

Migrating a Cognos Powerhouse Application to a HP9000

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Overview

- This presentation focuses on Porting Cognos PowerHouse applications to an HP9000

- The following topics are covered:
 - Migration planning
 - The migration process
 - Tools
 - Database migration
 - Application migration
 - Data migration
 - Case Study

Problem statement

- Many organizations are running HP e3000 Cognos PowerHouse applications
 - Critical to the business process
 - Users like the applications and have used them for years

- HP e3000 is ending as a product line
 - HP e3000 & MPE will be off support in December 2006
 - The business critical functionality needs to be maintained

Problem statement

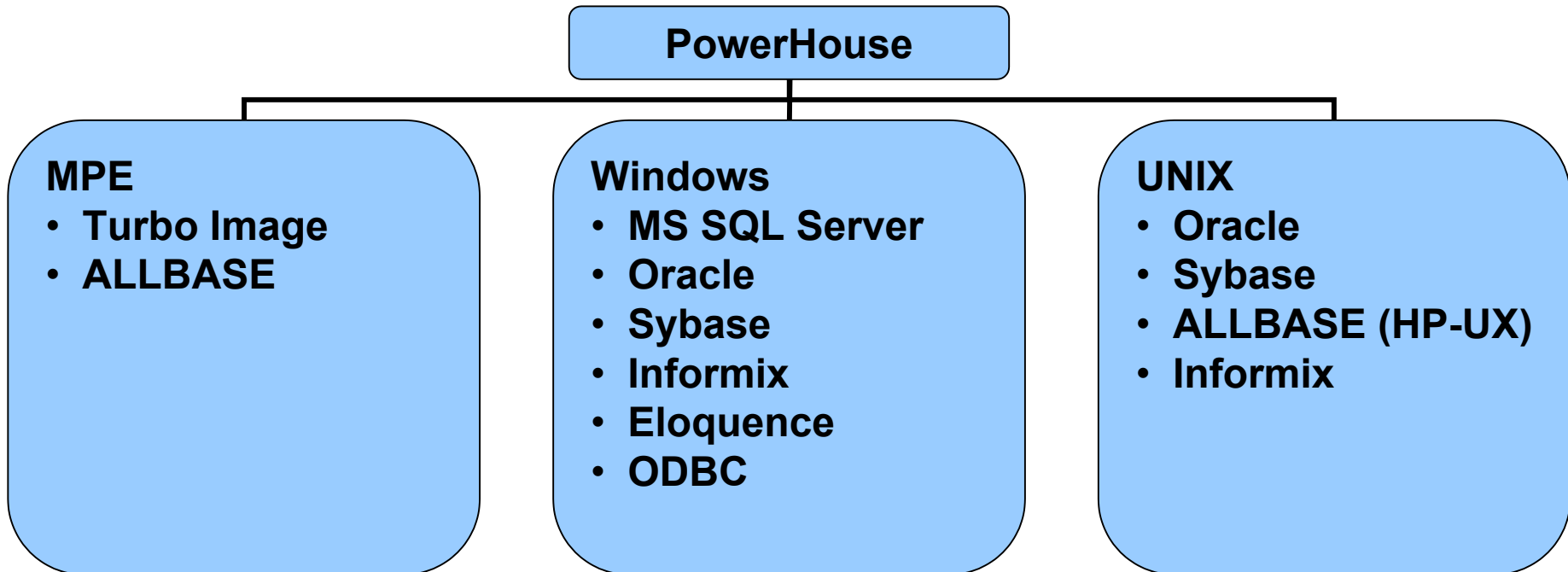
- Transition options are STAY, PORT, BUILD, or BUY
 - Stay: Continue to run the applications on the HP e3000 without support
 - Port: Move the Powerhouse applications as is to a new platform
 - Build: Re-engineer the Powerhouse applications on a new platform
 - Buy: Purchase COTS with equivalent functionality

Problem statement

- **Staying** on the current platform is high risk, due to lack of HP support
- **Re-building** the application on a new platform requires extensive effort and will create change for business users
- **Buying** a new application to replace the functionality of the current application will create change for business users
- **Porting** the application can provide a lower cost, less dramatic change, and maintain application sustainability

Migration planning

- Powerhouse supported platforms and databases



Migration planning

- Step 1: Identify the target platform
 - It is advantageous to match other applications in the IT environment when choosing the target platform
 - Other HP e3000 application migration paths may drive the target platform
 - QTP and QUIZ run in both the Windows and UNIX environments
 - QUICK is supported in the UNIX environment and was just released for the Windows environment

Migration planning

- Step 2: Identify the target database tool
 - It is advantageous to match other applications in the IT environment when choosing the target database
 - Other HP e3000 application migration paths may drive the target database
 - Oracle and SQL Server are the market leaders
 - SQL Server runs only in the Windows environment
 - Eloquence is a database which offers Image emulation
 - This could help with migrating other applications
 - Cognos is compatible with Eloquence
 - Support in both UNIX and Windows environments

Migration planning

- Step 3: Identify target user interface architecture
 - Stay with the character-based screens (QUICK)
 - Move to GUI client / server screens (Axiant)
 - Move to web-based GUI screens (PowerHouse Web)

- Decision should be driven by client requirements, potential business impact

Migration planning

- Option 1: Stay with character-based screens (QUICK)
 - Advantages
 - Doesn't require many screen modifications
 - Only need to modify data element changes, then re-compile in the new environment
 - Disadvantages
 - No modern GUI look-and-feel
 - If there are many changes in the database, these screens will have to change anyway

Migration planning

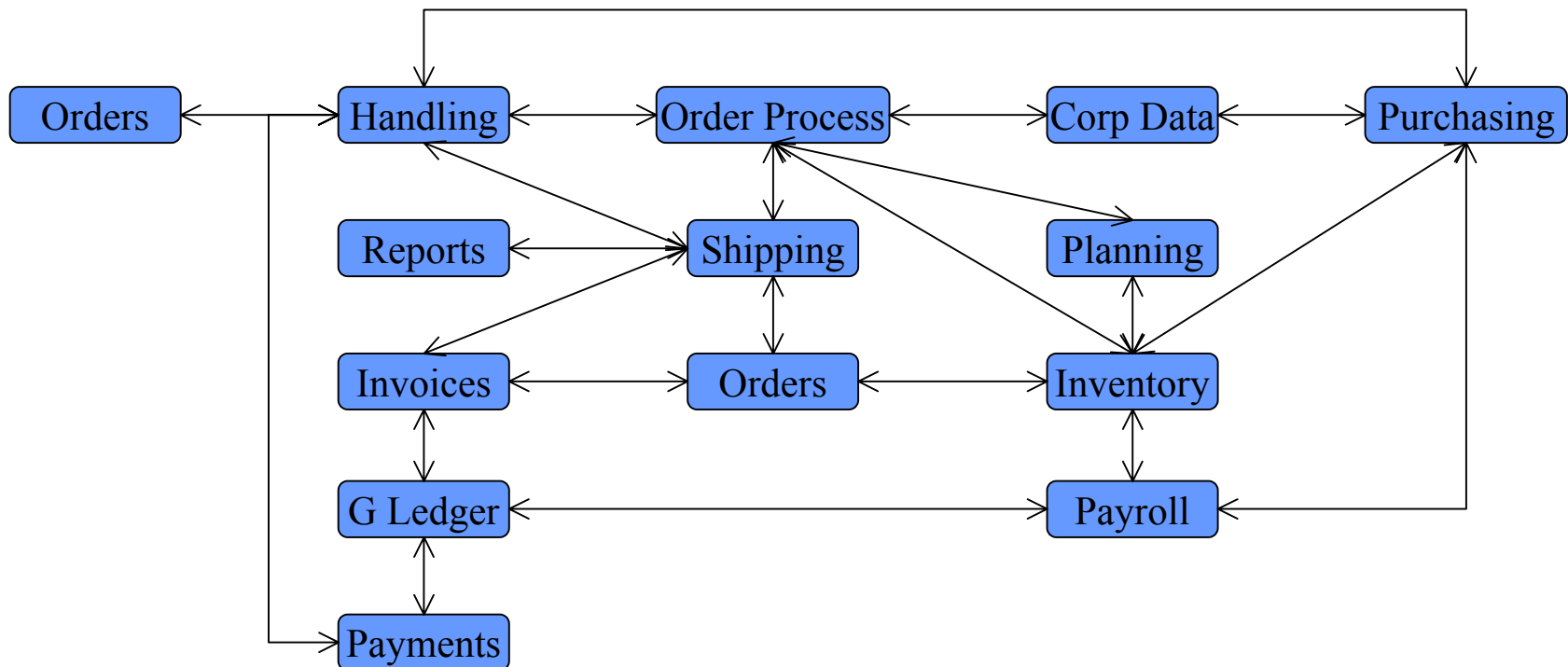
- Option 2: Move to GUI client / server screens (Axiant)
 - Advantages
 - Moves entirely to the Windows / GUI environment
 - Disadvantages
 - Requires re-design of screens
 - Must maintain the client on all users PC's

Migration planning

- Option 3: Move to web-based GUI screens (PH Web)
 - Advantages
 - Move to modern, web-based technology
 - Web server-based screen handling eliminates need for PC clients
 - Users can access GUI with web browser
 - Disadvantages
 - Must maintain web server to run the GUI
 - Must re-design and compile the screens, output is HTML

Migration planning

- Step 4: Identify application interfaces
 - Identify applications that interface with the Powerhouse application
 - If they are on the HP e3000, they will also require migration



Migration planning

- Step 5: Identify training needs
 - The current IT staff has focused on the HP e3000, MPE, and Powerhouse environment

 - Prior to the migration, the staff will need to gain the following skills:
 - Target platform OS
 - RDBMS
 - Migration Tools

 - PowerHouse skills can be leveraged

Migration Planning Summary

- Identify new platform
- Identify database tool
- Identify interface architecture
- Identify all Interfaces
- Training

Migration process

- Acquire tools and associated training
- Migrate database
- Migrate application
- Translate data

Migration example

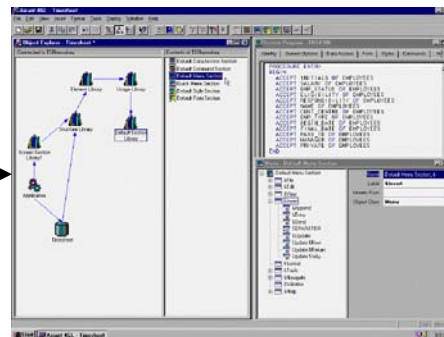
- To illustrate the migration process, a port to the following is used:
 - Platform/OS: HP 9000
 - Database: Oracle 8.1.7 RDBMS
 - Migration tool: Axiant 3.1
 - PowerHouse version: 8.23.D7

Migration overview

■ HP 3000

■ Cognos Axiant

■ HP9000



- PowerHouse
- Turbo Image

- Oracle 8.1.7
- PowerHouse 8.23.D7

Migration tools

- Cognos Axiant used to migrate:
 - Data dictionary
 - PowerHouse application which consists of:
 - QUICK
 - QUIZ
 - QTP

