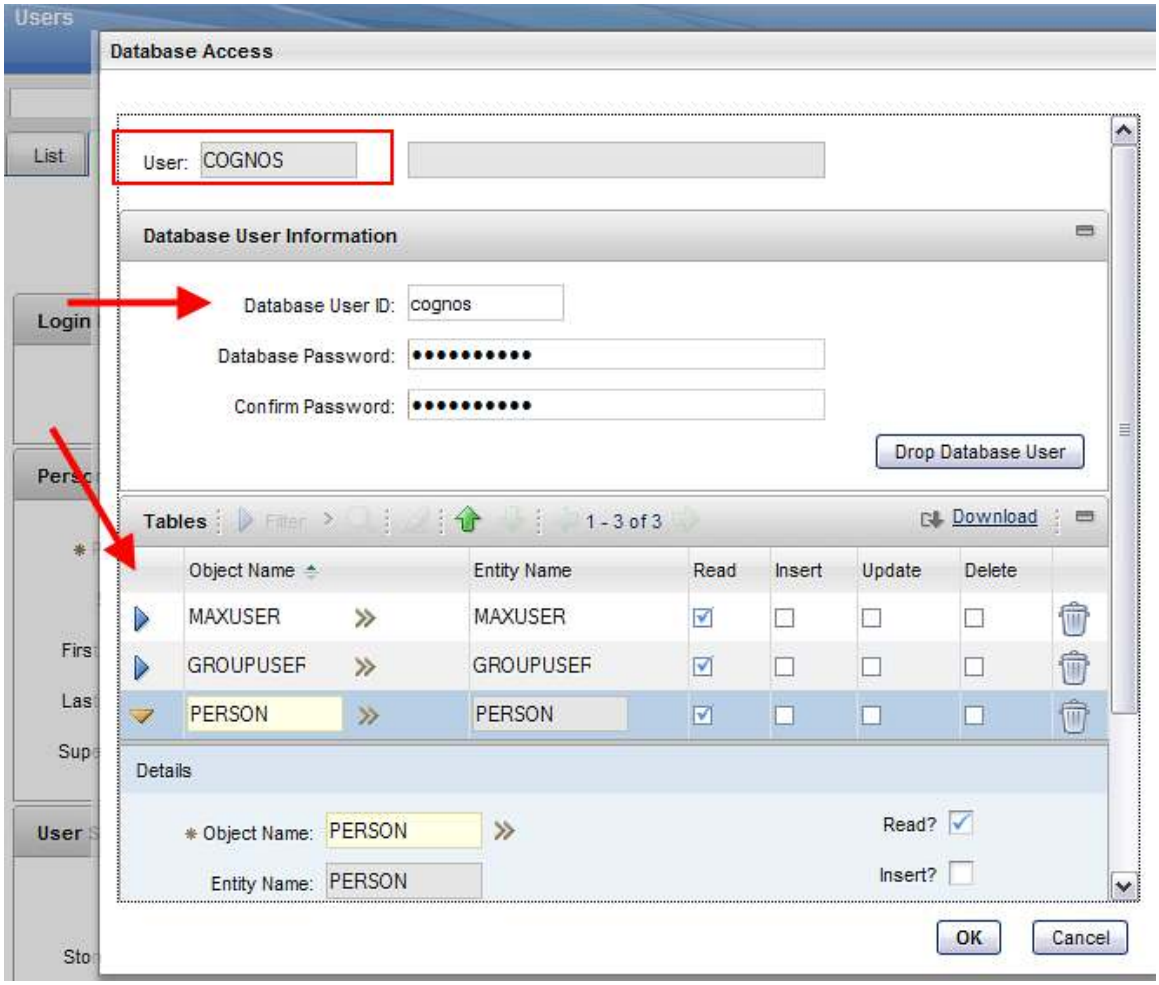
You may want to create a unique user, who will be used to obtain user and security group information from the V75 database for Cognos - or you can use the system maximo database user.

If you want to create a unique database user, you can do this in many different ways depending on your database type. The example below shows how a new database user of Cognos can be created.

If you are using Oracle or SQL Server, you can directly create a new database user through the User Application in V75. To do this, create a new user, and from the Action Menu select 'Database Access'.



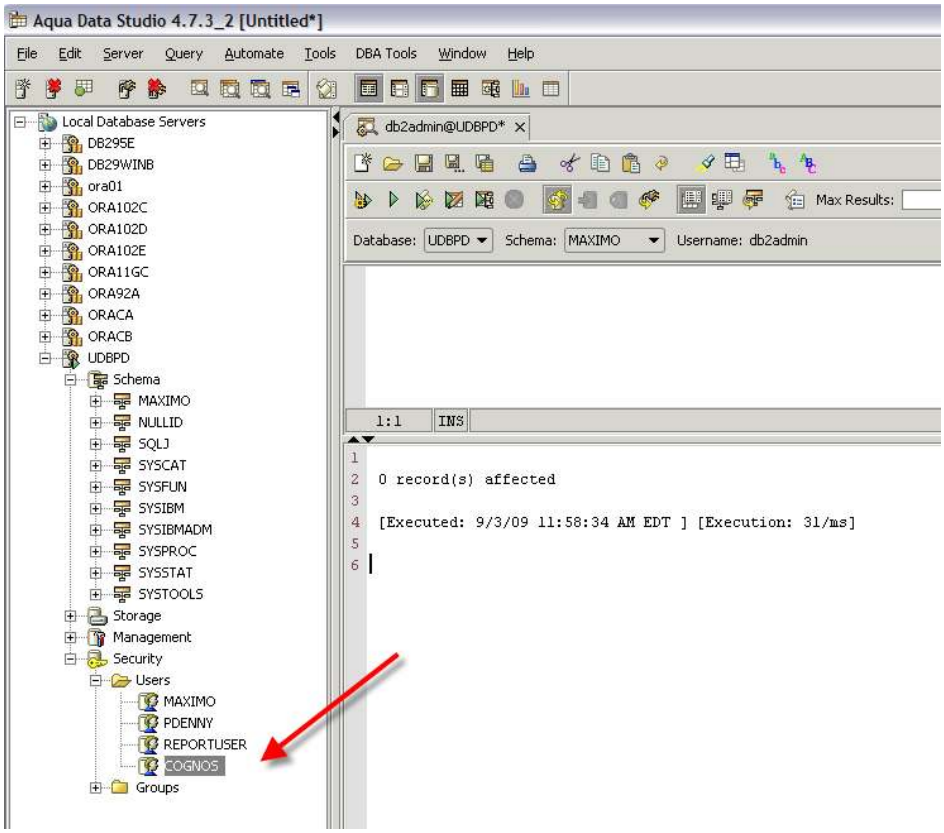
Then, enter a database user name and password, and grant read only access to the MAXUSER, MAXGROUP, PERSON and GROUPUSER Tables.



Note: If you are using DB2, the new database user must also be an Operating System (OS) User. Therefore, the DB2 user must first be added as an OS user before performing the action above.

The steps below show another example of how the unique database user can be added thru a Database Configuration Tool.

2A. Access the database querying tool, and locate the V75 Database. Add a new Database User. The example below shows a new database user of Cognos.



2B. Grant 'Read only' database privileges via scripts to the new user on the following database tables: MAXUSER, GROUPUSER, PERSON and MAXGROUP. Example scripts are shown here, which you may have to tailor for your unique database requirements.

grant select on MAXIMO.MAXUSER to cognos

grant select on MAXIMO.GROUPUSER to cognos

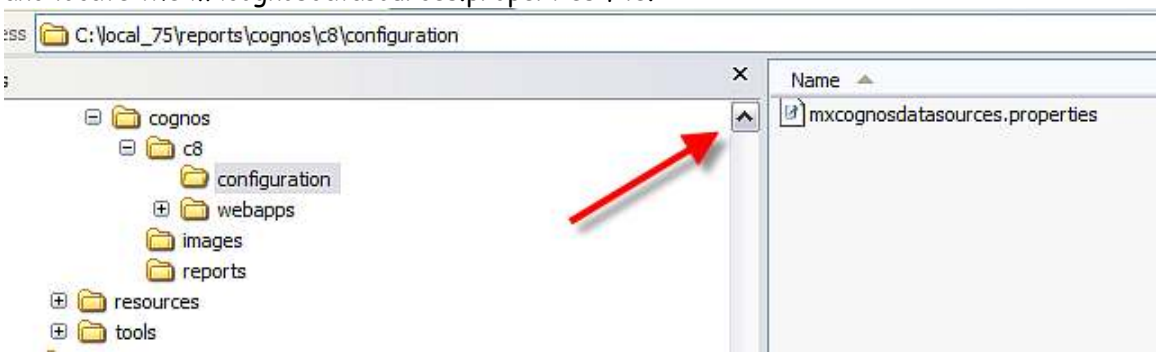
grant select on MAXIMO.PERSON to cognos

grant select on MAXIMO.MAXGROUP to cognos

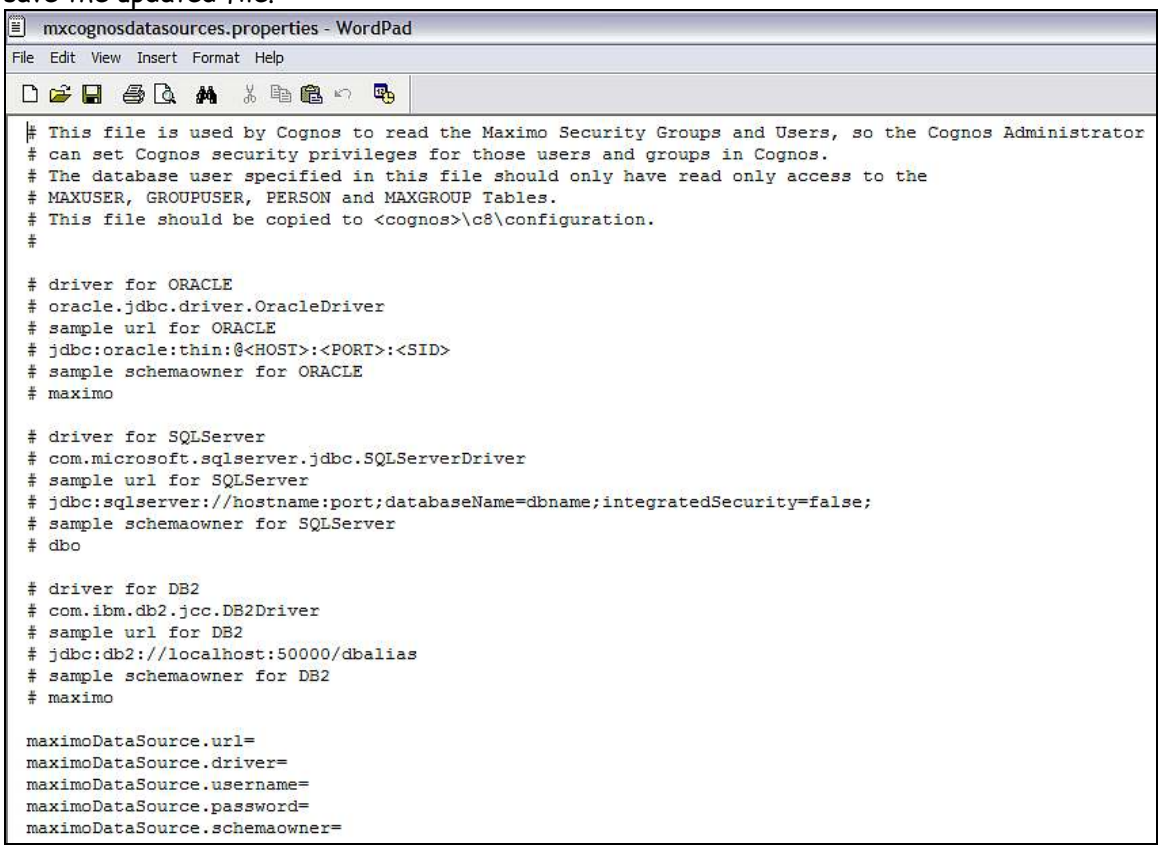
3. Configure and Copy mxcognosdatasources.properties file

To enable the Maximo Security Authentication, also known as the CSP or MXCSP, this property file must be configured for your unique environment. Follow the steps below to configure this.

3A. Navigate to your Version 7.5 Directory. Go to <v75>\reports\cognos\c8\configuration and locate the mxcognosdatasources.properties file.



3B. Update the property file below for your Version 7.5 database and either the unique database user you created in step #2, or your Maximo system database user. Once input, save the updated file.



This example uses the Maximo system database user of maximo as shown in the red text below.

```
# driver for ORACLE
# oracle.jdbc.driver.OracleDriver
# sample url for ORACLE
# jdbc:oracle:thin:@<HOST>:<PORT>:<SID>
# sample schemaowner for ORACLE
# maximo

# driver for SQLServer
# com.microsoft.sqlserver.jdbc.SQLServerDriver
# sample url for SQLServer
# jdbc:sqlserver://hostname:port;databaseName=dbname;integratedSecurity=false;
# sample schemaowner for SQLServer
# dbo

# driver for DB2
# com.ibm.db2.jcc.DB2Driver
# sample url for DB2
# jdbc:db2://localhost:50000/dbalias
# sample schemaowner for DB2
# maximo

maximoDataSource.url=jdbc:db2://localhost:50001/UDBPD
maximoDataSource.driver=com.ibm.db2.jcc.DB2Driver
maximoDataSource.username=maximo
maximoDataSource.password=maximo
maximoDataSource.schemaowner=MAXIMO
```

3C. Then, copy the mxcognosdatasources.properties file to the directory below:

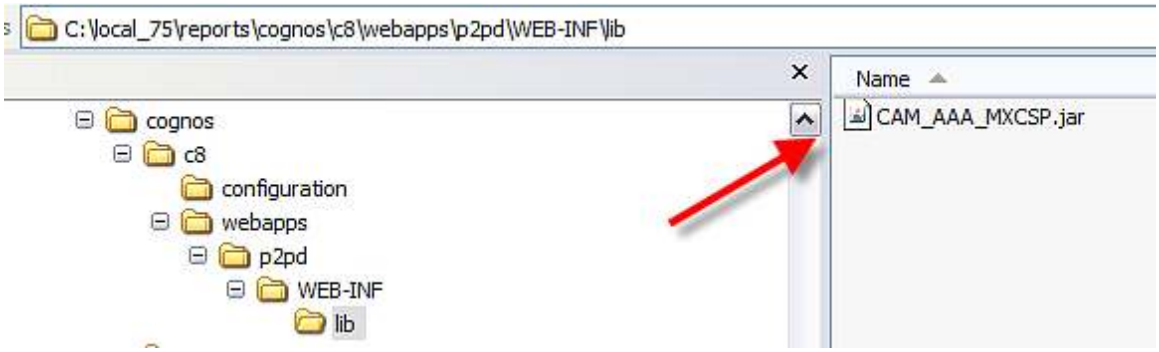
<cognos>\c8\configuration

4. Copy CSP and Database Jar Files from Maximo to Cognos

4A. Copy the CSP jar file.

The CSP jar file, CAM_AAA_MXCSP.jar, is used to authenticate Maximo Users to Cognos. You need to copy this file from Maximo to Cognos.

4A1. From the Version 7.5 Directory, go to <V75>\reports\cognos\c8\webapps\p2pd\WEB-INF\lib and locate CAM_AAA_MXCSP.jar.



4A2. Copy CAM_AAA_MXCSP.jar file to the cognos directory <Cognos>\c8\webapps\p2pd\WEB_INF\lib.

4B. Copy Database Drivers

Cognos requires Database Drivers for the CSP Security Authentication.

4B1. Navigate to the V75 Directory <V75>\applications\maximo\lib and locate drivers for the database you are using.

For Oracle: oraclethin.jar

For SQL Server: sqljdbc.jar

For DB2: db2jcc.jar and db2jcc_license_cu.jar

4B2. Copy the applicable database driver to the directory

<Cognos>\c8\webapps\p2pd\WEB-INF\lib

4C. Update the Java Version

If you haven't already updated your Cognos Application server to use JRE 1.6, you must do so now. The steps to do this are

4C1. Set the JAVA_HOME system environment variable to use a 1.6 JRE.

4C2. Copy the bcprov-jdknn-nnn.jar file from the c8_location/bin/jre/version/lib/ext directory to the Java_location/jre/lib/ext directory.

For example, copy bcprov-jdk14-134.jar to C:\Java60\jre\lib\ext

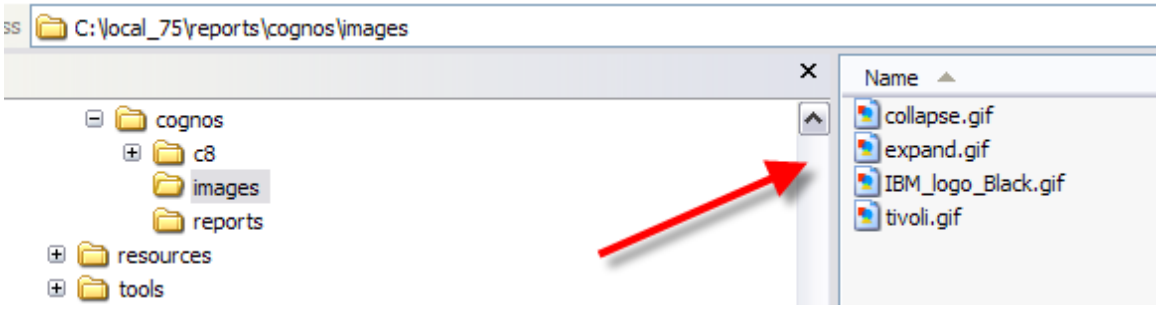
4C3. In Configuration Manager, save the configuration.

