



# Set Analyzer Administrator's Guide

**Version 2.2**

**Windows**

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# BusinessObjects Set Analyzer™

Version 2.2

## Administrator's Guide

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# Finding the Information You Need

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## It's in the Documentation

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**Note:** SET ANALYZER documentation includes the *Set Analyzer Administrator's Guide* and the *Set Analyzer User's Guide*. The information in this chapter pertains only to the documentation available on the BUSINESSOBJECTS CD-ROM, and not to SET ANALYZER documentation.

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Now more than ever, BUSINESSOBJECTS documentation delivers product information that is rich, convenient, and easy-to-use.

Whether you're a novice or experienced user, BUSINESSOBJECTS documentation is the place to go for discovering our products, exploring their features, or locating precise information.

Product information has been substantially expanded to encompass not only facts about product features but also tips, samples, and troubleshooting instructions.

For your convenience, our documentation is available from all products in a variety of formats including Windows online help, HTML, Acrobat PDF, paper, and multimedia.

Documentation has been designed first and foremost with speed and ease of navigation in mind. All the information you require is readily available just a few mouse clicks away.

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If you have access to the Internet, you can checkout More Tips and Samples, the BUSINESSOBJECTS documentation service on the World Wide Web. From here, you can obtain the latest in updates, tips, samples, or troubleshooting.

From the Help menu, you can select the More Tips and Samples command to check out the Tips page.

Open to everyone with an Internet connection, this service lets you get the most out of BUSINESSOBJECTS products and documentation. You can also get there from your browser with the following URL:

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From INFOVIEW, you can go directly to the Tips page by clicking a button on your browser.

From the Tips page, registered customer support contacts can explore the full electronic version of the BUSINESSOBJECTS documentation set. It offers detailed information on all BUSINESSOBJECTS products, updates, troubleshooting instructions, tips, and much more.

Registered Developer Suite customers can download new documentation and code samples.

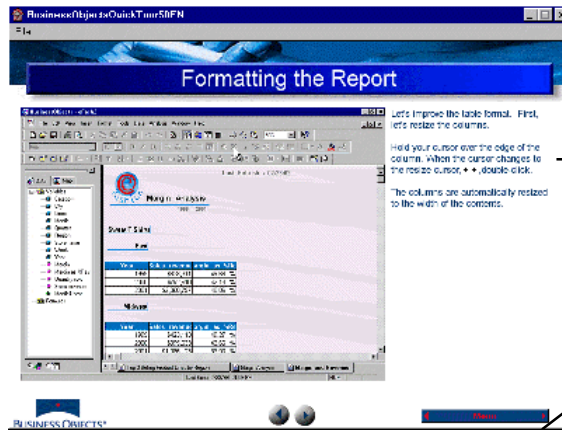
## Multimedia

BUSINESSOBJECTS documentation in multimedia includes Quick Tour and the BUSINESSMINER tutorial, both of which cover the main concepts and features of the products using images and animation.

### Quick Tour

Quick Tour is a multimedia presentation that introduces new features in BUSINESSOBJECTS. Aimed primarily at users updating from a previous version of BUSINESSOBJECTS, it is also an excellent primer for first-time users of the product.

You can use Quick Tour as an accompaniment to the guide *Getting Started with BusinessObjects*.



*An actual screen from Quick Tour*

## The BusinessMiner Tutorial

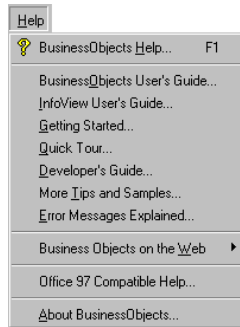
This multimedia tutorial teaches novice users how to use the powerful desktop data mining software, BUSINESSMINER. Each lesson in this tutorial has a narrated, animated presentation which shows users how to answer a business question using BUSINESSMINER. Users can then try out the demonstrated tasks themselves by following the step-by-step exercises in the accompanying guide.

## Online Guides

### User's Guides

All BUSINESSOBJECTS user's guides are available as Acrobat Portable Document Format (PDF) files. Designed for online reading, PDF files enable you to view, navigate through, or print any of their contents. The full list of BUSINESSOBJECTS guides is provided in the Deployment Guide.

From a BUSINESSOBJECTS product, you can gain access to its related guides from the commands of the Help menu.



The Help menu of BusinessObjects provides commands for viewing the BusinessObjects User's Guide, Getting Started with BusinessObjects, and the Error Message Guide. For Developer Suite customers, the menu also displays the Developer's Guide.

From a PDF file, you can search for specific occurrences of a word using the Find command, or navigate to the exact location of a topic by clicking on an entry in the Index or Table of Contents.

During installation, the BUSINESSOBJECTS installer program automatically copies these files to:

### **Business Objects\Online Guides\En**

To open a document, you can select it from the Help menu provided that you have installed the Adobe Acrobat Reader, version 3.0 or higher on your machine. This Reader is available on the BUSINESSOBJECTS CD-ROM. You can also download it for free from Adobe Corporation's web site at:

**<http://www.adobe.com>**

## **The Error Message Guide**

The Error Message Guide is a compilation of the error messages that can appear with ordinary use of BUSINESSOBJECTS products. It is delivered with products as a PDF file or a set of HTML files.

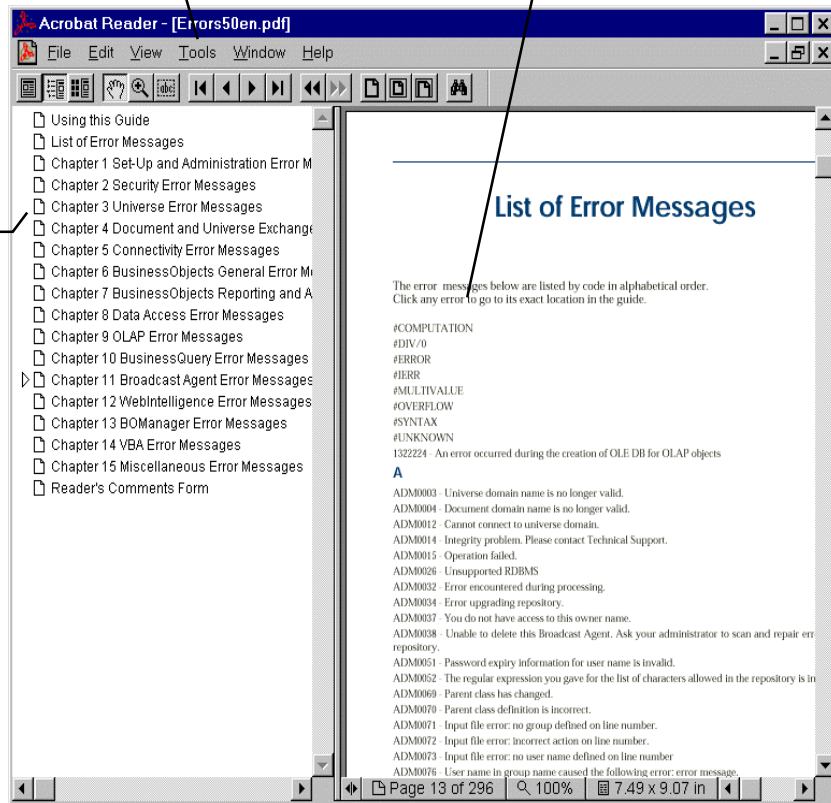
This guide provides you with detailed troubleshooting information so that you can determine the reasons for an error and take the appropriate steps to resolve it. It allows you to search for error messages by code. Each error message appears with its probable cause and the recommended course of action.

You can open this online guide from any of the BUSINESSOBJECTS products by selecting the Error Messages Explained command from the Help menu.

The Find command on the Tools menu lets you search for error messages.

Click an error message to go to its explanation in the guide.

Click the List of Error Messages bookmark to view the error messages by code.



To view the same information from INFOVIEW, you can click the Error Messages button on the interface.

## Online Help

The extensive online help system consists of step-by-step procedures and reference information for all the commands, toolbars, and options of the product.

For BUSINESSOBJECTS Windows desktop products, online help is available in the form of .hlp and .cnt files that comply with the standards of Microsoft Windows online help.

For WEBINTELLIGENCE products, the online help is available as HTML files that are accessible directly from the interface.

## What to Do for More Information

If you cannot find the information you are looking for, then we encourage you to let us know as soon as you can. Feel free to send us any requests, tips, suggestions, or comments you may have regarding this or other BUSINESSOBJECTS documentation using the Reader's Comment Form at the back of this guide.

If you would like to contact us directly by e-mail, please write to:

**[documentation@businessobjects.com](mailto:documentation@businessobjects.com)**

To find out information about Business Objects products and services, visit our web site at:

**<http://www.businessobjects.com>**.

## About this Guide

This guide describes the various concepts, tasks, and procedures required to install and administer SET ANALYZER. This includes an overview of sets and descriptions of the tasks that you perform to install SET ANALYZER, connect it to a database, create a set repository, add users, configure metadata to enable set processing, and schedule updates for accelerators and sets.

## Audience

This guide is intended for system administrators who will be installing and managing SET ANALYZER.

System administrators must have a working knowledge of RDBMS and SQL.

To successfully install SET ANALYZER, the person or team of people installing SET ANALYZER must have the following skills:

- Standard Windows 95, Windows 98, Window 2000, and Windows NT administration skills

- Standard database connectivity administration skills

To successfully integrate sets created with SET ANALYZER with BUSINESSOBJECTS, the person or team of people managing SET ANALYZER must have a working knowledge of BUSINESSOBJECTS DESIGNER.

## Conventions Used in this Guide

The conventions used in this guide are described in the table below.

Convention	How Used
SMALL CAPITALS	The names of all products such as SET ANALYZER, DESIGNER, SUPERVISOR, BUSINESSOBJECTS, WEBINTELLIGENCE.
This font	The names of BUSINESSOBJECTS classes, objects and conditions. For example, Customer, Sales, Revenue, Service, etc.
This font	Code, SQL syntax, computer programs. For example: @Select(Country\Country Id)

# Chapter 1 Introduction

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## Overview

This chapter describes SET ANALYZER and the tasks that you perform as a SET ANALYZER administrator to enable end users to create and modify sets. The chapter describes each tool in the SET ANALYZER suite of tools and the contents of the SET ANALYZER CD-ROM.

## What is Set Analyzer?

SET ANALYZER is a suite of tools that helps end users create sets for their data. After you, the administrator, integrate these sets with BUSINESSOBJECTS, end users can use them to create their BUSINESSOBJECTS reports.

## What is a Set?

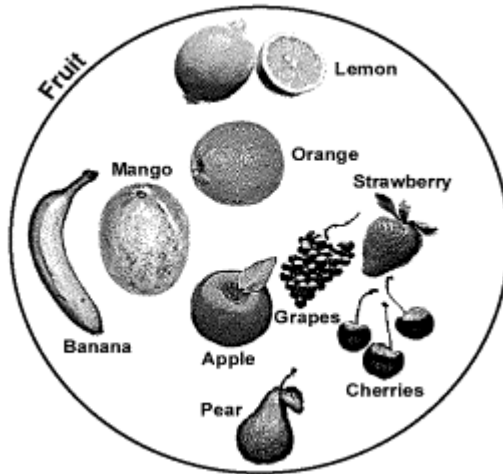
We instinctively categorize items to enable us to use them in a more efficient manner. We think in terms of collections of things, such as prime numbers, cities with over a million inhabitants, and fruit. These collections, or sets, makes our use of lists of items easier to communicate and to manage.

**Example**     **A set that contains fruit**

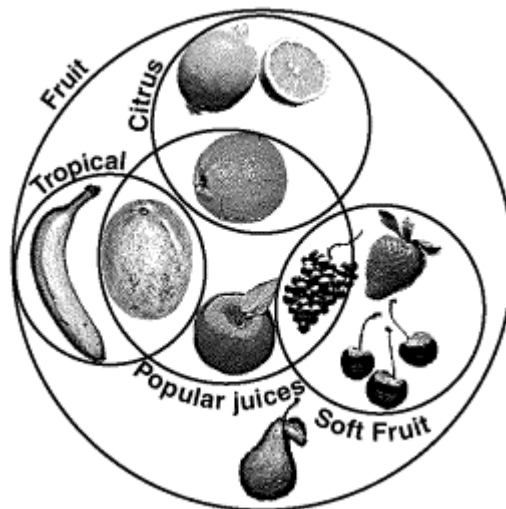
.....  
Consider a set that contains fruit. The set 'fruit' contains all fruits and may contain any number of sub categories of fruits; e.g. citrus, soft fruit, etc.

Strawberries and oranges are both in the set 'fruit' and may also be grouped in separate sub-categories or sub-sets: oranges in the sub-set 'citrus fruits' and strawberries in the sub-set 'soft fruit'.

The set 'fruit' might contain apples, oranges, cherries, bananas, strawberries, lemons, pears, and mangoes. Each of these might belong to one or more of a number of sub-sets that a user might create such as citrus fruits, soft fruits, tropical fruits, and popular juices. The following two figures show a set of fruit and a set of fruit divided into sub-sets.



*Set of fruit*



*Set of fruit with sub-sets*

The identification of sets is a useful method of categorizing items. Two sets may share items that conform to the characteristics of both sets. These sets are said to overlap. For example grapes occur in the sub-sets 'soft fruit' and 'popular juices'. Both of these sub-sets also occur wholly within the set 'fruit'.

.....

## Set Analyzer Administrators and Users

There are two categories of SET ANALYZER user: The SET ANALYZER Administrator (administrator) and SET ANALYZER user. Often these roles are shared but they are discriminated in order to separate the technical complexity that underpins SET ANALYZER from the day to day process of producing sets. The administrator manages the technical aspects of installing SET ANALYZER, connecting SET ANALYZER to the database, configuring meta data to allow the SET ANALYZER user to create sets, integrating the set tables with a BUSINESSOBJECTS universe, and scheduling updates of fast counts and sets.

## What's Involved in Creating a Set?

The following table lists the steps involved in installing SET ANALYZER and creating a set.

Step description	Done by	For more information, see
Install SET ANALYZER	SET ANALYZER Administrator	Chapter 2, "Installing Set Analyzer" and the <i>Set Analyzer User's Guide</i>
Connect SET ANALYZER to a database	SET ANALYZER Administrator	Chapter 3, "Connecting Set Analyzer to a Database" and the <i>Set Analyzer User's Guide</i>
Create the set repository	SET ANALYZER Administrator	Chapter 4, "Creating the Set Repository"
Specify users, user groups and profiles	SET ANALYZER Administrator	Chapter 5, "Managing User Security"
Configure metadata to enable set creation	SET ANALYZER Administrator	Chapter 6, "Configuring Metadata"
Configure calendars for use in set building	SET ANALYZER Administrator	Chapter 7, "Configuring Calendars"
Configure object trees and fast counts	SET ANALYZER Administrator	Chapter 8 "Configuring Navigation"

Step description	Done by	For more information, see
Create sets	SET ANALYZER User	<i>Set Analyzer User's Guide</i>
Integrate set tables with BUSINESSOBJECTS universe	SET ANALYZER Administrator	Chapter 9, "Integrating Sets with BusinessObjects"
Schedule updates for fast counts and sets	SET ANALYZER Administrator	Chapter 10, "Scheduling Updates"

## What Other Tasks Do Administrators Perform?

Administrators also perform these tasks:

Task description	For more information, see
Configure SET ANALYZER global behavior	Chapter 11, "Other Administrator Tasks"
Upgrade SET ANALYZER repository database	Chapter 11, "Other Administrator Tasks"

## Set Analyzer Applications

You perform the different SET ANALYZER tasks with SET ANALYZER applications as shown in the following table.

Task description	Done by	Using the SET ANALYZER application
Connect SET ANALYZER to a database	SET ANALYZER Administrator	SET ANALYZER Connect
Maintain security (create Users, user groups, and profiles)	SET ANALYZER Administrator	SET ANALYZER Architect
Create Set Repository	SET ANALYZER Administrator	SET ANALYZER Architect

Task description	Done by	Using the SET ANALYZER application
Configure metadata to enable set creation	SET ANALYZER Administrator	SET ANALYZER Architect
Configure object trees and fast counts	SET ANALYZER Administrator	SET ANALYZER Architect
Create sets	SET ANALYZER user	SET ANALYZER
Integrate set tables with BUSINESSOBJECTS universe	SET ANALYZER Administrator	SET ANALYZER Architect and BUSINESSOBJECTS Designer
Schedule updates for fast counts	SET ANALYZER Administrator	SET ANALYZER Architect and SET ANALYZER Agent
Schedule updates for sets	SET ANALYZER user	SET ANALYZER and SET ANALYZER Agent
Configure SET ANALYZER global behavior	SET ANALYZER Administrator	SET ANALYZER Architect
Upgrade SET ANALYZER repository database	SET ANALYZER Administrator	SET ANALYZER Architect

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**Note:** After you, the SET ANALYZER Administrator, configure the SET ANALYZER metadata to enable users to create sets, you can integrate the sets into a BUSINESSOBJECTS universe using BUSINESSOBJECTS Designer.

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## Contents of the Set Analyzer CD-ROM

The SET ANALYZER CD-ROM contains the following:

- SET ANALYZER software – SET ANALYZER software includes the installer and the SET ANALYZER software applications.

- SET ANALYZER documentation – SET ANALYZER documentation includes PDF files for the *Set Analyzer Administrator's Guide* and the *Set Analyzer User's Guide*.
- SET ANALYZER sample database – The sample database was created with Microsoft Access for use with SET ANALYZER. The data is fictitious. This database and the sets created from it are used throughout the documentation and can be used to recreate the examples.
- Adobe Acrobat Reader – The software required for reading the online documentation is provided. The installation procedure is outlined in a Readme file included in the Acrobat subdirectory.
- Borland Database Engine – The Borland Database Engine provides SET ANALYZER with its native connectivity.



# Chapter 2      Installing Set Analyzer

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## Overview

This chapter presents the hardware and software requirements for installing SET ANALYZER, and shows you how to install SET ANALYZER.

## System Requirements

### Hardware Requirements

To install and use SET ANALYZER, you need:

- A personal computer with a Pentium 90 processor or higher
- A hard disk
- A CD-ROM drive
- A VGA or higher-resolution monitor capable of 800 x 600 (or higher) display; 1024 x 768 recommended
- A Microsoft compatible mouse or pointing device

### Software Requirements

To install and use SET ANALYZER, you need one of the following versions of Microsoft Windows:

- Microsoft Windows 95 or 98 or 2000
- Microsoft Windows NT 4.0 (workstation or server versions, service pack 4 or above)
- Microsoft Windows 2000 (without service pack 1)

## Memory Requirements

To install and use SET ANALYZER, you need the following RAM:

Microsoft Windows version	Minimum RAM
Windows 95, 98	32 MB
Windows NT, 2000	64 MB

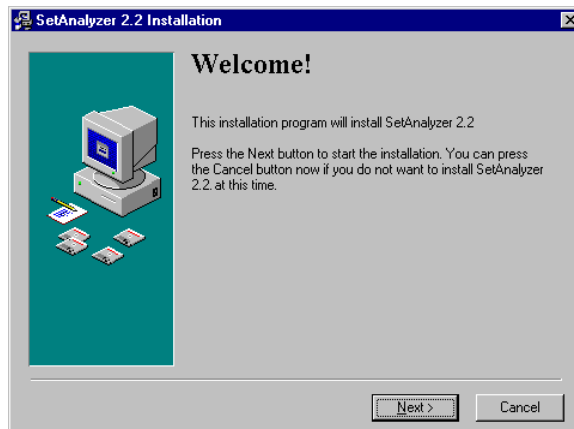
## Disk Space Requirements

To install and use SET ANALYZER, you need the following disk space:

Microsoft Windows version	Minimum disk space	
	<i>with demo database</i>	<i>without demo database</i>
Windows 95, 98, NT, 2000	90 MB	35 MB

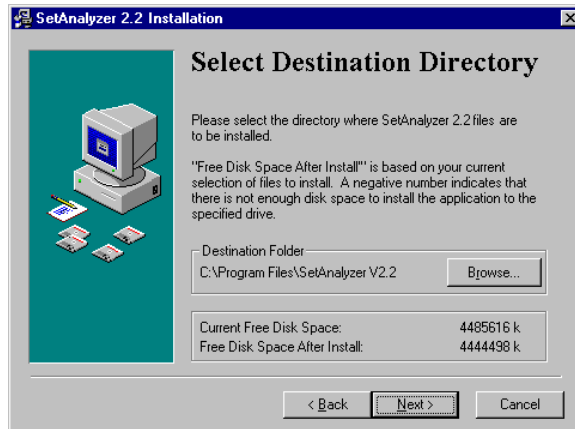
## Installing Set Analyzer

1. Restart Windows and close any programs that are running. Do not start any other applications.
2. Insert the SET ANALYZER CD-ROM into your CD-ROM drive. The SET ANALYZER installation Welcome screen appears.



3. Follow the instructions on the screen by clicking the Next button.

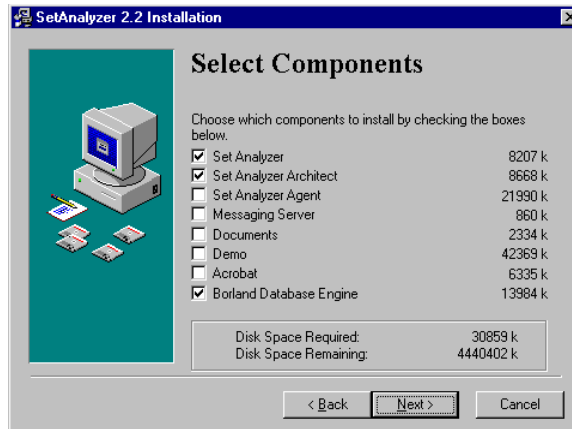
The Select Destination Directory screen appears.



4. Select the destination folder for SET ANALYZER.

If you want to	Then
install SET ANALYZER in the default target drive and directory, C:\Program Files\SetAnalyzer,	click Next.
install SET ANALYZER in a different directory,	click Browse to choose a different drive or directory. After choosing the new directory, you return to the Select Destination Directory screen. Click Next.

The Select Components screen appears. The Select Components screen shows you how much disk space is required for each component.



5. Find out which components to install from the SET ANALYZER Administrator. Select the components you want to install. The following components are available.

Component	Description
SET ANALYZER	You use SET ANALYZER to process sets from metadata that the SET ANALYZER Administrator configures in the Set Repository.
SET ANALYZER Architect	SET ANALYZER Administrators use SET ANALYZER Architect to configure users for the system and to configure the metadata in the Set Repository.
SET ANALYZER Agent	SET ANALYZER Administrators use SET ANALYZER Agent to schedule updates for accelerators and sets. <b>Note:</b> You can install this component only on Windows NT 4.0 and only if your license key allows it.
Messaging Server	The Messaging Server handles communications among all SET ANALYZER modules involved in task scheduling, which is handled by SET ANALYZER Agent.  The Messaging Server is a prerequisite for the scheduling module. If you are not installing the scheduling module, there is no need to install the Messaging Server.
Documents	PDF versions of the SET ANALYZER documents.
Demo	The sample database in Microsoft Access format.

Component	Description
Acrobat	Adobe Acrobat Reader
Borland Database Engine	Enables SET ANALYZER to connect to the database. <b>Important:</b> You must install this the first time any SET ANALYZER component is installed. SET ANALYZER requires Version 5.0 of the Borland database engine. If you have already installed Version 5.0 of the Borland database engine for other applications, you do not need to reinstall it.

6. Click the Next button to continue with the installation. Follow the on-screen instructions.

When the installation is complete, a message appears indicating that the process has been successful.

# Connecting Set Analyzer to a Database

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## Overview

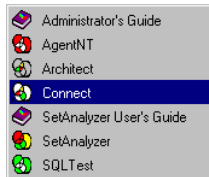
This chapter shows you how to connect SET ANALYZER to a database, which you need to do in order to have access to the fields that form your sets. Connecting SET ANALYZER to a database is normally the first step after installing the software. You connect SET ANALYZER to a database with SET ANALYZER Connect. By default, SET ANALYZER Connect is run automatically after installing SET ANALYZER.

SET ANALYZER uses its native connectivity to connect to most databases. The Borland Database Administrator (BDE) provides SET ANALYZER with its native connectivity. Using SET ANALYZER Connect, you avoid having to manually configure the BDE. This chapter also shows you how to configure the BDE manually which can be useful if there any problems related to connectivity.

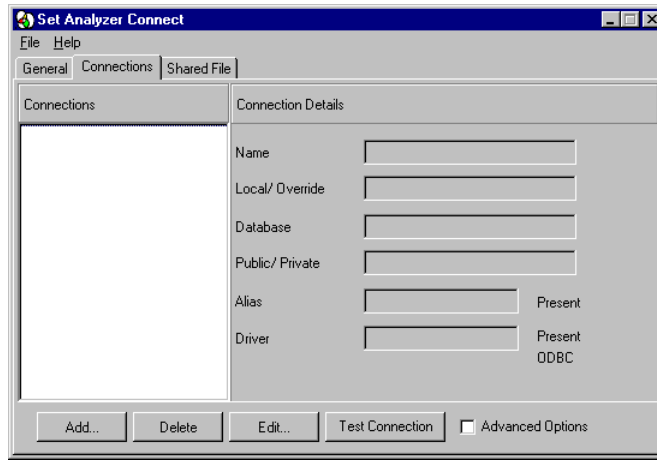
## Adding a New Connection

You use SET ANALYZER Connect to add a new connection.

1. From the SET ANALYZER menu, select the SET ANALYZER Connect item to display SET ANALYZER Connect.



SET ANALYZER Connect appears on your screen.



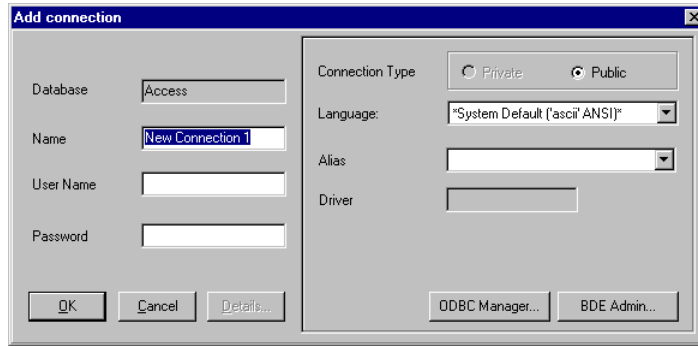
2. Click the Connections tab and click the Add button.

The Select Database dialog box appears on your screen. The list of databases will depend on your license key. Only databases to which you have access will be displayed.



3. Select the type of database for the connection and click the Select button.

The Add Connection dialog box is displayed.



4. Type a name for the connection in the Name field.
5. Complete the other fields of the dialog box and click OK to save the new connection.

The fields included in the Add Connection dialog box and how you complete them change from one database to another. How to connect to each database is discussed in the sections that follow.

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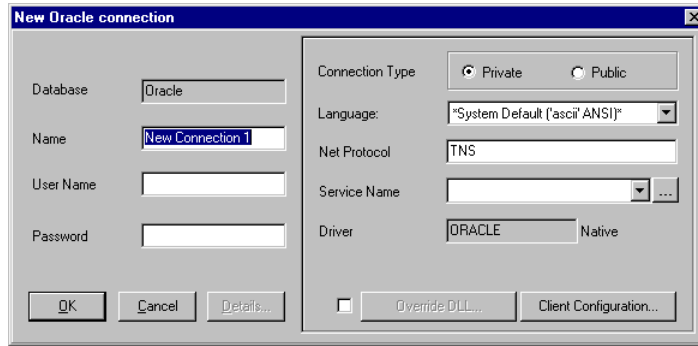
**Note:** The connection definition is stored in the setconnect.con file. This file must be copied to the end user PCs.

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## Connecting to an Oracle Database

The following procedure describes how to create a new connection to an Oracle database.

1. In the Select Database dialog box, select Oracle and click Select.  
The Edit Oracle Connection dialog box is displayed.



2. In the Name box, type a name for the new connection. The name can be whatever you choose.
3. In the User Name and Password boxes, type the user name and password of the database user that you use within Oracle.
4. Select the language you want to use.
5. Enter the net protocol to be used (normally TNS).
6. Select the available Oracle Service or Instance that you want to use from the Service Name list.

If the required service name is not listed in the drop-down list, it means that the Oracle TNS names file is not stored locally on your PC. You must enter the service name manually.

Do this by clicking on the box to the right of the drop-down list and typing in the service name manually. You must also select the correct connectivity on this screen.

7. Select a connection type.

If	Then
you want a private connection,	<p>click Private.</p> <p>A native Oracle driver will be used and the connection is complete.</p> <p><b>Note:</b> Private is the default connection type and it is recommended that you use private connections in preference to public. A private connection will cause the connection to be made natively through SQL Net or Net8.</p>

If	Then
you want a public connection,	click Public. Set up an ODBC connection. See the section "Creating a new ODBC Source."

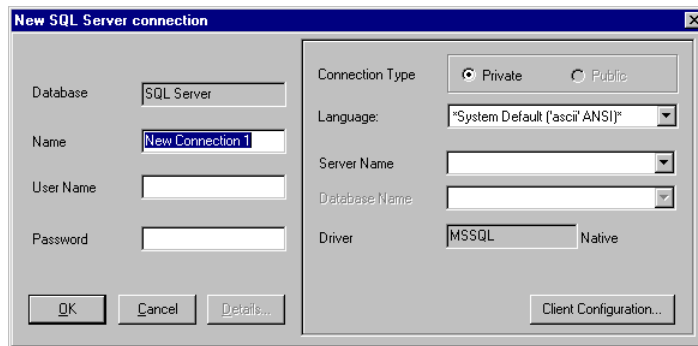
8. Click OK to save the connection.

## Connecting to an SQLServer Database

The following procedure describes how to create a new connection to a SQLServer database.

1. In the Select Database dialog box, select SQL Server and click Select.

The New SQL Server Connection dialog box is displayed.



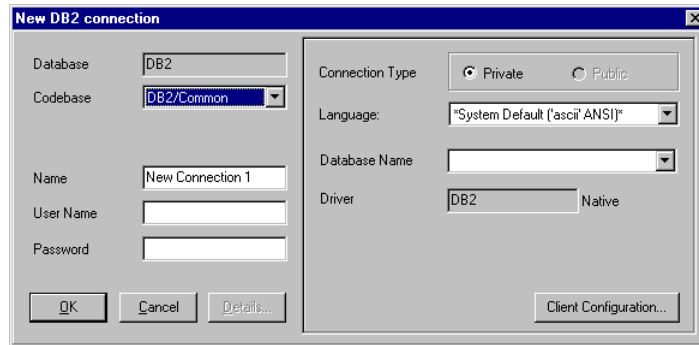
2. In the Name box, type a name for the new connection. The name can be whatever you choose.
3. In the User Name and Password boxes, type the user name and password of the database user that you use with SQL Server.
4. Select the language you want to use.
5. Type the name of the server and the name of the database for the connection in the Server Name and Database Name boxes respectively. You may either do this by selecting from the drop-down lists, or by typing in the names manually.
6. Click OK to save the connection.

## Connecting to a DB2 Database

The following procedure describes how to create a new connection to a DB2 database.

1. In the Select Database dialog box, select DB2 and click Select.

The New DB2 Connection dialog box is displayed.



2. In the Codebase box, choose the correct option.

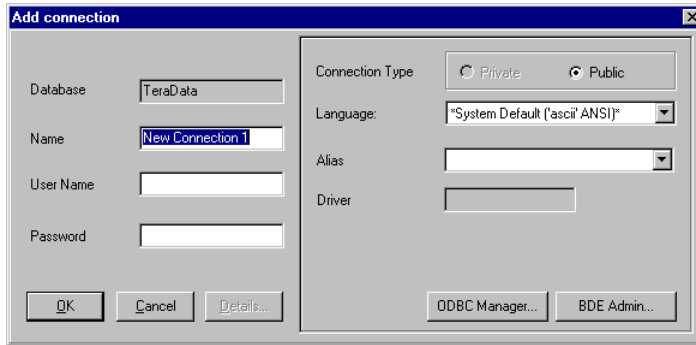
**Tip:** The Connection Type is selected automatically depending on your selection in the Codebase box.

3. In the Name box, type a name for the new connection. The name can be whatever you choose.
4. In the User Name and Password boxes, type the user name and password of the database user that you use to connect to the DB2 database. The user name and password are case sensitive.
5. Select the language you want to use.
6. In the Database Name box, type the name of the database for the connection. It must be a valid database name or alias on the system.
7. Select a connection type.
8. Click OK to save the connection.

## Connecting to a Teradata Database

The following procedure describes how to create a new connection to a Teradata database.

1. In the Select Database dialog box, select Teradata and click Select. The Add Connection dialog box is displayed.



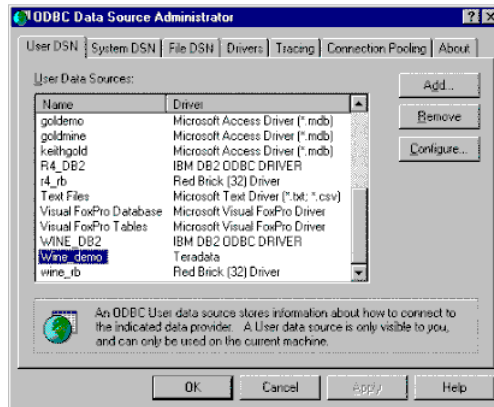
2. In the Name box, type a name for the new connection. The name can be whatever you choose.
3. In the User Name and Password boxes, type the user name and password of the database user that you use to logon to the data source.
4. Select the language you want to use.
5. From the Alias list, select the data source.

