Welcome To DBMan

DBMan: Doing the Basic Stuff Better!

Links for further assistance

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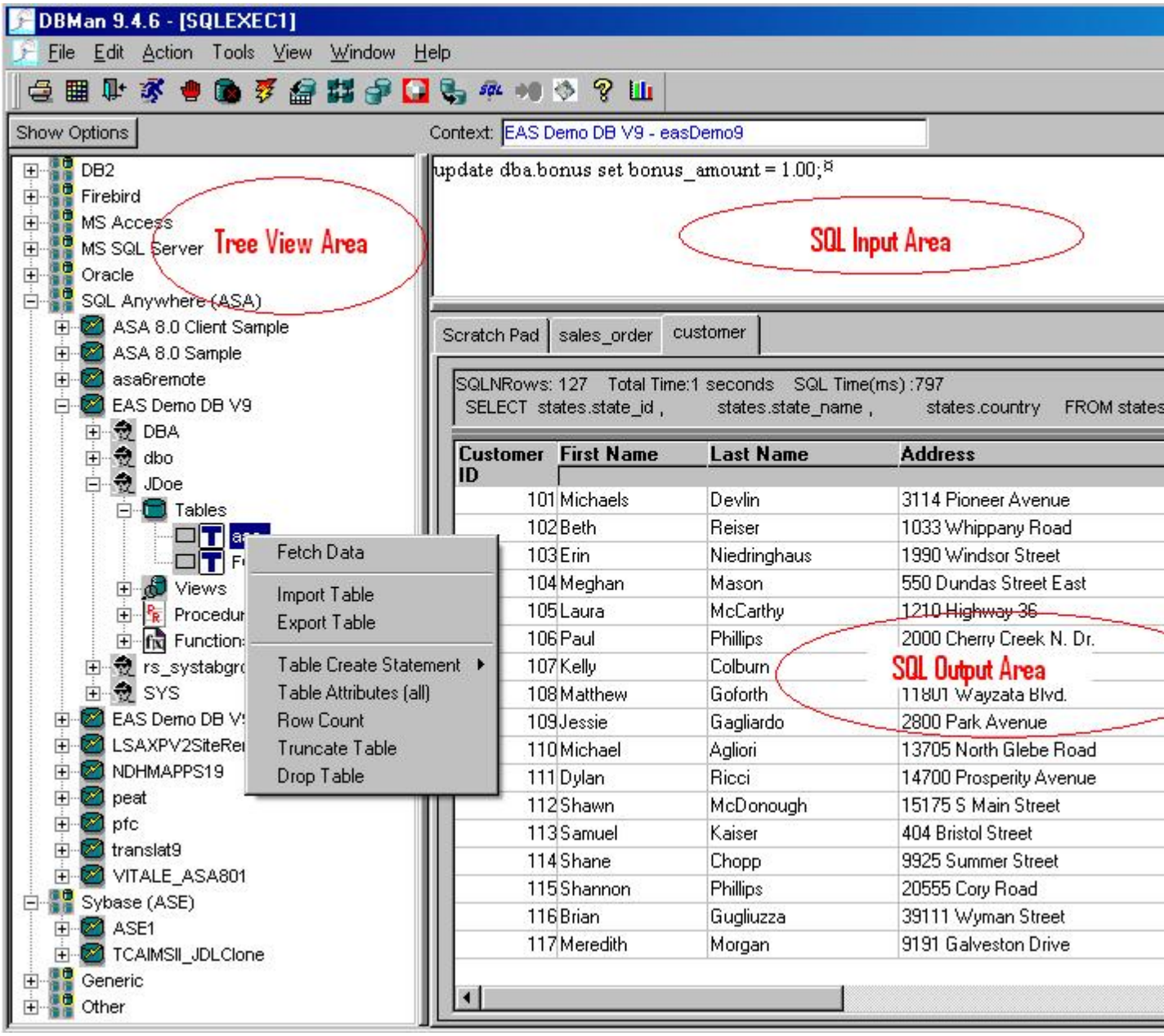
DBMan Questions, Suggestions, Remarks

This product is only available by Internet Download. It is not provided by disc, tape or other tangible medium.

DBMan is a user-friendly, database tool usually used for viewing and updating table structures or data. It works with most database vendors. You can connect to any database via ODBC, or the Powerbuilder native database drivers that come with this program for certain database vendors like Oracle, Sybase, and Microsoft SQL Server.



Getting Started

When DBMan is first installed, it takes the user to the DB Profiles Window (1st tab on the DBMan Options window), where it automatically searches for installed DB2, Sybase, and Oracle connection profiles, as well as user and system data sources (DSNs defined within Microsoft ODBC Administrator). If found, these DB profiles are populated in the DB Profiles window and saved in DBMan for subsequent use when connecting to databases. The user is then directed to the main window in DBMan, SQLExec, where the user can use the TreeView on the left to drill down on those vendors to connect to the profiles found. A robust set of popup options are available at each object level in the treeview. Double-click on a table to retrieve the table data. Data is returned in a grid form, called datawindows. There is a robust set of popup menu options (right mouse click popups) associated with datawindows. There are also many other options available via the action menu on the main menu. General Settings can be set for options that globablly affect all DBMan feature windows.

DBMan has the following features:

SQLEXEC is the main window in DBMan. It is here that you query and update tables, view table attributes, export and import rows, filter and sort the results, update grid cells with new

values and save those changes back to the database without using SQL. You can use SQL, PL/SQL, or Transact SQL in the SQL Input Area.

PIPEIT is DDL/DML window where you can "pipe" or propagate table structures and data from one database to another, from file to database, or database to file. Reverse engineer/forward engineer table capacity.

DBVISUAL shows table attributes and their relationships (Referential Integrity) to other tables by clicking on the parent or child keys of a table.

DBSCHEMA shows DDL differences between databases and allows you to generate DDL statements on the fly to reconcile the source to the target database.

DBDATA compares data between tables within or across databases. Also generates DML statements to apply which reconciles changes between two tables.

GENDATA is a robust database bulking utility.

DB2 UDB UTILS: Dynamic REORG/RUNSTATS/EXPLAIN for DB2 UDB databases.

TRACEFILE: Parses PowerBuilder, Versata, DB2UDB, ODBC data sources.

PARSEFILE: Metadata interface to extracting relevant information from huge log files.

EDITFILE: DBMan's own File Editor for complex find and replace actions.

SENDIT: Windows Network communications GUI interface.

Although DBMan can work with any ODBC-compliant, DBMS Vendor, it is significantly enhanced to work with the major vendors like Oracle, DB2, SQL Server, and Sybase. See the Limitations section for more details.
DBMan, version 1.0, was released on April 26, 2000. It was written using Powerbuilder version 6.5. DBman had a major rewrite on July 1, 2003, when it was upgraded using Powerbuilder version 9.0. Currently, it is using Powerbuilder version 9.0.2 (Build 7554).

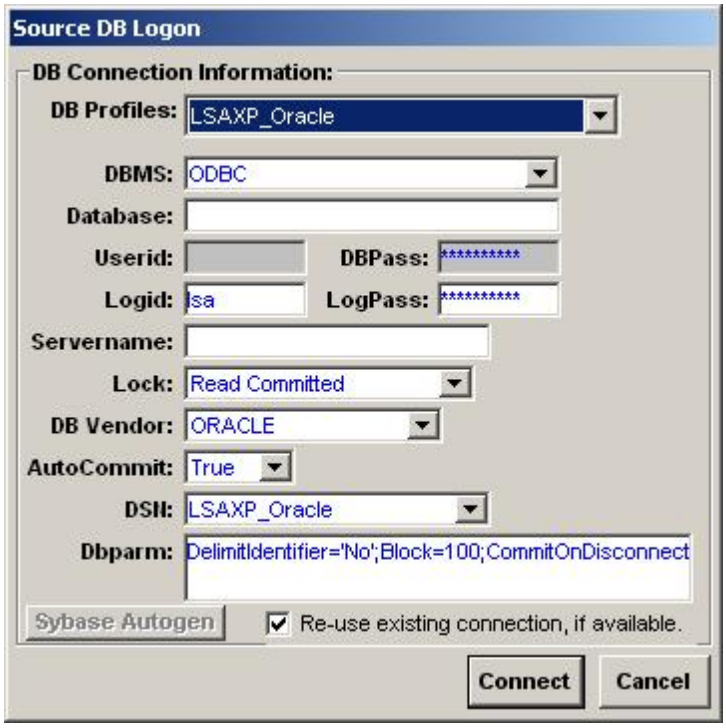
You can view the DBMan history of Release/Version updates from an external file, DBManHistory.chm

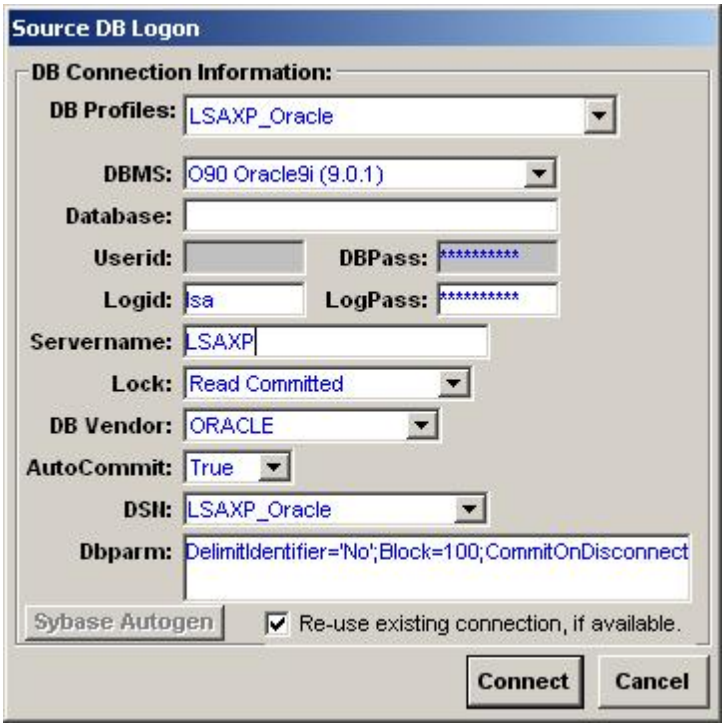
DBMan comes with a default trial period that can be extended.

Database Connections

DBMan stores database connection information so that the user can simply select a connection profile, called a DB Profile, and connect without having to manually type in userids, passwords, and other connection parameters each time a user connects to the database. Passwords are encrypted within DBMan for security reasons and are also encrypted when connecting to a database. See DB Profiles for more details on how DBMan manages connection information. The Database Parameters section documents details regarding the DBPARM connection property.

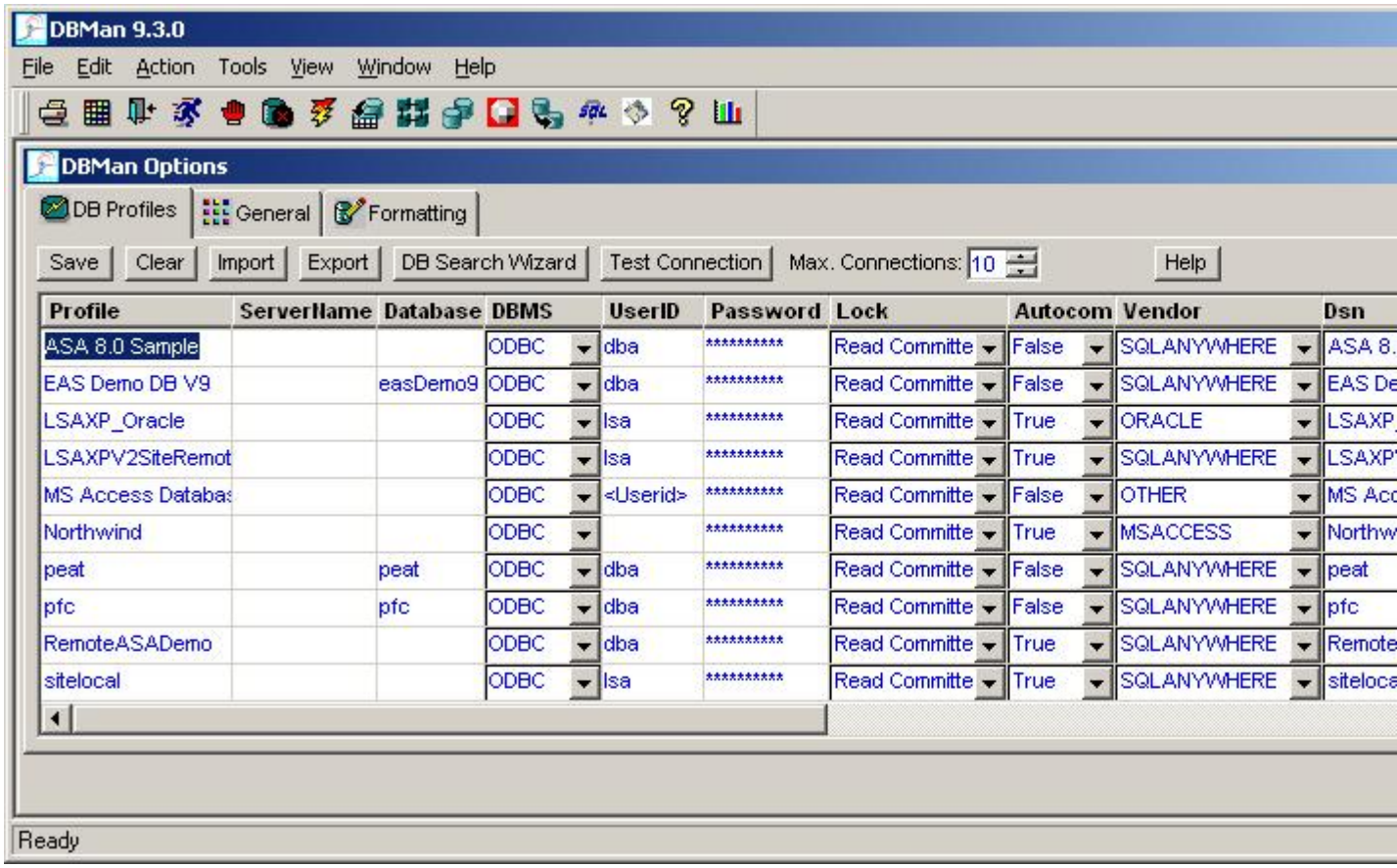
You can connect via an ODBC driver or a DBMan-provided native driver (if available) for the specific database vendor. The following two pictures show connections to an Oracle database using first, an ODBC driver, and then a native driver for Oracle.




Source DB Logon
DB Connection Information:
DB Profiles: LSAXP_Oracle
DBMS: O90 Oracle9i (9.0.1)
Database:
Userid:
DBPass: **********
Logid: lsa
LogPass: **********
Servername: LSAXP
Lock: Read Committed
DB Vendor: ORACLE
AutoCommit: True
DSN: LSAXP_Oracle
Dbparm: DelimitIdentifier='No';Block=100;CommitOnDisconnect
Sybase Autogen
Re-use existing connection, if available.
Connect
Cancel

Database Profiles

Database Profiles (DB Profiles) are set on the 1st tab page of the Options Window.



Database connection information is specified here and stored in the Windows Registry. A description of each command button on this window follows. See Database Parameters for more details on the DBParm connection option.

Save
Press this button to save profile rows marked in **RED** below.

Clear
Deletes all DB Profiles rows.

Import
Imports DB Profiles from a file.

Export
Exports all DB Profiles to a file. You are prompted to encrypt or not encrypt the passwords for each profile.

DB Search Wizard
Automates the search and retrieval of DB Profiles by looking at Oracle, DB2, Sybase, ODBC profiles already stored
your computer. This is what happens automatically when you start DBMan for the first time.

Test Connection

Test your profile connectivity with this button.

You can specify ***Max. Connections*** to restrict the number of active database connections that can exist within DBMan at any one time.

You can also automate the dynamic creation of an ODBC System DSN by right-mouse clicking on a profile and selecting **Generate DSN**. For Oracle, DBMan selects the driver based on the following priority order:
Oracle 9 driver, Oracle 8 Driver, Microsoft ODBC Driver for Oracle

Hint: For Sybase connections, you can define one profile here, then check the ***Sybase Autogen*** checkbox on the connection window to retrieve all database instances running on that particular Sybase Server. Notice in the above settings, one profile named, *masterSPSPD2*, which points to the Sybase master database.

File Format
File format is PowerBuilder-specific, based on the Powerbuilder initialization file format (PB.INI) where there is one section on top that specifies the names of the profiles that follow, followed by the definition for each profile.

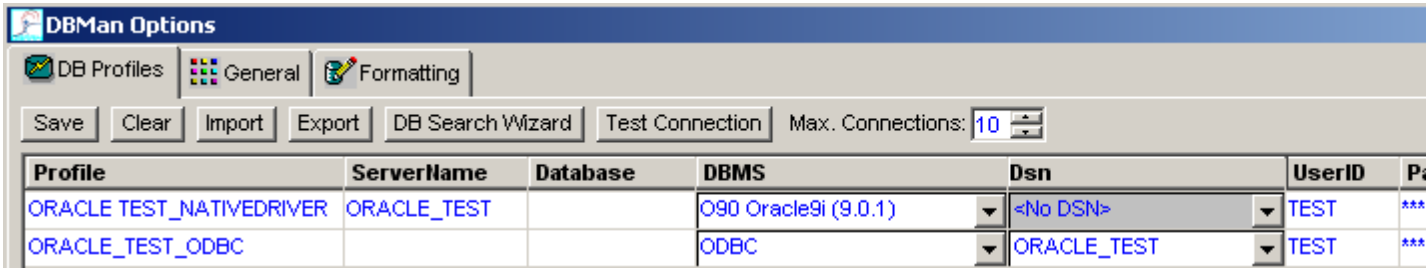
```
[DBMS_PROFILES]
PROFILES='<Profile Name1>','<Profile Name2>'…

[Profile <Profile Name1>]
DBMS=
Database=
UserId=
DatabasePassword=
LogId=
LogPassword=
ServerName=
DbParm=
Lock=
Prompt=
DSN=
Autocommit=
Vendor=
Comments=
```

Native Drivers/ODBC

DBMan allows DB Profiles to be created using database native drivers or ODBC interfaces.

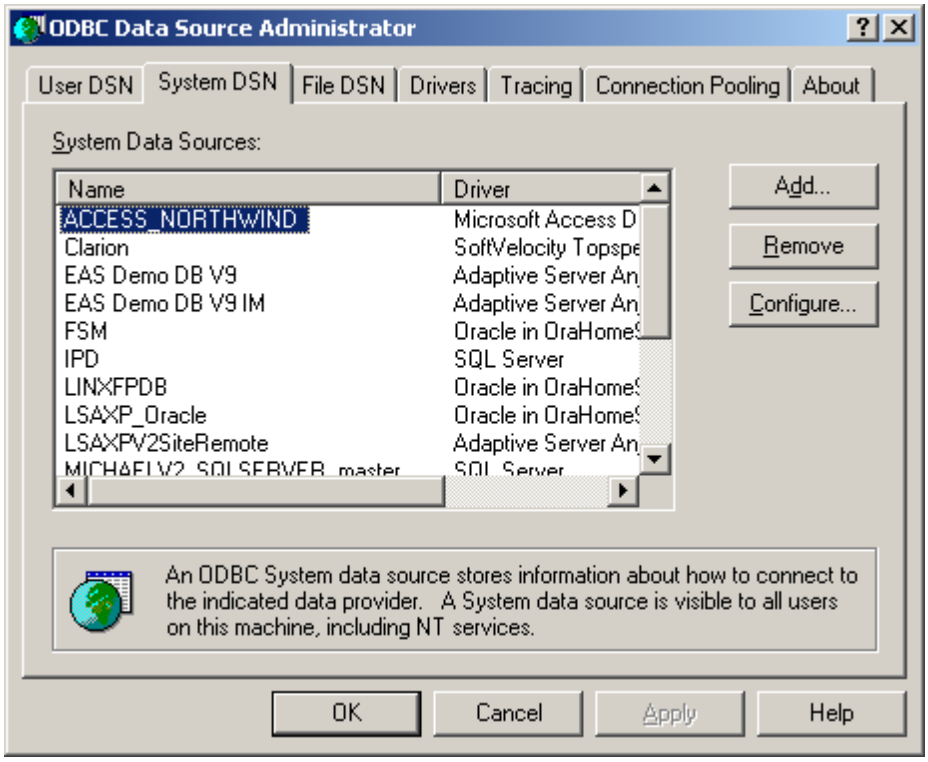
Native Drivers are usually used when the desired database action is not incorporated within the standard ODBC APIs. Native drivers are supposed to be faster and more efficient, but that is not always the case. ODBC provides a standard database interface template regardless of what database vendor is being used.

If you have a problem with database actions, you might try changing the database interface from one to the other (Native Driver to ODBC or ODBC to Native Driver).



Native Driver Setup
Select the desired native driver from the **DBMS** dropdown (any value other than **ODBC**). Add the appropriate value(s) in the **ServerName** field and optionally, the **Database** field.

ODBC Setup
Select **ODBC** as the **DBMS** dropdown value, which enables the **DSN** field. Then change the DSN field from **<No DSN>** to another value in the selection list. This selection list is populated with the current list of ODBC Data Sources as shown in the Microsoft **ODBC Data Source Administrator** window. It is here here you define your data sources that can then be used by DBMan.



DBMan provides Database Driver Interfaces for the following database interfaces:

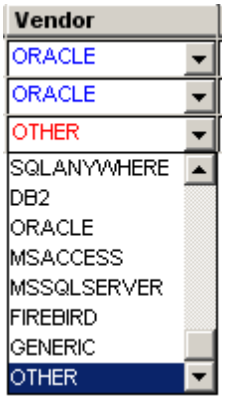
- Direct Connect Interface (DIR)
- Informix v9.x Interface (IN9)
- Microsoft SQL Server Interface (MSS)
- Oracle 7 Interface (O73)
- Oracle 8/8i (O84)
- Oracle 9/9i (O90)
- Sybase Adaptive Server Enterprise (SYC)
- ODBC Database Driver (ODB)
- OLE DB Database Driver (OLE)
- JDBC Interface (JDB)

Vendor Selection List

The Vendor Selection List dropdown for the **VENDOR** field has 3 types of selections:

- a specific database vendor (DB2, Oracle, etc.)
- **GENERIC** vendor classification
- **OTHER** vendor classification

Always try to select a specific database vendor from the list so that you can enable the full range of DBMan database action flexibility. If your connections do not match any on this list, then your second choice should be to select **GENERIC** as the vendor classification. A **GENERIC** vendor will use the full range of ODBC APIs throughout the DBMan program if your **DBMS** connection parameter is set to **ODBC**. The **OTHER** vendor classification is used only for those rare cases where none of the previous selections work correctly. **OTHER** insures that you can connect successfully (assuming your connection parameters are correct) and only execute SQL statements in the SQLExec SQL Input Area.



Database Parameters

This section documents some information regarding database parameters. Database parameters are specified on the **DBPARM** field on the Connection dialog box. These fields specify values that are common across most database vendors and those that are unique to each database vendor. Shown here is the list for ODBC-supported database parameters. Additional parameters are available when using a native driver for the database vendor instead of ODBC.

ODBC-supported parameters for DBPARM

Async
Block (ODBC, OLE DB, and Oracle)
CacheName
CallEscape
CommitOnDisconnect
ConnectOption
ConnectString
CursorLib
CursorLock (ODBC)
CursorScroll (ODBC)
Date
DateTime
DBGetTime
DecimalSeparator
DefaultProcOwner
DelimitIdentifier
DisableBind
FormatArgsAsExp
GetConnectionOption
IdentifierQuoteChar
InsertBlock
LoginTimeOut
MsgTerse
NumericFormat
OJSyntax
PacketSize (ODBC)
PBCatalogOwner
PBNewSPInvocation
PBUseProcOwner
ProxyUserName
ReleaseConnectionOption
RPCRebind
SQLCache
StaticBind
StripParmNames
TableCriteria
Time
UseContextObject

JDBC Setup

This section documents information related to configuring and connecting to DBMan through JDBC. DBMan is a PowerBuilder application and as such it uses the PowerBuilder JDBC interface (pbjdb90.dll) to access a database through the JDBC driver.

The steps involve:
1. Install the Java Virtual Machine (JVM).
2. instal the Java Runtime Environment (JRE) must be installed on the computer: JRE Download
3. Set the PATH environment to point to the Sun Java VM library, JVM.DLL.
   For example, C:\Program Files\Java\j2re1.4.2_09\bin\client.
4. Set the CLASSPATH environment variable.
5. Install the JDBC driver for the particular database vendor.
6. Define the JDBC profile in DBMan.

Other information can be found at:
Connecting to a database via the JDBC interface from PowerBuilder

Adaptive Server Anywhere (ASA or SQLANYWHERE)

Driver: com.sybase.jdbc.SybDriver
URL: jdbc:sybase:Tds:localhost:2638

Install the Jconnect JDBC Driver (jconn2.jar is installed on your computer).
Run the **SQL_ASA.SQL** script to install stored procedures on your target database to use the JConnect JDBC driver.
Update the CLASSPATH to point to the jconn2.jar file, e.g., C:\Program Files\Sybase\Shared\jConnect-5_5\classes.
Set the SQLCA fields as follows:

```
SQLCA.DBMS = "JDBC"
SQLCA.LogPass = <***>
SQLCA.LogId = "dba"
SQLCA.AutoCommit = False
SQLCA.DBParm = "Driver='com.sybase.jdbc.SybDriver',URL='jdbc:sybase:Tds:localhost:2638',Properties='SQLINITSTRING=set TextSize 32000;'"
```

Adaptive Server Enterprise (ASE or Sybase SQL Server)

Driver: com.sybase.jdbc.SybDriver
URL: jdbc:sybase:Tds:199.93.178.151:5007/tsdata

ORACLE 8

Driver: oracle.jdbc.driver.OracleDriver
URL: jdbc:oracle:thin:@ora80nt:1521:orcl

Datawindows

The datawindow is where most of the action happens in DBMan. A datawindow is 2 dimensional grid of rows and columns, where data values are stored. They are usually associated with the results of SQL query statements.

Customer ID	First Name	Last Name	Address	City	State	Zip Code	Pl
101	Michaels	Devlin	3114 Pioneer Avenue	Rutherford	NJ	07070	20
102	Beth	Reiser	1033 Whippany Road	New York	NY	10154	21
103	Erin	Niedringhaus	1990 Windsor Street	Paoli	PA	19301	21
104	Meghan	Mason	550 Dundas Street East	Knoxville	TN	37919	61
105	Laura	McCarthy	1210 Highway 36	Carmel	IN	46032	31
106	Paul	Phillips	2000 Cherry Creek N. Dr.	Middletown	CT	64579	20
107	Kelly	Colburn	18131 Vallco Parkway	Raleigh	NC	27695-7209	91
108	Matthew	Goforth	11801 Wayzata Blvd.	Chattanooga	TN	37421	61

When you change any column value in the datawindow, the entire row will turn **RED** to signify a change to the row. Once the row is updated successfully back to the database, the row will return to its normal color, **BLUE** or **BLACK**.

Each text cell in a datawindow can be expanded in two viewing modes: normal and formatted expanded views.
See Grid Cell Expanded Viewing for more details.

Many hot keys or short keys are defined in the context of datawindows.

What makes these datawindows so important in DBMan is the popup menus associated with these datawindows. Right-click within the datawindow area and you get a robust list of choices from which to choose. For more complete information on each popup menu option available, please check out the Popup Menus section. Here is just a sampling of the choices...