Note: If you do not have JAVA_HOME specified and you are using Tomcat, Cognos will use the bundled JRE 1.5 version.

You can also find these steps documented on the Cognos Installation and Configuration Guide on page 125. This guide can be found at: http://bit.ly/mTNflH

4D. Copy Image files.

4D1. Within the Version 7.5 directory, navigate to <V75>\reports\cognos\images.

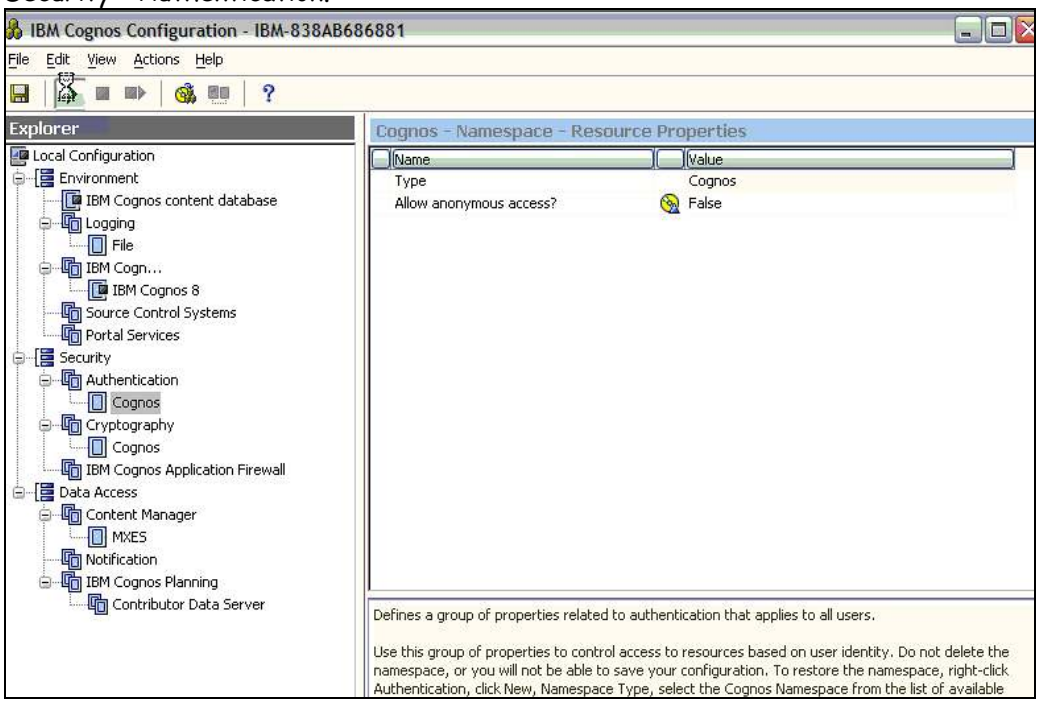


4D2. Copy the images directory to a new folder you create in Cognos per path below: <Cognos>\c8\webcontent\tivoli\tcr_common\images

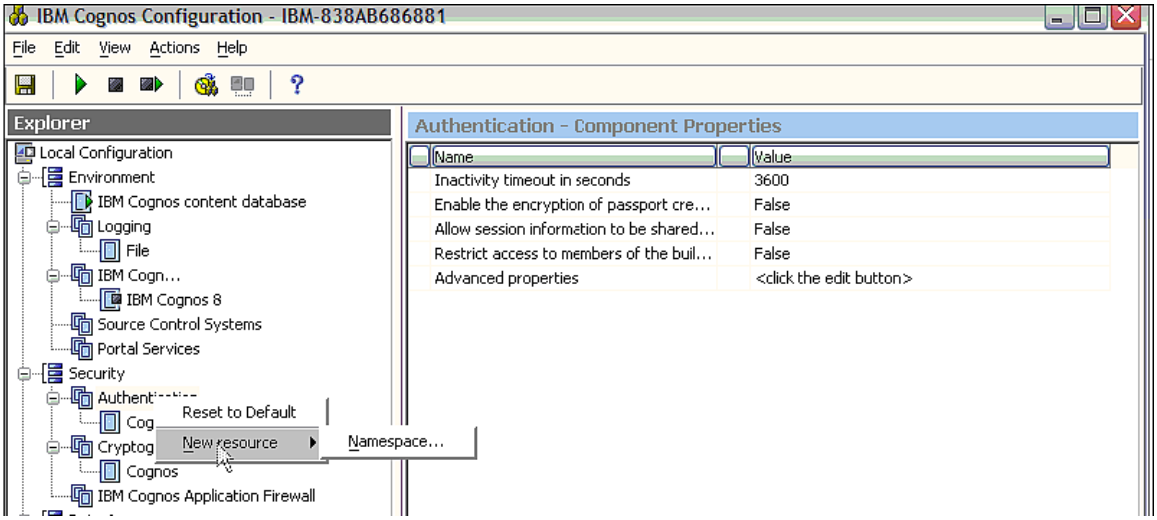
5. Create 2 Namespaces in Cognos Configuration for Security and Metadata

The Cognos namespace contains the Cognos Objects, such as groups, roles, data sources and contacts. In the Maximo Cognos Integration, two namespaces are required. One namespace is for the Security Group authorization, which is enabled thru the MXCSP or CSP, Custom Security Provider. The second namespace is for authentication used during the metadata publishing process.

5A. First, create a namespace which will be used for Security Group Authorization when reports are executed. *To create the first namespace, access Cognos – Cognos Configuration* from your Program Menu. In the Explorer View on the left hand side, navigate down to Security - Authentication.



5B. Click on New Resource – Namespace.



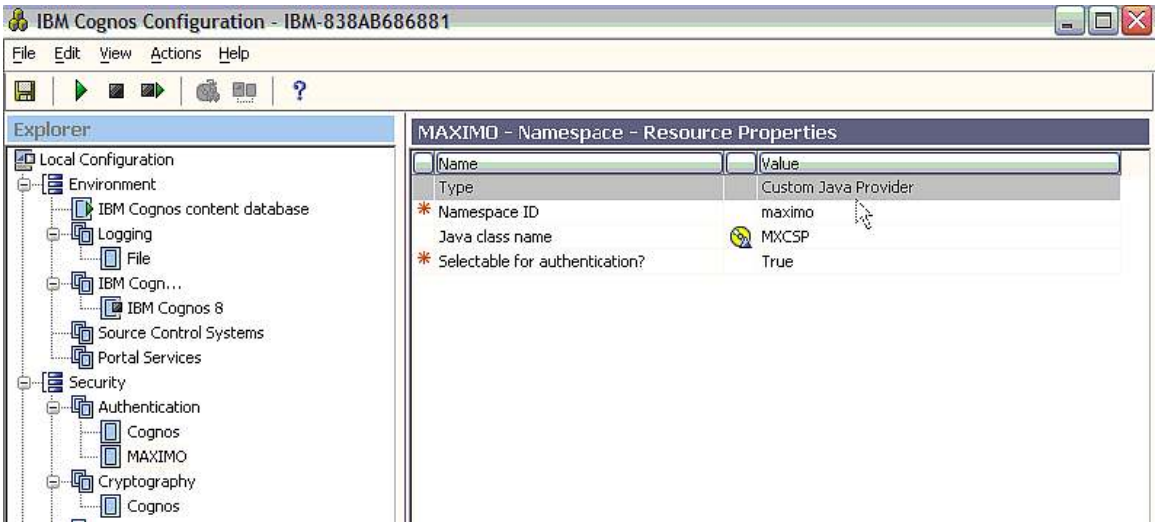
5C. Enter the values below to create the namespace. A dialog will then appear that the namespace is being created.

Type: Custom Java Provider

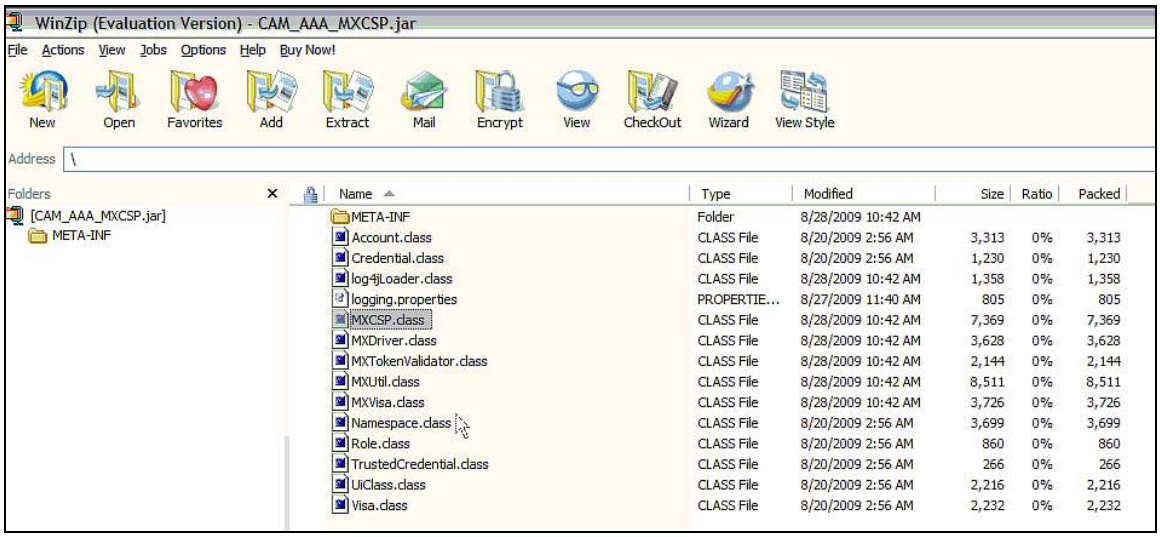
Namespace ID: maximo

Java Class Name: MXCSP*

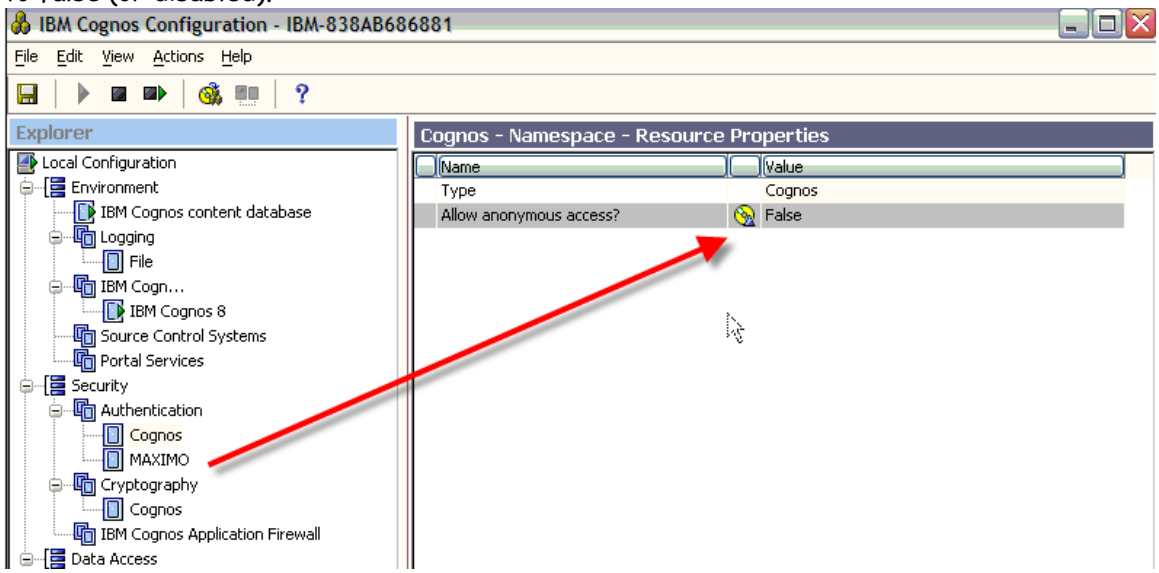
Selectable for Authentication: True



*Note: This correlates to the MXCSP.class file in the CAM_AAA_MXCSP.jar

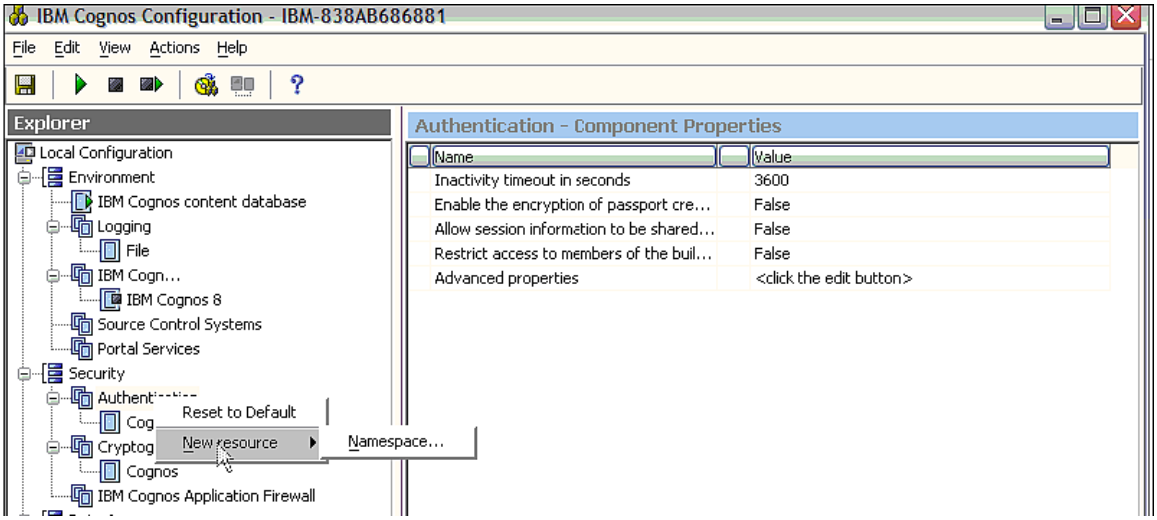


5D. Once the namespace has been created, make sure the Anonymous Authentication is set to false (or disabled).

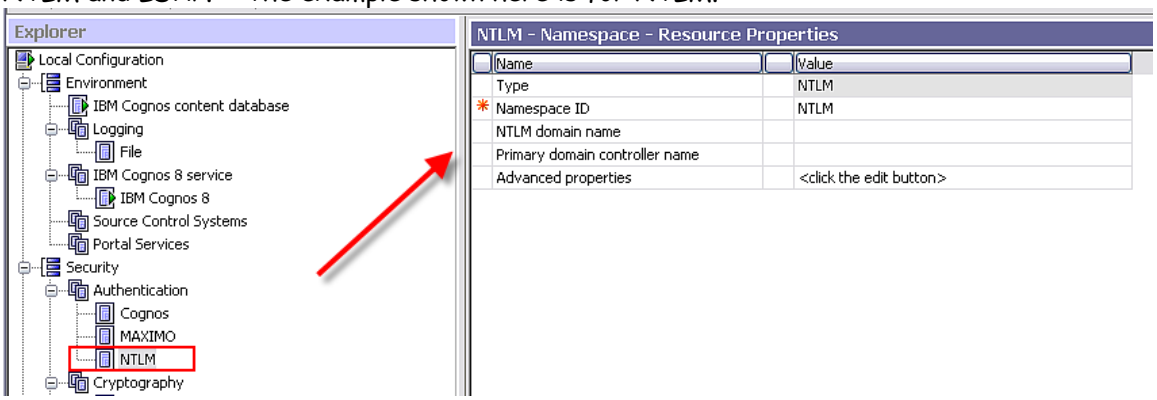


5E. Create the second namespace for authentication during the Maximo publishing process. Within the same Explorer View, navigate to Security - Authentication.

5F. Click on New Resource – Namespace.

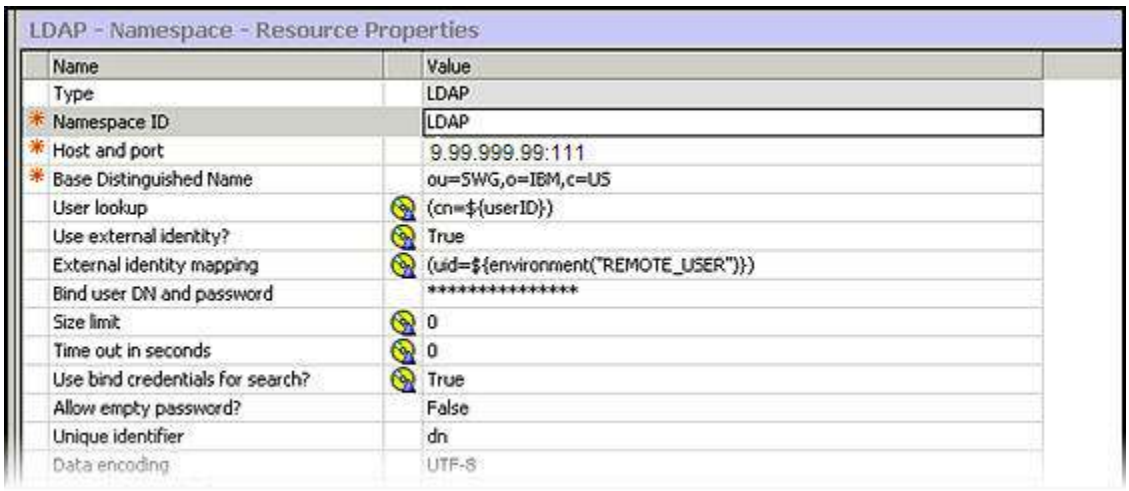


5G. Enter values below to create the namespace. Supported types for this release are NTLM and LDAP. The example shown here is for NTLM.



