SAP BusinessObjects and IBM i

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Applies to

SAP BusinessObjects Business Intelligence platform 4.0 and SAP applications running on IBM i.

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SAP BusinessObjects Business Intelligence is a flexible, scalable, and reliable solution for delivering powerful, interactive Business Intelligence (BI) reports to end users using any web application − intranet, extranet, Internet or the corporate portal. Whether it is used for distributing weekly sales reports, providing customers with personalized service offerings, or integrating critical information into corporate portals, SAP BusinessObjects Business Intelligence delivers tangible benefits that extend across and beyond the organization. As an integrated suite for reporting, analysis, and information delivery, SAP BusinessObjects Business Intelligence provides a solution for increasing end-user productivity and reducing administrative efforts.

Data can be analyzed from any of a large number of supported database systems (including text or multi-dimensional OLAP systems), and BI reports can be published in many different formats to many different publishing systems.

This document is not intended to replace or summarize any official documentation for SAP BusinessObjects Business Intelligence provided by SAP; at several places it will even refer to the official documentation. Instead, the document should give a general overview of how to install SAP BusinessObjects Business Intelligence in a system landscape containing IBM i servers, and how to connect different data sources located on IBM i servers to this SAP BusinessObjects Business Intelligence instance.

Architecture and Components Overview

SAP BusinessObjects Business Intelligence reports from a read-only connection to your organization's databases, and uses its own databases for storing its configuration, auditing, and other operational information. The BI reports created by the system can be accessed through websites or sent to a variety of destinations, including file systems and email.

SAP BusinessObjects Business Intelligence is a self-contained system that can exist on a single server (for example, as a small development or pre-production test environment). Another option would be to scale the landscape into a cluster of many servers that run different components (for example, as a large-scale production environment).

SAP BusinessObjects Business Intelligence Server can be installed on several OS platforms, with a combination of supported web servers, web application servers, database servers, and web technologies. You decide how the components that make up SAP BusinessObjects Business Intelligence will be deployed. A small development deployment might use the setup program's default options to install SAP BusinessObjects Business Intelligence, a database, and a web application server on a single system. A larger scale deployment might install individual server components on dedicated systems to host individual server functions over a network.

The following diagram illustrates how SAP BusinessObjects Business Intelligence platform fits in with your organization's infrastructure.
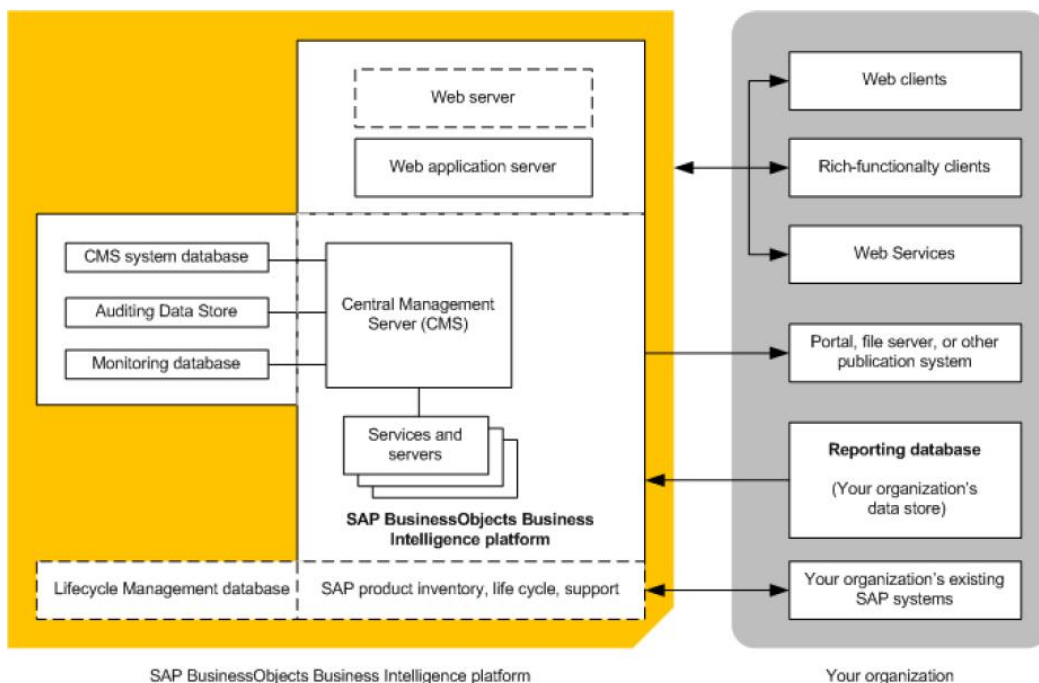
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Software for installation of SAP BusinessObjects is currently available in 2 different versions:
- SAP BusinessObjects Enterprise XI 3.1 → Mainstream Maintenance ends 12/31/2015
- SAP BusinessObjects Business Intelligence platform 4.0 → Mainstream Maintenance ends 12/31/2014; by following SAP's 7+2 support model (providing minor releases such as 4.1, 4.2 etc.), the Mainstream Maintenance for the SAP BusinessObjects Business Intelligence platform 4.x family will end 12/31/2020

As of BusinessObjects Enterprise 3.1, the installation process has been split into separate installation media for server components and client tools:
- The SAP BusinessObjects server installation contains all components necessary for administrative tasks, such as user management, content management, server management etc.
- The dedicated SAP BusinessObjects Enterprise Client Tools installation program installs a suite of frontend applications, to create BI reports and perform data analysis.

Installation media for SAP BusinessObjects Server components (like Central Management Console, Central Configuration Manager, Data Federation Administration Tool etc.) are available for different operating systems. The currently supported platforms can be found in the Product Availability Matrix (http://service.sap.com/pam) and the SAP BusinessObjects Supported Platforms document in the SAP Community Network (http://www.sdn.sap.com/irj/boc/articles?rid=/webcontent/uuid/e01d4e05-6ea5-2c10-1bb6-a8904ca76411).

SAP BusinessObjects Enterprise Client Tools (such as Universe Design Tool, Interactive Analysis Desktop, SAP Crystal Reports etc.) are only available for Windows.

Documentation for SAP BusinessObjects Business Intelligence 4.0 is available at http://help.sap.com/bobip

While the installation of the Client tools is a "straight forward" Windows installation, the installation of the BusinessObjects server components is more complex. The following section describes two typical installation scenarios.