- Data migrated using PowerHouse QUIZ

Migration process

■ Step 1: Install Software

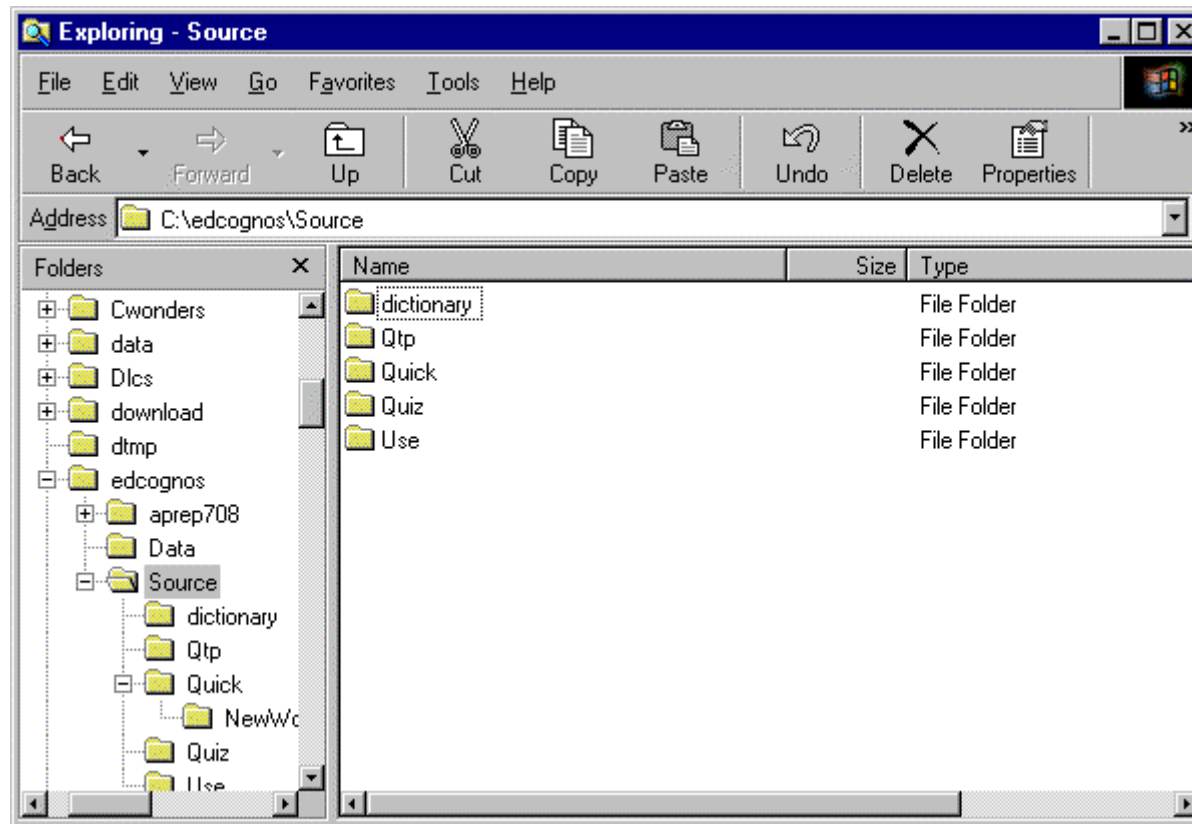
- Axiant 3.1 installed on Windows 98 server
- PowerHouse 8.23.D7 installed on HP 9000
- Oracle 8.1.7 installed on HP 9000

Migration process

- Step 2: Prepare and move HP e3000 source code
 - Review Dictionary
 - Retrieve all application source: QUIZ, QUICK, QTP
 - Move source to a central location for Axiant access
 - Should be network drive
 - Should have network access to HP 3000 & HP 9000

Migration process

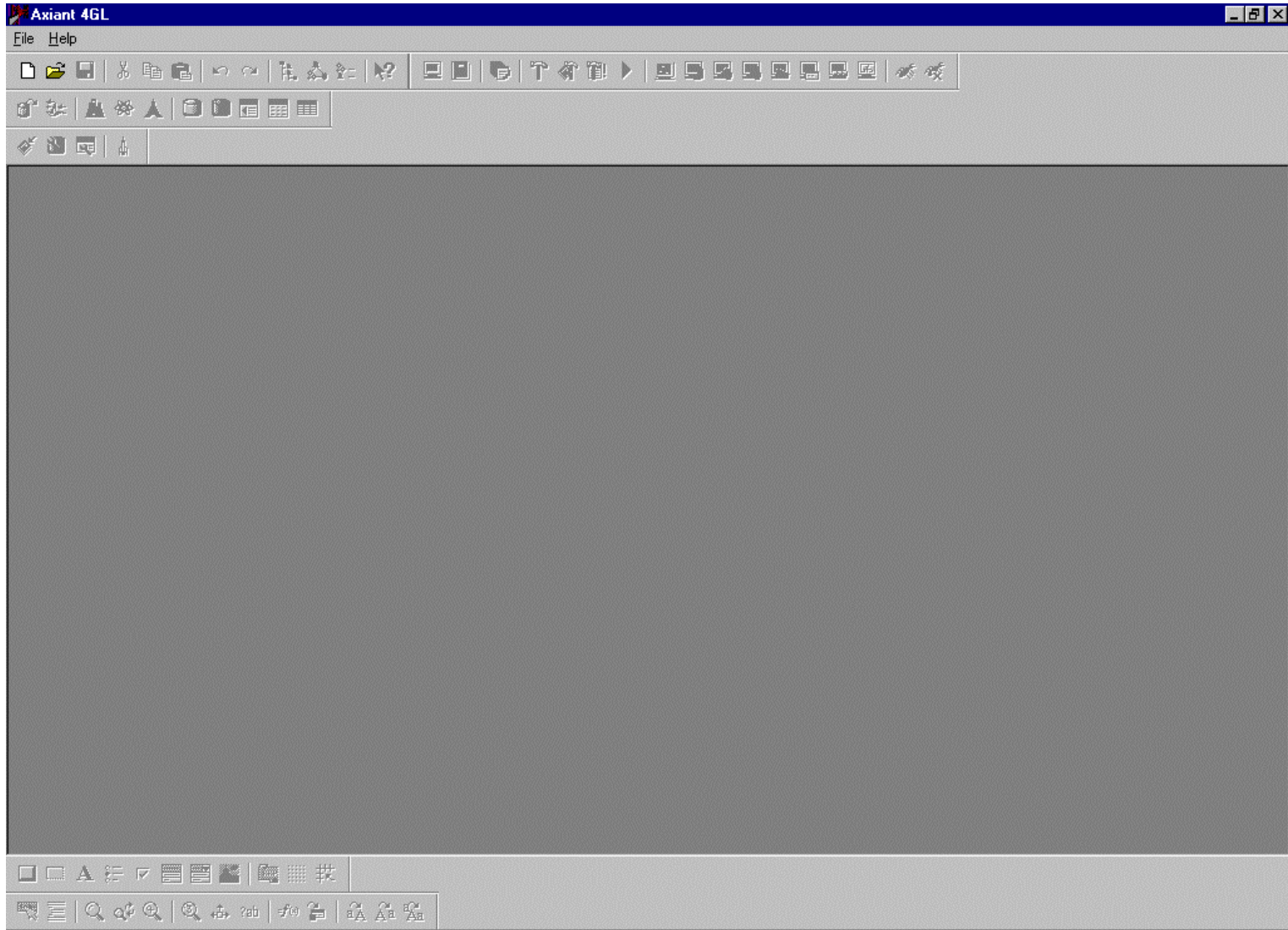
Example: Central location for HP e3000 source files



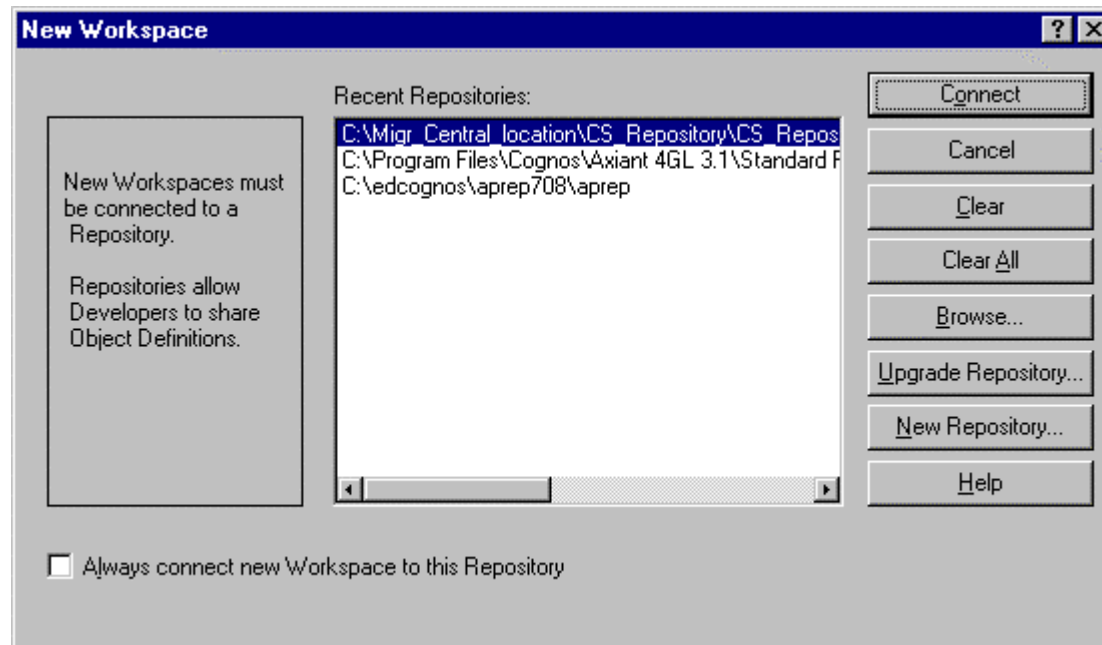
Migration process

- Step 3: Set up Axiant
 - Create a Repository (holding place for a specific project)
 - You can have multiple repositories
 - Create a migration profile, defines:
 - Where the data dictionary and source resides
 - What code has been migrated