If you are setting up an LDAP Namespace, you need to have all your LDAP Details available when configuring this. For more information on this, see details on creating an LDAP namespace in the Cognos 84SP1 guides referenced throughout this document.

An example of a LDAP Namespace Resource Properties is shown below .



Cognos Namespace Reference Materials

More information on Cognos namespaces can be found at: http://bit.ly/qMKzPr

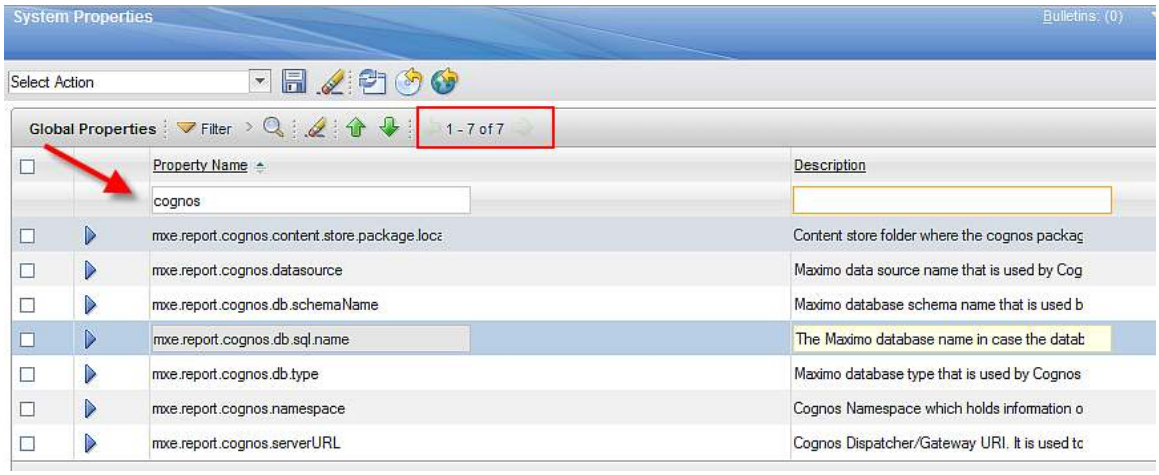
For additional information on how to configure Cognos namespace properties, refer to the "IBM Cognos 8 Business Intelligence Installation and Configuration Guide" document. This is located at: http://bit.ly/mTNflH

6. Configure Maximo Properties in Maximo System Property application

These property values are required so Maximo can pass the correct information to Cognos.

6A. Log into V75 as the System Administrator. Go to the System Properties application.

6B. Locate the Cognos Property Values by selecting filter, and in the property name field, enter Cognos. The 7 Cognos Property values below display.

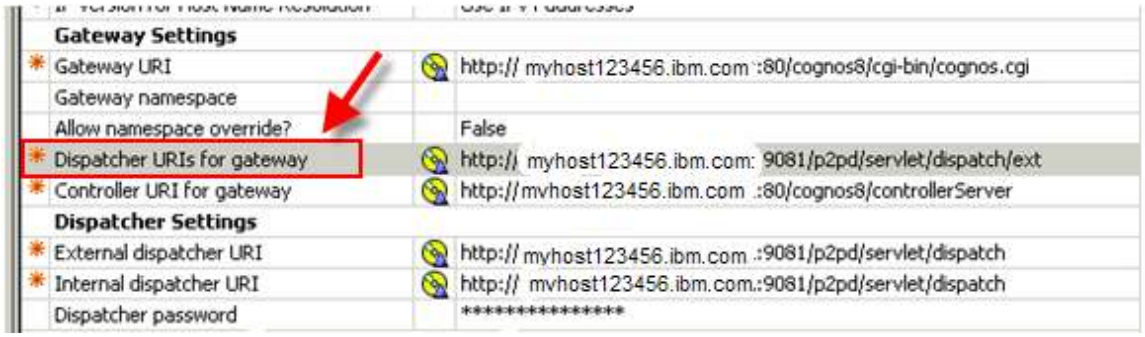


Property Name	Description	Used By
mxe.report.cognos.serverURL	Cognos Dispatcher/Gateway URI. It is used to launch Cognos reports. This is used for V7 to access the Cognos Application. For example: http://myhost:port/p2pd/servlet/dispatch/ext	Integration for Report Execution
mxe.report.cognos.namespace	Cognos Namespace which holds information on Users, Security Groups and Roles.	Integration for Report Execution
mxe.report.cognos.content.store.package.location	Content store folder where the cognos package will be published.	Package Creation
mxe.report.cognos.datasource	Cognos Datasource that connects to the V75 database	Package Creation
mxe.report.cognos.db.schemaName	V75 database schema name	Package Creation
mxe.report.cognos.db.type	V75 database type	Package Creation and for Report Execution
mxe.report.cognos.db.sql.name	For clients using a SQL Server Database, this is the catalogue name associated with the database	Package Creation

mxe.report.cognos.serverUrl The URL path to the Cognos Dispatcher URI (or Gateway URI). This is used for V75 to access the Cognos applications.

Example: http://myhost:port/p2pd/servlet/dispatch/ext

This value is the complete path to the Gateway, as shown below from Cognos Configuration.



Notes:

1. If Cognos is running on Tomcat (Default Setup), then the URI must point to the cgi
   Example: http://9.28.228.104:80/cognos8/cgi-bin/cognos.cgi

2. If Cognos is deployed to a webserver, the serverURI can be changed to point directly to the 'Dispatcher URI for gateway'. This configuration option can be used when using a dedicated dispatcher. You may have multiple Dispatcher URI's deployed using the same Content Store, but different namespaces to balance the report load.
   Example: http://9.28.228.104:9080/p2pd/servlet/dispatch/ext

An Example of this is:

WAS 9080 with namespace 'maximo' only
WAS 9081 with namespace 'ldap' only
WAS 9082 with namespace 'HR' only

mxe.report.cognos.namespace This is the Cognos Namespace for the CSP, Custom Security Provider. This Namespace is what you created in Step #5 in this document. The example here uses a namespace value of 'maximo'.

NOTE: This value is case sensitive.

mxe.report.cognos.content.store.package.location and mxe.report.cognos.datasource

The content store package location and data source properties will be overridden by the corresponding end point properties.

The intention from those properties is that the user can replace the Cognos end point in the invocation channel with the XML File end point. This will produce an action log file, which can be used to manually publish its associated metadata by using the BmtScriptPlayer.exe located in <Cognos SDK Installation Directory>\bin

mxe.report.cognos.content.store.package.location

A location under the Cognos Content Store PUBLIC folder where the metadata package will be created. The package location specified in this property MUST exist in the Cognos Content Store, under the PUBLIC folder BEFORE initiating the publish process. This property will be overridden by the CONTENT_STORE_PACKAGE _LOCATION property specified in the MXCOGNOS end point

mxe.report.cognos.datasource

Defines the data source to which the metadata package will be associated with. This property will be overridden by the DATA_SOURCE_NAME property specified in the MXCOGNOS endpoint. This is the datasource that you will create in Step 7 below.

mxe.report.cognos.db.type

This property can have 1 of the 3 Values below

"DB2" for DB2

"OR" for ORACLE

"SS" for SQL-Server

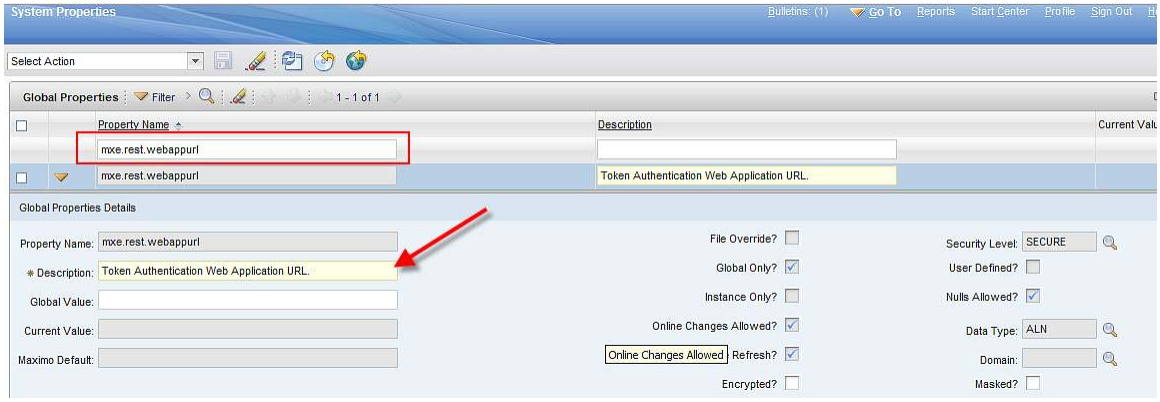
mxe.report.cognos.db.sql.name

Required system value for installations running SQL Server database. Identifies the catalogue name associated with the database

mxe.report.cognos.db.schemaName

Defines the database schema name from which the metadata will be extracted.

6C. Next, if you are using MXCSP for authentication, you must review the additional property setting mxe.rest.webappurl. This property setting is used for token authentication.



The value of mxe.rest.webappurl is the URL for the maxrest application that validates the token issued by the Version 7 instance.

By default, if your Version 7 URL for example is:

http://devserver1:9998/maximo

then your REST URL would be:

http://devserver1:9998/maxrest

Notes:

1. If you define this property setting, be sure to include the maxrest application context path in the setting as highlighted below in red

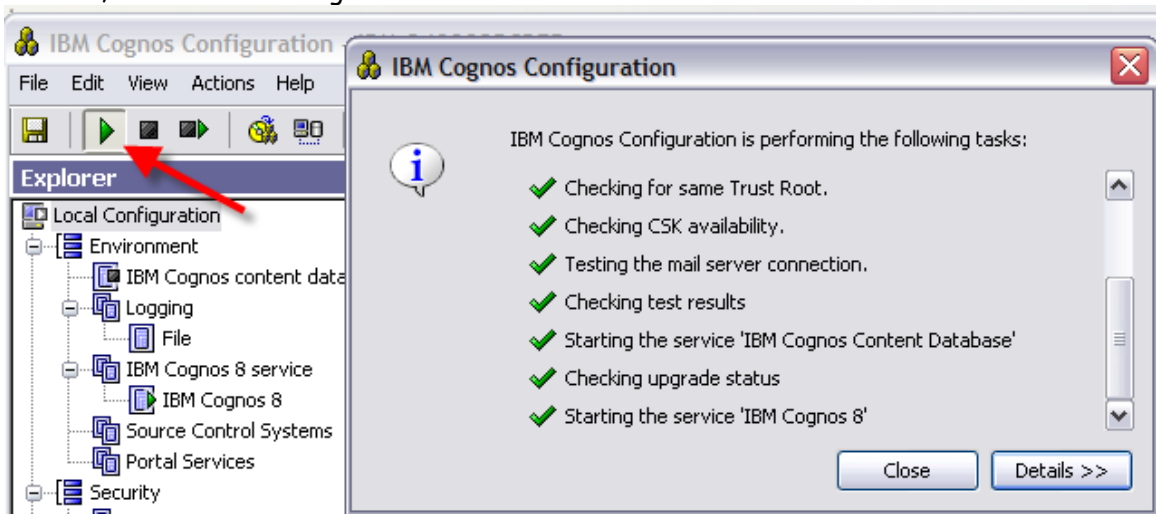
   http://<V7Server>:<port>/maxrest

2. This property is not required. If it is not set, it will use the default value.
   - With the default value, Cognos will authenticate by taking the base V7 URL like http://devserver:9998, and append "maxrest", for a final value of http://devserver:9998/maxrest.

7. Create a Data Source in Cognos Administration

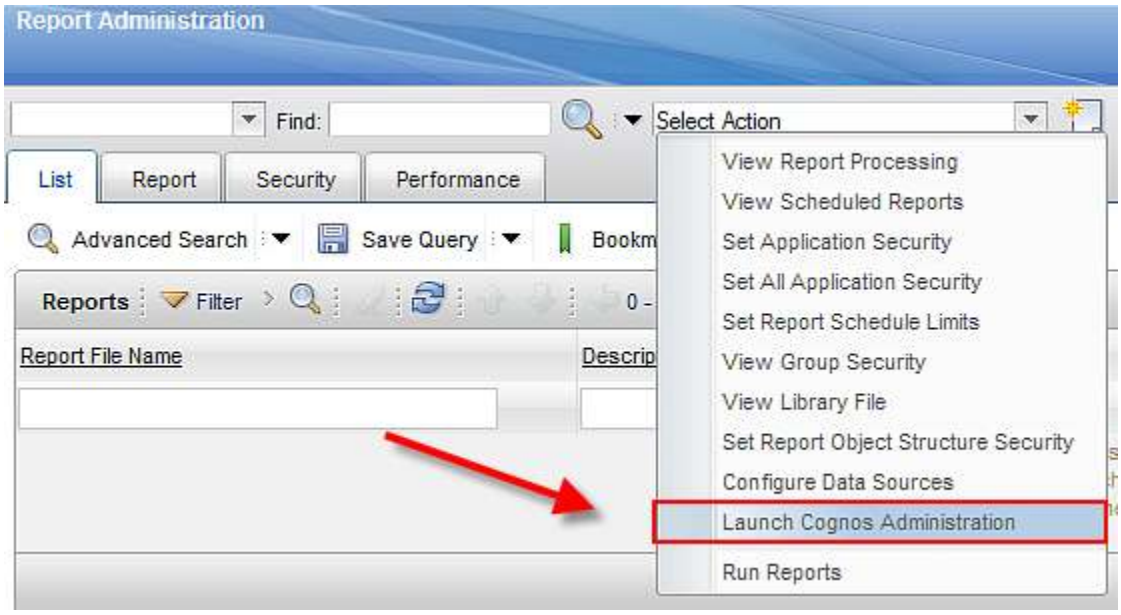
This Data Source will be used to develop reports in Report Studio and Query Studio, and also to execute the reports at run time. To create the Data Source, first access and confirm you can get to Cognos from Maximo.

1. First, make sure the Cognos server is started.

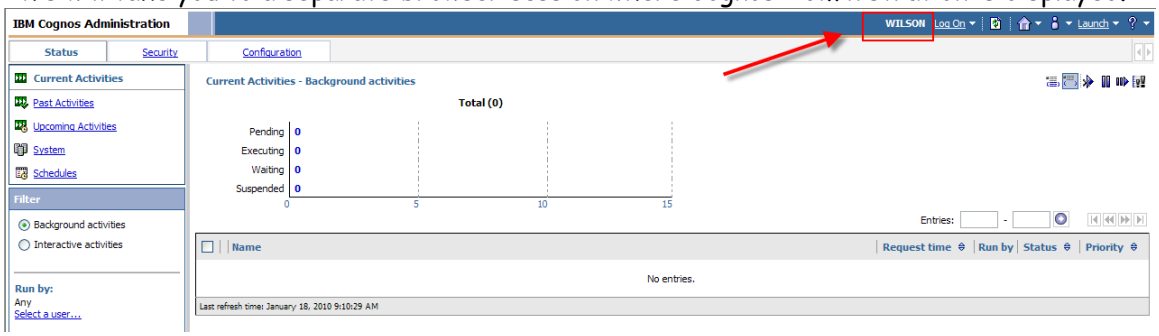


2. Next, log into Maximo as a user with both report administration privileges and security privileges to execute the Cognos Reports. In the example below, this will be user Wilson, who is the Maximo Administrator.

3. Insure you can launch directory to Cognos from Maximo. Access Maximo's Report Administration application. From the action menu, select 'Launch Cognos Administration'



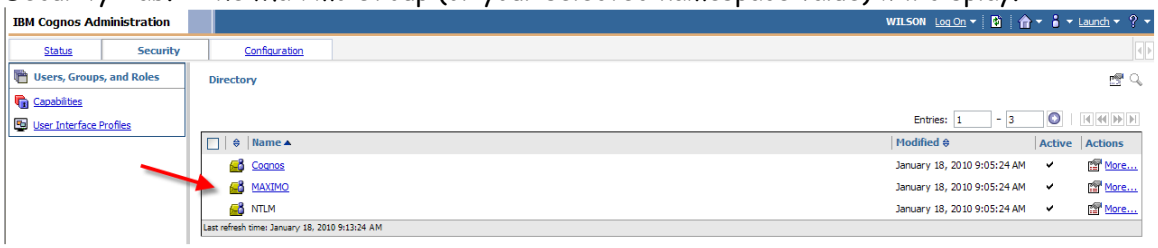
This will take you to a separate browser session where Cognos Administration is displayed.