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To evaluate the scenarios, the following system configuration has been used:

- Virtualization using VMWare eSXi 4.0 on IBM System x machine
- Windows 2008 (64-Bit) running in a virtual machine
- SAP BusinessObjects Business Intelligence server components (Version 4.0 FixPack 3) installed on Windows
- SAP BusinessObjects Business Intelligence Client tools (Version 4.0 FixPack 3) installed on client PCs located in the same subnet as the SAP BusinessObjects Business Intelligence server
- Data sources (SAP System BWD, database library R3BWDDATA etc.) running on IBM POWER7 server, located in the same subnet as the SAP BusinessObjects Business Intelligence server

SAP Business Warehouse

- IBM System i (Power7) / System x
- IBM i V7.1
- SAP Netweaver 7.02

BusinessObjects Server

- IBM System x
- VMWare eSXi-Container
- BusinessObjects
  Business Intelligence Server

BusinessObjects Clients

- MS Windows XP / 7
- BusinessObjects
  Business Intelligence Client tools
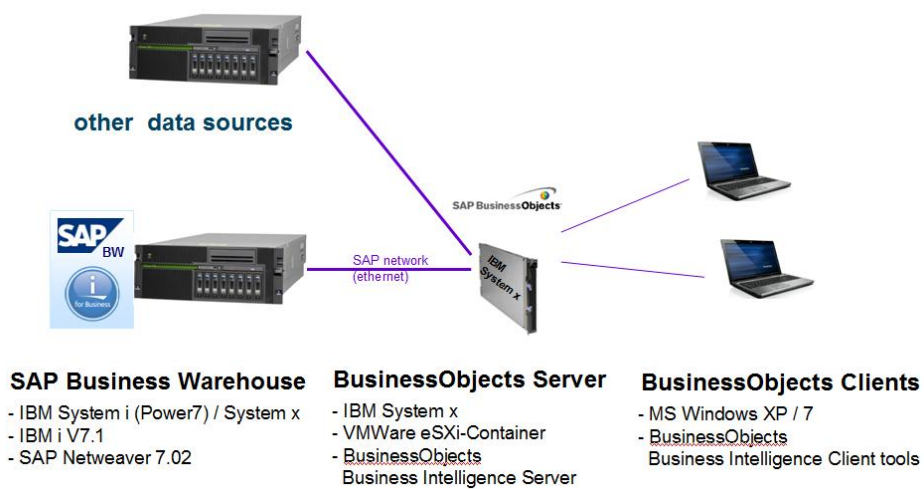
Installation of SAP BusinessObjects Server Components

The software can be downloaded from the following location:

http://service.sap.com/swdc → BusinessObjects Downloads → Browse the SAP BusinessObjects Portfolio → Installation and Upgrade → SBOP Business Intelligence Platform (SBOP Enterprise) → SBOP BI Platform (Enterprise) → SBOP BI Platform 4.0

BusinessObjects Server defines the following set of databases:

- Reporting database

This refers to your organization's information. It is the source information analyzed and reported on by BusinessObjects. Most commonly, the information is stored within a relational database, but it can also be contained within text files, Microsoft Office documents, or OLAP systems.

- CMS system database

The CMS system database is used to store SAP BusinessObjects Business Intelligence information, such as user, server, folder, document, configuration, authorization, and authentication details. It is maintained by the Central Management Server (CMS), and is sometimes referred to as the system repository.

- Auditing Data Store

The Auditing Data Store (ADS) is used to store information on trackable events that occur in SAP BusinessObjects Business Intelligence. This information can be used to monitor the usage of system components, user activity, or other aspects of day-to-day operation.

- Lifecycle Management database

The Lifecycle Management database tracks configuration and version information related to an SAP BusinessObjects Business Intelligence installation, as well as updates.

- Monitoring database

Monitoring uses the Java Derby database to store system configuration and component information for SAP supportability.

In the following sections, the term "BusinessObjects Server database" will be used as a synonym for all the above databases.

Scenario 1: Install and Use Integrated Database

If you do not have a SAP BusinessObjects database server in place, the installation program will install and configure one for you. When using Windows version of SAP BusinessObjects Business Intelligence Server components, MS SQL Server 2008 is the default database server; for Linux, Solaris and AIX, the default database server is IBM DB2 for Linux, Unix and Windows. The installation program will only install a database on the local host. It cannot install across a network.

Scenario 2: Install and Use Existing Database

The SAP BusinessObjects Business Intelligence Server installation can also use an existing database for the BusinessObjects Server database. The following databases (RDBMS) are supported: MySQL, IBM DB2 for Linux, Unix and Windows, Oracle, MaxDB, SyBase. A distributed installation is possible, which means the BusinessObjects server database may reside on a server different from the BusinessObjects Business Intelligence Server.
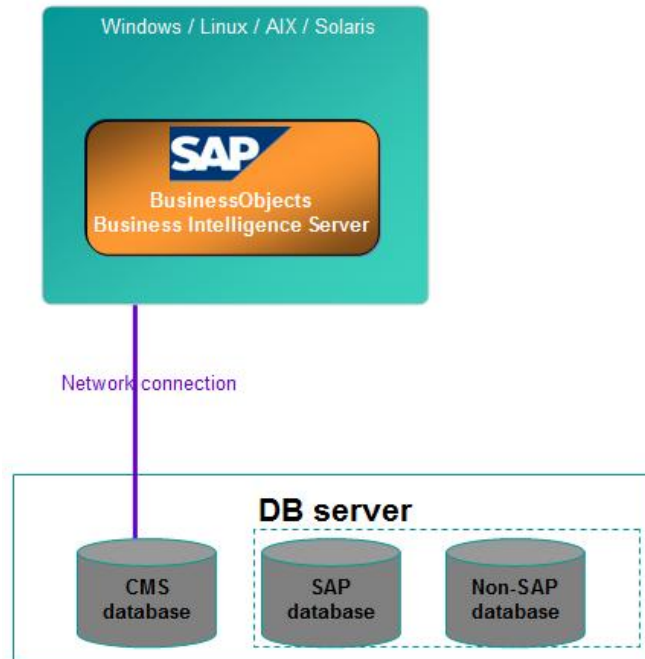
An existing database must have database user accounts with the appropriate database privileges ready, and the appropriate drivers must be installed and verified as working. The setup program attempts to connect to, and initialize, the database as a part of the installation process.

When using a database server on a network, the appropriate database client drivers must be installed and verified as working before installing SAP BusinessObjects Business Intelligence.

How to Integrate Data Sources Located on IBM i

After installation of SAP BusinessObjects Business Intelligence server components, it is the task of the system administrator to define appropriate connections to the data sources, so that the end users can create their reports and perform their analyses using the SAP BusinessObjects Business Intelligence client tools.

The following sections describe how to maintain connections to data sources located on an IBM i server. For more details concerning the usage of the Client Management console and the SAP Universe Design tool, see the "SAP BusinessObjects Business Intelligence Administrator's Guide". For more information about the definition and maintenance of data sources, see the "SAP BusinessObjects Business Intelligence Data Access Guide".

There are two groups of data sources that are relevant for SAP BusinessObjects Business Intelligence: Universes and Business Views.

The universe abstracts the data complexity by using business language rather than data language to access, manipulate, and organize data. This business language is stored as objects in a universe file. Client tools such as Interactive Analysis and Crystal Reports use universes to simplify the process required for simple to complex end-user query and analysis.

All universe objects and connections are stored and secured in the central repository by the Connection Server. Universe design tools need to log into SAP BusinessObjects Business Intelligence to access the system and to create universes. Universe access and row-level security can also be managed at the group or individual user level from within the design environment.
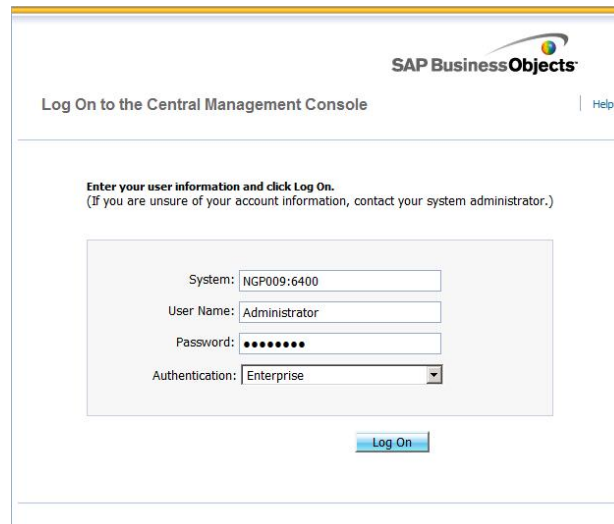
Business Views simplify report creation and interaction by abstracting the complexity of data for report developers. Business Views help separate the data connections, data access, business elements, and access control.

