Data Warehouse for MS Access or MS SQL

The Data Warehouse extracts Exchequer data and replicates it in an external Microsoft Access/Microsoft SQL Database.

The advantages of the Data Warehouse are:

1. Fully Microsoft compatible.
2. Extremely fast reporting using Microsoft Access/Microsoft SQL. Exchequer OLE access via EntFuncs.dll, examples included.
3. Extremely fast reporting using Crystal reports using Microsoft Jet Database Engine allowing the use of Exchequer OLE via Crystal add-ins.
4. Supports inner and outer joins.
5. Can enable extra indexes for fast bespoke reporting.
6. Data can be taken off site for reporting.
7. Used by external programs to access Exchequer data.
8. Can have additional fields added for Bespoke use.
9. All values are in an easy to read double value - no more “EntDouble”.
10. No more setting up Pervasive ODBC drivers on each machine.
11. Future development will include the ability to update stock prices on given date
12. Extra derived fields such as:-
    - First bought, Last bought, Last sold dates on Customer,Stock and Stock location record (based on invoice).
    - Customer records contain the last 26 period turnover figures.
    - Exchequer Notes are posted to memo fields.
    - Addresses and stock description are also posted to memo fields.
    - Job record contains YTD figures for the 10 categories.
    - JobAnalysisTotals gives YTD figure for each Job analysis code.

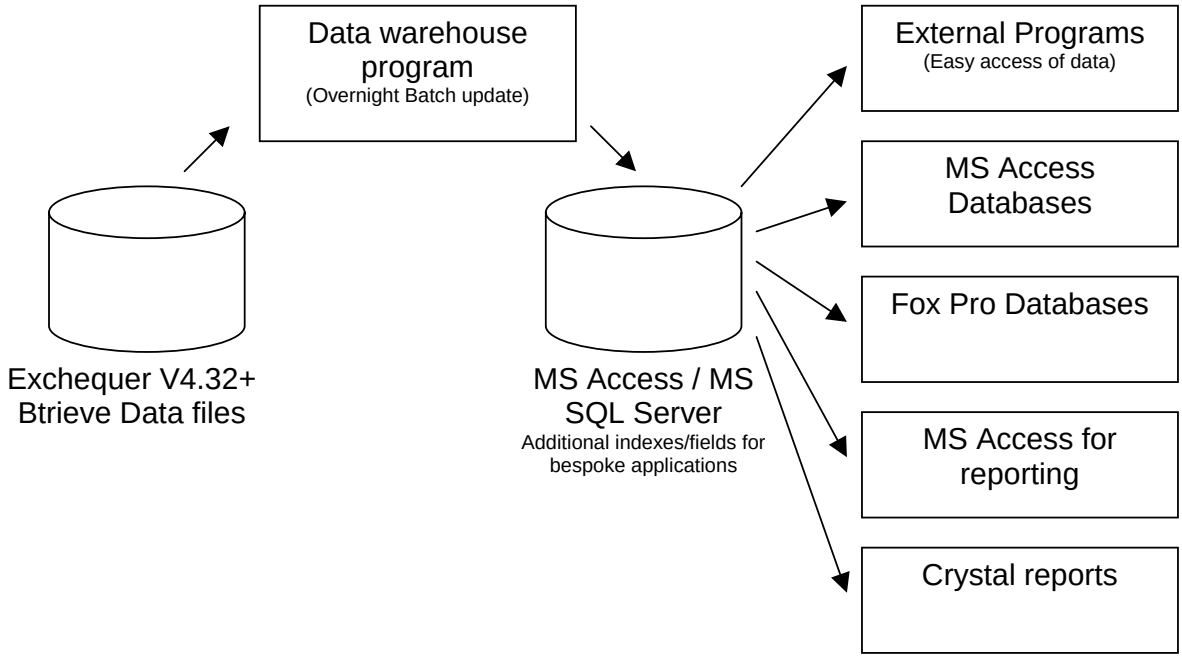
The update program can be run over night to update an Microsoft Access 97 Database or Microsoft SQL Server Database.