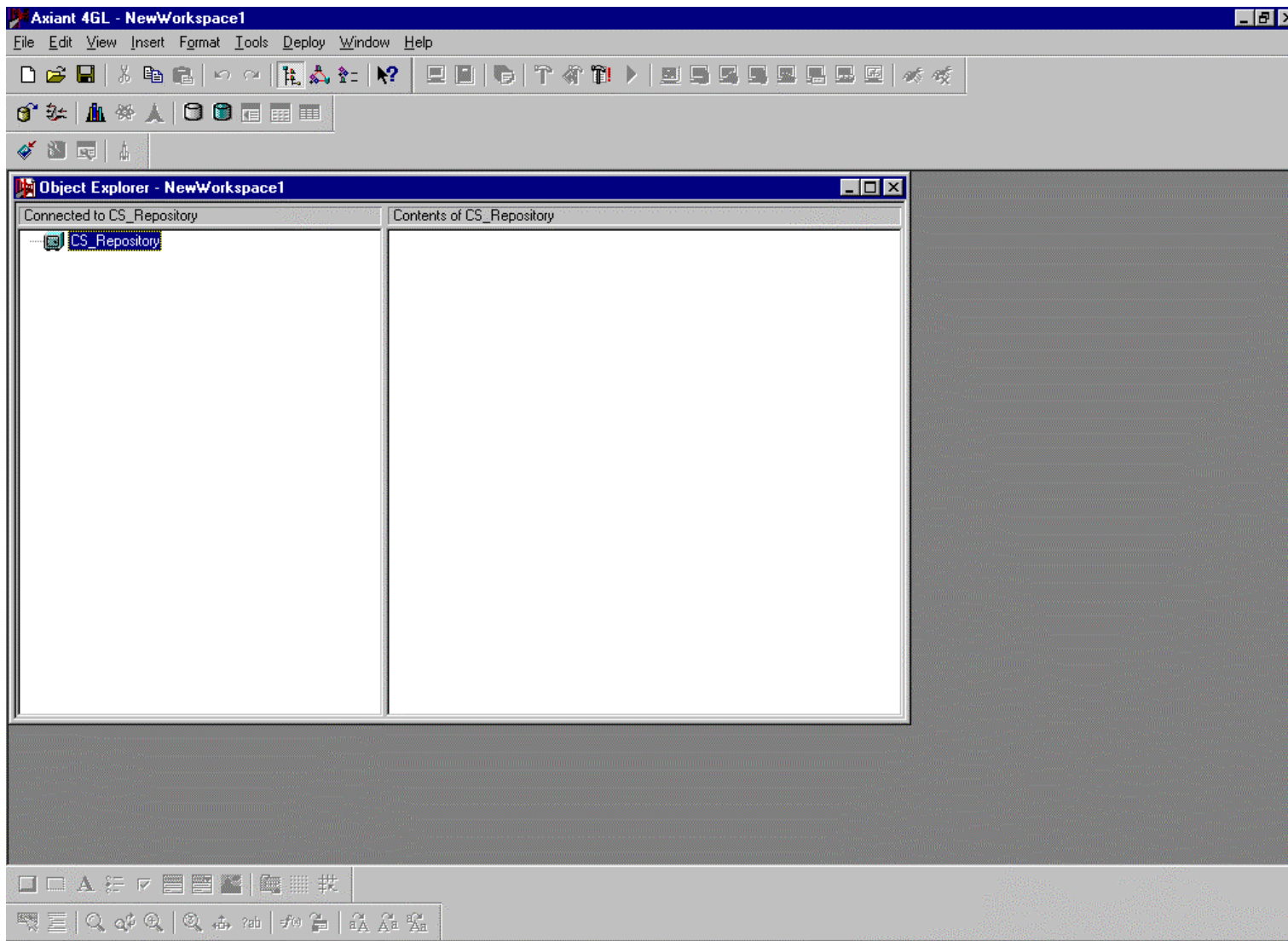
Initial Axiant screen



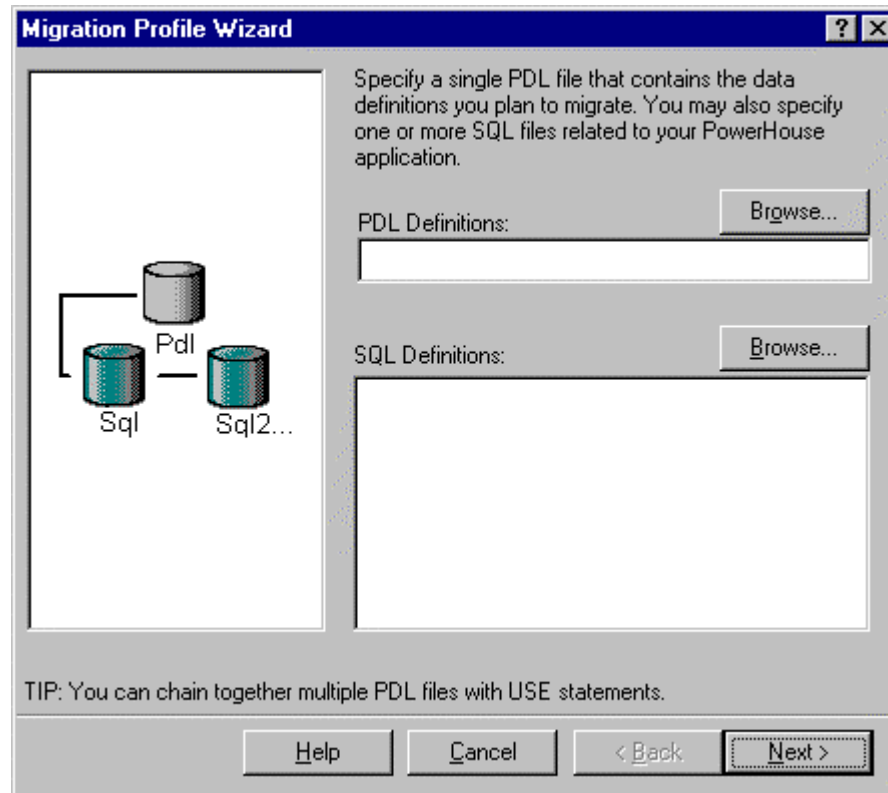
Connecting to a Repository



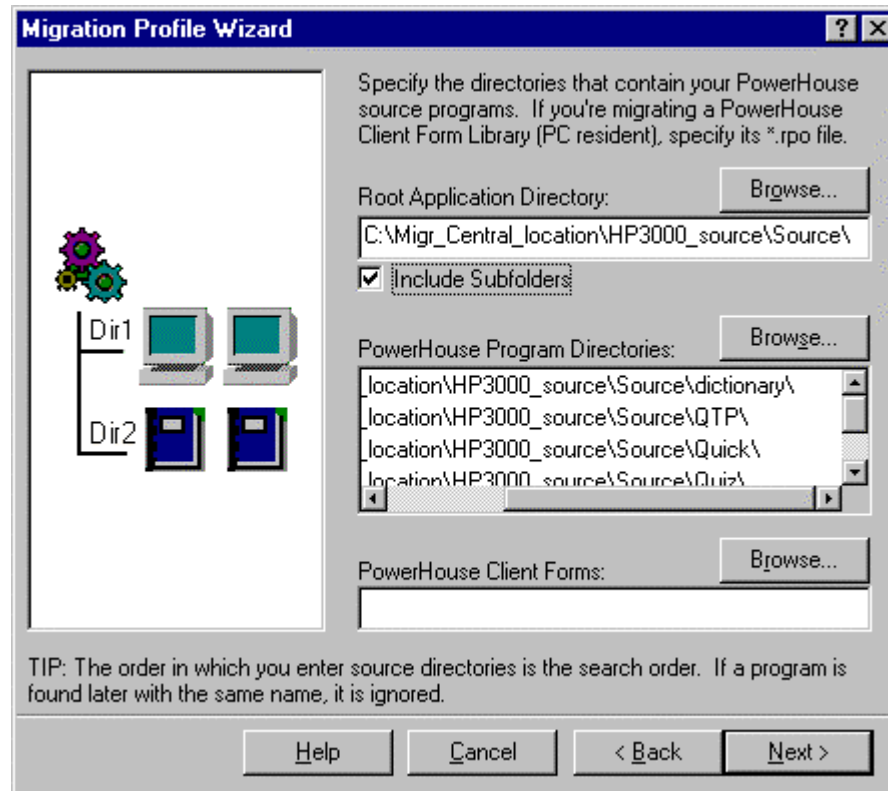
Initial Repository



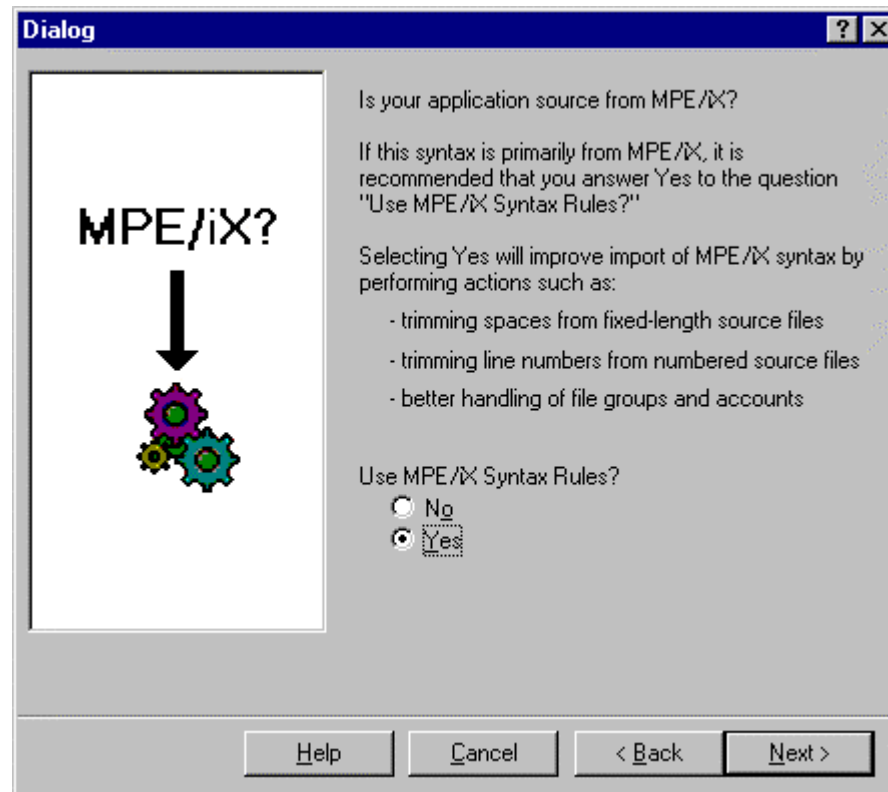
Create a migration profile



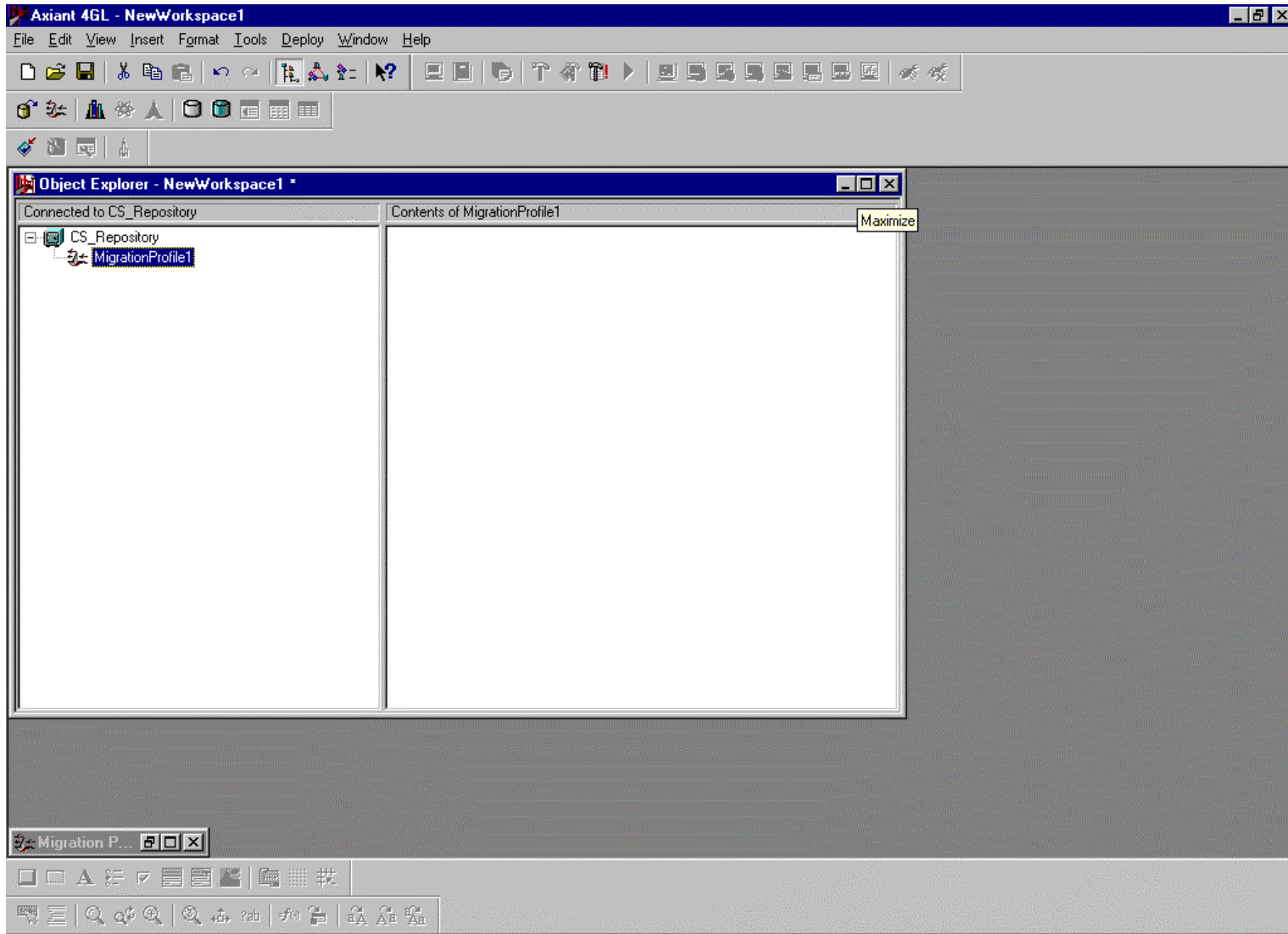
Migration profile has source locations



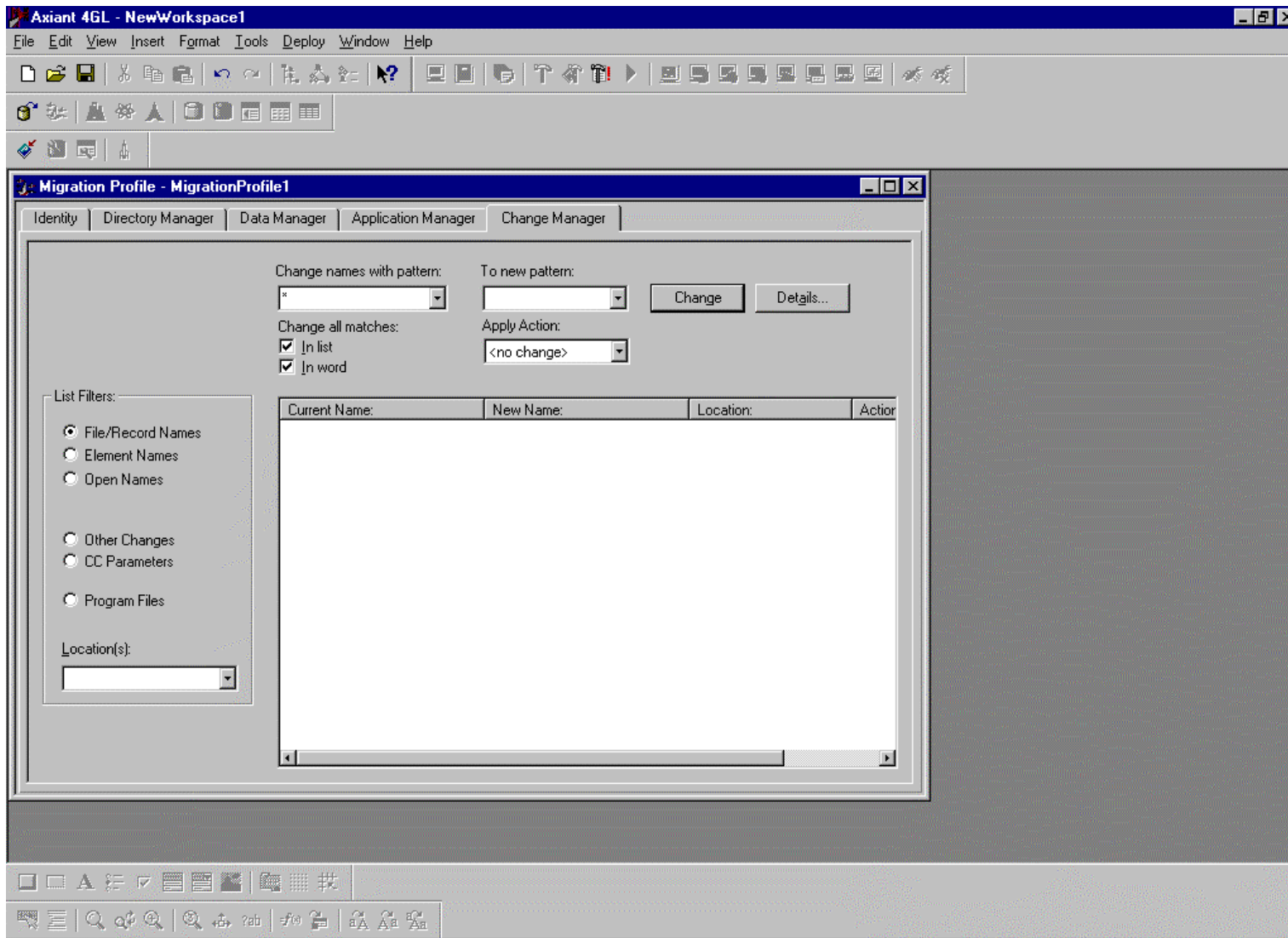