Sort and Filter

You can manage the results window instead of altering the WHERE conditions in your SQL statements and re-executing the statements over and over again with the sort and filter menu options.

Bulking

You can add rows and modify columns using the Bulking menu choices. Some of these features are quite sophisticated for creating table relating keys while bulking up tables.

Export and Import

You can export your data to numerous file formats that are compatible with other programs. You can also import data and then press the update button to create insert statements behind the covers to add your new rows back to the database.

Find and Replace

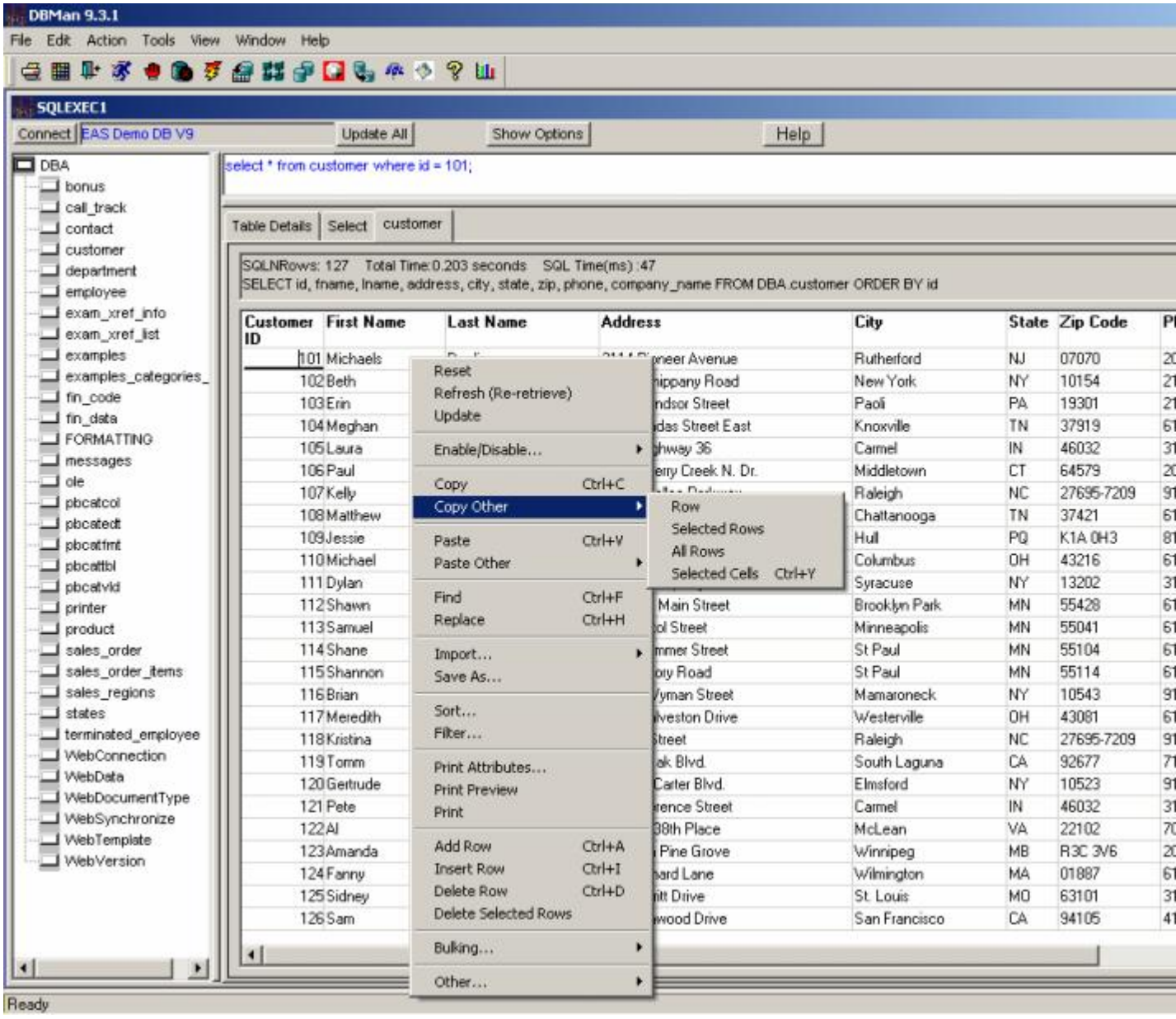
You can search for results and change them in the datawindow.

Copy and Paste

You can copy a row, multiple rows, or all rows to the clipboard and then insert them directly into Excel for instance.

Popup Menus

One of the most powerful features of DBMan are the options associated with the popup menus. The Popup menus mostly appear when datawindows are in focus (the grid cell displays) and the user right-clicks on the mouse button. The *SQLEXEC* interface is where most of these options can be used.



Duplicate Selected Row and ***Modify Column Values*** can be used separately, but are useful working
together to replication rows and column values. The first one is used to replicate rows of data based upon the currently selected row. The second one is used to replicate column values for all ensuing column rows starting with the currently selected row. You can sequentially increment or randomly select numbers. You can replicate persistent values in all other cases.

Generate SED File is used to generate a SED file template, which can then be used as an input file to replicate rows of data using another utility called GENSEED.EXE.

You can summarize data in the resulting grid by the *Expression* option, under *Other*.

For complex copy/paste features, see HotKeys section.

An important concept to understand when working with datawindows is the following: **Changes made to datawindows are not changes made to the database. Changes to datawindows are just that, changes made to the results buffers. To effect those changes back to the database, you must use the datawindow popup action, Update.**

The following list is the current popup menu options that are available on most datawindows.

Reset will remove all rows from the datawindow.
Refresh (Re-retrieve) will retrieve the data again using the same SQL statement. This is useful when you made changes but do not want them permanently changed back in the database. Refreshing the datawindow (results buffer) will get the data again from the database changing all row colors from **RED** (changed) back to **BLUE** (non-changed rows).
Update will update the database with changes on all rows marked in **RED**.

Enable/Disable... shows you the enabled or disabled state of the following sub-items

- **Tabs** When enabled, copy and paste actions are effective from within a single cell that has the focus. Otherwise, you may select multiple cells for subsequent paste actions.
- **Row Selection** When enabled, the user can select multiple rows by holding down the CTRL or SHIFT keys while left-clicking a row with the mouse. CTRL is used to select one row at a time. SHIFT is used to select all rows between two selected rows.
- **Word Wrap** When enabled, the text data in the expanded cell view is word-wrapped within the viewable area. Otherwise, text lines continue until a carriage return is detected.

Copy executes the normal system copy to the windows clipboard.
Copy Other...
Row executes a copy for the current row.
Selected Rows executes a copy for the currently selected rows.
All executes a copy for the all rows in the current datawindow.
Selected Cells executes a DBMan copy for the selected cells (Details: Multi-Cell Copy/Paste).

Paste executes a normal system paste for whatever is on the windows clipboard.
Paste Other...
Selected Cells executes a DBMan paste for the selected cells (Details: Multi-Cell Copy/Paste).

Find brings up the Find dialog box and prompts the user for a find key with which to search.
Replace brings up the Find/Replace dialog box and prompts the user for a find key with which to find an replace with a replace value.

Import allows the user to import a file contents into the current datawindow. TXT and CSV file formats are supported for import.

SaveAs prompts the user with many file format types with which to save all the contents of the current datawindow.

Sort brings up a dialog box to select the datawindow columns for sorting in ascending or descending order and with special functions on those sorting columns if desired. Sort only affects the datawindow, and does not result in any SQL being executed against a database.
Filter brings up a dialog box to specify the datawindow columns and/or functions to use as the filter method. Filter only affects the datawindow, and does not result in any SQL being executed against a database.

Print Attributes shows the print attributes, i.e., portrait/landscape, margins, etc.
Print Preview shows you the how the datawindow will appear when printed. This is usefult for adjusting column widths so as to get the desired columns on the same page.
Print prints the contents of the datawindow to the default printer.

Note: For the following row actions, only the datawindow is modified. The database is not changed unless the user selects the **Update** popup menu.

Add Row adds an empty row after the last row.
Insert Row adds a row before the current row.
Delete Row removes the current row.
Delete Selected Rows removes the currently selected rows.

Bulking...

- **Generate SED File (GenSeed)** Generates a file used as the primary input for the GENDATA feature.
- **Fill Factor** inserts a number of rows specified by the fill factor in between gaps in the ordered number key.
- **Insert Row With Values** inserts a row with default data type values.
- **Duplicate Selected Row** prompts the user to select how many rows to duplicate using the current row.
- **Modify Column Values** prompts the user with a variety of ways to update the rows for the current column value.

Other...

- **Show All Columns** shows all column including previously hidden ones.
- **Hide Selected Column** hides the current column from datawindow view, but does not remove it from the table.
- **Drop Selected Column** removes the current column from datawindow view, but does not remove it from the table.
- **Create Computed Field** creates a column with a computed value.
- **Create Expression** shows functional results of specified expressions.
- **Filter Out...**adds or removes old (**BLUE**) or changed (**RED**) rows.

- **Datawindow Attributes** shows the datawindow attributes for the current datawindow.
- **Log Update Scripts**. When checked, any updates to the database result in SQL update scripts being logged to the DBMan log file. To see the actual values used on the update scripts use these connection parameters: disablebind=1,staticbind=0

HotKeys

CTRL-C Normal Windows Copy
CTRL-Y Executes DBMan copy for the currently selected cells
CTRL-V Normal Windows Paste
CTRL-G Executes a multi-line or multi-tab paste within a cell
CTRL-P Pastes clipboard across multiple cells
CTRL-A Add Row at the end
CTRL-I Insert Row before the current row
CTRL-D Delete the current Row
CTRL-T Toggle Tabs
CTRL-R Toggle Row Selection
CTRL-X Copies all selected cells into clipboard
CTRL-G Pastes clipboard into current cell
CTRL-F Find Prompt
CTRL-H Find/Replaced Prompt
CTRL-HOME Moves cursor to first row
CTRL-END Moves cursor to the last row
CTRL-INS Inserts a row before the current row
CTRL-DEL Deletes the current row

F2 Saves and closes expanded view mode window for grid cells
F5 Searches for next occurrence of previously-specified string within the currently selected column
F6 Copy to separate array holders
F7 Paste from separate array holders
F8 Goto Row Prompt
ESC The Escape Key executes the CANCEL button on any window

Copy/Paste Hot Key Features

CTRL-C and CTRL-V are the normal ways to copy and paste, respectively. For DBMan there are special hot keys relating to grid cells. See Multi-Cell Copy/Paste for details.

Grid Cell Expanded Viewing

Grid text cells can be expanded by double-clicking within the cell. It brings the text into a separate window for easier viewing. There are two types of expanded mode: Normal and Formatted.

Normal Expanded Mode

Data is shown as it is stored in the database. You can resize the window to fit the data, search for text, change font, size, and many other options.

Formatted Expanded Mode

Data is shown as individual fields as they were defined on the Column Formatting Tab (3rd tab) of the Options Window. This is useful for large unformatted text fields that comprise multiple data elements. Each field within the text can be defined as delimited or fixed length. See the Column Formatting section for more details on how to define column formatting.

Grid Cell Format Setup

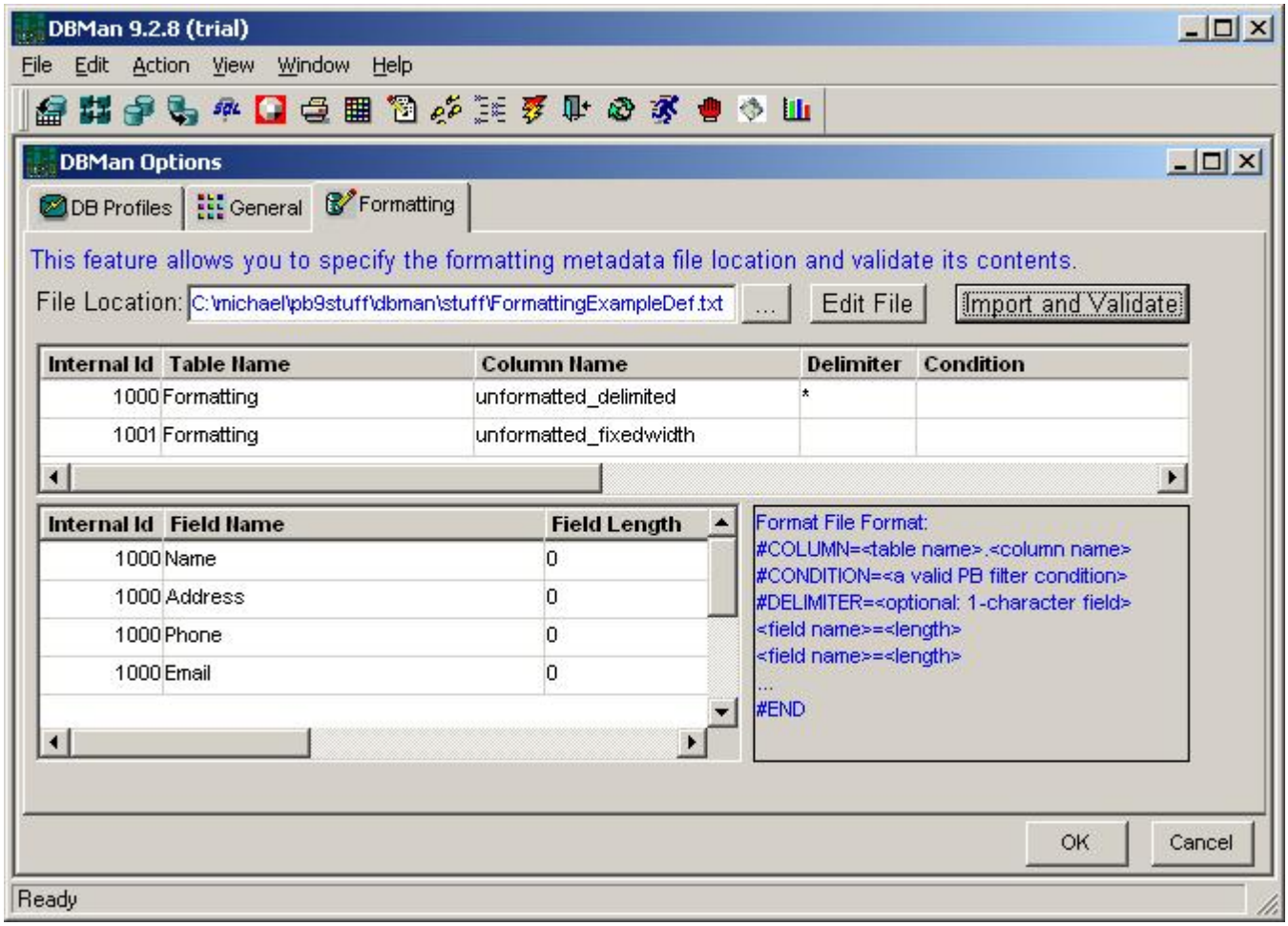
The 3rd tab on the Options window is used to specify files that describe rules for column formatting. It is here that one defines structure to unformatted column results in the datawindow grid. Once defined, you can view the data for such defined columns in a field-oriented way. You specify formatting by either delimiter or field fixed width specifications. Given the sample column value below, the input formatting file shows both method specifications. The next page shows where you input the input formatting file (Formatting tab of the options window), and what the results look like when displayed on the formatting results window.

Delimiter method: Mr. DBMan*1234 Whatever Street*703-222-3333*dbman@sqlexec.com
Fixed Width method: Mr. DBMan1234 Whatever Street703-222-3333dbman@sqlexec.com

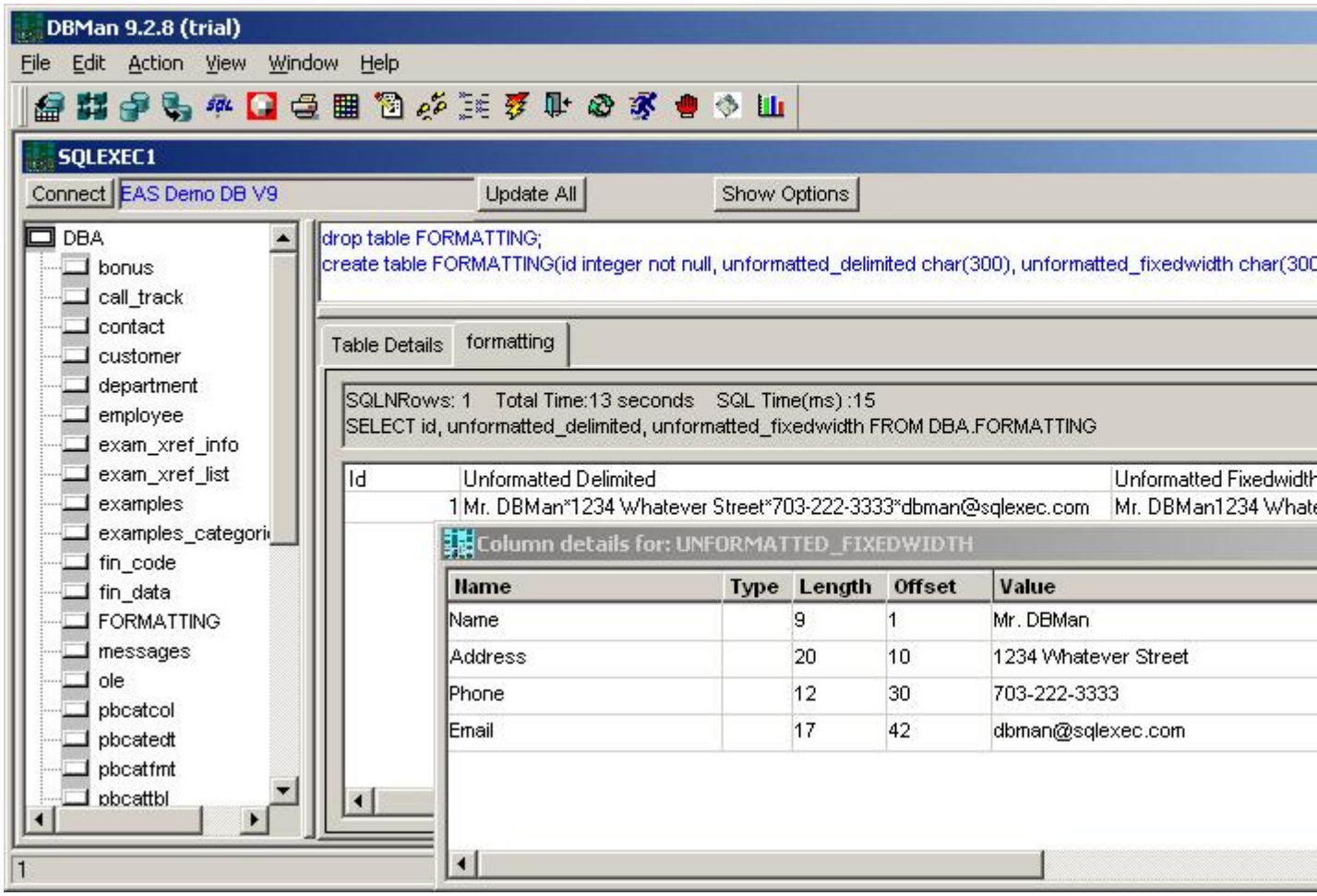
Input text formatting file contents

```
#COLUMN=Formatting.unformatted_delimited
#CONDITION=
#DELIMITER=*
Name=
Address=
Phone=
Email=
#END
#COLUMN=Formatting.unformatted_fixedw idth
#CONDITION=
#DELIMITER=
Name=9
Address=20
Phone=12
Email=17
#END
```

The following picture shows where you define your formatting rules (3rd tab on the Options window).



The following picture shows the field-delimited view of those columns defined with the formatting rules.


DBMan 9.2.8 (trial)
File Edit Action View Window Help
SQLEXEC1
Connect
EAS Demo DB V9
Update All
Show Options
DBA
bonus
call_track
contact
customer
department
employee
exam_xref_info
exam_xref_list
examples
examples_categori
fin_code
fin_data
FORMATTING
messages
ole
pbcatcol
pbcatedt
pbcatfmt
pbcattbl
drop table FORMATTING;
create table FORMATTING(id integer not null, unformatted_delimited char(300), unformatted_fixedwidth char(300
Table Details
formatting
SQLNRows: 1 Total Time:13 seconds SQL Time(ms) :15
SELECT id, unformatted_delimited, unformatted_fixedwidth FROM DBA.FORMATTING
Id
Unformatted Delimited
Unformatted Fixedwidth
1
Mr. DBMan*1234 Whatever Street*703-222-3333*dbman@sqlexec.com
Mr. DBMan1234 Whate
Column details for: UNFORMATTED_FIXEDWIDTH
Name
Type
Length
Offset
Value
Name
9
1
Mr. DBMan
Address
20
10
1234 Whatever Street
Phone
12
30
703-222-3333
Email
17
42
dbman@sqlexec.com
1

Multi-Cell Copy/Paste

You can copy multiple cells and then paste them into other cells using the hotkey combination: CTRL-Y / CTRL-P. Follow these steps to do this special case of copy/paste across multiple cells:

1. Turn tabs off (CTRL-T) so you can select multiple cells.
2. Select the cells to copy.
3. Press CTRL-Y.
4. Turn tabs on again (CTRL-T).
5. Put cursor where you want to start the multi-cell paste.
6. Press CTRL-P.

Note: If you are copying data into one cell, but with tabs or carriage returns, press **CTRL-F** instead of **CTRL-P**.

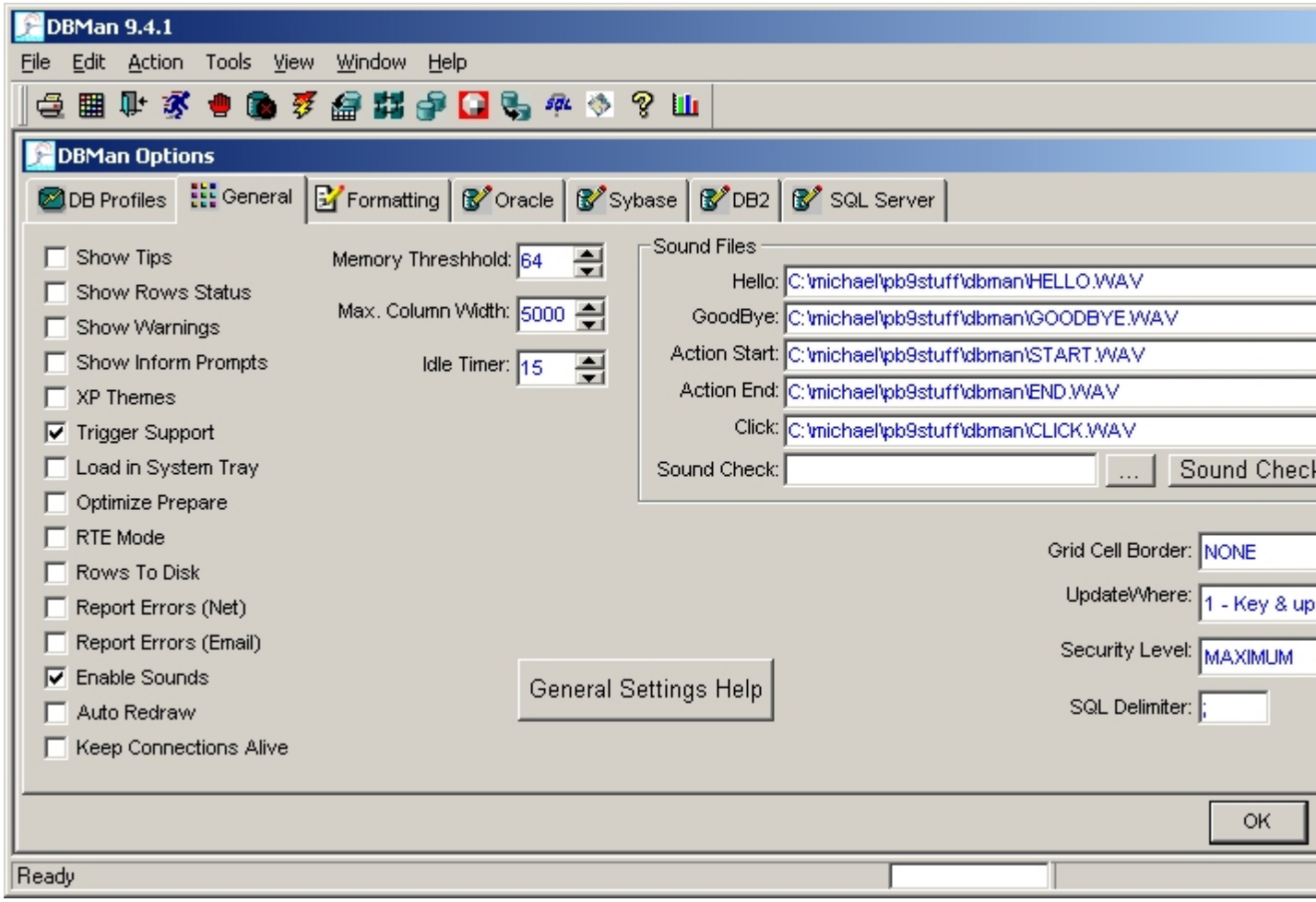
There are other special hot keys for copying and pasting:
CTRL-X Copies all selected cells into clipboard
CTRL-G Executes a multi-line or multi-tab paste within a cell
CTRL-G Pastes clipboard into current cell

General Settings

These settings are found on the Options Window (File-->Options), or by clicking the Options Toolbar item.
Settings involve the 2nd and 3rd tab on the Options Window. The 1st tab is used to manage DB Profiles. Database-specific options can be set on their respective tabs on this window. See the **Database Settings** section below for more details.

General Settings

The 2nd tab of the Options Window contains the DBMan program settings. Press <F1> to bring up the Help window that explains each option.



Show Tips

Program Tips window is automatically displayed when the program starts if this option is checked.

Show Row Status

Shows microhelp row retrieve status.

Show Warnings

Provides warnings before actions are taken throughout the application.

Show Inform Prompts

Turns on informatory messages before certain actions.

XP Themes
When checked, vertical/horizontal sizings are reduced to compensate for Windows XP themes.

Trigger Support
Trigger DDL information is provided in the PipeIt interface.

Load In System Tray
When checked, DBMan appears in the system tray and is loaded there at boot-up time.

Optimize Prepare
SQL statements are optimized when this box is checked. When checked, it may also cause unintended side-effects of SQL syntax errors. If you get unexpected SQL errors during execution, try turning this option off.
By default, PowerBuilder tries to optimize all sql, which has the unintended side-effect of rejecting the syntax of certain complex SQL statements. Uncheck this option if you are having SQL problems. You must re-connect after changing this option for it to take effect.
Example code that works with option turned off, but not on:

```
select dsk_obj.obj_id, dsk_obj.obj_usr_num,
(select count(*) from proc_object where current_fl = 0)
as "current_flag" from dsk_obj;
```

RTE Mode
Indicates whether expanded, formatted text is viewed and saved as Rich Text.

Rows To Disk
Leave this field unchecked unless you are experiencing memory errors when retrieving large result sets.
When checked, retrieved results are sent to disk instead of memory, but performance is degraded significantly.

Report Errors (Net)
Program Errors are automatically sent via a network message to program author when this option is checked.

Report Errors (Email)
Program Errors are automatically sent via the default Email program to DBMan when this option is checked. This is useful if you want DBMan to reply with email help.

Auto Redraw
When checked, Visual datawindows are redrawn after each row retrieved. This can slow down performance and cause unwanted eye flicker.

Avoid Connection Timeouts
When checked, intermittent messages are sent to the active database servers to avoid connection time-outs. The frequency of these message is determined by the **Idle Timer** value, also specified here on the General Settings tab.