The updated database can have extra user defined fields added to certain tables listed below:

- CustSupp
- Stock
- StockLoacation
- TransHeader
- TransLines
- OutstandingTrans (e.g add chase up dates and notes) See example database supplied
- OutstandingOrders
- Job (requires Exchequer ODBC module to access Job Totals)

The values of extra fields are only cleared when the whole database is purged (complete rescan).

To speed up reporting the report designer can add additional indexes to the data warehouse. The data warehouse program also requires certain fields to index, to allow efficient updates, which are outlined following pages.



Note : Some of the Exchequer OLE functions can be called from within MS Access. When using Crystal reports you still have access to Exchequer OLE functions.

WARNING: When adding fields please take a backup, then check that Data warehouse works with new database changes.

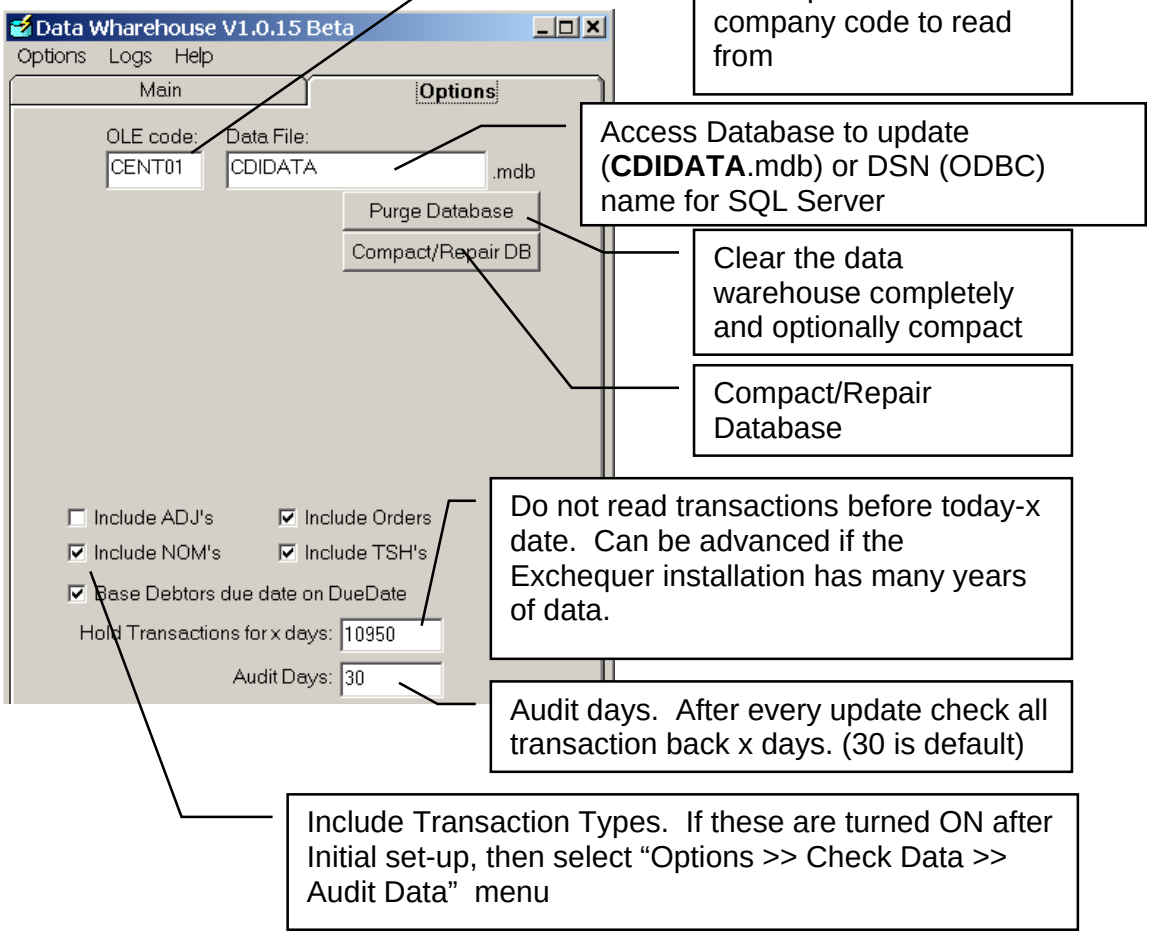
WARNING: Microsoft Access : When adding new fields to these tables make sure they have the “Allow zero length” attribute turned on if text fields. If indexes are added make sure “Index (Allow duplicates)” is turned on. If these guide lines are not followed then the data warehouse may not be able to perform the update properly.