Migration Profile set up cont.



Migration profile setup complete



Migration profile



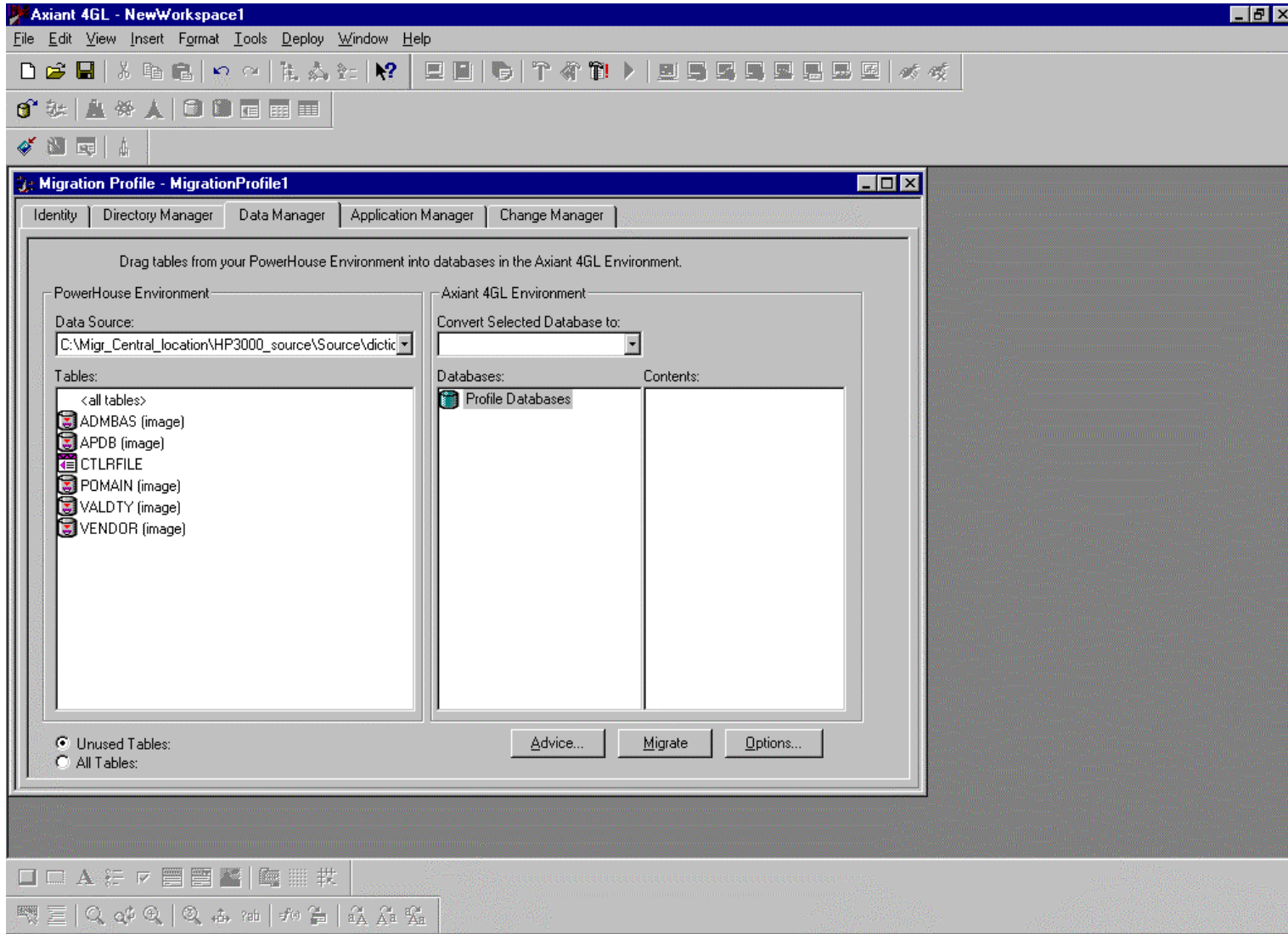
Migration process

- Step 4: Data Dictionary migration
 - Migrate the dictionary by opening the migration profile
 - Access dictionary
 - Making changes to dataset names, elements using the change manager in the profile
 - Press the migration button