Memory Threshold
Determines the memory available minimum where a messagebox appears notifying the user that the memory on the computer has decreased below the specified minimum.

Grid Cell Border
Set the datawindow or grid cell border style with a selection from the drop dow list. By Default, NONE is selected. In some XP Windows Themes, it is difficult to see the grid lines surrounding the grid cells. In these cases, you may want to change the border style from NONE to BOX.

Max. Column Width
Sets the default maximum width of string type grid cells upon retrieval from the database.

SQL Delimiter
Designates the SQL terminator character.

UpdateWhere
Dictates the update condition when updating result windows back to the database.
Key only - Fastest: Check is made to ensure the key has not been changed since it was retrieved.
Key & Updatable - Slowest: Check is made to ensure the key and any updatable column have not been changed since they were retrieved.
Key & Modified - Check is made to ensure the key and any modified column have not been changed since they were retrieved.
Use "Key only if you are not concerned about someone else updating this data since you retrieved it.
Warning! Combining Key Only or Key & Modified with the UpdateMethod of Update can cause the program to produce errors if the table involved does not have a primary key. DBMan recommends the normal settings of Key and Updatable for the UPDATEWHERE field and UPDATE for the UpdateMethod field.

UpdateMethod
Effects how a datawindow results window is updated back to the database for changes, whether the key column can be updated in place or whether the row has to be deleted and reinserted. This value determines the syntax that will be generated when a user modifies a key field:
Update - Use the UPDATE statement when the key is changed so that the key is updated in place.
Delete/Insert - Use a DELETE and an INSERT statement when the key is changed.
Caution! When there are multiple rows in a DataWindow object and the user switches keys or rows, updating in place may fail due to DBMS duplicate restrictions.
Warning! Combining Key Only or Key & Modified with the UpdateMethod of Update can cause the program to produce errors if the table involved does not have a primary key. DBMan recommends the normal settings of Key and Updatable for the UPDATEWHERE field and UPDATE for the UpdateMethod field.

Security Level
Determines the security level in effect for this program.
MINIMUM - Users cannot update information and cannot execute stored procedures.
MEDIUM - Users can update information, but are prompted before making changes.
MAXIMUM - Users have no program restrictions.

Idle Timer
The idle event is invoked when this threshold is reached. Certain actions are performed

during idle refresh intervals like sending messages to the Database Server to avoid connection time-outs (see **Avoid Connection Timeouts** checkbox).

Sounds Section

This section is where you can define sounds for specific actions in DBMan. You can also turn sounds off or on completely by checking/unchecking the Enable Sounds checkbox.

Database Settings

This section documents general settings for specific database vendors which are specified on other tabs on the Options Window.

ORACLE

Show RecycleBin Objects - When checked, recycle bin objects are retrieved from the database.

LineSize (PL/SQL Formatting) - Specifies the number of columns per line when formatting the output of PL/SQL scripts generated in SQLEXEC.

Limitations

All relational DBMS vendors are supported for SQL query activity in the SQLExec interface of DBMan, but only the following vendors/versions are supported for extended DBMan-specific features:

- Sybase Server Version 11, Sybase Adaptive Server Enterprise (ASE) Version 12, 12.5, 15
- SQL Anywhere Version 5, 5.5, Adaptive Server Anywhere (ASA) Version 6, 7, 8, 9
- Oracle (Version 7, 8, 9i, 10g)
- DB2 (UDB Version 6, 7, 8)
- DB2 (Zos Version 5, 6, 7, 8 with some restrictions)
- Microsoft SQL Server 2000, 2003
- Microsoft Access (all versions)
- Firebird (Version 1.5.0.4027) Using IBPhoenix Inc Open Source Firebird InterBase(r) driver 1.01.00.89 or higher

SQL input restrictions

While this program is intended to make it easier to execute, retrieve, and modify SQL statements and their results, it may not replace all functionality of proprietary software that also executes SQL from a client software package. DBMan does not support ASE/SQL Server **DBcc** commands that return internal sybase output buffers. Stored procedures that return multiple result sets are also not supported. For instance, ***sp_estspace <table name>*** would normally return 3 separate window results, but DBMan only returns the first set.

You can still execute proprietary actions via the external interface to DBMan, notably, the external Transact SQL or PL/SQL interface in the SQL Input Area popup menu option of the SQLEXEC window.

Trouble-Shooting

This section documents some common problems.

General SQL Errror

Program crashes or aborts with the error message indicating that part of the where clause was missing when attempting to update a datawindow with update or delete changes like the following:

SQLSyntax = DELETE FROM dbo.table_temp WHERE
SQLCode = -1
SQLDBCode = 102
SQLErrText = Incorrect syntax near 'WHERE'.

This problem may be caused by a combination of DBMan settings with tables that do not have primary keys defined on them. Either create a primary key on the table or make sure that the UpdateWhere value on the general tab of the Options window is set to "1 - Key & updatable". If the problem still persists, try setting the UpdateMethod value to "Delete/Insert" on the general tab of the Options window.

SQLEXEC Window SQL Errors

Errors occur when attempting to execute SQL statements from the SQL Input Area of the SQLEXEC window. Make sure you have the correct settings for allowing comments and non-printable characters in the SQL statements. These are controlled by the options, **Comments** and **Non-Printables**. When checked, they permit comments and non-printables to be a part of the SQL statement. This is necessary for certain SQL statements like creating stored procedures where you have embedded comments and line formatting. As a default, you should keep these parameters checked, unless you really have comment lines in the SQL Input area that you want to ignore, and formatting that you want to remove before execution of the SQL statements.

Security

Database Security

A user's privileges are determined by the database privileges bestowed upon the user's userid when connecting to a database. Database security is established by the Database Administrator (DBA) for a database. DBMan will permit the user to execute any database command with which their connection userid has privileges.

Password Encryption Security

DBman encrypts passwords in the Windows Registry and encrypts them again when sending them as part of connection requests to a database.

DBMan Program Security

DBMan has 3 built-in security levels for program execution. At this time, the security levels are actually set by the user! In a future release of DBMan, DBMan will be installed with a predetermined DBMan Program Security level to allow corporate control over DBMan functionality. The rest of this section describes the current security levels.

MINIMUM

User has least privileges.

- User cannot update result windows.
- User cannot use AutoCommit checkbox option. This may prevent user from executing stored procedures.
- User cannot update SQL in the SQL input area either.
- User cannot use the PIPEIT interface for managing and migrating DDL and DML.

MEDIUM

- User is prompted every time they attempt to execute "COMMIT;" from the SQL input area.
- User cannot use the PIPEIT interface for managing and migrating DDL and DML.

MAXIMUM

User has no restrictions. User restrictions are only limited by the privileges set by DataBase Administrators (DBAs).

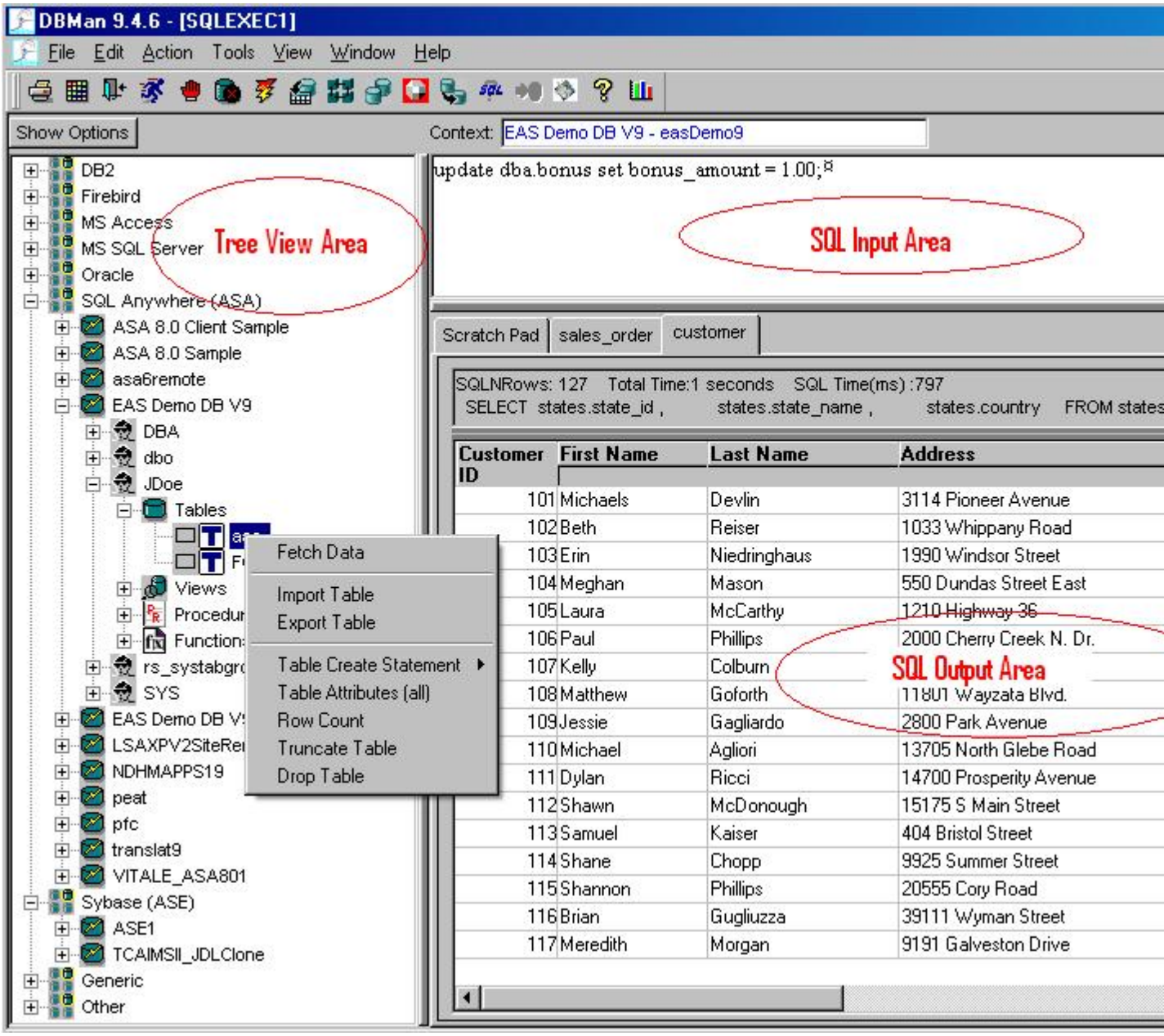
DBMan Features

This section documents the major features in DBMan, starting with the flagship feature, SQLExec.

SQLEXEC

SQLEXEC is the flagship interface in DBMan. It is here that you query and update tables, view table attributes, export and import rows, filter and sort query results, and much much more. You can have multiple connection objects open at the same time on one instance of the SQLEXEC window or you can open multiple instances of the SQLExec window. There are 3 main areas on the SQLExec screen:

- **Tree View Area** - Shows database objects with the root object being the database vendor Oracle, Sybase, etc.). Database Profiles (connection objects) are right under this layer, followed by schemas, and regular objects like tables, views, stored procedures (Oracle shows packages as well), and functions. Use the popup menu (right click) on each level to see what options are available.
- **SQL Input Area** - This is the place where you manually insert SQL statements for execution.
- **SQL Output Area** - This is where the SQL statement execution results are shown as a separate tab usually for each SQL statement executed.



To connect to a database instance, drill down one level from the database vendor level (top level) and click on one of the database profiles for that vendor. The connection dialog window appears. Once you are connected, you are then presented with the schema selection window, where you can retrieve everything for all schemas or specific schemas. From there, you can drill down further to the schema and schema objects level, where many popup menu choices are available, like double-clicking on a table to retrieve its contents, view object definitions, export data, etc.

Most of the Main Menu/Action items apply to the SQLEXEC interface.

Press **F1** over any field to context-sensitive help

The **Show Options** button will show you a list of options that can be changed.

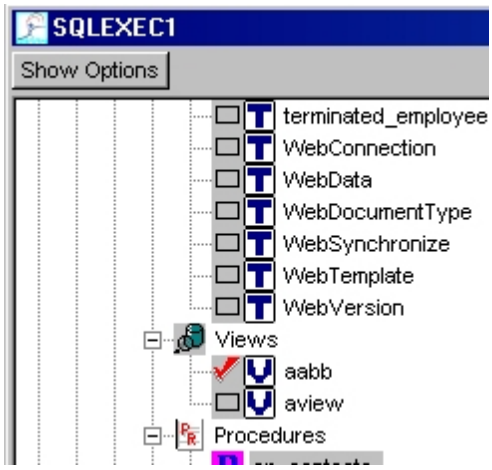
The context area at the top shows what database profile (connection object) has the current focus. This is especially important to what SQL statements are entered and executed from the SQL Input Area.

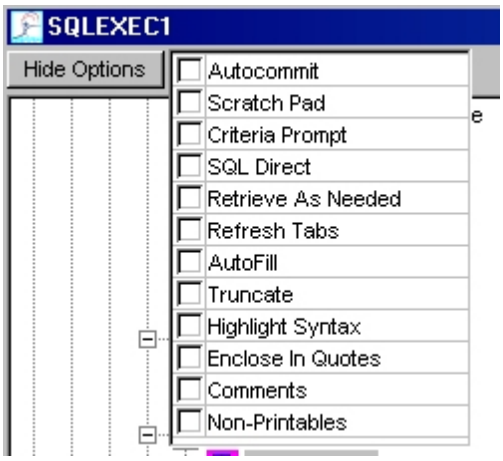
Explain SQL

You can get SQL plan costs for an SQL statement by highlighting the SQL statement in the SQL Input Area, and then selecting menu: ActionàExplain SQL.

Options

The SQLExec options are shown by pressing the **Show Options / Hide Options** button.





Autocommit

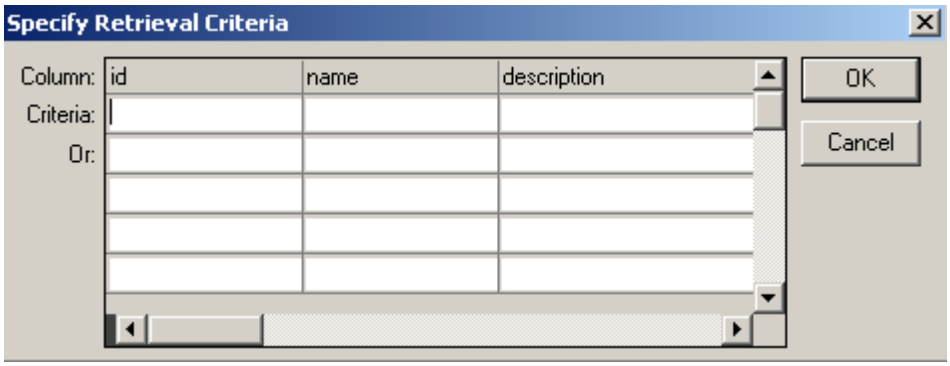
When checked, all updates to the database are automatically committed individually because an implicit commit is executed after each statement. When unchecked, the user must explicitly enter a COMMIT or ROLLBACK command to save or discard changes. The only exception is when an update is is done from the datawindow popup menu on the results tab. A COMMIT is automatically done after the update changes are complete as a logical unit of work (LUW) even when autocommit is turned off. If autocommit is turned on, COMMITS are also done between updates, even on the results tabs.
Caution: When you set AutoCommit to True, you cannot roll back database changes. Therefore, use care when changing the setting of AutoCommit.

ScratchPad

When checked, all SQL statements executed from the SQL Input area send their results to one common tab, the Scratch Pad tab, thereby overwriting any previous output. Otherwise, each SQL statement executed results in a separate results tab.

Criteria Prompt

When checked, a table criteria prompt is shown for all table data requests generated from double-clicking a table under the Tree View Area on the left. Otherwise, when double-clicked, the table contents are automatically retrieved without any prompt to qualify the result set.



SQL Direct

When checked, all SQL Statements are executed through a direct ODBC call, instead of using the default DBMan database calls. Performance is greatly improved sometimes by

using SQL Direct, and Database Vendor specific calls may need to use SQL Direct instead of the default method.

Retrieve As Needed

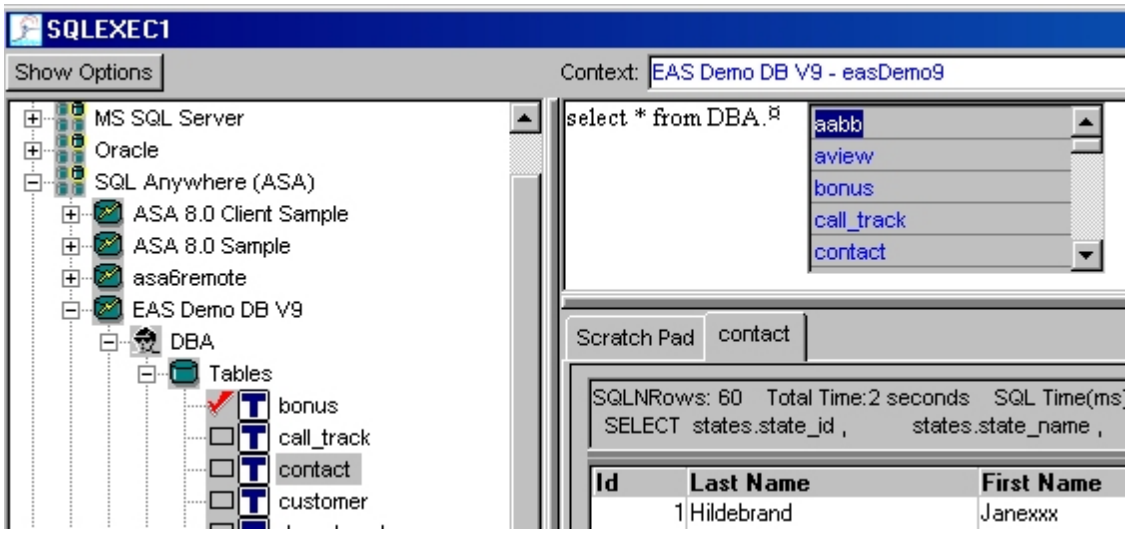
When checked, only 1 screen of data is initially returned. The user must scroll down to force other rows to be retrieved. This is useful in cases where you do not want to wait to retrieve all the data in a table with a lot of rows. Otherwise, all the rows of the table are retrieved. Using Aggregate functions in the sql statement will cause **retrieve as needed** to be overidden. Aggregate functions include SORT, etc.

Refresh Tabs

When checked, all tab results are deleted before the SQL requests are issued. Otherwise, each SQL request results in another tab result set.

AutoFill

When checked, the user is prompted with a list of tables and columns for selection when typing a period after either the schema or table name in the SQL Input area. ***Auto Search*** is enabled on the table and column list, so just type away to get to the value you want. To start a new search, just press the backspace key. **Double-click** or press **Enter** to copy your selected value into the current cursor position in the SQL Input area. Exit the list without selecting anything by pressing the **Escape** key. Autofill is disabled when GENERIC or OTHER is selected as the DB Vendor.



Truncate

When checked, tables deleted from the Tree View Area will use the Oracle Truncate method of deleting rows, rather than the default, delete rows method. If the DB Vendor is not Oracle, the default delete rows method is used.

Highlight Syntax

When checked, certain SQL keywords are highlighted in bold and contrasting colors.

Enclose In Quotes

When checked, each column for each table under the Tree View Area will be enclosed in quotes when the table is double-clicked. This is sometimes helpful to avoid column name keyword usage errors.

Comments

When checked, comments are allowed as part of the SQL statements to be executed in the SQL Input Area. Otherwise, comments found are removed from the SQL statements before execution. Comments are designated as lines starting with two forward-slashes ("//) or starting with "/*" and ending with "*/". This is useful when creating views or stored procedures in the SQL Input area and retaining those comments in the source code of the created objects. As a general rule though, you should leave this checkbox unchecked so SQL statements can be parsed more effectively. Only check it for the case where statements contain comments that you want to propagate as part of the SQL statement.

Non-Printables

When checked, non-printable characters like tabs are permitted as part of the sql statement to be executed. Otherwise, they are removed before sql execution.

Note on Comments and Non-printables

Errors may occur when attempting to execute SQL statements from the SQL Input Area of the SQLEXEC window. Make sure you have the correct settings for allowing comments and non-printable characters in the SQL statements. These are controlled by the options, **Comments** and **Non-Printables**. When checked, they permit comments and non-printables to be a part of the SQL statement. This is necessary for certain SQL statements like creating stored procedures where you have embedded comments and line formatting. As a default, you should keep these parameters checked, unless you really have comment lines in the SQL Input area that you want to ignore, and formatting that you want to remove before execution of the SQL statements.

TREE VIEW AREA

The **Tree View Area** is useful for drilling down on the database to the underlying database objects, and then performing popup menu actions on those objects: view, compile, change, export, etc. The **Tree View Area**, which is located on the left side of the SQLEXEC window, is populated with the major database interfaces that DBMan supports with a rich set of features. This vendor list includes:

- DB2, Firebird, Microsoft Access, Microsoft SQL Server, Oracle, Adaptive Server Anywhere (SQLANYWHERE), Adaptive Server Enterprise (Sybase enterprise server)

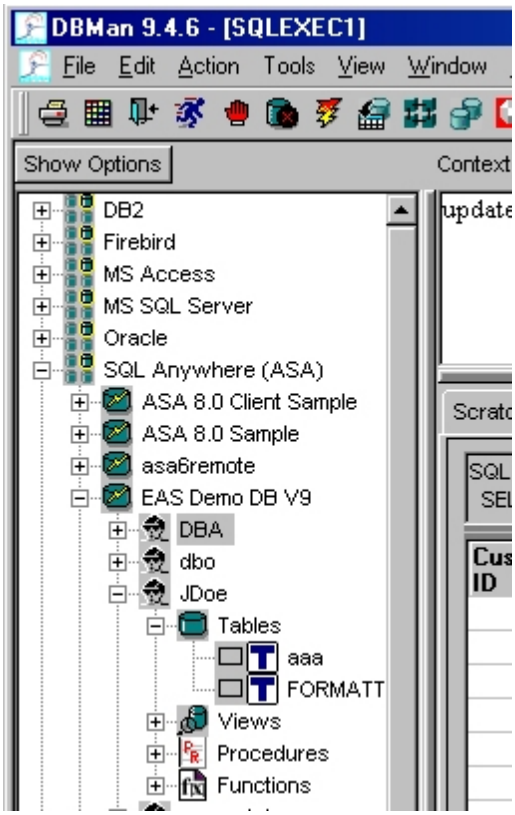
The tree view area includes 2 other objects to include any other vendors, but with less features: **GENERIC** and **OTHER**.

- **GENERIC** is used to include an ODBC API set of extended features, but not the full range of features

available to the main DB Vendors.

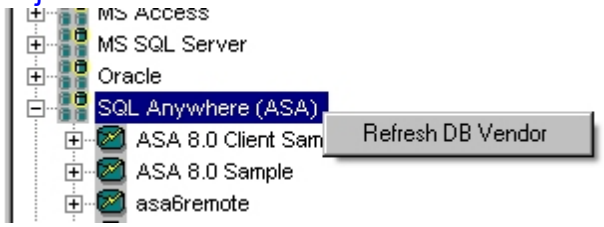
- **OTHER** has the most limited access to databases, with most of the action occurring only within the SQL Input Area.

You can find out what options are available to you at each Tree View Level by right-clicking on an object and viewing the popup menu choices. You can double click on a table to automatically retrieve its contents in a new tab in the SQL Output Area. Checkboxes are associated with Tables for multiple selection options at the Tables Tree level or the individual table level immediately below them. Thus, you can check 3 tables marked for the Truncate option. This action is similar to how the PipeIt interface works with checked tables.



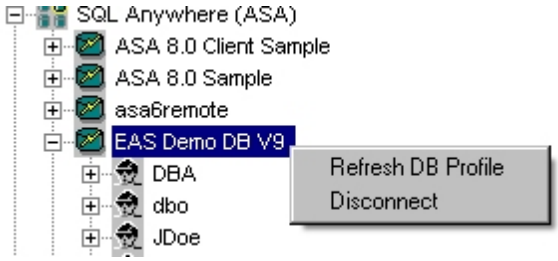
Tree View Area Popup Menu Options

Vendor Level Option: **Refresh DB Vendor**. You can automatically disconnect from each underlying DB Profile and release all resources. After a refresh, only the DB Profile Level objects remain under the DB Vendor.



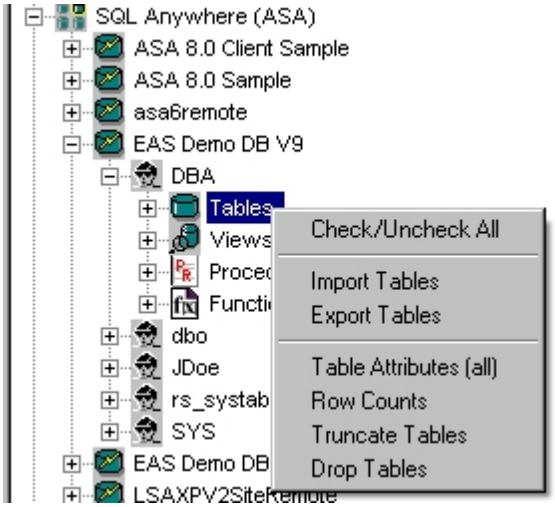
DB Profile Level Options

Refresh DB Profile and **Disconnect**. These options do not appear when the DB Profile is not connected. But once connected, you can disconnect and refresh the schema objects for that DB Profile.



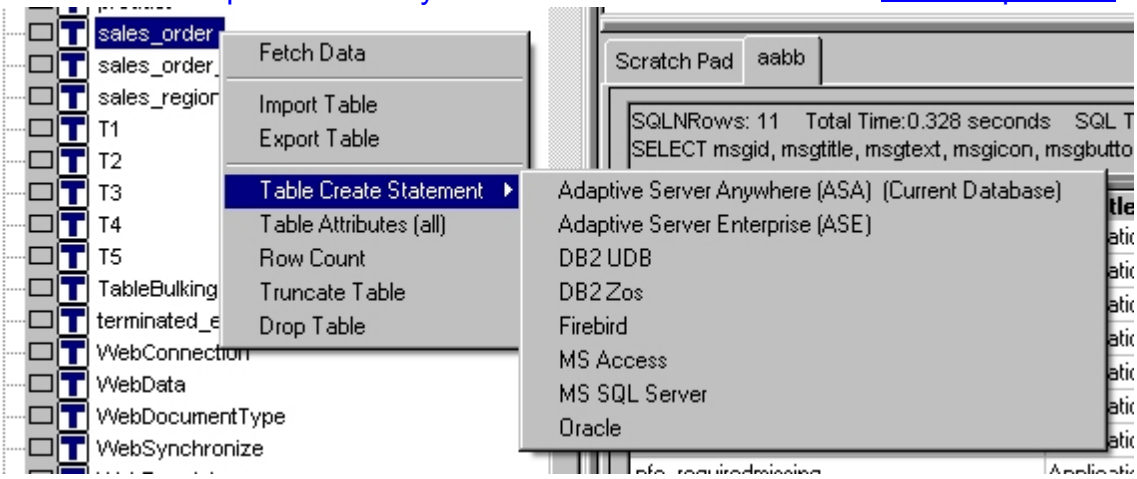
Schema Level Object Options

Tables options only exist at this level. **Tables** - Multi-table actions are available for all tables that are checked under this level. At this level and the level under it is where the most robust options are found. It is at the tables/table levels where you can generate the table create statement for your target database vendor, view table attributes (columns, keys, indexes, and triggers), export data, etc. For Oracle, you can even generate **SQL Loader** control files, and it will also create a batch file to invoke those control files that you create. One batch file is created and 1 or more CTL files are created depending on how many tables are checked. Similarly for Sybase (ASE), you can generate one **BCP** export batch file for each table selected and an associated BCP format file for each table. Use **ISQL -v** to find the TDS version. It's the first number or decimal number in the output, usually the second parm delimited by a forward slash. Double-click a table to bring up the retrieve criteria prompt for that table if **Criteria Prompt** checkbox is checked. Otherwise, all rows for that table are automatically retrieved, unless option **Retrieve As Needed** is checked.