WARNING: Microsoft SQL : DO NOT add “Text” or “nText” fields to the data warehouse SQL tables, it may cause problems.

Installation

Make sure Exchequer Enterprise will run on machine, install if need be. Simply extract the ZIP file to a directory called “data warehouse”. Then run “SetupWKS.exe” on the machine, which is going to run the data warehouse. It may be necessary to reboot.

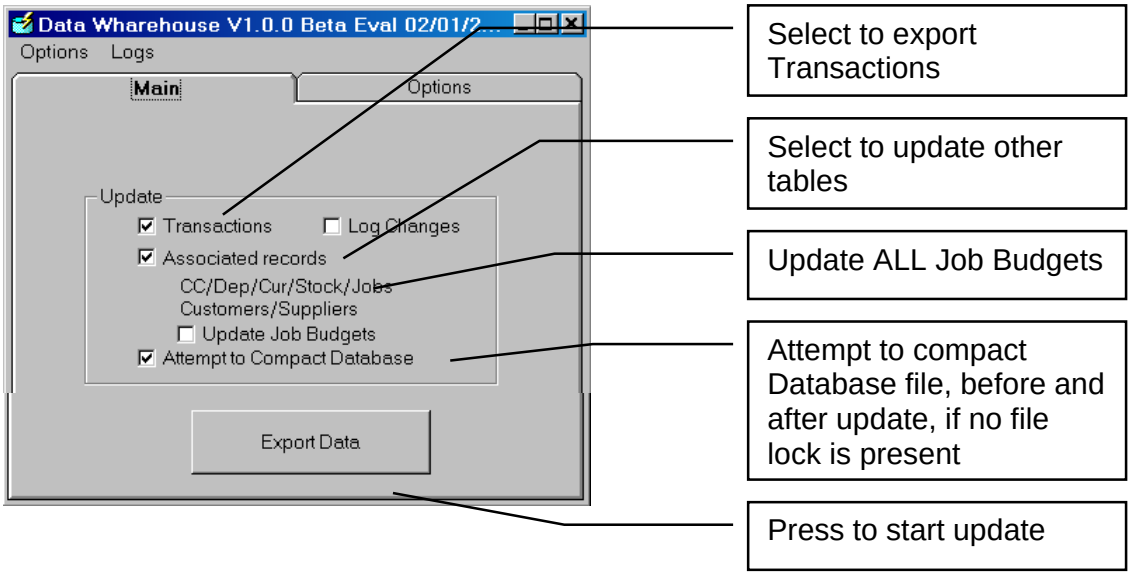
After installation run “datawarehouse.exe” program and select the “Options” tab and fill in data:



If used with job costing then enter a user and password, below the above section, to allow the data warehouse to log into OLE server. Press the [Test OLE Login] button to test password.

Initial set-up

When first activated, the system will read all transactions from the Exchequer system sequentially for optimum speed. On installations with very large amounts of data it may be advisable to set-up Exchequer on a non networked PC and perform this stage away from the network (on C: drive). Afterwards the Data warehouse may be copied to the network and updated using the network installation.



This initial update can be stopped at any time by pressing the [STOP] button. The data warehouse may be re-started from this point.