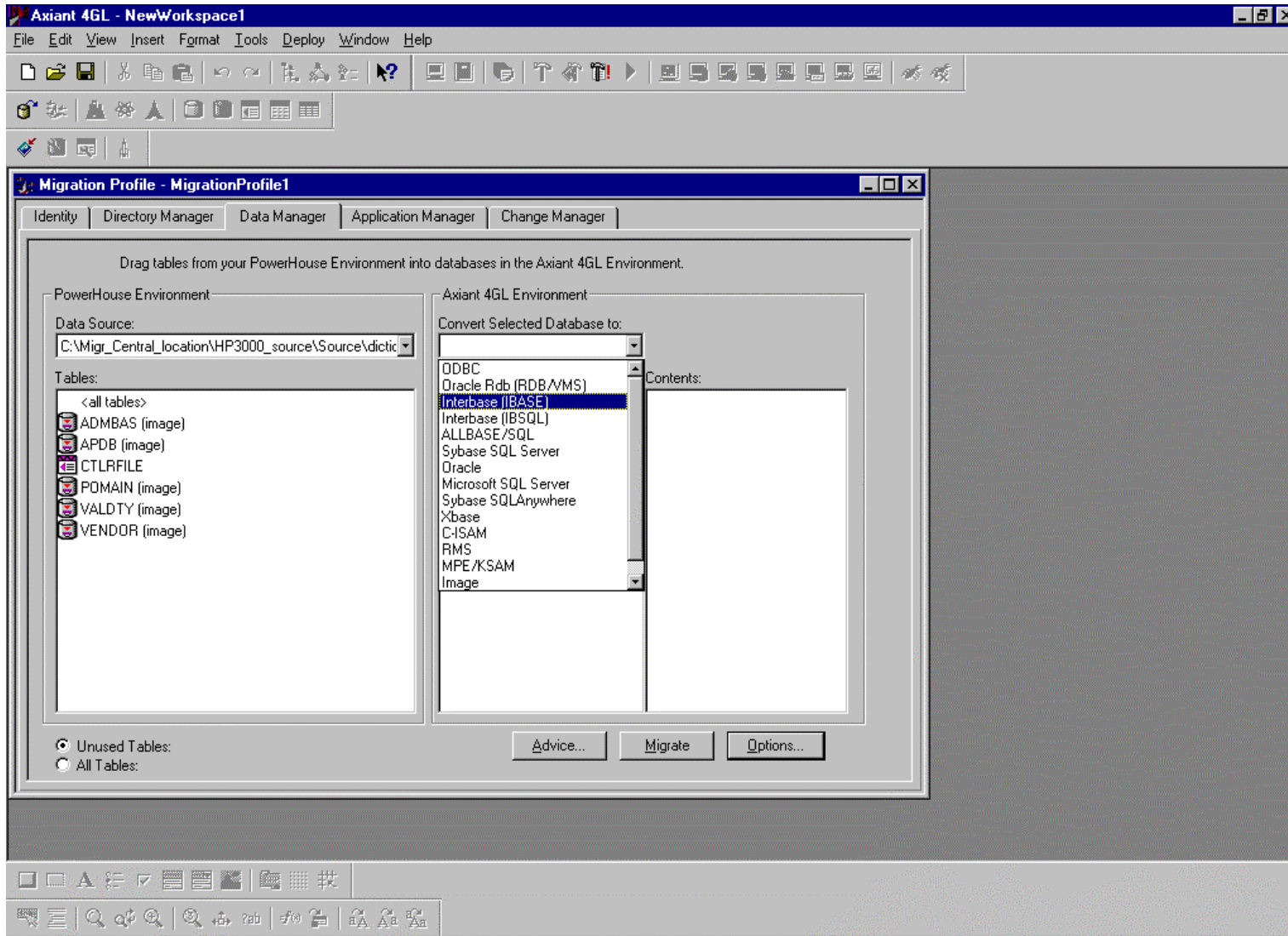
 - Possible migration errors:
 - Arrays
 - Warnings about indexes

 - Migration can continue with warnings

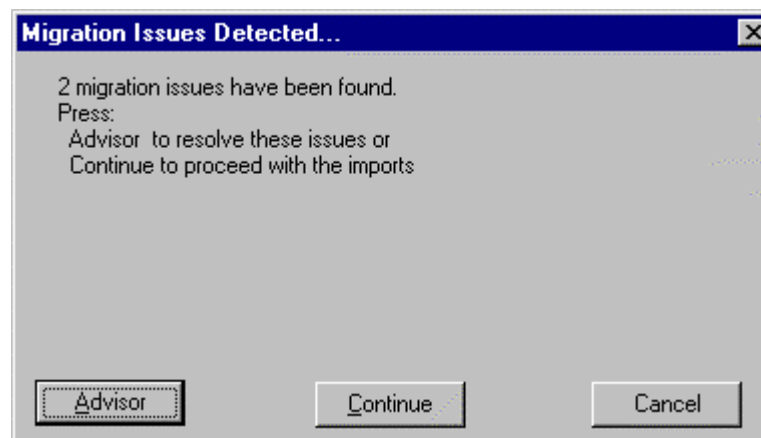
Data Dictionary migration



Convert to new source



Migration – sample errors



Migration: Sample errors

The chart below summarizes migration Issues for location: APDB Details...

Issue	Location	Severity
Dashes are not allowed in column names in SQL: (found 282)	APDB	Error
Dashes are not allowed in table names in SQL: (found 26)	APDB	Error
Index names must be unique: (found 43)	APDB	Warning
Tables found with no Primary Key: (found 10)	APDB	Warning

TIP:
Select an issue, then click the Details button to resolve or get more information.

Info messages: Warnings: Errors:

Migrate OK Cancel Help

Migration changes

Migration Advisor Details....

Change names with pattern: To new pattern:

Change all matches:
 In list
 In word

Apply Action:

Migration Advice:
 Dashes are not allowed in column names in SQL: (found 282)
 Recommendation - replace dashes(-) with underscores(_)

Location(s):

Current Name:	New Name:	Location:	Action:
RECEIPT-KEY	RECEIPT_KEY	INVOICE-RECEIPT	
CURRENCY-CODE	CURRENCY_CODE	INVOICE	
CURRENCY-RATE-1	CURRENCY_RATE_1	CURRENCY-RATES	
VENDOR-NUMBER	VENDOR_NUMBER	PAYFORM	
PAYFORM-NUMBER	PAYFORM_NUMBER	PAYFORM	
ACCRUAL-KEY	ACCRUAL_KEY	AP-RECEIPT	
INV-NUMBER	INV_NUMBER	INVOICE	
ORDER-NUMBER	ORDER_NUMBER	INVOICE-LINE	
PO-DESCR	PO_DESCR	BLANKET-PO-MSTR	
DATE-PO-START	DATE_PO_START	BLANKET-PO-MSTR	
DATE-PO-EXP	DATE_PO_EXP	BLANKET-PO-MSTR	
PO-AMT-LIMIT	PO_AMT_LIMIT	BLANKET-PO-MSTR	
INV-BPO-AMT	INV_BPO_AMT	BLANKET-PO-MSTR	
INV-BPO-FGT	INV_BPO_FGT	BLANKET-PO-MSTR	
INV-BPO-TAX	INV_BPO_TAX	BLANKET-PO-MSTR	
REL-BPO-AMT	REL_BPO_AMT	BLANKET-PO-MSTR	
REL-BPO-FGT	REL_BPO_FGT	BLANKET-PO-MSTR	
REL-BPO-TAX	REL_BPO_TAX	BLANKET-PO-MSTR	
VOUCHER-NUMBER	VOUCHER_NUMBER	INVOICE-PAYMENT	
PAYFORM-KEY	PAYFORM_KEY	INVOICE-PAYMENT	
BATCHID	BATCH_ID	INVOICE	

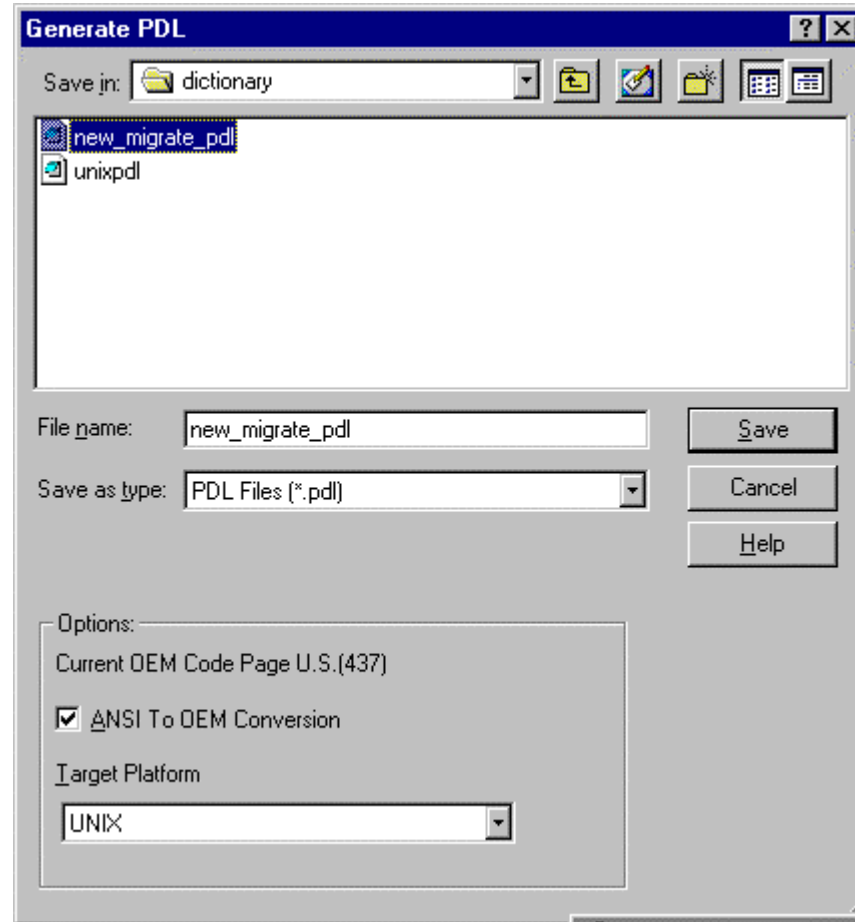
Migrated data dictionary

The screenshot shows the Axiant 4GL - NewWorkspace1 application. A 'Migration Profile - MigrationProfile1' window is open, displaying a 'Migration Status' dialog box. The dialog box contains a table with the following data:

Name:	Errors	Warnin...	Status
ADMBAS	0	0	Imported
APDB	1	0	Imported
Application	1	0	Imported
EL_ADMBAS	0	0	Imported
EL_APDB	0	0	Imported
EL_mepspd	0	0	Imported
EL_POMAIN	0	0	Imported
EL_VALDTY	0	0	Imported
EL_VENDOR	0	27	Imported
mepspd	0	0	Imported
POMAIN	1	1	Imported
VALDTY	1	1	Imported
VENDOR	0	0	Imported

Below the table, there is a checkbox labeled 'Keep Temporary Files:' which is checked. The dialog box also features 'Close', 'Open', and 'Help' buttons.