If	Then
the data source you want for the connection is in the Alias list	select the data source and proceed to Step 11
the data source you want is not in the Alias list,	click ODBC Manager. The ODBC Data Source Administrator appears on your screen. Proceed to the next step.

---

**Note:** Teradata does not allow private connections as no native drivers are provided. Teradata connections are always based on Teradata ODBC connections defined with the ODBC Manager.

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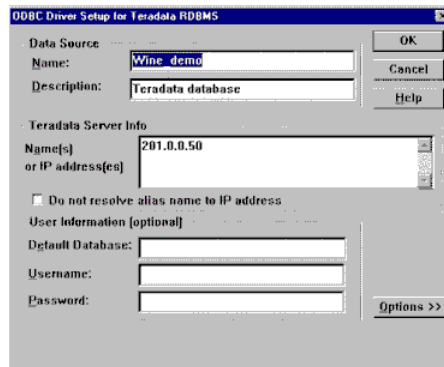


6. Click the Add button.

The Create New Data Source dialog box appears on your screen.

7. Select Teradata.

The ODBC Driver Setup for Teradata dialog box is displayed.



8. Enter the appropriate details including the name of the data source and the name of the server where it resides.

9. Click OK.

You are returned to the ODBC Data Source Administrator.

10. Click OK.

You are returned to the Add Connection dialog box.

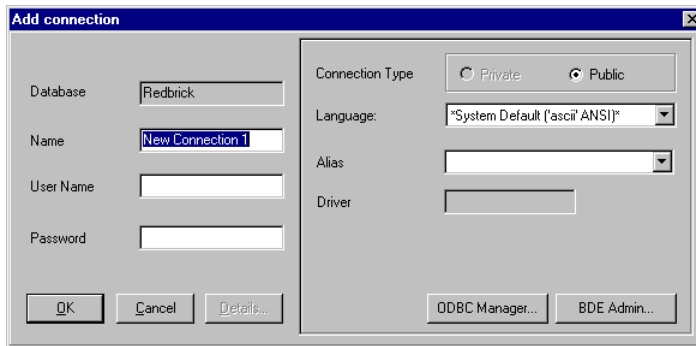
The data source is added to the Alias list.

11. From the Alias list, select the data source for the connection.  
The name of the driver is provided automatically.
12. Click OK to save the connection.

## Connecting to a Red Brick Database

The following procedure describes how to create a new connection to a Red Brick database.

1. In the Select Database dialog box, select Red Brick and click Select.  
The Add Connection dialog box is displayed.



2. In the Name box, type a name for the new connection. The name can be whatever you choose.
3. In the User Name and Password boxes, type the user name and password of the database user that you use to logon to the database.
4. Select the language you want to use.
5. From the Alias list, select the data source.

If	Then
the data source you want for the connection is in the Alias list,	select the data source and proceed to step 11.

If	Then
the data source you want is not in the Alias list,	click ODBC Manager. The ODBC Data Source Administrator appears on your screen. Proceed to the next step.

---

**Note:** Red Brick does not allow private connections as Red Brick does not provide any native drivers. Red Brick connections are always based on Red Brick ODBC connections defined with the ODBC Manager.

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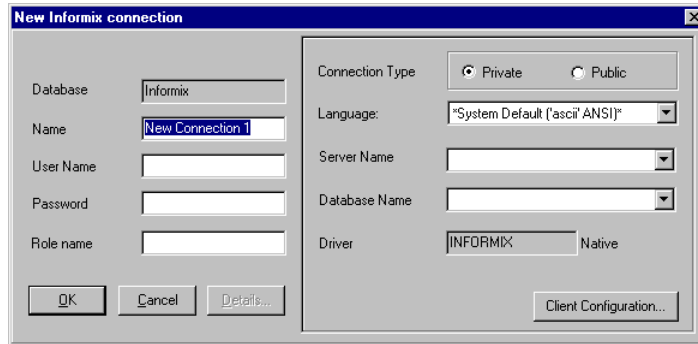
6. Click the Add button.  
The Create New Data Source dialog box appears on your screen.
7. Select Red Brick (32) Driver and click OK.  
The ODBC Driver Setup for RedBrick dialog box appears on your screen.
8. Enter the appropriate details, including the name of the data source and the name of the server where it resides.
9. Click OK.  
You are returned to the ODBC Data Source Administrator.
10. Click OK.  
You are returned to the Add Connection dialog box. The data source is added to the Alias list.
11. From the Alias list, select the data source for the connection.  
The name of the driver is provided automatically.
12. Click OK to save the connection.

## Connecting to an Informix Database

The following procedure describes how to create a connection to an Informix database.

1. In the Select Database dialog box, select Informix and click Select.

The New Informix Connection dialog box is displayed.



2. In the Name box, type a name for the new connection. The name can be whatever you choose.
3. In the User Name and Password boxes type the user name and password of the database user that you use to logon to Informix.
4. Select the language you want to use.
5. Select a connection type.

If	Then
you want a private connection,	click Private. <b>Note:</b> A private connection is made through Informix client connectivity and requires the client software to be installed on the client machine.
you want a public connection,	click Public. <b>Note:</b> A public connection mostly uses ODBC and functionality is restricted depending on the ability of the ODBC driver being used.

6. In the Server Name and Database Name boxes, type in the names of the Server and Database for the connection.

---

**Note:** In Informix, server names are case sensitive. SET ANALYZER, however, cannot detect case sensitivity.

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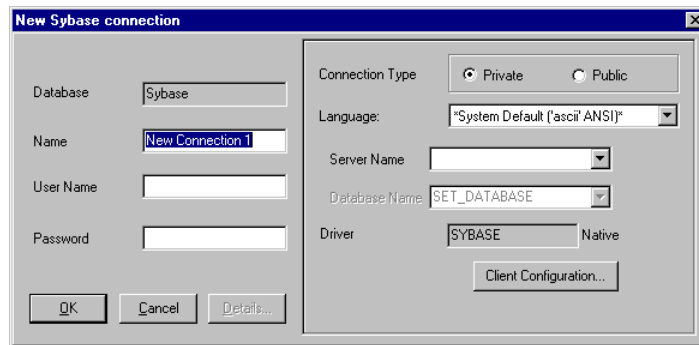
- Click OK to save the connection.

## Connecting to a Sybase Database

The following procedure describes how to create a new connection to a Sybase database.

- In the Select Database dialog box, select Sybase and click Select.

The New Sybase Connection dialog box is displayed.



- In the Name box, type a name for the new connection. The name can be whatever you choose.
- In the User Name and Password boxes, type the user name and password of the database user that you use with Sybase.
- Select the language you want to use.
- Type the name of the server and the name of the database for the connection in the Server Name and Database Name boxes respectively.
- Select a connection type.

If	Then
you want a private connection,	click Private.  <b>Note:</b> The default connection type is private and it is recommended that you use private connections in preference to public. A private connection will be made through Sybase's client connectivity and requires the client software to be installed on the client machine.

If	Then
you want a public connection,	click Public. Set up an ODBC connection. See the section, "Creating a new ODBC Source." <b>Note:</b> A public connection will mostly use ODBC and functionality will be restricted depending on the ability of the ODBC driver being used.

7. Click OK to save the connection.

## Creating a New ODBC Source

You can use existing ODBC sources for your normal connections. In certain situations you will need to create a new ODBC source in order to connect to a database:

- SET ANALYZER has not been run on your machine and you want to connect to the sample database.
- You want a public connection to an Oracle, SQL Server, or DB2 database.

The following procedure describes how to create a new ODBC source for a database connection.

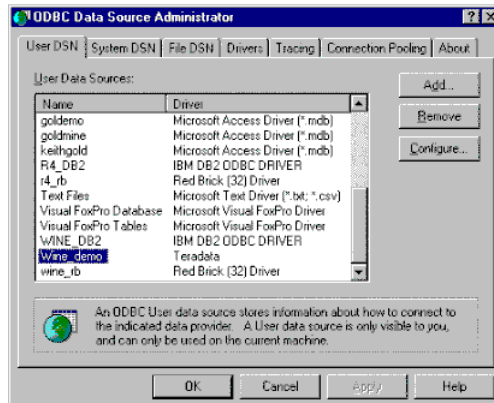
1. Open the ODBC Data Source Administrator.

If	Then
SET ANALYZER has not been run on your machine and Set Connect appears on your screen,	Go to Step 2.
you have clicked Public in the New Server Connection dialog box,	Go to Step 5.

2. Click on the Connections tab and click the Add button.  
The Select Database dialog box appears on your screen.
3. Select the database for your connection and click Select.  
The Add Connection dialog box appears on your screen.

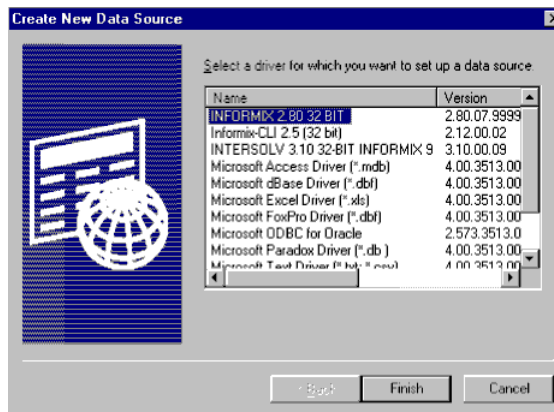
4. In the User Name and Password boxes, type the user name and password that you use to logon to the database you selected.
5. Click the ODBC Manager button.

The ODBC Data Source Administrator is displayed.



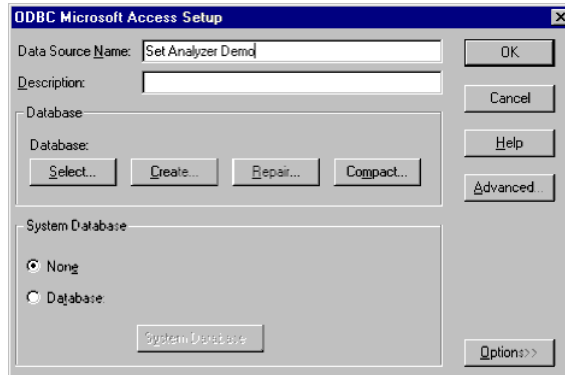
6. Click the System DSN tab and click the Add button.

The Create a New Data Source dialog box is displayed.

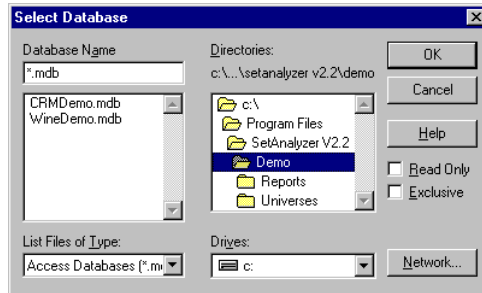


7. Select a driver from the dialog box and click the Finish button.

The ODBC Driver Setup dialog box is displayed.



8. Click the Select button to select the database for the connection.  
The Select Database dialog box is displayed.



9. Select the database and click OK to save the new ODBC source. Click OK to close the ODBC Administrator.

This ODBC source will now appear in the Alias list of the Add Connection dialog box.

# Configuring a Database Connection Manually

You can configure a database connection manually with the Borland Database Administrator (BDE), which is provided with SET ANALYZER.

## What is the BDE?

The Borland Database Administrator provides SET ANALYZER with its native connectivity. SET ANALYZER uses its native connectivity to connect to certain databases. SET ANALYZER Connect configures the BDE and shields you from the complexity of managing native connectivity. The following table shows the database and the type of connectivity SET ANALYZER uses to connect to it.

Database	Connectivity
Microsoft Access	ODBC
Oracle	Native via SQL Net or Net 8
MS SQL Server	Native
DB2	Native
Informix	Native
Red Brick	ODBC
Teradata	ODBC
Sybase	Native

The BDE is required even if you use only ODBC drivers.

## Why use the BDE?

It can be useful to configure the BDE manually if you are having problems with connectivity. Using the BDE can help you identify the problem at the level of the BDE.

## How to Configure the BDE Manually

By default, the BDE lists all the ODBC connections that have been created. You can add your own BDE aliases. These can reference other ODBC connections, or they can make a native connection to the database you choose, connectivity permitting.

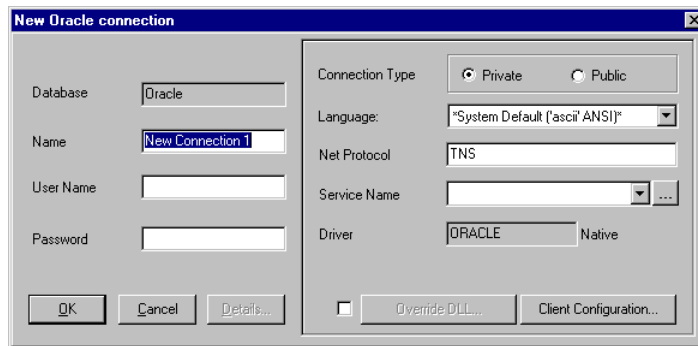
The following procedure describes how to create a new Alias with the BDE. The Alias will appear in the Alias list allowing the user to select it as the database for the connection.

1. In SET ANALYZER Connect, click the Add button.

The Select Database dialog box appears on your screen.

2. Select the type of database for your connection and click Select.

The New Connection dialog box is displayed.

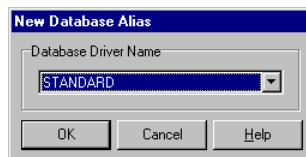


3. Click Public and click the BDE Admin button.

The BDE Administrator appears.

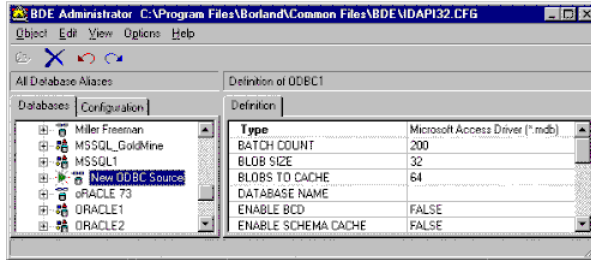
4. From the Object menu, select New.

The New Database Alias dialog box is displayed.

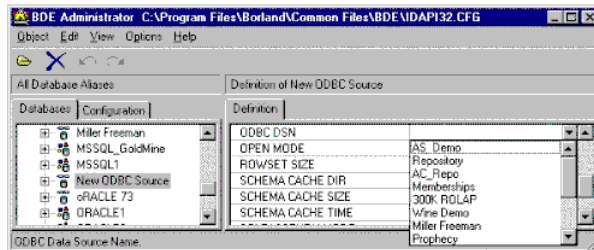


5. Select a connection type and click OK.

You can select from any of the valid connection types supported by SET ANALYZER and covered by your license key. The example uses Microsoft Access Driver. The BDE Administrator is again the active window.



6. Rename the new alias by right-clicking on it, selecting Rename from the menu and typing a new name.
7. Right-click anywhere in the dialog box, and select Apply from the menu. Select an existing ODBC source in the field ODBC DSN.



8. Right-click again and apply the changes.
9. Close the BDE Administrator.

## Sharing a Connection

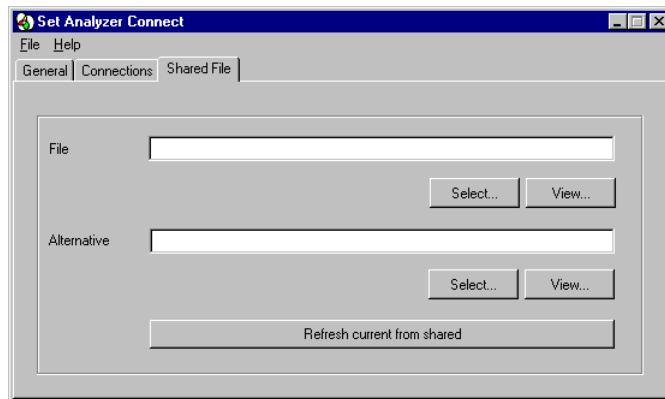
You can specify a connection on the system which enables users to share the specification of data connections rather than creating the specifications individually on their own workstations. This facility is particularly useful when setting up multiple workstations on a network.

### What Happens when you Create a Shared File for Connections?

When you create a shared file for connections, the settings in the shared file override the settings in local files. They appear in the Connections list on the Connections tab with an asterisk next to them. The shared connection that you create on the system are read-only on the users' workstations. The ODBC information is copied and configured on the local machine.

### How to Specify a Shared File

1. From SET ANALYZER Connect, open the Shared File tab.



2. In the File box, type the file name and location of the file to be used as a shared file or click Select to select the file and location.
3. In the Alternative box, type the file name and location of an alternative shared file or click Select to select the file and location.

The alternative shared file is one that will be available to users if there is a failed connection on the network for the location you specified for the file in the previous step.

4. Click the Refresh current from shared button.

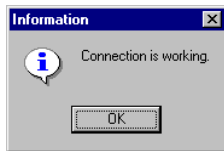
The local connections are updated.

## Testing a Connection

Follow this procedure to test a database connection:

1. In SET ANALYZER Connect, display the Connections tab.
2. From the Connections list, select the database connection you want to test.
3. Click the Test Connection button.

If the database connection is working a confirmation message is displayed.



## What to do When the Connection is not Working

If the message indicates that the connection is not working, you should edit the connection and ensure that:

- The correct driver has been chosen
- The alias points to the correct ODBC DSN
- The user name and password, if needed, are correct
- The database exists
- The database instance is active

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**Tip:** Attempting to connect to the database using another application using the same password and user account verifies whether the database is active and whether your user account and password are valid.

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## Overview

This chapter describes the Set Repository and shows you how to install it in your database.

## What is the Set Repository?

The set repository is a collection of tables and views created with Data Definition Language (DDL). The DDL script creates 60+ tables and 10+ views within your existing database. The set repository holds all the SET ANALYZER meta data and references to tables and views that SET ANALYZER users use to process sets. The SET ANALYZER meta data is stored in your database; therefore, it is available to query by other tools.

The set repository is specific to the current database and only tables from this database can be loaded during a session of SET ANALYZER Architect. If you have two or more separate databases, you will need to install the DDL script on each database.

## Before Creating the Set Repository

Make sure that you have completed the following steps before creating the set repository.

Step	For further information, refer to
Assign a workstation to be the SET ANALYZER administrator workstation	
Verify that the appropriate database connectivity software has been loaded on the workstation and configured to connect the database.	
Verify that SET ANALYZER executable programs have been installed on the workstation	Chapter 2, "Installing Set Analyzer"

Step	For further information, refer to
Run SET ANALYZER Connect and create a connection to the database	Chapter 3, "Connecting Set Analyzer to a Database"

## Considerations for the Set Repository

### Tablespaces

You can customize the DDL scripts to allocate specific tables and indexes into specific tablespaces. A simple recommendation is to create three tablespaces:

- For the majority of SET ANALYZER tables
- For indexes
- For SET ANALYZER detail tables

By creating SET ANALYZER in separate tablespaces, you protect your existing database applications. Any bulk insert into SET ANALYZER tables does not consume all available disk space and therefore does not prevent other applications from working.

Within SET ANALYZER, you can control how many sets are created and how big each set can be, so you can plan space requirements. Nevertheless, you should still confine the set tables to specific tablespaces.

### Database Sizing Guidelines

The basic installation of SET ANALYZER creates 60+ tables and 10+ views in the source database. The empty space requirements including system tables, default values, and lookup tables is less than 5MB. You should allow for some extra space for temporary tables and temporary sets.

There are two areas of the set repository that can take up significant space in the database. All other tables are small in comparison. The two areas of importance are:

- Sizing of Sets

- Sizing of Fast Counts (Accelerator)

### Sizing of sets

The key size requirements are determined by the following factors:

- Number of sets per user
- Size of each set (number of members)
- Number of users

The sizing varies by platform, but, including indexes, a 30 bytes per set member is a reasonable guideline (based on Oracle).

Typically, a SET ANALYZER user focuses on 10% of any subject matter and processes sets of approximately 10% of this segment. A set is typically 1% of the total dimension size. For example, on a 10m row customer table, one user looks at 1m rows and processes sets of approximately 100k members. This set will require:

$$30 \text{ bytes} \times 100\text{k} = 3\text{MB (i.e., small)}$$

The other set storage tables are small by comparison and can be ignored for sizing purposes (it is more important for the above estimates to be accurate).

It is possible to control, by user, how many sets they can create, and the maximum number of members a user can have in any set. Power users typically have authority to create more sets with more members than would be allowed by the guidelines for the above example. Other users have authority to create fewer sets with fewer members. The calculations are averages and should be used only as a guide.

---

**Note:** If sets are being created above a certain size and are being reused often, then it becomes beneficial to add columns to tables for every row in the dimension. This is very rare.

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## Sizing of fast counts (Accelerator Module)

The sizing of the fast counts is more difficult to determine, but is a function of the following:

- Number of tables
- Number of columns per table
- Uniqueness of each column (e.g. gender is more unique than town)
- Volume of source data

The storage of the fast counts can be configured to whatever space is available. There is a trade-off between performance and space usage so the accelerator module must be configured to client requirements.

# Creating the Set Repository

You create the set repository by running a series of scripts from the SET ANALYZER Architect Repository view.

## Starting Set Analyzer Architect

1. Run SET ANALYZER Architect.

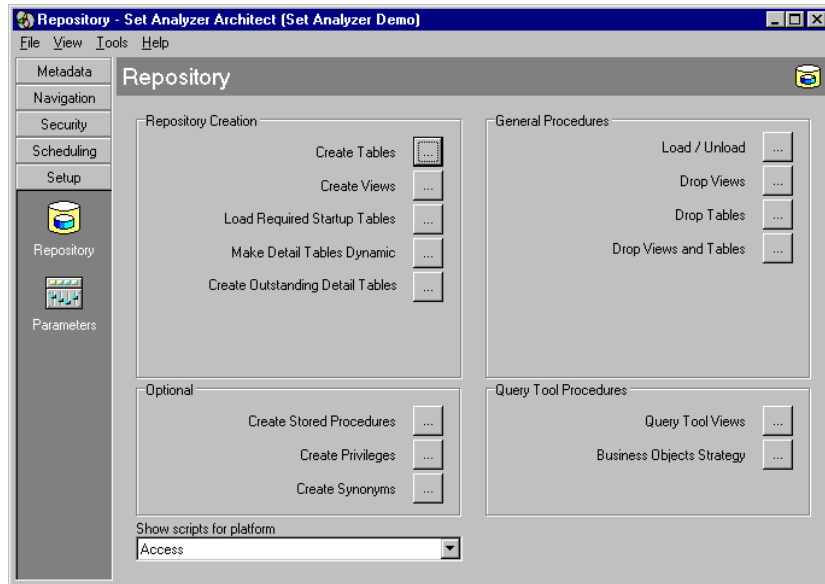
The Database login dialog box appears on your screen.

2. From the Connection list, select the appropriate connection for the database.
3. Enter your database user name and password, then click OK.

SET ANALYZER Architect appears on your screen.

4. Open the Setup group.
5. Click on the Repository icon.

The Repository view is displayed.



The database platform you are connected to is shown at the bottom of the window.

## Running Scripts from the Repository View

To create the set repository, you run scripts from the Repository view that create the SET ANALYZER tables and views and initialize parameters. The Repository view provides you with scripts that will create the necessary tables, views, and user rights for each DBMS. You find these scripts in the Repository Creation area of the Repository view.

You can edit the scripts to optimize them for a specific installation. You can add table location, storage definitions, etc. You must not remove any elements from the scripts or change the table or column names.

When you create the necessary tables in the repository, the following icon is displayed in the top right corner of the Repository view:



This icon is now displayed in all views.

## Which Scripts Should You Run?

You should run the scripts that apply to your database platform. Not all options apply to all database platforms. For more detailed information about which scripts need to be run for each database platform, refer to the section "Options for Database Platforms" in this chapter.

## In What Order Should You Run the Scripts?

You should run the options in the Repository Creation section before running options from other boxes. Which options you run depend on what you are doing.

If	Then
this is your first installation,	run the Create Tables first, then Create Views, then Load Required Startup tables.
you are uninstalling SET ANALYZER	run Drop Views and Tables first. <b>Caution:</b> This script removes all the tables and views used by SET ANALYZER, and all data that has been created (including sets) will be lost.

After running Create Tables, Create Views and Load Required Startup Tables, you should run scripts for the other boxes depending on the needs of your database platform.

Finally, if your SET ANALYZER license key includes the Event Engine option, you can convert the repository into a temporal repository, allowing you to create calendars (see the chapter "Configuring Calendars") and SET ANALYZER users to create sets that are dynamic over time. To convert the repository, see the section "Creating a Temporal Repository" later in this chapter.

## What do the Scripts do?

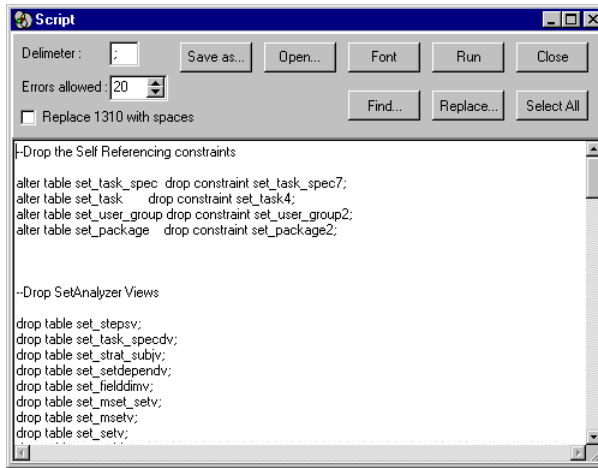
You can run the scripts shown in the following table from the Repository view of SET ANALYZER Architect. What the scripts do is shown next to the option button name.

Script name	Script function
Create Tables	Creates all the tables required by SET ANALYZER. All SET ANALYZER tables are prefixed with <i>set_name</i> .  This script is required for all database management systems. If you change the script, save the script that you execute. Save the script to a text file for reference or to be re-executed.
Create Views	Creates the views required by SET ANALYZER .  This script is required for all DBMS.
Load Required Startup Tables	Initializes various parameters and startup tables.  This script is required for all database management systems.
Make Detail Tables Dynamic	Used when you convert the repository into a temporal repository. See the section "Creating a Temporal Repository" in the Chapter "Creating the Set Repository".
Create Outstanding Detail Tables	Pre-creates all the set and model detail tables that may be required. What these are depends on the subjects and storage group settings you have used. For example, if you have defined a subject requiring 2 additional fields, it will need its own detail table as the two additional fields will not fit in any of the "standard" detail tables. Clicking the Create Outstanding Detail Tables button would create the table if it did not already exist.
Create Stored Procedures	Creates the stored procedures that some database management systems require for SET ANALYZER to function.  This script is not required for all DBMS.

Script name	Script function
Create Privileges	<p>Creates the necessary security privileges on the SET ANALYZER tables for any other database users that will be using SET ANALYZER. This is required only if a high level of security is being implemented.</p> <p>This script is not required for all DBMS.</p>
Create Synonyms	<p>Creates synonyms so that any database user can reference tables without their being prefixed by their schema name.</p> <p>This script is not relevant to SQLServer and Red Brick and is only required for other DBMS if a multiple database users will be connecting to the SET ANALYZER repository.</p>
Load/Unload  Drop View  Drop Table	<p>Used when upgrading SET ANALYZER. See the section "Upgrading Set Analyzer" for more details.</p> <p>Used when upgrading SET ANALYZER. See the section "Upgrading Set Analyzer" for more details.</p> <p>Used when upgrading SET ANALYZER. See the section "Upgrading Set Analyzer" for more details.</p>
Drop Views and Tables  Query Tool Views  Business Objects Strategy	<p>Removes all tables and views used by SET ANALYZER. You should select this option if you are uninstalling SET ANALYZER.</p> <p>Used when you are integrating SET ANALYZER with BUSINESSOBJECTS using Query Tool views and a Strategy file. See the section "Method 2 - Using Query Tool Views and a Strategy File" in the Chapter "Integrating Sets with Business Objects".</p> <p>Used when you are integrating SET ANALYZER with BUSINESSOBJECTS using Query Tool views and a Strategy file. See the section "Method 2 - Using Query Tool Views and a Strategy File" in the Chapter "Integrating Sets with Business Objects".</p>

## How to Run a Script

1. In the Repository Creation area, click one of the script buttons.  
The Script dialog box containing a script for your DBMS appears.



2. In the Errors allowed box, type the number of errors that will stop the script. If errors are encountered, then the script will stop processing as soon as it reaches the number of errors specified in this box.
3. Edit the script if you want.
4. Click the Run button.

The script runs. If there are errors, an error log is produced. If you see unreasonable error messages, verify that such things as disk space and privileges have been set correctly.

## Options for Database Platforms

### Oracle Databases

The following table provides additional information about scripts on the SET ANALYZER Architect Repository view for Oracle databases.

Script	Information
Create Stored Procedures	This script must be run to install the sampling module. Otherwise, it is unnecessary. You must run this script from either Oracle SQL Worksheet or from Oracle SQL Plus. It cannot be run from SET ANALYZER Architect.
Create Privileges	This script grants correct database privileges on SET ANALYZER tables to the database user SET_USER. The user name defined in the SET ANALYZER Architect Parameters view is used in this script, and all relevant privileges are granted to this user.
Create Synonyms	The user SET_DBA must run this script so that all other users (mainly SET_USER) can access the SET ANALYZER tables without requiring a tablename prefix.

## SQLServer Databases

The following table provides additional information about scripts on the SET ANALYZER Architect Repository view for SQLServer databases.

Script	Information
Create Stored Procedures	There are no procedures defined by SET ANALYZER for SQLServer, so you do not use this script.
Create Privileges	This script grants correct database privileges on SET ANALYZER tables to the database user SET_USER. The user name defined in the SET ANALYZER Architect Parameters view is used in this script, and all relevant privileges are granted to this user.

## DB2 Databases

### Create Stored Procedures

In order for the sampling module to be correctly configured, you must follow certain steps to create and initialize a stored procedure or package. The steps vary slightly depending on the version of DB2 that is being used. The two main versions are outlined in the following procedures.

### For DB2 V5.2 and V6.1 UDB (NT or UNIX)

1. Copy the file `asframe.bnd` from the `DB2Tools\nt` directory of the CD into the DB2 bin directory (typically `{db2path}\sqllib\bin`).
2. Copy the `fileasframe.dll` from the `DB2Tools\nt` directory of the CD into the DB2 function directory (typically `{db2path}\sqllib\function`).
3. Bind the `asframe` package by executing the following command from the DB2 command line processor

```
bind asframe.bnd
```

4. Run the `Create Stored Procedures` script from within `SET ANALYZER Architect`.

### For DB2 Unix Version 2.1 (AIX)

1. Copy the files `asframe.bnd` and `asframe` from the `DB2Tools\aix` directory of the CD into the DB2 function library directory (typically `...\DB2\SQLlib\function`).
2. Bind the `asframe` package by executing the following command from the DB2 command line processor

```
bind asframe.bnd
```

3. Execute the following SQL (also found in the `asframe.sql` file in the `DB2Tools\aix` directory of the CD).

```
insert into db2cli.procedures
  (procschema, procname, definer, pkgschema, pkgname,
  proclcaton, parm_style, language, stayresident, runopts,
  parm_list, fenced, remarks, result_sets)
values ('x1', 'asframe', 'x2', 'x3', 'asframe', 'x4', 'D', 'C',
',', 'dtype varchar(2), tname varchar(19), sqltext
varchar(250), records integer out', 'Y', 'AnswerSets Frame', 0);
```

where `x1`, `x2`, `x3`, and `x4` should be replaced with the `procschema`, the `definer`, the `pkgschema`, and the `proc_location`, as appropriate.

If the table `db2cli.procedures` does not exist, then refer to you DB2 documentation for instructions on how to create this table.

The following table provides additional information about scripts on the `SET ANALYZER Architect` Repository view for DB2 databases.

Script	Information
Create Privileges	This script grants correct database privileges on SET ANALYZER tables to the database user SET_USER. The user name defined in the SET ANALYZER Architect Parameters view is used in this script, and all relevant privileges are granted to this user.
Create Synonyms	<p>The owner of a table cannot create a synonym that has the same name as the original table name. However, a user can create a synonym that has the same name as a table owned by another user.</p> <p>For example, CREATE SYNONYM DEMOTABLE AS OWNER.DEMOTABLE is valid only if the logged on user is not OWNER. This synonym is then private to user who created it.</p> <p>This script must be run by each database user that will be accessing the set repository, principally SET_USER. It cannot be run by SET_DBA because SET_DBA is the owner of the tables.</p>

## Red Brick Databases

The following table provides additional information about scripts on the SET ANALYZER Architect Repository view for Red Brick databases.

Script	Information
Create Stored Procedures	There are no procedures defined by SET ANALYZER for Red Brick, so this script is not used.
Create Privileges	This script grants correct database privileges on SET ANALYZER tables to the database user SET_USER. The user name defined in the SET ANALYZER Architect Parameters view is used in this script, and all relevant privileges are granted to this user.

## Informix Databases

The following table provides additional information about scripts on the SET ANALYZER Architect Repository view for Informix databases.