Overnight updates

The Data warehouse should be set-up on a server so that logged in users do not upset the automatic running of the program. The program "DataSched.exe" should be added to the start up group. This will run the "datawarehouse.exe" program at 6 am by default and then close it when finished. The activation time can be altered by clicking on the in the system tray and editing the hour.

What happens when updated?

After the data warehouse has passed the inital update, the program performs the following:

1. Attempts to compact database, after 100 updates, if no file locks.
2. Reads all Currencies, Cost Centres, Departments and Location records.
3. Scans through Customer, Suppliers, GL and Job records looking for changes in records, totals, BOMS or Discount Matrix.
4. Scans all transactions in Auto daybooks.
5. Scans all transactions in Order daybooks.
6. Scans all transactions in Transaction daybooks, deletes any converted Quotes.
7. Looks for any newly posted Transactions, Timesheets or stock adjustments.
8. Updates the Outstanding Transactions and orders.
9. If any Transactions have Serial numbers related to the transaction then the “Stock SerialBatch” table is updated.
10. Performs an Audit. This scans all transactions back x (30 default) days and checks they have been updated.

Speed

On a non networked machine with it takes approx 1.5 hours to transfer a large company with 3500 customers, 21,000 transactions, 40,000 transaction lines and 3400 stock records with locations turned on.

Logs

The Data warehouse program logs all activity and errors to “Activity1.log” text file. All errors are logged to “Errors1.log” file. When each file grows over 1mb the program will rename the first file to *2.log and start a new *1.log file. These logs can be accessed from the “Logs” menu.

Restrictions

The Data Warehouse does not contain:

- Alternate stock Database (in future)
- Does not contain delivery note transactions
- Updates data for a single company, five in future
- Does not read hidden BOM lines in transaction (LineNO<0)
- If a stock code is renamed the system will reflect changes automatically. Other code changes, such as Location codes, etc. can be updated by selecting “Options >> Check Data >> Force Rescan”
- Compatible with Exchequer Enterprise V4.32+ (requires COM Toolkit Licence)

Microsoft Access Version

The Data warehouse data file, “data.mdb”, must be in the same directory as the “warehouse.exe”. It also must be an Access 97 file.

DO NOT CONVERT TO ACCESS 2000.

If you wish to use MS Access 2000, simply link to the tables in the data warehouse. From “File >> Get External data >> Link Tables” menu option in Access 2000.

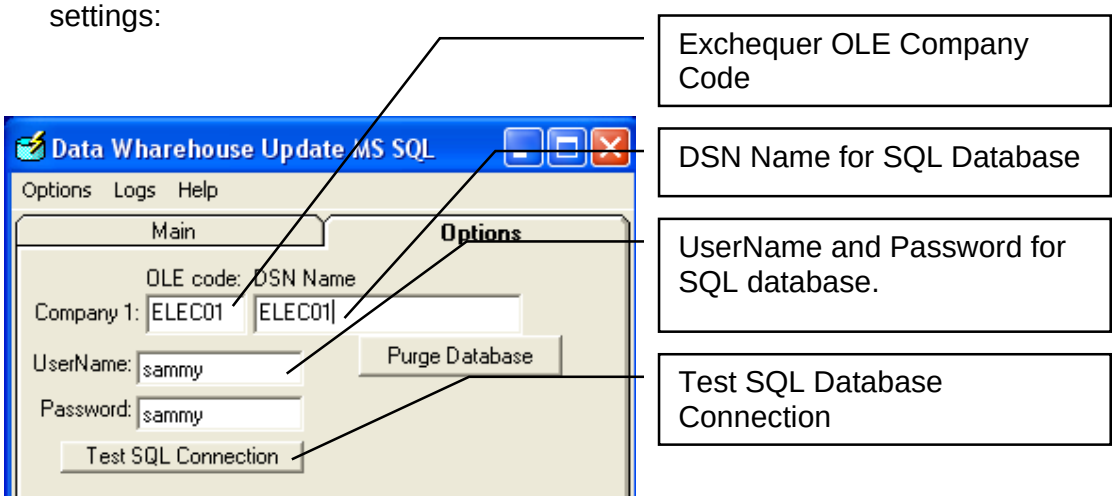
Each record contains a filed called “LastUpdate“ which contains the date and time which the record was last updated. A majority of records are only updated if data has changed for optimum speed.