Generate a PDL



Migration process

■ Data Dictionary Issues

- Change naming conventions since they may differ
 - Dashes not acceptable in some/all RDBMS
- Need to address arrays, substructures and redefines

Migration process

- Migration output can consist of
 - Code for new PDL dictionary
 - Code for SQL
 - Modified code that matches new SQL layout

Migration Process

```

new_migrate_pdl - WordPad
File Edit View Insert Format Help
[Icons]

|; PDL Generated by Axiant for Application: Applicat

; Sat Jul 19 07:42:21 2003

Create Dictionary new_migrate_pdl Not Preloaded

System Options Release 255 Version 0 Title "" ASCII7 Default Century 19 &
Generic Retrieval Character "@" &
Message Substitution Character "^" &
Sysmonth "JANFEBMARAPRMYJUNJULAUUGSEPOCTNOVDEC" &
Character Set ENGLISH Default Transaction Model CONCURRENCY &
Default Entry And Find In CONSISTENCY &
Default Select In CONCURRENCY Shift UPSHIFT &
Null Value Character " " Special Name Characters "-_!%#" &
Decimal "." Date Format YYMMDD Date Separator "/" &
Century Included Picture Substitution Character "^" &
Multiline Heading Character "^" Pattern Alpha "^" Any "?" &
Digit "#" Escape "!" Leftp "{" Not "\" Null "0" Optional "<" &
Optrep "*" Or "|" Repeat ">" Rightp ")" Wild "@" &
Reserved Characters "[:;_&"

Element EN_SUBSYS_CODE Character Size 4 Heading "En^Subsys^Code" &
Label "En Subsys Code" Default Item Datatype CHARACTER Size 4

Element ENTITY_CODE Character Size 2 Heading "Entity^Code" &
Label "Entity Code" Default Item Datatype CHARACTER Size 2

Element ACCTG_MONTH Character Size 6 Heading "Acctg^Month" &
Label "Acctg Month" Default Item Datatype CHARACTER Size 6

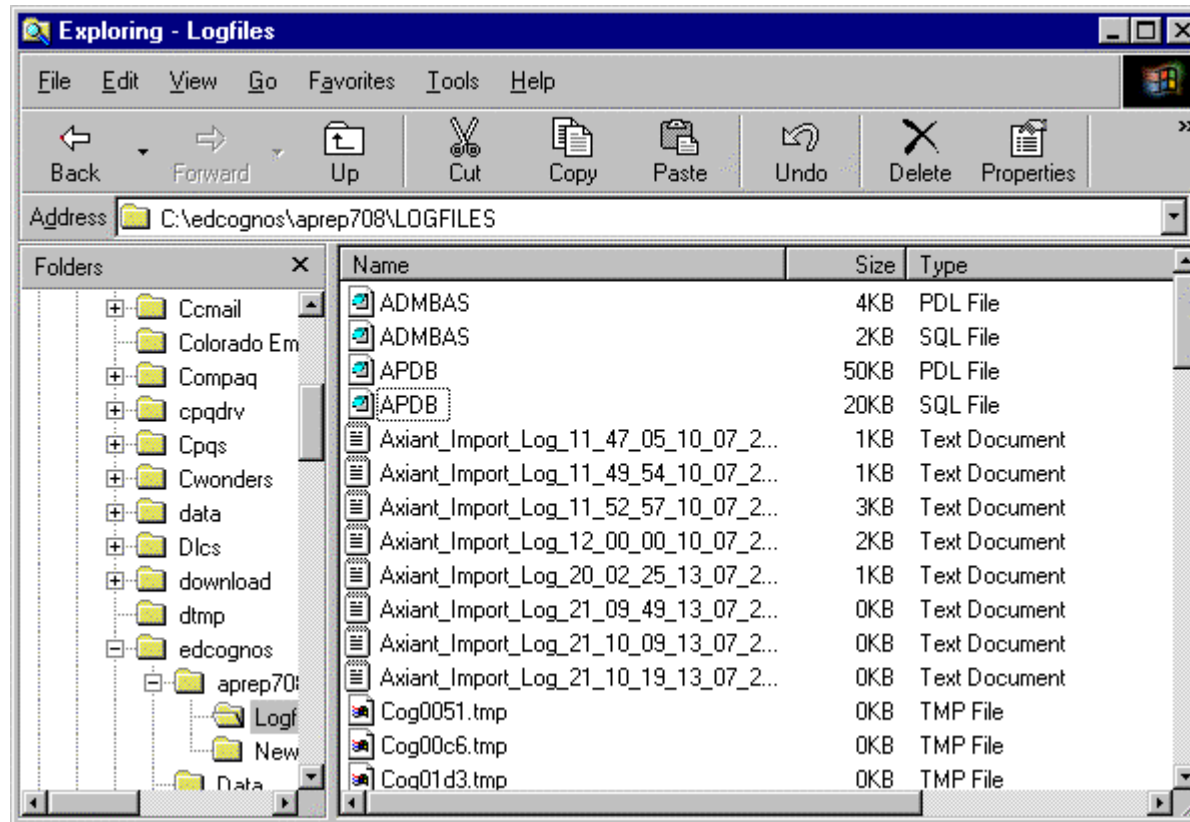
Element CYCLE_NO Character Size 2 Heading "Cycle^No" Label "Cycle No" &
Default Item Datatype CHARACTER Size 2

For Help, press F1
NUM

```

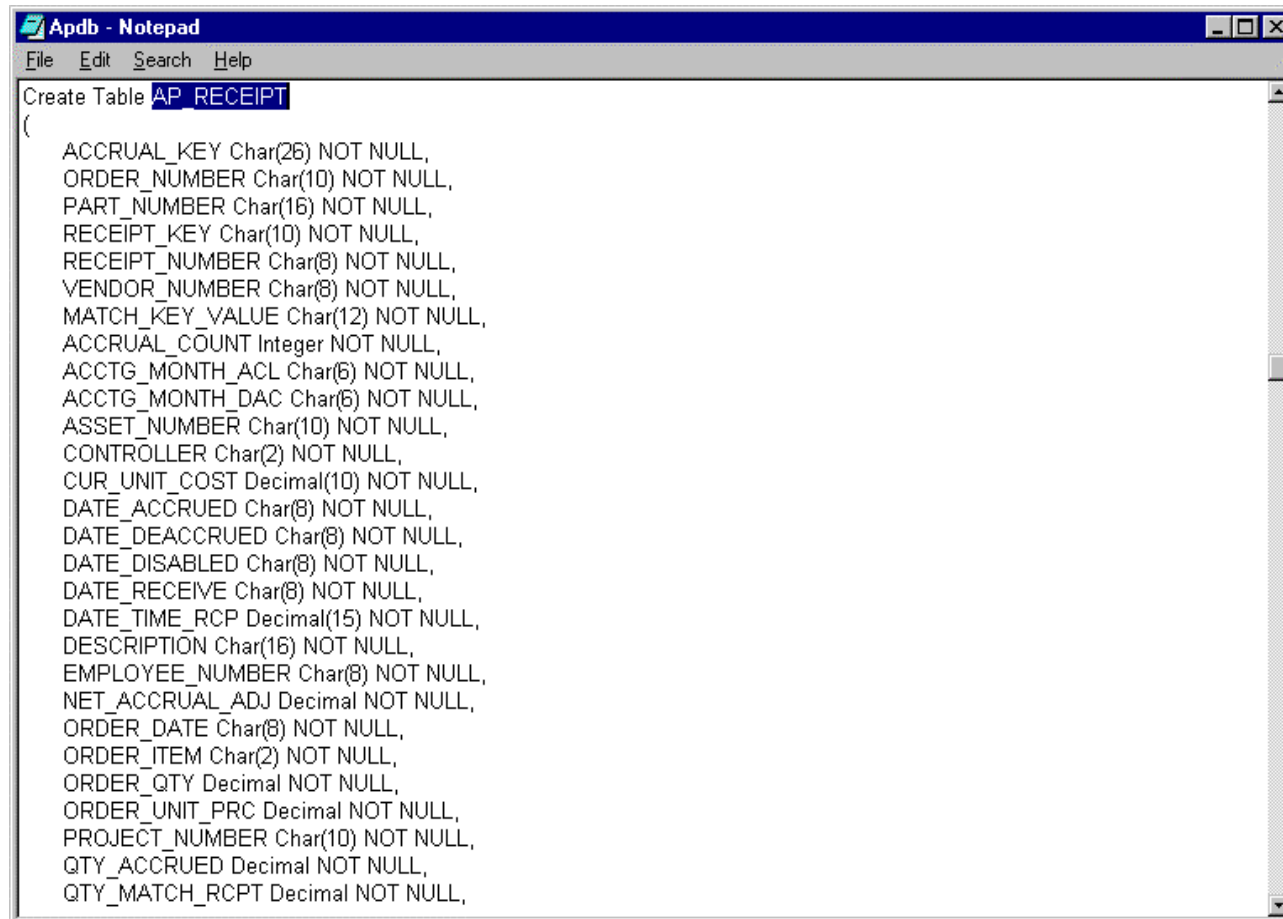
Migration process

Example: Generated SQL to Build New Tables



The Migration Process

Example: Generated SQL to Build New Tables



```

Create Table AP_RECEIPT
(
  ACCRUAL_KEY Char(26) NOT NULL,
  ORDER_NUMBER Char(10) NOT NULL,
  PART_NUMBER Char(16) NOT NULL,
  RECEIPT_KEY Char(10) NOT NULL,
  RECEIPT_NUMBER Char(8) NOT NULL,
  VENDOR_NUMBER Char(8) NOT NULL,
  MATCH_KEY_VALUE Char(12) NOT NULL,
  ACCRUAL_COUNT Integer NOT NULL,
  ACCTG_MONTH_ACL Char(6) NOT NULL,
  ACCTG_MONTH_DAC Char(6) NOT NULL,
  ASSET_NUMBER Char(10) NOT NULL,
  CONTROLLER Char(2) NOT NULL,
  CUR_UNIT_COST Decimal(10) NOT NULL,
  DATE_ACCRUED Char(8) NOT NULL,
  DATE_DEACCRUED Char(8) NOT NULL,
  DATE_DISABLED Char(8) NOT NULL,
  DATE_RECEIVE Char(8) NOT NULL,
  DATE_TIME_RCP Decimal(15) NOT NULL,
  DESCRIPTION Char(16) NOT NULL,
  EMPLOYEE_NUMBER Char(8) NOT NULL,
  NET_ACCRUAL_ADJ Decimal NOT NULL,
  ORDER_DATE Char(8) NOT NULL,
  ORDER_ITEM Char(2) NOT NULL,
  ORDER_QTY Decimal NOT NULL,
  ORDER_UNIT_PRC Decimal NOT NULL,
  PROJECT_NUMBER Char(10) NOT NULL,
  QTY_ACCRUED Decimal NOT NULL,
  QTY_MATCH_RCPT Decimal NOT NULL,

```

Migration process

- Step 5: Migrate the application
 - Axiant provides automated functionality to migrate the application source code
 - Axiant makes common changes to source code based on the migration profile
 - The resulting migrated source code is placed back into a new location in the repository
- Then manually change remaining migration items
 - Verify Temps and Defines

Migration Process

The screenshot shows the Axiant 4GL - NewWorkspace1 application. A 'Migration Profile - MigrationProfile1' window is open, displaying a 'Migration Status' dialog box. The dialog box contains a table with the following data:

Name:	Errors	Warnin...	Status
mar8625k	0	0	Imported
mar8627k	0	0	Imported
mar8632k	0	0	Imported
mar8633k	0	0	Imported
mar8636k	0	0	Imported
mar8637k	0	0	Imported
stdcalmu	0	0	Use file
stdesgru	0	0	Use file
stdhiliu	0	0	Use file
stdkey3u	0	0	Use file
stdtempu	0	0	Use file
stdtimeu	0	0	Use file

Below the table, there is a checkbox labeled 'Keep Temporary Files:' which is checked. The dialog box also features 'Close', 'Open', and 'Help' buttons.