Object Level Options for Individual Tables

Each table has similar options to those under its parent, Tables, at the individual table level. Note the second picture where you see the table attributes in the SQL Output area.



For more details on import and export options, please read the Import And Export Details section.

Object Level Options for Views, Stored Procedures, Functions, and Oracle Packages

You can view object definitions for Views, Functions, Stored Procedures, and Packages by invoking the item's popup menu (right mouse click). For all of the above, except views, you can also double-click on them to view the object definition. If connected to Oracle, you have the additional option of compiling these objects using the popup menu.

SQLEXEC: Import And Export Details

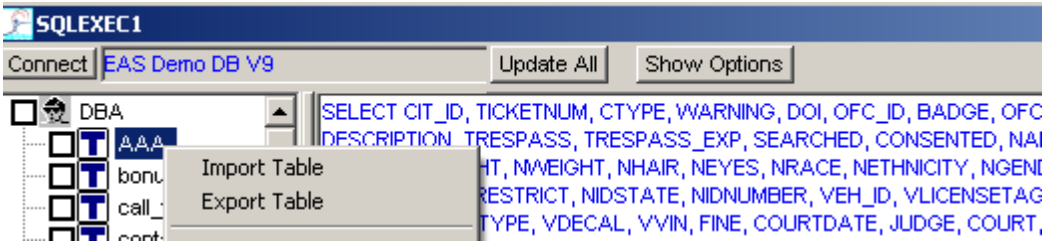
You can import data directly into a datawindow by using the popup menu options. You can export data in 2 ways: using the datawindow menu options for a specific tab in the SQL Output Area or the popup menu option (Export Table) for the table under the Tree View Area . With the table list menu option, you can export data and optionally the DDL statements to create the table.

Triggers are not supported in the import or export functionality. You must extract them using some other database management tool.

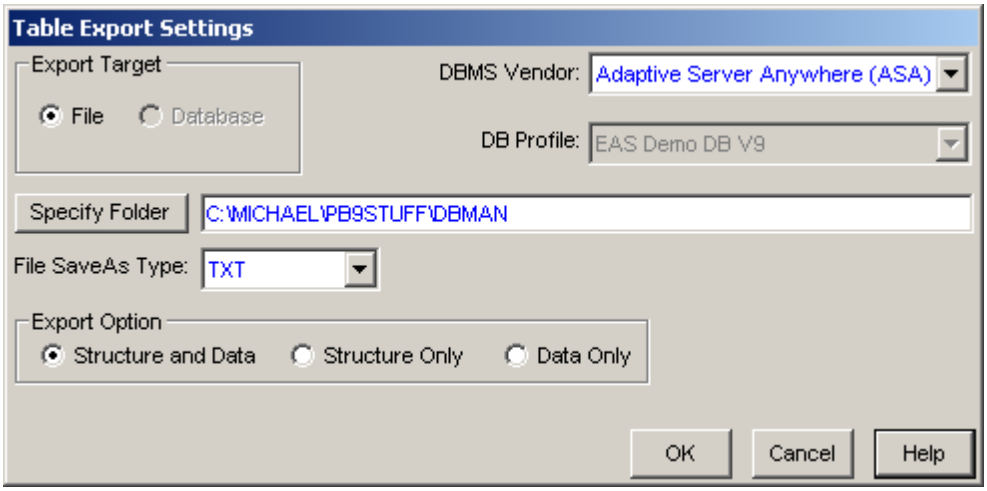
Import files must be Text (tab delimited) or CSV (Comma delimited). Export files can be one of many output file format options.

The datawindow options for import and export as shown below.

The table menu option under the Tree View Area for exporting is shown below.



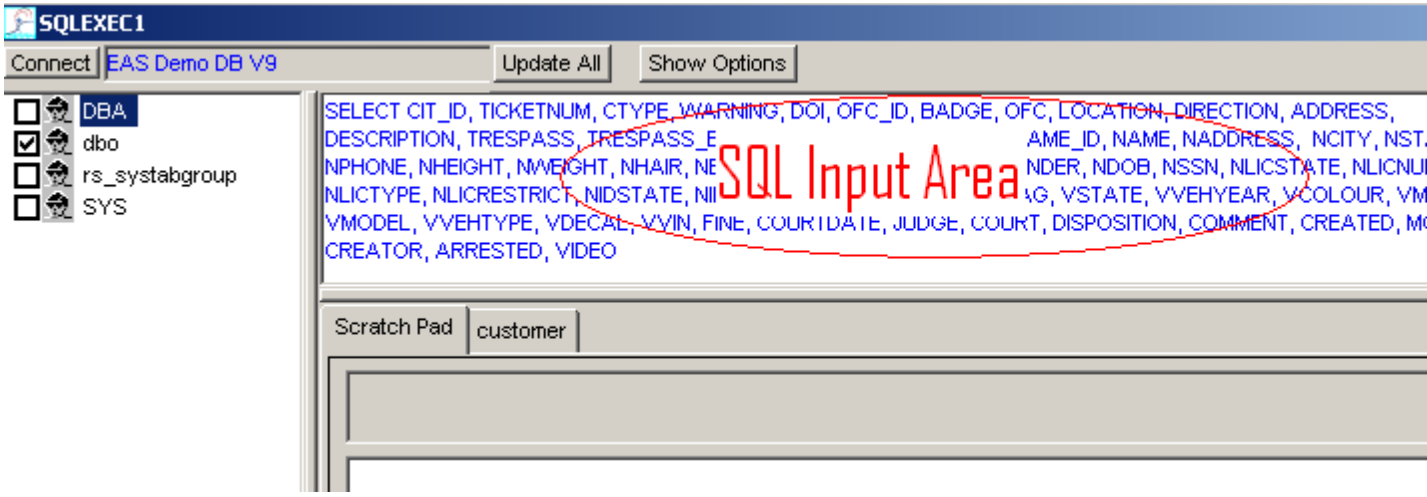
The export options window appears when Export Table is selected.



SQL Input Area

The SQL Input Area is that area to the right of the Tree View Area and above the tab result panes. It is here where you can manually insert SQL statements and execute them.

- If you are connected to Oracle, you can also execute PL/SQL statements in this area by selecting the **Execute as PL/SQL** popup menu option.
- If you are connected to Sybase (ASE), you can also execute Transact SQL statements in this area by selecting the **Execute as ISQL** popup menu option.
-



All input SQL must be terminated with an SQL delimiter, and this delimiter must be the last character(s) on a line. By default, this is a semicolon, but you can change it through the general options panel. This is helpful when you want to use the current delimiter as part of your sql statement. If you use the keyword, **GO**, as your delimiter (Transact SQL), then it must appear on a separate line by itself. An SQL Statement may encompass multiple lines, but no 2 SQL Statements may share the same line.

To execute the SQL, simply press the Running Man Icon on the toolbar or use the hot keys, CTRL-L.

SQL statements can be executed in the following ways:

- All SQL statements in the input area are executed if nothing is highlighted.
- All highlighted SQL statements in the input area are executed, or
- the current line is executed by right-clicking on the line to execute.

If **autocommit** is turned off, then you must manually enter a **Commit** or **Rollback** statement to saves any changes. You can make Commits automatic by checking the **AutoCommit** checkbox after pressing **Show Options**.

You may comment out lines with the following formats:

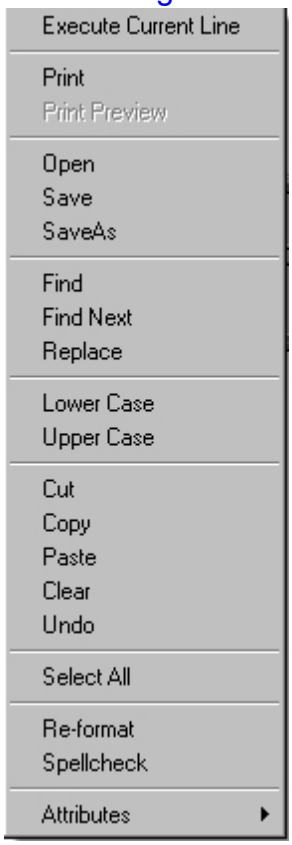
- *//* comment line indicator as the first characters on a line: // This is an example

- **--** comment line indicator as the first characters on a line: -- This is an example too
- **/* ... */** the standard C comment delimiters which can span multiple lines: /* my commented stuff */

Use the keyword "EXEC" or "EXECUTE" before any stored procedure call. Also, use this keyword for any commands that do not return an SQL buffer area.

You can repeatedly execute the last paste or undo command by pressing the <F5> key when the SQL Input Area is in focus.

A popup menu is associated with the SQL input area. Right-mouse click in this area to see the following choices.



Stored Procedure Invocation

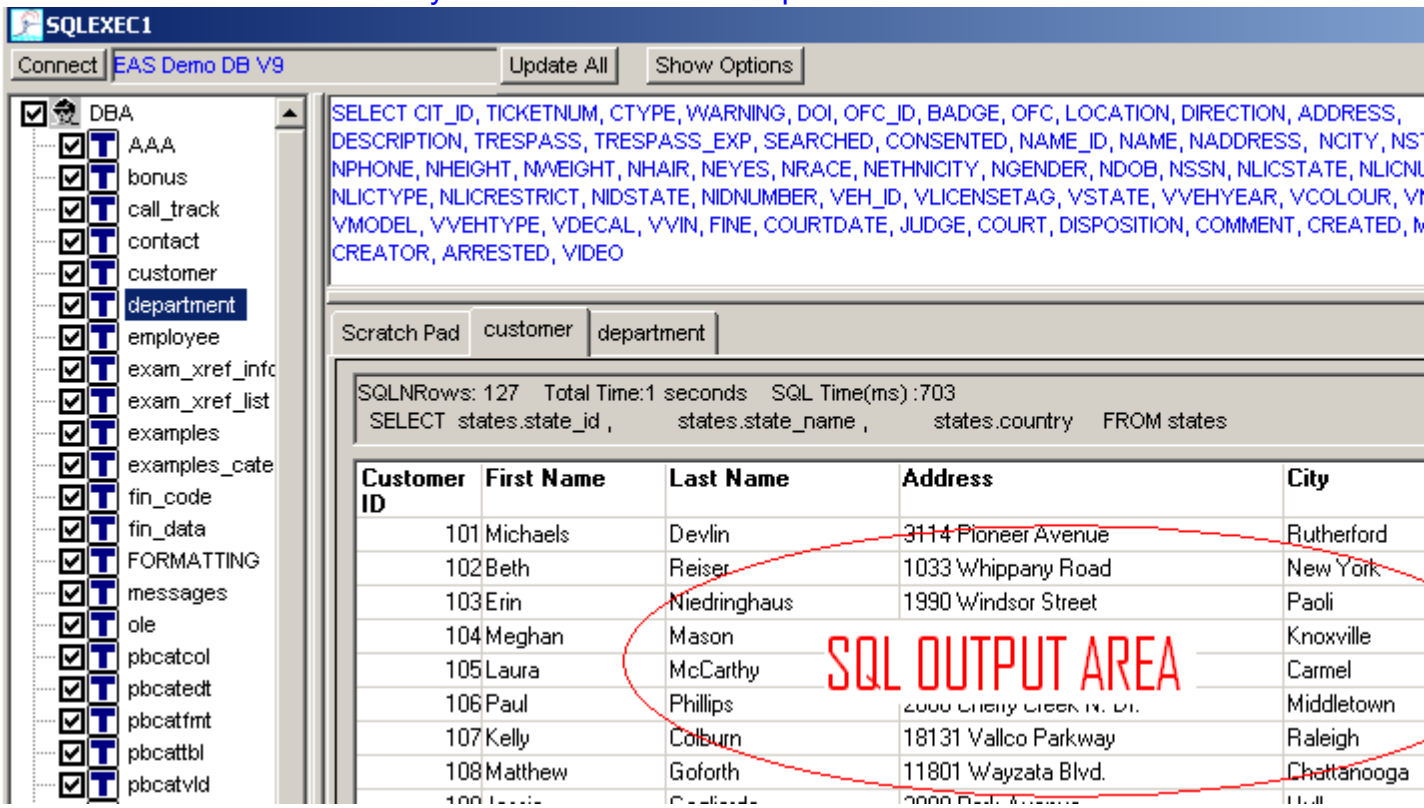
You can execute stored procedures from the SQL Input area as the following example illustrates:

```
exec sp_customer_products(101);
```

DBMan does not support stored procedure result sets of more than 1.

SQL Output Area

The SQL Output area consists of the **tab pages** area below the SQL Input Area and to the right of the Tree View Area pane. A **tab page** consists of the **tab**, **tab summary area** (shows sql statement that was executed, duration, errors), and the **datawindow** where results are returned. Each SQL statement executed results in a new tab page, where you have a robust set of actions that can be executed against this result set using the popup menu (right-clicking on the datawindow of a tab page). The first tab is reserved for the Scratch Pad. It is functional only when the Scratch Pad option is checked.



If the results are updatable, you may change values in the results window and save those changes back to the database without using direct SQL. Just right-click in the datawindow (results window area), and select the **Update** popup menu action.

You can keep adding result tabs if the **Refresh Tabs** option is not checked. Otherwise, the tabs are removed each time an SQL statement is executed. Right-click a tab to get a prompt to delete the tab. Double-click a tab or right-double-click on the tab left or right arrows to get a prompt to delete all the tabs. If the **Scratch Pad** option is checked, then each SQL statement executed reuses the same scratch pad tab.

Double-click a text column in the results window to see its values in expanded view mode. This feature only works when the "Tabs Enabled" option is checked. For certain columns, the values appear in expanded, formatted view. For all other text column values, the data is displayed with rich text edit features. When "RTE Mode" is in effect (general tab on options window), data is also saved to "TEXT.RTF" in the program directory.

Test Expression description. DBMan can do PB datawindow validation stuff, or business rule validations. Execute any sql that populates the tab datawindows. Then right-mouse click to bring up the popup menu and select "Test Expression". You get a response window where you can input an expression, hit the OK button, and see the results populated in the

results field. You can manipulate it to do what you really want it to do by manipulating the SQL that generates the results. For example, using this sql-->

```
select 'Virginia' as state,lname from customer;
```

We use constants to create testing scenarios where we can manipulate the test values using valid test column names as in the case where we hard-code "Virginia" as the returned state. So you can test different scenarios by hard-coding test values with the test column name, i.e., "Virginia" is the test value for the test column, "state".

Oracle Log Miner Support

This feature uses Oracle's Log Miner APIs to extract database data from the log files, not the database. This is useful for creating transaction update records to use in propagating changes from a operational database to a data warehouse for example. By using the log files, there is no database contention and it is more efficient to extract changes from the log files rather than an Oracle database connection using SQL.

This feature works in conjunction with Oracle's Log Miner utility for extracting information from the
REDO logs. The steps involved:

1. DBMAN: Select Table keys and columns to be extracted from the Redo logs.
   Action->Oracle->Log Miner->Fetch Log Miner Table\Column Grid
2. DBMAN: Generate the script file to be used by the DBManLogMiner.EXE.
   Action->Oracle->Log Miner->Generate Log Miner Script File
3. Run the DBManLogMiner.EXE batch program, which is included with the DBMan distribution.

An example script file generated by DBMAN:

```
--------------------------------------------------------------------------------
-- LOGMINER SCRIPT GENERATION.  SCHEMA:MV01  DateTime: 2003-10-27-15.46.33
-- TABLE:LOGMINER  FILE:LOGMINER.txt  FILEFORMAT:STANDARD  KEYS:2  COLUMNS:3  FIELDSIZE:COMPACT
LOOKUPMODE:NONE
-- KEY FIELDS:key1,NUMBER,6,N;key2,NUMBER,6,N;
-- COLUMN FIELDS:field1,NUMBER,6,N;field2,CHAR,2,N;field3,CHAR,3,N;
-- TABLE:LOGMINER2  FILE:LOGMINER2.txt  FILEFORMAT:CSV  KEYS:2  COLUMNS:2  FIELDSIZE:MAXSIZE  LOOKUPMODE:NONE
-- KEY FIELDS:key1,NUMBER,6,N;key2,NUMBER,6,N;
-- COLUMN FIELDS:field1,NUMBER,6,N;field2,CHAR,2,N;
-- SQL SHORT SELECT FOLLOWS...
SELECT seg_name, operation, scn, row _id, timestamp, session#, sql_redo  FROM SYS.V_$LOGMNR_CONTENTS   WHERE
OPERATION IN ('COMMIT','ROLLBACK','INSERT','UPDATE','DELETE')  AND (OPERATION IN ('COMMIT','ROLLBACK') OR  SEG_NAME
IN ('LOGMINER','LOGMINER2'))
-- SQL LONG SELECT FOLLOWS...
SELECT seg_name, operation, scn, row _id, timestamp, session#, sql_redo, dbms_logmnr.mine_value(redo_value,
'MV01.LOGMINER.KEY1') as "MV01_LOGMINER_KEY1_KEY", dbms_logmnr.mine_value(redo_value, 'MV01.LOGMINER.KEY2') as
"MV01_LOGMINER_KEY2_KEY", dbms_logmnr.mine_value(redo_value, 'MV01.LOGMINER.FIELD1') as "MV01_LOGMINER_FIELD1",
dbms_logmnr.mine_value(redo_value, 'MV01.LOGMINER.FIELD2') as "MV01_LOGMINER_FIELD2",
dbms_logmnr.mine_value(redo_value, 'MV01.LOGMINER.FIELD3') as "MV01_LOGMINER_FIELD3",
dbms_logmnr.mine_value(redo_value, 'MV01.LOGMINER2.KEY1') as "MV01_LOGMINER2_KEY1_KEY",
dbms_logmnr.mine_value(redo_value, 'MV01.LOGMINER2.KEY2') as "MV01_LOGMINER2_KEY2_KEY",
dbms_logmnr.mine_value(redo_value, 'MV01.LOGMINER2.FIELD1') as "MV01_LOGMINER2_FIELD1",
dbms_logmnr.mine_value(redo_value, 'MV01.LOGMINER2.FIELD2') as "MV01_LOGMINER2_FIELD2" FROM
SYS.V_$LOGMNR_CONTENTS   WHERE OPERATION IN ('COMMIT','ROLLBACK','INSERT','UPDATE','DELETE')  AND (OPERATION IN
('COMMIT','ROLLBACK') OR  SEG_NAME IN ('LOGMINER','LOGMINER2'))
```

DBManLogMiner

This program takes one parameter, the location of the initialization file needed by the program. A sample
Initialization file follows:

```
[GENERAL]
SQLMETHOD=LONG
WORKINGDIRECTORY=c:\michael\pb9stuff\dbman
SCRIPTFILE=c:\michael\pb9stuff\dbman\logminer2.cmd
DICTIONARYFILE=D:\Oracle\Oradata\TSH1\Archive\TSH1dict.ora
MEMORYBUFFER=100000000
DEBUG=Y
SIMULATION-UNCOMMITTEDMODE=N
SIMULATION-BYPASSRETRIEVEMODE=N
STATUSINTERVAL=1000
```

[LOG FILES]
D:\Oracle\Oradata\TSH1\Archive\REDO1.LOG
D:\Oracle\Oradata\TSH1\Archive\REDO2.LOG

The 2 main Log Miner APIs are MINE_VALUE and COLUMN_PRESENT as illustrated below.
Log Miner records were generated using the Supplemental logging facility in Oracle, so we could get records on a table\column basis, and not the whole database. The following example documents the entire setup for the Log Miner test environment.

A Setup Example for Log Miner

1. Create the sample tables using the following DDL:

```
Create Table MV01.LOGMINER (
  KEY1 NUMERIC(5,0) NOT NULL,
  KEY2 NUMERIC(5,0) NOT NULL,
  FIELD1 NUMERIC(5,0) NOT NULL,
  FIELD2 CHAR(1) NOT NULL,
  FIELD3 CHAR(2) NOT NULL);
CREATE UNIQUE INDEX LOGMINERK1 ON MV01.LOGMINER (KEY1, KEY2);
ALTER TABLE MV01.LOGMINER ADD CONSTRAINT LOGMINERPK1 PRIMARY KEY (KEY1, KEY2);
Create Table MV01.LOGMINER2 (
  KEY1 NUMERIC(5,0) NOT NULL,
  KEY2 NUMERIC(5,0) NOT NULL,
  FIELD1 NUMERIC(5,0) NOT NULL,
  FIELD2 CHAR(1) NOT NULL,
  FIELD3 CHAR(2) NOT NULL);
CREATE UNIQUE INDEX LOGMINER2K1 ON MV01.LOGMINER2 (KEY1, KEY2);
ALTER TABLE MV01.LOGMINER2 ADD CONSTRAINT LOGMINER2PK1 PRIMARY KEY (KEY1, KEY2);
```

2. SYS userid is required to work with Log Miner. If you are using DBMan, make sure you are using the PB native oracle driver, DBMS= O90 Oracle9i (9.0.1), and that you have the following DBParm: ConnectAs='SYSDBA'.

3. To install the logminer packages you need the run the scripts as SYS userid:
$ORACLE_HOME/rdbms/admin/dbmslm.sql and
$ORACLE_HOME/rdbms/admin/dbmslmd.sql.

4. Change ora init file parameter LOG_ARCHIVE_START=TRUE so logs automatically generated,
requiring no manual intervention.

5. Make sure Oracle is running in archive log mode before recording transactions to capture in the log files. Execute the following query to determine archive log mode:
select log_mode from v$database;
IF value=NOARCHIVELOG then need to do an alter database archivelog command.

6. This example uses supplemental logging to generate the target data in the REDO log files.

```
ALTER TABLE MV01.LOGMINER ADD SUPPLEMENTAL LOG GROUP LOGMINERGROUP ( key1, key2, field1, field2, field3)
ALWAYS;
ALTER TABLE MV01.LOGMINER2 ADD SUPPLEMENTAL LOG GROUP LOGMINER2GROUP ( key1, key2, field1, field2, field3)
ALWAYS;
--DROP SUPPLEMENTAL LOG GROUP LOGMINERGROUP
```

7. Create 2 Redo log groups for collecting test data, and remove all other log files after issuing FORCE CHECKPOINTS on them.

```
ALTER DATABASE ADD LOGFILE GROUP 1 ('D:\ORACLE\ORADATA\MVITALE\REDO1.LOG') SIZE 1024K;
ALTER DATABASE ADD LOGFILE GROUP 2 ('D:\ORACLE\ORADATA\MVITALE\REDO2.LOG') SIZE 1024K;
```

8. Using 2 separate database profiles (to ensure concurrent connection sessions) and 2 instances of SQLExec interfaces within DBMan, execute the following SQL making sure you are connecting with AUTOCOMMIT=FALSE.

```
SQLEXEC1:
insert into MV01.LOGMINER (KEY1,KEY2,FIELD1, FIELD2, FIELD3) VALUES (1,1,1,'a','aa');
insert into MV01.LOGMINER (KEY1,KEY2,FIELD1, FIELD2, FIELD3) VALUES (2,2,1,'a','aa');
insert into MV01.LOGMINER2 (KEY1,KEY2,FIELD1, FIELD2, FIELD3) VALUES (1,1,1,'a','aa');
insert into MV01.LOGMINER2 (KEY1,KEY2,FIELD1, FIELD2, FIELD3) VALUES (2,2,1,'a','aa');
commit;
update MV01.LOGMINER SET FIELD3  = 'bb' w here KEY1 = 1 and KEY2 = 1;
update MV01.LOGMINER2 SET FIELD3 = 'bb' w here KEY1 = 2 and KEY2 = 2;
update MV01.LOGMINER SET FIELD3  = 'cc' w here KEY1 = 1 and KEY2 = 1;
update MV01.LOGMINER2 SET FIELD3 = 'cc' w here KEY1 = 2 and KEY2 = 2;
rollback;

SQLEXEC1:
update MV01.LOGMINER SET FIELD3  = 'bb' w here KEY1 = 1 and KEY2 = 1;
update MV01.LOGMINER2 SET FIELD3 = 'bb' w here KEY1 = 1 and KEY2 = 1;
update MV01.LOGMINER SET FIELD3  = 'cc' w here KEY1 = 1 and KEY2 = 1;
update MV01.LOGMINER2 SET FIELD3 = 'cc' w here KEY1 = 1 and KEY2 = 1;

SQLEXEC2:
update MV01.LOGMINER SET FIELD3  = 'bb' w here KEY1 = 2 and KEY2 = 2;
update MV01.LOGMINER2 SET FIELD3 = 'bb' w here KEY1 = 2 and KEY2 = 2;
update MV01.LOGMINER SET FIELD3  = 'cc' w here KEY1 = 2 and KEY2 = 2;
update MV01.LOGMINER2 SET FIELD3 = 'cc' w here KEY1 = 2 and KEY2 = 2;

SQLEXEC1:
commit;

SQLEXEC2:
commit;

SQLEXEC1:
update MV01.LOGMINER SET FIELD3  = 'dd' w here KEY1 = 1 and KEY2 = 1;
update MV01.LOGMINER2 SET FIELD3 = 'dd' w here KEY1 = 1 and KEY2 = 1;
```

9. Begin preparation for moving the REDO logs to the target Log Miner directory. Issue FORCE CHECKPOINTS on REDO1 and REDO2. Create 2 dummy Redo logs and switch them so that REDO1 and REDO2 are **inactive**.

10. Manually create the directory structure in explorer: <oracle home>\Oradata\TSH1\Archive

11. Issue a checkpoint on the specific REDO log files that you want to use as input to Logminer and then switch them from **active** or **current** to **inactive**. Copy them from the ORACLE redo log directory to target dictionary directory (<oracle home>\ORADATA\TSHI\Archive).

12. Set the INIT.ORA parameter: UTL_FILE_DIR=D:\Oracle\Oradata\TSH1\Archive. Then restart the database for the change to take effect.

13. Build the Logminer dictionary.

```
EXECUTE Dbms_Logmnr_D.Build(dictionary_filename =>'TSH1dict.ora', dictionary_location => 'D:\Oracle\Oradata\TSH1\Archive');
DBMAN: EXXEC Dbms_Logmnr_D.Build(dictionary_filename =>'TSH1dict.ora', dictionary_location =>
'D:\Oracle\Oradata\TSH1\Archive');
```

14. At this point, you are ready to execute DBManLogMiner.EXE. Check the initialization file for this program, DBManLogMiner.ini and make sure you have all the parameters set.

15. Instructions for manually viewing and extracting Log Miner data using DBMan follow.

16. Connect to Oracle with user SYS as SYSDBA. (See step one).

17. For this example, we have 2 log files, REDO1.LOG and REDO2.LOG (attached with DBMan distribution). Issue the following commands to add these log files, start the Log Miner session, view mined data from a Log Miner view, and terminate the session.