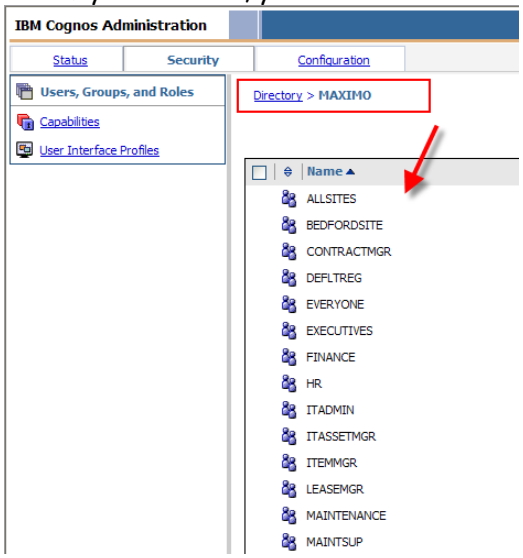
*NOTE: If you receive an error when trying to access Cognos from Maximo's Report Administration Application, you can enable logging to troubleshoot this issue. An example of an error you may see is: "'You can only use this namespace from a valid Maximo session"

You can enable the logging features by referencing the details under the Troubleshooting Tips Section, Maximo Logging Features.

To verify the CSP is bringing over the Maximo Users and Security Groups, click on the Security Tab. The Maximo Group (or your selected namespace value) will display.

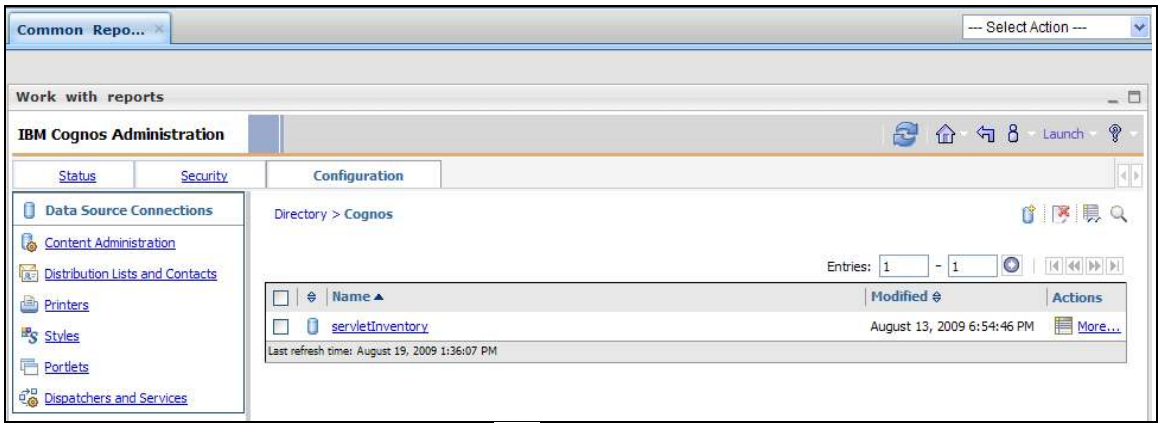


And if you select it, you should see the Maximo Security Groups and users.

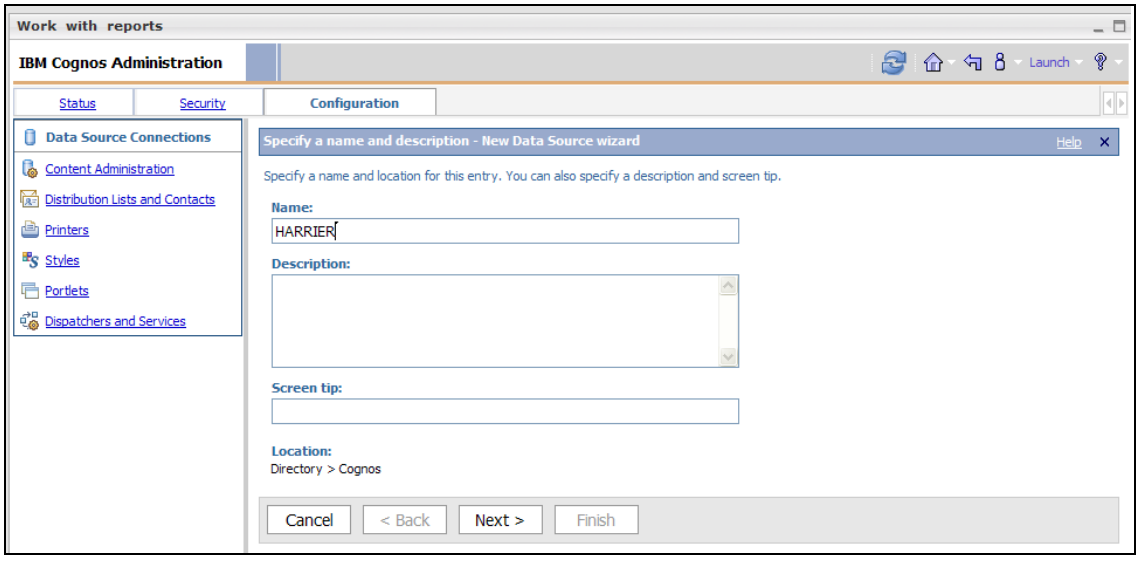


*NOTE: For details on configuring Cognos Functional Access for the Security Groups, reference the 'Maximo Cognos Integration Guide' referenced at the end of this guide.

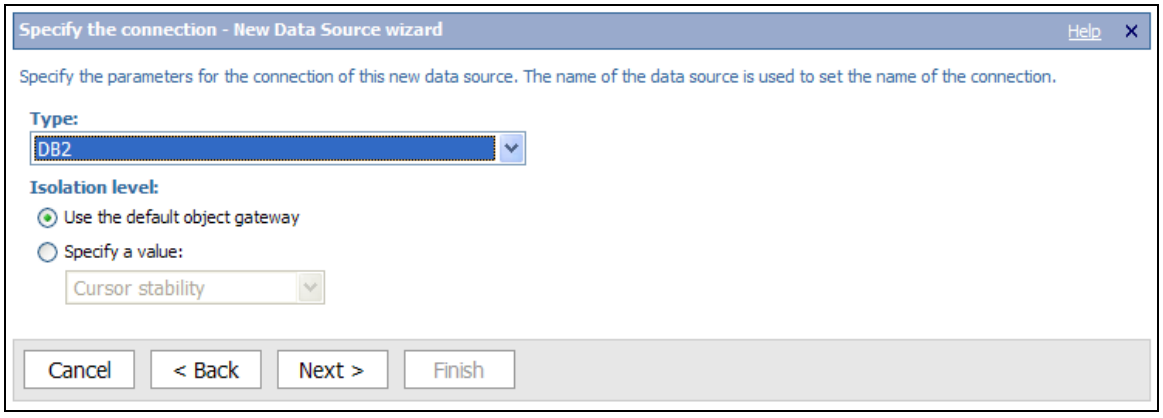
7A. Click on the Configuration tab and highlight Data Source Connections.



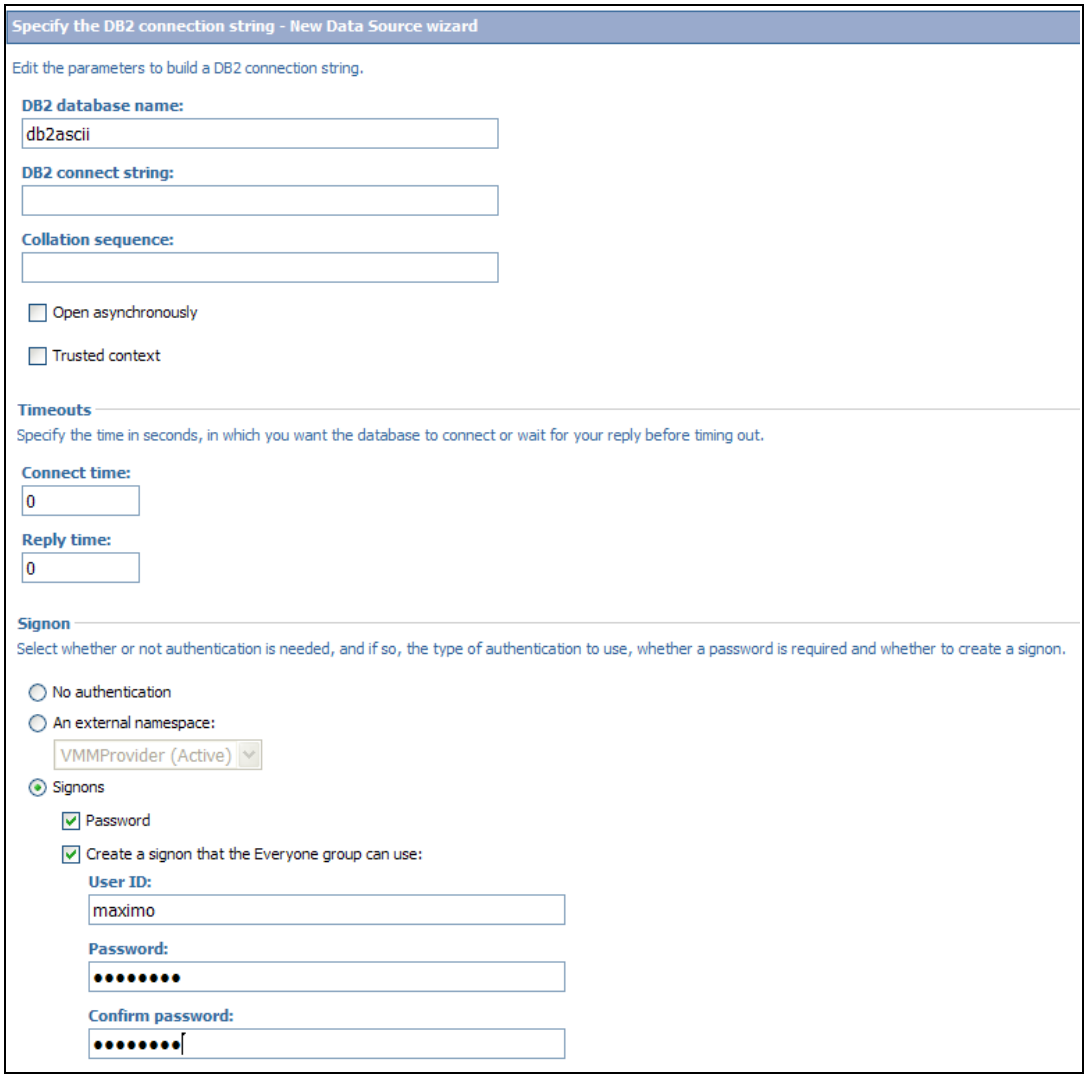
7B. Click on the new Data Source Icon . Enter the name of your database in UPPERCASE. In this example, the database name is HARRIER. Click Next.



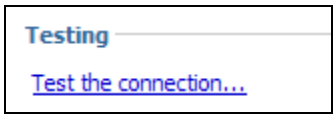
7C. Select a Database Type. In this example, the database type is DB2. Click Next.

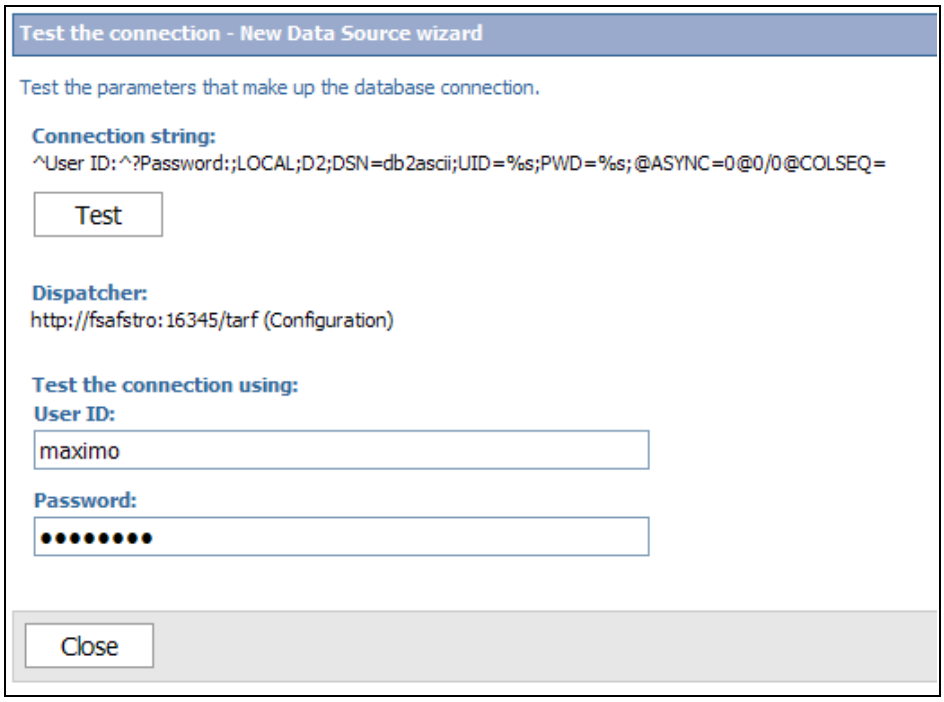


7D. Enter your DB2 database name. Check password under the Sign On Section, and then enter User ID and Password.

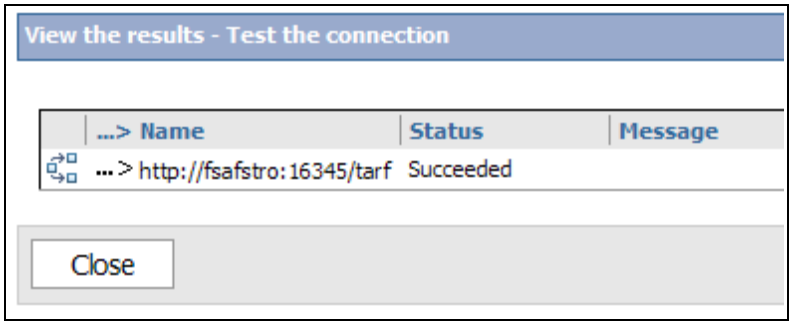


7E. Scroll down and click Test the connection…





7F. You should then receive a message that the test was completed successfully.



7G. Click Close twice to get back to the "Specify the DB2 connection string - New Data Source wizard" screen. Click Finish.

Your Data Source is now configured.

Troubleshooting Tips

Missing dll's

If you test your Data Source Connection, and you receive a message that there are missing dll's, follow the steps below

For Oracle: Copy the oci.dll from the client install of Oracle to <Cognos>\c8\bin

For DB2: Copy all dll's from the client install of DB2 to <Cognos>\c8\bin

8. Configure Cognos SDK for Metadata

To enabling the publishing of the Report Object Structures as Cognos Packages, Cognos SDK Files will be used. In these next steps, the Cognos SDK JAR files will be added to the classpath of the application server.

If you are using Websphere Application Server, copy the two jar files below to the application server lib directory:

1. cognos-axis.jar
2. cognosClient.jar

NOTE: After the jar files are copied, restart the Application Server.

If you are using BEA Weblogic Application Server

Add the following jar files to the server classpath:

1. cognos-axis.jar
2. cognosClient.jar
3. commons-logging.jar
4. commons-discovery.jar
5. xercesImpl.jar
6. xalan.jar
7. log4j-1.2.13.jar

The first 6 jar files are located in <Cognos SDK Installation Directory>\sdk\java\lib.

The last jar can be found in <V7>maximo\applications\maximo\lib.

NOTE: After the jar files are copied, restart the Application Server.

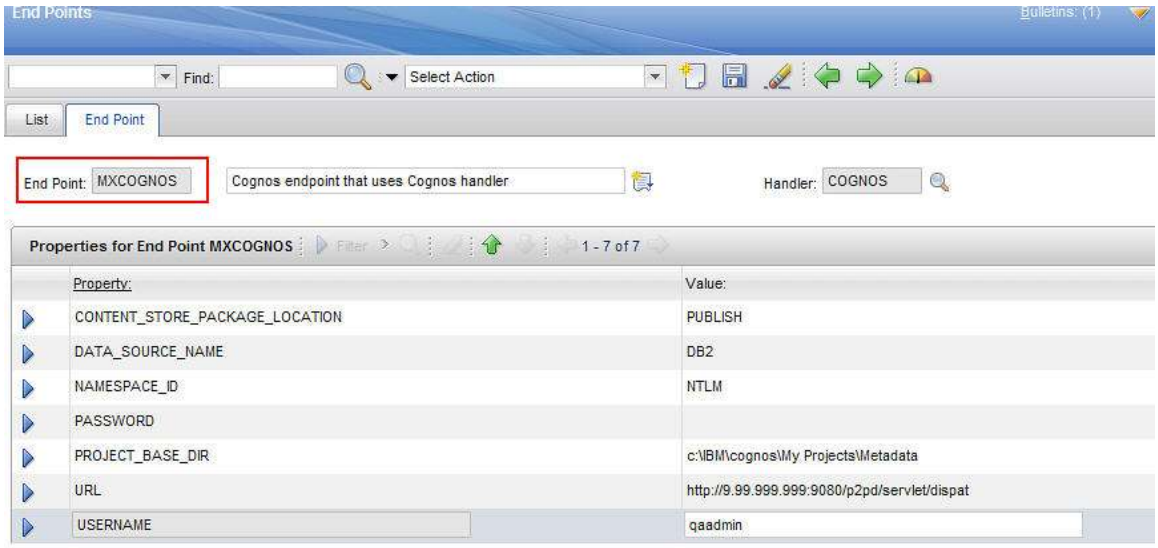
9. Set End Point properties

The end point functionality is utilized within V75 to provide an interface for Cognos metadata creation and package publishing. To enable this functionality, values within this V75 application need to be defined. Follow the steps below to enable this.