Script	Information
Create Stored Procedures	This script is required. You must run it from Informix Tools.
Create Privileges	This script grants correct database privileges on SET ANALYZER tables to the database user SET_USER. The user name defined in the SET ANALYZER Architect Parameters view is used in this script, and all relevant privileges are granted to this user.
Create Synonyms	<p>The owner of a table cannot create a synonym that has the same name as the original table name. However, a user can create a synonym that has the same name as a table owned by another user.</p> <p>For example, CREATE SYNONYM DEMOTABLE AS OWNER.DEMOTABLE is valid only if the logged on user is not OWNER. This synonym is then private to user who created it.</p> <p>This script must be run by each database user that will be accessing the set repository, principally SET_USER. It cannot be run by SET_DBA because SET_DBA is the owner of the tables.</p>

## Teradata Databases

The following table provides additional information about scripts on the SET ANALYZER Architect Repository view for Teradata databases.

Script	Information
Create Privileges	This script grants correct database privileges on SET ANALYZER tables to the database user SET_USER. The user name defined in the SET ANALYZER Architect Parameters view is used in this script, and all relevant privileges are granted to this user.

Script	Information
Create Synonyms	The user SET_DBA must run this script so that all other users (mainly SET_USER) can access the SET ANALYZER tables without requiring a tablename prefix.

## Sybase Databases

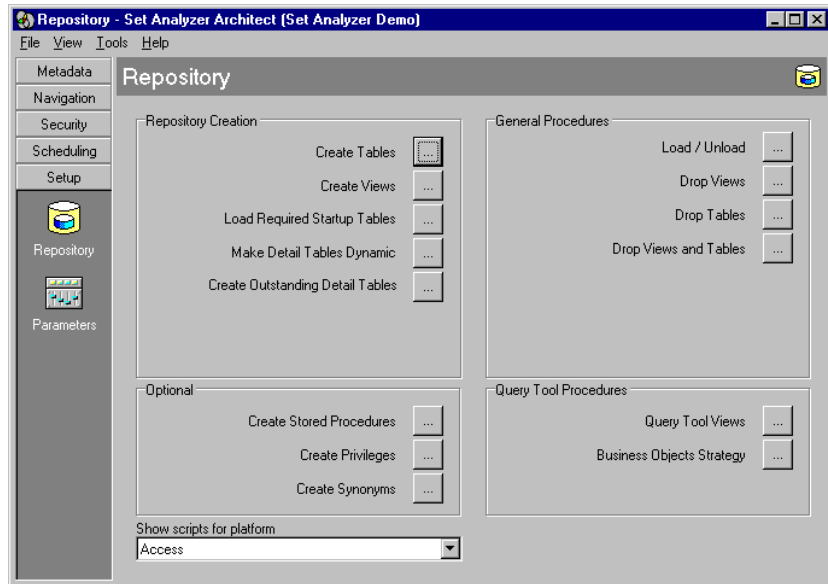
The following table provides additional information about scripts on the SET ANALYZER Architect Repository view for Sybase databases.

Script	Information
Create Stored Procedures	There are no procedures defined by SET ANALYZER for Sybase, so you do not use this script.
Create Privileges	This script grants correct database privileges on SET ANALYZER tables to the database user SET_USER. The user name defined in the SET ANALYZER Architect Parameters view is used in this script, and all relevant privileges are granted to this user.

## Creating a Temporal Repository

If your SET ANALYZER license includes the Event Engine option, you can convert the repository into a temporal repository. A temporal repository allows you to create Calendars that SET ANALYZER users can use to make their sets dynamic over time (see the chapter "Configuring Calendars" for more information).

1. Open the Setup group.
2. Click on the Repository icon.  
The Repository view is displayed.



3. Click on the Make Detail Tables Dynamic button.
4. Run the script.

When the script completes successfully, an icon is displayed in the top right corner of the Repository view:



The icon is displayed in all views, as a reminder that the repository is temporal.

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## Overview

This chapter describes SET ANALYZER users and privileges and how to create new users, groups, and profiles.

## Database User Privileges

In describing the tasks performed to administer and use SET ANALYZER, it is common to refer to two types of users: SET ANALYZER Administrators and SET ANALYZER Users. The following table shows the tasks performed by each type of user.

SET ANALYZER Administrator tasks	SET ANALYZER User tasks
Install SET ANALYZER	Create sets
Connect SET ANALYZER to a database	Schedule updates for sets
Create the set repository	
Configure meta-data to enable set creation	
Integrate set tables with BUSINESSOBJECTS universes	
Schedule updates for fast counts and sets	

For databases that require a login (typically all databases except Access), the DBA needs to create users with appropriate privileges for the database.

The users are:

SET\_DBA – for the SET ANALYZER Administrator

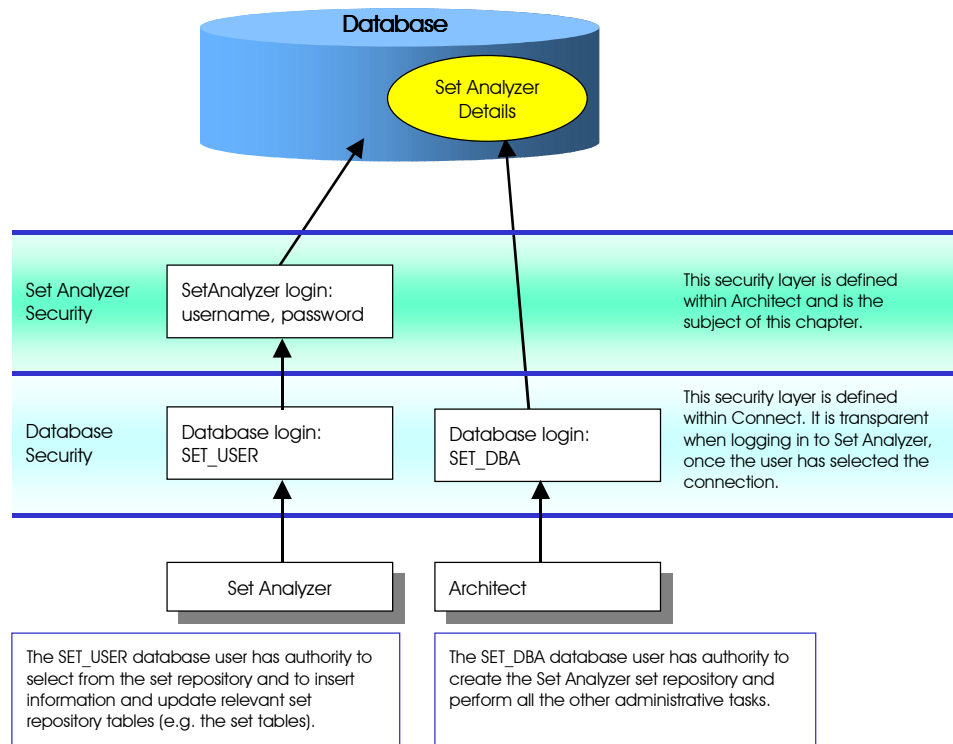
SET\_USER – a login for SET ANALYZER users

---

**Note:** These names are suggested names only – it is possible for the DBA to create database users with whatever name they like.

---

Setting up these users may not be necessary for Access databases.



## SET\_DBA Database User

### What does the SET\_DBA user do?

The database login that is used for administrative tasks is typically called SET\_DBA. This database username must be created by the DBA. SET\_DBA is the user who creates all the SET ANALYZER tables and configures the database structure. The SET\_DBA user is always used to log in to SET ANALYZER Architect. After SET\_DBA has been created, you (the SET ANALYZER Administrator) use the SET\_DBA user name in SET ANALYZER Architect to connect to the database and perform these tasks.

### Security privileges for the SET\_DBA user

SET\_DBA should have the following database privileges:

- Authority to create tables and views.  
The authority to create tables can be in any table space. It is recommended that you create a specific SET ANALYZER tablespace and define it as the default tablespace for SET\_DBA user.
- Authority to create and drop public synonyms (this authority can be removed once the set repository has been created).
- Authority to create stored procedures (only relevant for certain database platforms – this authority can be removed once the set repository has been created.)
- Normal end user select privileges on the warehouse source tables.
- Authority to create and drop temporary tables in their own tablespace.
- For Oracle, select access on the system view: SYS.V\_\$SESSION.
- Select permission on database system dynamic and other tables depending on the platform.

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**Note:** A user running SET ANALYZER Architect can delete all SET ANALYZER tables and therefore all set definitions. The SET\_DBA user name and password should be kept private for those responsible for administering SET ANALYZER.

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## SET\_USER Database User

### What is the SET\_USER Database User?

The database login that is used by SET ANALYZER users is called SET\_USER. Don't confuse this with the login that SET ANALYZER users use to log in to SET ANALYZER. Users log in to SET ANALYZER using their SET ANALYZER username that you create within SET ANALYZER Architect. Behind the scenes, SET ANALYZER logs in to the database using the SET\_USER database login. The SET ANALYZER user is not aware of a database login.

## Characteristics and privileges for the SET\_USER database user

The SET\_USER database user should have the following characteristics and database privileges:

- Permission to connect to the database.
- Authority to create tables (these are all deleted immediately they have been used and always before the end of the session).
- Authority to create and drop sequences (Oracle).
- Appropriate privileges on the Set Repository tables (these are granted by the 'Create Privileges' script within SET ANALYZER Architect).

## Set Analyzer Privileges

SET ANALYZER Architect allows you to maintain SET ANALYZER security. You can create SET ANALYZER users, user group, and profiles.

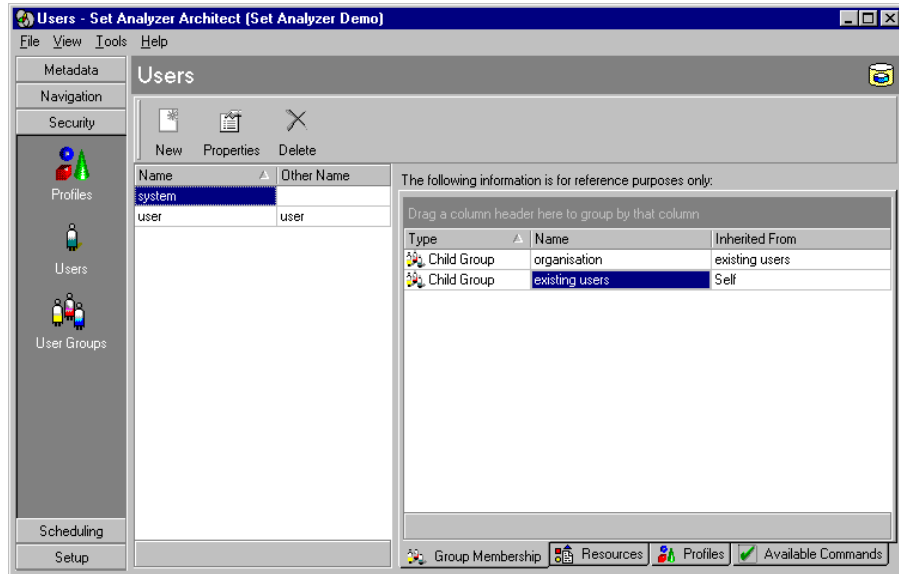
User groups allow you to set up security privileges for all members of the group:

- resources – access to sources, subjects and object trees.
- profiles – access to SET ANALYZER actions and functions.

Typically, you create a hierarchy of user groups. You then specify each user group's privileges by creating profiles and adding them along with resources to the user group.

You then create users and add them to appropriate user groups, where they inherit the group's privileges.

Security privileges are maintained from the Security group in the SET ANALYZER Bar.



## Users

### Creating Users

You (the SET ANALYZER administrator) need to create user names on the system and allocate them with passwords for each SET ANALYZER user.

To create a user:

1. In the SET ANALYZER Architect Security group, click the Users icon to display the Users view.  
Existing users are displayed in the Users data grid.
2. Click the New button to create a user from scratch or click the Copy button to create a user based on the currently selected user.

The User Details dialog box is displayed.

3. On the Primary tab, type the user name in the Name box.  
This name appears in the owner field of set and folder lists.
4. In the Other name box, type the name that corresponds to the user name in the network or database.  
This is provided for reference only and is not used by SET ANALYZER.
5. Type a unique password in both the Password and Confirm password boxes.
6. Choose a group for the user. (Creating User Groups is described in the next section.)
7. On the Limits tab, edit the user limits for the individual user.  
The limits you see default from the parent user group.

8. Click Save & Close.

The new user is listed in the Users view data grid.

9. Use the Group Membership, Resources, Profiles, Available Commands tabs to view the user's privileges.

**Tip:** The privileges are inherited from the user group in which the user resides.

### Editing Users

To edit a user:

1. In the SET ANALYZER Architect Security group, click the Users icon to display the Users view.

Existing users are displayed in the Users data grid.

2. Select the user whose details you want to edit.
3. To change the user's name, password or limits, click the Properties button.

The User Details dialog box appears on your screen.

4. Make your changes and click Save & Close.

### Deleting Users

To delete a user:

1. In the SET ANALYZER Architect Security group, click the Users icon to display the Users view.

Existing users are displayed in the Users data grid.

2. Select the user you want to delete.
3. Click the Delete button.

The Confirm User Deletion dialog box appears on your screen, showing the implications of the deletion.

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**Caution:** Any sets that are owned by this user will be deleted when the user is deleted.

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4. Click the Delete button to confirm the deletion.

## Profiles

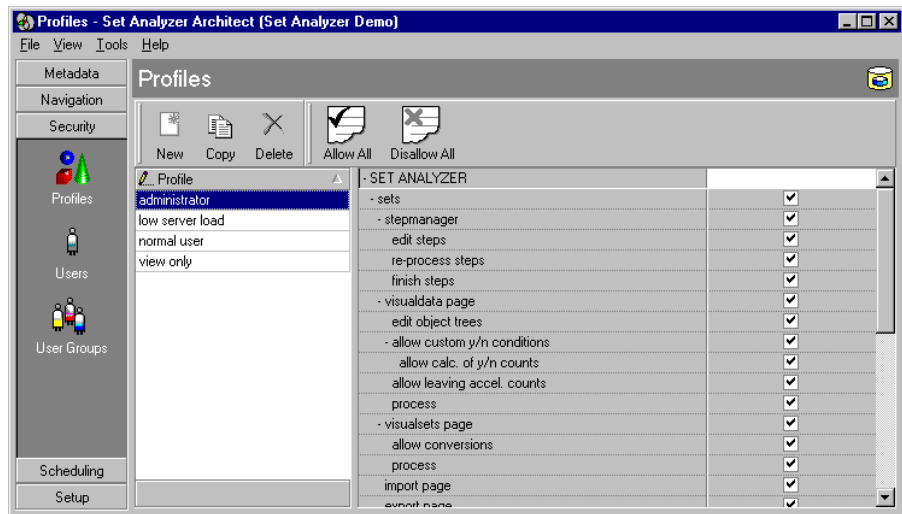
Profiles allow you to control access to available commands. By adding profiles to user groups, the users within the groups inherit access to the commands via the profile.

### Creating Profiles

To create a profile:

1. In the SET ANALYZER Architect Security group, click the Profiles icon to display the Profiles view.

Existing profiles are displayed in the Profile data grid.



2. Click the New button to create a profile from scratch or click the Copy button to create a profile based on the currently selected profile .

The new profile is created and displayed in the Profile data grid.

3. Click on the default name and type an appropriate name for the new profile.
4. Check or clear the boxes in the list of available commands.

**Tip:** Use the Allow All and Disallow All buttons to set and clear all commands quickly.

**Tip:** Profiles are added to user groups in the User Groups view.

### Editing Profiles

To edit a profile:

1. In the SET ANALYZER Architect Security group, click the Profiles icon to display the Profiles view.
2. Select the profile you want to edit.
3. Check or clear the boxes in the list of available commands.

### Deleting Profiles

To delete a profile:

1. In the SET ANALYZER Architect Security group, click the Profiles icon to display the Profiles view.
2. Select the profile you want to delete.
3. Click the Delete button.

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**Caution:** Deleting a profile will remove it from all users and user groups to which it is allocated.

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4. Click the Yes button to confirm the deletion.

## User Groups

You can create a hierarchy of user groups. Child groups inherit the privileges of parent groups. You allocate privileges to a group by adding resources (access to sources, subjects and object trees) and profiles to it. Then, when you add users to the group, they inherit the group's privileges.

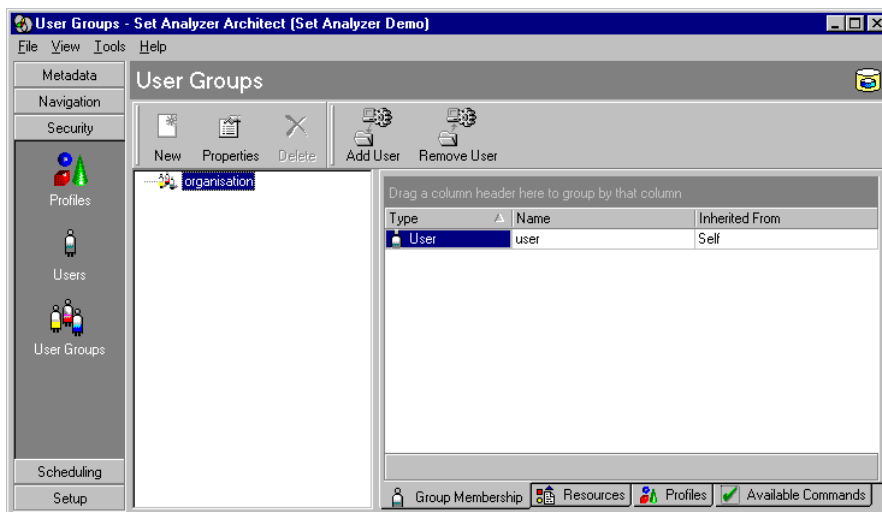
You can either create user groups from scratch or copy an existing group and edit its privileges.

The default parent user group, called 'organisation' is at the top of the user groups hierarchy. You can edit this user group to set the default privileges. You can also change the name of the user group to a name that is more appropriate to your installation.

### Setting Default User Group Privileges

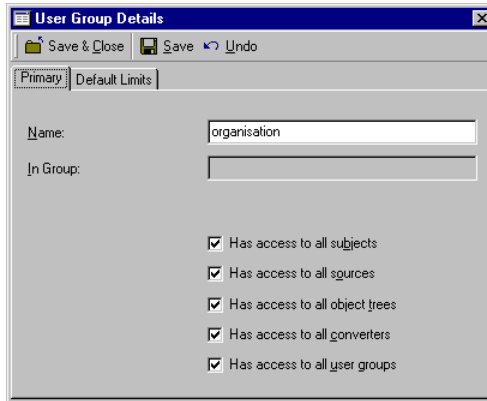
1. In the SET ANALYZER Architect Security group, click the User Groups icon to display the User Groups view.

Existing user groups are listed in a User Groups hierarchy.

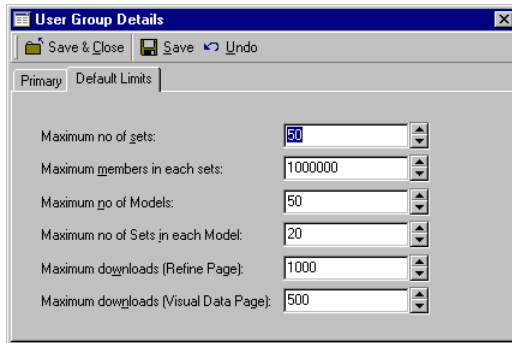


2. Select the 'organisation' user group.
3. Click the Properties button.

The User Group Details dialog box is displayed.



4. On the Primary tab, type the user group name in the Name box.  
**Note:** The In Group field is blank because this user group is at the top of the user groups hierarchy.
5. Choose the storage group you want to use and click the Select button.
6. Select the boxes to decide on default access rights.
7. On the Default Limits tab, edit the default user limits.



8. Click Save & Close.

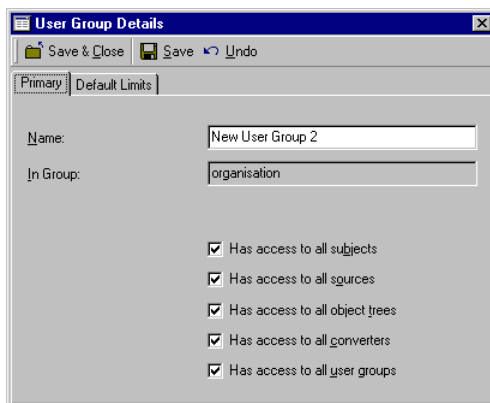
The privileges for the user group are displayed in the User Groups view data grid.

## Creating a User Group

To create a user group:

1. In the SET ANALYZER Architect Security group, click the User Groups icon to display the User Groups view.
2. Select the parent user group.
3. Click the New button.

The User Group Details dialog box is displayed.

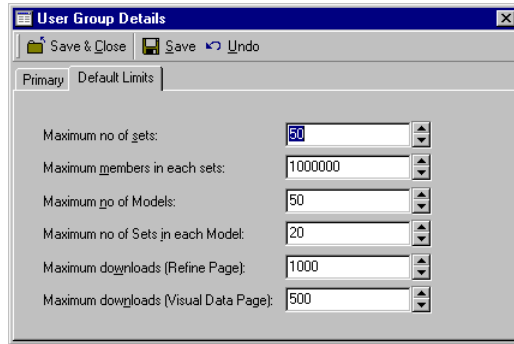


4. On the Primary tab, type the user group name in the Name box.  
**Note:** The In Group field shows the parent user group.
5. Choose the storage group you want to use and click the Select button.
6. Select the boxes to decide on the default access rights for members of this user group.

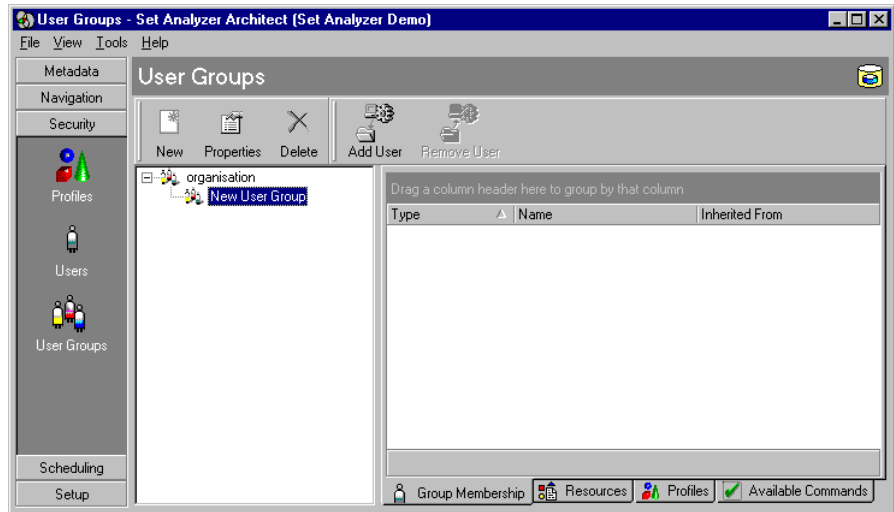
**Tip:** You can fine tune access to these resources once the user group has been created.

7. On the Default Limits tab, edit the default user limits.

The limits you see are inherited from the parent user group.



8. Click Save & Close.



The Group Membership tab shows that the new user group is empty. You can now add users, set up access to resources and add profiles to the group. These tasks are described in the following sections.

**Tip:** You can drag and drop user groups in the hierarchy to change their relationships.

## Adding a User to a User Group

Once you have created a group, you can populate it with users.

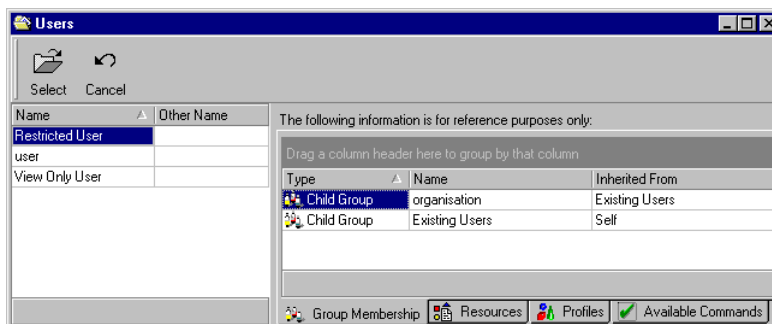
To add an existing user to a user group:

1. In the SET ANALYZER Architect Security group, select the User Groups icon to display the User Groups view.
2. Select the user group to which you want to add a user.
3. Click the Group Membership tab if necessary to display all members of the user group. If the user group is new, the window will be empty.

The data grid displays the type of user group member (user or child user group), name, and inheritance.

4. Click the Add User button in the toolbar.

The Users window is displayed.



5. Select an existing user and click the Select button.

The user is added to the User Groups data grid.

## Removing a User from a User Group

To remove a user from a user group:

1. In the SET ANALYZER Architect Security group, select the User Groups icon to display the User Groups view.
2. Select the user group from which you want to remove a user.
3. Click the Group Membership tab if necessary to display all members of the user group.

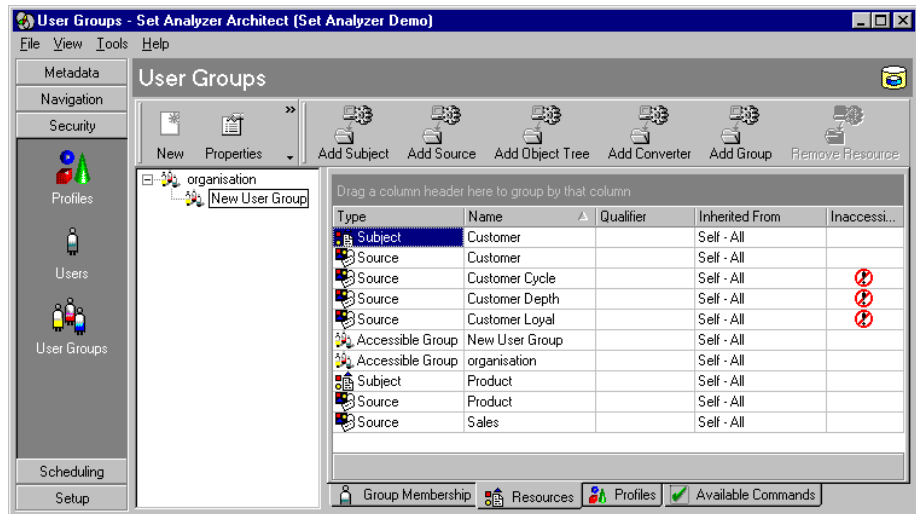
4. Select the user you want to remove from the group.
5. Click the Remove User button in the toolbar.
6. The Confirm User Removal dialog box is displayed.  
 Check the implications stated in the dialog box before you confirm the deletion.

## Adding Access to Resources

Once you have created a group, you allow users in the group access to specific subjects, sources, and object trees by adding them to the group.

To add access to a subject, source, or object tree to a user group:

1. In the SET ANALYZER Architect Security group, select the User Groups icon to display the User Groups view.
2. Select the user group to which you want to add a subject, source, or object tree.
3. Click the Resources tab at the bottom right of the view.



4. Click the Add Subject, Add Source, Add Object Tree, Add Converter, or Add Group button in the toolbar.

The Subject, Sources, Object Trees, Converters, or User Groups window is displayed.

The windows display all items that are available.

5. To enable access to an item, check the box next to it.
6. Click the Select button.

The subject, source or object tree is added to the user group data grid.

**Tip:** In the data grid, the Qualifier column is empty for subjects and sources, but displays the source name for an object tree.

## Removing Access to Resources


To remove access to a subject, source, object tree, converter, or user group from a user group:

1. In the SET ANALYZER Architect Security group, select the User Groups icon to display the User Groups view.
2. Select the user group from which you want to remove a subject, source, object tree, converter, or user group.
3. Click the Resources tab at the bottom right of the view.
4. Select the resource you want to remove.
5. Click the Remove Resource button and confirm the removal.

Access to the subject, source, object tree, converter, or user group is removed from the user group.

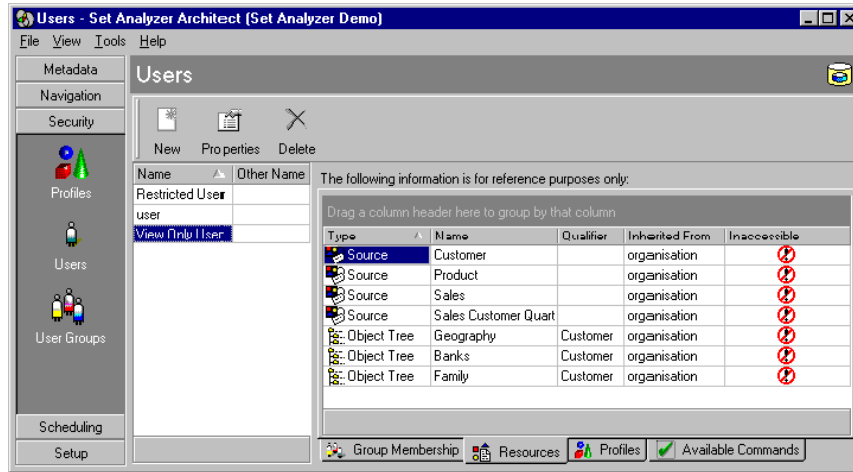
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**Note:** When you remove access to a subject from a user group, users in that group will find that any sets they own become inaccessible to them. They are not deleted, but the users cannot see them. You can allow these sets to be seen again by restoring the resource to the user group. When a resource is inaccessible to a user group or user, a symbol, , is displayed in the Inaccessible column on the Resources tab.

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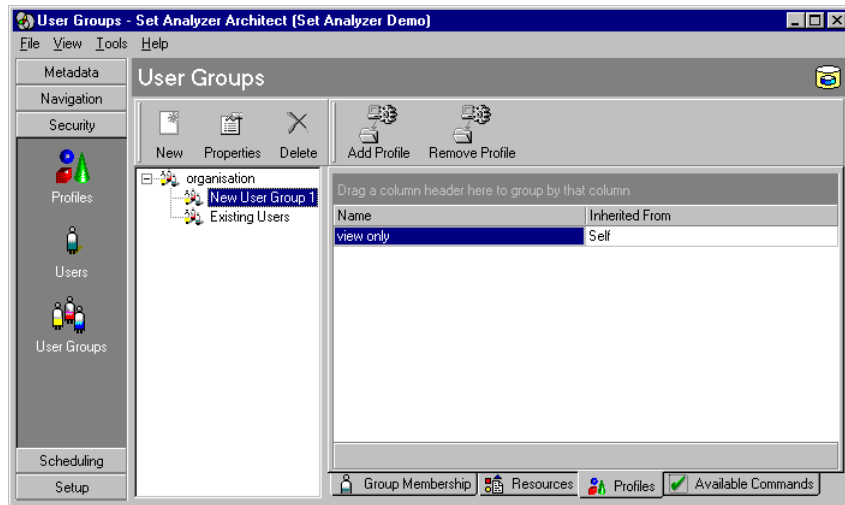


## Adding Profiles to a User Group

Profiles are used to maintain access to commands in SET ANALYZER. Once you have created profiles, you can add them to user groups to control the commands available to users within the groups.

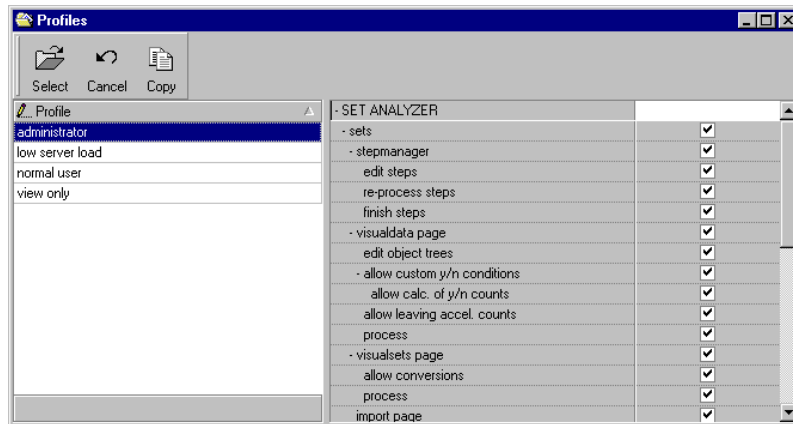
To add a profile to a user group:

1. In the SET ANALYZER Architect Security group, select the User Groups icon to display the User Groups view.
2. Select the user group to which you want to add a profile.
3. Click on the Profiles tab at the bottom right of the view.



4. Click the Add Profile button in the toolbar.

The Profiles window is displayed.



5. Select a profile (or copy an existing profile) and click the Select button.

The profile is added to the User Groups data grid.

6. Click on the Available Commands tab to view which commands are available to the user group. This is very useful for checking access to commands via inheritance from parent user groups or multiple profiles.

### Removing Profiles from a User Group

To remove a profile from a User Groups data grid:

1. In the SET ANALYZER Architect Security group, select the User Groups icon to display the User Groups view.
2. Select the user group from which you want to remove a profile.
3. Click on the Profiles tab at the bottom right of the view.
4. Select the profile you want to remove.
5. Click the Remove Profile button and confirm the removal.

### Editing User Groups

To edit a user group:

1. In the SET ANALYZER Architect Security group, click the User Groups icon to display the User Groups view.
2. Select the user group whose details you want to edit.
3. Click the Properties button.  
The User Group Details dialog box appears on your screen.
4. Make your changes and click Save & Close.