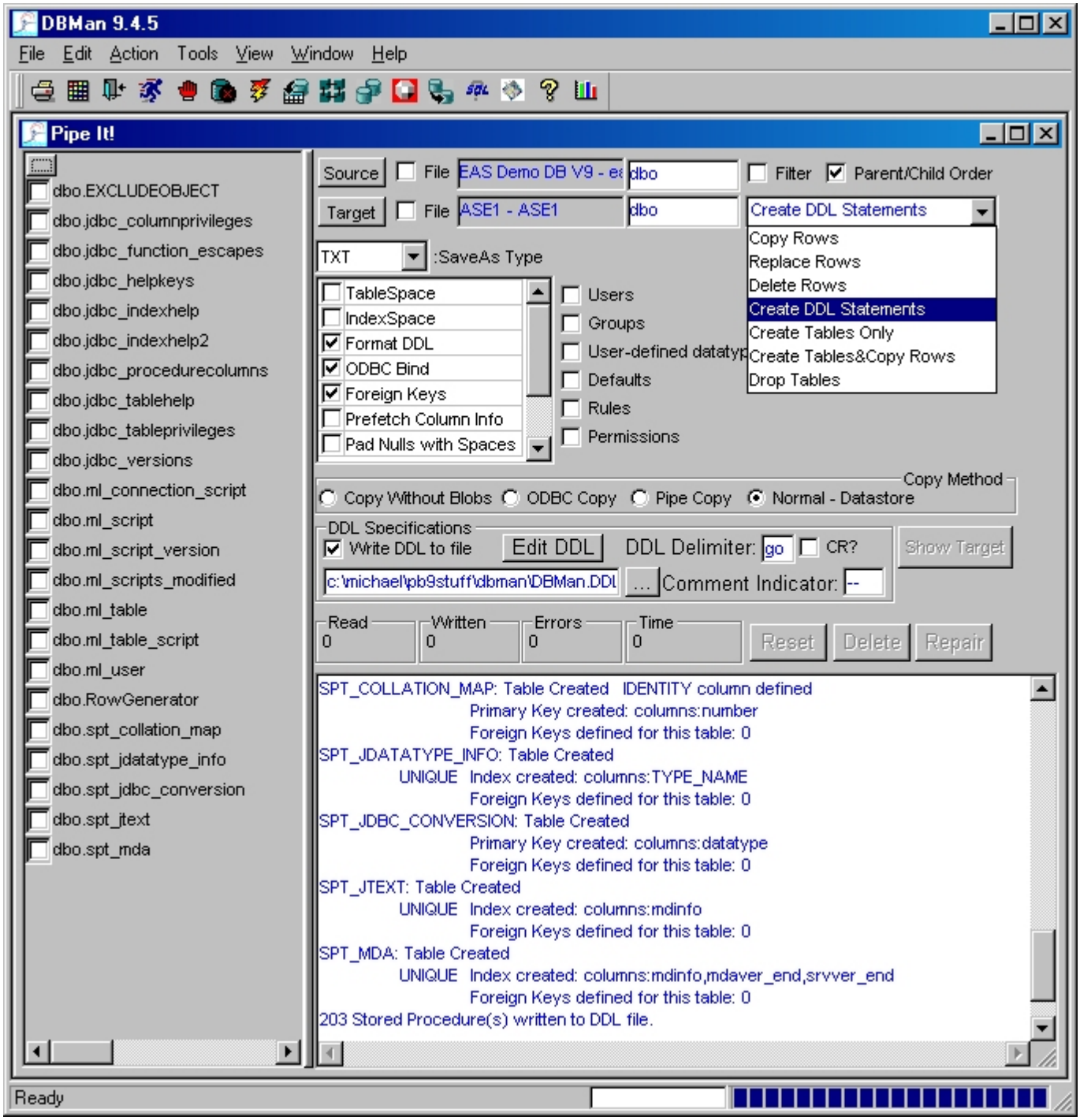
```
EXXEC sys.Dbms_Logmnr.Add_Logfile(options=> sys.Dbms_Logmnr.New , logfilename =>
'd:\oracle>\Oradata\TSH1\Archive\REDO1.LOG');
EXXEC sys.Dbms_Logmnr.Add_Logfile(options => sys.Dbms_Logmnr.AddFile, logfilename =>
'd:\oracle\Oradata\TSH1\Archive\REDO2.LOG');
EXXEC sys.Dbms_Logmnr.Start_Logmnr(dictfilename =>'d:\oracle\Oradata\TSH1\Archive\TSH1dict.ora');
SELECT dbms_logmnr.mine_value(redo_value,'MV01.LOGMINER.FIELD3') ,sql_redo,
SCN, TIMESTAMP, SEG_NAME, ROW_ID, SESSION#, SERIAL#, USERNAME, OPERATION, SQL_UNDO, STATUS,
RAWTOHEX(REDO_VALUE) as "REDO_VALUE", RAWTOHEX(UNDO_VALUE) as "UNDO_VALUE", REDO_LENGTH,
REDO_OFFSET, UNDO_LENGTH, UNDO_OFFSET
FROM v_$logmnr_contents
WHERE dbms_logmnr.mine_value(redo_value,'MV01.LOGMINER.FIELD3') IS NOT NULL
OR (dbms_logmnr.mine_value(redo_value,'MV01.LOGMINER.FIELD3') IS NULL
AND dbms_logmnr.column_present(redo_value,'MV01.LOGMINER.FIELD3') = 1);
EXXEC dbms_logmnr.end_logmnr();
```

Here is a sample output from the example execution of DBManLogMiner.EXE.

```
d:\oracle\ora92\precomp\demo\proc\sample10>dbmanlogminer logminer.ini
DBMANLOGMINER Version 1.0   October 29, 2003
Unable to open Uncommitted log file: d:\oracle\ora92\precomp\demo\proc\sample10\
LOGMINER.LOG
Assuming no uncommitted records to apply to the current session.
username: sys
password: change_on_install

Connected to ORACLE as user sys.
LogMiner session started.
Processing LogMiner records...
LogMiner session ended.
Start Time: Fri Oct 31 08:06:33 AM  End Time: Fri Oct 31 08:06:34 AM
Total Rows Processed: 529  Total Records Written: 12
2 Record(s) uncommitted --> d:\oracle\ora92\precomp\demo\proc\sample10\LOGMINER.LOG
Table: LOGMINER                    Records Written: 4
Table: LOGMINER2                   Records Written: 8
Program Completed.
```

PIPEIT

PipeIt is a useful tool for migrating, moving, or copying table structures and data from one database to another, one schema to another within the same database, file to database, or database to file. Reverse engineer a database and forward engineer it to another database vendor.



The drop down list box on the top right is where the user specifies the action to be performed for the selected tables on the left side. The results pane, which is located on the bottom right, is used to display status information, while the PipeIt action is in progress. If you are moving large amounts of data across databases, you may need to check the Rows to Disk checkbox on the General Settings tab of the Options window. Memory retrieval is assumed when this checkbox is not checked. Memory retrieval is much more efficient than

Disk retrieval. The DDL Specification section is where you specify if DDL information is written to file, what file it is written to, and what is the DDL separator to be used in that file. The rest of this section documents other details related to the PIPEIT interface.

Limitations

DBMan does not support the copying of stored procedures, triggers, or privileges. It is also limited in scope with respect to index spaces and table spaces. Currently, the database vendor support is limited:

- No support for generic database connections
- No support for Firebird or MS Access at this time.
- No Forward Engineering support for proprietary objects like triggers and stored procedures.
- Limited Cross-database object support, i.e, cross-database foreign keys, etc.

Create DDL Statements is useful for creating the table, indices, and keys. This is useful when you want to generate the DDL, but not necessarily execute it. This option is always used when creating or replacing tables.

The File checkbox is used to:
Pipe data from source files to target database.
Pipe data from source database to files.
When File checkbox for source is checked, the user is prompted for the directory location of files with a TXT extension, and displays them in the table list on the left pane. It first looks for files with _SQL.TXT patterns for determining the SQL syntax to use. If not found, it is assumed that the SQL syntax is:
SELECT * FROM <table name>
where <table name> is the file name without the TXT extension

The Parent/Child Order checkbox is used to determine the table retrieve order for the source tables as they relate to referential integrity (RI) rules. If RI is in place it is recommended that you not use REPLACE actions since operations may subsequently fail with RI constraint errors.
Checked Parent to Child order (recommended for copy action)
Unchecked Child to Parent order (recommended for delete action)

For blob transfers, it is recommended that you specify the *Pipe Copy* choice. Blob support is new, so please contact DBMan if any blob transfer errors are encountered.

Filter Feature

When filter is checked, only copy action is supported. The source data retrieved is qualified by a where clause generated from an input configuration file. The input configuration file format:
<table_name> : <where clause> <carriage return>
The where clause can contain a placeholder area where real values can be substituted at run time.
placeholder format: %%ID_<XX>%%
<XX> is a 2-digit number that can range from 01 to 99
Each value supplied is mapped to the next constant string in the where clause. Hence, if you had 2 values, "aaa" and "bbb", they would be mapped to %%ID_01%% and

%%ID_02%%, respectively.
You are prompted for the placeholder value and the location of the configuration file after the source database is connected. If you do not enter any values, then the where clause will be used "as is" with the values already provided within it. Sample Filter configuration file:

TI_ADDR_ASSOC:WHERE INTERNAL_ID = '%%ID_01%%'
TA_LEDGER:WHERE INTERNAL_ID = '%%ID_01%%' OR INTERNAL_ID2 = '%%ID_02%%'

CHECKBOX Settings

This section documents information about the checkbox settings that determine what object types are generated. Stored Procedures checkbox is the common across all DB Vendors, while the following ones are specific to Sybase ASE:

- Users
- Groups
- User-defined datatypes
- Defaults
- Rules
- Permissions

LISTBOX Settings

This section documents information about the checkbox settings in the list box.

TableSpace

Check this box if you want to add TABLE SPACE DDL information for creating tablespaces and specifying those tablespaces in the TABLE Creation DDL. Currently, DBMan assumes the tablespaces already exist in the target database, and will not attempt to create them. DBMan will however associate the table name with the table space name in the table DDL definition.

IndexSpace

Check this box if you want to add INDEX SPACE DDL information for creating tablespaces for indexes and specifying those index spaces in the TABLE Creation DDL. Currently, DBMan assumes the tablespaces already exist in the target database, and will not attempt to create them.

Format DDL

Check this box if you want to format DDL output with column definitions on indented, separate lines.

ODBC Bind

Check this box if you want to retrieve ODBC data in Bind variables instead of dynamic fetches using SQLGetData.

Foreign Keys

Check this box if you want to generate DDL for creating foreign keys, but not actually create them at this time. If checked, the DDL for foreign keys will appear in the default DDL file. You can view this information by selecting "View\Generated DDL" from the main menu.

Prefetch Column Info

Check this box if you want to retrieve DDL information for all tables and all columns before selecting any action. This speeds up the "before action" processing, but may slow down the ensuing action if most tables in the selection box are actually selected.

Pad Nulls with Space

When checked, NULL values will be replaced with a space if the target table defines that column as NOT NULL. Normally you would not check this, but certain DBMS drivers remove space-filled values when retrieved. You should only check this column if you get a warning or prompt to do so, since performance may be degraded significantly.

Enclose in quotes

When checked, the columns in the SQL statement used to retrieve data will be enclosed in quotes to avoid keyword usage errors.

Convert To Raw

This choice is for DB2/OS390 TO ORACLE DDL and data conversion. It converts certain CHAR columns in DB2 to RAW columns in ORACLE, because DB2 may have column values with invalid HEX type characters (x"07") OR low values (x"00"). In the former case, an "error in row" SQL error will be returned when the row is retrieved. In the second case, low values will be converted to an empty string when retrieved and subsequently cause an "insert null into not null column" error when the insert attempt is made to the target database. To overcome this problem, DBMan provides a solution by which you can convert columns with these characteristics into Oracle RAW columns. This will preserve any COBOL application mapping from DB2 to ORACLE and allow the data to be copied without errors.
When checked, the user has 2 choices:

- The user will be prompted to allow DBMan to dynamically detect the CHAR-RAW candidates, or
- The user will be prompted for a file location from which a list of table\columns will be converted automatically from CHAR(n) to RAW(n).

File Format: <TABLE NAME>:<column 1>,<column 2>, ...

View Raw List

When checked, the user will be view the imported CHAR-RAW conversion list.
See previous help on "Prompt: Char-Raw" for more details.

OTHER Settings

This section documents the other fields in the Pipeit window interface.

SaveAs

This dropdown list box specified the default file type with which to save data when target is file, not database.

Copy Without Blobs

When this radio button is checked, copy action will be attempted on tables that have blob-defined columns, but blob column data will not be copied. This is only attempted on blobs defined as nullable.

ODBC Copy

When this radio button is checked, the copy method will be the external ODBC driver, instead of PowerBuilder.

Pipe Copy

When this radio button is checked, the PowerBuilder PIPE copy method will used for copying data.

Normal - Datastore

When this radio button is checked, normal copy processing involving PowerBuilder datastores will used for copying data.

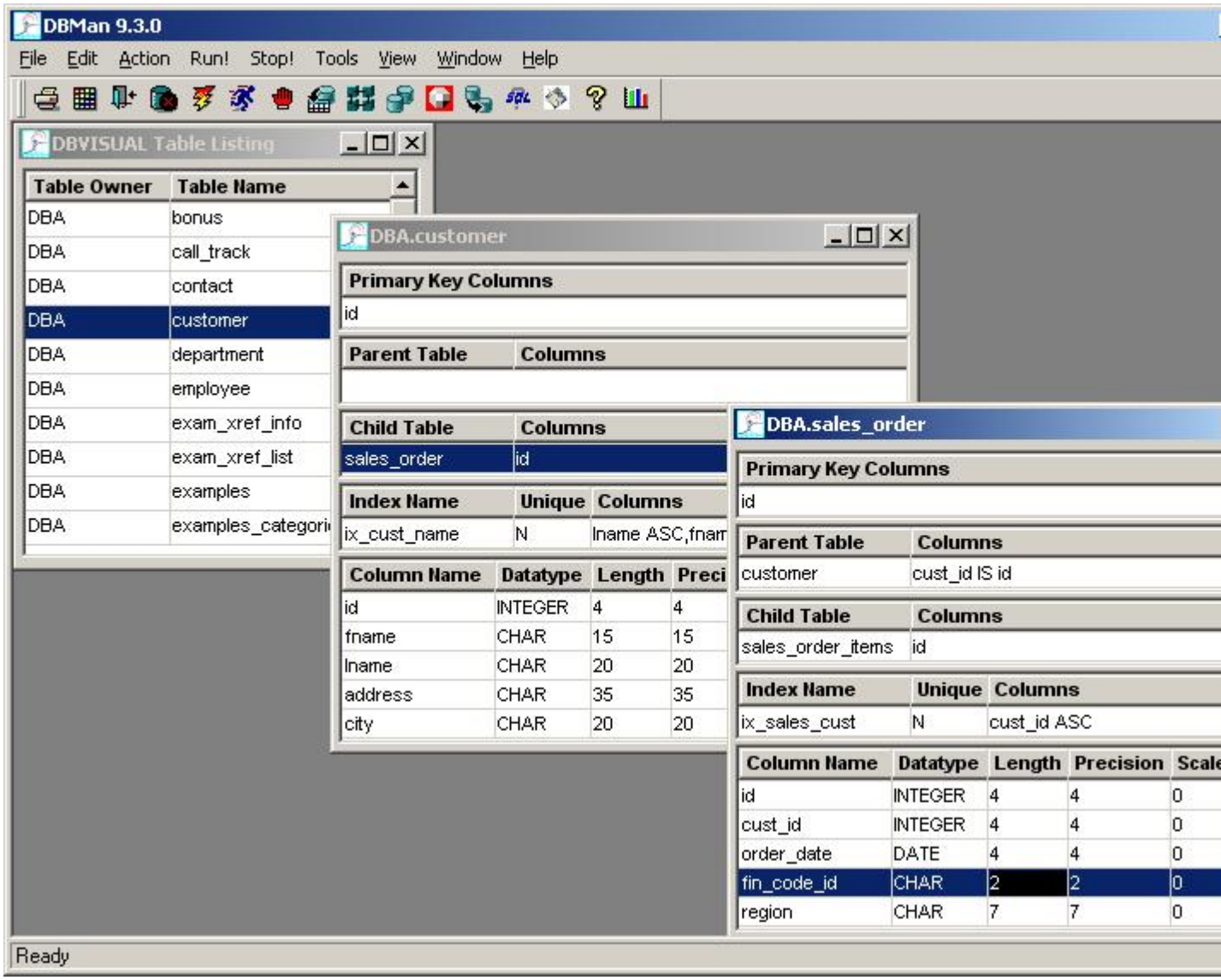
Show Target
When enabled, you can click it and modify the contents of the datawindow that was in error and try the update again.

DDL Delimiter
Specifies the statement delimiter to use in the output file.

CR?
When checked, the sql file delimiter starts on the next line. This is useful for scripts like Transact SQL where a GO statement usually follows sql statements on the ensuing line.

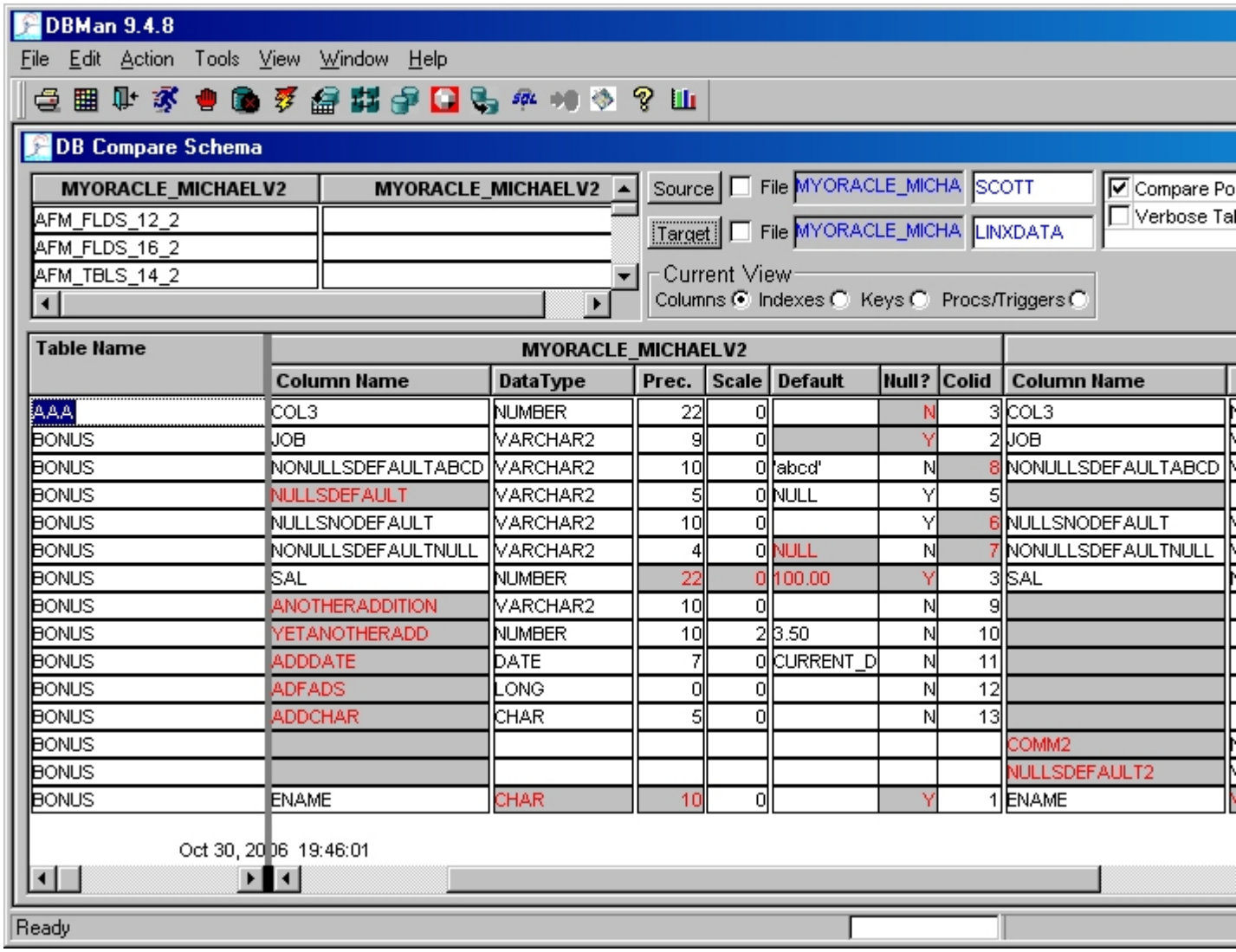
DBVISUAL

DB GUI is useful for visually viewing table DDL attributes. It is also helpful in following the chain of dependent or parent tables (primary/foreign key relationships) in a Referential Integrity environment by double-clicking on a child or parent table row, which opens up a the related table's DDL definition window.



DBSCHEMA

DB Schema Compare is used to compare DDL attributes from one database to another and across heterogeneous database vendors. It is also used to generate DDL statements on the fly to reconcile the source database to the target. This DDL-automation feature only works for column attributes at the present time via table alter statements.



Some peculiarities appear when comparing datatypes between Sybase and SQLAnywhere.
1. Creating a FLOAT column with precision 15, FLOAT(15), results in a datatype of REAL with precision 7!
2. Creating a timestamp/datetime that should have a length of 8 instead shows up as length 4!
3. INDENTITY columns show up as not null using Sybase system stored procedure, sp_syscolumns, but show up as NULL using Sybase Central! All IDENTITY column have to be NOT NULL.

DBSchema is useful for comparing one database with another. It compares the following things:
A) tables
B) columns
C) indices

D) keys
D) stored procedures/triggers (Sybase only)

You can also save the schema of either source or target for later comparison with another database. Hence, a file or database can be input as source and target. When designated a save file, 4 files
will be saved: tables, columns, index, and procs/triggers files. Each file is appended with extensions as follows:
tables --> <file name>"_tbl.txt"
columns --> <file name>"_col.txt"
indexes --> <file name>"_ind.txt"
indexes --> <file name>"_key.txt"
proc/trig--> <file name>"_obj.txt"
When importing a file to use, you must specify one of these file names.

Under the View Menu options, you can see data from the system tables that were used to determine the schema differences. These views are only available when the DBSCHEMA interface window is open.

CheckBox Options

- **Compare Positions** - When checked, column ordering positions is one of the criteria to check for column attribute differences. By default, this option is always checked. If not checked, then you may not see column ordering positions if those were the only types of changes for a particular table's columns.

- **Verbose Table DDL** - When checked, CREATE INDEX and ALTER TABLE statements appear in the DDL output when generating table DDL for source to target tables in the table list differences window on the top left hand side of the window. Otherwise, only the Table DDL, which may or may not include key information is output.

Automatic DDL Generation Feature

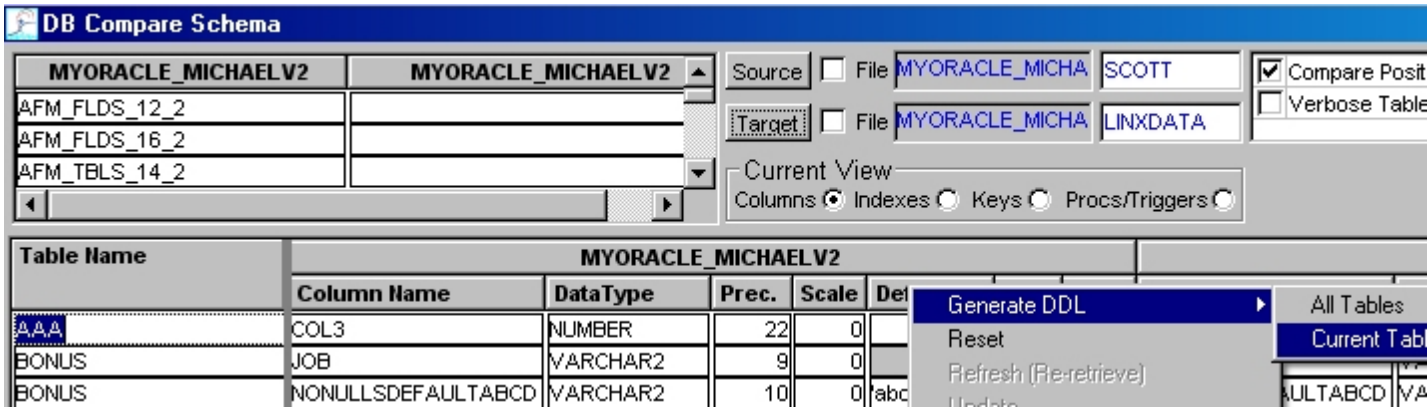
You can generate table create or alter table statements, which can can be applied against the target to reconcile source changes into the target schema. Currently, this feature only applies to the table differences and column differences data windows.

TABLE DDL Generation

Right-click on the tables differences data window and select the **Generate Table DDL** option. Table DDL for the source tables are generated in an output file with the target schema as the table qualifier, so just make sure other attributes like tablespace names are changed, if necessary. It also is only currently enabled when both the source and target are ORACLE.

Column DDL Generation

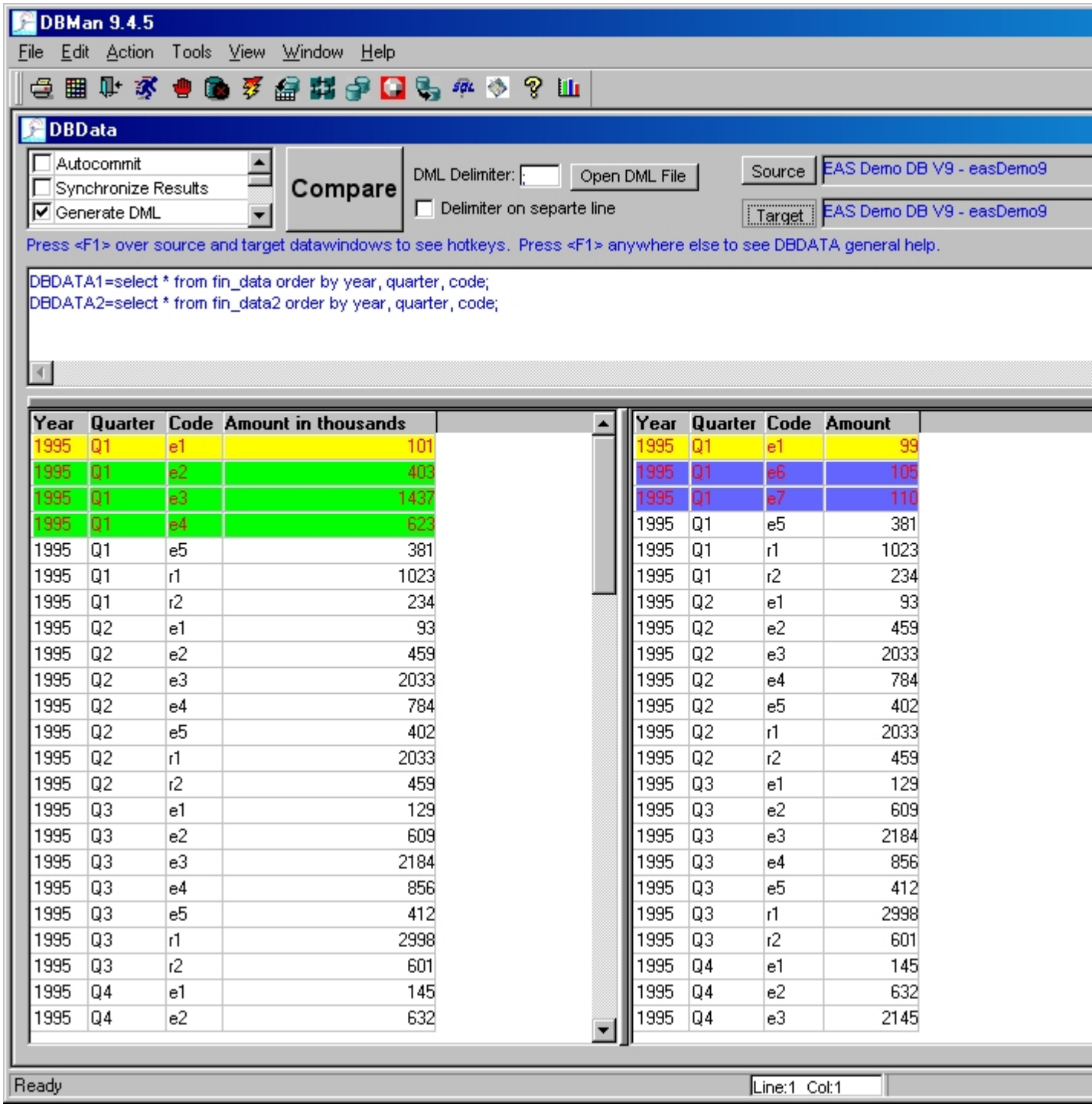
You can generate Alter table DDL statements when column differences data window is in the forefront. The DDL generated, if applied, will make the target like the source via table ALTER statements (add, drop, modify). Just right-click on any table row in the columns differences view and select the **Generate DDL** option. You can either generate Alter Table statements for the current table selected (**Current Table**) or **All Tables**.