9A. Login to the V75 application with Administrative Privileges. Access the Integration - End Points application.

9B. Access the End Point Name, MXCOGNOS.

9C. In the End Points details page, set the each of the values detailed below.



CONTENT_STORE_PACKAGE_LOCATION: Folder where the package will be published on Cognos server. Identifies a location under the Cognos Content Store PUBLIC folder where the metadata package will be created. When provided, this end point property should override the system level value defined by mxe.report.cognos.content.store.package.location

Note: This folder must be created within Cognos before you publish packages. If you have not created one, follow the steps to do this at the end of this section.

**Additionally, the folder name cannot contain any spaces, or the publishing will fail.*

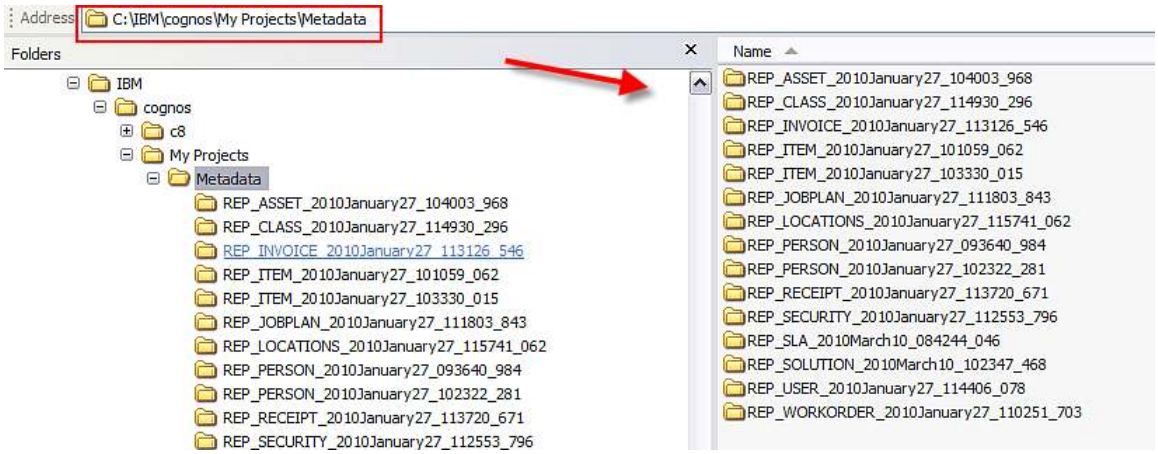
DATA_SOURCE_NAME: Name of the data source you created in Step #7. Identifies the Data Source Connection to which the metadata package is associated with. If you do not enter a value, the publishing process will use the mxe.report.cognos.datasource system property value.

NAMESPACE_ID: Identifies the Cognos Security Namespace to be used when publishing Maximo metadata to a Cognos BI server where Anonymous Authentication has been DISABLED. This value should match the name of the namespace created in Step 5G. This is *not* the namespace defined in the property value: mxe.report.cognos.namespace

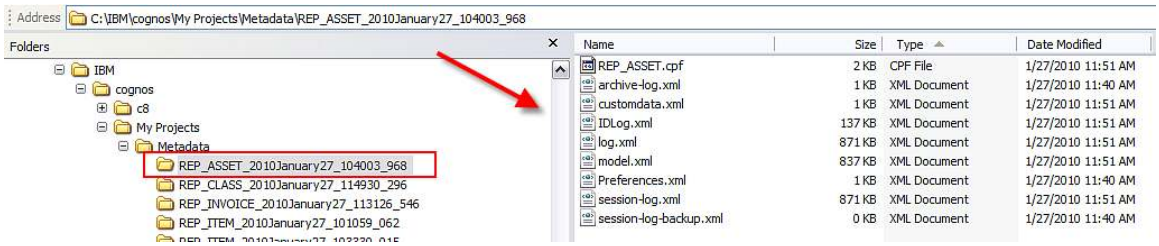
PROJECT_BASE_DIR: Path on the Cognos Server where Cognos Framework Manager project files, associated with Maximo metadata, will be created.

For example: <C>:\IBM\cognos\My Projects\Metadata

The screen shot below shows how this project directory will be populated after the Cognos Packages are published.



And this shows the file contents within the individual Cognos Packages.

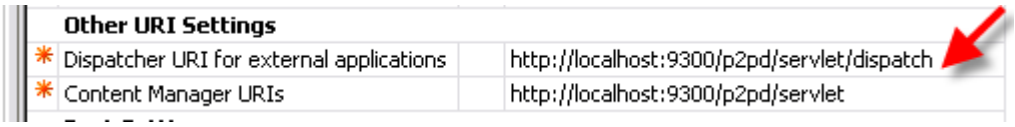


**Note: If you want to open a Maximo published package in Cognos Framework Manager Tool at a future time, you can access the .cpf file in Framework Manager from this location.*

URL: Identifies the URL to be used to establish a connection with Cognos Business Intelligence integration service.

The value to be used in this property is part of Cognos 8 configuration. It should be the Dispatcher URL (Gateway URL value should NOT be used). This Cognos 8 configuration value can be found in the "IBM Cognos Configuration" tool in the following path: Local Configuration -> Environment -> Dispatcher URI for external applications.

Note: This is not the same value set for the property file mxe.report.cognos.serverUrl



USERNAME: Username to be used when authenticating with Cognos Business Intelligence Server. The username value should comply with authentication requirements defined by MXCOGNOS NAMESPACE_ID definition: NTLM or LDAP.

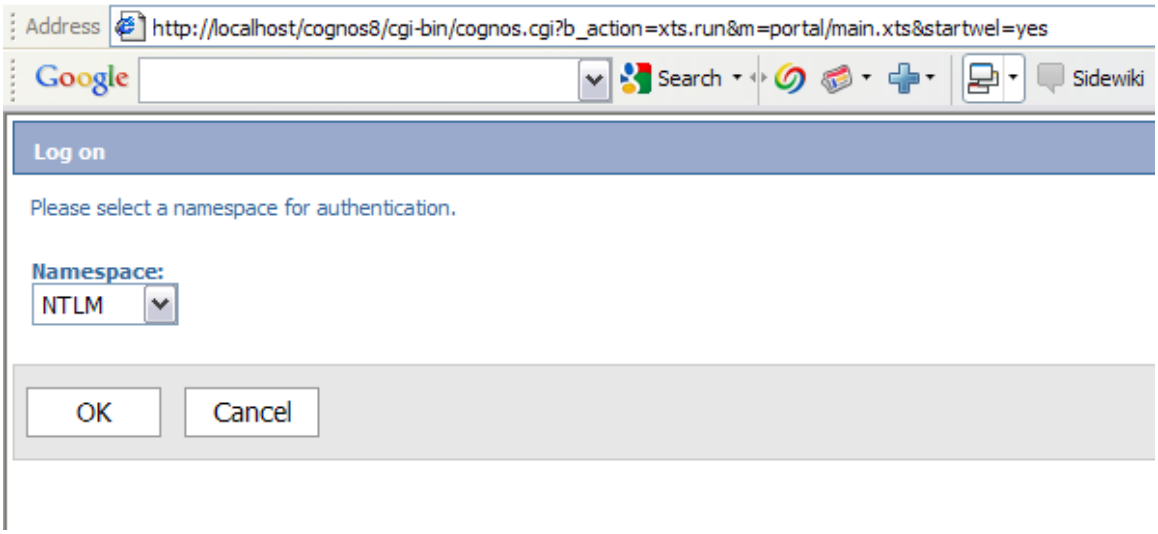
For example: If NTLM with DB2 database, this is may be your Operating System user.

PASSWORD: Password for the Username defined above. This is used when authenticating against Cognos server. It should be set as encrypted value.

Reference: How to create a Folder Location in Cognos

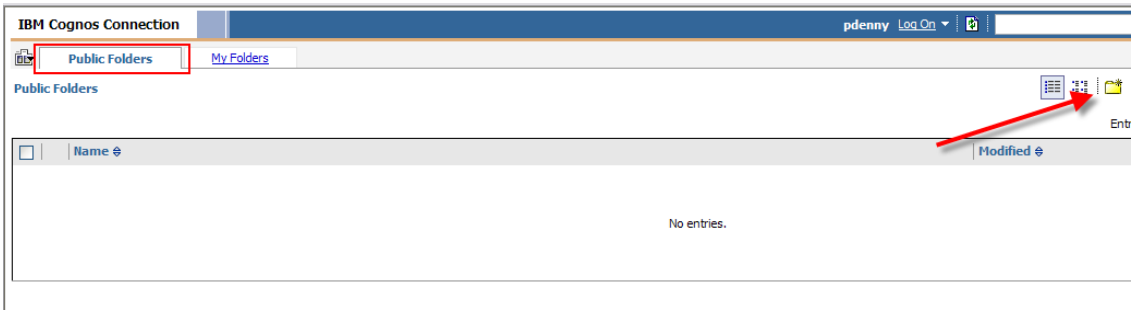
These next steps detail how you can create a folder location in Cognos for the End Point Value: CONTENT_STORE_PACKAGE_LOCATION

A. Sign into the NTLM namespace. For example: http:\\localhost\Cognos8



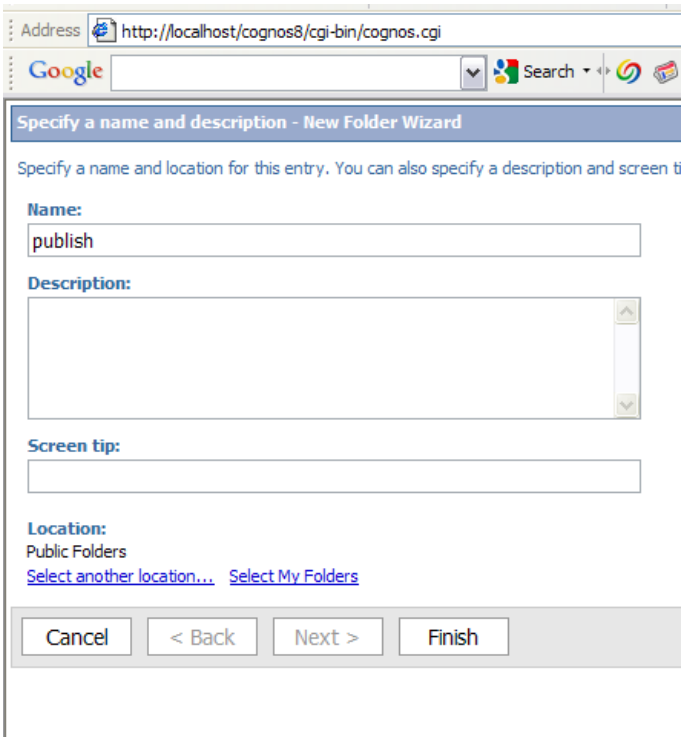
B. Once logged in, click on My home.

C. Next, you will create a new Folder, under the Public Folder Tab. To do this, click on the folder icon highlighted by the arrow.

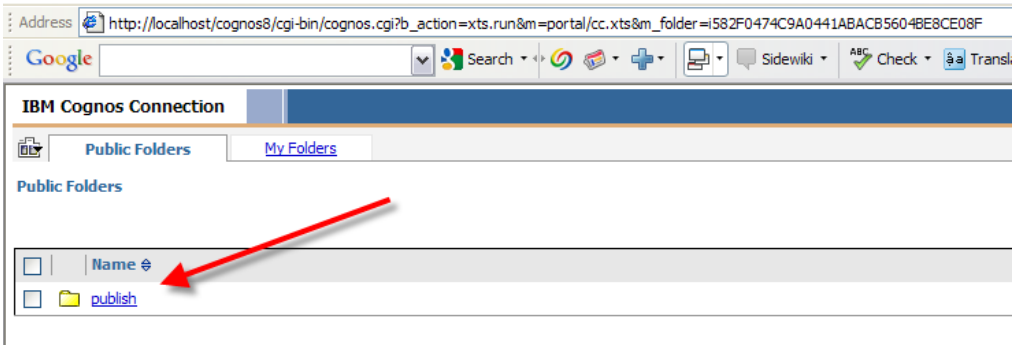


D. Specify a folder name that does not contain any spaces. Click Finish.

*NOTE: If the folder name contains spaces, publishing of the Cognos packages will fail.



E. You now have a new folder which will hold your published Report Object Structures, or Cognos Packages.



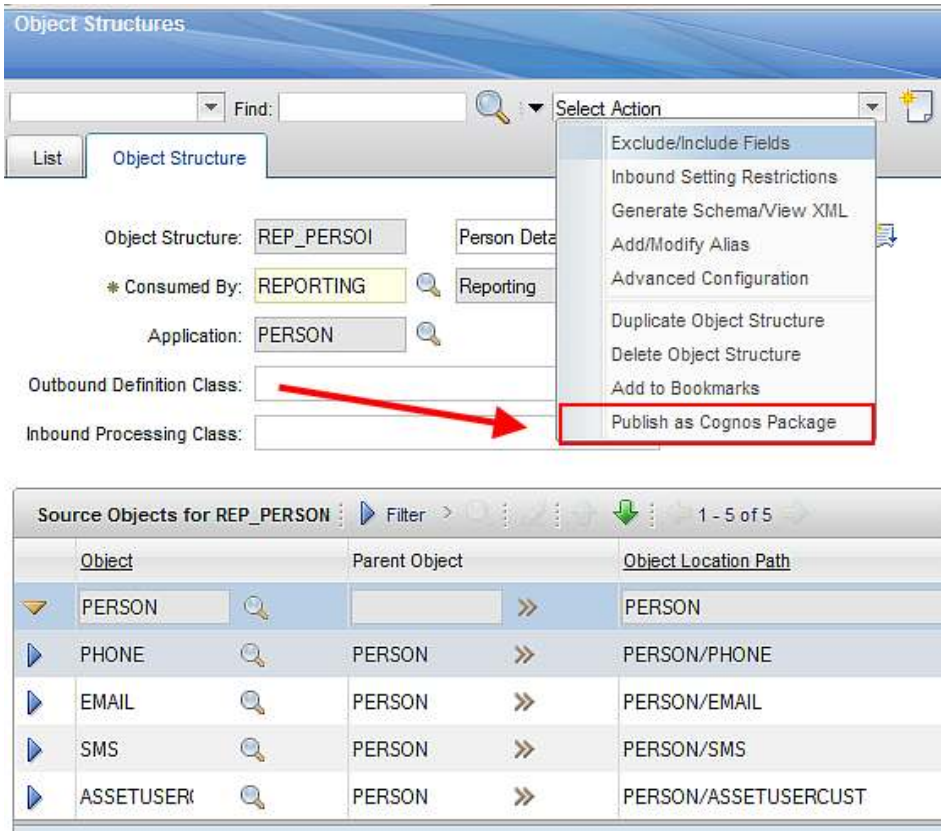
10. Publish Cognos Packages

Next, the Report Object Structures will be published as Cognos Packages.

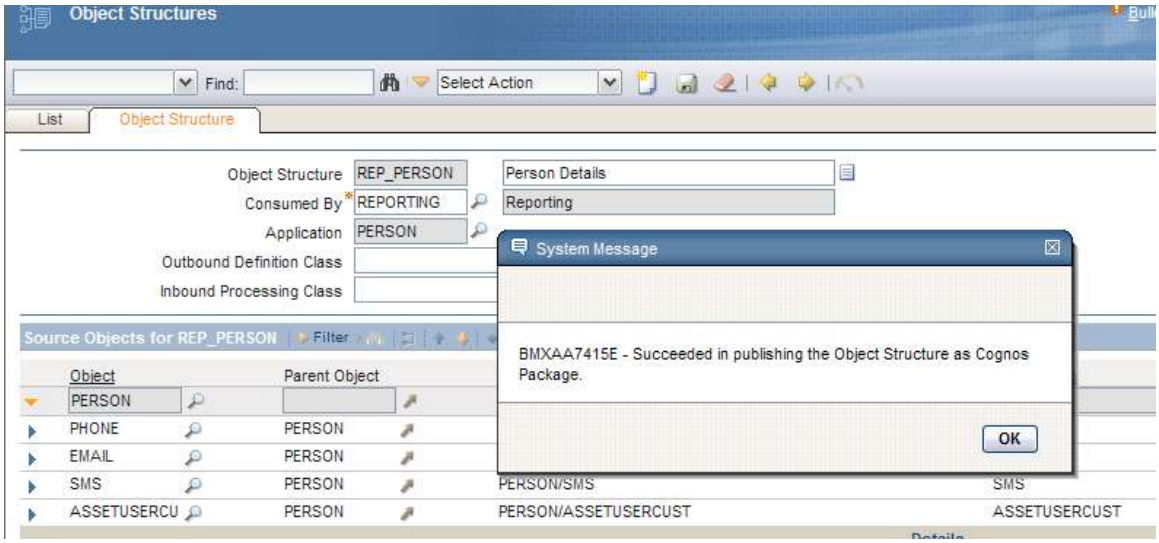
10A. Log into V75 as the System Administrator. Access the Object Structure application, and select a Report Object Structure (ROS). ROS are identified as a 'Consumed By = Reporting'

**NOTE: It is *HIGHLY* recommended that the first time you publish a Cognos Package that you work with a small package like REP_PERSON or REP_USER. These ROS have a small number of database objects and attributes, and will enable you to confirm the publishing process is working correctly. Once you have successfully published a smaller package, then you can publish larger packages, with a greater number of objects.