### Deleting User Groups

To delete a user group:

1. In the SET ANALYZER Architect Security group, click the User Groups icon to display the User Groups view.
2. Select the user group you want to delete.  
**Note:** You can't delete the top user group in the hierarchy.
3. Click the Delete button.  
The Confirm User Group Deletion dialog box appears on your screen, showing the implications of the deletion.
4. Click the Delete button to confirm the deletion.

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**In this chapter**

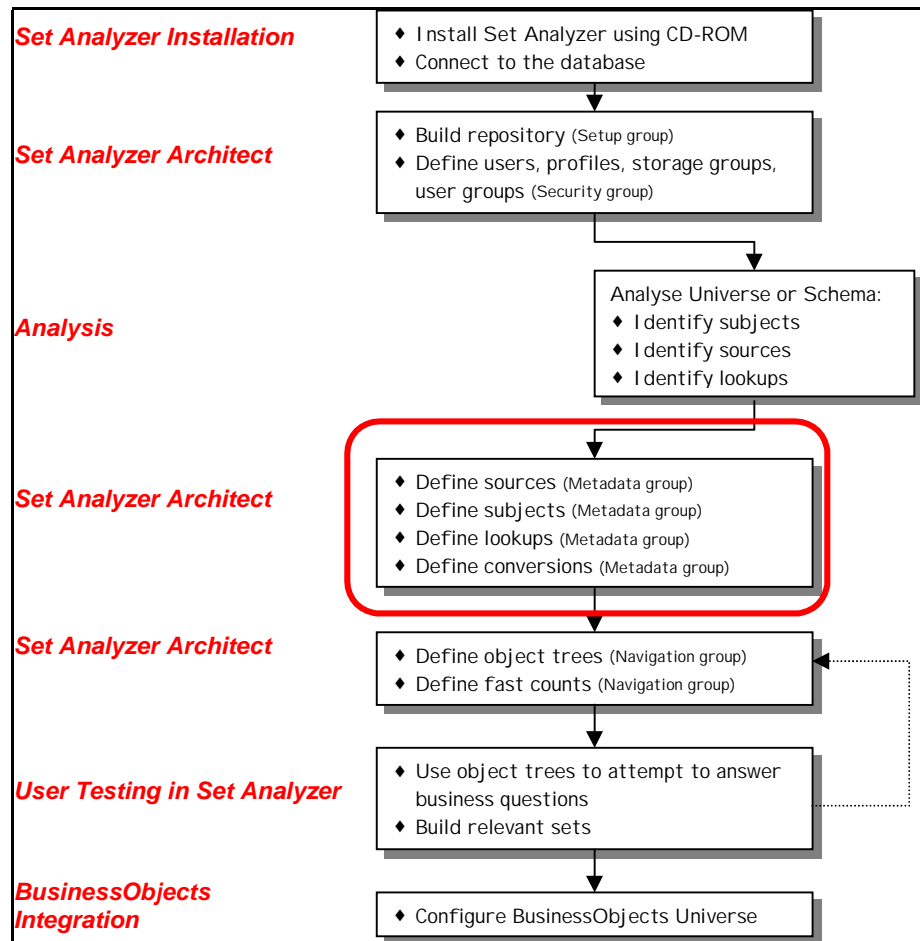
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# Overview

This chapter describes how to:

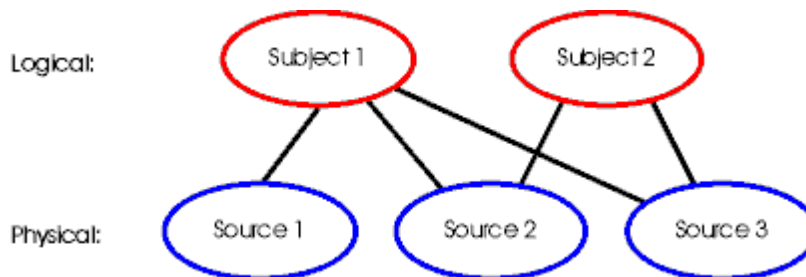
- define subjects, sources, and lookups
- define conversions (Converter Module)

The diagram below highlights the steps for this part of the setup process.



## Subjects

The subject of a set is the central theme of the set.



A source is a table within the current database that most uniquely describes the subject for which sets will be created.

## Primary Sources

The Primary Source is the table that most uniquely describes the subject for which sets are being created. In a Data Warehouse this table is most likely to be the Dimension Table (e.g. customers, products, subscribers, etc). In any other schema it is the table which is closest to describing the subject with one, and only one, row for each customer (or product, etc.).

It is common for the Primary Source to have a unique primary key which is the unique identifier for the sets being created (e.g. customer\_key or customer\_id). This field will then be defined as the 'Key Object'. It is not essential for the Primary Source to have a unique primary key.

## Secondary Sources

A Secondary Source can, in theory, be any table that contains the 'Key Object' field defined for the Primary Source above. It can be any table which will be used to create sets (i.e. typically not a lookup or reference table). A fact table is a typical Secondary Source table.

## Lookup Tables

A Lookup Table (or a Reference Table) is any table which is being used to translate a code into a meaningful value. For example, a source table may hold values for 'Gender' as 1, 2, and 3. The Lookup Table would contain 2 columns and 3 rows which decode the numbers 1, 2, and 3 into 'Male', 'Female' and 'Unknown'.

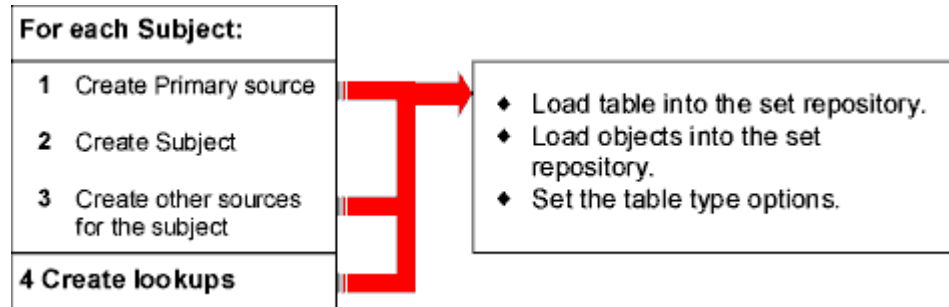
## Schema Designs

SET ANALYZER avoids joins. All operations are performed on a single table or view. The results of each operation are processed and your list of keys is updated. SET ANALYZER supports the following schema designs:

Schema	What to do
OLTP	<p>SET ANALYZER can access an OLTP schema. You will need to identify all the source and lookup tables.</p> <p>If lookups have lookups, then you may need to create views to combine these into a single lookup. The view can then be linked to the dimension table.</p> <p>Performance gains against OLTP schema are significant, but ease of use for the end-user may be compromised, depending on how normalized the schema is.</p>
Star	<p>A fully de-normalized schema is very simple to configure in SET ANALYZER and performance is good. This will also give the best ease of use for the end-user.</p>
Snowflake	<p>SET ANALYZER supports a snowflake schema with dimensions and normalized lookup tables. Lookups are not joined; they are accessed in subsequent SQL statements to optimize performance.</p>

# Creating Sources, Subjects and Lookups

For each subject you create, you must perform the following steps:



## 1 – Creating a Primary Source

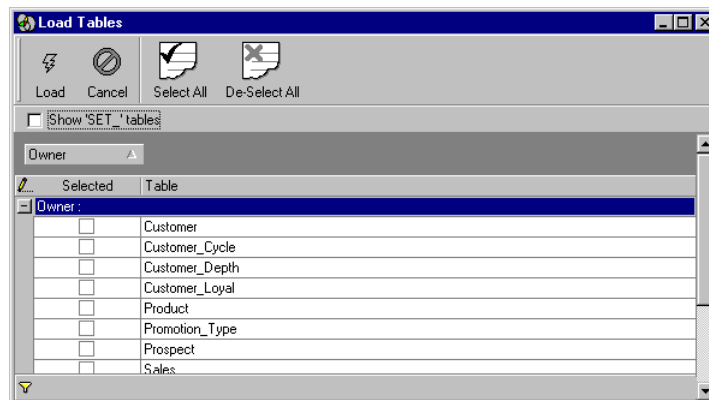
To create the primary source for a subject, you must load the appropriate table from the database into the set repository and give it a display name that SET ANALYZER users will recognize.

1. In the SET ANALYZER Architect, open the Metadata group.
2. Click on the Tables/Objects icon.

The Tables/Objects view is displayed.

3. Click on the Load Tables button.

The Load Tables dialog box appears.



4. Select the table you want to load.

**Tip:** If the table you want to load doesn't appear in the Load Tables dialog box, make certain that the user account you are using has select rights on the relevant tables.

5. Click the Load button.

6. In the Tables/Objects view, click on the Load Fields button in the toolbar.

The Load Fields dialog box appears.

7. Select the fields you want to load by moving them from the Source List to the Destination List. When you have completed selecting the fields, click OK.



**Tip:** You need load only those fields that are required by the SET ANALYZER user. Often a table contains fields that are meaningless to a SET ANALYZER user and serve only to link the table to other tables or contain other technical values. You can give an object a display name to increase its familiarity to the user.

A row is added to the list of objects for each field you selected. A display name is created with the lowercase version of the field name.

**Tip:** You can change this to a more meaningful name for display purposes. This does not change the underlying table. It is easier to modify the display label at this stage rather than later in the configuration.

**Tip:** Subject names are taken from the table for the dimension. If you define subjects without having renamed the tables, you will be duplicating effort.

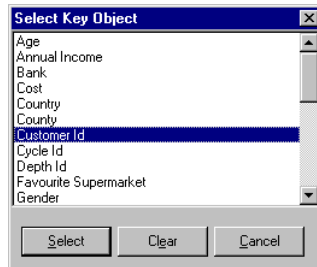
You now need to complete the columns in the Tables list, for this primary source table.

	Tables Data Grid 			Objects Data Grid 
Table Type	Key Object	Lookup Object	Source Table	Linked Table
Primary Source	✓	×	✓	×†
Secondary Source	×	×	✓	✓
Lookup	✓	✓	×	✓‡

† The Linked Table is entered by the system - it does not need to be entered by the user.

8. Click in the Key Object box and then click the ellipsis (...).

The Select Field dialog box appears.

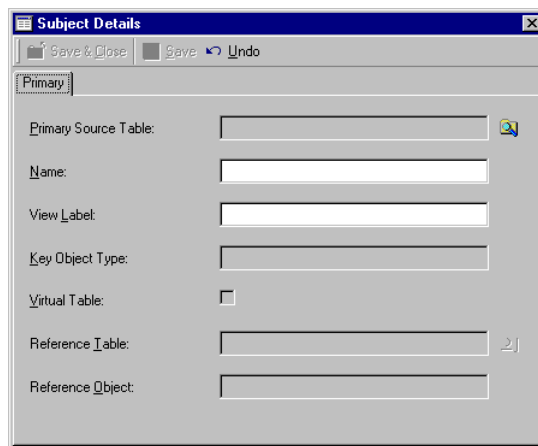



9. Choose the Key Object and click Select.
10. Double-click the Source Table check box to select it.

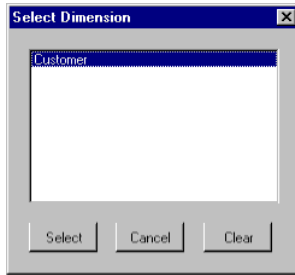
## 2 – Creating a Subject

Every source must belong to at least one subject.

1. Click on the Subjects icon.
2. Click the New button in the toolbar.



3. In the Primary Source Table field, click the Folders button (  ).  
The Select Dimension dialog box appears.



4. From the Select Dimension dialog box, select the name of the dimension you want to add, and click Select.
5. The Subject Name defaults to the Primary Source Table name, but you can change it by overtyping.
6. The View Label defaults to the first six characters of the subject name, but you can change it by overtyping.

**Note:** The Key Object Type is also shown for information only.

7. Click Save & Close.
8. Confirm that the new source table is displayed in the bottom half of the Subjects view.

If	Then
the table does not have a multipart key,	go on to the next step.
the table has a multipart key, you can specify additional fields for the subject,	perform the steps in the section Using Multipart Keys below, before you proceed to the next step.

9. Log in to SET ANALYZER and create a simple set based on the new subject you have just created.

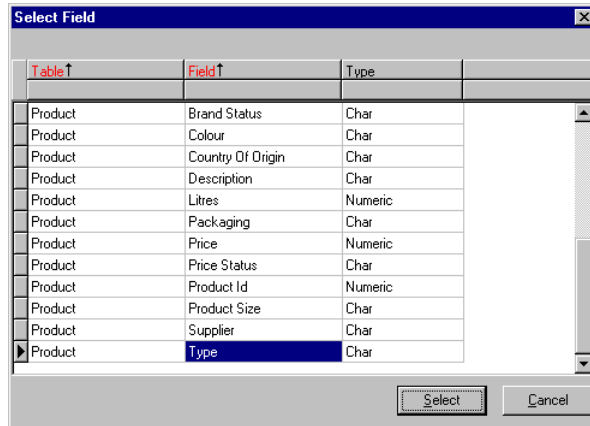
### Using Multipart Keys

If a table has a multipart key, you can specify additional fields for a subject. This can be done now or later, in the Subject view, *if no sets exist for that subject*. These additional fields should together make up the unique key for that subject. There is no check to make sure this is so, so you must check this. You must also ensure that the precision entered for each field is correct.

1. In the Subjects view, click on the Additional Fields tab.

- Click the Add Field button in the toolbar.

The Select Field dialog box is displayed.



- Choose the field you want to add and click Select.

The field is added to the Additional Fields data grid.

### 3 – Creating a Secondary Source Table

- In the Tables/Objects view, click on the Load Tables button.



The Load Tables dialog box appears.

- Select the secondary source table you want to load.
- Click the Load button.
- Click on the Load Fields button in the toolbar.

The Load Fields dialog box appears.

- Select the fields you want to load and then click OK.

You now need to complete the columns in the Tables list, for this secondary source table.

	Tables Data Grid 			Objects Data Grid 
Table Type	Key Object	Lookup Object	Source Table	Linked Table
Primary Source	✓	×	✓	×†
Secondary Source	×	×	✓	✓
Lookup	✓	✓	×	✓‡

---

**Note:** You need to set up the **Source Table** and **Linked Table** columns, but you don't need to set up the **Key Object** column.

---

6. Double-click the Source Table check box to select it.
7. Click on the Linked Table for the dimension object column in the secondary table and select the dimension type.

For example, in the Sales secondary source table, you would click on the Linked Table for the customer\_id column in the Sales table and select Customer as the dimension.

8. Click on the Subjects icon and check that the secondary source table appears in the bottom half of the window as well as the primary source table.
9. Log in to SET ANALYZER, press F5 to refresh the cache and confirm in the VisualData view that the table also exists as a source.

## 4 – Creating Lookups

You define lookups in the Tables/Objects view and view the results in the Lookups view.

Setting up a lookup table involves the same basic steps as setting up any table. The main difference is that you must join the lookup table to the original source table by setting up the Linked Table of the original source table (not the lookup table).

1. In the Tables/Objects view, load the lookup table.

2. Load the objects.

	Tables Data Grid			Objects Data Grid
Table Type	Key Object	Lookup Object	Source Table	Linked Table
Primary Source	✓	×	✓	×†
Secondary Source	×	×	✓	✓
Lookup	✓	✓	×	✓‡

† The Linked Table is entered against the source table to which the lookup table is joined.

This is a Lookup table so you must set up the **Key Object** and the **Lookup Object** against the lookup table, and the **Linked Table** against the *source table to which the lookup is joined*.

3. Choose the Key Object for this table (the lookup code).

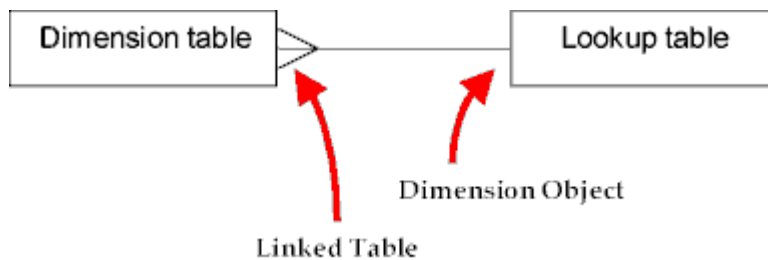
For example, for the **customer\_cycle** table, you would select the **cycle\_id** as the key object.

4. Choose the Lookup Object.

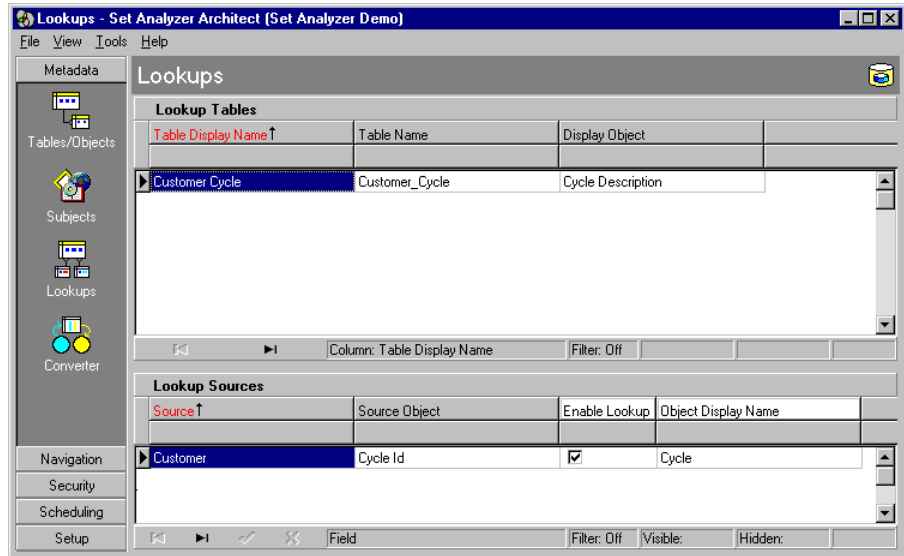
For example, for the **customer\_cycle** table, you would select the **cycle\_description** as the lookup object.

5. In the Objects List, tag the linked table for each foreign key that links to the lookup table (the lookup code).

For example, highlight the **Customer** table (the source table) in the tables list and click on the **Linked Table** for the **cycle\_id** column in the objects list. Select **Customer Cycle** as the linked table. This joins the lookup table to the source table.



- Click on the Lookups icon and check that the lookup table has been set up correctly.



**Tip:** Table Display Name is the name that SET ANALYZER uses.

- Log in to SET ANALYZER, press F5 to refresh the cache and in the VisualData view, check that the lookup name now appears in the Objects List.

For example, for the **Customer** table lookup, check that **Cycle Id** has been replaced by **Cycle Description**.

## More about the Tables/Objects View

This section describes the Table and Objects grid in more detail.

The Tables () and Objects () grids display the lists of tables and objects that are the building blocks of the SET ANALYZER set repository.

### Tables Grid

#### Table Name

The table name is the actual table or view name defined in the source database. The table name should include the table owner prefix, e.g. SYSTEM.CUSTOMER.

The same table can be defined more than once, but the display name must be unique.

#### Table Display Name

The Table Display Name is the name of the table that is used throughout Architect. This enables you to use a more meaningful name than simply the table name.

#### Display Where

Display Where is optional. You can define a customized SQL expression for the system to use to help SET ANALYZER decide which rows to display when using the existing data to help prompt the user on data selection.

If no expression is defined, SET ANALYZER attempts to display the first 50 records from the table in the database. The column setup option is an example where the user is presented with a few rows of data to help them understand the data and organize and size the columns accordingly.

Because the tables and views used by SET ANALYZER are typically large, it is useful to be able to define the selection of data that will be displayed. The Expression Builder is available by clicking on the ellipsis (...) button in the Display Where column.

Any valid logical expression is acceptable.

### Key Object

The Key Object is needed only for primary sources and lookup tables. It is normally a single column, e.g. Customer\_ID. SET ANALYZER supports both single column and multiple column expressions. In a banking database, for example, the customer table for many banks has a unique key made up of Branch\_ID and Customer\_ID.

With multiple column examples, you will need to define a single object that has a complex expression that concatenates the multi-column expression. For performance reasons, it is preferable to have a single column key.

### Lookup Object

If a single column describes the row better than the dimension object, you can select the object as a lookup object, e.g. Gender Description.

A lookup object does not need to be based on a single column in the underlying table. You can add a new row in the objects list and define a complex expression, e.g. Title+First\_name+Last\_name. Next name the object, "Customer Name" and select this object as the lookup object for the customer table.

### Source Table

Within SET ANALYZER, not every table that you load into the set repository will be used to create sets. Sets can be built only against tables that are tagged as source tables. For example, the gender table would not be a source table unless you plan to process sets of genders, which would hardly be necessary where the table contains only three rows.

Typically the dimension and fact tables are tagged "Source Table" and the lookup tables are not.

### Virtual Table

Sometimes you may want to create two subjects from the same source. For example, a table may contain two columns: Customer\_ID and Account\_No, and you may want to be able to create sets of customers and also sets of accounts.

One way of doing this is to configure the source table twice. However, this means that you would have to define all the fields, object trees, and fast counts twice. A more efficient way is to set-up the source table once and then to define two virtual tables: one referring to customers and the other referring to accounts. You then define all the objects, object trees, and fast counts for the source table, but define two separate subjects, one for each virtual table.

## Objects Grid

Objects are the building blocks of the tables loaded into the SET ANALYZER set repository.

The Objects grid displays the list of objects that are referenced by the tables that are loaded into the SET ANALYZER repository.

### Object Syntax

Object Syntax is by default the column name from the source table. You can define complex calculated or derived expressions.

### Object Name

A lower case display name of the column name is created by default. You can change this to a name meaningful to SET ANALYZER users.

### Datatype

The object contains a general data type identifier for the rows. The possible values are:

Character	Data type identifier
C	Character
D	Date
N	Numeric

These data types determine how SET ANALYZER processes data held in this row. SET ANALYZER defaults to the appropriate value if you load the objects directly from the database metadata. You will need to define this only when:

- You define a custom/complex expression.

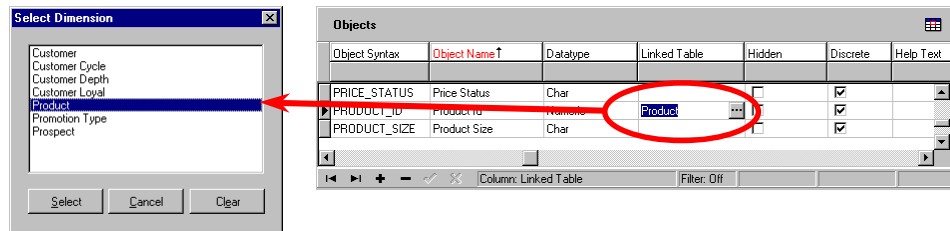
- The data type in the underlying database is changed.

### Linked Table

You should complete this column if any column is either the primary or foreign key. You need to complete the following tasks before completing this column:

- Load the table containing the primary key to which a foreign key relates.
- Select the Key Object in the Tables grid for this table.
- Define the Lookup Object for this table if you wish to hide the key in preference to displaying a meaningful text description.
- Verify that the data types are the same for the primary key and foreign key.

Now you can identify the column as being of the dimension type held by the dimension table. In the case of the dimension table, the linked table column will be completed automatically. You can edit it manually by clicking on the Ellipsis button in the Linked Table column. Only tables with the Dimension Column completed will be shown. They must also have the same data type as the Object selected.



### Hidden

This is a check box to indicate if a specific object should be displayed to the user in the objects list in the VisualData view or as a column in the Refine view in SET ANALYZER. For example, you might not want to display primary keys or information where the content has little meaning to a SET ANALYZER user.

## Discrete

This is a flag to prevent specific columns being used to categorize the whole database. Unchecking this column prevents it from being used from the VisualData view in the object list when the Object mode is selected. The columns can still be used to create ad-hoc object trees, and so you can still use these objects in pre-built object trees.

## Help Text

Text you enter here will be displayed as help text in SET ANALYZER when the user moves the mouse cursor over the text.

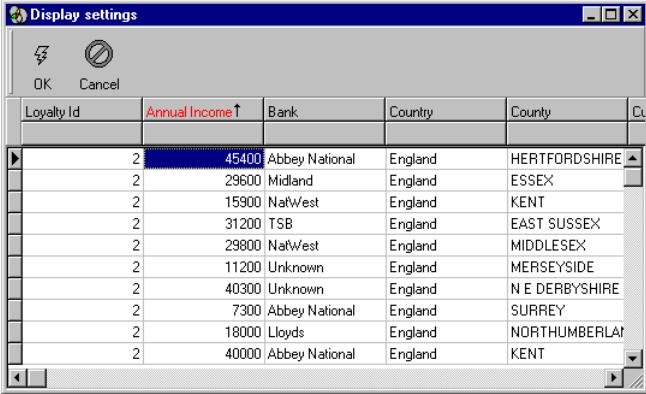
## Setting Table Display

The Column Setup button allows you to define the column order and the column width for all the columns in each table. You must define the column order and width one table at a time. This affects the way that data is displayed in the Refine view in SET ANALYZER.

### Defining Column Order and Column Width

1. In the Table/Objects view, click the Column Setup button.

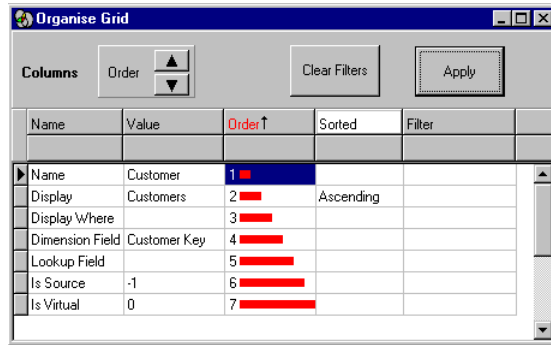
The Column Settings dialog box is displayed. A number of rows from the source table are displayed. You can customize the values displayed from the Display Where column.



Loyalty Id	Annual Income ↑	Bank	Country	County	C.
2	45400	Abbey National	England	HERTFORDSHIRE	
2	29600	Midland	England	ESSEX	
2	15900	NatWest	England	KENT	
2	31200	TSB	England	EAST SUSSEX	
2	29800	NatWest	England	MIDDLESEX	
2	11200	Unknown	England	MERSEYSIDE	
2	40300	Unknown	England	N E DERBYSHIRE	
2	7300	Abbey National	England	SURREY	
2	18000	Lloyds	England	NORTHUMBERLAND	
2	40000	Abbey National	England	KENT	

2. Edit the display settings.

If you want to	Then
Arrange the column order,	Drag and drop the columns. Click OK to save your changes.
Manually resize each column,	Place the pointer on the space between column heads and drag a column to the left or right. Click OK to save your changes.
Automatically resize a column based on its contents,	Double-click on the space to the right of a column head. Click OK to save your changes.
Drag and drop columns as rows,	Right-click on the grid and click Organise Grid from the menu.  The Organise Grid window appears on your screen.  Drag and drop the columns, click Apply and close the Organise Grid window.



3. Click OK to save your changes.

### Verifying Column Names and Expressions

You should check the column names and expressions with the source database to verify that they are correct. If a column name is no longer valid, you must delete it. This is not automatic because you may have used the column to process sets and fast counts. You can either delete the item from the repository or reinstate the column in the source table.

1. In the Tables/Objects view, click the Check button.

The Table Check window is displayed.

Display Name↑	FieldName	Field Found	Stored Type	Actual Type	Type Same	Dependencies
Brand Status	BRAND_STATUS	Yes	C	C	Yes	No
Colour	COLOUR	Yes	C	C	Yes	No
Country Of Origin	COUNTRY_OF_ORIGIN	Yes	C	C	Yes	No
Description	DESCRIPTION	Yes	C	C	Yes	No
Price	PRICE	Yes	N	N	Yes	No
Price Status	PRICE_STATUS	Yes	C	C	Yes	No
Supplier	SUPPLIER	Yes	C	C	Yes	No
Type	TYPE	Yes	C	C	Yes	No
Litres	LITRES	Yes	N	N	Yes	No
Packaging	PACKAGING	Yes	C	C	Yes	No
Product Id	PRODUCT_ID	Yes	N	N	Yes	No
Product Size	PRODUCT_SIZE	Yes	C	C	Yes	No

The Table Check window lists a number of columns to verify if the expression or column is valid, what its actual and stored datatypes are, and a column to denote if the datatypes differ.

2. Take the relevant action to correct any problems.

You can sort and filter on these columns to identify rows that exist. The Dependencies column indicates if the column is referenced by other columns in the repository. At the top of the screen is a summary that shows if all the objects are found and if all the datatypes match.

3. After you have corrected all problems, click Close.

It is possible to check all the tables in the repository by checking the 'Check All Tables' box before pressing the 'Check' button.

## Performing Advanced Tasks on Tables and Objects

You can perform the following advanced tasks in SET ANALYZER:

- Define a custom/complex expression
- Remove items from the set repository
- Add a table more than once

- Use reference tables

## What Can You do with Complex Expressions?

You can do the following with complex expressions:

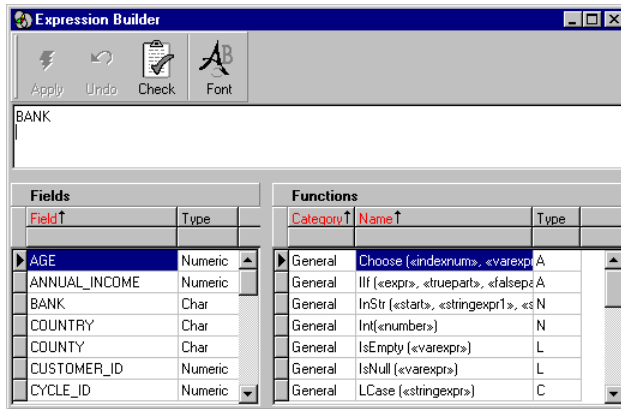
- Create a 'new' column
- Concatenate text
- Create bands from a column

### Create a 'new' column

You can define a 'new' column as a calculated object with SET ANALYZER Architect.

1. In the Tables/Objects view, click on the ellipsis button (...) against an object in the Object Syntax column.

The Expression Builder window appears on your screen.



2. Create the new virtual column in the Expression Builder.

### Concatenate text

You can for example, concatenate Title+First name+Last name. The final expression can then be used as a lookup object.

## Create bands from a column

SET ANALYZER manages the process of drilling into discrete data variables, but in many cases it is valuable to drill into a continuous variable like Annual Income or Credit Limit. You can use a complex expression to create bands from a column, e.g. 0-9999 and 10,000-19999.

To convert a continuous number into a discrete value (or band), take the number and divide it by 10, 100, 1000, etc. Take the integer and multiply by the same factor. There is no limit to the expressions you can create in terms of syntax; however, there is a limit on the length of the expression, which varies by database platform. The syntax must be supported by the database you are using.

**Example**      **Converting all annual income into bands of 10,000 in Oracle**

.....

The following SQL converts all Annual Income into bands of 10,000 in Oracle.

```
Floor (<a>.Annual_Income/10000) *10000
```

.....

## Create case statements or decode statements

You can create case statements or decode statements to produce a finite list of options that are based on a predetermined categorization.

**Example**      **Translating a date from dd-mm-yyyy format into first half, second half format**

.....

The following function translates a date from dd-mm-yyyy format into first half, second half format in Access.

```
IIf (DATES_WEEKS.WEEK_NO<=26, `1st Half`, `2nd Half`)
```

.....

**Example**      **Creating a case statement based on annual income**

.....

The following function works in DB2.

```
Case
When <a>.Annual_Income <15000 then 'A'
When <a>.Annual_Income <30,000 then 'B'
Else 'C'
End
```

.....

**Example**      **Creating a decode statement in Oracle**

.....

The following Decode statement works in Oracle.

```
DECODE (sign (<a>.INCOME<35000) , -1, 'Low' , +1, 'High' , 0, 'Equal' )
```

### Table names in complex expressions

When you use a table name with SET ANALYZER and BUSINESSOBJECTS, you should include the table name with every column as in the following expression.

```
CONCAT (SYSTEM.CUSTOMER.FIRSTNAME, SYSTEM.CUSTOMER.LASTNAME)
```

If you are using SET ANALYZER without BUSINESSOBJECTS, then you can also reference the table with <a> and SET ANALYZER will replace <a> with the name of the relevant table at runtime.

## Removing Items from the Set Repository

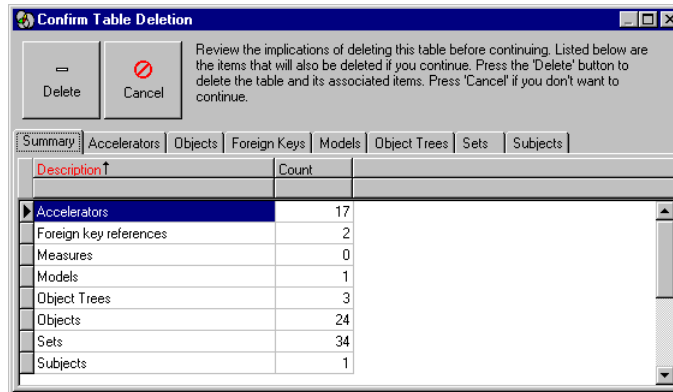
To remove an item from the set repository:

1. In the Tables/Objects view, right-click the item and choose Delete.

or

Select the item and click on the Delete Record ( - ) button at the bottom left of each grid.

The Confirm Table Deletion dialog box is displayed.



The Summary tab shows you how many items will be affected. The other tabs provide details about the different types of item such as objects and subjects.