DB Compare Schema
MYORACLE_MICHAELV2
MYORACLE_MICHAELV2
AFM_FLDS_12_2
AFM_FLDS_16_2
AFM_TBLS_14_2
Source
File
MYORACLE_MICHA
SCOTT
Target
File
MYORACLE_MICHA
LINXDATA
Compare Posit
Verbose Table
Current View
Columns
Indexes
Keys
Procs/Triggers
Table Name
MYORACLE_MICHAELV2
Column Name
DataType
Prec.
Scale
Generate DDL
Reset
Refresh (Re-retrieve)
All Tables
Current Tabl
AAA
COL3
NUMBER
22
0
BONUS
JOB
VARCHAR2
9
0
BONUS
NONULLSDEFAULTABCD
VARCHAR2
10
0
abc

DBDATA

This interface is useful for comparing data between tables in the same database or against different databases. It also can generate DML statements to reflect differences between the source (template) and target (changed template). The procedures are pretty straightforward:

- Connect to both source and target databases (they can be the same).
- Enter SQL statement(s) in the SQL Input Area.
- Execute the SQL statement(s) to retrieve data into the source and target datawindows.
- Press the **Compare** button. Presto!



You can compare results row-by-row or you can specify a unique key with which to compare the rows. By default, DBDATA provides a primary key if found or alternately a unique index as the default compare key. If you leave the compare key field empty (you are prompted for this value after pressing the **Compare** button) a row-by-row comparison is done. You can compare using different SQL statements against different databases by using the keywords, "DBDATA1" and "DBDATA2". For example,

DBDATA1=select * from fin_data order by year, quarter, code;
DBDATA2=select * from fin_data2 order by year, quarter, code;

If the same SQL statement is used, then you do not need the **DBDATA1** or **DBDATA2** keywords.

SQL Input Area

The **SQL Input Area** is the area above the source and target datawindows. It is here where SQL statements are written and submitted to the database to populate the result windows below (source and target datawindow panes).

Result Windows

The **Result Windows** are the source and target datawindow panes located below the **SQL Input Area**.
Pressing either CTRL-L (Run hot key) or Run (File menu item: Action - Run) executes the SQL statement(s) in the **SQL Input Area** and generates rows in the **Result Windows**.

CHECKBOX Descriptions

- **Autocommit** is here for Sybase specifically, since certain system stored procedures require autocommit=true to avoid "DDL in Transaction" errors.
- **Synchronize Results** controls scrolling both source and target datawindow results at the same time. The Sort and filter popup menu options affect the source and target data similarly. You cannot control them separately in this regard when **Synchronize Results** is checked.
- **Generate DML** checkbox determines whether DML statements will be generated if differences are found. DML statements generated are the difference between the source (template) and the target (changed template). It brings the source template in line with the changed template if the DML statements are applied to the source template. This is useful in development life-cycle processes for data: You can track data changes via DML statements that can be used in a version control system. You must use a tables with either a primary key or unique index as the compare key to generate DML statements. Note: You cannot use **SELECT *** type SQLs with some vendors, like Oracle, when this field is checked.
- **Row Select Mode** determines if row selection is enabled or disabled.
- **Highlight Changed Rows** If checked, then the following colors are used to identify changed rows after the comparison is completed (Pressing the **Compare** button).

GREEN:Deleted Rows
BLUE: Inserted Rows
YELLOW: Updated Rows

- **Show Changes Only** is used to show only those changed rows for insert, update, and delete differences between source and target.
- **DML: Insert Carriage Return** is used to replace hard-coded carriage returns with carriage returns embedded within the string. This is useful when you are using another tool, like Oracle's SQL*Plus to update the database with the Insert DML statements generated here. Otherwise, you may get errors when attempting to update a database.
- **DML: Key Only Update** is used to modify the type of where clause that is created for UPDATE or DELETE DML statements. When checked, the where clause consists of only the key if available. When unchecked, the where clause consists of every column in the select list. The main advantage with the Key Only Update

method is that you can trust that only rows in a target database for the given key can be changed, regardless of what the other column data values are. This is useful in the case where your target is not the actual target you will be using later. You are just using a temporary target to generate the DML statements, like in a test environment, but apply them, perhaps, against a production database in which the other non-key values are not known at the time of DML statement generation.

- **Show Diff Window** appears on top of the **SQL Input Area** when checked. It shows change details after a compare is completed. It is another way to visually analyze the changes. The color coded rows only show you whether a row is new, deleted, or updated. The Diff Window shows you exactly what columns on the row are different.

Other Settings

DML Delimiter - the end delimiter for the generated DML statements
Delimiter on separate line - indicates whether the delimiter starts on the next line (useful for Sybase "go" delimiters.
Open DML File - command button to open the DML file if it exists. DML statements are appended to this file.

Applying Changes

Don't stop with just comparing the results. You can dynamically change and update data in both the source and target datawindows before and after comparisons. Right-mouse click on a source or target datawindow and refresh the contents (**Refresh** popup menu choice) or update (**Update** popup menu choice) them if you made any changes. Repeat the comparison process until you are satisfied with the results.

Steps in Detail

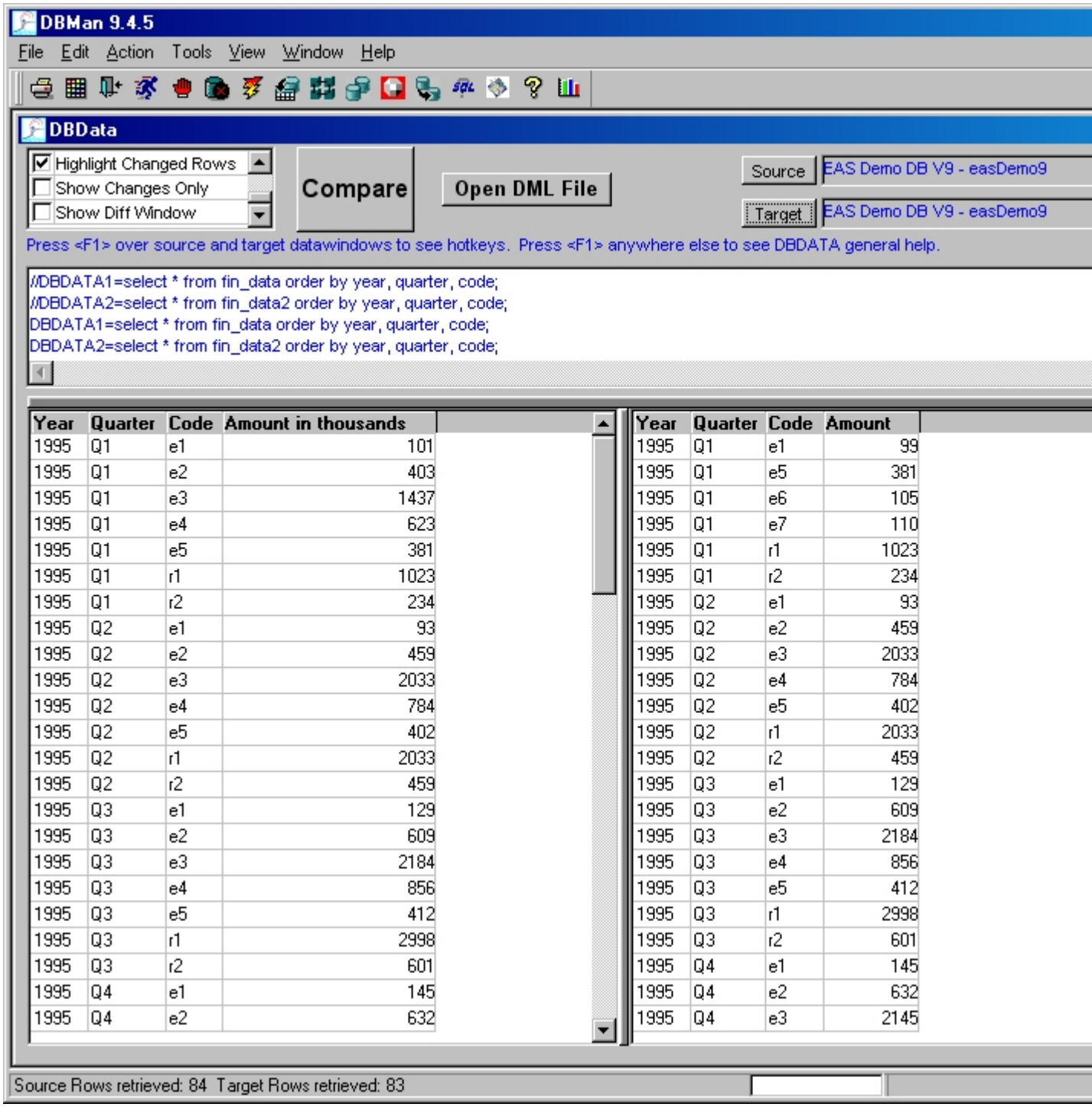
This section shows you step by step how to use this window with an example.

1. Connect to the source and target databases.
In our example, we will compare two tables in the same database so we will only connect to one database (ASA): EAS Demo DB V9 - easDemo9. Click on the Source button in the top right hand corner. Select **EAS Demo DB V9 - easDemo9** from the profile drop down list on the connection window, and press **Connect**. Do the same for the Target database using the Target button. At this point, we are connected to both source and target databases.

2. Enter SQL statements in the SQL Input Area.
We are comparing two tables in the same database. We enter the following into the SQL Input Area:

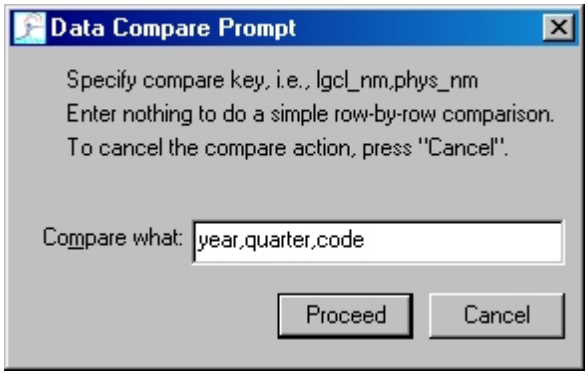
```
DBDATA1=select year, quarter, code, amount  from fin_data order by year, quarter, code;
DBDATA2=select year, quarter, code, amount  from fin_data2 order by year, quarter, code;
```

3. Execute the SQL statements to generate the result windows.
We press the hot key (CTRL-L) to execute the SQL statements. The results are populated in the source and target datawindows as shown in this screenshot:



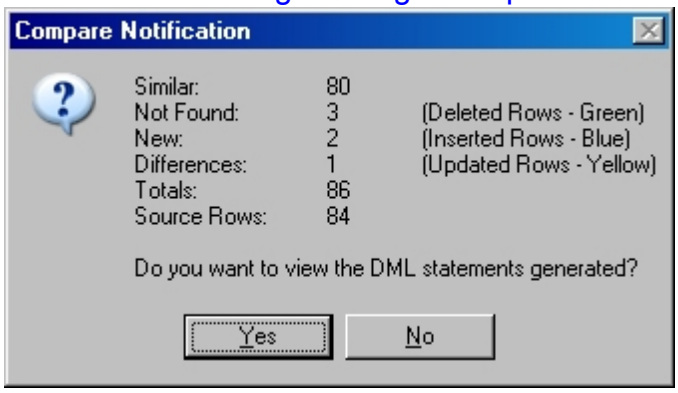
4. Do the comparison.

We press the **Compare** button to initiate the comparison process. We are first prompted to enter a comparison key. It may already be populated with either the primary key or a unique index defined on the tables. Press **Proceed** to continue.



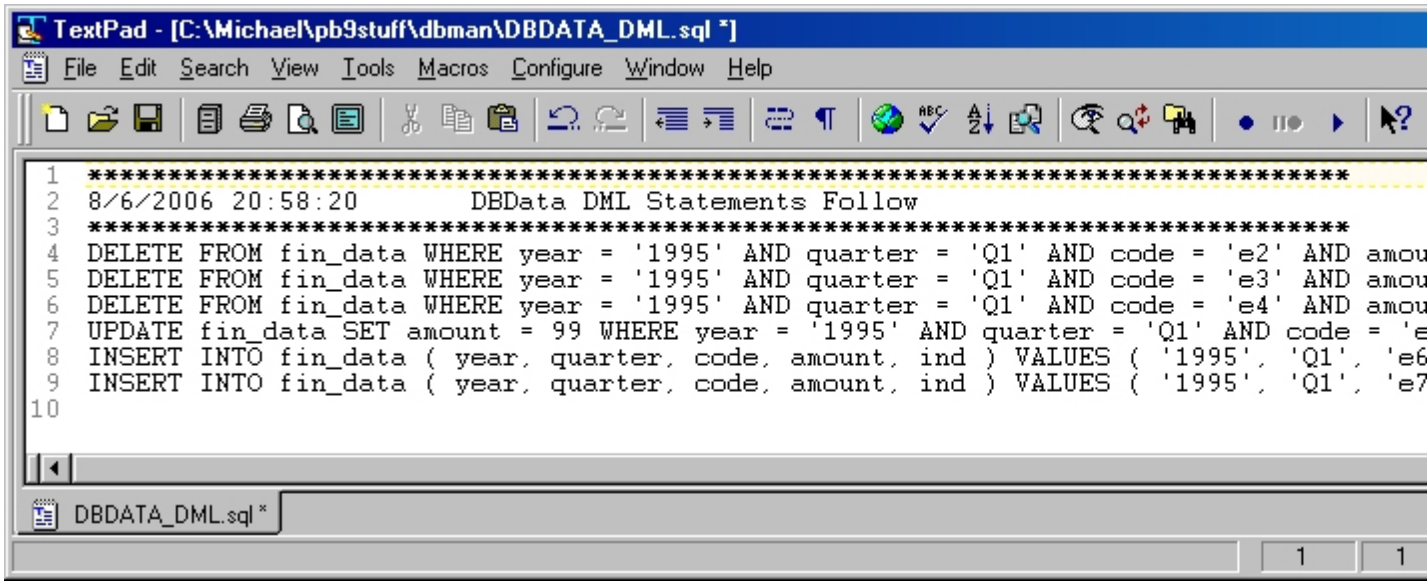
5. View the changes.

A message box appears when the comparison is complete. It summarizes row statistics for changes. If differences were found and the **Generate DML** checkbox is checked, you are prompted to open the DML script file to view the DML statements that were generated. These statements can subsequently be applied against the source template table to make it identical with the target changed template table.



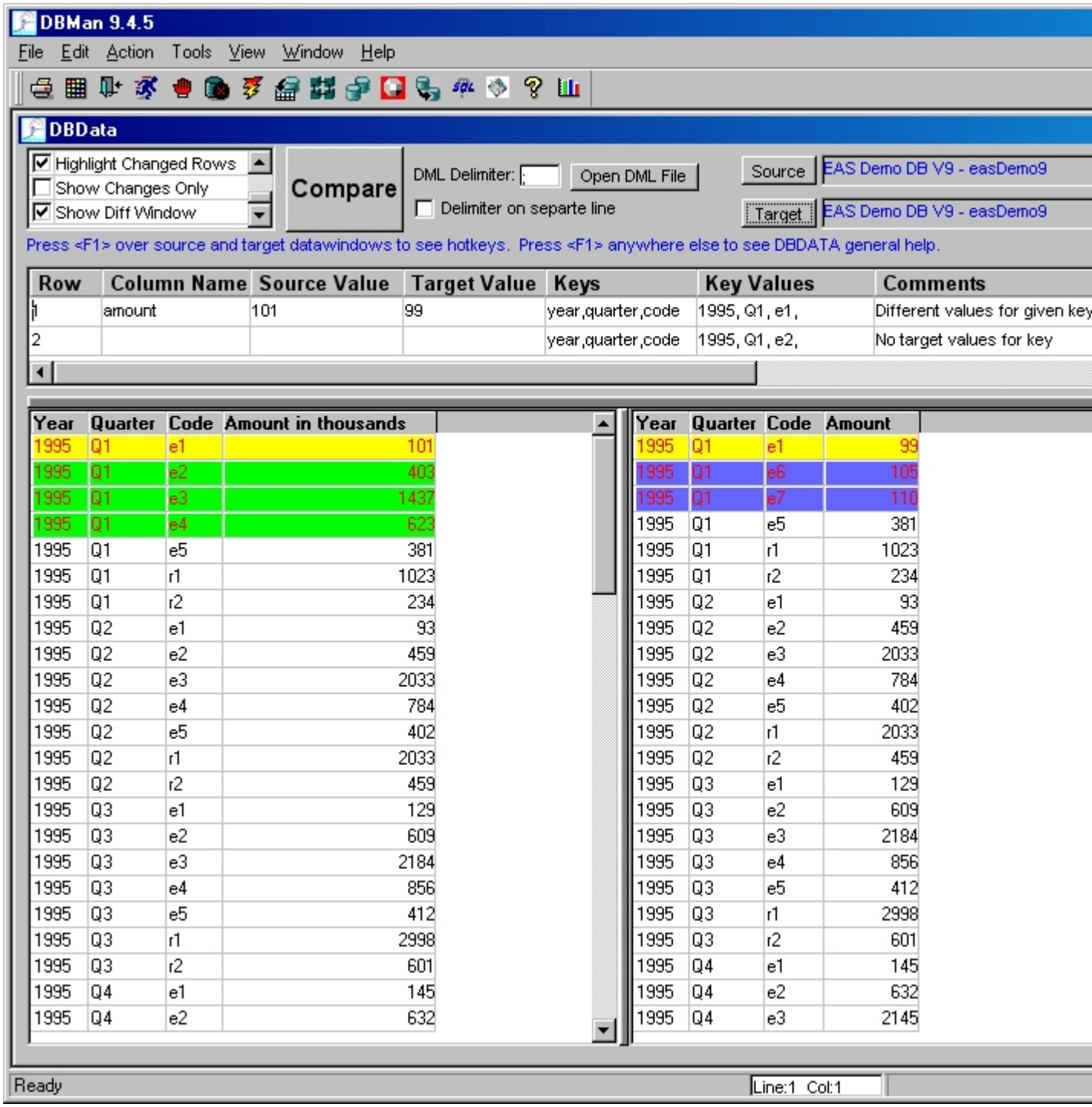
6. View DML statements.

Press **YES** to view the DML file:



7. Review source and target datawindows

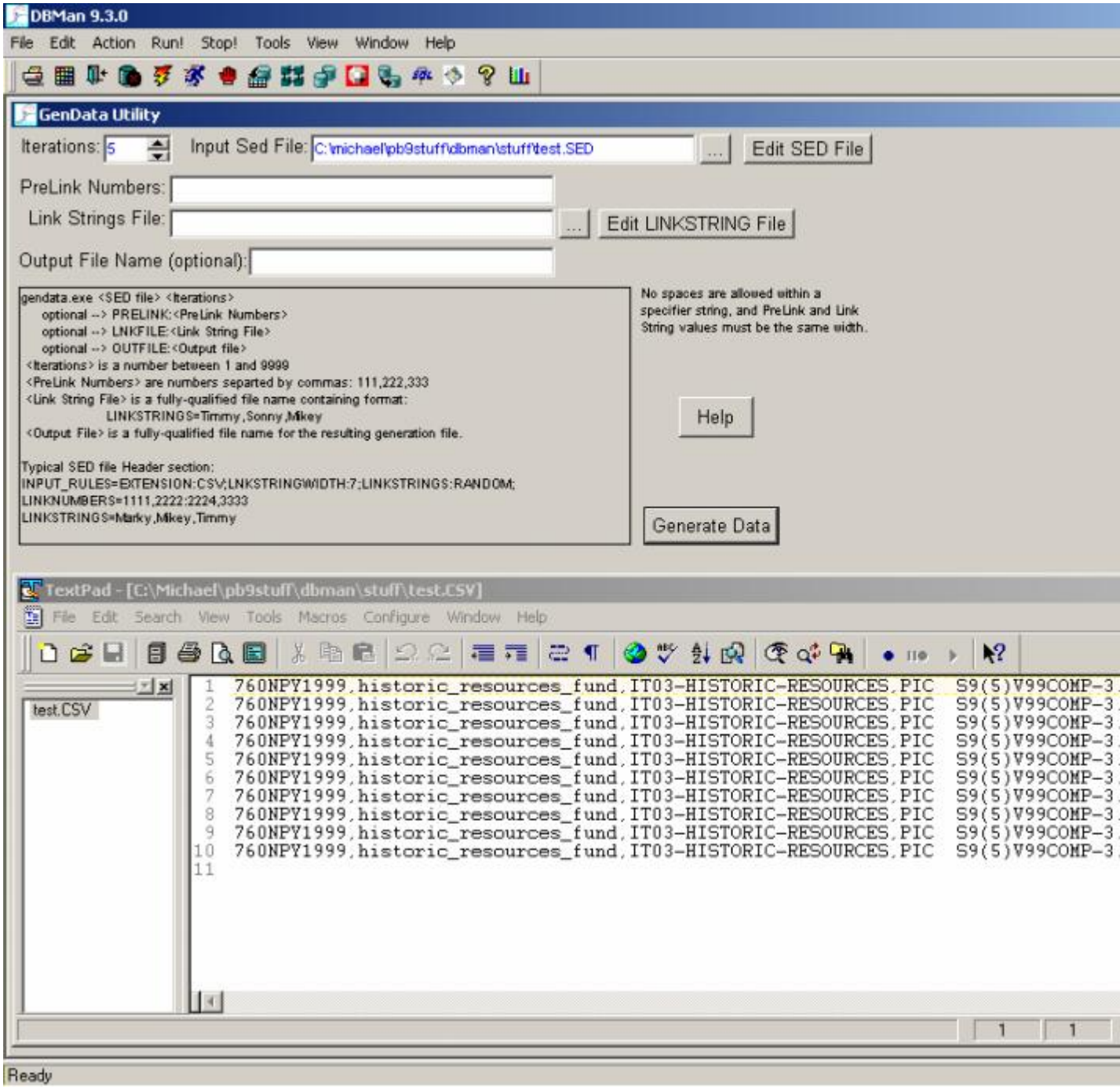
If **Highlight Changed Rows** was checked before you pressed the **Compare** button, you can see your changes visually as background row color changes to reflect insert, update, and delete rows (insert and update in the source datawindow; delete in the target datawindow).



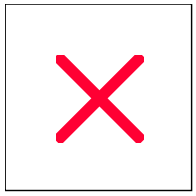
This completes the step by step walkthrough for DBDATA.

GENDATA

GENDATA is used to create flat files for bulking up relational databases. It generates large data files for subsequent import or loading into databases. It has referential integrity features that allow you to control primary/foreign key table generation data values.



GENDATA has a SED file as input for data generation. You can generate a SED file for any row selected in the SQLEXEC interface by using the popup menu choice, ***Generate SED File (GenSeed)***. You can get more information on this utility by reading the following

file found in the DBMan installation directory: 

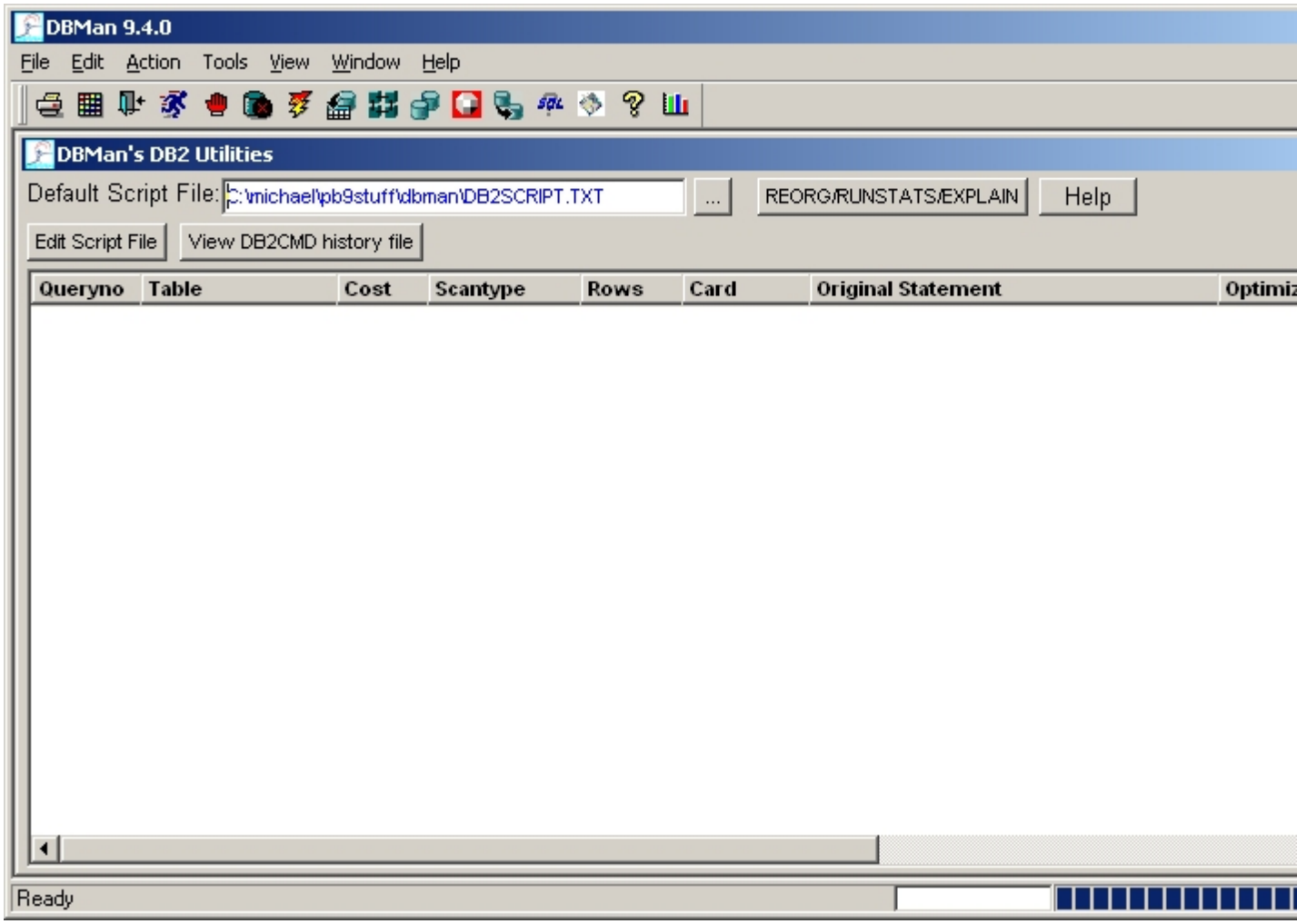
Here is an example SED file that can be used as input to the GenData interface.

```
INPUT_RULES=EXTENSION:CSV;LNKSTRINGWIDTH:7;PRELINK:1111,2222;LINKSTRINGS:RANDOM;TAPGEN:10;LNKREVERSE;LINK5
0;
LINKNUMBERS=11,22,23:45,67
LINKSTRINGS=Marky,Mikey,Tim
001 FORM_NUMBER                FIX Y 760NPY1999
002 COLUMN_NAME                 FIX Y historic_resources_fund
003 SOURCE_LOCATION            FIX Y IT03-HISTORIC-RESOURCES
004 SOURCE_TYPE                FIX Y PIC  S9(5)V99COMP-3.
005 PROCESSING_NOTES           FIX Y
```

DB2 UDB UTILS

This is the DB2 UDB Utilities interface. It allows you to do the following DB2 utilities:
REORG
RUNSTATS
EXPLAIN

Results are analyzed to see if there are any table space scans. It can generate SQL on the fly using the indexes for each table to see the optimizer path for each table. Tables can be directly specified in the input script file or can be automatically selected. SQL can be specified in the input file for explain processing as well. It is recommended that the database has an application control heap size (APP_CTL_HEAP_SZ) of at least 500 or you start to get database memory errors if you are processing a lot of tables.