Business Views can only be used by Crystal Reports and are designed to simplify the data access and view-time security required for Crystal report creation. Business Views support the combination of multiple data sources in a single view. Business Views are fully supported in SAP BusinessObjects Business Intelligence.

The following section describes how to create and maintain universe data sources. For Business Views (and according frontend tool Crystal Reports), the procedure is very similar.

Integrate SAP BW Systems

Launch the Client Management Console (CMC), by going to: Start → Programs → SAP BusinessObjects BI platform 4 → SAP BusinessObjects BI platform → SAP BusinessObjects BI platform Central Management Console. Logon as Administrator (Authentication: Enterprise):

Go to menu "OLAP Connections" → "New Connection" to define a new connection to an SAP system:

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Enter the connection information to the SAP system:

Central Management Console

OLAP Connections

Name:	BWD
Description (optional):	BWD
Provider:	SAP NetWeaver Business
Server Information:	

Server Type: Server

System: BWD

Server: NGP008.wdf.sap.corp

System Number: 12

Client: 001

Language: EN

Save Language? ☑

Connect to server to choose a cube: Connect

Authentication: Prompt

Save   Cancel

The connection to SAP system BWD now appears in the list of OLAP connections:

Central Management Console   SAP Business**Objects**

OLAP Connections   Welcome: **Administrator** | Preferences | Help ▼ | Log Off

Manage ▼ Actions ▼ Organize ▼   Find title ▼

	Title ^	Type	Description	Date Modified
Connections				
CommonConnections	CommonConnections	Folder		Feb 1, 2012 9:30 AM
	BWD	OLAP Connection	BWD	Feb 9, 2012 10:45 AM

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To create a universe containing a SAP BW system as data source, open SAP Universe Designer (Start → Programs → SAP BusinessObjects BI Platform 4 → SAP BusinessObjects BI Platform Client Tools → Universe Design Tool). Sign on with authorization "Enterprise":

Use the Quick Design Wizard to create a new universe:
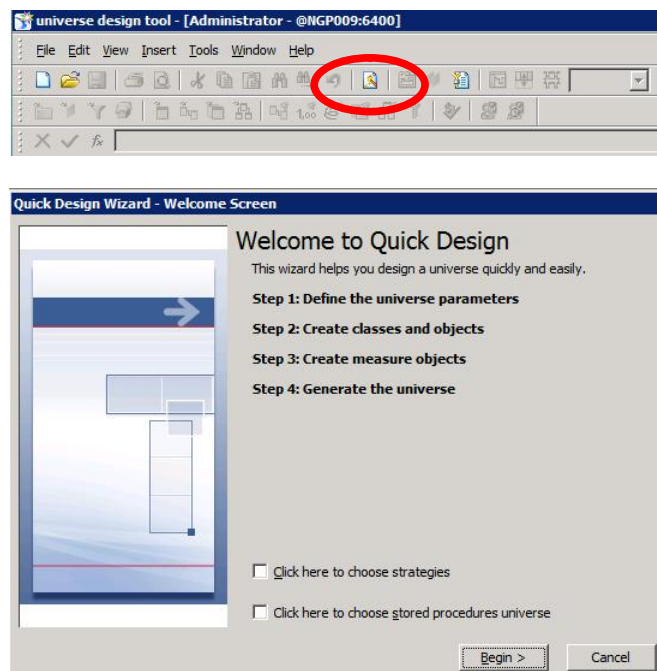
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Give the universe a meaningful name, and click on "New" to maintain the connection data to the SAP system:
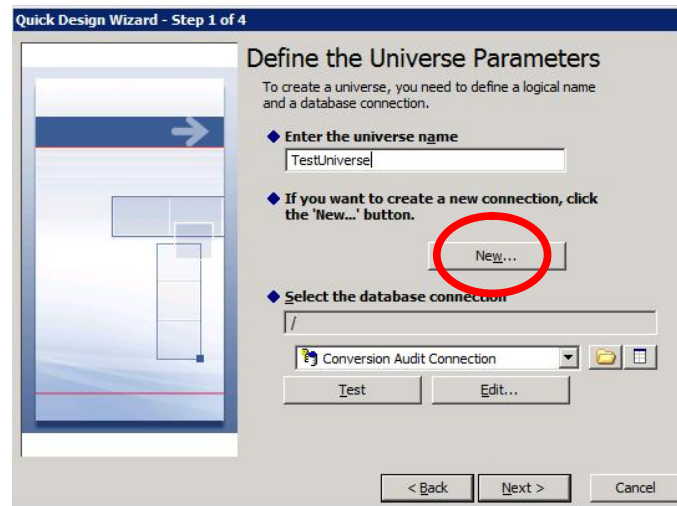
In the new window, select connection type "Shared" and give the connection a meaningful name, then choose "Next":
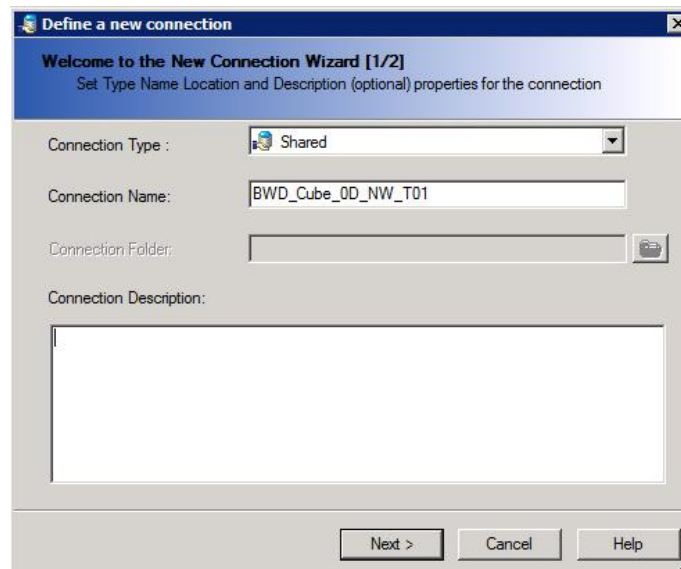
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Select "SAP" → "SAP Business Warehouse" → "SAP Client" as the data access driver:
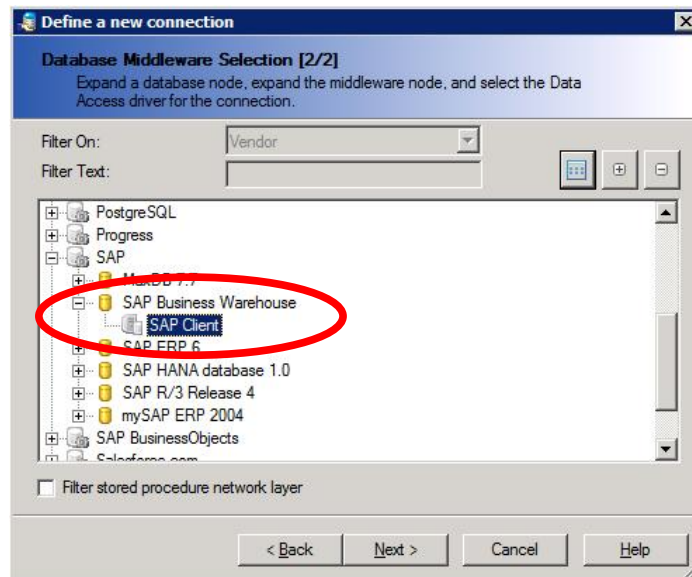
On the next screen, you have to maintain logon information for the SAP system. The SAP user profile must have sufficient authorization to access the data cube and to run SAP queries (SAP role SAP_BW_ALL):
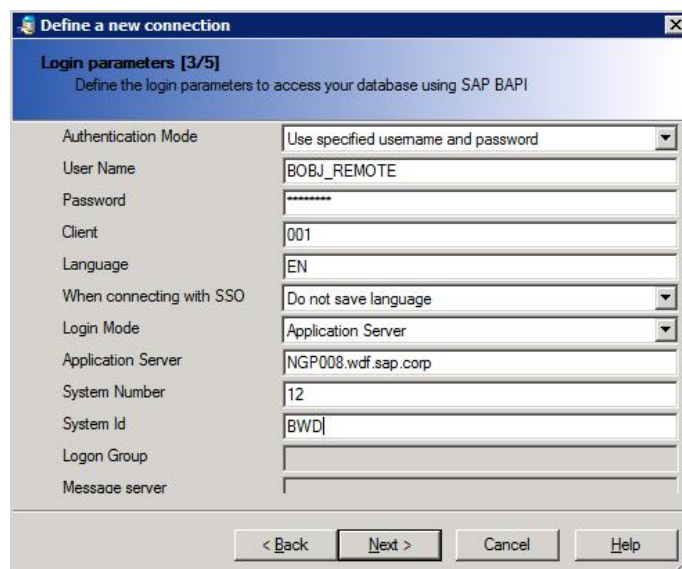
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Select the info cube that contains the data you want to analyze and report:
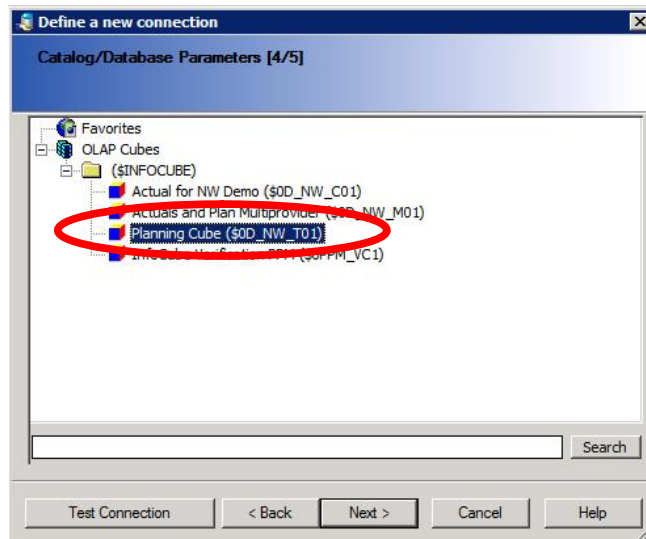
To complete the universe creation, select the "Connection Pool Mode" appropriate for your needs. Then choose "Finish", "Next" and then "Finish":