2. Delete the item or cancel the request.

If	Then
you want to delete the item,	click Delete.
you want to cancel the request,	click Cancel.

## Adding a Table More than Once

It is possible to define the same table more than once in the set repository.

This may be necessary if, for example, you have a lookup table with two columns that contain a lookup description. For example, you may have a lookup table with columns Name\_id, Shortname, Longname. If you want to be able to access both the Shortname and Longname lookup descriptions, then you need to define the lookup table twice.

### Loading the same table twice

1. Define the same table twice, giving the two tables different display names.
2. Load the second table manually by clicking the New Record button on the toolbar.

If you do not load the second table manually, SET ANALYZER Architect discards the duplicate table name.

3. Load the objects for each table by following these steps.

Step	Action
1	Set up the ID object for different objects for each subject.
2	Set up different lookup objects for each table.
3	Define the Linked Table (foreign key) twice within the main source table.

## Using Reference Tables

If a table contains more rows than you require, you should first create a view that contains only the rows you require. You should then use this view in preference to the table.

This kind of table usually contains reference data for many different purposes. Create a view for each section of the table and use these views within SET ANALYZER.

## The Converter Module

Once you have created subjects, you can use SET ANALYZER Architect to convert them from one subject, such as Customer, into another subject, such as Product.

### Why convert subjects?

SET ANALYZER users use the subjects that you create to process sets. For example, a SET ANALYZER user may take subjects and use them to process a set of products. In running an analysis, the SET ANALYZER user might also want the following sets (among others):

- The set of customers that buy these products
- The set of customers that have refunded these products
- The set of other products sold with these products

To help the SET ANALYZER users create the new sets, you convert between subjects.

### What are the benefits of converting between subjects?

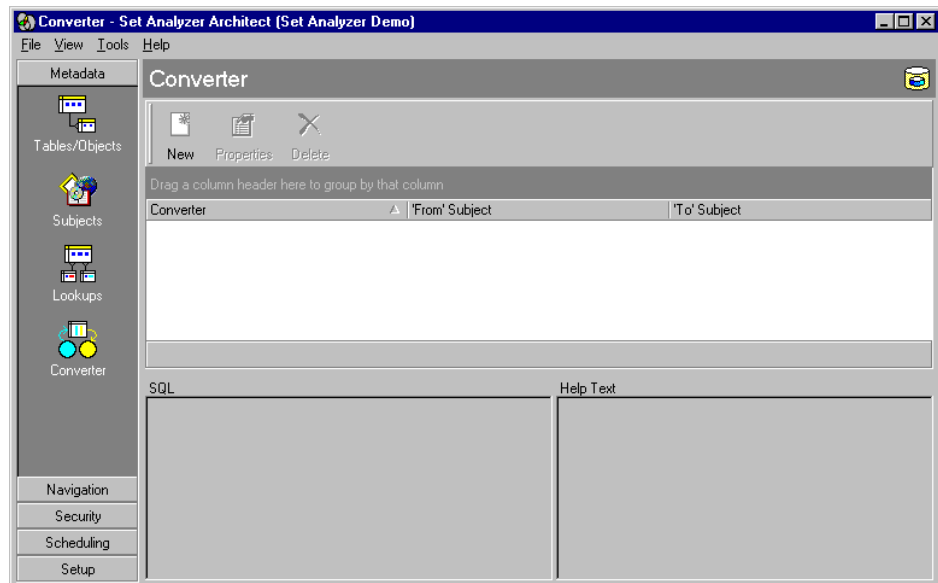
SET ANALYZER users enjoy several benefits from this technique:

- Their queries are faster because the condition to process the conversion has already been processed in isolation.
- They can chain conversions, e.g. create a list of customers that bought certain products and then create a list of other products that these customers bought.

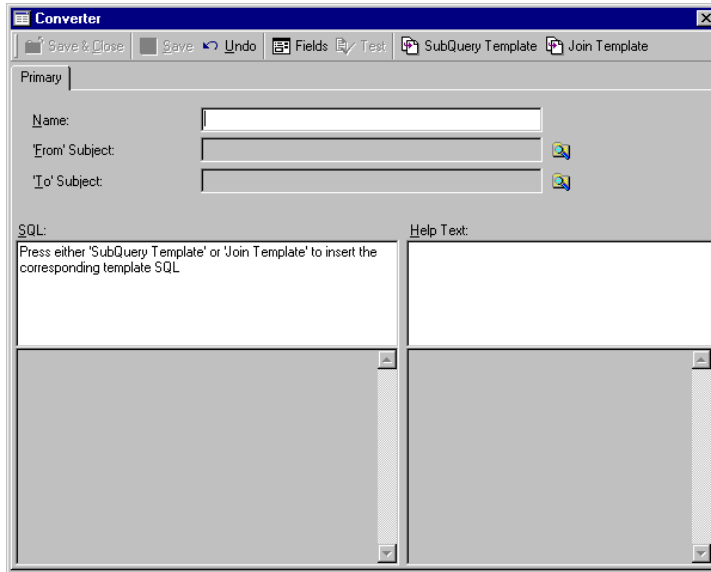
- They have less need for sub-queries and correlated queries and have a reduction in the number of tables per query.
- SET ANALYZER users gain confidence because each simple step can be understood.


## Converting a Subject

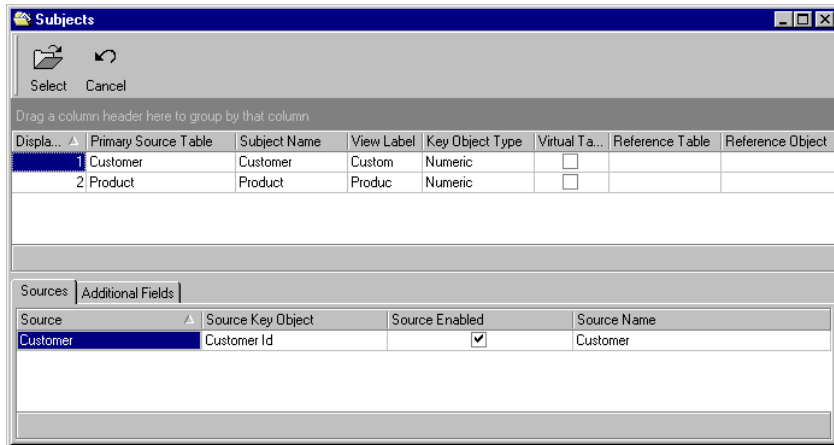
You can convert a subject in the Conversions view of SET ANALYZER Architect.




1. Click the New button.



2. Type a name for the conversion.
3. In the 'From' Subject box, click the  icon to display the Subjects window.



4. Choose the subject you want to convert from and click Select.
5. In the 'To' Subject box, click the  icon to display the Subjects window again.
6. Choose the subject you want to convert to and click Select.

7. Write an SQL statement in the SQL box and any help text you want to be associated with the conversion in SET ANALYZER in the Help Text box.

The SQL must have the following:

- A select field with alias ID. (The DESTINATION subject id)
- The tag ``<sub_query>`' which will be replaced at run time with a SOURCE set sub query in the form `select id from set\_detail where setversion\_id=123`

```
select distinct dest_number as ID from link
where source_number in (<sub_query>) becomes
select distinct dest_number as ID from link
where source_number in (select id from set_detail where setversion_id=123).
```

---

**Tip:** You can use the Subquery Template and Join Template buttons to display SQL templates and edit them.

---

8. Click the Test button to confirm that the SQL is correct.
9. Click Save & Close.



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- Modifying a Calendar ..... 119
- Deleting a Calendar ..... 120

## Overview

This chapter describes how to configure calendars in the SET ANALYZER Architect Setup group.


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**Note:** Calendars are available only if your SET ANALYZER license key includes the Event Engine option and the repository has been converted to a Temporal repository (see Chapter 4 "Creating the Set Repository").

---

---

Calendars allow SET ANALYZER users to control various aspects of rebuild timing. By using the same calendar with different sets, users can keep the currency of their respective memberships synchronized over time. This might be very useful for ensuring the consistency of inter-set comparisons. Sets that use calendars are called **dynamic sets** and are indicated by a the  symbol in Sets View in SET ANALYZER. By contrast, sets that do not use calendars are called **snapshot sets**.

Each calendar consists of a time of day plus a series of date intervals or *periods*. Standard calendars contain evenly spaced start dates for each period. Depending on the calendar type, a period might last as little as a day or as long as a year.

In general, once you specify a dynamic set's calendar, SET ANALYZER records the start date of the corresponding period each time the dynamic set is rebuilt. Joiner records in the set membership history inherit that date as their membership start date.

---

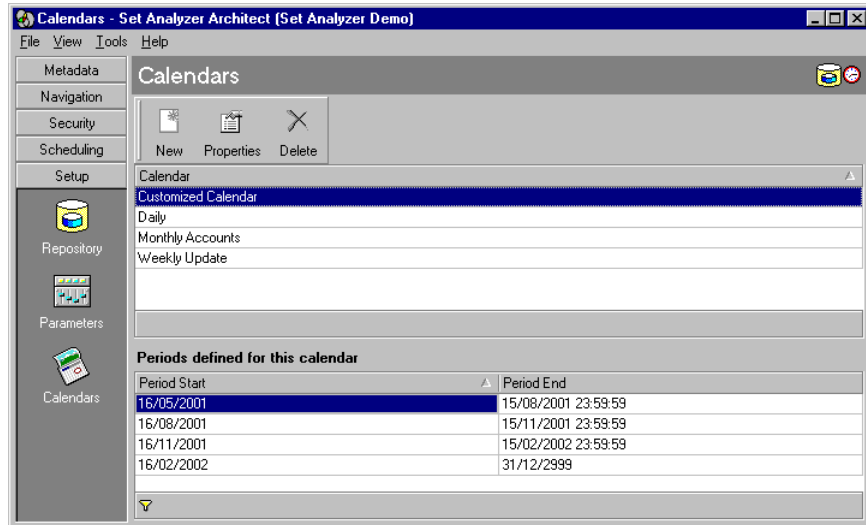
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**Note:** A typical dynamic set configuration prevents it from being rebuilt more than once for a given calendar period. Also, if a dynamic set is rebuilt for the last period of an *expired* calendar, or one whose end date is past, SET ANALYZER freezes its membership history and no longer attempts to rebuild the set.

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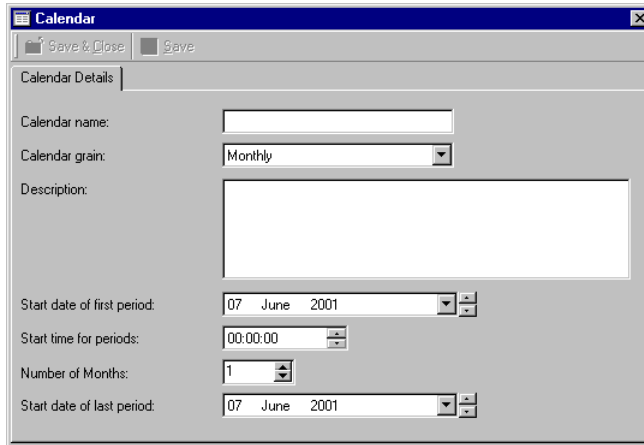
You create calendars in the Calendars view.



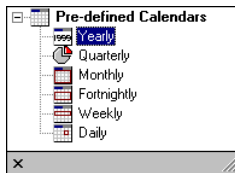
## Creating a Calendar

To create a calendar:

1. Click on the Setup group and then the Calendars icon.  
The Calendars view is displayed.
2. Click the New button.  
The Calendar dialog box appears.



3. Type a meaningful name for the calendar. This is the name that will be displayed in SET ANALYZER.
4. Choose the calendar grain.



Some standard calendar are supplied, but you can also create a custom calendar.

**Tip:** You can close the options list by clicking on the X (Close) button. You can enlarge the list by dragging the bottom right corner of the list.

5. Double-click on the calendar you want to create.

The calendar is created.

If you create a	Then
Yearly calendar	enter or select the Start Date for Periods, and choose the number of periods you want the calendar to run.
Quarterly calendar	enter or select the Start Date for Periods, and choose the number of periods you want the calendar to run.

If you create a	Then
Monthly calendar	enter or select the Start and End dates and times for the calendar. Monthly entries will be created automatically between these dates.
Fortnightly calendar	enter or select the Start and End dates and times for the calendar. Fortnightly (two-week) entries will be created automatically between these dates.
Weekly calendar	enter or select the Start and End dates and times for the calendar. Weekly entries will be created automatically between these dates.
Daily calendar	enter or select the Start and End dates and times for the calendar. Daily entries will be created automatically between these dates.

6. Click the Save & Close button.
7. The calendar periods are listed in the Calendars view.

## Modifying a Calendar

To edit an existing calendar:

1. In the Calendars view, select the calendar you want to modify.
2. Click on the Properties button.  
The Calendar dialog box appears.
3. Make your changes.  
**Tip:** You cannot change the calendar grain.
4. Click the Save & Close button.
5. The modified calendar periods are listed in the Calendars view.

## Deleting a Calendar

To delete an existing calendar:

1. In the Calendars view, select the calendar you want to delete.
2. Click on the Delete button.

If	Then
the calendar has been used by SET ANALYZER users in a set,	the Calendar Deletion window is displayed, showing the details of the set(s). You cannot delete the calendar.
the calendar has not been used in SET ANALYZER,	confirm the deletion.

## In this chapter

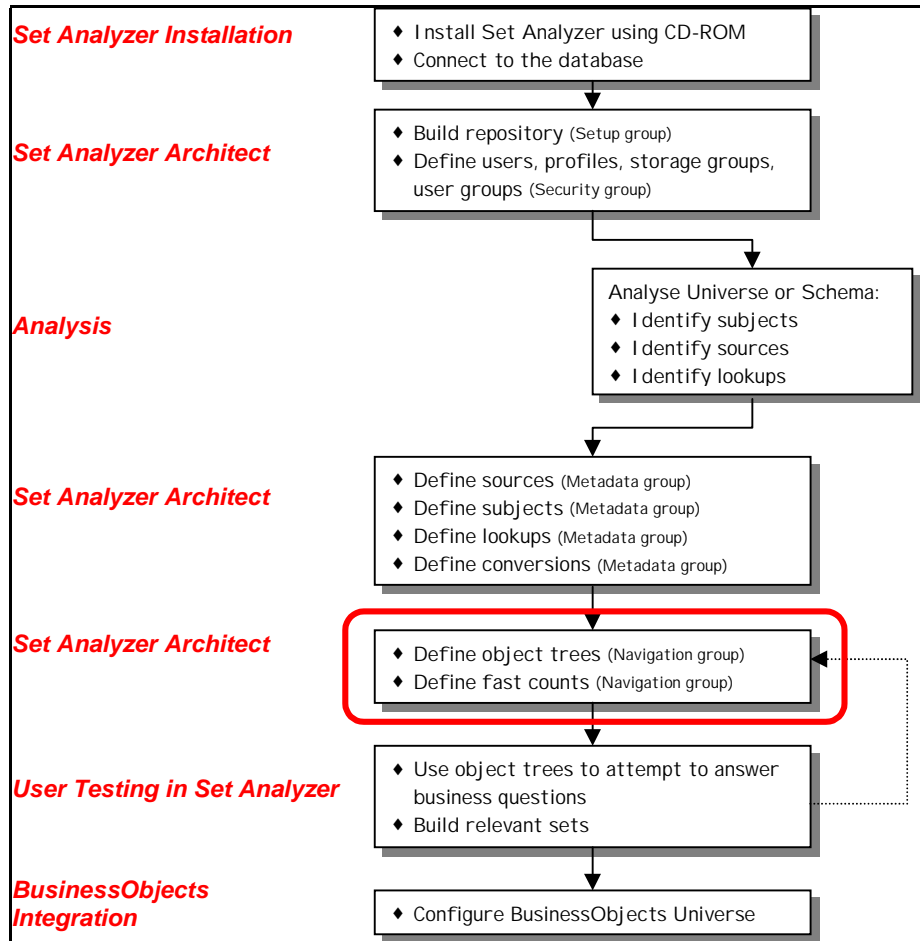
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# Overview

This chapter describes how to:

- define object trees
- define fast counts (Accelerator Module).

The diagram below highlights the steps for this part of the setup process.



## Objects Trees

Object Trees are ways of visualizing data in the source database for SET ANALYZER users to drill down through to locate items to include in a set.

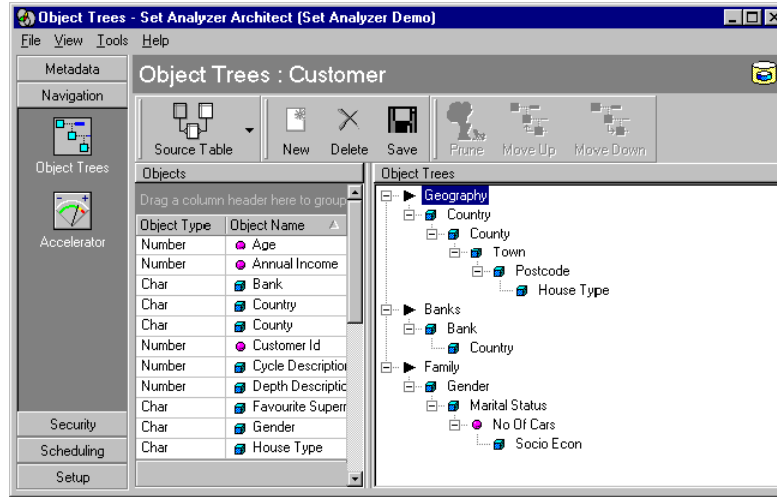
You create object trees after configuring the set repository with the appropriate metadata. It is normal to create at least one object tree. SET ANALYZER users can then use these object trees to define the contents of their sets in the SET ANALYZER VisualData view. SET ANALYZER users can also create their own custom object trees.

The rows in the source tables have relationships, inherent in the data, that point to values that can be used for categorization. These values are seldom unique and are common to many records or rows in the table. These values can be used to group data together and are often related to other values in other columns in a hierarchical way.

A table can have many inherent hierarchies that indicate how these columns are related. Defining these hierarchies as object trees is a useful method of providing access to the table items to the SET ANALYZER user who is not familiar with the structure of the data. In SET ANALYZER, the object trees do not have to relate to a logical hierarchy, but can be constructed from any combination of suitable objects in the set repository.

## Where Do You Define an Object Tree?

You define an object tree in the Object Trees view.



**Example**     **Defining an object tree**

.....

Within a table there may be several hierarchies that describe the data, since items can belong to many different categories (but only to one of each). For example, in a database, a table has rows that describe the hierarchy:



An item can belong to one and only one division, but items belonging to one division can belong to different categories or come from different suppliers, etc.

Object Trees in this case serve to assign items to categories of decreasing discrimination.

There are only three values in the Division column. Each of these values contains a number of values that group items. In this example, each division contains a number of categories. There are 80 categories, each of which can contain other sub-categories until each item belongs to one and only one minor category.

.....

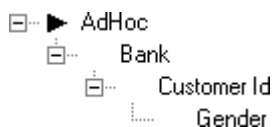
## Selecting via an Object Tree

Object Trees do not have to be increasingly discriminating and can be built in any order. Here are two examples:

**Example** **Two Object Trees with different orders**



*Hierarchy with the order Gender/Bank/Customer Id*



*Hierarchy with the order Bank/Customer Id/Gender*

.....

Both object trees are valid and can help locate specific information.

The definition of object trees depends on the nature of the data and the use to which they are being put.

## Choosing a Source Table

The tables that have been loaded into the set repository are available from the Source Table button. An object tree can include only objects from the currently selected source table. The current source table can have any number of object trees pre-built for it.

## The Object Trees area

The Object Trees area is where you create, maintain, and view object trees. If no pre-built object trees exist, the area is empty. Object trees can be built at any time.

## Object Tree Objects

The Objects list shows the objects in the currently selected source table. Objects types can be either character (Char), or numeric (Number). You can group the objects in the list, and sort them either by Object Name or by Object Type.

## Building Object Trees

Choosing an object to build into a object trees requires knowledge of the table data. Choosing objects that have a wide range of values will prove less useful for grouping the data than objects with a few values that function as categories.

### Creating a new empty object tree

1. Select the source table.
2. Click the New button.

A new object tree is created.



3. Type a name for the new object tree.

The name can be descriptive or not. The name of the object tree is not critical as the objects used to build it are visible to the user. These will have been given meaningful names on the Tables/Objects view and therefore the object tree is explained by its component objects.

### Creating the object tree levels

1. Click on the object you want to add.
2. Drag and drop it onto the object tree.
3. Drag and drop the other objects you want to use in the object tree.

For these objects, when you drag and drop them to an existing object in the object tree, you are prompted to choose whether to replace, add it before, or add it after the existing object.

## Modifying an Object Tree

### Renaming an object tree

To rename an object tree:

1. Right-click on the object tree and choose Rename.
2. Type a new name and press Return.

## Changing the object tree

To change the level of objects in an object tree:

1. Select the object in the object tree.
2. Click on the Move Up or Move Down buttons to move the object to the required level.

**Tip:** You can also right-click on an object to use the Move Up and Move Down options.

## Removing a level from an object tree

To delete a level:

1. Right-click on the object you want to remove.
2. Click on Remove Object.

The selected object is removed, but any objects lower down in the tree are not deleted.

## Pruning an object tree

Pruning an object tree removes all lower levels along with the selected object.

To prune an object tree:

1. Select the object you want to prune from.
2. Click the Prune button, or right-click and choose Prune.

The object *and all lower levels* are removed.

## Deleting an object tree

To delete an object tree

1. Select the object tree you want to delete.
2. Click the Delete button, or right-click and choose Delete.

The object tree is deleted.

## The Accelerator Module

### What is the Accelerator Module?

The Accelerator Module allows you (the SET ANALYZER Administrator) to create and store pre-calculated fast counts (aggregates) that summarize segment counts. This speeds the navigation of object trees which, in turn, speeds the process of selecting items in a set.

### Why Should You Build Fast Counts?

When using SET ANALYZER to build sets, the SET ANALYZER user may well use tables containing millions of rows. Selecting individual items is inefficient because they have to be located among the many rows in the database. In order to aid this process you can build object trees that categorize the items and enable SET ANALYZER users to find them more easily. For example, it is easier for the user to add Carbonated Drinks as a whole rather than locate and add each type of carbonated drink from the main table.

However, the categories you create in a object tree can still require significant processing time to group their component items and locate groups or individual items. You can increase the efficiency of this process by building fast counts.

### What Makes it Sensible to Build a Fast Count?

Whether it is sensible to build a fast count depends on the ratio of distinct values for an object to the number of rows on the table:

$$\frac{\text{distinct values}}{\text{no. of rows}}$$

The lower the ratio, the greater the advantage of building a fast count:

- ✓ Distinct values (e.g. gender)
- ✗ Continuous (e.g. salary)

There are also some objects that are in the middle ground. Nationality for example, might have 10 distinct values that represent 17% of the table. In this case, you may need to consider other factors in deciding whether to build a fast count. You should consider the following guidelines:

- Large counts take longer to build or rebuild when the underlying database values change.
- Large counts take up more space in the repository.
- Large counts take longer to access in SET ANALYZER.
- Not having the count means scanning the source database table instead.

## Where Do You Define a Fast Count?

You define and maintain fast counts in the Accelerator view.

The screenshot shows the 'Accelerator' view in Set Analyzer Architect. The interface includes a navigation pane on the left with 'Metadata', 'Object Trees', and 'Accelerator' sections. The main workspace displays the 'Sources' table and the 'Fast Count Rules' table.

Source	Table Name	Rows	Max % of Total Rows	Max % of Smallest Alternative
Customer	Customer		5	50
Customer Cycle	Customer_Cycle		5	50
Customer Depth	Customer_Depth		5	50

Objects	Last Updated	Rows	Permanent	Minutes
			<input type="checkbox"/>	

## How do You Define a Fast Count Rule?

You define a fast count rule by performing the tasks shown in the following tables. Steps 1 to 4 are performed typically once per installation, while step 5 is a regular process. Each task is described in greater detail below.

Step	Description
Step 1	Build row counts for each table.
Step 2	Decide on the parameters for each table.
Step 3	Build rules for each table.
Step 4	Amend the rules by adding or deleting specific accelerator rules (optional).

Step	Description
Step 5	Build the values for each table.

## Building Row Counts for Each Table

The Row Count is a count of the number of rows in a selected table or all tables.

### Why are row counts useful?

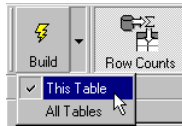
Having a row count is useful for the following reasons:

- Getting an accurate row count.
- Providing a good feel for the performance of the server. You can judge how long it takes to do a full scan on the table in question.
- Giving you the information you need to decide on table parameters.
- Spotting empty tables.

### How to generate row counts

1. Decide whether you want a row count for the specific table or all tables.
2. Click the Row Counts button

- Click the arrow next to the Build button.



If	Then
you want a row count for a specific table,	choose the This Table option
you want a row count for all tables,	choose the All Tables option.

## Deciding on Table Parameters

You need to set two parameters for each table:

- Max % Total Rows compares the count of distinct values to the number of rows on the source table.
- Max % Smallest Alternative compares the count of distinct values to the number of rows in the smallest alternative count that could be used.

### How to enter values for the table parameters

In the Source Tables box, for each source table, type the values in the Max % of Total Rows column and the Max % of Smallest Alternative column.

### What is the purpose of the parameters?

The rules engine uses these parameters to decide whether it is sensible to build a fast count. The rules define which counts are to be built, in terms of the objects that are to be included in the count.

### How does the rules engine use Max % Total Rows?

If the number of distinct values for an object or object combination is greater than this parameter, then the rule will be discarded. In the example of the Gender object from the sample table, the ratio is 3.3% of the total rows of the table. If the value of this parameter is greater than 3.3, the rule is generated. In the example of the Nationality object, the ratio is 17% of the total rows of the table. In order for the rule to be generated, the value of the parameter must be greater than 17.

Another way to view this is to convert the percentages into actual row counts. If you enter a value of 5 for the parameter, five percent of total rows (60 rows) equals 3 rows. In this case, only rules with fewer than 3 rows will be generated.

### How does the rules engine use Max % of Smallest Alternative?

This parameter is only relevant if object trees have been defined and the rules engine is therefore considering combinations of objects to use in a rule. This parameter is required because SET ANALYZER is able to use an existing count to derive the counts for all combinations of the objects in that count. For this reason, the rules engine will try to reduce the number of possibly redundant counts that are created. The value of this parameter controls which redundant counts are created and which are discarded.

**Example**     **How the rules engine uses Max% of Smallest Alternative**

.....

In the sample table, the rule for Marital Status has not been generated on its own. This rule would create a count of 3 rows, but it can be deduced from the count on Gender/Marital Status, which has 6 rows. Assume a value of 50 % for the Max % of Smallest Alternative parameter. Fifty percent of 6 rows (the combination of objects) is 3 rows. Three rows is not less than 50% of 6 rows, so the rule is not generated. If the value of the parameter were 51%, the rule would be generated.

Again in the sample table, the rule for Gender on its own has been generated. This rule creates an count of 2 rows, but the rule can be deduced from the count on Gender/Marital Status, which has 6 rows. Two is less than 50% of 6 rows, so the rule is generated.

.....

## Building Rules for Each Table

The rules define which objects are to be included in a fast count. There are two types of rules: rules for a single object and rules for a combination of objects.

## What does the rules engine do?

The rules engine creates the rules for combinations of objects. For  $n$  objects, the number of distinct object combinations is  $(2^n)-1$ , and in order to know which combination of objects to consider, the rules engine uses the object trees that have been defined to point it in the right direction. If an object tree has been defined, then counts are going to be required to allow the SET ANALYZER user to drill down the object tree in SET ANALYZER. Without object trees, the rules engine does not know which of the many possible object combinations to consider, and as a fail safe does not try any.

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---

**Tip:** It is important to define the object trees before the fast counts if the rules engine is to be used to its full potential.

---

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After the rules engine has considered all the possible combinations of objects from the object trees, it then considers the individual objects in isolation. This two pass process considers all possible candidates for rules and the rules engine uses the two parameter values to determine which rules to accept and which to discard. The rules are stored in the repository and displayed in the Rules box of the Accelerator view.

## How to build rules for each table

1. Select the table for which you want to build rules.
2. Make sure that you have the values you want for the two parameters: Max % of Total Rows and Max % of Smallest Alternative.
3. Click the Rules button, then click the Build button.

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**Note:** When rules are generated, any existing rules are first deleted. If you wish to generate rules, but also ensure that a particular existing rule is not deleted, select the Permanent check box next to that rule in the Rules box.

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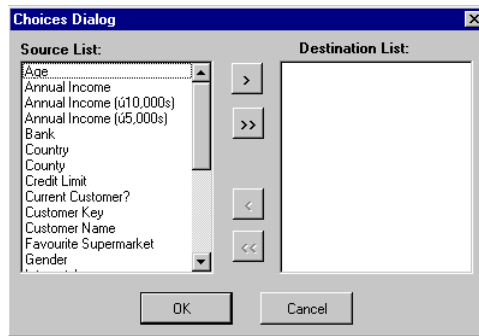
## Amending the Rules Engine Rules

You can add rules that the rules engine did not create, or delete rules that the rules engine did create. You can also create just one or two fast counts that you already know the rules for so that you do not need to wait for the rules engine to process and deduce all the potential rules for you. This prevents unwanted rules from being generated.

### How to manually add rules

1. In the Fast Count Rules area of the window, click the New Record (+) button.

The Choices Dialog box is displayed.



2. Select the objects you want included in the rule by moving them from the Source List to the Destination List, then click OK.

You can add the objects in any order. In the rule, they always appear in alphabetical order.

### How to manually delete rules

Select the rule you want to delete and click the Delete Record (-) button.

## Building the Values for Each Table

After you have generated the rules for a table, you need to generate the values for a rule.

- To generate the values for all the fast count rules that have been generated, click the Values button and then the Build button.

- To generate the values for a selected rule, select the Fast Count Rule in the bottom half of the window and click the Build Fast Count button.

## When Should You Regenerate a Fast Count?

You should regenerate a fast count whenever the underlying data changes. Fast counts are used only to aid fast display of counts and values. When a set is actually built, the real table is used and no reference is made to the accelerator values. It is important to bear this in mind when considering how often to refresh data values.



# Integrating Sets with BusinessObjects

---

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## Overview

Sets are simply data which is stored in standard tables within your source database. They can be stored in any application. This chapter shows you how to integrate set data with BUSINESSOBJECTS.

Sets created by SET ANALYZER users are integrated into a BUSINESSOBJECTS universe. After the set tables have been integrated, sets are represented by objects in the universe and *conditions* can be used with other objects to generate reports in both BUSINESSOBJECTS and WEBINTELLIGENCE.

There are several ways to integrate the set tables with BUSINESSOBJECTS; two methods are described here:

- The first method explains how to add the tables into the Universe using BUSINESSOBJECTS DESIGNER and is slightly slower and more complicated to set up, but the BUSINESSOBJECTS query performance is often significantly better.
- The second method uses Query Tools Views and a Business Objects Strategy File. This method has the following disadvantages:
  - Performance of BUSINESSOBJECTS reports can sometimes suffer significantly because of the use of views. (This can be a major disadvantage.)
  - Using a strategy file appears simple, but in practice strategies can be difficult to understand and make work.
  - Many people prefer to know what is going on behind the scenes, and using the views and strategy file masks of what is happening.

## Method 1 – Integration using the Tables

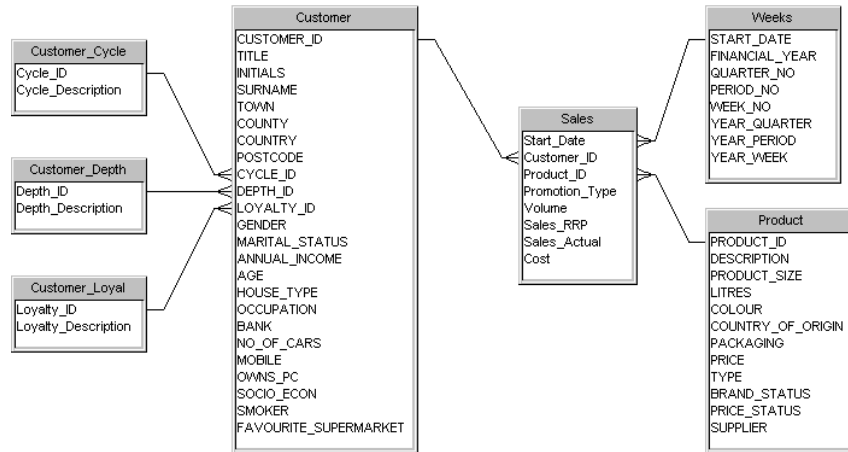
To help describe this method, an example universe, WineDemx.unv is used, with some of the database tables already inserted. Follow the procedures below to use BUSINESSOBJECTS DESIGNER to integrate sets into a universe.

1. Run BUSINESSOBJECTS DESIGNER and log in.

**Tip:** You can start BUSINESSOBJECTS DESIGNER from the Tools, Run menu in SET ANALYZER.

- Open the universe into which you want to integrate sets.

**Example**      **The schema for the example WineDemx.unv universe**



## Integrating the Customer Dimension

This integration process involves inserting particular SET ANALYZER tables into the schema for each dimension.