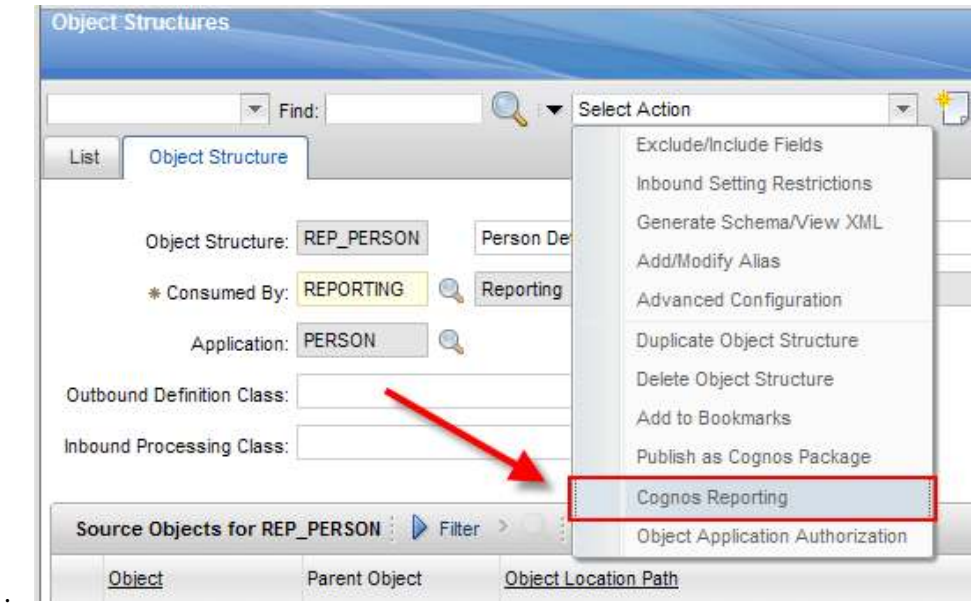
10B. Select the REP_PERSON Report Object Structure. From the Object Structure Tab, select the Action menu. Select 'Publish as Cognos Package'.



10C. Depending on the size of the ROS and the Network Connection, the publishing time of the package will vary. Once it has been completed successfully, a message will display.



10D. Next, access Cognos to verify the new package(s) by selecting 'Cognos Reporting'



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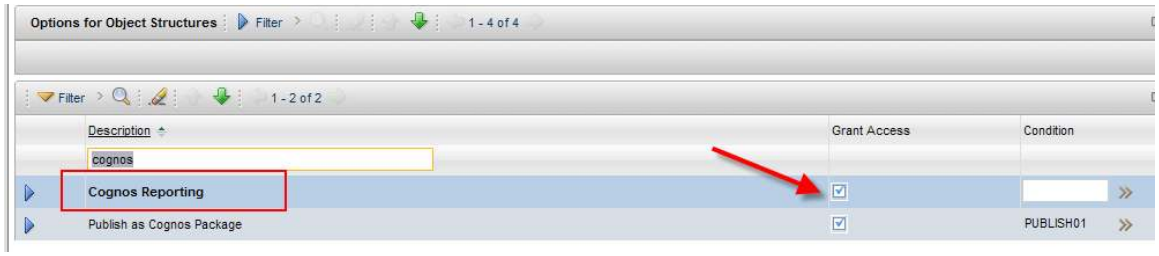
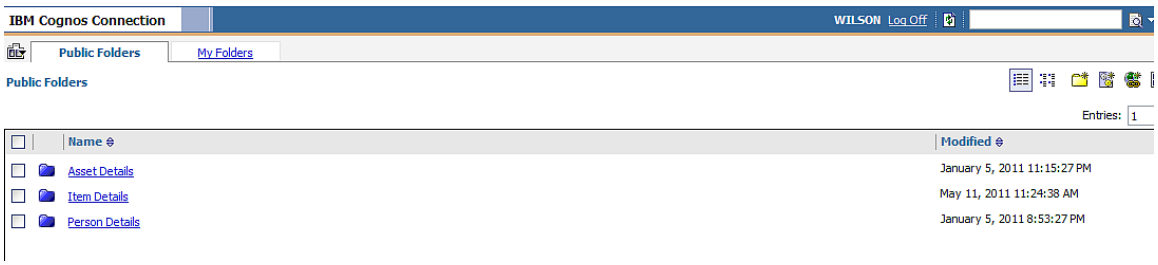
Note: To enable the 'Cognos Reporting' Action, make sure you have enabled the 'Cognos Reporting' Action for the Object Structure in the Security Group application.



10E. Once in Cognos, navigate to the Published Package Location. The published packages are available at the folder specified via the MXCOGNOS endpoint's CONTENT_STORE_PACKAGE_LOCATION property.

In the screen shot below, the Package Location was defined as 'publish'. Within this folder, there are a number of published packages, including the Person Package and the Work Order Package.

Note: The V75 packages are identified by the description of the ROS, MAXINTOBJECT.DESCRIPTION



Notes on Publishing Cognos Packages

Troubleshooting

1. If the publishing functionality fails, review the following items

Creation

The following system properties will cause package creation failures if not defined correctly

mxe.report.cognos.db.schemaName
mxe.report.cognos.db.sql.name
mxe.report.cognos.db.type

Errors indicating this failure will appear in the application server log files.
For Websphere, this is the systemout.log file located in:

<InstallDirectory >WebSphere\AppServer\profiles\AppSrv01\logs\server1

For Weblogic, publish errors will appear in the console, or in the BEA Server log.

AdminServer.log.

Post

Once the package is built, the metadata package is posted to the Cognos location specified in the end point (project_base_dir). (This value is set in Section 9 – Set End Point Properties)

If the publishing process fails, verify if the package has been created in this location.

If the package does not appear in this location, verify the End Point values are defined correctly. Also confirm the system properties above are defined correctly.

NAMESPACE_ID
PASSWORD
PROJECT_BASE_DIR
URL
USERNAME

Errors indicating this failure will appear in the application server log files.
For Websphere, this is the systemout.log file located in:

<InstallDirectory >WebSphere\AppServer\profiles\AppSrv01\logs\server1

For Weblogic, publish errors will appear in the console, or in the BEA Server log.

AdminServer.log.

Publishing

Once the package is posted to the Cognos directory (project_base_dir), it will be moved/published/imported into Cognos where it will be validated against the database. If this fails, verify the below.

System Properties

mxe.report.cognos.content.store.package.location
mxe.report.cognos.datasource

End Point Values

CONTENT_STORE_PACKAGE_LOCATION
DATA_SOURCE_NAME

Note:
If end point values are populated, it will use their values.
If no end point values are entered, it will use the system properties

Errors indicating this failure will appear in the application server log files.
For Websphere, this is the systemout.log file located in:

<InstallDirectory >WebSphere\AppServer\profiles\AppSrv01\logs\server1

For Weblogic, publish errors will appear in the console, or in the BEA Server log.

AdminServer.log

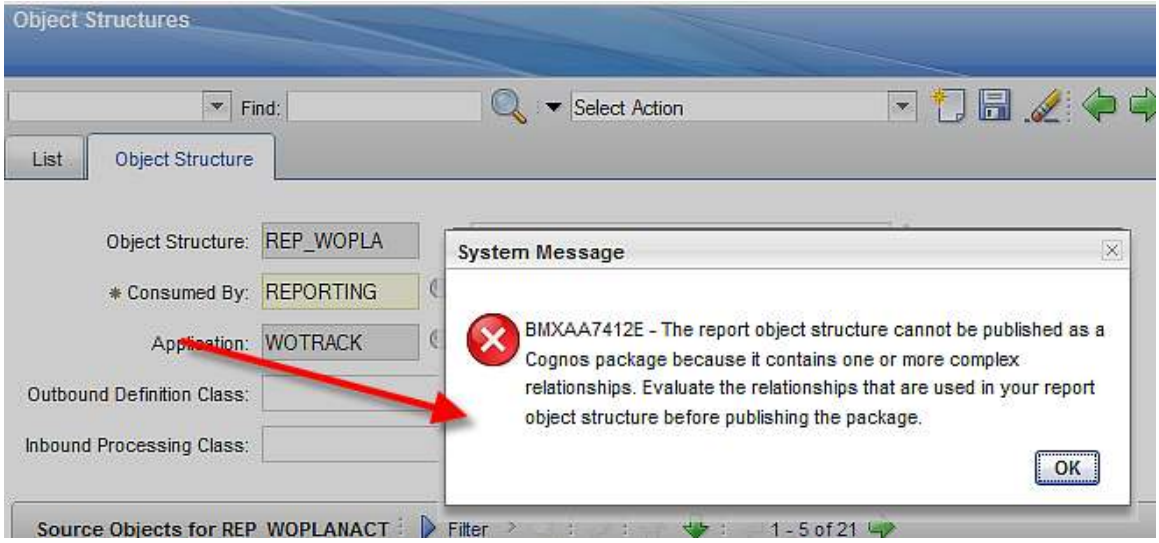
Additionally, errors may display in the Cognos logs.

Publishing Package for Test Reports

1. Before going on to the next section to register the test reports, you must publish the Workorder Package, identified by its Object Structure name of REP_WORKORDER, and description of Work Order Details. This package is required for the test reports to execute. The Workorder package is a large package with multiple objects and attributes, so it will take longer to publish than a smaller package like REP_PERSON.

Note: The Cognos Metadata publishing process V75 ONLY SUPPORTS column to column relationships (simple relationships). Therefore, you may find Report Object Structures included within V75 that are *not* supported for Cognos Publishing. These include (1) REP_ASSETACTIVITY and (2) REP_WOPLANACT.

If you try to publish one of these unsupported packages, you will receive a message



For more details on the publishing process and the ROS it supports, see the 'Maximo Cognos Integration Guide' referenced at the end of this guide.

11. Register Cognos Reports in Maximo's Report Administration

You may want to test that the integration has been set up properly by using two V75 Cognos test reports. These two reports utilize the REP_WORKORDER Package which you published in the step above.

Setup Steps:

A. Obtain a copy of these test reports, by accessing the ISM Library Site at http://bit.ly/tqkJGA

B. Download and save the reports and templates to your V75 directory

<v75>\reports\cognos\reports

Report Administration Registration Steps:

Next, you register these 2 reports in the V75 Report Administration application so they can be executed within the V75 applications.

11A. Sign into your V75 environment as an administrator, and access the Report Administration application.

11B. Create a new report entry for the report, Work Order Listing by Status. Its key values are:

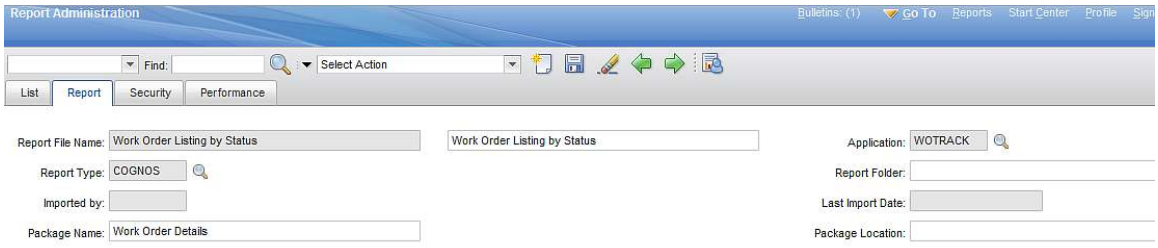
Report File Name: Work Order Listing by Status

Application: WOTRACK

Report Type: COGNOS

*Package Name: Work Order Details

Parameters: None. This report executes against the current/selected record set of the application.



*More details on Package Name and the other fields are in the Notes section below.

11C. Create a new report entry for the report, Overdue Work Orders by Location. Its key values are:

Report File Name: Overdue Work Orders by Location

Application: WOTRACK

Report Type: COGNOS

*Package Name: Work Order Details

Parameters:

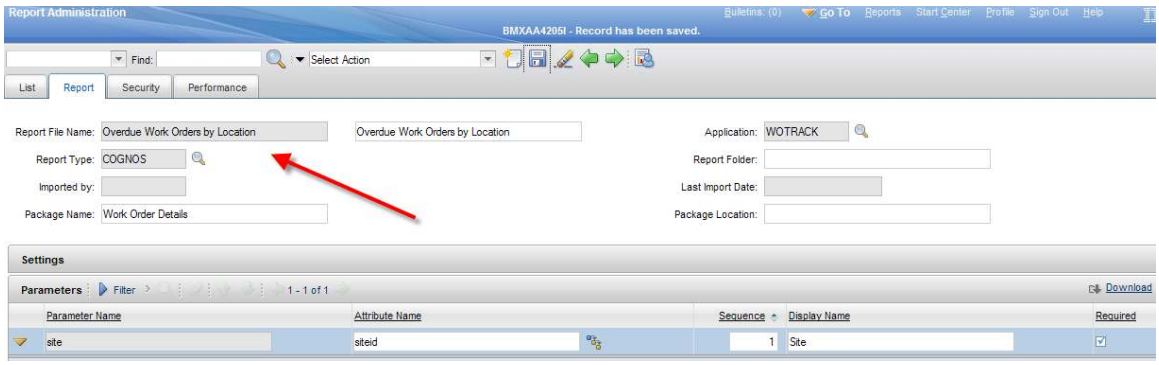
Parameter Name: site

Attribute Name: siteid

Sequence: 1

Required: Yes (Enable Field)

Display Name: Site

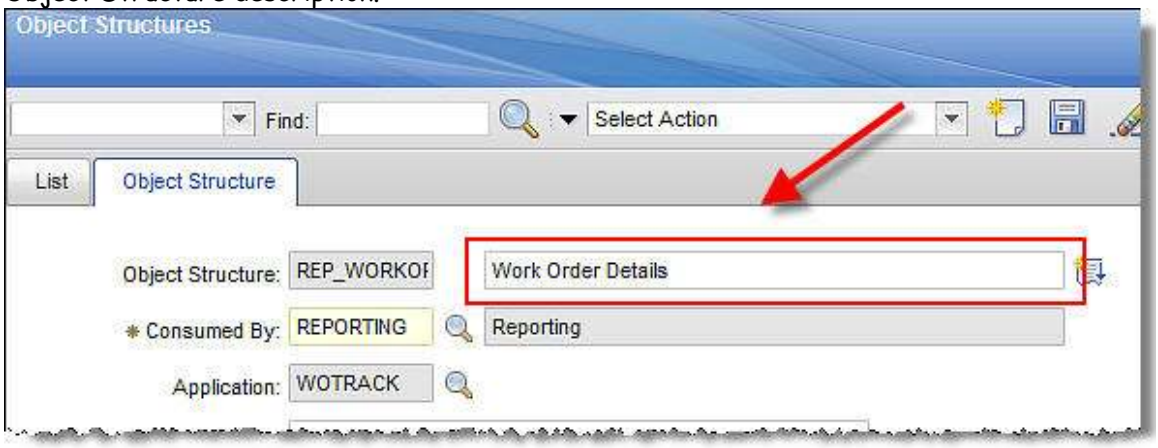


After registering these two test reports, generate the XML for them in the Report Administration application.

Notes on Report Administration Registration:

1. When you register Cognos reports, you must set the Report Type = Cognos.

2. The Package Name field is the description of the Report Object Structure you published to Cognos. In this example, the package name is 'Work Order Details', which is its Report Object Structure description.



3. The Report Folder field is the location of the report under the Package Name. It is an optional field, and by default, displays to the application name. *If your report is directly located under the package, the report folder field should not be populated.*

4. The Package Location is the folder where the Cognos package is located. If you have multiple folder locations within Cognos, you must specify which folder location your package is under. In the example below, the Cognos page has two folders: PRODUCTION and PUBLISH. In this scenario, you would need to specify the Package Location as either PRODUCTION or PUBLISH to indicate the location of the Cognos Package and report.

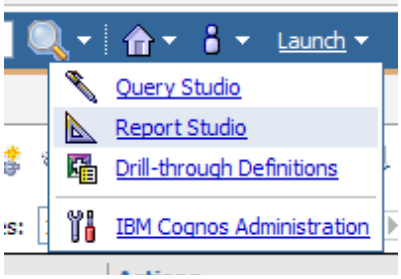
5. Finally, you must enable report security for these 2 new Cognos reports. You can do this in the Report Administration application by setting the security for the individual reports on the 'Security' Tab. Or it can be set by defining it via the Actions 'Set Application Security' or 'Set All Application Security' for the Work Order Application, and Cognos Report Type.

* The MAXADMIN Security Group, by default, does not have security access to Cognos reports.

12. Import Report Designs, Templates into Cognos. Test Integration

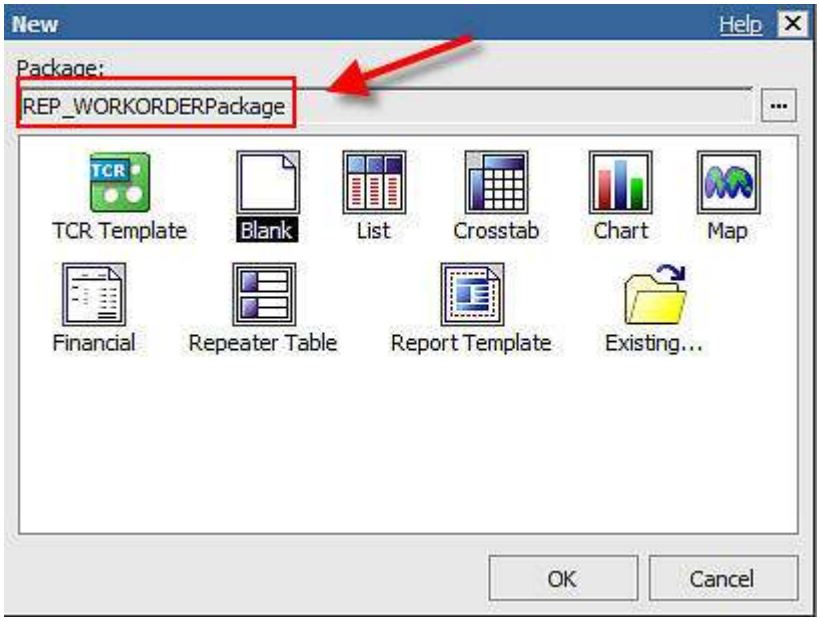
The last step is to import two report test design files and one template file into the Cognos application. These are the two test reports and templates that you downloaded and registered in the previous section.