This interface is script-initiated. View/Edit the script file by pressing **Edit Script File**. A typical script file follows:

```
NSCHECK
REORG
RUNSTATS
PREEXPLAIN [or POSTEXPLAIN]
Database=MVDB0910
[TABLES]
BS_JOB_ERRORS [ or ALL TABLES]
[SQL]
select * from BS_JOB_ERRORS
```

select * from BS_JOB_REPORT

File Line Definitions

- **NSCHECK** is for determining if "Next Key Share Lock" is enabled or not. (Should only be issued if this program resides on the database server machine). This check determines if DB2_RR_TO_RS is turned on or off by calling DB2SET. If not there, then it is turned off by default or set to something. Then use DB2SET B2_RR_TO_RS=ON to change it if the user requests it. This setting can decrease the likelihood of deadlocks for multiple UDB batch processes.

- **REORG** indicates to do REORGs.

- **RUNSTATS** indicates to do RUNSTATS.

- **PREEXPLAIN** specifies that DBMan will generate dynamic EXPLAIN statements for every index on every table specified below, and summarize the results.

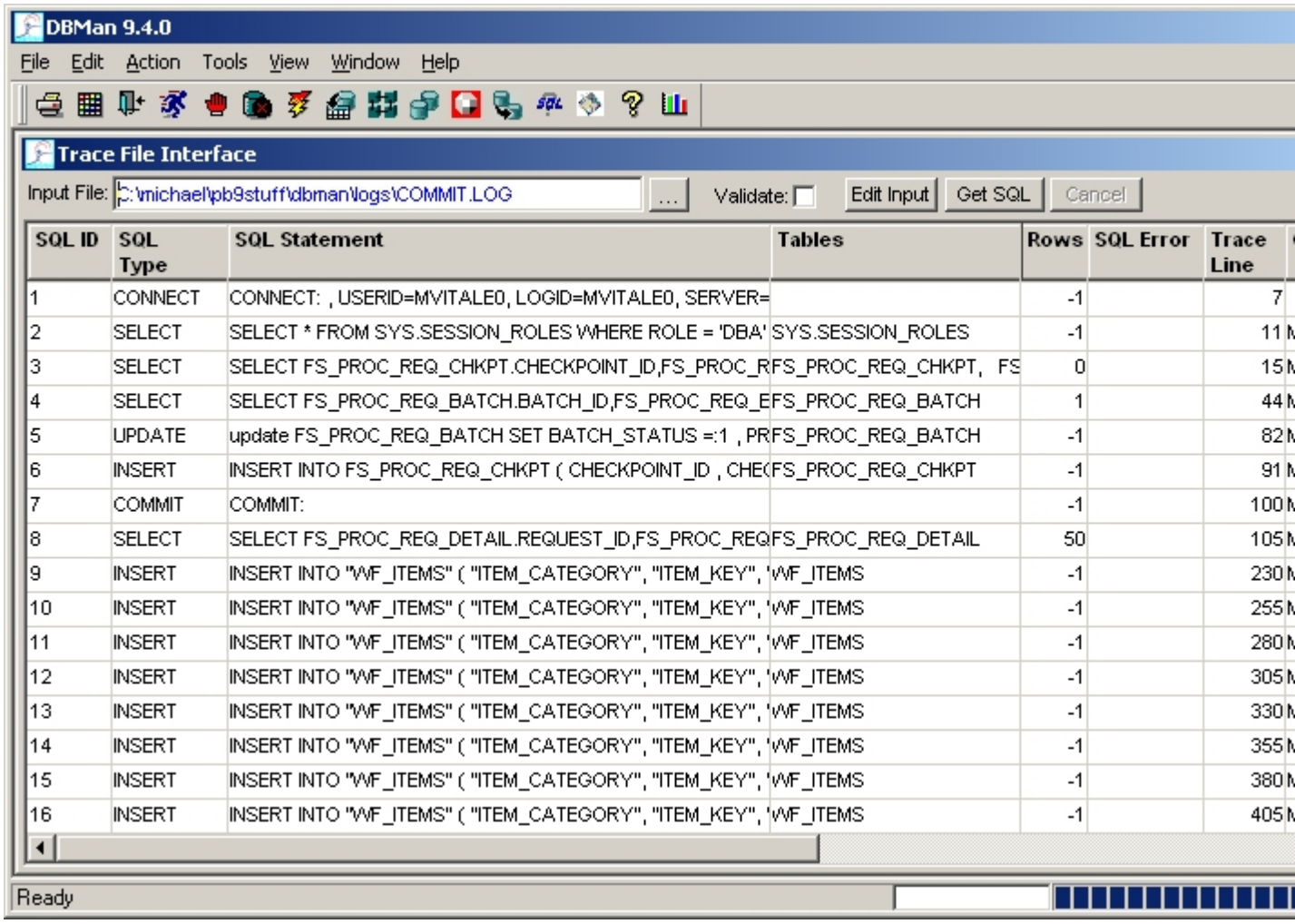
- **POSTEXPLAIN** specifies that DBMan will only summarize EXPLAIN data that already exists in the DB2 PLAN table.

- **ALL TABLES** designates that all user tables will be used for the given connection. You cannot specify other tables when <ALL TABLES> is present.

Explain tables are dynamically created if they do not exist.'All information is deleted from the EXPLAIN tables before each run. Internally-generated EXPLAIN statements start with QUERYNO value 2001. External ones, derived from file, start with QUERYNO value 5001. **DBMAN** is used as the value for QUERYTAG in the EXPLAIN tables.

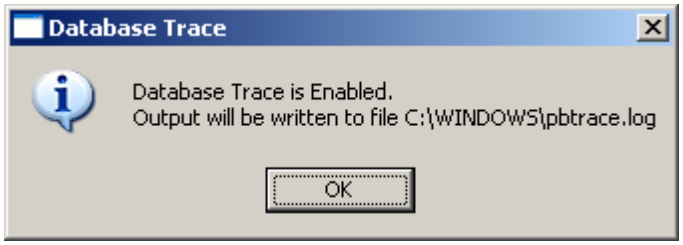
TRACEFILE

This SQL log trace file parser parses PowerBuilder, Versata, DB2UDB, and ODBC data sources.



SQL ID	SQL Type	SQL Statement	Tables	Rows	SQL Error	Trace Line
1	CONNECT	CONNECT: , USERID=MVITALE0, LOGID=MVITALE0, SERVER=		-1		7
2	SELECT	SELECT * FROM SYS.SESSION_ROLES WHERE ROLE = 'DBA'	SYS.SESSION_ROLES	-1		11
3	SELECT	SELECT FS_PROC_REQ_CHKPT.CHECKPOINT_ID,FS_PROC_R	FS_PROC_REQ_CHKPT, FS	0		15
4	SELECT	SELECT FS_PROC_REQ_BATCH.BATCH_ID,FS_PROC_REQ_E	FS_PROC_REQ_BATCH	1		44
5	UPDATE	update FS_PROC_REQ_BATCH SET BATCH_STATUS =:1 , PR	FS_PROC_REQ_BATCH	-1		82
6	INSERT	INSERT INTO FS_PROC_REQ_CHKPT (CHECKPOINT_ID , CHE	FS_PROC_REQ_CHKPT	-1		91
7	COMMIT	COMMIT:		-1		100
8	SELECT	SELECT FS_PROC_REQ_DETAIL.REQUEST_ID,FS_PROC_REQ	FS_PROC_REQ_DETAIL	50		105
9	INSERT	INSERT INTO "WF_ITEMS" ("ITEM_CATEGORY", "ITEM_KEY",	WF_ITEMS	-1		230
10	INSERT	INSERT INTO "WF_ITEMS" ("ITEM_CATEGORY", "ITEM_KEY",	WF_ITEMS	-1		255
11	INSERT	INSERT INTO "WF_ITEMS" ("ITEM_CATEGORY", "ITEM_KEY",	WF_ITEMS	-1		280
12	INSERT	INSERT INTO "WF_ITEMS" ("ITEM_CATEGORY", "ITEM_KEY",	WF_ITEMS	-1		305
13	INSERT	INSERT INTO "WF_ITEMS" ("ITEM_CATEGORY", "ITEM_KEY",	WF_ITEMS	-1		330
14	INSERT	INSERT INTO "WF_ITEMS" ("ITEM_CATEGORY", "ITEM_KEY",	WF_ITEMS	-1		355
15	INSERT	INSERT INTO "WF_ITEMS" ("ITEM_CATEGORY", "ITEM_KEY",	WF_ITEMS	-1		380
16	INSERT	INSERT INTO "WF_ITEMS" ("ITEM_CATEGORY", "ITEM_KEY",	WF_ITEMS	-1		405

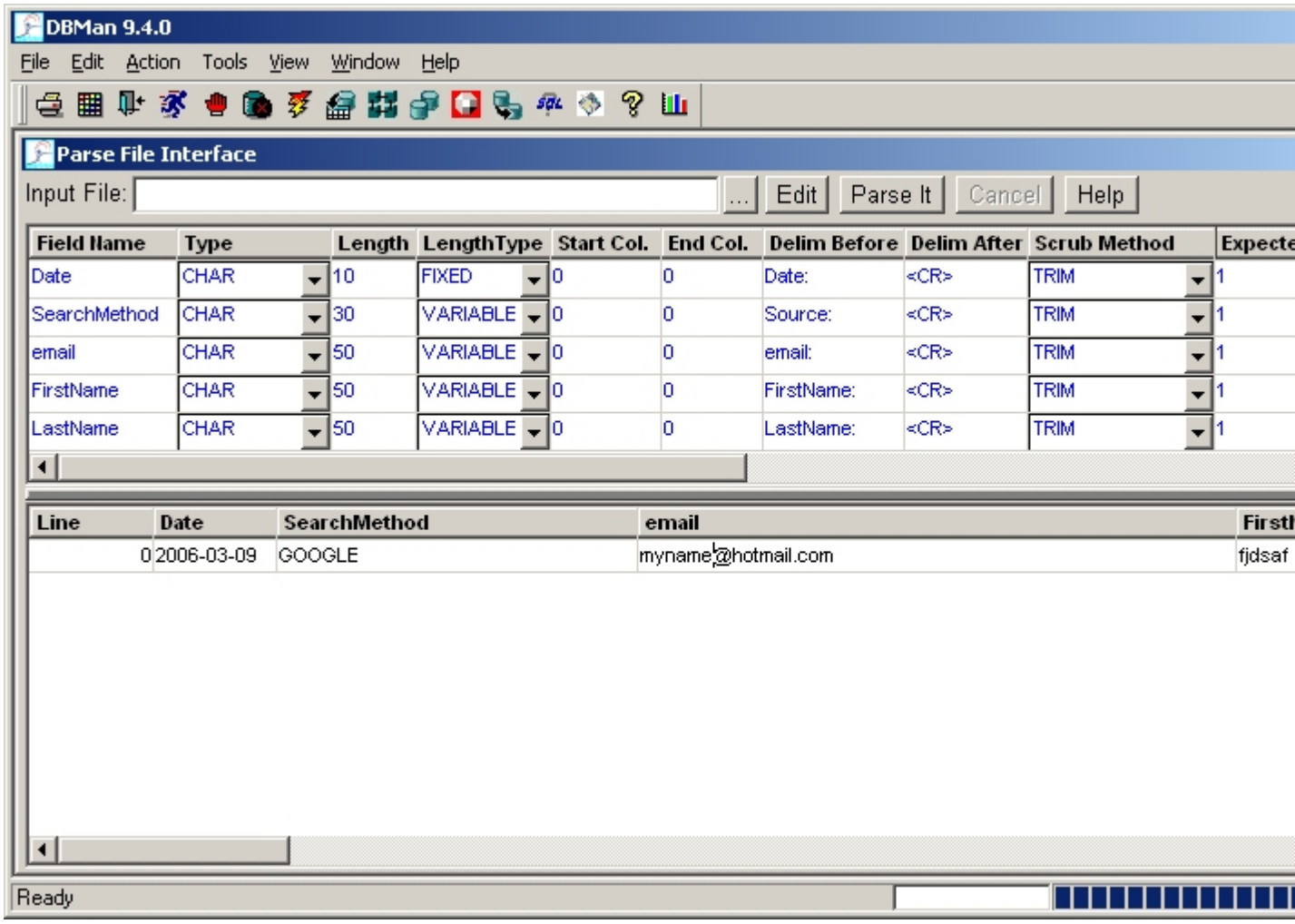
For PowerBuilder Applications, specify **TRACE** before the DBMS value in the connection profile of the application to generate the PBTRACE.LOG file, which is usually located in the windows system directory.
A windows prompt will appear whenever a connection is made and PB trace is turned on.



You can enter comments in a Powerbuilder trace file that will be picked up as comment lines in the output if the line starts with 3 asterisks.

PARSEFILE

This file parsing interface is useful for parsing large event or log files by defining metadata to extract what you want to see from these large files.



This parsing utility dynamically parses files on the fly with a few simple metadata rules specified for each field that needs to be captured. You can save this metadata information to file as tab-delimited or comma-delimited. Then you can import these rules back into the metadata datawindow before each ensuing run. Hence, you only need to define the rules once for each type of parsing file.

You can parse the contents of a file or the clipboard. If a file is not specified, then it is assumed you want to parse the contents of the clipboard.

In **Clipboard Mode**, you can only populate 1 row of data and the order of the fields is not important.

In **File Mode**, you must specify each field in the order in the file in which it occurs. You can populate multiple rows of data in this mode. You can re-arrange the column order after the results are captured. Be careful how you select the expected lines value. This column dictates how many ensuing lines to search for the specific field. Typically, you specify the before delimiter and the end delimiter and set column start and column end to 0.

You add metadata rules by adding lines to the metadata area. Put the cursor in that area

and press CTRL-A to add another metadata rule row.

If you want to add a constant value to fill up a column position, select **CONSTANT** as the **type** value, and put the value in the **DELIM BEFORE** field.

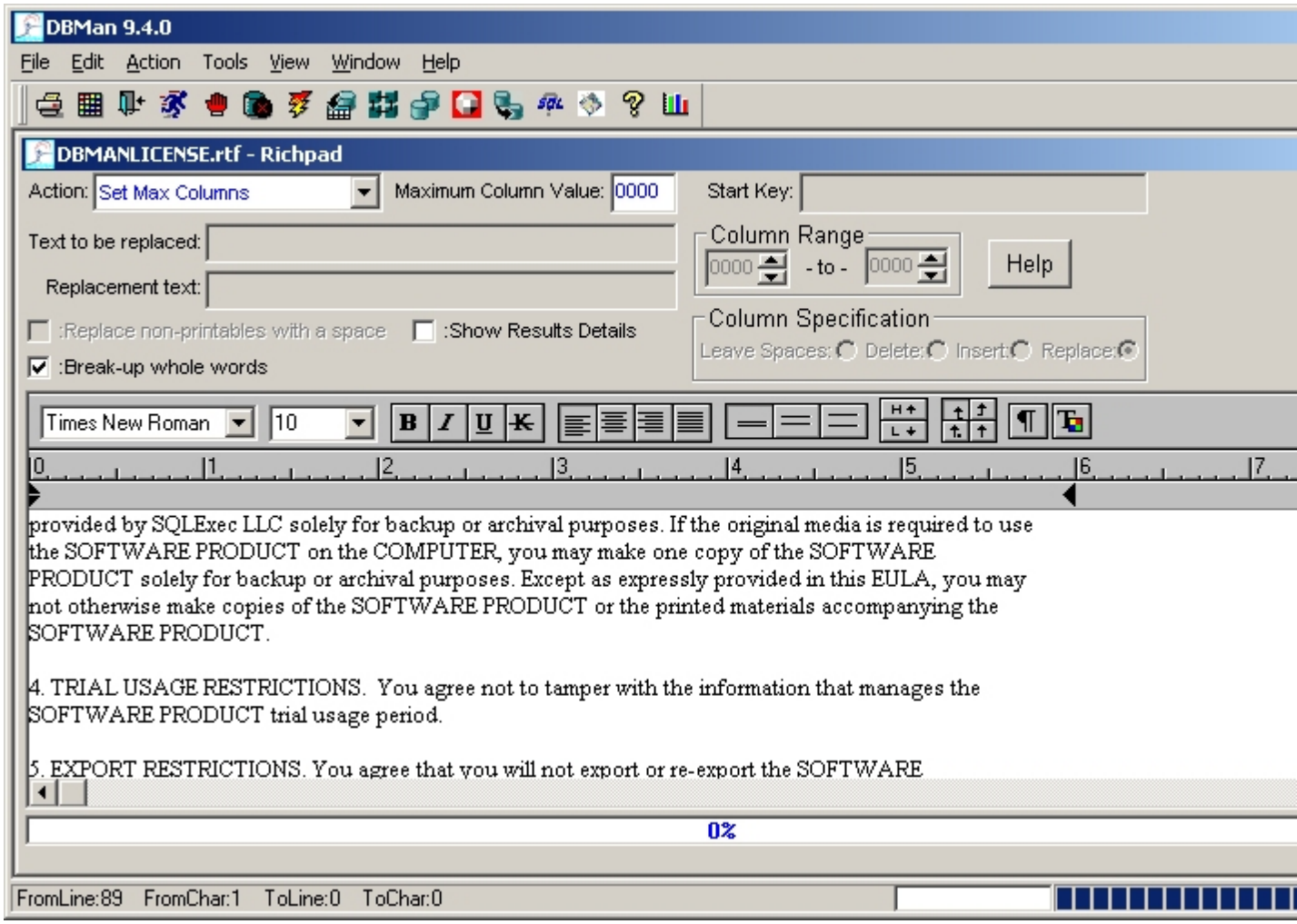
Two special values you can specify for **DELIM BEFORE** and **DELIM AFTER** are:

<CR> Carriage Return
<TAB> Tab

The File Parser interface remembers the last metadata file that was used and automatically imports it into the metadata area when the window opens. It also remembers the last file that was used for parsing.

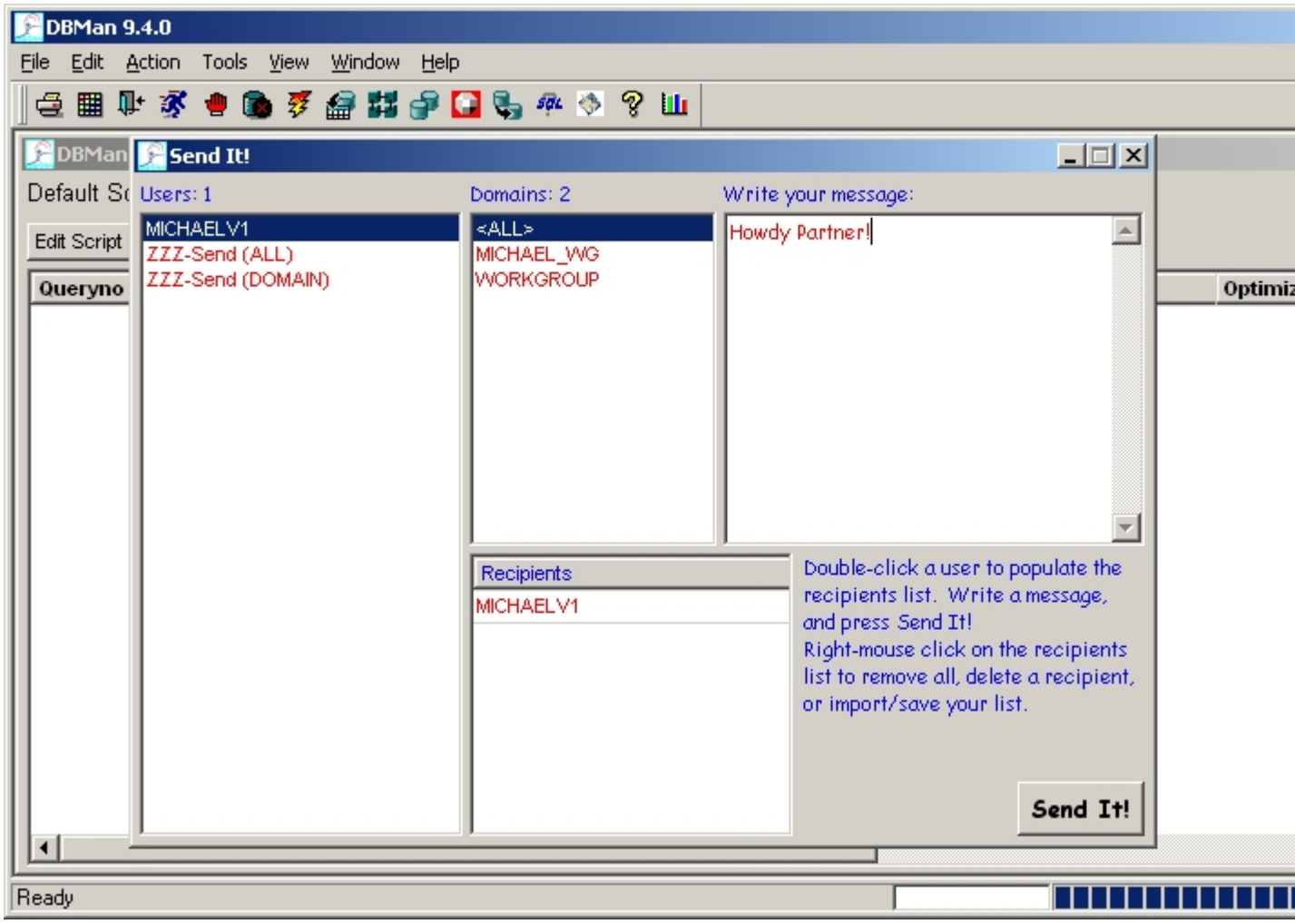
EDITFILE

DBMan's own File Editor for complex find and replace actions.
It is useful for modifying values in specific columns or adding or removing specific lines.
You can manipulate regular text files or rich text edit files, RTF files. There is a robust popup menu available on the rich text area when you right-mouse click in that area.



SENDIT

Windows Network communications GUI interface.



This interface uses the Microsoft NET.EXE command in a graphical user interface to show users in a domain and to send messages to one or more selected users.

Database Considerations

This section documents peculiarities related to specific database vendors. It documents special error conditions, connection setup tips, etc.

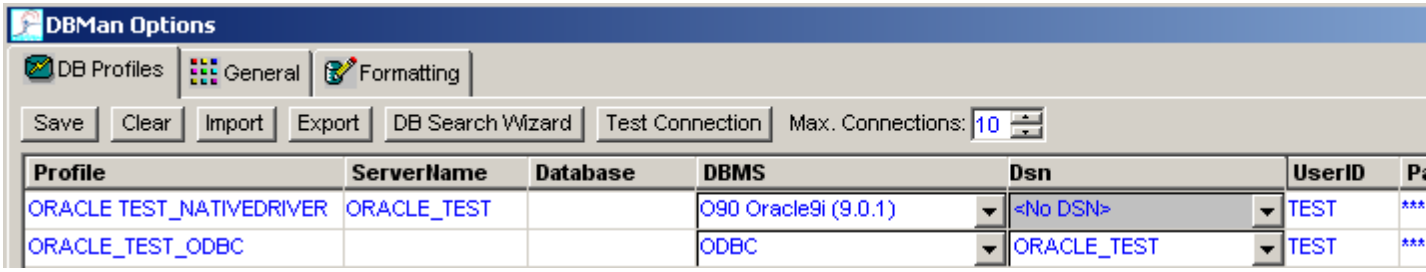
GENERIC is a special type of database vendor designation in that many action are restricted to the Microsoft ODBC API set.

Native Drivers/ODBC

DBMan allows DB Profiles to be created using database native drivers or ODBC interfaces.

Native Drivers are usually used when the desired database action is not incorporated within the standard ODBC APIs. Native drivers are supposed to be faster and more efficient, but that is not always the case. ODBC provides a standard database interface template regardless of what database vendor is being used.

If you have a problem with database actions, you might try changing the database interface from one to the other (Native Driver to ODBC or ODBC to Native Driver).

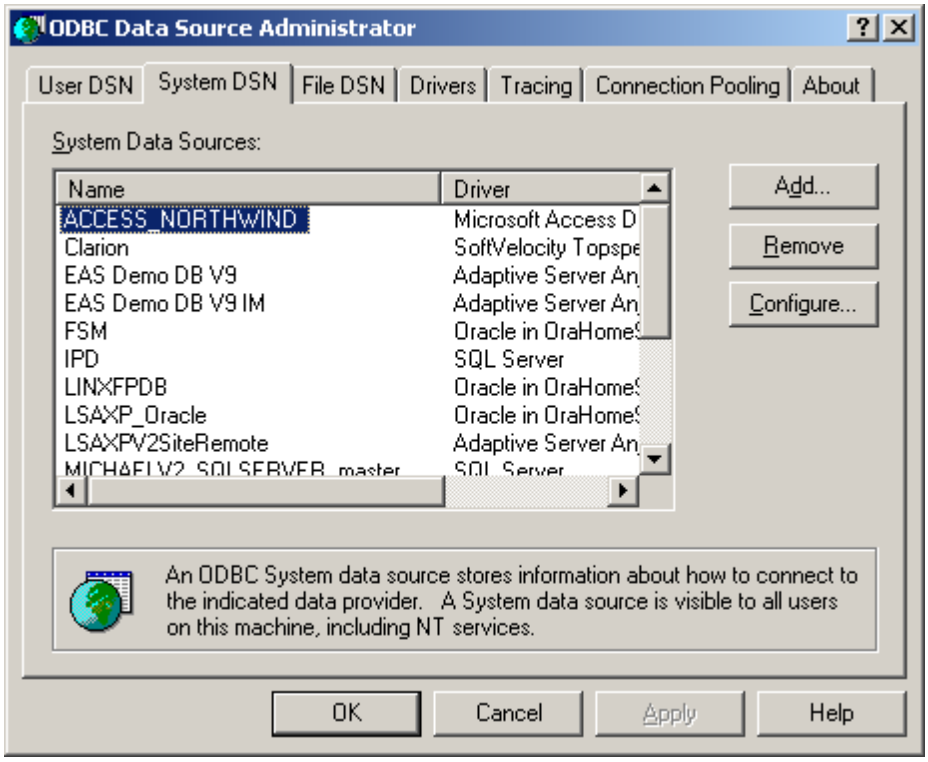


Native Driver Setup

Select the desired native driver from the **DBMS** dropdown (any value other than **ODBC**). Add the appropriate value(s) in the **ServerName** field and optionally, the **Database** field.