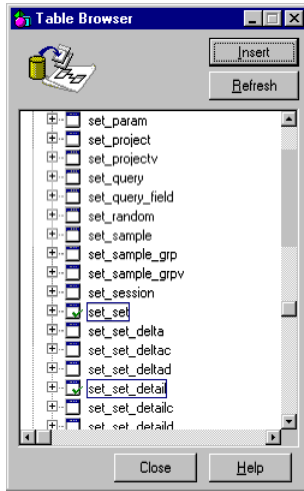
The tables are:

- set\_set
- set\_set\_detail

As the tables will usually be used more than once, (once for each dimension) you must alias each copy, to avoid loops.

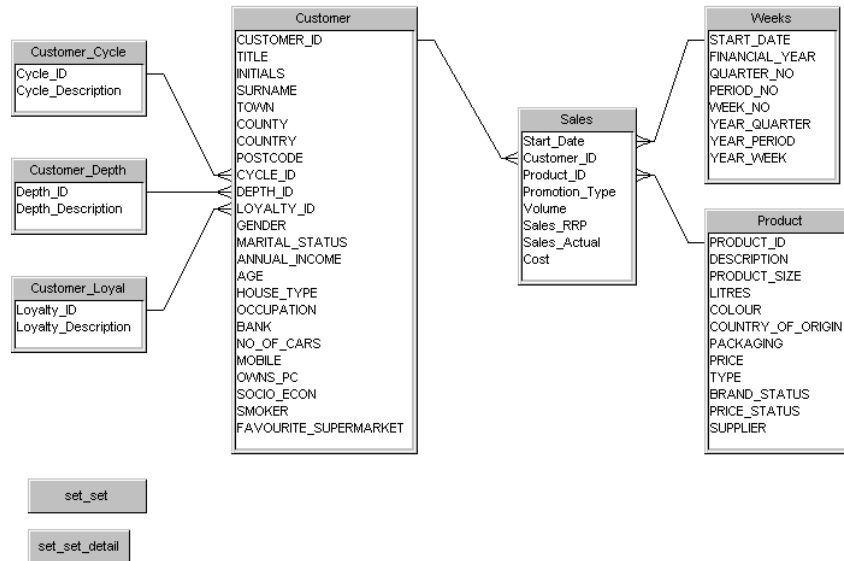
## Adding the Tables

- Click Insert, Tables to display the Table Browser dialog box.



2. Insert the set\_set, and set\_set\_detail tables.

**Example set\_set, and set\_set\_detail tables in the WineDemx.unv universe**



## Create Aliases

1. For each of the inserted tables, click Insert, Alias and create aliases, using the original name, with the dimension name appended.

For example, for the Customer dimension, the names of e:

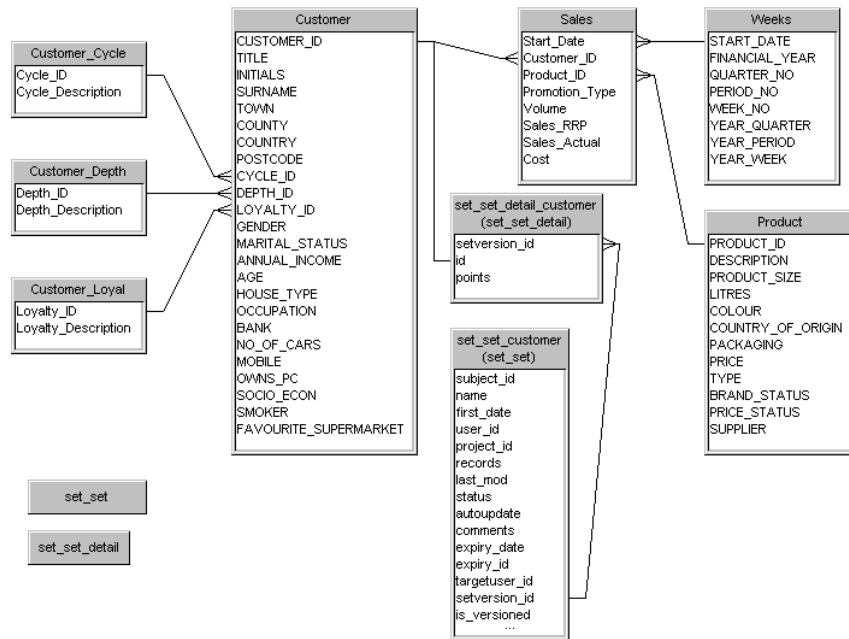
**Example** For the Customer dimension, in WineDemx.unv, the alias tables should be

.....  
 set\_set\_customer, set\_set\_detail\_customer  
 .....

## Joining the Tables

Now the alias tables need to be joined in the schema.

**Example** Joining the alias tables in WineDemx.unv



1. Create a join between the dimension table and set\_set\_detail. It should be a one-to-one join even though it may appear to be a one-to-many join. set\_set will always be constrained on a single set, and each set will always have unique IDs in it. Hence, once a set has been selected, each ID will be unique in set\_set\_detail, and so the relationship becomes a one-to-one.

---

**Note:** The join between set\_set\_detail and set\_set is a many-to-one join. set\_set contains the sets for all dimensions and so aliased versions of this are used in the universe for each dimension. To ensure that only sets for the relevant dimension are referenced in each set\_set alias, you need to create a self-join on subject\_id (joining it to itself), with the following join expression:

```
set_set_<dimension>.subject_id = x
```

where <dimension> is the dimension, and x is the subject\_id as defined within SET ANALYZER. For example:

```
set_set_customer.subject_id = 1
```

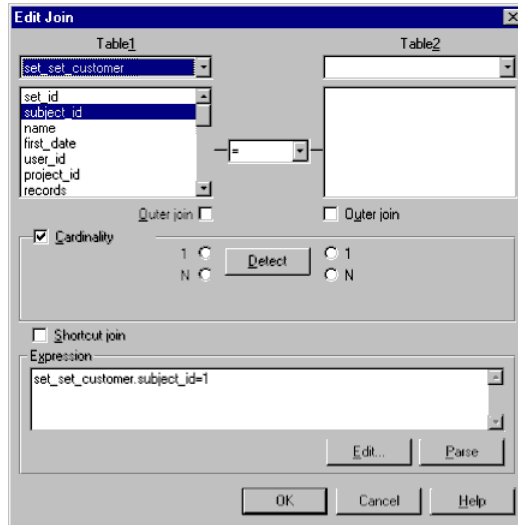
---

2. To determine the appropriate subject\_id:
  - (a) Click Insert, Tables to display the Table Browser.
  - (b) Right-click on the set\_subject table and choose View Table Values.
  - (c) Read the correct subject\_id for the relevant subject name. For example, x has a value of 1 for Customer below.

subject_id	subject_name	table_id	reffield_id	def_bsub	fi
3	Weeks	10			
2	Product	8			
1	Customer	2			

3. In set\_set\_<dimension>, create the self-join on subject\_id, editing the expression, as shown in the example below, for set\_set\_customer in the WineDemo universe.

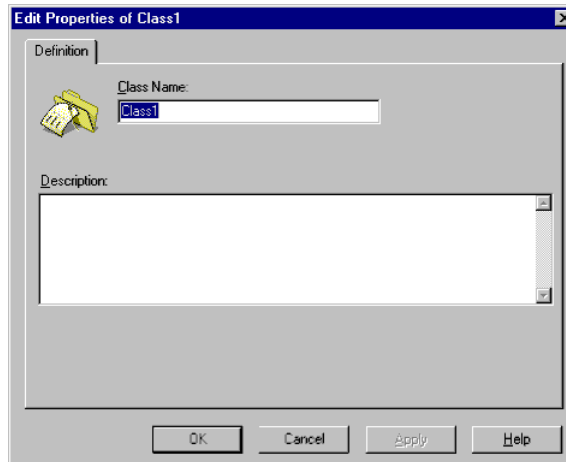
### Example Creating the self-join on subject\_id in WineDemx.unv



### Adding Classes and Objects

Now you can add the objects.

1. Click Insert, Class.



2. Type the name Set Analyzer and click OK.

3. Select the Set Analyzer class and click Insert, Subclass.
4. Create a subclass and click OK.

For example, in the WineDemx.unv universe, you might create a subclass called 'Sets - Customer'.

5. Drag and drop items into the new subclass.

**Example**      **Items dropped into the Sets – Customer subclass in WineDemx.unv**

.....

Table	Name
set_set_customer	name
set_set_detail_customer	points
set_set_customer	records
set_set_customer	last_mod

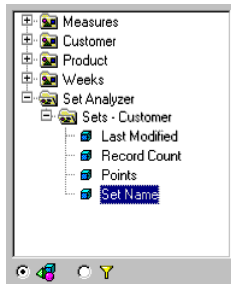
.....

6. Rename the objects to give them friendlier names and descriptions.

**Example**      **Friendlier names and descriptions in WineDemx.unv**

.....


Object Name	Description
Last Modified	Date set last modified
Record Count	Number of items in a set
Points	Total points allocated to each item in set
Set Name	Unique name for the Customer set



- .....
7. To ensure that the most up-to-date sets are displayed when a query is run, you can double-click on an object (for example, the Set Name object in the WineDemx.unv universe) to display the Properties dialog box. On the Properties tab, uncheck "Allow users to edit this list of values" and check "Automatic refresh before use".

## Adding a Filter Condition

By adding a filter condition on the subclass, you can define a prompt that allows the user to select from the list of sets when a query is run.

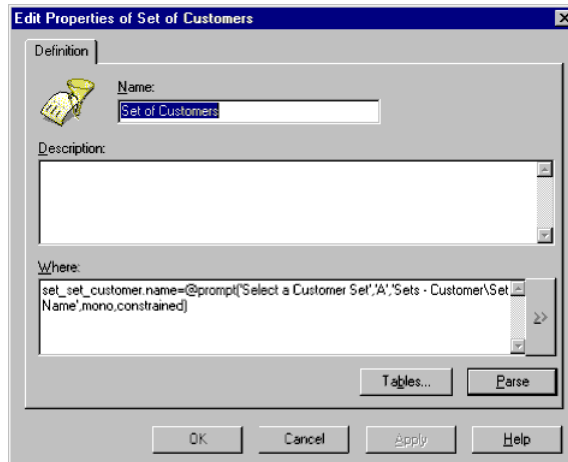
- 1 Click on the Conditions button, .
- 2 Select a subclass (for example, the Sets - Customer subclass in WineDemx.unv).
- 3 Click Insert, Condition.
- 4 Name the condition. (For example, Set of Customers in WineDemx.unv).
- 5 Enter a Prompt function in the Select box.

### Example A prompt function in WineDemx.unv

.....  

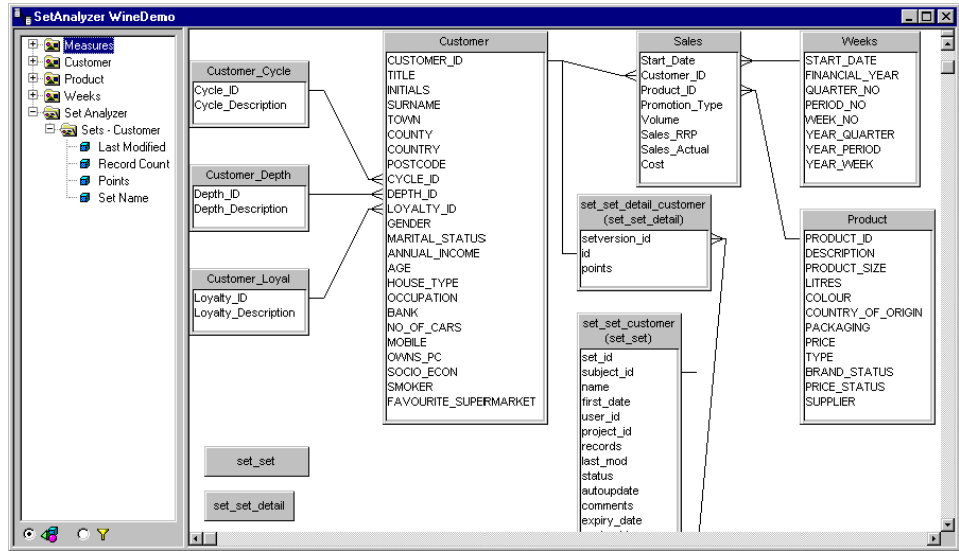
```
set_set_customer.name=@prompt('Select a Customer Set','A','Sets - Customer\Set Name',mono,constrained)
```

The prompt is defined as 'mono, constrained' so that the user is forced to select one and only one set from the list.



- .....
6. Save the universe.

**Example WineDemx.unv after integration**



7. This entire process can now be repeated for each subject (e.g. Products).

## Testing the Universe

1. Exit from DESIGNER.
2. Log in to BUSINESSOBJECTS.
3. Create a query on the universe using your integrated objects.

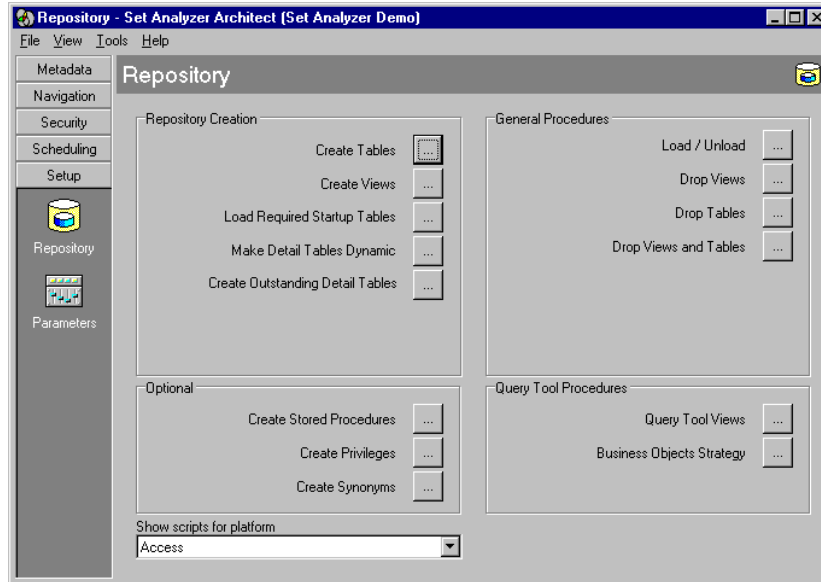
## Method 2 – Using Query Tool Views and a Strategy File

This method of integrating sets into a BUSINESSOBJECTS universe includes the following steps:

Step	Description
1	Create the query tool views in SET ANALYZER Architect.
2	Save the BUSINESSOBJECTS Strategies script to a text file.
3	Edit the PRM file for the database with which you want to integrate the set.
4	Select the SET ANALYZER options in BUSINESSOBJECTS Designer.
5	Create the set objects in BUSINESSOBJECTS.

## Creating the Query Tool Views

You create the query tool views from the Repository view in SET ANALYZER Architect.



### When Should You Create the Query Tool Views?

You should create the query tool views after creating all your subjects within SET ANALYZER Architect and before integrating the sets created by SET ANALYZER users with BUSINESSOBJECTS.

### Which Views do You Create?

You create two pairs of views: one pair for sets and one pair for groups.

The views are named automatically, based on the content of the View Label column in the Subjects view. You can modify the content. For example, if you have a subject, "Customer," then the default shortname is "Custom".

Running the script produces the DDL to create four views, named:

- set\_vcustom (list of sets for the subject Customer)
- set\_vcustom\_id (list of members for the sets of subject Customer)

- set\_vgrp\_custom (list of models for the subject Customer)
- set\_vgrp\_custom\_id (list of members of the models for subject Customer)

The pair of set views can be joined on the column SETVERSION\_ID. The pair of set groups can be joined on the column MSET\_ID.

The easiest way to understand the value of these views is to browse their contents once you have configured SET ANALYZER and you have created some sets for each subject.

### How to Create Views

1. In the Repository view of SET ANALYZER Architect, click the Query Tool Views button.

The Script dialog box appears.

2. Click Run to execute the script.

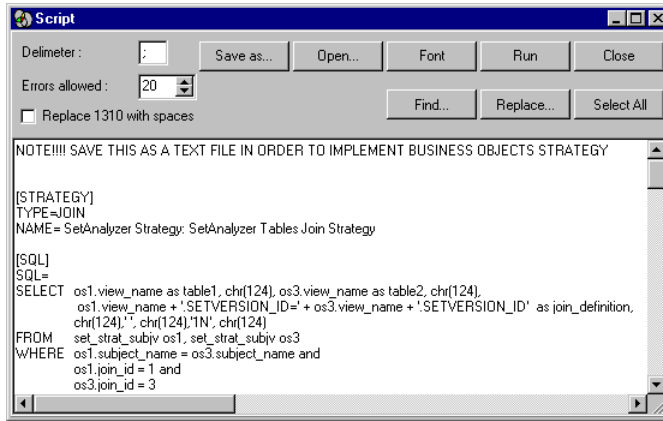
The views are created.

## Saving the BusinessObjects Strategies Script

BUSINESSOBJECTS Strategies allow BUSINESSOBJECTS DESIGNER to import metadata from other tools. SET ANALYZER provides a strategy that you can then use to simplify the integration between SET ANALYZER and BUSINESSOBJECTS.

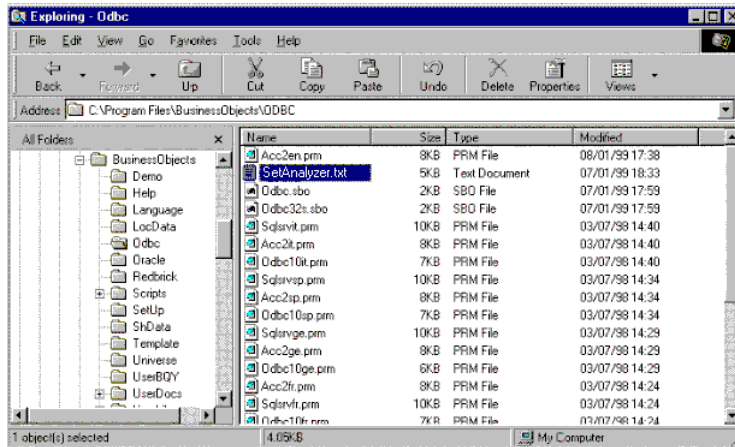
1. Verify that you have created the query tools views.
2. From the Repository view, click the Business Objects Strategy button.

The Script dialog box is displayed.



3. Click the Save as button.
4. Save the script as a text file called SetAnalyzer.txt in the appropriate driver directory within the BUSINESSOBJECTS main directory.

The directory name depends on the database you are using. The following figure shows where the text file needs to be located for an Access database.



## Editing the PRM File

You need to edit the PRM file so that it uses the strategies defined in the SetAnalyzer.txt that you placed in the BUSINESSOBJECTS main directory.

1. Select the PRM file for the BUSINESSOBJECTS universe with which you want to use the sets to create reports.
2. Edit this file by performing these steps:

Step	Description
1	Comment out the line STG=
2	Insert the line STG= SetAnalyzer

```

Acc2en - Notepad
File Edit Search Help
[RDBMS ]
(GENERAL)

STG= SetAnalyzer|
'STG= STACCen

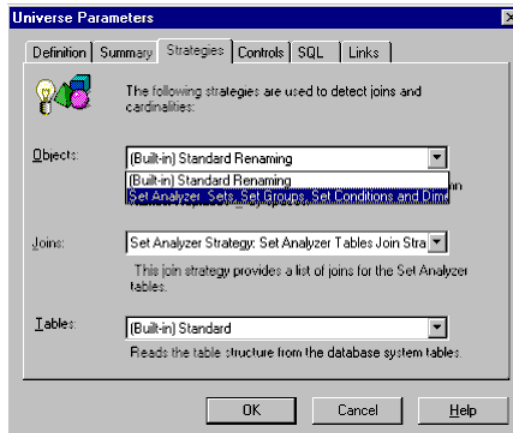
SORT_BY_NO=NO
GROUPBYCOL=NO
    
```

3. Save the file.

## Selecting the Set Analyzer Objects in Designer

You select SET ANALYZER options in DESIGNER in order to be able to integrate the sets into a BUSINESSOBJECTS universe.

1. From DESIGNER, open the Universe Parameters dialog box and select the Strategies tab.



2. Select the SET ANALYZER options from the Objects list and the Joins list.

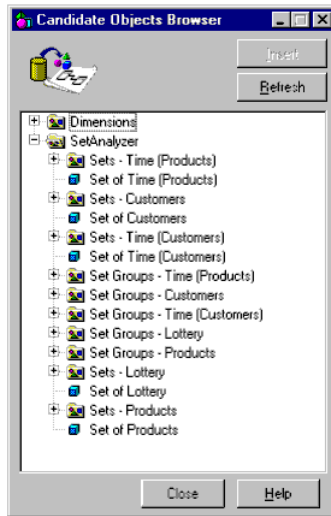
3. Click OK to save the SET ANALYZER options.

## Creating Set Objects for BusinessObjects

In this procedure, you add the sets to a BUSINESSOBJECTS universe. After the sets are in the universe, they can be used with other objects to create reports.

1. In DESIGNER, right-click above the Structure window and select Insert Candidate Object from the menu.

The Candidate Objects Browser is displayed showing the set objects.



2. Drag and drop (or double-click) the set objects into the Objects window.

If	Then
you want to add dimension objects to the BUSINESSOBJECTS universe,	drag and drop dimension objects.
you want to add pre-defined filters to the BUSINESSOBJECTS universe,	drag and drop pre-defined filter objects.

These are now objects in a BUSINESSOBJECTS universe.

---

**Note:** You may need to define joins or detect joins within your source tables. The SET ANALYZER views are joined automatically when you select the Detect Joins option in BUSINESSOBJECTS. The Detect Joins option does not define the join with the database table.

For example, Detect Joins defines the join between SET\_VCUSTOM and SET\_VCUSTOM\_ID. You need to manually define the join  
SET\_VCSUTOM\_ID.ID = CUSTOMER.CUSTOMER.KEY.

---

## Further Information

For further information about working with objects in a universe, refer to the *Designer's Guide*.



# Chapter 10 Scheduling Updates

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---

## Overview

This chapter describes SET ANALYZER Agent and how to install it.

SET ANALYZER Agent is a tool that performs the following tasks:

- Rebuilding of fast counts in order to minimize the time it takes to query the database.
- Rebuilding of sets at regular intervals.
- One-off processing of sets.

SET ANALYZER Agent is designed to run on Windows NT workstations over a network.

---

---

**Note:** You can install SET ANALYZER Agent and the Messaging Server only when your license allows it.

---

---

## Scheduling Fast Count Rebuilding

The scheduling of fast count building is controlled from within SET ANALYZER Architect. Scheduling the building of fast counts removes the need for manual building of fast counts every time the underlying data changes. Typically, fast counts are scheduled to be rebuilt on a periodic basis, e.g. daily, weekly or monthly. Ideally, the rebuilding of fast counts should coincide with database reloads if a data warehouse is being used.

Scheduled Accelerator reprocessing falls into two categories:

- Rebuilding fast count values for a single rule, or for a number of rules for a single table.
- Rebuilding the Accelerator rules and/or the fast count values for a single table, or for all tables.

## Scheduling Set Processing

The scheduling of set processing is controlled from within SET ANALYZER.

Scheduled set processing falls into two categories:

- Regular reprocessing of permanent sets. This is for sets that require a reprocess when the underlying database changes, but where the 'question' remains the same. A good example of such a set would be a mailing 'Exclusion' set, where the 'Question' that defines the Exclusion does not change, but the 'Answer' needs to be kept up to date.
- Completion or reprocessing of sets on an ad-hoc basis – If a set has been processed using the 'Process Later' option, the reprocess can be scheduled to run in the background at a time convenient to the user, freeing up the client PC and the user for other work.

## How Does Set Analyzer Agent Work?

### Agents and the Message Server

SET ANALYZER Agent consists of one or more Agents that perform scheduled tasks, and a Message Server that allows the agents to communicate with one another, using a TCP/IP messaging protocol.

One of the Agents must be designated as a Controller-Agent. This controls the dispatching of scheduled tasks to all the available Agents, and load balancing algorithms are used to ensure the tasks are processed in the most efficient manner. The Controller-Agent is able to allocate tasks to itself, i.e. it can run as both a Controller-Agent, and a normal Agent.

When a task is scheduled, either from SET ANALYZER or in SET ANALYZER Architect, a message is passed to the Controller-Agent. When a task is due, the Controller-Agent passes a message to an Agent telling it to process the task.

You can install an Agent on any number of workstations, but the maximum number of concurrently running Agents is controlled by the SET ANALYZER license. An Agent processing a task is called an 'Instance', and the license controls the number of 'Instances', and not the number of Agents that can be installed.

SET ANALYZER Agent is configured from SET ANALYZER Architect and once you activate it, you can leave it running continuously to process tasks on demand.

## Background and Foreground Tasks

The Agent uses SET ANALYZER to process set building tasks, and SET ANALYZER Architect to process accelerator tasks. These tasks run in the background and the user of the client machine is not aware that the processes are running. The SET ANALYZER and SET ANALYZER Architect modules are accessed via their APIs.

### Running in the Foreground

Although SET ANALYZER Agent is designed to run as a background NT Service, it can be installed to run as a foreground task. If the Controller-Agent is run in the foreground, a window will show all the tasks that are currently being processed by all Agents, and all those that have been scheduled to process in the future. If a simple Agent is run in the foreground, the window will simply show the status of that Agent, i.e. whether it is idle, or processing a task.

## Database Connectivity

As explained above, Agents process tasks by calling either SET ANALYZER or SET ANALYZER Architect to process the scheduled task. To allow these modules to connect to the correct database, the client machine hosting the Agent must have the appropriate connection details in the connection file configured in SET ANALYZER Connect. The connection name must be identical on all clients used for the SET ANALYZER Agent installation.

## Configuration

### Set Analyzer Architect

Global parameters used by SET ANALYZER Agent are defined in the Parameters view in SET ANALYZER Architect.

## Set Analyzer Agent

When an Agent is installed, it is configured to be either a simple Agent or a Controller-Agent, and it is configured to run either as a service or in the foreground. If the Agent is to run as the Controller-Agent, then it has to be associated with the connection to the database being used; this connection is defined in SET ANALYZER Connect.

# Creating a Set Analyzer Agent User NT Account

## Overview

The installation of SET ANALYZER Agent may require a dedicated SET ANALYZER Agent User NT account depending on the nature of the SET ANALYZER Agent installation. (See the section "Installing Set Analyzer Agent" for more details). This requirement will depend also on the NT security in place. The NT user used to create and run the Agents needs certain privileges. However, if these can be assigned to the SET ANALYZER administrator's NT account, or if SET ANALYZER Agent is not going to be used over a network, then a dedicated SET ANALYZER Agent User account is not required.

## NT Privileges

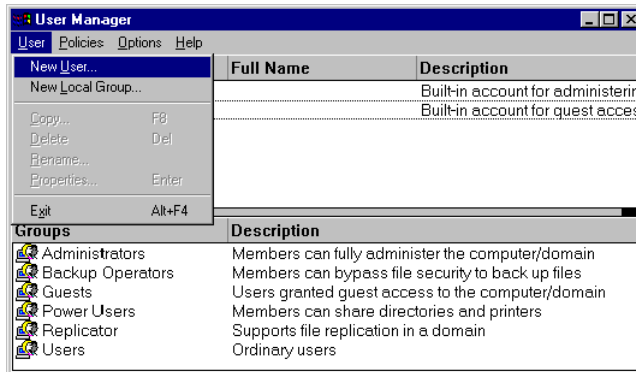
Listed below are the privileges required for the SET ANALYZER AgentUser NT account:

- Membership of the 'Domain Administrators' user group.
- Authority to 'Log on as a Service'.
- Authority to 'Access Applications that do not provide their own settings' – this is required to allow the Agent software to launch either SET ANALYZER Architect or SET ANALYZER.

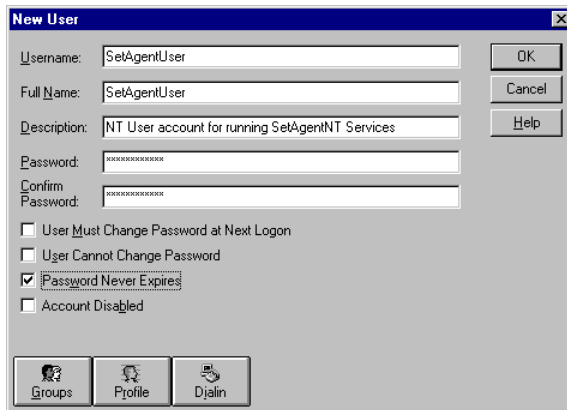
Details on how to create an NT user account with these privileges are provided below.

## Creating the Set Analyzer Agent User

New NT users are created from the User Manager Administration program:



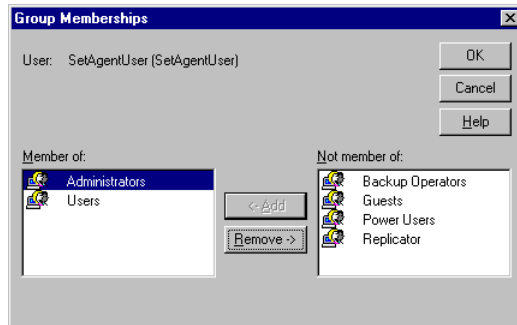
Create the user with the following details: (The user name SET ANALYZER AgentUser is not mandatory, but it is useful to use a name that is meaningful.)



**Note:** If you do not check the setting 'Password Never Expires' then each time the password is changed, the SET ANALYZER Agent service will need to be reconfigured with the new password. It is therefore recommended that the password does not expire.

## Administration Rights

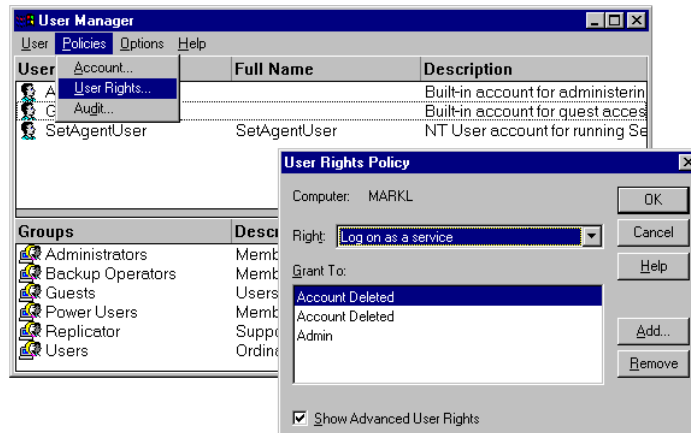
Use the Groups button to add the user to the Administrators group:



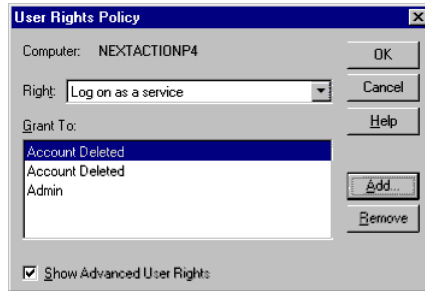
This gives the user administration privileges on the PC, which are required so that SET ANALYZER Agent can write to the registry.

## Log on as a service

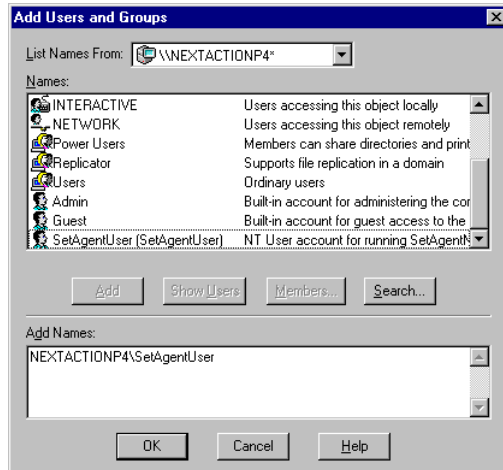
The ability of the user to log on as a service is required to allow the SET ANALYZER Agent background service to be started, and this right has to be granted to the user. This is achieved from the 'User Rights' option of the Policies menu in the User Manager program:



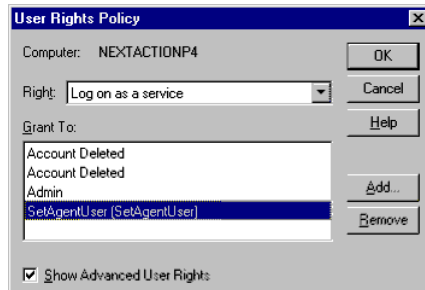
Select the 'Log on as a service' Right, (check the 'Show Advanced User Rights' option to show this Right) and then use the 'Add' option to grant this right to the new SET ANALYZER AgentUser:



**Note:** By default the 'Add users and Groups' option defaults to the Groups (see below) – use the 'Show User's' option to add the users into the selection. Select the new user, and use the Add option to include this user into the list of users with rights to 'Log on as a service'.



When this is confirmed it will appear in the list of users with this right.