12A. From the action menu in Maximo's Report Administration application, select 'Launch Cognos Administration'. Once in Cognos, go to the Home Page. Navigate to locate the REP_WORKORDER (also known as Work Order Details) package that you published in step 10.



12B. Next, launch Cognos Report Studio. The screen below displays. Select 'Create a new report or template'

12C. Select Blank. Notice the REP_WORKPORDERPackage is enabled.

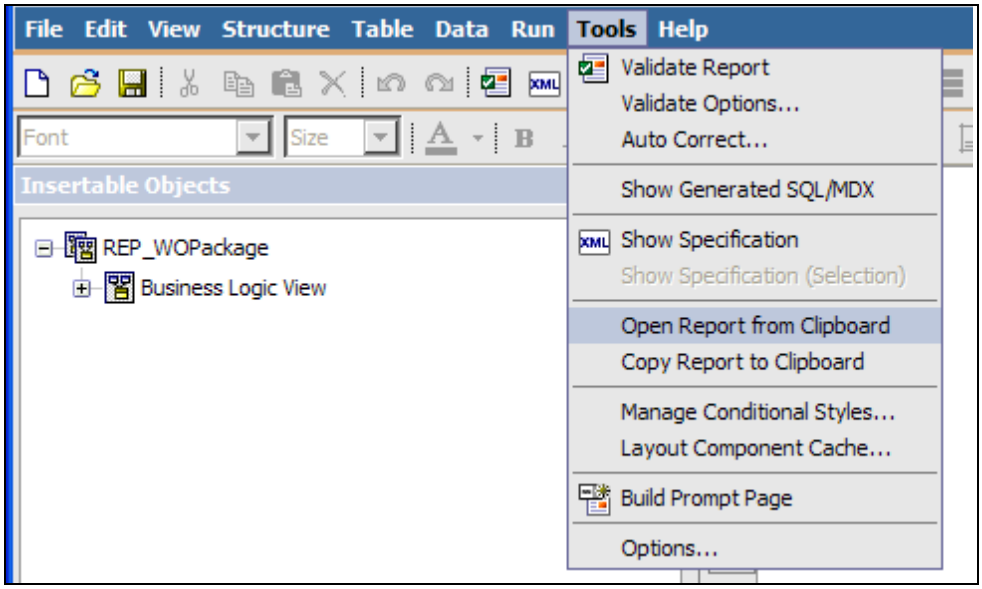


12D. Import the Work Order Listing Report first. Navigate to the location where you stored your downloaded report

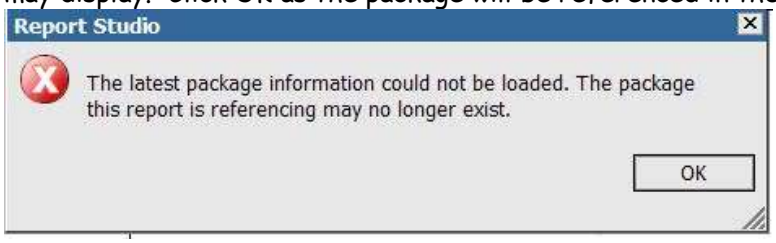
<V75>reports\cognos\reports and highlight wotrack.xml.

12E. Open up the wotrack report xml file in a text editor. Copy its entire contents.

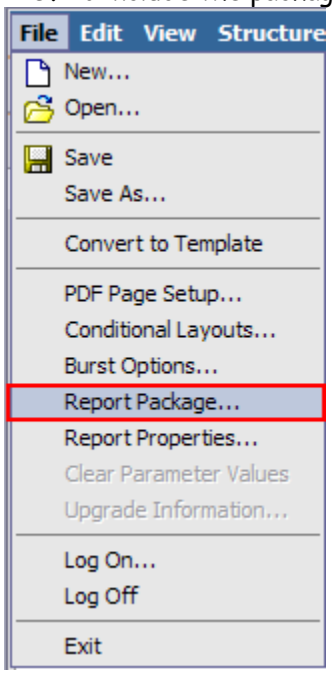
12F. Go back to Cognos Report Studio. From the menu, select Tools -> Open Report from Clipboard. This will bring the report xml file from memory into Report Studio.



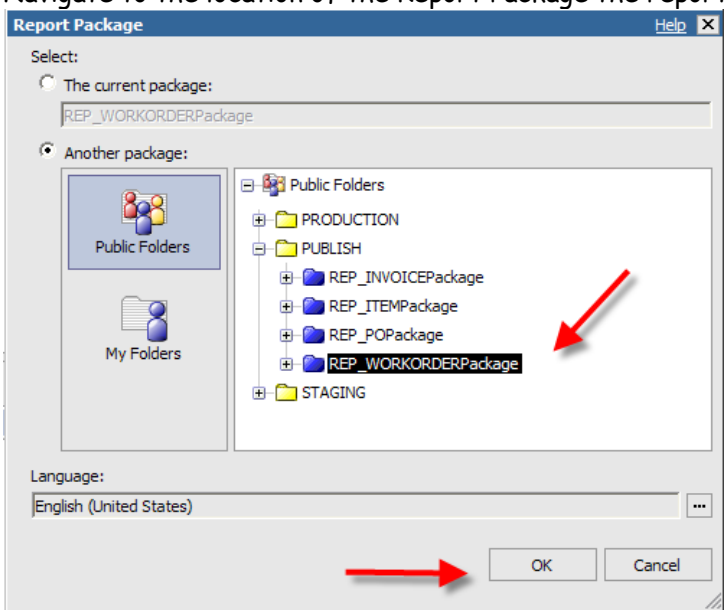
The screen should refresh with the content of the report. Additionally, the error message may display. Click OK as the package will be referenced in the next steps.



12G. To include the package, from the menu, Select File -> Report Package

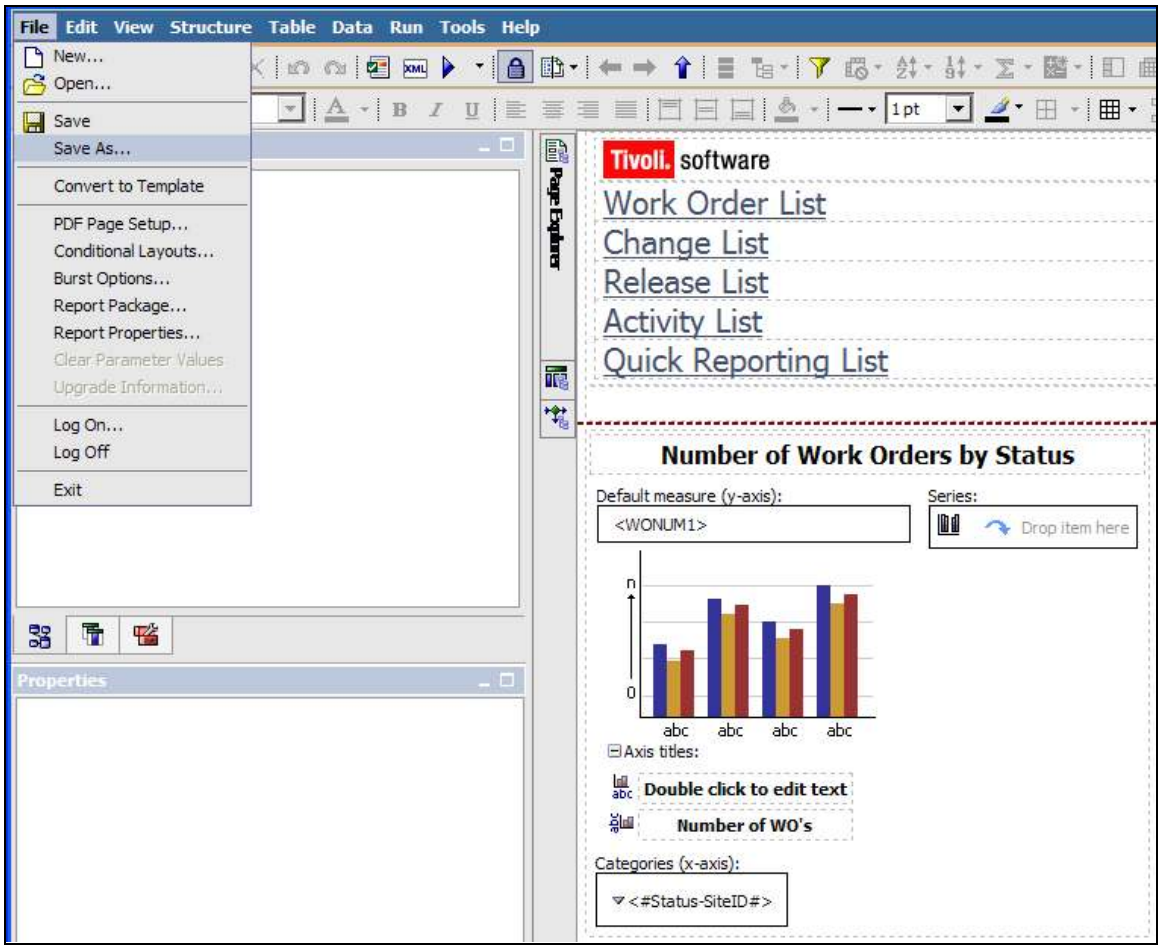


Navigate to the location of the Report Package the report design uses. Click OK.



Note: You may receive warning messages similar to what are shown below.

12H. The Work Order Listing report is now available. Save this by selecting File - Save as, and saving the report as wotrack.



12I. Repeat this process for the second report test file, wo_overdue_by_location.

12J. Next, import the Maximo template. This template can be used as a starting point for creating custom Cognos reports.

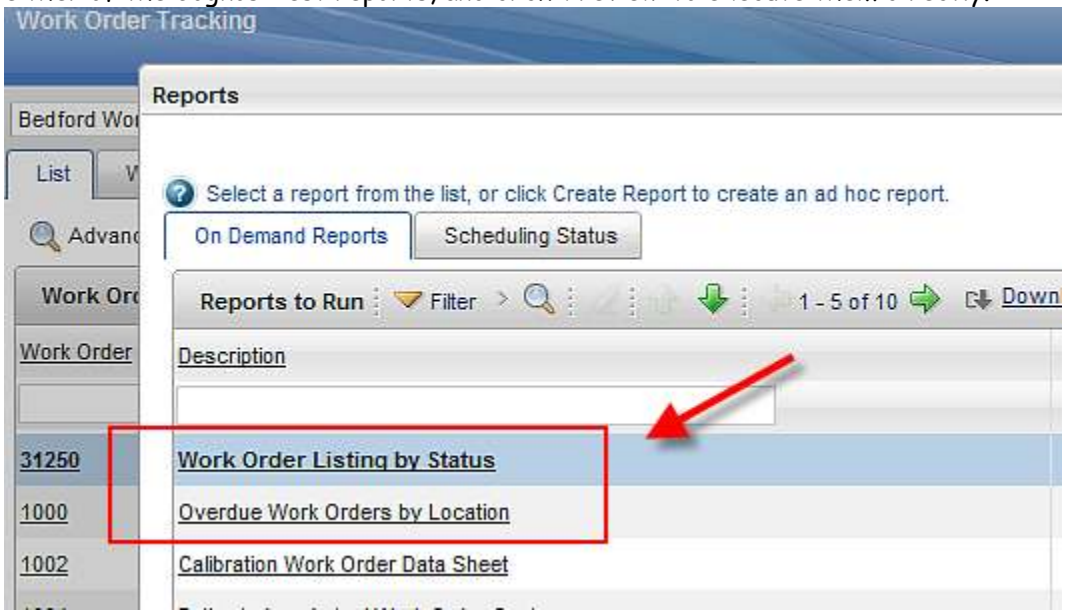
To import the Maximo template, follow the same process as importing the Maximo reports. Open the maximo_template.xml file in Notepad, and copy/paste it into Report Studio. You can then save it in an existing folder, or create a new one called 'TEMPLATES' to find it quicker.

Install Test

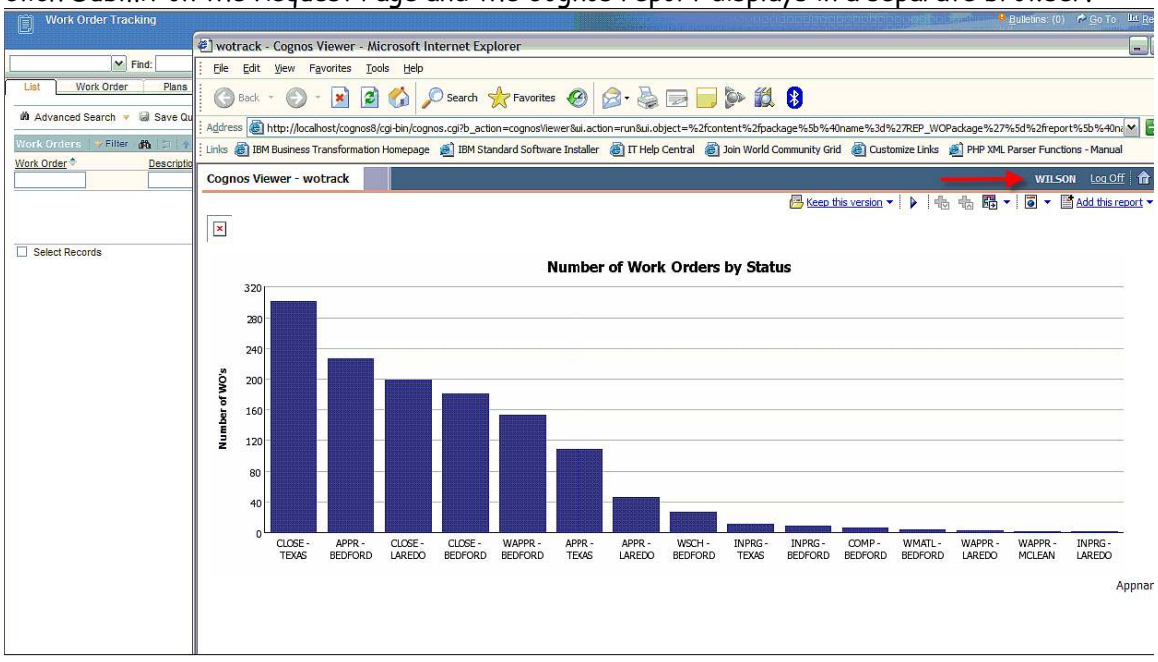
This last section will confirm that the integration has been successfully installed.

Next, go back to Maximo and test the report integration. Access the Work Order Tracking application, and select 'Run Reports' from the Menu. Select the Cognos Work Order Listing by Status report.

*Note: You can also do this by staying in the Report Administration application. Access either of the Cognos Test reports, and click 'Preview' to execute them directly.



Click Submit on the Request Page and the Cognos report displays in a separate browser.



Troubleshooting Notes on Executing Cognos reports from Maximo

1. If you are unable to execute Cognos reports from the V7 environment, review the following property files to insure they are defined correctly

mxe.report.cognos.namespace
mxe.report.cognos.serverURL

Errors indicating this failure will appear in the application server log files.
For Websphere, this is the systemout.log file located in:

<InstallDirectory >WebSphere\AppServer\profiles\AppSrv01\logs\server1

For Weblogic, publish errors will appear in the console, or in the BEA Server log.

AdminServer.log

Additionally, the MXCSP log called JDBC.log located c:temp\log, will detail the errors. Steps to enable this log file are in the next section below.

Troubleshooting: Logging Features

Maximo Logging Features

To troubleshoot the integration between Maximo and Cognos, follow the steps below to initiate additional logging features.