ODBC Setup

Select **ODBC** as the **DBMS** dropdown value, which enables the **DSN** field. Then change the DSN field from **<No DSN>** to another value in the selection list. This selection list is populated with the current list of ODBC Data Sources as shown in the Microsoft **ODBC Data Source Administrator** window. It is here here you define your data sources that can then be used by DBMan.



DBMan provides Database Driver Interfaces for the following database interfaces:

- Direct Connect Interface (DIR)
- Informix v9.x Interface (IN9)
- Microsoft SQL Server Interface (MSS)
- Oracle 7 Interface (O73)
- Oracle 8/8i (O84)
- Oracle 9/9i (O90)
- Sybase Adaptive Server Enterprise (SYC)
- ODBC Database Driver (ODB)
- OLE DB Database Driver (OLE)
- JDBC Interface (JDB)

GENERIC

GENERIC refers to database sources in which the specific database vendor is not in the explicit list of vendors supported by DBMan. While you can still use most of the features in DBMan using the GENERIC database vendor type, you are restricted in the following areas due to the inherent limitations of being restricted to using the Microsoft ODBC APIs:

- No trigger support
- No reverse or forward engineering (which rules out using the PIPEIT interface and some features in SQLEXEC).
- No compilation support.
- Only data export, not Structure Export, from SQLEXEC Tree View Area Table popup options for table export.

Oracle

DBMan supports Oracle (Version 7, 8, 9i, 10g).

DBMan has special built-in features for Oracle:

- **PL/SQL Support** - Enter your PL/SQL scripts in the SQL Input Area of the SQLExec window.

- **Object Compile Support** - DBMan can compile your views, functions, procedures, or packages using the popup options of the Tree View Area on the SQLExec window.

- **SQL Loader Support** - You can generate SQL Loader Control files on the fly with a central SQL Loader batch file that is used to subsequently invoke the generated CTL files. Wow!

- **Explain Plan** - You can see the performance cost for sql statements using the Explain feature.

- **Logminer Support** - DBMan has a friendly interface to specify how you want to extract log records using the Oracle Logminer APIs. It then starts a C program to extract those records to a record format you specify.

During DDL output for Oracle, DBMan specifies NUMBER as NUMERIC(22,0), the implied precision.

Oracle Driver Client Software must be installed. *TNSNAMES.ORA* and *SQLNET.ORA* are Oracle files where connection information is stored. A good first test is to see whether one can connect with *SQL-Plus*, an SQL query tool that comes with the Oracle Driver Client Software. If that test is successful, then the Oracle Driver Client Software was installed correctly, and the configuration files mentioned above were configured correctly. See the section below for further details on these 2 Oracle, client-side, connection files.

The best way to define Oracle database connections to DBMan is by pressing the *Query Oracle TNSNames* button on the DB Profiles tab on the Options window. This will populate the grid below with all Oracle profiles found in the TNSNAMES.ORA file. You then need to enter LOGID and LOGPASS values for each of those profiles, since userid/password information is not stored in that file.

If you still have problems connecting with DBMan, then the DB Profile information in DBMan needs to be corrected. You do not need to specify a System DSN for an Oracle DB Profile on the Profiles tab of the Options window in DBMan. You can use one of the native drivers that comes with DBMan (*O90 Oracle9i (9.0.1)*, *O84 Oracle8/8i (8.x.4+*), etc.) as defined in the **DBMS** dropdown column of the DB profile. For non-native driver connections, you specify ***ODBC*** as the **DBMS** value, which does require a System DSN defined within Windows ODBC Administrator, which is then populated as the **DSN** column value for a DB profile in DBMan. Then you specify a **ServerName** value that corresponds to the Service

Name or SID as defined in the TNSNAMES.ORA file.

SYSDBA/SYSOPER Connections

To connect as an Oracle DBA or Operator, add one of the following string to your DBPARM parameter:
ConnectAs='SYSDBA'
ConnectAs='SYSOPER'

CONNECTING TO ORACLE

Connecting to an Oracle Server is related to how the connection is defined in the SQLNET.ORA and TNSNAMES.ORA files (see those sections below for details). Thus, if you have a SQLNET.ORA NAMES.DEFAULT_DOMAIN value of COMPANY.COM and a TNSNAMES.ORA profile name of DBASPT.COMPANY.COM, then you could connect as: scott/tiger@dbaspt.company.com

SQLNET.ORA and TNSNAMES.ORA file settings

This section documents some basic stuff dealing with the configuration of these two files.

SQLNET.ORA

You may need to comment out the NAMES.DEFAULT_DOMAIN section in the SQLNET.ORA file if you are not connected to a DOMAIN, i.e., a WORKGROUP. Basically, if you are connected to a network and your Oracle server resides on a network, use the domain name for that network. Otherwise, comment this field out. This is normal when you are connected to a WORKGROUP instead of a DOMAIN.

```
SQLNET.AUTHENTICATION_SERVICES= (NTS)
NAMES.DIRECTORY_PATH= (TNSNAMES, ONAMES, HOSTNAME)

#### The follow ing line may need to be commented out depending upon your netw ork configuration
#### Example: NAMES.DEFAULT_DOMAIN = <domain>.com / gd-ns.com
NAMES.DEFAULT_DOMAIN = COMPANY.COM
```

TNSNAMES.ORA

This file works in conjunction with your SQLNET.ORA file, so if you do not specify a NAMES.DEFAULT_DOMAIN in your SQLNET.ORA file, you must not use that as part of the name of your profile in the TNSNAMES.ORA file. DBASPT by itself is correct in that case, not DBASPT.COMPANY.COM.

The "SERVICE_NAME" entry could be changed to "SID" because the use of "SID = your_database_name" is still supported, but the Net8 and beyond Oracle-recommended standard is "SERVICE_NAME = your_database_name."

```
DBASPT.COMPANY.COM =
 (DESCRIPTION =
  (ADDRESS_LIST =
   (ADDRESS = (PROTOCOL = TCP)(HOST = yourpc)(PORT = 1521))
  )
  (CONNECT_DATA =
   (SERVER = DEDICATED)
   (SERVICE_NAME = dbaspt)
  )
 )
```

ORACLE PRE-DEFINED USERIDS

Oracle has 3 main, pre-defined users: SYS, SYSTEM, and PUBLIC.

SYS is the owner of the database and the owner of the data dictionary. Never ever create objects under SYS. The objects belonging to SYS cannot be exported.

SYSTEM is a privileged administration user, and typically owns Oracle provided tables other than the dictionary. Don't create your own objects under SYSTEM.

PUBLIC is a regular user profile. Any privilege granted to public automatically becomes a privilege for other users as well.

Both, SYS and SYSTEM are default users, created with the creation of the database. Although they have much power - as they are granted the DBA role - they're still ordinary users. Because SYS owns the data dictionary, (s)he is considered a bit more special than SYSTEM. But SYS has the SYSDBA privilege which SYSTEM doesn't. This makes it possible for SYS to become a very very powerful user. This is the case when (s)he connects as sys/password as SYSDBA or / as sysdba . The as sysdba phrase is a request to aqcuire the privileges associated with the single SYSDBA system privileges. The difference becomes clear if you try to shutdown the database as ordinary SYS: you get insufficient privileges as result. However, if connected as SYSDBA, it's possible. Note, SYSDBA is not a role, it is a privilege. You'll find it in system_privilege_map, not in dba_roles. Anytime, someone connects as SYSDBA, it turns out it's being SYS. That is, if SYSDBA is granted to JOHN and John connects as SYSDBA and select user from dual, it reveals he's actually SYS.

ORACLE Data Dictionary Basics

The Oracle Data Dictionary is divided into three categories distinguished by the prefix of the view name:

Prefix	Scope
ALL_	Objects the user can access
USER_	Objects owned by the current user
DBA_	Objects in all users' schemas

METADATA APIs

This section documents some useful SQL to get DLL information using the metadata APIs.

Get object DLL information:
dbms_metadata.get_ddl(<object type>, <object name>, <schema>)

Through DBMan:

```
select cast(dbms_metadata.get_ddl('TABLE','BONUS','SCOTT')as varchar2(4000))  from dual;
```

PL/SQL:

```
SQL>set long 100000
SQL>set pages 0
SQL>select dbms_metadata.get_ddl('TABLE','BONUS','SCOTT') from dual;
```

Dependent information such as referential constraints can be retrieved using the GET_DEPENDENT_DDL function:

```
dbms_metadata.get_dependent_ddl(<object type>, <object name>, <schema>)
dbms_metadata.get_dependent_ddl('REF_CONSTRAINT', 'EMP', 'SCOTT')
dbms_metadata.get_dependent_ddl('TRIGGER', 'EMP', 'SCOTT')
```

Grants and Permissions can be retrieved using the GET_GRANTED_DDL function:

dbms_metadata.get_dependent_ddl('REF_CONSTRAINT', 'EMP', 'SCOTT')
dbms_metadata.get_granted_ddl(<object type>, <Grantee>)
dbms_metadata.get_granted_ddl('OBJECT_GRANT', 'REVRUN_USER')
SQL> set long 99999
SQL> column aa format a132
SQL> select DBMS_METADATA.GET_GRANTED_DDL('OBJECT_GRANT','REVRUN_USER') aa from dual;

There are transformation APIs that can be invoked that can tailor the outcome of the metadata APIs:
DBMS_METADATA.SET_TRANSFORM_PARAM(DBMS_METADATA.SESSION_TRANSFORM,'STORAGE',false);
DBMS_METADATA.SET_TRANSFORM_PARAM(DBMS_METADATA.SESSION_TRANSFORM,'PRETTY',true);
DBMS_METADATA.SET_TRANSFORM_PARAM(DBMS_METADATA.SESSION_TRANSFORM,'SQLTERMINATOR',true);

Table 8 (Classifying common database objects as Named, Dependent, Granted and Schema objects)

CONSTRAINT (Constraints)	SND
DB_LINK (Database links)	SN
DEFAULT_ROLE (Default roles)	G
FUNCTION (Stored functions)	SN
INDEX (Indexes)	SND
MATERIALIZED_VIEW (Materialized views)	SN
MATERIALIZED_VIEW_LOG (Materialized view logs)	D
OBJECT_GRANT (Object grants)	DG
PACKAGE (Stored packages)	SN
PACKAGE_SPEC (Package specifications)	SN
PACKAGE_BODY (Package bodies)	SN
PROCEDURE (Stored procedures)	SN
ROLE (Roles)	N
ROLE_GRANT (Role grants)	G
SEQUENCE (Sequences)	SN
SYNONYM (Synonyms)	S
SYSTEM_GRANT (System privilege grants)	G
TABLE (Tables)	SN
TABLESPACE (Tablespaces)	N
TRIGGER (Triggers)	SND
TYPE (User-defined types)	SN
TYPE_SPEC (Type specifications)	SN
TYPE_BODY (Type bodies)	SN
USER (Users)	N
VIEW (Views)	SN

More Metadata Info

SQLPLUS Considerations

Certain DML statements can cause problems in SQLPLUS if they have embedded carriage returns in them. The work-around is to use carriage return ASCII values instead of the actual carriage return. Example:

```
INSERT INTO MYTABLE (field1, field2)
VALUES('11
22'

'44');
```

This INSERT statement will probably cause errors like the following:

```
-- SP2-0042: unknown command "aaaa'" - rest of line ignored.
```

Here is the way to work-around it:

```
INSERT INTO MYTABLE (field1, field2)
VALUES('11' || Chr(13) || Chr(10) || '22' || Chr(13) || Chr(10) || Chr(13) || Chr(10) ||
'44');
```

DB2

DBMan fully supports DB2 UDB Version 6,7, and 8. It also supports DB2 Zos/Mainframe Version 5, 6, 7, and 8, but with some limitations.

DB2 Connect, UDB, or some other DB2 UDB driver must be installed on the computer where DBMan is installed. For connections to Zos/DB2, certain packages must be present and bound. You will need BINDADD authority with respect to the <database>.NULLID.* packages before executing the following bind commands from a DB2 command window in the SQLLIB\BND directory:

DB2 bind @db2ubind.lst blocking all grant public for DB2 utilities
DB2 bind @db2cli.lst blocking all grant public for CLI

Trouble-Shooting

UDB DB2

Make sure a **DB2START** command was issued on the target database server or you may get errors like the following:

SQLCode = -1
SQLDBCode = -30081
SQLSTATE = 08001
[IBM][CLI Driver] SQL30081N A communication error has been detected. Communication protocol being used: "TCP/IP". Communication API being used: "SOCKETS". Location w here the error w as detected: "192.168.15.101". Communication funct

MS SQL Server

DBMan supports Microsoft SQL Server 2000/2003.

MS SQL Server connections may require certain DBParm settings to eliminate SQL errors.
[Microsoft][ODBC SQL Server Driver]Invalid character value for cast specification SQLSTATE = 22005
Add the following specification to the DBParm parameter on the connection profile to eliminate these types of errors:
MsgTerse='Yes',CallEscape='No',FormatArgsAsExp='N""

Default login for MS SQL Server after an install is **sa** with no password.

Adaptive Server Enterprise (ASE)

DBMan supports Sybase Server Version 11, Sybase Adaptive Server Enterprise (ASE) Version 12,12.5, 15.

- **Transact SQL Support** - Enter your Transact SQL scripts in the SQL Input Area of the SQLExec window.

- **BCP Support** - You can generate a BCP control file and multiple BCP Format files for each table using the SQLEXEC interface popup menu at the table level in the Tree View Area! Use **ISQL -v** to find the TDS version. It's the first number or decimal number in the output, usually the second parm delimited by a forward slash.

- **Explain Plan** - You can see the performance cost for sql statements using the Explain feature.

The default administrative password is **sa** with no password. **dbo** is assumed to be the table owner.

To connect to ASE over a network, use this format for the servername:
<server name>, <port number>
The default port number is 5000.

You must set autocommit to TRUE on the connection or "DDL in Transaction" to true as an ASE Server configuration option to execute certain types of SQL statements like SP_PKEYS().

Using the Truncate command to delete rows from tables, SQLCA returns -1 in all cases where rows are deleted from the database. A question mark will appear whenever the number of rows returned is -1.

If a column is updated in the grid in the SQL Output Area on the SQLEXEC window, and the number of characters exceeds the column limit, no error is returned when an attempt is made to commit the change to the database and the column's value is not changed either. To overcome this limitation, DBMan will issue a warning whenever the user attempts to exceed a column's character value limit in the expanded view window, which occurs before the user attempts to update a column's value back to the database.

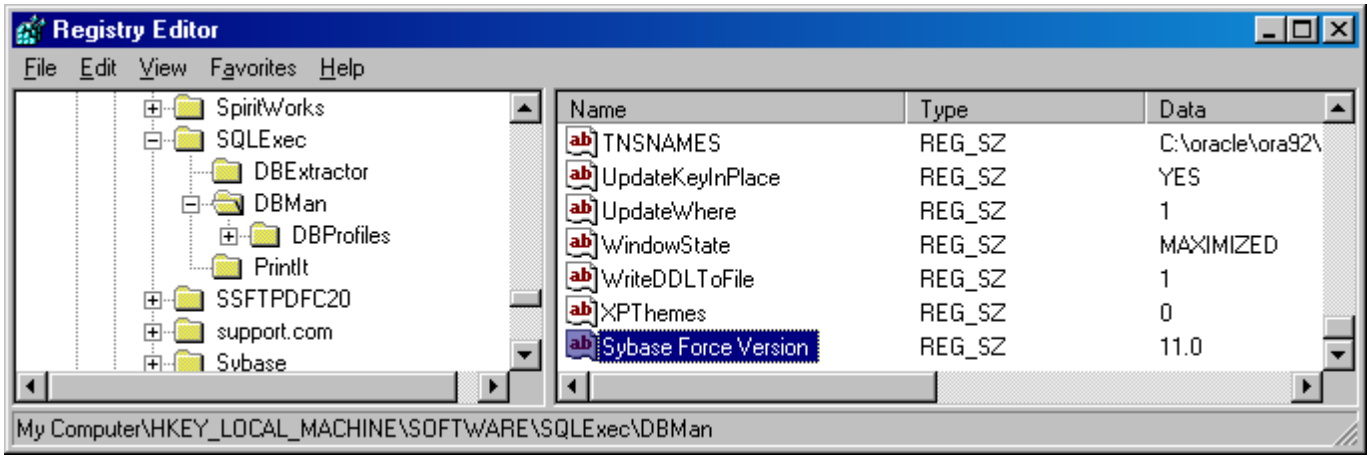
ASE is not like most other database vendors in that its object names are case-sensitive.

SQLEXEC Considerations

You can use Sybase Transact SQL syntax in the SQL Input Area by setting the SQL delimiter to "go" and checking the "SQLInputArea Comments" checkbox.

Sybase Version Override for DBMan

You can override the way DBMan works for a particular version of ASE, but specifying an ASE version in the DBMan Registry main level (**Sybase Force Version**). Create a string like the following example shows forcing DBMan to work with Sybase version 11:



Other peculiarities when compared to other database vendors

ASE does not support foreign key constraints upon other tables like cascade delete/restrict or update delete/restrict. ASE requires you to use triggers to enforce foreign key constraints upon other tables. Other vendors allow you to define constraints on other tables directly by the create foreign key statement.

Tips and Troubleshooting

- Character or binary data returned from Adaptive Server has been truncated. The client application does not support more than 255 bytes of data as a result column or output parameter. You can usually get around this error by changing your SQL as follows:

select myLongColumn from myTable
to
select convert(text, myLongColumn) from myTable

- Unable to connect to a remote ASE server. Make sure you specify network address as:

<computer name or IP address>,<port number>
ASE typically defaults to port 5000.

- You may get bind errors if you use a different format (quotes) for labels for a column function in an sql statement. In Sybase, you can designate a label without quotes to get around this problem sometimes. Here are two statemens, one which causes a problem and one that does not.

Bad: select db_name() as "DATABASE_NAME", lockscheme(id) **as "LOCKSCHEME"** from sysobjects where type = 'U';
Good: select db_name() as "DATABASE_NAME", lockscheme(id) **LOCKSCHEME** from sysobjects where type = 'U';
The first one returns an error like the following:
SQLCode = -1
SQLDBCode = 132
SQLErrText = Select error: ct_fetch(): user api layer: internal common library error: The bind of result set item 2 resulted in truncation.

Adaptive Server Anywhere (ASA)

DBMan supports SQL Anywhere Version 5, 5.5, Adaptive Server Anywhere (ASA) Version 6, 7, 8, 9.

You can get access path information by using the following SQL syntax:
SELECT EXPLANATION('<sql statement>');

You can turn SQL logging on and off by the following statements:
CALL sa_server_option('requestlogfile', 'c:\whatever.log');
CALL sa_server_option('requestlogging', 'SQL');
CALL sa_server_option('requestlogging', 'NONE');

DBMan cannot return remote select information via the ASA "FORWARD TO" syntax due to an inherit limitation in PowerBuilder and SyntaxFromSQL.
FORWARD TO SQLServerRemote {SELECT * from sysobjects where id = 1};

Default login is dba/sql.

Remote Connection Information

In the ODBC configuration for the remote ASA machine, you need only specify the userid/password on the login tab and the tcp information on the network tab.

On the network tab, check TCPIP and enter the following in the edit box for it:
TCPIP{host=<server name/computer name>:<port number>;dobroadcast=no}
Example: TCPIP{host=MyComputer:2638;dobroadcast=no}

The Desktop Runtime Edition of Adaptive Server Anywhere

Many ASA features are disabled in this low-cost deployed version. As such, you may encounter errors in DBMan, since DBMan assumes certain database queries like executing system stored procedures, which are missing in the runtime version. The engine name for this version is rteng<version number>.exe (for example, rteng9.exe)

ASA Peculiarities

- ASA does not store Primary Key Names even if you specify the name in the DDL definition.

Interbase/Interbase/Firebird

DBMan supports Interbase and Firebird databases.

Interbase and Firebird have been tested with the IBPhoenix open source ODBC driver.

You may select either GENERIC or FIREBIRD as the vendor type when connecting to either of these databases.

Default login is SYSDBA/masterkey.

MS Excel

Although Excel is not normally thought of as a database, it can be an ODBC data sources, which allows it to be viewed as a database that consists of tables and a set of columns within each table.

To view an Excel file in DBMan, first define an Excel data source for the DataDirect and Microsoft Excel Driver. Use ODBC Administrator to create a DSN for the Excel driver. If you are using Excel (other than versions 5.0/95 or 97 & 5.0/95), use the Microsoft Excel driver. Otherwise, use the DataDirect Excel driver. Add the ODBC DSN to your DBMan DB Profiles and you should be able to connect to the specified Excel workbook.

Connection Errors
If you get the following error, you must save the Excel spreadsheet in a different Excel format.
[DataDirect][ODBC Excel Driver]Cannot open stream Book. Ole error (2).
Make sure the excel file is saved to the format of 5.0/95 or 97 & 5.0/95. For more information, see DataDirect KnowledgeBase Article 19823.

If you get the following error, you are probably using the Microsoft Excel driver, which is currently not working with DBMan, so try to create the ODBC DSN with the DataDirect Excel driver
[Microsoft][ODBC Excel Driver]Optional feature not implemented

Workbook Format considerations
In order for DBMan to access an Excel data source, the Excel file must be a database. An **Excel database** is an Excel XLS workbook file that contains one or more named lists. An **Excel list** is a labeled series of worksheet rows that contain similar information (table). When you use an Excel workbook as a database, each list is analogous to a database table, the list rows correspond to database records, and the list columns correspond to database fields. When you connect to an Excel database in DBMan, the list names display in the under the Tree View Area on the left side in the SQLEXEC window.

Clarion

This section specifically deals with the Softvelocity Topspeed ODBC driver (Version 4.0) when connecting to Clarion databases (TPS files).

Set the **lockmode** connection parameter to **default** to avoid **driver not capable** errors.

You must add the following value to the **dbparm** connection parameter or you can only retrieve 1 row from any table:
CursorLib='ODBC_Cur_Lib'

MS ACCESS

Microsoft Access is supported by DBMan through ODBC only. You must select GENERIC or MS ACCESS as the vendor type when connecting to Access.

2 default table schemas are used with Access databases: SYSTEM and USER.

FoxPro

There are 2 ODBC drivers for FoxPro: FoxPro and Visual FoxPro. FoxPro is being replaced by **Visual FoxPro.**
(see link: http://support.microsoft.com/kb/235357/EN-US/).

Configuration Steps:

- Define a System DSN for the Visual FoxPro Driver using ODBC Administrator, selecting **Microsoft Visual FoxPro Driver** as the driver type.
- Define a DB Profile in DBMan that points to the DSN you created in the first step.

Currently, DBMan requires that the Vendor type for FoxPro be **Generic (Vendor = GENERIC)** to gain the most features when connecting to Visual FoxPro databases. You define the vendor for a connection on the DB Profiles Tab of the Options window. An ODBC DSN be created for a FoxPro database before defining that connection in the DBMan DB Profiles section. Once you have created the DSN, associate that DSN with the DBMan Profile by selecting that DSN for the DB Profile you create afterwards in DBMan (DSN column).

To install the latest ODBC driver for FoxPro, go to the following link and download the file, **VFPODBC.msi**.
http://msdn.microsoft.com/vfoxpro/downloads/updates/odbc/default.aspx

FoxPro is really a collection of files that are treated together like a database. Visual FoxPro uses tables to store data that defines different file types. The following list includes the file types that are saved as tables:
Table (.dbf)
Database (.dbc)
Form (.scx)
Label (.lbx)
Menu (.mnx)
Project (.pjx)
Report (.frx)
Visual Class Library (.vcx)
You can use and browse these files in the same way that you browse any table file because these files are actually tables. See File Contents Details for more information.

GENERIC

GENERIC refers to database sources in which the specific database vendor is not in the explicit list of vendors supported by DBMan. While you can still use most of the features in DBMan using the GENERIC database vendor type, you are restricted in the following areas due to the inherent limitations of being restricted to using the Microsoft ODBC APIs:

- No trigger support
- No reverse or forward engineering (which rules out using the PIPEIT interface and some features in SQLEXEC).
- No compilation support.
- Only data export, not Structure Export, from SQLEXEC Tree View Area Table popup options for table export.

MYSQL

MySQL is supported by DBMan through ODBC only. You must select GENERIC as the vendor type when connecting to MYSQL. A future version of DBMan will fully incorporate MYSQL so that you may select MYSQL as the database vendor type and have more features available to the user within DBMan.

MYSQL was tested with **Version 5.0.22** database and MYSQL Connector ODBC driver, **3.51.12**.

By default, MYSQL comes with a master user account, **root**, with no password.

MYSQL Catalog Tables

The following SQL statements retrieve catalog information:

```
SELECT * FROM INFORMATION_SCHEMA.SCHEMATA;
SELECT * FROM INFORMATION_SCHEMA.TABLES;
SELECT * FROM INFORMATION_SCHEMA.COLUMNS;
SELECT * FROM INFORMATION_SCHEMA.STATISTICS;
SELECT * FROM INFORMATION_SCHEMA.USER_PRIVILEGES;
SELECT * FROM INFORMATION_SCHEMA.SCHEMA_PRIVILEGES;
SELECT * FROM INFORMATION_SCHEMA.TABLE_PRIVILEGES;
SELECT * FROM INFORMATION_SCHEMA.COLUMN_PRIVILEGES;
SELECT * FROM INFORMATION_SCHEMA.CHARACTER_SETS;
SELECT * FROM INFORMATION_SCHEMA.COLLATIONS;
SELECT * FROM INFORMATION_SCHEMA.COLLATION_CHARACTER_SET_APPLICABILITY;
SELECT * FROM INFORMATION_SCHEMA.TABLE_CONSTRAINTS;
SELECT * FROM INFORMATION_SCHEMA.KEY_COLUMN_USAGE;
SELECT * FROM INFORMATION_SCHEMA.ROUTINES;
SELECT * FROM INFORMATION_SCHEMA.VIEWS;
SELECT * FROM INFORMATION_SCHEMA.TRIGGERS;
```

Connection Validation

Make sure you can connect to MYSQL using the MYSQL command line client before proceeding to the next steps. Next, create an ODBC system data source (DSN) for MYSQL using Windows ODBC Administrator. Test the DSN connection and make sure you can connect successfully before trying to configure DBMan to use it.

Trouble-Shooting

This section documents common MYSQL problems.

LOCAL Connections: Use localhost instead of the actual computer name as the server.

REMOTE Connections: Logon to local machine and try granting access to the user you are connecting as:

```
grant all privileges on dbname.* to 'user'@'<IP ADDRESS>' identified by '<your password>';
grant all privileges on *.*          to 'ODBC'@'<IP ADDRESS>' identified by  '<your password>';
flush privileges;
```

- **ERROR 1045 (28000): Access denied for user 'ODBC'@'localhost' (using password: YES)**

This error normally occurs if the user does not provide a password when attempting to connect to MYSQL

and the MYSQL ODBC driver is installed.

- **#HY000Host 'XXX' is not allowed to connect to this MySQL server (1130)**

- **[MySQL][ODBC 3.51 Driver]Access denied for user 'root'@'<IP ADDRESS>' (using password: YES)**

Try using ODBC as the userid and see if this works. If so, there is some other area that is causing the problem.