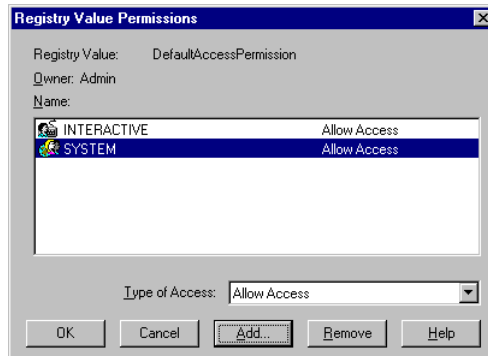


## Access Applications that do not provide their own settings

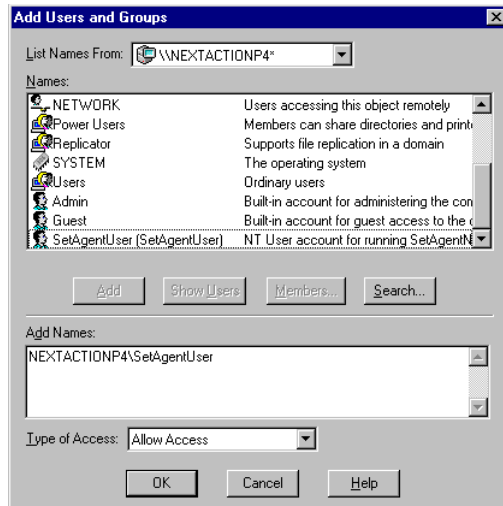
The SET ANALYZER Agent service needs to be able to launch the SET ANALYZER Architect and SET ANALYZER modules to process scheduled tasks. To give this privilege to the SET ANALYZER AgentUser, run the NT program DCOMCNFG (from the RUN program option of the start menu).



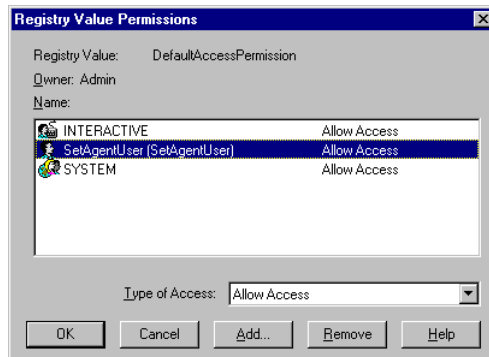
Select the Default Security tab and the 'Edit Default' option.



The SET ANALYZER AgentUser needs to be added to the list of users. Use the 'Add' option, and add in the new user in the same manner as detailed above for the 'Log on as a service' right.



The new user should then appear in the list.



## Workgroups and Domains

If SET ANALYZER Agent is being used across a network using a Workgroup, the SET ANALYZER AgentUser has to be defined on each machine that will have SET ANALYZER Agent running on it. If a Domain is being used, the user needs only to be defined to the Domain Server (with Domain administrator rights).

All machines used on the network for SET ANALYZER Agent need to have the SET ANALYZER Connection file set up with the appropriate connection details, using identical connection names on each machine.

## Installing the Message Server

Installing SET ANALYZER Agent consists of installing the Messaging Server, configuring SET ANALYZER Architect, and installing SET ANALYZER Agent(s).

You must install the Message Server first.

### About the Message Server

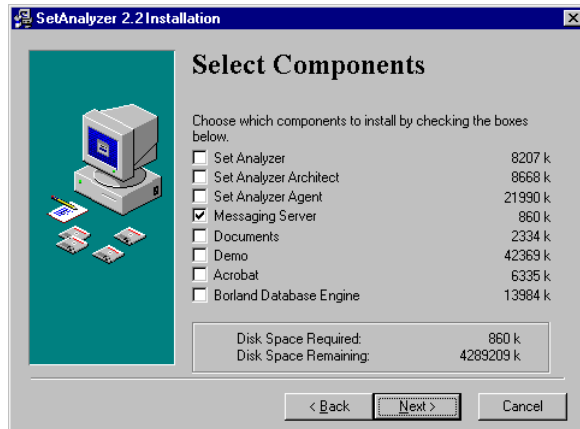
There must be one and only one Message Server installed in order for SET ANALYZER Agent to function.

The message server controls the communication between clients and the Controller-Agent, and between the Controller-Agent and all other simple Agents. The Message Server runs as an NT Service in the background. It must be running for SET ANALYZER Agent to function, and therefore if SET ANALYZER Agent is being installed over a network it is recommended that the workstation on which the Message Server is installed should be kept running permanently.

Ideally a true server should be used, not a user's workstation. If a user's workstation has to be used for the Message Server, it is important to note that when the workstation is turned off, SET ANALYZER Agent will not be able to communicate, and will not function. Any tasks that have been scheduled to process during this 'down time' will be processed as soon as the Message Server becomes available again.

## Installing the Message Server

To install the Message Server as an NT service, use the SET ANALYZER installation program and select the Messaging Server option.



---

**Note:** The NT userid being used to install the service must have the privilege to install services (This will normally be the SET ANALYZER AgentUser user described in the section *Creating a Set Analyzer Agent User NT Account*).

---

The SET ANALYZER Installation Wizard will install the Message Server software and will also install the service. The service is called 'InterCom Server'.

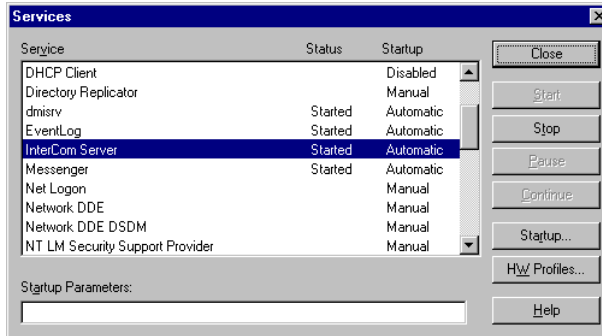
It may sometimes be necessary to install the Messaging Server manually. This is done by using the following DOS command from within the Set Analyzer application directory:

```
ICSvrNT.exe /install
```

Once this has been done, the service must be started from the NT services windows.

## Starting the Message Server

After the Message Server has been installed, start the service from the NT services window.



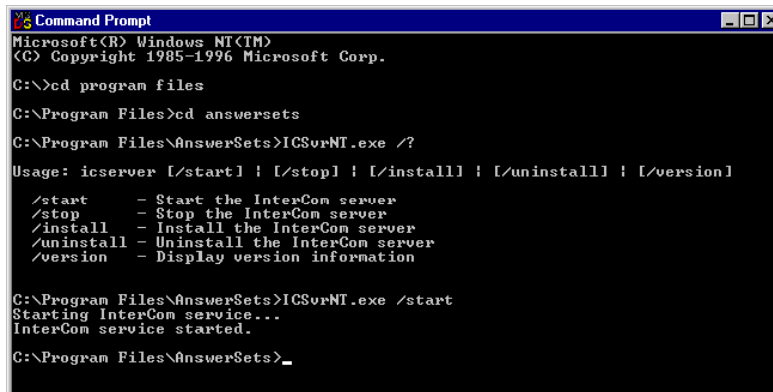
The service installs with the Startup parameter set to 'Automatic' by default. It is recommended that the Startup parameter for the service should be kept as 'Automatic' – this ensures that if the workstation has to be re-started, the Message Server service 'InterCom Server' will re-start automatically.

The 'Intercom Server' service can also be started (or stopped) directly from the command line. To do this, go to the SET ANALYZER root directory (normally C:\Program Files\SetAnalyzer) and type:

```
ICSvrNT.exe /start
```

or

```
ICSvrNT.exe /stop
```



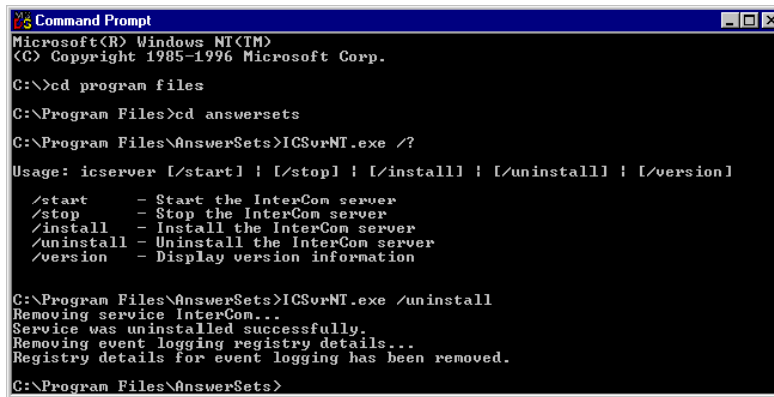
## Uninstalling the Message Server

Should the Message Server no longer be required (if scheduling is no longer required), it is wise to uninstall the service.

The service must be stopped first. This can be done via the command line as shown above, or via the NT services window.

After the service has been stopped, it is uninstalled from the command line using the command:

```
ICSvrNT.exe /uninstall
```



```
Command Prompt
Microsoft(R) Windows NT(TM)
(C) Copyright 1985-1996 Microsoft Corp.
C:\>cd program files
C:\Program Files>cd answersets
C:\Program Files\AnswerSets>ICSvrNT.exe /?
Usage: icserver [/start] ! [/stop] ! [/install] ! [/uninstall] ! [/version]
/start      - Start the InterCom server
/stop      - Stop the InterCom server
/install   - Install the InterCom server
/uninstall - Uninstall the InterCom server
/version   - Display version information

C:\Program Files\AnswerSets>ICSvrNT.exe /uninstall
Removing service InterCom...
Service was uninstalled successfully.
Removing event logging registry details...
Registry details for event logging has been removed.
C:\Program Files\AnswerSets>
```

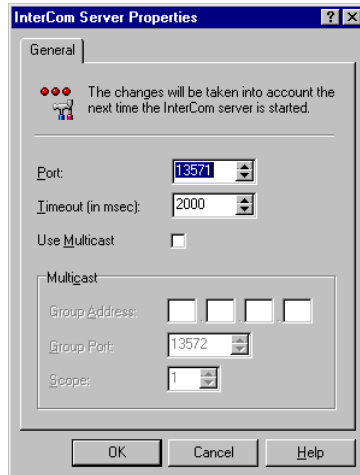
---

**Note:** After the service has been uninstalled, the Message Server software will still be resident in the SET ANALYZER root directory. This software should be left there in case the Message Server needs to be installed again.

---

## InterCom Server Properties

You can change various parameters relating to the message server by double-clicking on the InterCom icon in Control Panel.



If your network does not support multicasting, you should uncheck the box marked 'Use Multicast'.

## Configuring Set Analyzer Architect

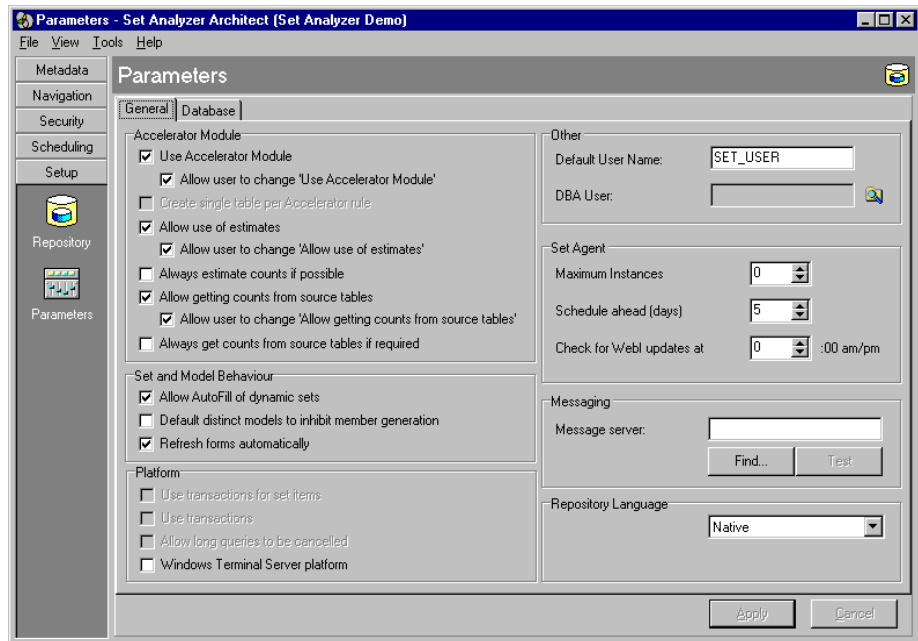
### Overview

When the Message Server has been installed, but before the Agents have been installed and configured, you must configure certain parameters used by SET ANALYZER Agent that are controlled from the Parameters view of SET ANALYZER Architect.

## Set Analyzer Agent Parameters

To configure the SET ANALYZER Agent parameters:

1. Run SET ANALYZER Architect for the database connection that the agents are going to use.
2. Click the Setup Group.
3. Click the Parameters icon to display the Parameters view.



The values for the parameters shown below are the defaults for a database connection that has not had either the message server assigned, or any agents installed:

Maximum Instances: 0  
 Schedule ahead (days): 5  
 Check for WebI updates at: 0

## Maximum Instances

Within SET ANALYZER Agent, an 'Instance' is viewed as a 'Task processing slot', and the Controller-Agent takes requests for scheduled tasks and assigns them to an 'instance' using load sharing algorithms. When the task becomes due for processing, the Controller-Agent attempts to assign the 'instance' to an available Agent. In effect it tells the Agent which 'Instance'/'Task processing slot' to service.

Any one Agent can, by default, process a maximum of three 'instances' concurrently. This means that one Agent can be made to process three tasks at the same time. Therefore, the number of scheduled tasks that can run concurrently is controlled by the number of 'instances', not the number of installed Agents. The maximum number of 'instances' is controlled by the license, so any number of Agents can be installed, but they will be of little use if the number of 'instances' purchased does not match this.

---

**Important:** The 'Maximum Instance' value must be initialized before an attempt is made to install and run the Agent software. If this value has not been initialized, the Agent services will not start.

---

## Schedule Ahead Days

Later sections explain how it is possible to schedule tasks to repeat on a periodic basis, and also that it is possible to view the current schedule of tasks. If a task has been set up to process daily for the next 5 weeks, this would imply 35 scheduled tasks to view. To limit the number of entries that are shown when the schedule is viewed, the 'Schedule Ahead' value (in days) is used to limit this view. This provides a 'window' onto the schedule from the current day forward:

For example, for a 'Schedule Ahead' value of 5:

Current Date	Schedule Start Date	Schedule Repeat	Scheduled Task Shown	
10-7-2000	10-7-2000	10	10-7-2000	
			11-7-2000	
			12-7-2000	

Current Date	Schedule Start Date	Schedule Repeat	Scheduled Task Shown	
			13-7-2000	
			14-7-2000	Next 5 not shown
10-7-2000	12-7-2000	10	12-7-2000	
			13-7-2000	
			14-7-2000	Next 7 not shown

---

**Note:** This value does not remove the tasks from the schedule for times outside the window, it simply removes them from the view.

---

## Messaging

You must specify here the computer name or IP Address where the Message Server resides. The Message Server will control all the communication between the Agents and the Controller-Agent. (See the section "Installing the Message Server" for details on installing and starting the message server.)

## Apply

When the parameters have been entered, use the Apply button to action them.

## Installing Set Analyzer Agent

Once you have installed the Message Server and configured SET ANALYZER Architect, you can install and configure the Agents.

### Set Analyzer Agent Implementation Architecture

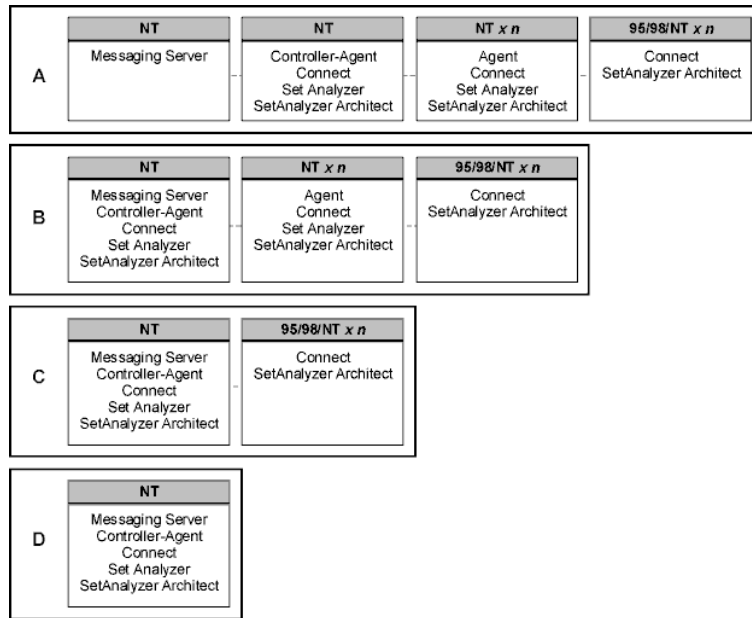
#### Components of the Architecture

In order to use the scheduling capabilities of SET ANALYZER Agent, the following components need to be in place:

- One Message Server
- One Controller-Agent
- At least one simple Agent (could be the Controller-Agent)
- One SET ANALYZER Connect and connection file for each machine that has an Agent or can schedule tasks
- One SET ANALYZER Architect for each machine that has an Agent
- One SET ANALYZER for each machine that requires set reprocessing capability

#### Structure of the Implementation Architecture

The components detailed above can be configured in a number of configurations, depending on the particulars of the network architecture SET ANALYZER Agent is being installed in. Some typical configurations are shown below:



Example A or B

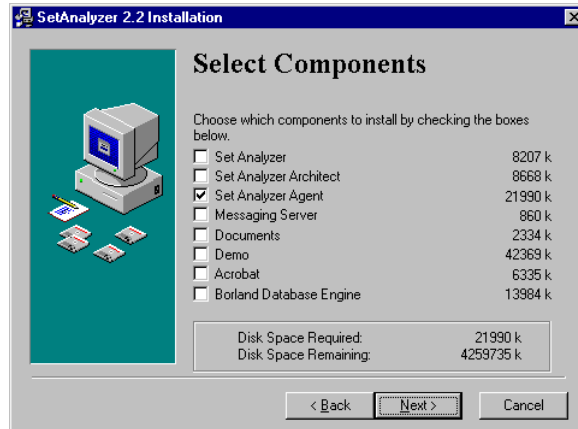
Examples A or B would be typical for large installations, with many users scheduling tasks. There are several Agents spread across several PCs. This means that if many tasks are scheduled to run at the same time then the processing load can be spread across several Agents. In the ideal situation, example A would be used; this has the advantage that the Message Server is running on its own server that could be kept running permanently. Example B is a simple compromise where the Message Server is installed on the same machine as the Controller-Agent. This machine may belong to the user assigned as the administrator for SET ANALYZER, or ideally it would be a separate server. It still works for large-scale implementations as it has multiple Agents installed – this gives a high capacity for scheduling tasks.

Example C	<p>Example C would be typical for a small to medium installation. The Message Server and the Controller-Agent are on the same machine and the Controller-Agent is doubling up as the Agent as well. As with the larger implementation detailed above, this machine might belong to the user assigned as the administrator for SET ANALYZER, or it could be a stand-alone server. Using this implementation, any number of users can schedule tasks via SET ANALYZER Architect, although with only one Agent installed the limitation is on the number of tasks that can be processed simultaneously.</p>
Example D	<p>Example D is the minimum configuration. All the components are installed on one machine. This is a suitable implementation where the users are not going to schedule SET ANALYZER Architect tasks, but the SET ANALYZER Administrator needs to be able to schedule accelerator tasks.</p> <p>It is worth noting that this minimum implementation is advised as an initial configuration even in a large-scale implementation, since it enables all the components to be installed and tested, before migrating to the full solution.</p>

## Implementing Set Analyzer Agent

### Installing the Set Analyzer Agent Software

To install the SET ANALYZER Agent software, use the SET ANALYZER installation program and select the 'Set Analyzer Agent' option.



As well as installing the software in the SET ANALYZER root directory, this option creates an icon for SET ANALYZER AgentNT in the SET ANALYZER desktop folder.

The icon is a shortcut to the SET ANALYZER Agent executable, and it is this shortcut that you should use in the following configuration section. This is because it holds a parameter in the shortcut's Target information. The SET ANALYZER Agent software is designed to run as a background service. However, for the initial set-up screen to be reached the executable must be called with the /noservice parameter. Trying to run the executable without this parameter will have no effect.

## Configuring the Agents

After the SET ANALYZER Agent software has been installed it has to be configured to run in the desired mode, depending on the component that is being installed, i.e. as a Controller-Agent, or as a simple Agent. For each of these options there is the choice of running the Agent either as a foreground task or as a background service. The advantage of running the Agent as a foreground task is that in the initial implementation this provides a lot more visibility of the tasks that have been scheduled, and so enables you to ensure that all the components are working together. Once the installation has been verified, the Agents should then be converted into background services.

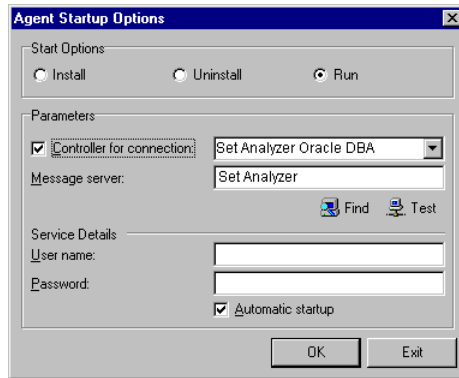
## Configuring a Controller-Agent running as a foreground task

To configuring a Controller-Agent running as a foreground task:

1. Run the SET ANALYZER Agent software from the shortcut in the SET ANALYZER desktop folder to configure the Agent.

By default the 'Run' option is selected – this is the option for configuring the Agent as a foreground task.

2. To make the agent a Controller-Agent, check the 'Controller for connection' box, and choose the required connection (as defined in SET ANALYZER Connect). The agent will be designated as the Controller-Agent for that connection.

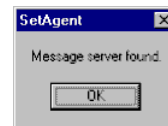


3. For a Controller-Agent, add the Message Server location to the configuration. This is so that the Controller-Agent can identify where on the network it must look for scheduling messages. The 'Find' button provides a selection of all the possible computers on the network.
4. Click the 'Test' button to ensure that the Message Server can be found, and that the InterCom Service has been started.

If the Message Server has not been started, the following message will appear:



If the Message Server has been started, the following message will appear:



The Service Details are only required if the Agent is being installed as a background service. In this case the agent is being configured to run as a foreground task and so they are not required.

When the configuration details are confirmed, the agent starts to function as a Controller-Agent, and the SET ANALYZER Agent window becomes enabled (under the Scheduling Group).

The Active Agents tab shows all the tasks that have been allocated to the installed Agents.

The Nodes tab shows all the Agents that have been installed. The one Agent shown is the Controller-Agent that you have installed and configured.

## Configuring a Controller-Agent running as a background service

To configuring a Controller-Agent running as a foreground task:

1. Run the SET ANALYZER Agent software from the shortcut in the SET ANALYZER desktop folder to configure the Agent.  
By default the 'Run' option is selected.
2. To install the Agent as a background service, choose the 'Install' option.
3. To make the agent a Controller-Agent, choose the 'Controller for connection' box, and choose the required connection (as defined in SET ANALYZER Connect).

The agent is designated as the Controller-Agent for that connection.

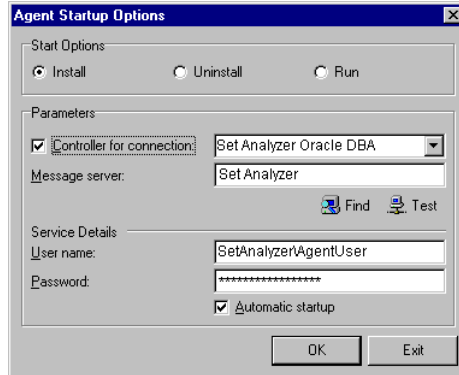
4. Add the Message Server location to the configuration.

## Service Details

The service details specify the NT username and password that will be used for the service to 'Log on as' when the service is started. This NT user requires certain privileges, and it may be necessary to create a dedicated SET ANALYZER AgentUser account if these privileges can not be given to the SET ANALYZER Administrator's account. These privileges and the creation of the SET ANALYZER AgentUser account are explained in the section "Creating a Set Analyzer Agent User NT Account".

If the details are left blank, the default used will be the SYSTEM account.

If the details are provided, the NT user name must be prefixed with the host machine for that user if the network has been configured as a workgroup, or by the domain name if it has been configured as a domain.



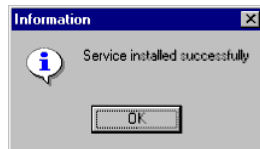
The 'Automatic startup' check box determines whether the service is started automatically each time the PC is rebooted. It is recommended that this be 'Automatic' to ensure that the service re-starts if the host is rebooted.

### Error Tracking

If the user name of the service details is not entered correctly (i.e. it does not match a valid NT user account), an error message appears, SET ANALYZER Agent closes, and must be re-started.

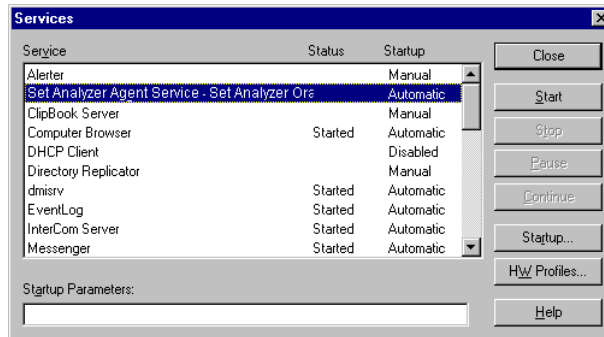
The password is not checked at this stage - it is only checked when the service is started. Details for starting the service are provided below.

If the details entered were correct, the following confirmation message appears, and SET ANALYZER Agent closes.



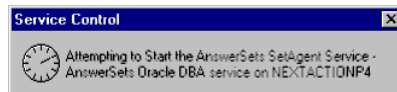
## Starting the Background service

After the SET ANALYZER Agent has been installed and configured as a background service, the service needs to be started from the NT services window.

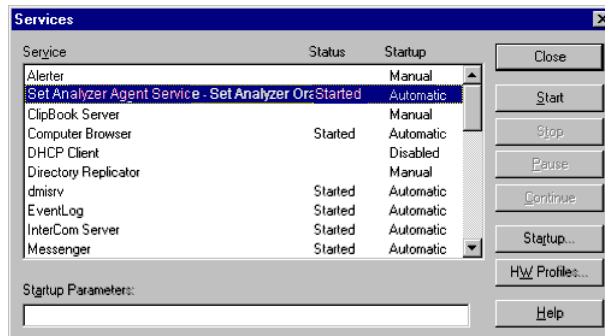


1. Click the Start button to start the service.

If the installation has succeeded you will see the following message as it starts:



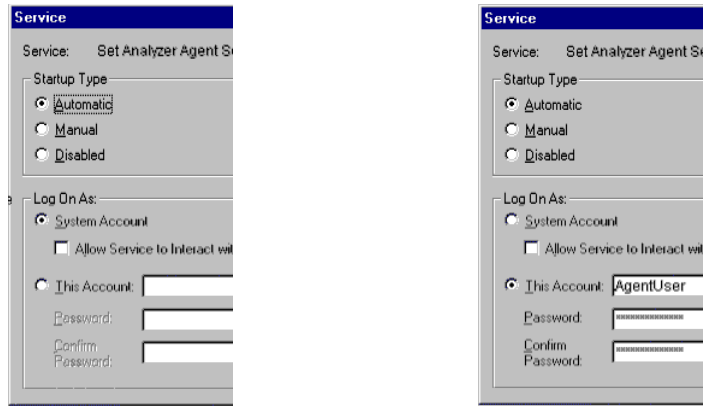
Once the service has started, you should see the following screen, indicating that the 'SET ANALYZER Agent Service' has started:



**Note:** In the Startup details, the service details provided in the agent configuration are shown.

If no details were provided:

If a user was specified:



It is possible to change the Startup parameter here – set this to manual if you do not want the service to re-start automatically when the host machine is re-booted.

### Error Tracking

If an error message appears and the service does not start, then one of two things is wrong:

**Either:**

The password entered in the service details section of the SET ANALYZER Agent configuration window is not valid;

**or:**

The user account being used by the service does not have the required privileges such as 'Log on as Service'.

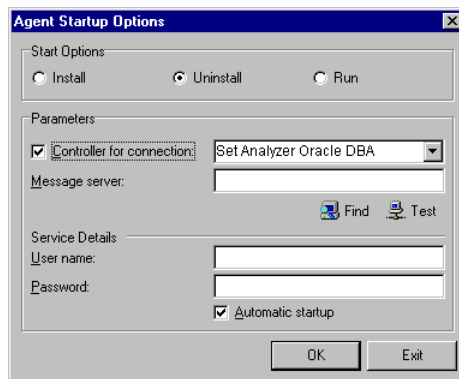
If this happens, the service must be uninstalled (see below), re-configured with the correct account details, and then started again as shown above.

Before attempting to re-install the service, refer to the section "Creating a Set Analyzer Agent User NT Account" and ensure the user has the required privileges.

## Uninstalling a Controller-Agent running as a service

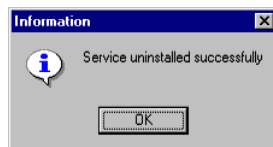
If the Controller-Agent has to be uninstalled, possibly because the service details provided were incorrect, or because the architecture of the SET ANALYZER Agent installation is being changed, follow the procedure below:

1. Ensure that the service has been stopped; in the NT Services window, select the service and click Stop.
2. Run SET ANALYZER Agent from the shortcut in the SET ANALYZER desktop folder to configure the Agent.



3. Choose the 'Uninstall' option.
4. Specify the connection associated with the Controller-Agent that is to be uninstalled. It is not necessary to provide the message server details, as this is not required to uninstall the service.

If the connection specified has a Controller-Agent service associated with it, the following message will appear, indicating that the service has been uninstalled:



If an error message appears when uninstalling the Agent, it is likely that the connection chosen does not have a Controller-Agent service associated with it. If this is the case, check the connection specified and try again.

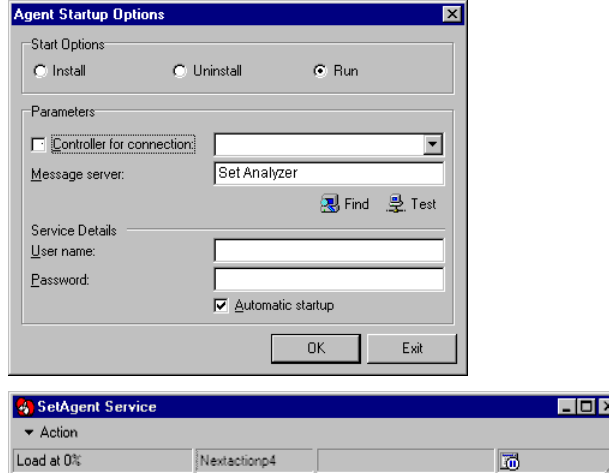
If the service was not stopped prior to uninstalling it, it will still appear as 'Started' in the NT services window. However, if an attempt is made to stop it the above error message will also appear and the service will then disappear when the message box is closed. Although this may seem that something has not worked, the service has actually been uninstalled. It is normally better to ensure that the service has been stopped before trying to uninstall it.

### Configuring a Simple Agent running as a foreground task

The procedure for configuring SET ANALYZER Agent as a simple agent running as a foreground task is the same as installing it as a Controller-Agent running in the foreground, with the exception that the connection details do not have to be specified.

1. Run SET ANALYZER Agent from the shortcut in the SET ANALYZER desktop folder.

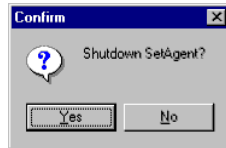
By default the 'Run' option is selected – this is the option for configuring the Agent as a foreground task. The only details required are the Message Server details.



For a simple agent running in the foreground, the only information that is shown is the Load for that agent. Since it is not the controller, it cannot show the tasks that have been scheduled because it only knows what it is going to do when the Controller-Agent allocates a task to it.

To remove the simple agent running in the foreground:

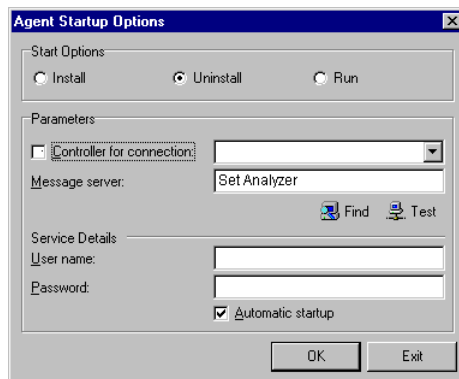
1. Click the close window box, or use the Action menu and select close, then confirm the shutdown message.



## Configuring a Simple Agent running as a background service

The procedure for configuring SET ANALYZER Agent as a simple agent running as a background service is the same as installing it as a Controller-Agent running as a background service, with the exception that the connection details do not have to be specified.

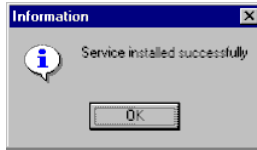
1. Run SET ANALYZER Agent from the shortcut in the SET ANALYZER desktop folder.



2. Choose the 'Install' option.
3. Specify the Message server.

The requirements for entering the service details are the same as for configuring a Controller-Agent – in this example the SET ANALYZER AgentUser has been specified as the NT account used by the service to log on when it is started.

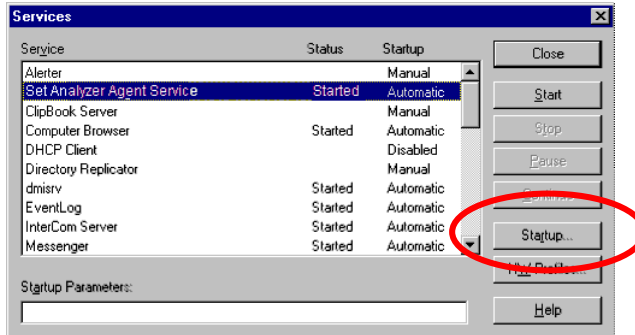
If the service has installed correctly, the following information message will appear:



If an Agent has already been configured to run as a service on this machine, an error message will appear.