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Quick Design Wizard - Step 1 of 4

Define the Universe Parameters

To create a universe, you need to define a logical name and a database connection.

◆ **Enter the universe name**

    TestUniverse

◆ **If you want to create a new connection, click the 'New...' button.**

    [New...]

◆ **Select the database connection**

    /

    [BWD_CUBE_0D_NW_T01 ▼]

    [Test]   [Edit...]

[< Back] [Next >] [Cancel]

Quick Design Wizard - Step 4 of 4

Congratulations!

Your universe has been successfully created. It contains:

20 classes
240 objects
0 filters
0 joins

Click Finish to quit the wizard and view the classes and objects and the Structure window.

[< Back] [Finish] [Cancel]

As a result you can see the info cube and its key figures:

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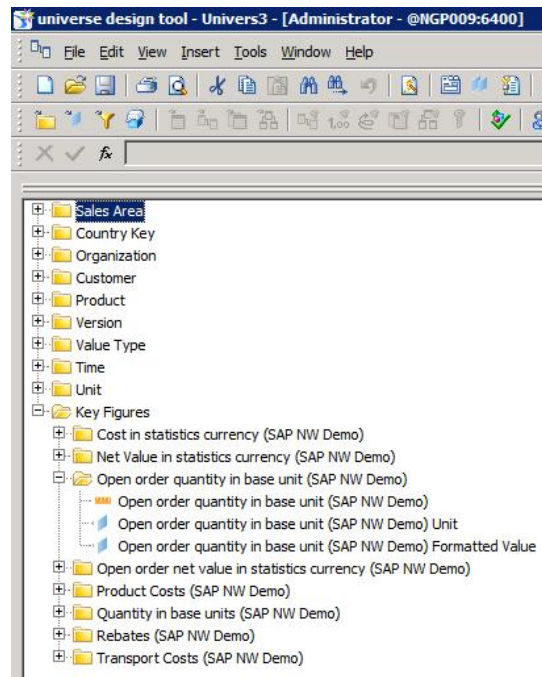
You may restrict the access to the BW data in a similar manner as in an SAP system (with authorization concept based on user profiles and roles), by replicating the existing SAP user profiles and roles into the SAP BusinessObjects Business Intelligence system repository as follows:

Logon to the Client Management Console (CMC) as Administrator (Authentication: Enterprise):
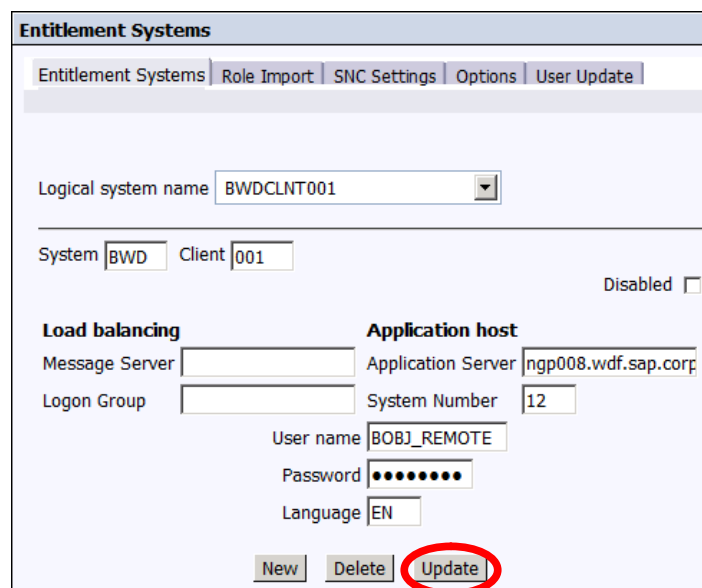
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Go to menu "Authentication" → "SAP":
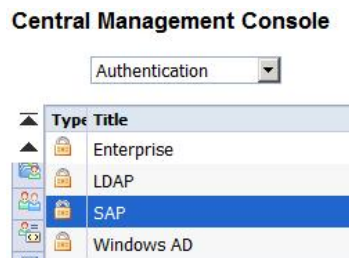
On the "Entitlement Systems" tab, enter the user name and password of an SAP user having the appropriate authority to access the data within the SAP system (e.g. role SAP_BW_ALL), then click on "Update". To be able to import all existing SAP roles for the user, additionally the SAP user must have assigned a (self-created or inherited) role containing the authority objects S_RFC and S_USER_GRP. The "Logical system name" comes from the SAP client (see transaction SCC4) which has to be maintained beforehand:

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On the "Role Import" tab, at the left side select all the roles that should be imported into the SAP BusinessObjects Business Intelligence system repository, then click on "Add" to import them. Finally click on "Update".

