

# Transforming TurboIMAGE Data for Eloquence, Oracle, and More

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# Transform to Eloquence/UX

- Migrate your data without change
- Use -T option on Schema Processor
- Eloquence handles all IMAGE datatypes, except j (COBOL integer) which is mapped to i
- March 2002: Suprtool supports Eloquence, other MPE tools to follow

# TurboIMAGE to Eloquence

- Unload on MPE with Suprtool and copy to HP-UX

**base store**

**get m-customer**

**sort cust-account**

**out cust,link**

**exit**

# Load Eloquence on HP-UX

- The SD data file and SD descriptor file should be in the same directory
- Open Eloquence with the Base cmd
- Input the SD data file, it will find the descriptor file
- Put to m-customer - that's it!

If you don't have Suprtool,  
then try Eloquence dbimport

- `dbimport -s /temp/STORE.03.exp  
-p pass STORE`
- Works with dbexport to restructure databases, so import format is not well defined. May require experimentation.
- Default field separator is Comma(,)

# TurboIMAGE Datatypes

- *Subitemcount Datatype Subitemlength*
- X, U - character data
- Z - zoned numeric bytes, overpunch
- I, J, K - integers
- E - floating point (R is deprecated)
- P - packed decimal

# TurboIMAGE Compatibility With Languages

- COBOL: i1 i2 i4 x u z p
- FORTRAN: i1-i2 e2 e4 x u
- Powerhouse: i1-i4 e2 e4 x u z p
- j1,j2,j4 are odd, think of them as i's

# TurboIMAGE to Oracle

- **Internal datatypes:**  
**Number, Char, Varchar2, Date**
- **External datatypes - how Oracle delivers the data to a program:**  
**Integer, Char, Floating-point, Packed-decimal**



# Transforming Decimal Data

- Export numbers as char, with decimal
- Define Oracle field as NUMBER (x,y), where x is the total number of digits and y is the scale factor.
- SQL interface for COBOL can extract the NUMERIC field as Packed Dec so you don't have to change your Copylib

# STExport for SQL\*Loader

```
!RUN STEXPOR . PUB . ROBELLE  
IN DMRTABHM  
ZERO LEADING  
QUOTE NONE  
COLUMNS FIXED  
SIGN TRAILING  
OUTPUT ABHM DATA  
EXIT
```

# Oracle Can't Deliver as I4

- COBOL program can retrieve Number values in Integer (i1 and i2), Packed Decimal, or Zone Decimal format
- Retrieve as Packed field for COBOL instead
- Change COBOL PIC to COMP-3

# TurboIMAGE to SQL Server

- Tinyint(byte), Smallint(i1), Integer(i2) and Bigint (quad, i4)
- Number (precision,scale)
- Float(n) where N is the number of bits in the mantissa (<25 bits is 4 bytes Real, 25> is 8 byte Long).

# What about Compound Items?

- TurboIMAGE has 5x10 for an array of five elements, each with 10 characters.
- This is called a compound item
- Not supported in SQL databases
- Convert each element to a separate column: address1, address2, address3...

# MS SQL Server Has No COBOL Precompiler

- But AcuCOBOL has one
- Microfocus Cobol says get precompiler from your database vendor
- New languages have interfaces to most databases: C++, Java, Perl, Php, etc.

# TurboIMAGE to MySQL

- MySQL is an open source database
- Commonly used as a web backend
- Simple, fast, but limited
- [www.mysql.com](http://www.mysql.com)
- As an experiment we replicated an IMAGE database in MySQL

# Importing into mySQL

```
LOAD DATA 'file_name.txt'  
  INTO TABLE tbl_name  
  [FIELDS  
    [TERMINATED BY '\t']  
    [ [OPTIONALLY] ENCLOSED BY ""]  
    [ESCAPED BY "\\"] ]  
  [LINES TERMINATED BY '\n']
```



# TurboIMAGE to PostgreSQL

- Full-feature SQL database
- Use Copy command to load from file
- Default separator is tab (\t)
- Supports quad integers I4 (int8)

# Migrating Dates

- Most databases allow M/D/Y or D/M/Y  
04/28/2002 or 28/04/2002
- ISO standard format is yyymmdd  
20020428
- Export with this format to avoid import problems, since the month is unambiguous

# Export Multi-Line Notes

- Combining Image note fields into large SQL text fields
- Use a Perl program
- <http://www.robelle.com/tips/st-export-notes.html>

# Learn More About Transforming TurboIMAGE

- Migration library on our web site:

`suprtool.com/move`

- Email me at `bgreen@robelle.com`

- Primary Robelle site: `www.robelle.com`

- Some useful detail links:

`robelle.com/tips/st-oracle-datatypes.html`

`robelle.com/tips/st-export-sql-server.html`