A. First, insure there is a temp directory under the root. Then, create a log subfolder under it. So, you will have a path like:

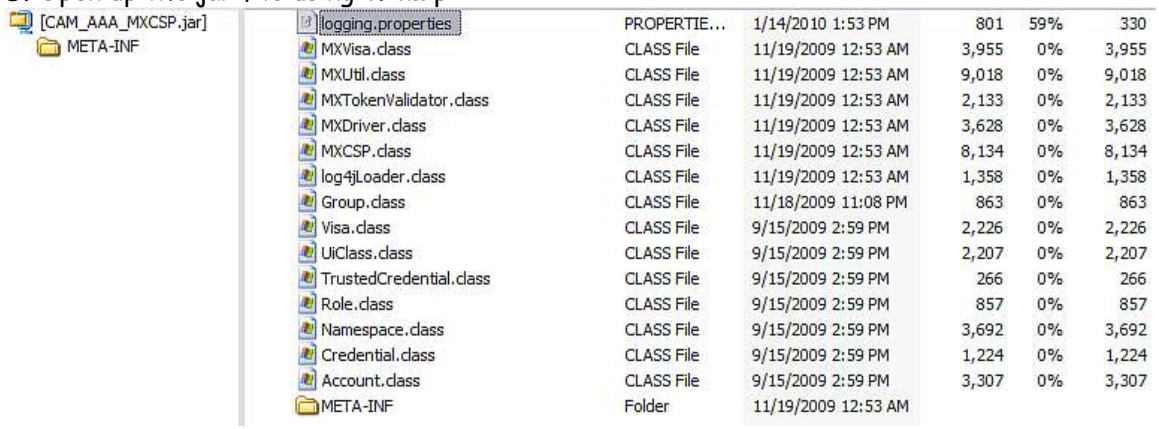
c:\temp\log

B. Shut down Cognos.

C. Navigate to the location of the csp jar file on Cognos: *CAM_AAA_MXCSP.jar*

<Cognos>\c8\webapps\p2pd\WEB_INF\lib

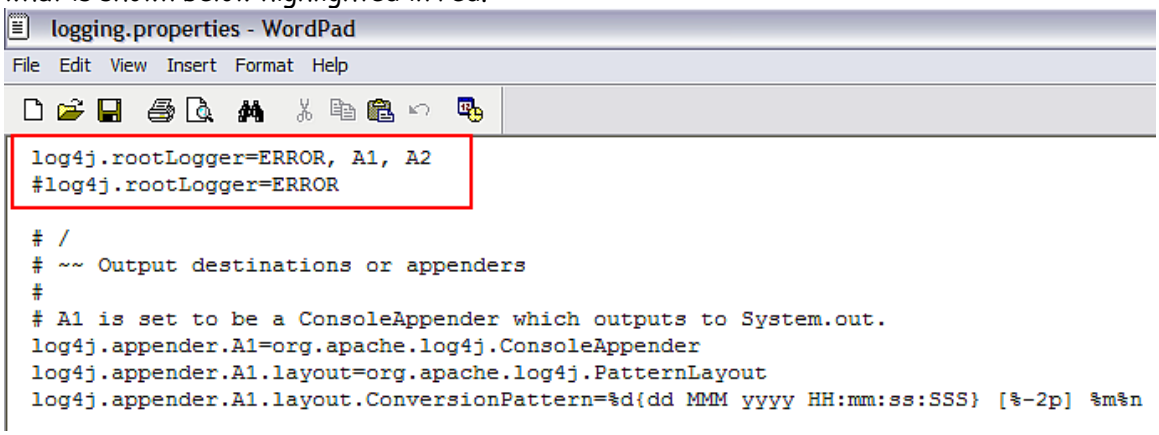
D. Open up the jar file using Winzip



logging.properties	PROPERTIE...	1/14/2010 1:53 PM	801	59%	330
MXVisa.class	CLASS File	11/19/2009 12:53 AM	3,955	0%	3,955
MXUtil.class	CLASS File	11/19/2009 12:53 AM	9,018	0%	9,018
MXTokenValidator.class	CLASS File	11/19/2009 12:53 AM	2,133	0%	2,133
MXDriver.class	CLASS File	11/19/2009 12:53 AM	3,628	0%	3,628
MXCSP.class	CLASS File	11/19/2009 12:53 AM	8,134	0%	8,134
log4jLoader.class	CLASS File	11/19/2009 12:53 AM	1,358	0%	1,358
Group.class	CLASS File	11/18/2009 11:08 PM	863	0%	863
Visa.class	CLASS File	9/15/2009 2:59 PM	2,226	0%	2,226
UiClass.class	CLASS File	9/15/2009 2:59 PM	2,207	0%	2,207
TrustedCredential.class	CLASS File	9/15/2009 2:59 PM	266	0%	266
Role.class	CLASS File	9/15/2009 2:59 PM	857	0%	857
Namespace.class	CLASS File	9/15/2009 2:59 PM	3,692	0%	3,692
Credential.class	CLASS File	9/15/2009 2:59 PM	1,224	0%	1,224
Account.class	CLASS File	9/15/2009 2:59 PM	3,307	0%	3,307
META-INF	Folder	11/19/2009 12:53 AM			

E. Then, open up the logging.properties file.

F. Change the first 2 lines of the properties file by modifying the location of the # sign to what is shown below highlighted in red.

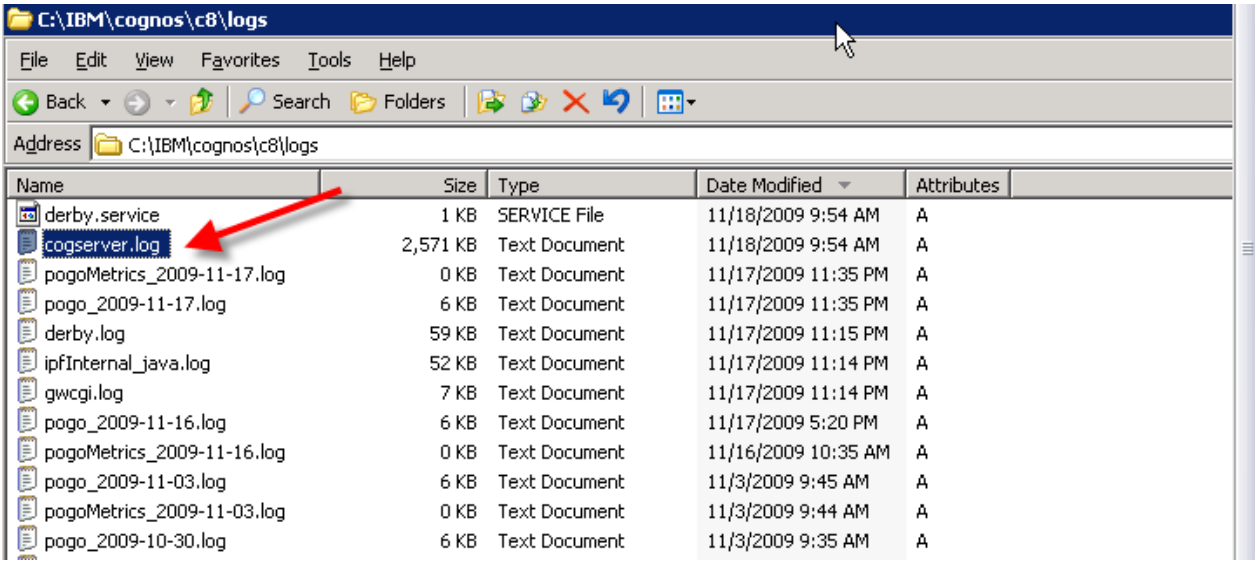


G. Save the change, close the file. Restart Cognos.

H. Then, try to enable the integration again - either by running a report directly from Cognos - or by accessing Cognos from the Maximo Report Administration application. A detailed log file called JDBC.log will be available under: c:temp\log

Cognos Logging Features

Additional Cognos log files can also be used to troubleshoot the integration. The Cognos Log file you should use is cogserver.log located in <Cognos>\c8\logs



Database Logging Features

If reports not executing as expected, you may want to debug by enabling database log files.

If you are using DB2,
Navigate to <Cognos>\c8\binbin and locate cogdmd2.ini. Open that file, and locate the [TRACE] section. Uncomment the lines:

;[TRACE]
;Output=<my trace file>

;Timer=yes
Next, specify the output file (and path) where you want to save the file in place of <my trace file>. Restart the Cognos Server.

If you are using Oracle,
Navigate to <Cognos>\c8\bin and locate cogdmor.ini. Open that file, and locate the [TRACE] section. Uncomment the lines:

;[TRACE]
;Output=<my trace file>

;Timer=yes

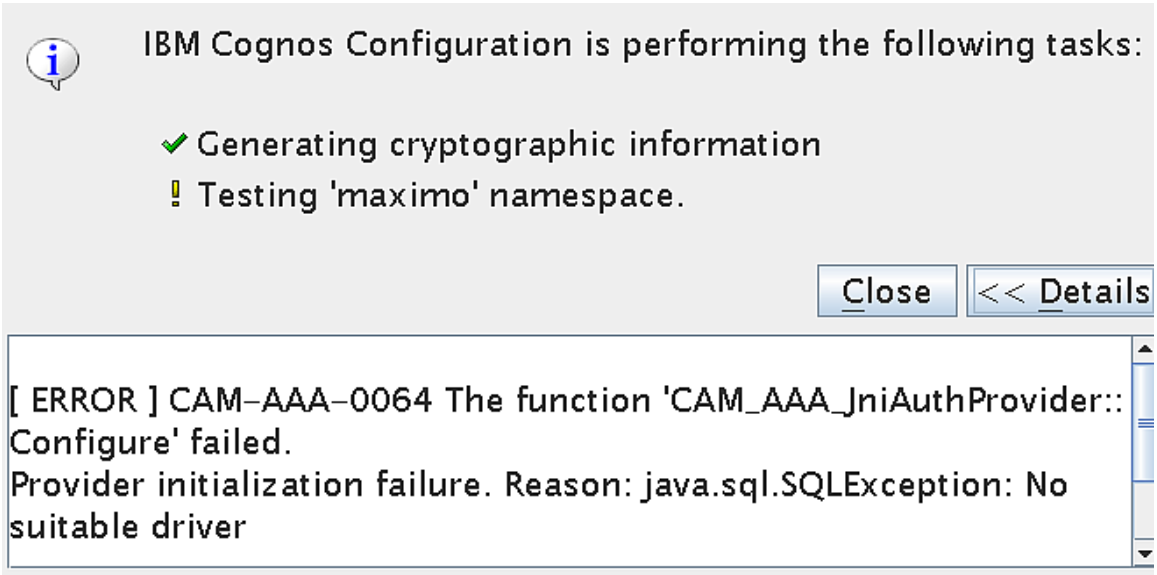
Next, specify the output file (and path) where you want to save the file in place of <my trace file>. Restart the Cognos Server.

Troubleshooting: Frequently Seen Error Messages

Cognos: Namespace Property Setting

After creating the maximo namespace, it needs to be tested. If you receive an error message within Cognos Configuration that the correct driver is not loaded, this often means that the mxcognosdatasource.properties is not correct.

This occurs because when a Connection request is issued, the DriverManager asks each loaded driver if it understands the URL sent. If no driver responds that it understands the URL, then the "No Suitable Driver" message is returned.



This error can be seen in the Maximo Log Files by something like

```
13 Oct 2009 16:57:48:241 [INFO] Logging initialized.
13 Oct 2009 16:57:48:247 [INFO] MXCSP INIT Method
13 Oct 2009 16:57:48:317 [INFO] Provider initilization failure. Reason:
java.sql.SQLException: No suitable driver
```

In this case, confirm that the data source property value has been configured properly in V75. For example, an incorrect Data Source Value that would return this error is highlighted below with its incorrect syntax in red.

maximoDataSource.url=mxe.db.url=jdbc:db2://linux12.syr.swg.com:50000/MX7116

Its Correct Value is shown here.

maximoDataSource.url=jdbc:db2://linux12.syr.swg.com:50000/MX7116

Cognos: Namespace Jar File Extraction

An error may be received when creating a Maximo Namespace in Cognos, similar to what is shown below.

```
MXCSP INIT Method
java.lang.ClassNotFoundException: com.ibm.db2.jcc.DB2Driver
        at java.lang.Class.forName(Class.java:130)
        at MXDriver.setDriver(MXDriver.java:36)
        at MXCSP.init(MXCSP.java:68)
        at com.cognos.CAM_AAA.authentication.proxy.CustomProviderProxy.pCAM_AAA_
Configure(CustomProviderProxy.java:526)
        at com.cognos.CAM.AAA.TestConfiguration(Native Method)
        at com.cognos.CAM.configtest.AAACnfgTask.run(AAACnfgTask.java:124)
        at com.cognos.crconfig.data.CnfgTask.run(CnfgTask.java:109)
        at com.cognos.crconfig.data.CnfgActionEngine$CnfgActionThread.run(CnfgAc
tionEngine.java:384)
[INFO] Provider initilization failure. Reason: java.sql
.SQLException: No suitable driver
```

In this case, you may need to copy and unzip the CSP and Database jar files copied in Step 4 to an additional location in Cognos. To do this:

1. Stop Cognos.

2. Copy the CSP jar file from this location in Maximo

   <R7.1>\reports\cognos\c8\webapps\p2pd\WEB-INF\lib

   to this location in Cognos

   <Cognos>\c8\webapps\p2pd\WEB-INF\classes

4. Copy your applicable database jar files from this location in Maximo

   <R7.1>\applications\maximo\lib

   to this location in Cognos

   <Cognos>\c8\webapps\p2pd\WEB-INF\classes

5. Once copied, unzip the all the jar files you just copied.

6. Restart Cognos.

Reference Materials

*For a complete listing of V7 Report Reference Materials, including the Cognos documents listed below, use this url: http://ibm.co/pxUyp6

Version 75 Indirect TCR Maximo Cognos Installation

This guide details the configuration steps to enable the indirect Maximo-Cognos Integration using TCR, Tivoli Common Reporting.

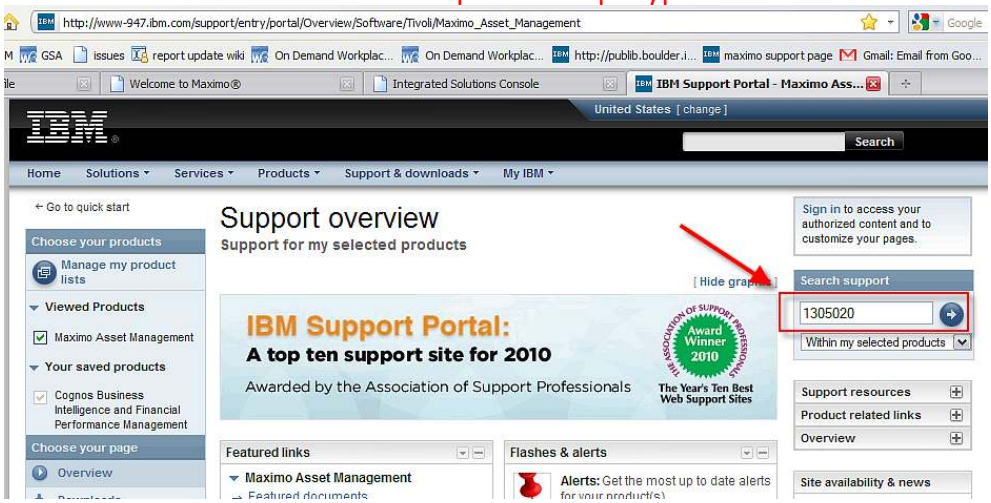
Version 75 Maximo Cognos Integration

This guide details how the Maximo Cognos Integration is enabled. It includes information on the metadata layer, and how to create Report Object Structures for Cognos Packages. Also, it details how you can set security in both the Maximo and Cognos Applications, how you can develop Reports in Cognos for the Maximo Integration, along with other Best Practices and functionality considerations.

You can access this guide or other report support guides by following the steps below:

1. Access IBM's support site at the URL below:
http://www-947.ibm.com/support/entry/portal/Overview/Software/Tivoli/Maximo_Asset_Management
or its shortened url of http://bit.ly/iWtyQG

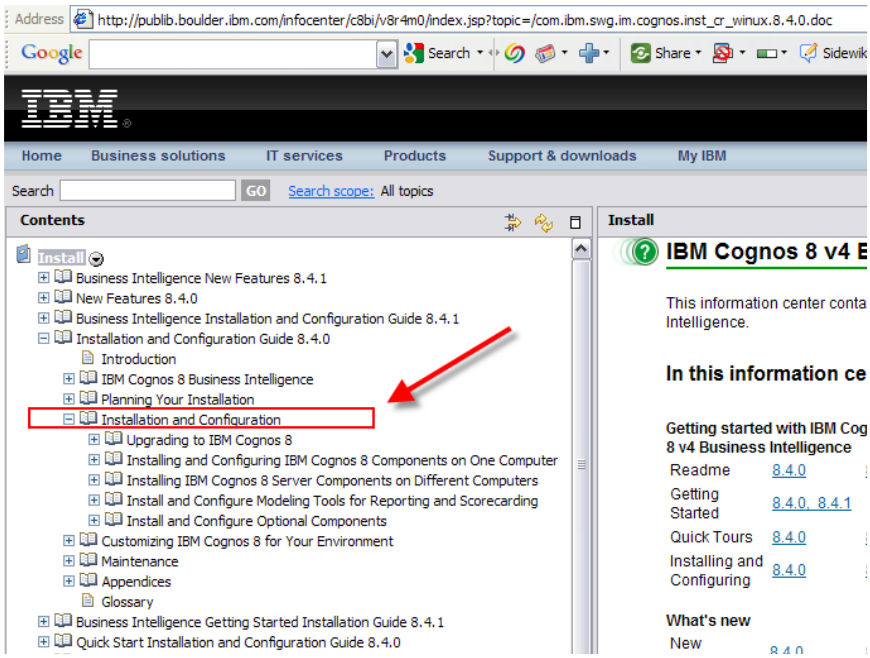
2. Input the reference number or the document title of the guide you are looking for. You can obtain this information from http://ibm.co/pxUyp6



Cognos 8.4.1 Documentation

Central Location for detailed manuals on the Cognos Reporting Products.

http://bit.ly/mTNflH



Revision History

January 2012
(1) Split Maximo-Cognos Integration guide into two separate guides. One for Direct Maximo-Cognos Installation, and second for TCR Maximo-Cognos Indirect Installation.

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