On the "Options" tab, select the logical system name from the "Default system" drop-down box. In addition, check box "Enable SAP Authentication" must be selected. Then click on "Update" to confirm. SAP BusinessObjects Business Intelligence supports single sign-on when reporting from SAP ERP and Business Warehouse (BW) systems. To use this feature, specify key store files and SSO information in the "SAP SSO Service" section:

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On the "User Update" tab, click on "Update Now" (to keep the passwords in SAP and CMC in sync, you should schedule a regular update interval using the "Schedule" button):
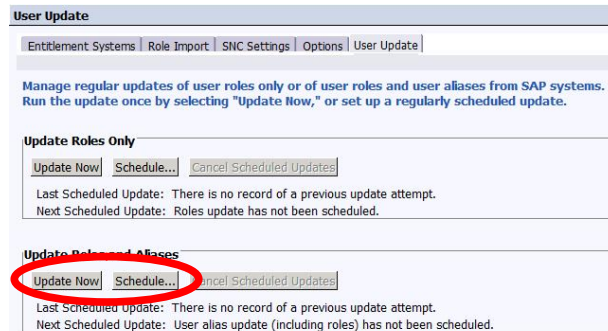
For this example, this will force the SAP BusinessObjects Business Intelligence server to create a CMC user profile „BWD~001/BOBJ_REMOTE", and two CMC destination groups "BWD~001@SAP_BW_ALL" and "BWD~001@Z_SAP_BOBJ_RFC"
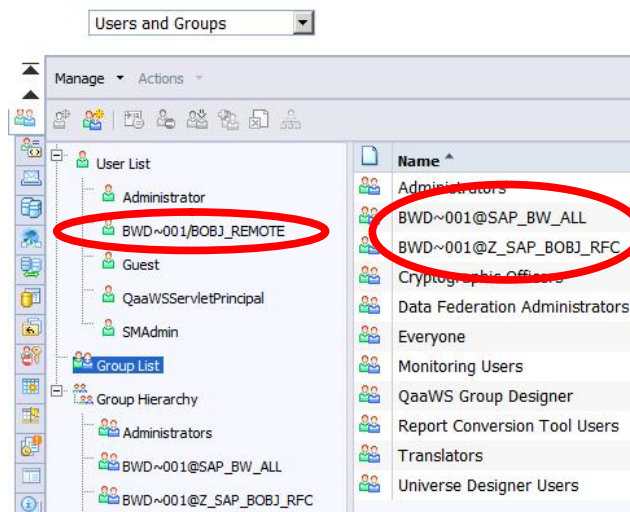
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Based on these existing user profiles and groups, you can now grant or restrict authorities for the users and groups within the SAP BusinessObjects Business Intelligence server landscape. Let's assume, the user profile „BWD~001/BOBJ_REMOTE" should be enabled to create universes using the SAP Universe Design tool:

In the CMC, go to menu "Users and Groups", select the user and right click to display the context menu. Then, click on "Join Group":
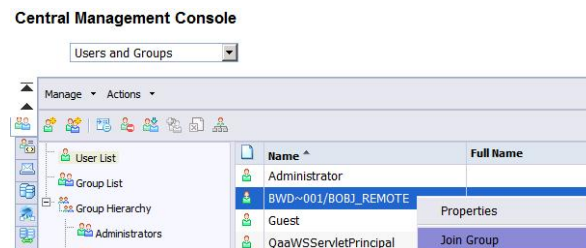
Select "Universe Designer Users" and click on the "Add" button:
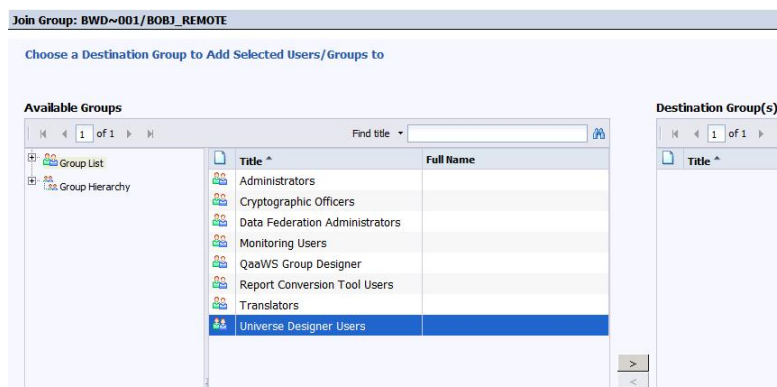
Now, the user profile „BWD~001/BOBJ_REMOTE" can sign on to the SAP Universe Design tool (using the password of BOBJ_REMOTE user profile in SAP system BWD):

Integrate ODBC Data Sources

To establish a connection to an IBM i data sources via ODBC, you must first install IBM i Client Access. This will install the IBM i Access ODBC Driver.

On the BusinessObjects server, map the Integrated File System (IFS) of the IBM i server to a local drive (for example Z:\).

Then run Z:\QIBM\ProdData\Access\Windows\CWBLAUNCH.exe to install IBM i Client Access. We recommend performing a full installation.

After the installation is complete, open the Windows Control Panel → Administrative Tools → Data Sources (ODBC). An IBM i Access ODBC Driver is now available on the "Drivers" tab:
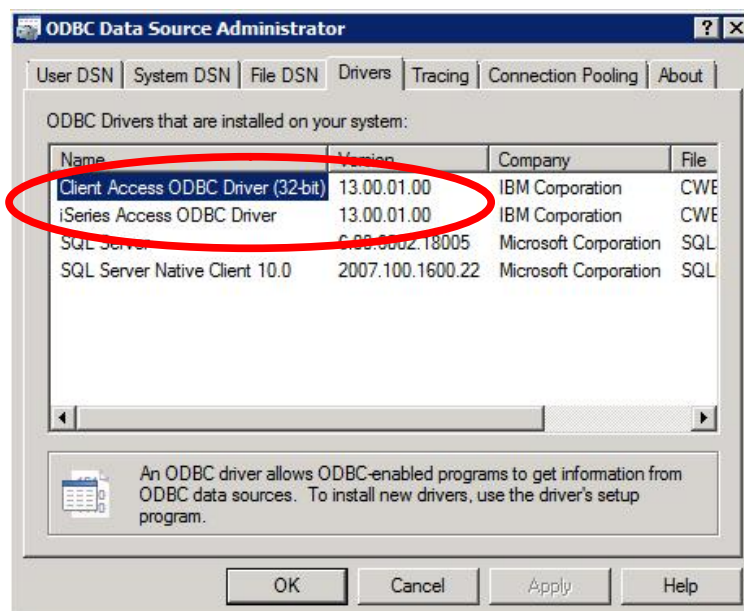
Download and install the latest fix pack for the IBM i Access ODBC Driver which is available at http://www-03.ibm.com/systems/i/software/access/windows/casp.html.