In the background, the 'Migration Profile' window shows a 'PowerHouse Environment' section with a filter set to 'All Files (*.*)'. A list of files is visible, including 'NewWorkspace1.axb', 'NewWorkspace1.axu', 'startsk.qks.txt', and 'stdfk.dsu.txt'. There is also a checkbox for 'Unused Files: (4)' which is checked.

A tip at the bottom of the migration profile window reads: 'TIP: When a program that calls other programs is dragged into a program set, the hierarchy of what it calls is also moved.'

Migration Process

Axiant 4GL - NewWorkspace1

File Edit View Insert Format Tools Deploy Window Help

Migration Profile - MigrationProfile1

Identity Directory Manager Data Manager Application Manager Change Manager

Change names with pattern: To new pattern:

Change all matches:
 In list
 In word

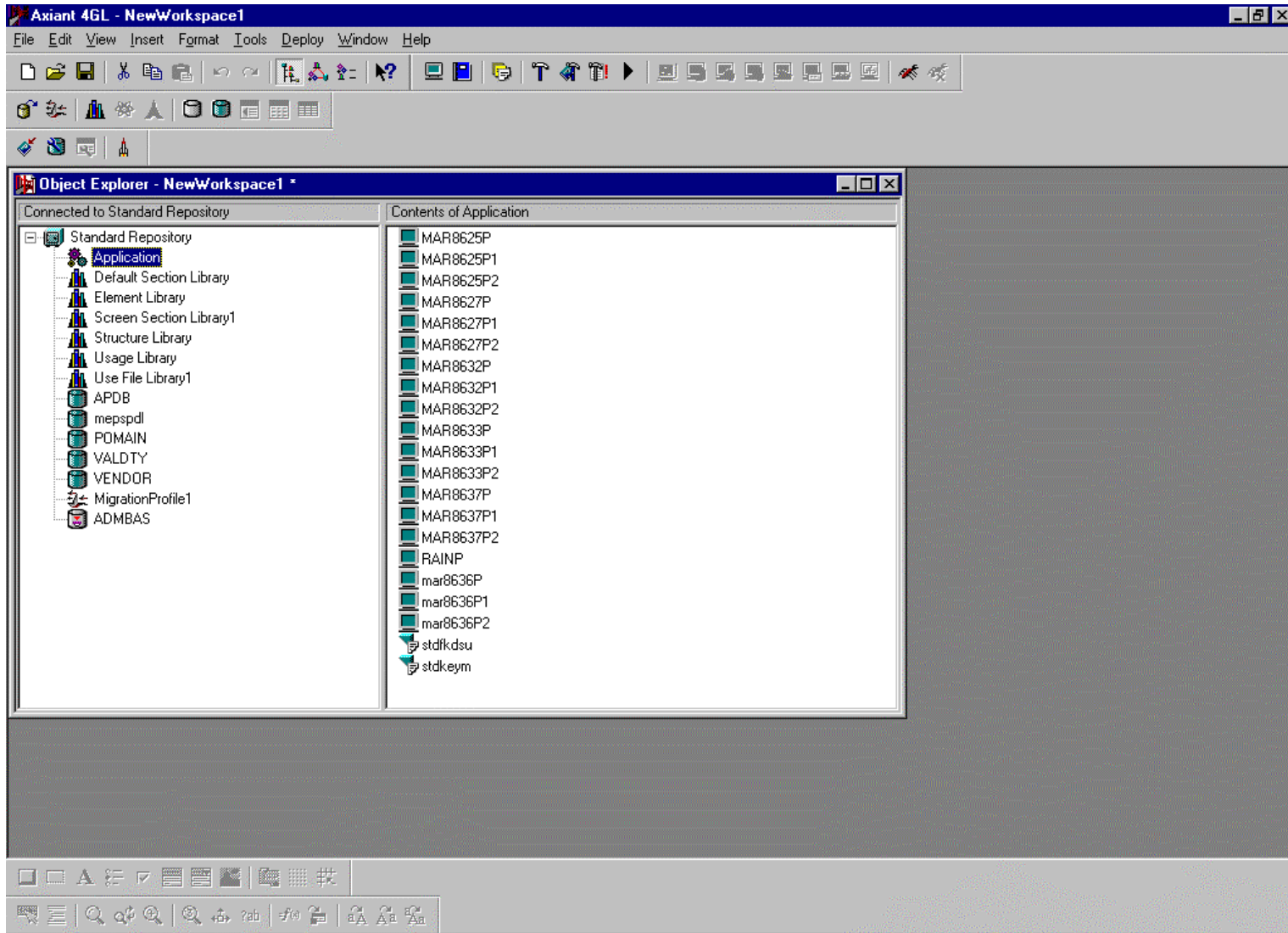
Apply Action:

List Filters:
 File/Record Names
 Element Names
 Open Names
 Other Changes
 CC Parameters
 Program Files

Location(s):

Current Name:	New Name:	Location:	Action:
MAR8625P		mar8625k.qks.txt	Keep
MAR8627P_MARDRO		mar8627k.qks.txt	Keep
MAR8632P_MARDRO		mar8632k.qks.txt	Keep
MAR8633P		mar8633k.qks.txt	Keep
MAR8636P_MARDRO		mar8636k.qks.txt	Keep
MAR8637P		mar8637k.qks.txt	Keep
NEWWORKSPACE1_AXB		NewWorkspace1.axb	Keep
NEWWORKSPACE1_AXU		NewWorkspace1.axu	Keep
RAINP		startsk.qks.txt	Keep
STDCALMU_TXT		stdcalmu.txt	Keep
STDESGRU_TXT		stdesgru.txt	Keep
STDFKDSU_TXT		stdfkdsu.txt	Keep
STDHILIU_TXT		stdhiliu.txt	Keep
STDKEY3U_TXT		stdkey3u.txt	Keep
STDTEMPU_TXT		stdtempu.txt	Keep
STDTIMEU_TXT		stdtimeu.txt	Keep

Migration Process



Migration Process

Axiant 4GL - NewWorkspace1 - [Screen - MAR8625P]

File Edit View Insert Format Tools Deploy Window Help

Identity | Screen Options | Data Access | Form | Styles | Layout | Events | Commands | Menu | Toolbar | Screen Procedures | Syntax Preview | Build Results

```

" you can also specify Status (V=valid, M=matched, P=partial match, " &
"F=forced match, S=suspended, UD/SD=user- or system-disabled, C=" &
"complete. If more than one Voucher matched with the Receipt, you " &
"will see an asterisk '*' by the Voucher# - to see all Matching " &
"Vouchers, enter M:nn where nn=line#."
DEFINE SCREEN-NAME &
CHARACTER *8 &
= "MAR8625P"
TEMPORARY U-ORDER# &
CHARACTER *10 &
INITIAL P-ORDER#
TEMPORARY U-VENDOR# &
CHARACTER *8 &
INITIAL P-VENDOR#
TEMPORARY U-STATUS &
CHARACTER *2 &
INITIAL Q-STATUS
TEMPORARY U-ENTITY &
CHARACTER *2 &
INITIAL Q-ENTITY
TEMPORARY U-PART# &
CHARACTER *16
;File/Cursor Statement
FILE AP_RECEIPT &
PRIMARY &
OCCURS 2 &
CLOSE
SELECT IF ( VENDOR_NUMBER = U-VENDOR# OR U-VENDOR# = &
" " OR U-ORDER# <> " " ) AND ( STATUS_RECEIPT &
= U-STATUS OR U-STATUS = " " ) AND ( &
ORDER_NUMBER = U-ORDER# OR U-ORDER# = " " ) &
AND ( SCS_ENTITY = U-ENTITY OR U-ENTITY = " " &
) AND ( PART_NUMBER = U-PART# OR U-PART# = &
" " )
;File/Cursor Statement
FILE INVOICE_RECEIPT &
REFERENCE &
OCCURS 1 MULTIPLE RECEIPT &

```

11/17/2003

Migration Process

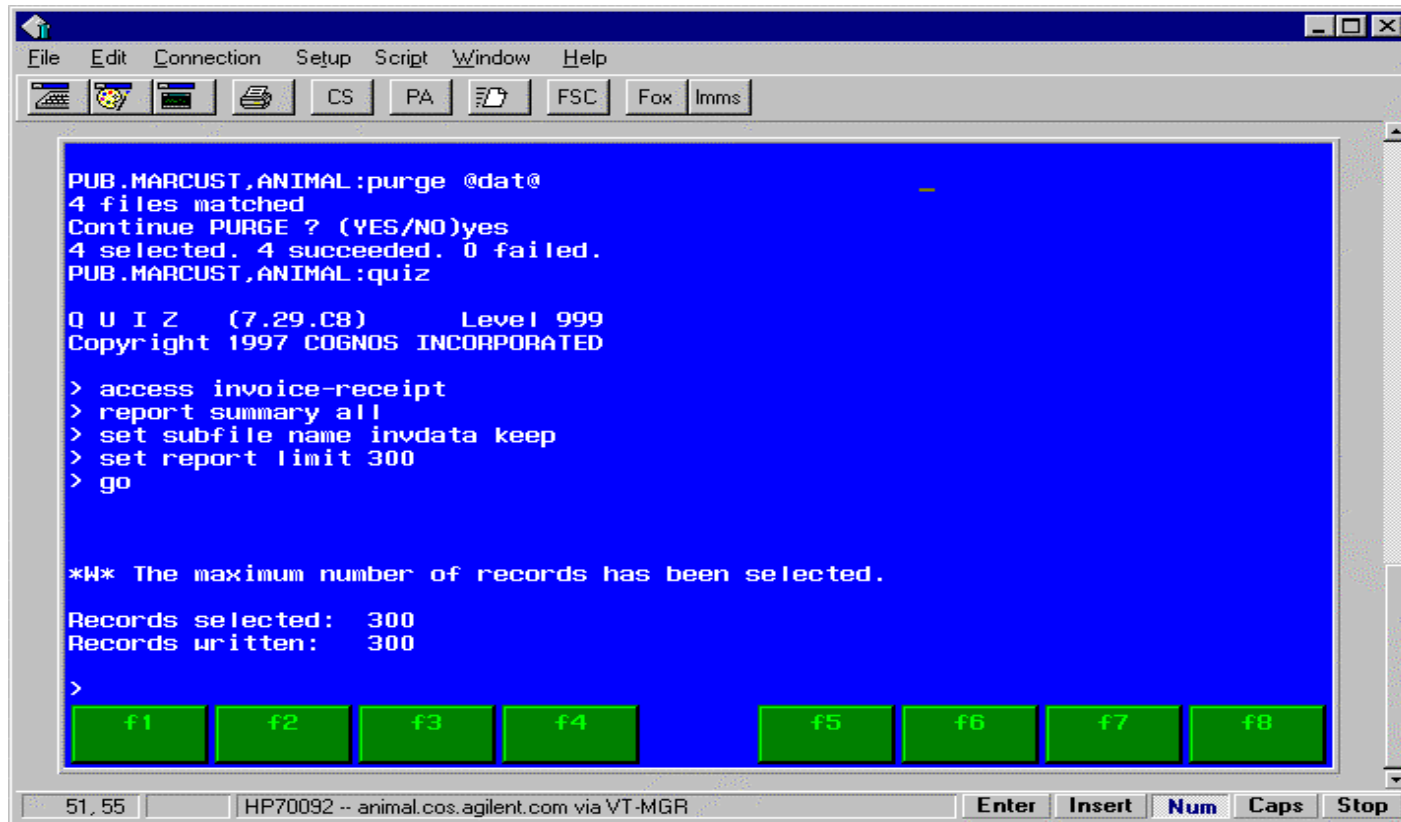
- Application Migration Issues
 - Temps and Defines are not in migration profile
 - Change “-” to “_” for all temps