When the service has been installed:

1. Start the service from the NT services window as normal, by selecting the service and clicking Startup.



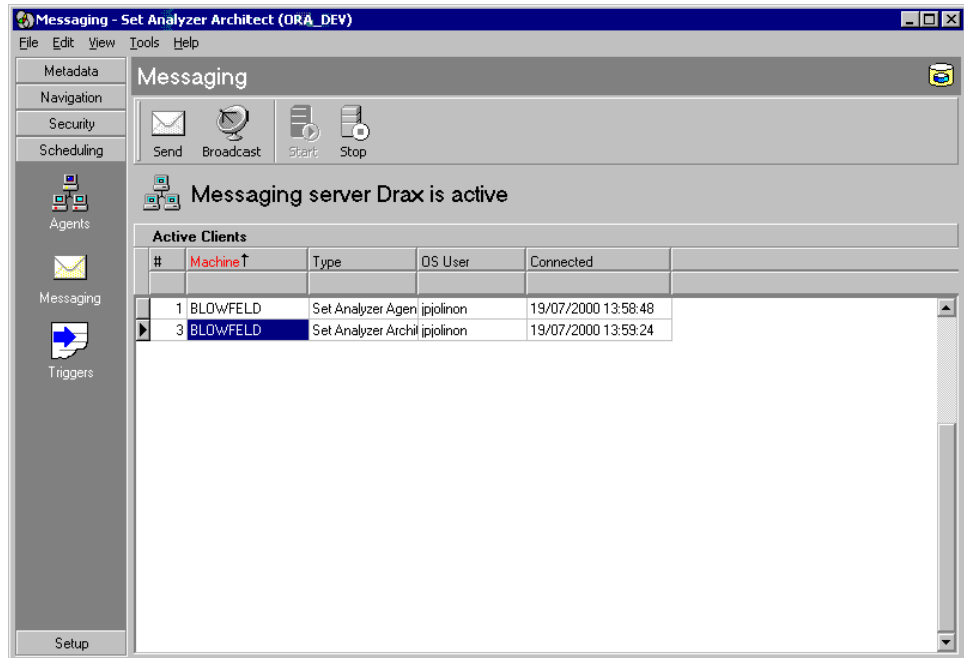
## The Scheduling Interface

### Overview

The Message Server and the SET ANALYZER Agent software are designed to run in the background with minimal user intervention. However, to enable the SET ANALYZER Administrator to monitor what SET ANALYZER Agent is doing, an interface has been provided within SET ANALYZER Architect. SET ANALYZER Architect provides two views for monitoring SET ANALYZER Agent when it is running as a background service – the Messaging view and the Agents view. SET ANALYZER Agent has its own window when it is running as a foreground task.

## Set Analyzer Architect: Messaging View

The Messaging view in SET ANALYZER Architect is used to provide an overview of which clients are connected to the database (the database that SET ANALYZER Architect is connected to). This view is available only if the Message Server has been configured in the Parameters view.



The 'Active Clients' list shows all the SET ANALYZER clients connected to the database.

Each client has an entry showing which machine they are running on, what type of process the client is, and which NT account is associated with the client

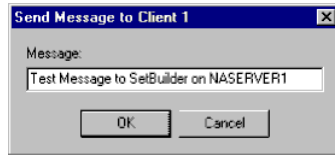
There are a number of functions available in this view; these are described below.

### Send

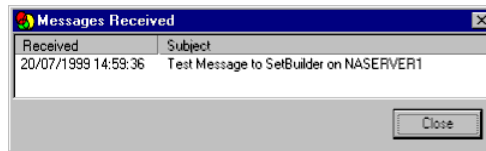
It is possible to send messages to individual SET ANALYZER clients (but not Architect clients):

1. Highlight the client machine to which you want to send the message.

2. Click the 'Send' button.
3. Type in the required message.



An icon appears in SET ANALYZER on the chosen client to show that a message is waiting. Selecting the message icon displays all unread messages sent to the client.



### Broadcast

It is also possible to broadcast a message to all clients with a SET ANALYZER connection. This operates in the same manner as the 'Send' button.

### Start/Stop Server

In many installations of SET ANALYZER Agent, the message server will be hosted on a client machine that is other than the machine used by the administrator to run SET ANALYZER Architect. The Start/Stop options in the Messaging view allow the administrator to Start and the Stop the message service from a remote client.

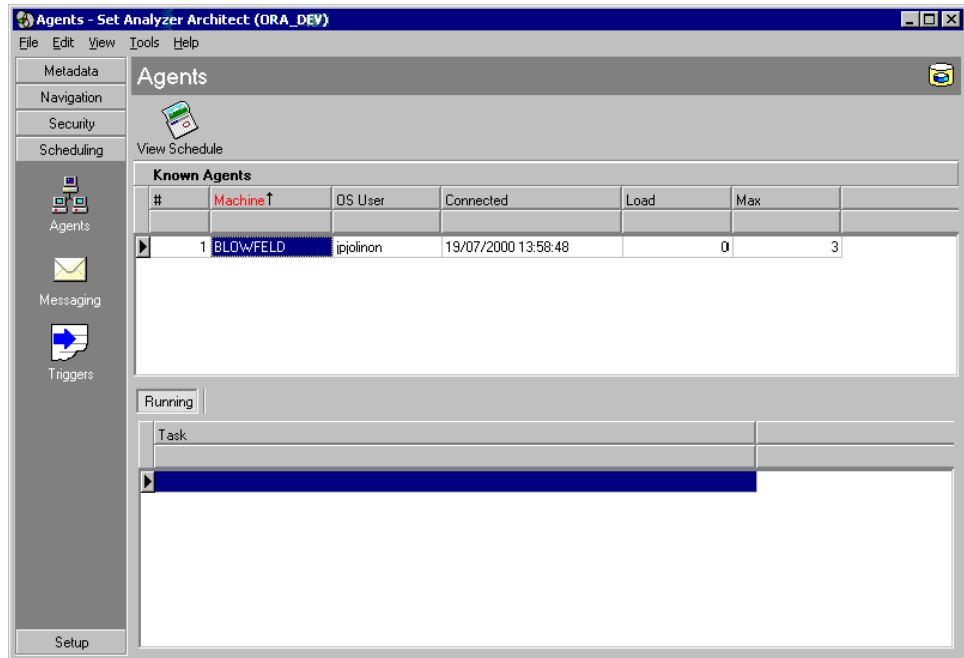
If an attempt is made to stop the message service while Agents are still running as services, the request fails because the Agent services are dependant on the message service. An error message is displayed.

To avoid this situation, stop the Agent services before the message service is stopped.

After the message server has been stopped, it is shown as 'Unavailable' in the Messaging view and the Active Clients list becomes blank.

## Set Analyzer Architect: Agents View

The Agents view shows all the Agents that are currently active and whether each is running or not.



In this case the only Agent active is the Controller-Agent – note it has the same client number as shown in the Messaging view.

The additional information provided for Agents is as follows:

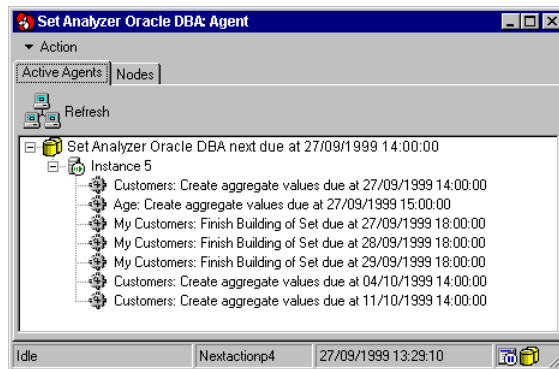
- The current 'Load' on the Agent – this shows how many 'Instances' (concurrent tasks) the Agent is processing.
- The Maximum load for the Agent. (This is a system default of three). Note that the load on any one Agent can never exceed the Maximum, in this case three, and the sum load of all the Agents cannot exceed the value specified as the 'Maximum Instances' in the Parameters view.

For each Agent, the 'Running' panel shows which tasks the Agent is processing. There will be an entry for each task being processed.



## Set Analyzer Agent in the Foreground

SET ANALYZER Agent is designed to be used as a background service requiring minimal administrative intervention. However, during the installation process it is useful to run it as a foreground task to ensure that all the components required for SET ANALYZER Agent to work are installed and working correctly. (For full details on installing and running SET ANALYZER Agent as a foreground task see "Installing Set Analyzer Agent".)



The title bar of the window names the connection to the database that this Controller-Agent has been associated with, in this case 'Set Analyzer Oracle DBA'

### Action

This menu allows you to close and exit from the agent – this closes the foreground task and kills the agent.

### Active Agents

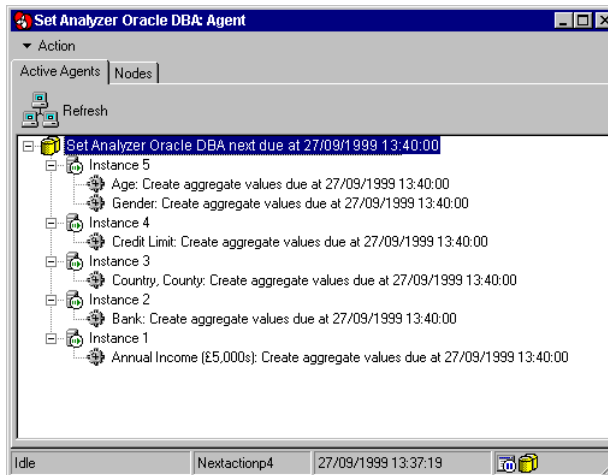
This tab shows all the tasks that are scheduled to run, and all those that are running. In the example shown above, none of the tasks are running – they are all pending. Note the three task types:

- Set Build – The *set* called 'My Customers' will be finished at 18:00 on three consecutive days.
- Accelerator Rebuild Values – The fast count 'Age' will be rebuilt once at 15:00

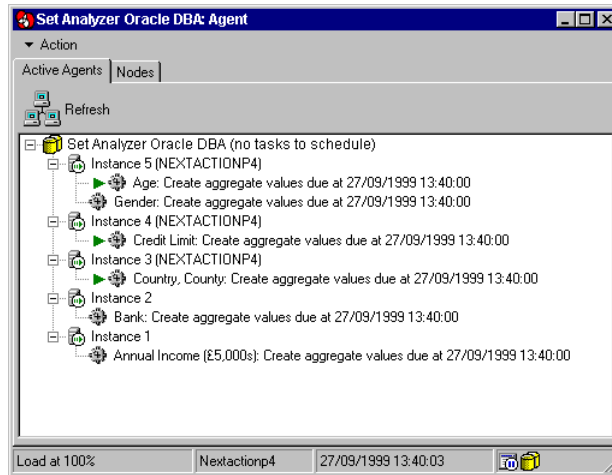
- Table Accelerator Values Rebuild – The fast counts for the ‘Customer’ table will be rebuilt at 14:00 on a weekly basis, starting on 27 September, and then on 4 October, 11 October, etc. Tasks after this date are not shown because the ‘Schedule ahead days’ parameter set in SET ANALYZER Architect has been set to limit the view to 16 days from the 27 September, and so the schedule for 18 October falls outside this window.

The tasks shown on the Active Agents tab are all associated with an ‘instance’. The section titled "Configuring Set Analyzer Architect" explains in detail that an Instance is a ‘Task processing slot’ and is associated with an Agent when the task becomes due. Any one Agent can service three Instances concurrently. In the example shown above all the tasks have been assigned to one instance because they do not happen concurrently, and so they are effectively stacked up for one instance to process. In the following example six tasks have been set up to run concurrently, with only five instances defined:

Each Instance has been assigned a single task, except Instance 5 which has two.

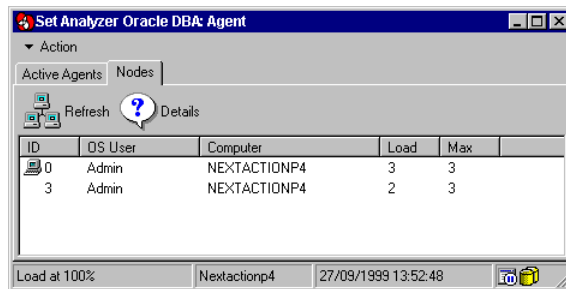


The Active Agents tab changes to show the tasks when they are running. In the example below, only one Agent has been installed and so only three instances can be serviced at the same time. The green pointers indicate the tasks that are being processed by these instances.



## Nodes

The Nodes tab shows all the Agents that are running, and how many tasks they are processing, if any. In the example below, both the Agents used above are shown. One has 3 tasks running and the other has two running:



# Scheduling Accelerator Builds from Set Analyzer Architect

## Overview

Scheduling accelerator builds is controlled from the Accelerator view of SET ANALYZER Architect. Although it is possible to view and amend the schedule from the Agents view, new tasks must be created in the Accelerator view.

The schedule for an Accelerator task is made up of two components:

- **Task Specification:** This is a one-row entry that defines which fast count is to be rebuilt, when and how often. It is effectively an instruction that defines a scheduling requirement. The Task Specification is created by the user.
- **Scheduled Task:** A scheduled task is created by the Controller-Agent as the result of processing a Task Specification created by the user. For a Task Specification that requires the fast count to be rebuilt once only, the Controller-Agent will create one entry for the Scheduled Task. For a Task Specification that requires the fast count to be rebuilt on a repeating basis, the Controller-Agent will create a 'Scheduled Task' entry for each occasion the count is to be rebuilt.

As a Scheduled Task becomes due, the Controller-Agent will assign it to an Agent for processing.

The scheduling of accelerator tasks from SET ANALYZER Architect falls into two categories:

- single accelerator rules
- rules for an entire table

For the single accelerator rule option, any number of single rules from a table can be rebuilt, and they are processed as separate tasks.

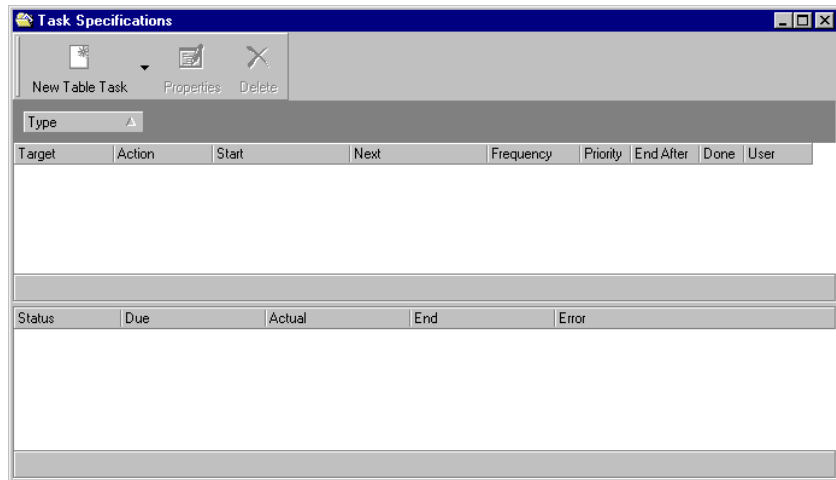
For a table task, all the rules that have been defined for a particular table are rebuilt, and are processed as a single task. If it is not necessary to rebuild all the counts defined on a table, you should use the single accelerator build to select only those that are required.

## Single Accelerator Build

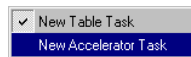
You schedule single rules from the Accelerator view in SET ANALYZER Architect.

1. In the Accelerator view in SET ANALYZER Architect, click the 'Schedule' button.

The Task Specifications window is displayed.



2. Click the dropdown menu in the toolbar to choose the New Accelerator Task option.




3. Click the New Accelerator Task button.

The New Accelerator Task Specification window is displayed.

The screenshot shows a dialog box titled "New Accelerator Task Specification". It has two tabs: "Primary" and "Schedule". The "Primary" tab is active. The dialog contains the following fields and controls:

- Target:** A text box containing "(Select target)" with a magnifying glass icon to its right.
- Note:** A text box.
- Priority:** A slider control with "Medium" labeled on the right.
- Action:** A dropdown menu with "Rebuild" selected.
- When:** Two radio buttons. The first is selected and labeled "At a specified date & time and frequency:". Below it are three dropdown menus: "18 August 2000", "11:00:00", and "Once". A checked checkbox labeled "End after" is followed by a spinner set to "1" and the text "occurrences". The second radio button is labeled "At the following external trigger:" and has an empty dropdown menu below it.

4. On the Primary tab, click the  button to pick a target.
5. Add a note to describe the task.
6. Move the slider to choose the priority for the task. Move the slider right to lower the priority, or left to increase the priority.
7. Choose the action.
8. Specify when and how often the task should be performed.

The date specifies the 'base date' for the Task Specification. For a task that repeats over time this is the first date on which it will process. By default, this date is the current date – use the drop down to use a calendar to change this date as required.

9. Once all the details have been entered, click the Save button to create the Task Specification.
10. Click the Schedule tab to view a list of scheduled tasks.
11. Click Save and Close to return to the Task Specifications window.

When the Task Specification has been confirmed, it will be shown in the Task Specification window, along with the scheduled tasks created for it by the Controller-Agent.

## Table Level Accelerator Build

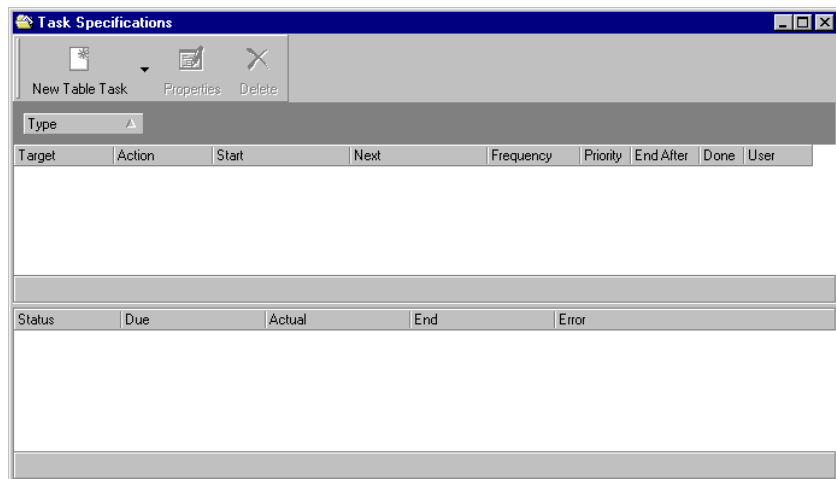
There are three types of task that can be defined for a table level accelerator build:

- Rules – The rules engine is used to re-evaluate the list of fast counts required for the selected table. All existing rules that are not marked as ‘permanent’ are deleted, and a new list of rules generated. This should be used with caution, and probably only if the table is being introduced for the first time, or its contents have changed extensively. This option does not create the fast count values.
- Values – The fast count values for each existing rule for the selected table are re-calculated.
- Rules and Values – A combination of the above, the rules are re-generated, and then the values are calculated.

To create a schedule for any of the above options:

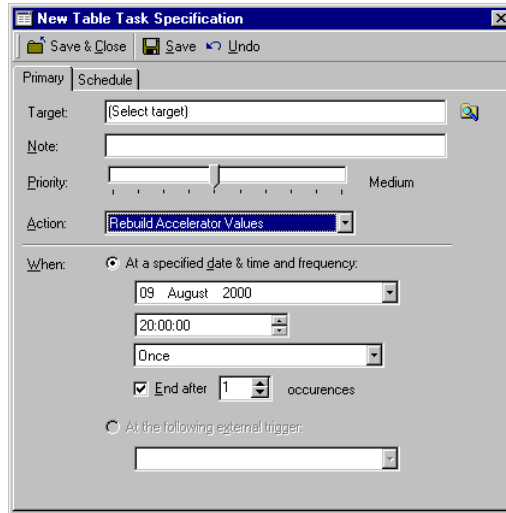
1. Select the required table on the Accelerator view.
2. Click the Schedule button.


The Task Specifications window is displayed.



3. Use the dropdown menu next to the choose the New Table Task option.
4. Click the New Table Tasks button.

The New Table Tasks Specification window is displayed.



5. On the Primary tab, click the  button to pick a target.
6. Add a note to describe the task.
7. Move the slider to choose the priority for the task. Move the slider right to lower the priority, or left to increase the priority.
8. Choose the action – Create Accelerator Rules, Rebuild Accelerator Values, or Create Rules and Values.
9. Specify when and how often the task should be performed.

The date specifies the 'base date' for the Task Specification. For a task that repeats over time this is the first date on which it will process. By default, this date is the current date – use the drop down to use a calendar to change this date as required.

10. Once all the details have been entered, click the Save button to create the Task Specification.
11. Click the Schedule tab to view a list of scheduled tasks.
12. Click Save and Close to return to the Task Specifications window.

When the Task Specification has been confirmed, it will be shown in the Task Specification window, along with the scheduled tasks created for it by the Controller-Agent.

# Scheduling Set Reprocessing from Set Analyzer

## Overview

You schedule set reprocessing from SET ANALYZER. The schedule for a set process task is made up of two components:

- **Task Specification:** This is a one-row entry that defines which set is to be reprocessed/finished, when and how often. It is effectively an instruction that defines a scheduling requirement. The Task Specification is created by the SET ANALYZER user.
- **Scheduled Task:** A scheduled task is created by the Controller-Agent as the result of processing a Task Specification created by the user. For a Task Specification that requires the set to be reprocessed/finished once only, the Controller-Agent creates one entry for the Scheduled Task. For a Task Specification that requires the set to be reprocessed/finished on a repeating basis, the Controller-Agent creates a 'Scheduled Task' entry for each occasion the Set is to be built/finished.

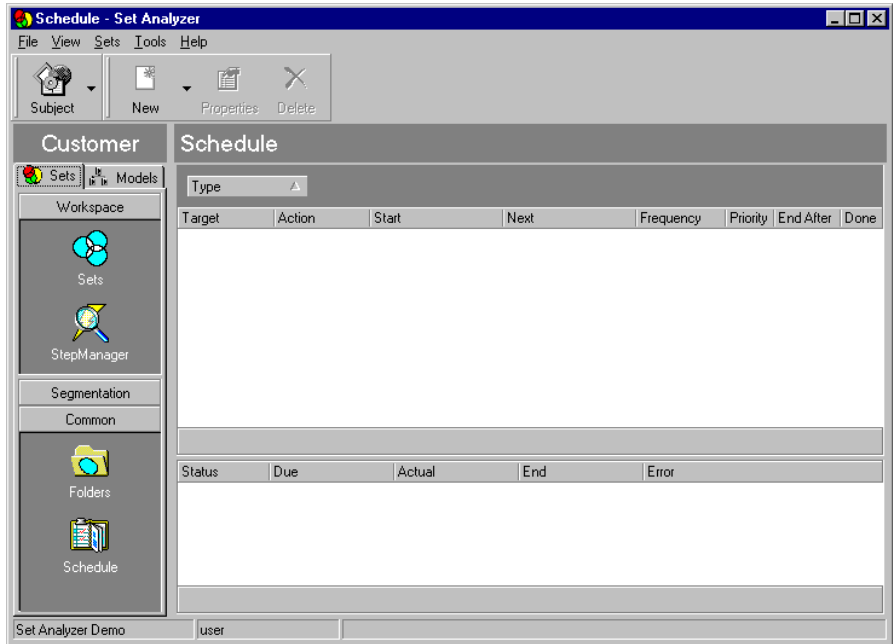
As a Scheduled Task becomes due, the Controller-Agent assigns it to an Agent for processing.

## Scheduling Set Analyzer tasks

You schedule set reprocessing from the Schedule view.

1. In SET ANALYZER, select the set for which you want to schedule reprocessing.
2. On the Sets tab, open the Common group.
3. Click the Schedule icon.

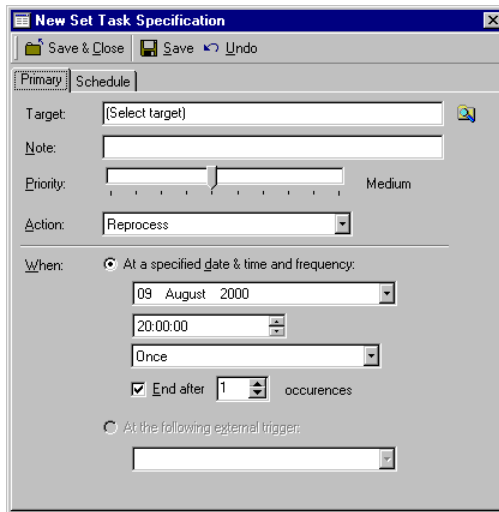
The Schedule view is displayed.




The Schedule view shows all tasks currently in the scheduler for the set.

4. Click the New button.

The New Set Task Specification window is displayed.



5. On the Primary tab, click the  button to pick a target.
6. Add a note to describe the task.
7. Move the slider to choose the priority for the task. Move the slider right to lower the priority, or left to increase the priority.
8. Choose the action.
9. Specify when and how often the task should be performed.

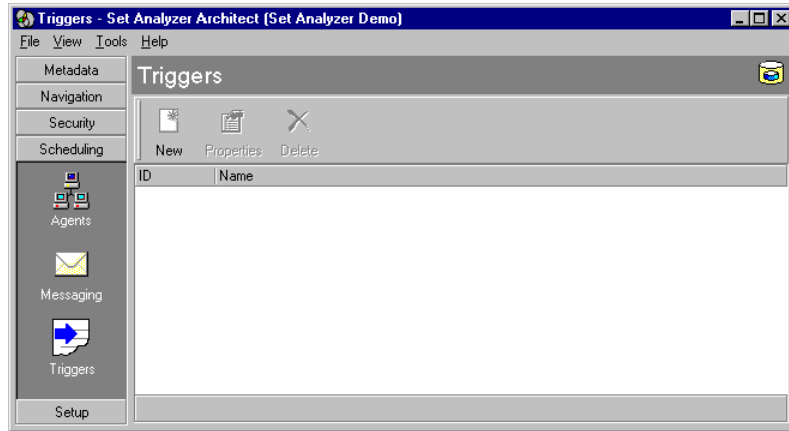
The date specifies the 'base date' for the Task Specification. For a task that repeats over time this is the first date on which it will process. By default, this date is the current date – use the drop down to use a calendar to change this date as required.
10. Once all the details have been entered, click the Save button to create the Task Specification.
11. Click the Schedule tab to view a list of scheduled tasks.
12. Click Save and Close to return to the Schedule view.

When the Task Specification has been confirmed, it will be shown in the Schedule view, along with the scheduled tasks created for it by the Controller-Agent.

## External Triggers

You can allow external events to trigger SET ANALYZER Agent tasks; for example, the Warehouse load is complete. Triggers are entered in the Triggers view in SET ANALYZER Architect.

Task specifications can then be linked to these triggers; that is, they will be run when the triggers are fired. They are fired by creating an instance of SET ANALYZER Architect using COM and then using the API to locate and fire the trigger.

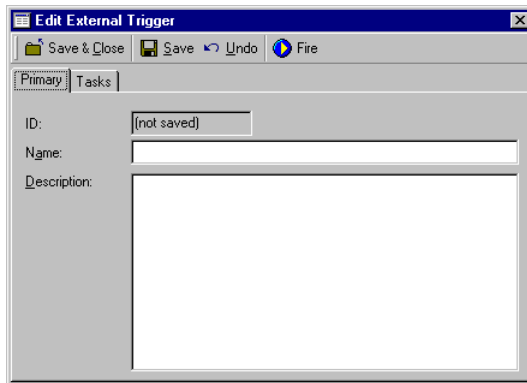


## Creating an External Trigger

To create an external trigger:

1. Click on the Triggers icon to display the Triggers view.
2. Click the New button.

The Edit External Trigger dialog box is displayed.



3. Enter a name for the trigger.
4. Enter a description that explains the fire actions.
5. Click on the Tasks tab.
6. Select a task to link to the trigger.

7. Click the Save button.

---

**Tip:** To test the trigger, click on the Fire button.

---

8. Click the Save & Close button.  
The trigger is listed in the Triggers view.

## Modifying an External Trigger

To modify an external trigger:

1. Click on the Triggers icon to display the Triggers view.
2. Select the trigger you want to modify.
3. Click the Properties button.  
The Edit External Trigger dialog box is displayed.
4. Change the name or description for the trigger.
5. Click on the Tasks tab.
6. Select a task to link to the trigger.
7. Click the Save & Close button.

The modified trigger is listed in the Triggers view.



# Chapter 11 Other Administrator Tasks

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## In this chapter

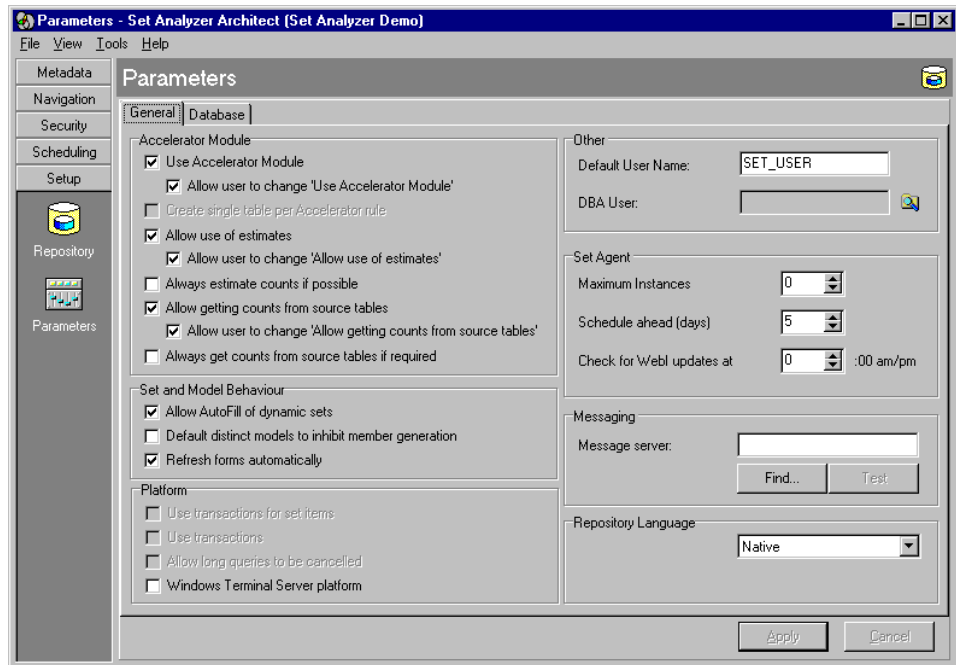
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## Overview

This chapter shows you how to configure SET ANALYZER global behavior and how to upgrade the SET ANALYZER repository database.

## Configuring Set Analyzer Global Behavior

You can configure the global behavior of SET ANALYZER by specifying certain parameters on the SET ANALYZER Architect Parameters view.



## Controlling Use of the Accelerator Module

Throughout the process of processing sets, the use of fast counts can greatly increase productivity. The required counts are built using the SET ANALYZER Architect Accelerator view. SET ANALYZER judges whether to use the existing accelerator tables for specific functions but can be configured not to use the accelerator tables at all.

- To enable SET ANALYZER to use existing fast counts, check the boxes in the Settings box.
- To prevent SET ANALYZER from using fast counts, clear the boxes in the Settings box.

## Allow Auto-Incrementing of Temporal Sets

To enable this option, check the box. When the option is enabled, temporal sets are incremented using their assigned calendars automatically.

## Specifying the Default User Name

The Default User Name is the database user SET\_USER. This user has access to the tables required to process sets but cannot alter their structure. (See the chapter "Managing User Security" for more information about the SET\_USER user.)

To enable access to the tables specified in the set repository, the SET ANALYZER user module requires read access to the underlying tables. This is achieved by creating a general user on the underlying database management system and specifying their privileges as read-only access to the database. This general user is mapped to the SET\_USER in SET ANALYZER. The actual user name of the general user on the underlying database should be entered here.

## Upgrading Set Analyzer

The SET ANALYZER repository is stored in your source database. The repository is stamped with a version that is stored in the table Set\_Version.

Each version of SET ANALYZER, SET ANALYZER Architect, and SET ANALYZER Agent expects a specific version of the repository. If you are installing newer versions of the application program files, then you will need to perform an upgrade of the repository database.

### Before You Install the New Program Files

Before you install the new program files, you should perform the following task with the old version.

1. Run SET ANALYZER Architect.
2. Select the Repository view.
3. Select Load/Unload.
4. Select the Unload tab.
5. Define the destination file to save your unload information.
6. Select Include Fields.
7. Select Include Set & Group Details (if you want to keep the snapshot values for all your sets).

---

---

**Caution:** This may make your unload file very large.

---

---

8. Click the Unload button.
9. Open the text file to confirm that you have a successful backup.

The file should consist of a series of "insert" SQL statements. The unload file contains SQL statements that will reprocess all the meta data you have configured.

## Installing Your New Repository

You can now install the new repository following the instructions provided. You will need to drop the tables and views first.

## Using Your Original Configuration

After you have successfully installed the new repository structure, you need to do the following:

1. Run SET ANALYZER Architect.
2. Select the Repository view.
3. Select Load/Unload.
4. Select the Load tab.
5. Locate the saved unload file.
6. Select Delete first from all tables.
7. Click on Load.

This process may take some time depending on how many sets have been created.

8. Open the Accelerator view.
9. Choose Build Values for All Table.



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