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On the "User DSN" tab, create a new data source, by clicking on "Add":
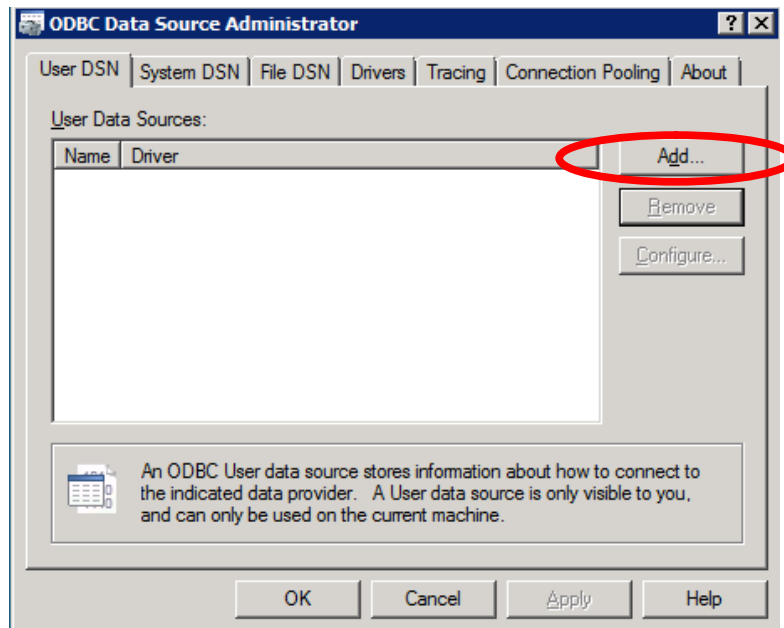
Select the iSeries Access ODBC Driver:

Web location of document (www.ibm.com/support/techdocs)
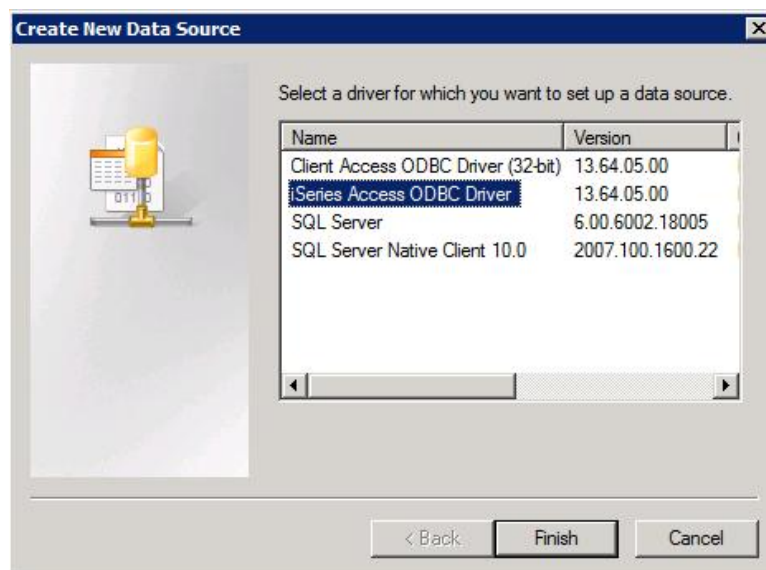
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Give the data source a meaningful name and a description, and enter the server name where the data source is located:
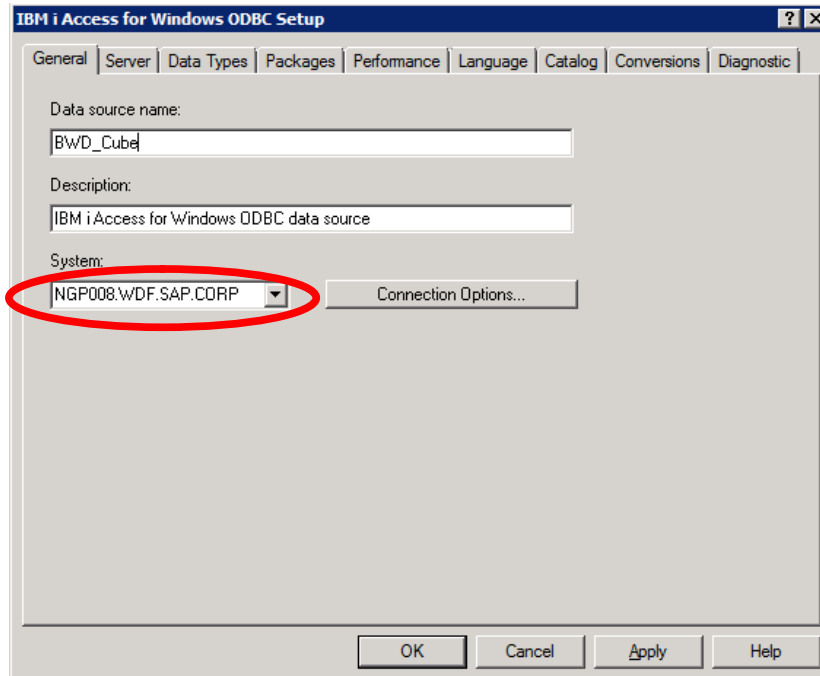
On the "Server" tab, specify the database library that contains the data you want to analyze via SAP BusinessObjects:
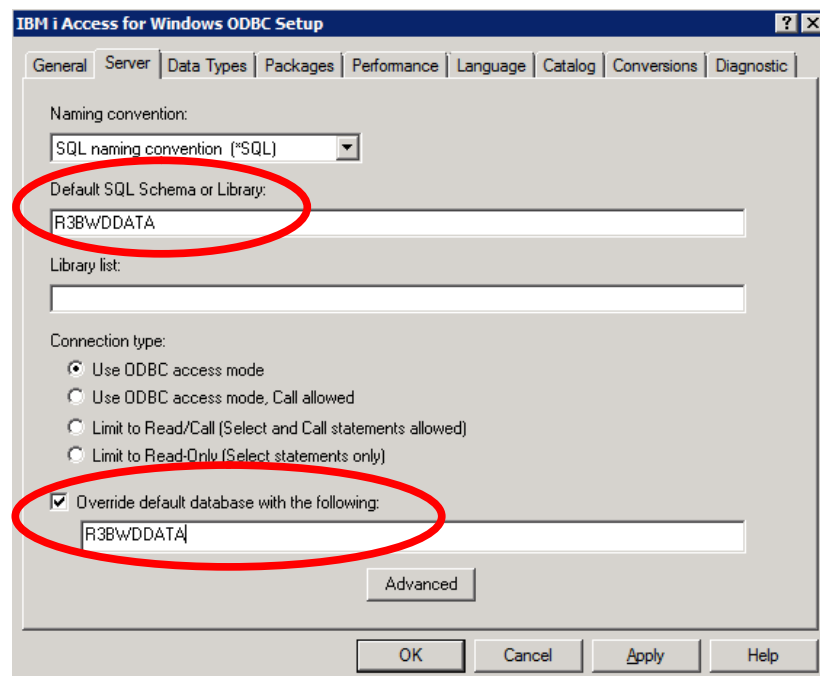
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The created connection now appears in the list of User Data Sources:
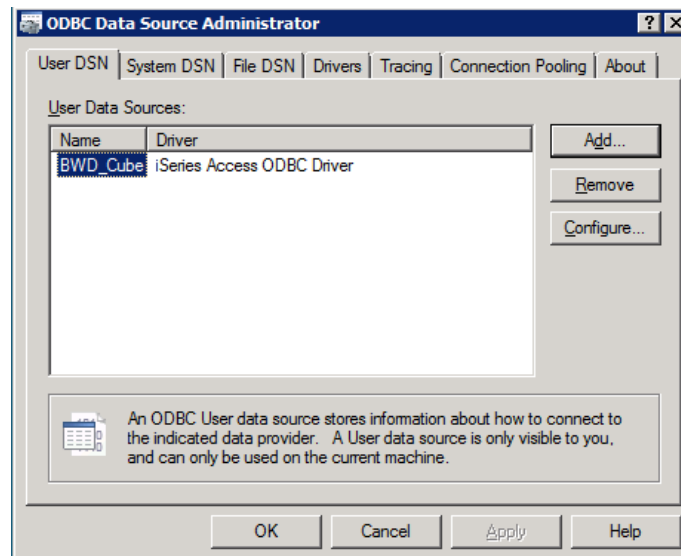
You can now create a new data connection in the SAP Universe Design tool similar to the above documented SAP BW connection. The only difference is, you select "IBM" → "DB2 for i V6" → "ODBC Drivers" instead of "SAP" as data access driver:
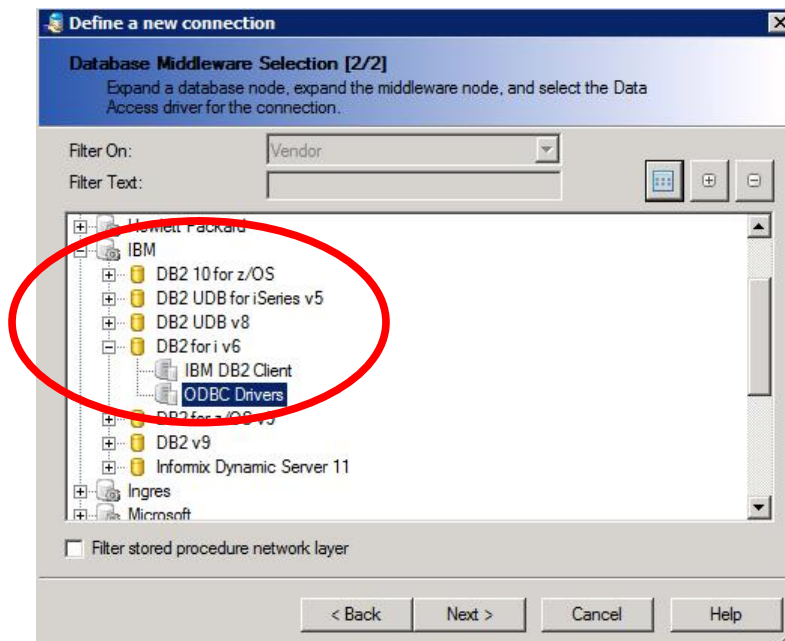
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On the "Login Parameters" screen, you have to specify an i/OS user profile that has authority to access the database library. The Alias "BWD_Cube" comes from the definition of the ODBC connection:
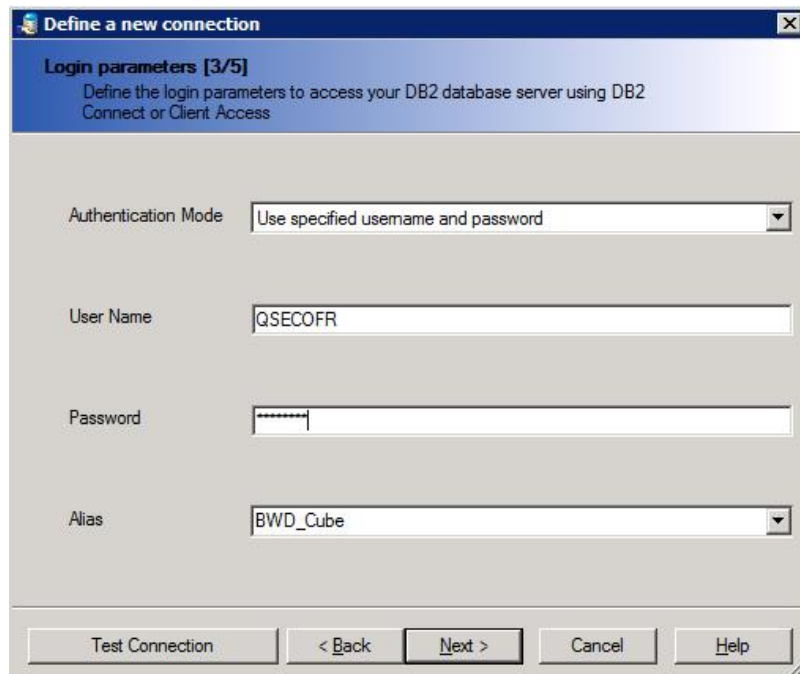
On the "Create Initial Classes and Objects" screen, you can specify the database tables (objects from the database library) that contain the data you want to analyze using SAP BusinessObjects. You can select multiple tables at once, by pressing <CTRL> or <Shift> key and clicking on tables within the list:
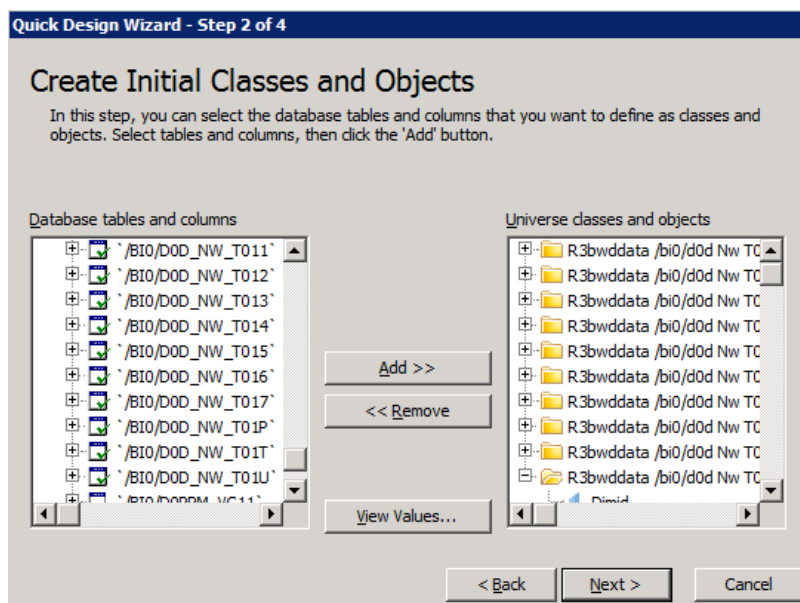
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On the "Create Measure Objects" screen, you define the key figures for the data you want to analyze:
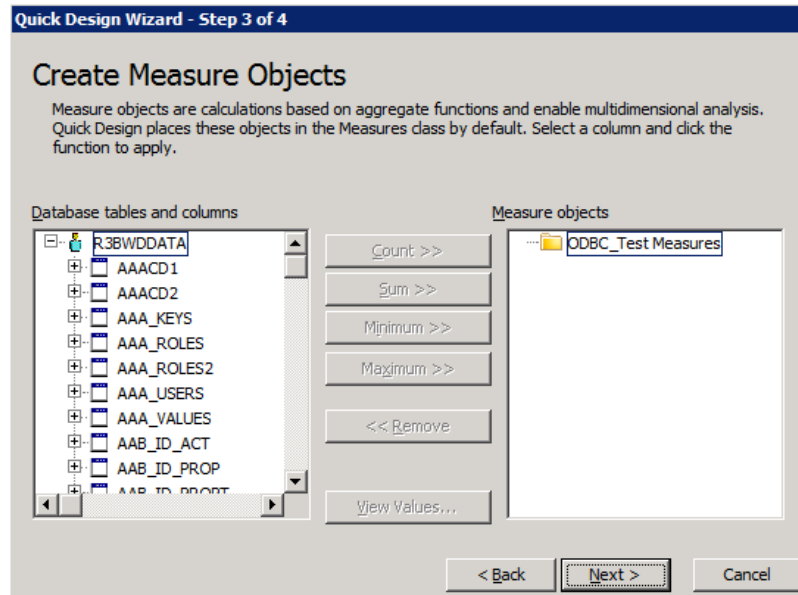
As result, you see the universe containing the tables and the key figures you selected for data analysis:
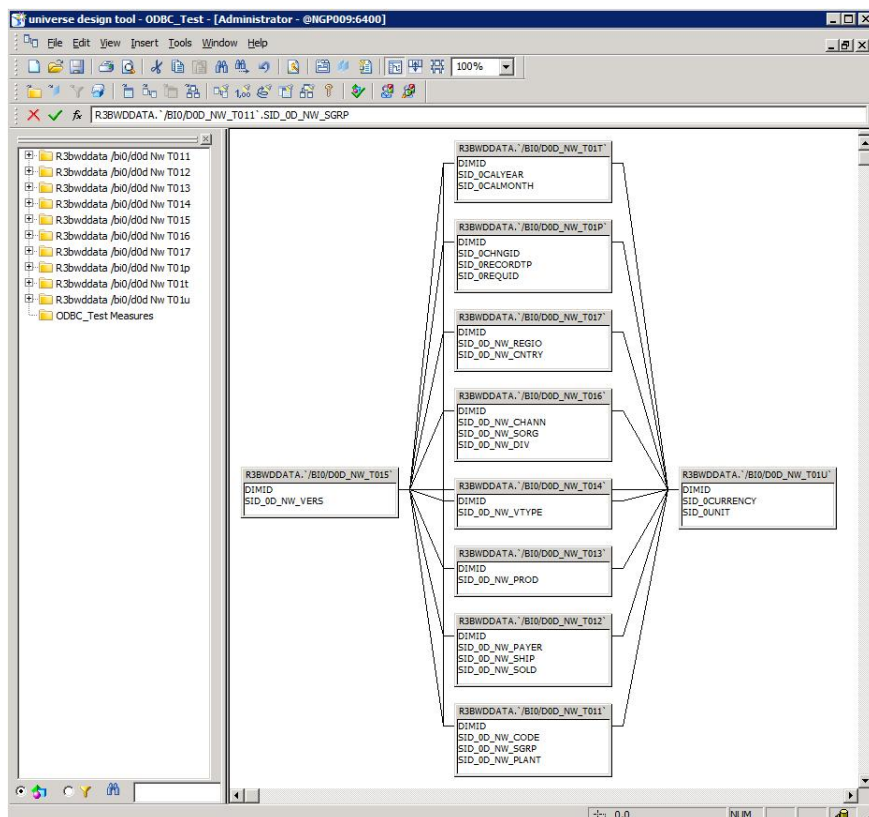
Integrate Other Data Sources