Migration process

- Step 6 - Data migration
 - Extracted data using QUIZ on HP e3000
 - Create Subfile

Migration process

Example: QUIZ to Migrate Data



```

PUB.MARCUST,ANIMAL:purge @dat@
4 files matched
Continue PURGE ? (YES/NO)yes
4 selected. 4 succeeded. 0 failed.
PUB.MARCUST,ANIMAL:quiz

Q U I Z (7.29.C8)      Level 999
Copyright 1997 COGNOS INCORPORATED

> access invoice-receipt
> report summary all
> set subfile name invdata keep
> set report limit 300
> go

** The maximum number of records has been selected.

Records selected:  300
Records written:   300

>

```

Migration process

- Step 7 - Move Source and Data to New Server
 - You can FTP
 - Do transfers with your emulator
 - Cut and Paste

Migration Process

```

foxtrot - Reflection 1
File Edit Connection Setup Script Window Help
[Keyboard] [Mouse] [Printer] [CS] [PA] [FSC] [Fox] [Imms]

Mail      data      migration  phd.pdc   this.sql
RATQKO.qkg  elrpd1.src.pdl  newpdl.pdc  phd.pdl   unixpdl.pdc
appdl.new  graph     ph12481.tmp  profile    wksp
appdl.pdc  impusr3   ph13274.tmp  ratsub.ps  x.qkc
appdl.pdl  lab.qkc   ph28890.tmp  ratsub.psd x.qks
back.pdc   lab.qkd   ph5467.tmp   screen1.qkc x1.qks
bats.sf    lab.qkl   ph5703.tmp   screen1.qks z.qkc
bats.sfd   lab.qks   ph8213.tmp   skillcount.qks z.qkd
big.qts    look.qkc  ph9084.tmp   skillsub.sf z.qkl
bigname.sf look.qks   ph9099.tmp   skillsub.sfd

$ pdl
P D L (PowerHouse 8.23.D7)
Copyright 2001 COGNOS INCORPORATED
Licensed PH8-TEMPORARY for customer: 0057190090 COGNOS HU DEMO

> use appdl.new
> ; PDL Generated by Axiant for Application: Applicat
>
> ; Thu Jul 17 11:21:30 2003
>
>
> Create Dictionary unixpdl Not Preloaded
The file unixpdl already exists. Is it OK to delete?

f1 f2 f3 f4 f5 f6 f7 f8

130, 53 | HP70092 -- mongo.thinkmbs.com via TELNET | Enter Ins Wr Num Caps Stop
  
```

Migration process

- Step 8 – Load new test system
 - Run PDL to create a dictionary
 - Qdesign to recompile all Quick screens
 - Recompile run time Quiz
 - Recompile run time QTP
 - Load Data

Migration Process

```

foxtrot - Reflection 1
File Edit Connection Setup Script Window Help
CS PA FSC Fox Imms
>
> Element CTLR_KEY Character Size 6 Heading "Ctrl^Key" Label "Ctrl Key" &
>   Default Item Datatype CHARACTER Size 6
>
>
> Element CTLR_NAME Character Size 16 Heading "Ctrl Name" Label "Ctrl Name" &
>   Default Item Datatype CHARACTER Size 16
>
>
> Database ADMBAS Type ORACLE NULL VALUES ALLOWED Open "ADMBAS" &
>   Dbkeyscope Attach
> Database APDB Type ORACLE NULL VALUES ALLOWED Open "APDB" &
>   Dbkeyscope Attach
> Database POMAIN Type ORACLE NULL VALUES ALLOWED Open "POMAIN" &
>   Dbkeyscope Attach
> Database VALDTY Type ORACLE NULL VALUES ALLOWED Open "VALDTY" &
>   Dbkeyscope Attach
> Database VENDOR Type ORACLE NULL VALUES ALLOWED Open "VENDOR" &
>   Dbkeyscope Attach
> Database mepspd1 Type ORACLE NULL VALUES ALLOWED Open "mepspd1" &
>   Dbkeyscope Attach
> Load
0 Errors 7 Warnings. Press RETURN to continue:
f1 f2 f3 f4 f5 f6 f7 f8
679, 49 | HP70092 -- mongo.thinkmbs.com via TELNET | Enter Insert Num Caps Stop
  
```


Migration Process

```

foxtrot - Reflection 1
File Edit Connection Setup Script Window Help
[Keyboard] [Mouse] [Printer] [CS] [PA] [FSC] [Fox] [Imms]

$ qdesign
Q D E S I G N (PowerHouse 8.23.D7)
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Licensed PH8-TEMPORARY for customer: 0057190090 COGNOS HU DEMO

*E* No valid data dictionary was specified.
> set dictionary unixpdl.pdc
> use mar8625s
> CANCEL CLEAR
> SET NESTING 100
> screen MAR8625P activities find RECEIVING PASS_AREA NOMODE &
>     HELP POPUP FROM 1,1 TO 20,30
> DESCRIPTION OF SCREEN &
> "This screen shows Receipts by PO#, Part# or Vendor#; additionally",&
> " you can also specify Status (V=valid, M=matched, P=partial match, ",&
> "F=forced match, S=suspended, UD/SD=user- or system-disabled, C=",&
> "complete. If more than one Voucher matched with the Receipt, you ",&
> "will see an asterisk '*' by the Voucher# - to see all Matching ",&
> "Vouchers, enter M-nn where nn=line#."
> ;USE STDTEMPU NOLIST
> ;USE STDHILIU NOLIST
> ;USE STDKEYSU NOLIST
> DEF SCREEN_NAME CHAR*8="MAR8625P"
> TEMP U_ORDER# CHAR*10 INIT P_ORDER#

f1 f2 f3 f4 f5 f6 f7 f8

140, 1 | HP70092 -- mongo.thinkmbs.com via TELNET | Enter Insert Num Caps Stop
  
```


Migration process

- Step 9 - Test application and data dictionary
 - Dictionary
 - Powerhouse application
 - RDBMS and data
 - Unit testing

- Make changes and retest

Migration Process

- Step 10 - Move to Production
 - Set up Production Environment
 - Hardware
 - Install Software
 - Set up Database
 - Load Data
 - Move application and dictionary
 - Test
 - Go Live

Case study: Problem statement

- MBS was asked to create an approach and then migrate a Cognos application for a large manufacturing company
- The application was a manufacturing data warehouse, providing a wide variety of reporting
- The application contained 350,000 lines of Cognos PowerHouse code, running against an ALLBASE database
- There were many ALLBASE SQL/C and C++ user interface routines that needed to be migrated as well
- The target environment was Oracle on an HP9000, based on corporate standard

Case study: Analysis

- The client's greatest concerns were performance, reliability, and data integrity

- MBS evaluated two major migration alternatives:
 - Re-write the Cognos PowerHouse code using Oracle Development Tools (such as Oracle Forms, Oracle Reports, and PL/SQL)

 - Port the Cognos source code to a new platform

- MBS prototyped each approach

Case study: Findings

- Cognos PowerHouse source code could be tuned to meet the client's performance needs.
- Porting Cognos PowerHouse source code would require very few changes -> lower cost migration
- Re-writing Cognos PowerHouse data load routines (25% of the application) in Oracle tools would provide greater efficiency in the data loading; the Oracle tools are optimized for loading data into an Oracle database
- A total re-write of the source code would require too large of an effort for no functional gain.

Case study: Migration

- MBS ported the Cognos PowerHouse source code to the HP9000 / Oracle environment
- MBS re-wrote the data loading routines in Oracle PL/SQL, stored in the database
- MBS re-wrote the SQL/C source code into PRO/C (Oracle's C with embedded SQL product), because SQL/C would not run with Oracle
- MBS re-wrote the C++ into web-based Oracle Forms, since C++ source code could not be found

Case study: Lessons learned #1

- Issue: Cognos Access statements forced the use of hidden sub-queries, preventing Oracle optimizer from executing the query quickly
- Fix: Use the 'this cursor is' statement to place the required SQL directly in the Cognos source code. The SQL could then be written to be executed quickly by the Oracle optimizer
- Result: Run time was reduced by 33% from the original production system

Case study: Lessons learned #2

- Issue: The migrated data converted single space values to a true 'NULL' in Oracle. This caused many issues in the source code function
- Fix: Changed all NULL values in the Oracle database back to the single space using SQL Loader, rather than addressing the many places in the source code that assumed a single space meant NULL
- Result: Level of effort was saved by not making extensive changes to the source code

Case study: Lessons learned #3



- Issue: ALLBASE stored fractions of seconds in their date / time fields, which was more resolution than in the target database
- Fix: Trimmed the fractional seconds when loading the data

Case study: Lessons learned #4

- Issue: Imported data had padded spaces at the end of character data. These padded spaces were loaded into Cognos data structures, preventing some source code from working
- Fix: Loaded the data into the VARCHAR data type in Cognos instead of CHAR. This eliminated the padded spaces.

Case study: Summary

- Porting the Cognos source code was a good approach for this project
- Performance was not only maintained, but also improved with SQL tuning
- The new data loading routines worked well in the new environment
- Data issues, especially regarding NULL and spaces, were the prominent issues
- The system worked well in production use on the new platform
- The migration took five months to complete

Conclusion

- Cognos applications are portable to multiple open platforms
- Key focus areas when migrating are:
 - Platform choice
 - Interfacing applications
 - Data
 - Performance
- **Port** is a good option for migrating Cognos applications as part of your overall migration strategy



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