Instead of using ODBC, you can use native data drivers such as RDBMS specific driver or JDBC drivers. Similar to ODBC, the drivers must be installed on the SAP BusinessObjects Business Intelligence server to allow the SAP Universe Designer to use the driver during definition of the connection details.
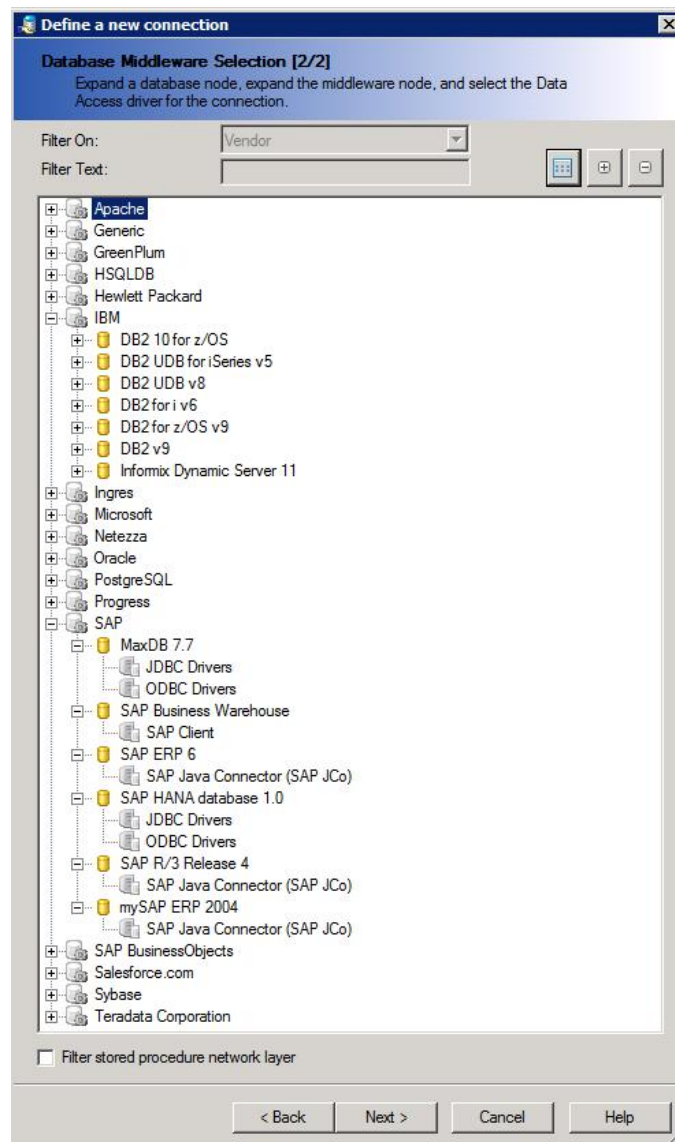
References

IBM Techdocs	http://www.ibm.com/support/techdocs
SAP BusinessObjects product information	http://service.sap.com/bosap-support
SAP Help Portal	Navigate to http://help.sap.com/businessobjects and on the "SAP BusinessObjects Overview" side panel click "All Products". You can access the most up-to-date documentation covering all SAP BusinessObjects products and their deployment at the SAP Help Portal.
	You can download PDF versions or installable HTML libraries. Certain guides are stored on the SAP Service Marketplace and are not available from the SAP Help Portal. These guides are listed on the Help Portal accompanied by a link to the SAP Service Marketplace. Customers with a maintenance agreement have an authorized user ID to access this site. To obtain an ID, contact your customer support representative.
Documentation	http://help.sap.com/boall
Installation guides	https://service.sap.com/bosap-instguides
Release notes	http://service.sap.com/releasenotes
SAP BusinessAnalytics Community	http://www.sdn.sap.com/irj/boc
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