Microsoft SQL Version

The Installation of the Data Warehouse for, Microsoft SQL, differs slightly.

The following lists those differences:

1. The Microsoft SQL Database must be created by the database administrator, from a file called “Create Data warehouse.sql”, contained in the ZIP file. It may be a good idea to name the SQL database the same as the OLE code used in Exchequer.
2. Grant user access rights to SQL Database
3. A DSN (ODBC) must be set up to point to the new SQL database. It may be a good idea to name the DSN the same as the OLE code used in Exchequer.
4. DSN name and username, is then entered in the data warehouse settings:



Other differences:

1. Notes Fields, within Exchequer Enterprise, are written to a table called “Notes”. In the Microsoft access version they are written to the corresponding tables.
2. The “System” table is now called “SystemVars”

See separate document “Installing on SQL server.doc” for more information

Checking Data

To check the validity for the data, simply select “Options >> Check Data >> Audit Data” menu. This will check all Transactions in the system against those in Enterprise. **Evaluation Period**

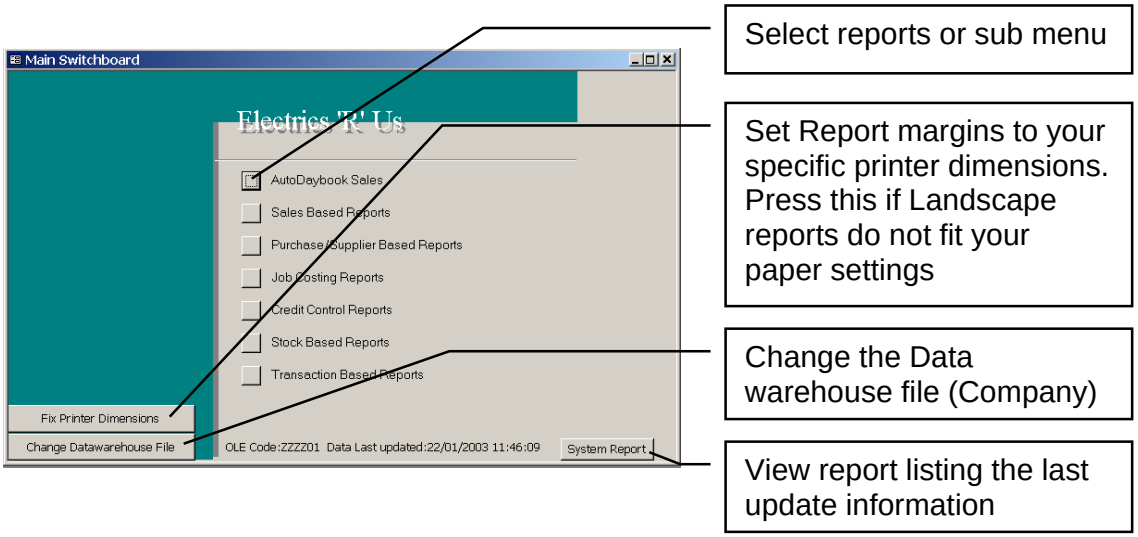
The beta version of the data warehouse will work for 60 days for evaluation purposes. This time period is not applicable to the Exchequer Enterprise “Electrics R Us” demo data file.

Example Reports ACCESS2000.MDB

Included with the Data warehouse is a file called Access2000.MDB, in Access 2000 format. This contains a series of demo reports, which have been written specifically for customers.

When first started it will ask for the Data warehouse file (*.MDB file). Please select the example database or your own.

Normally when started it will present you with the following menu:



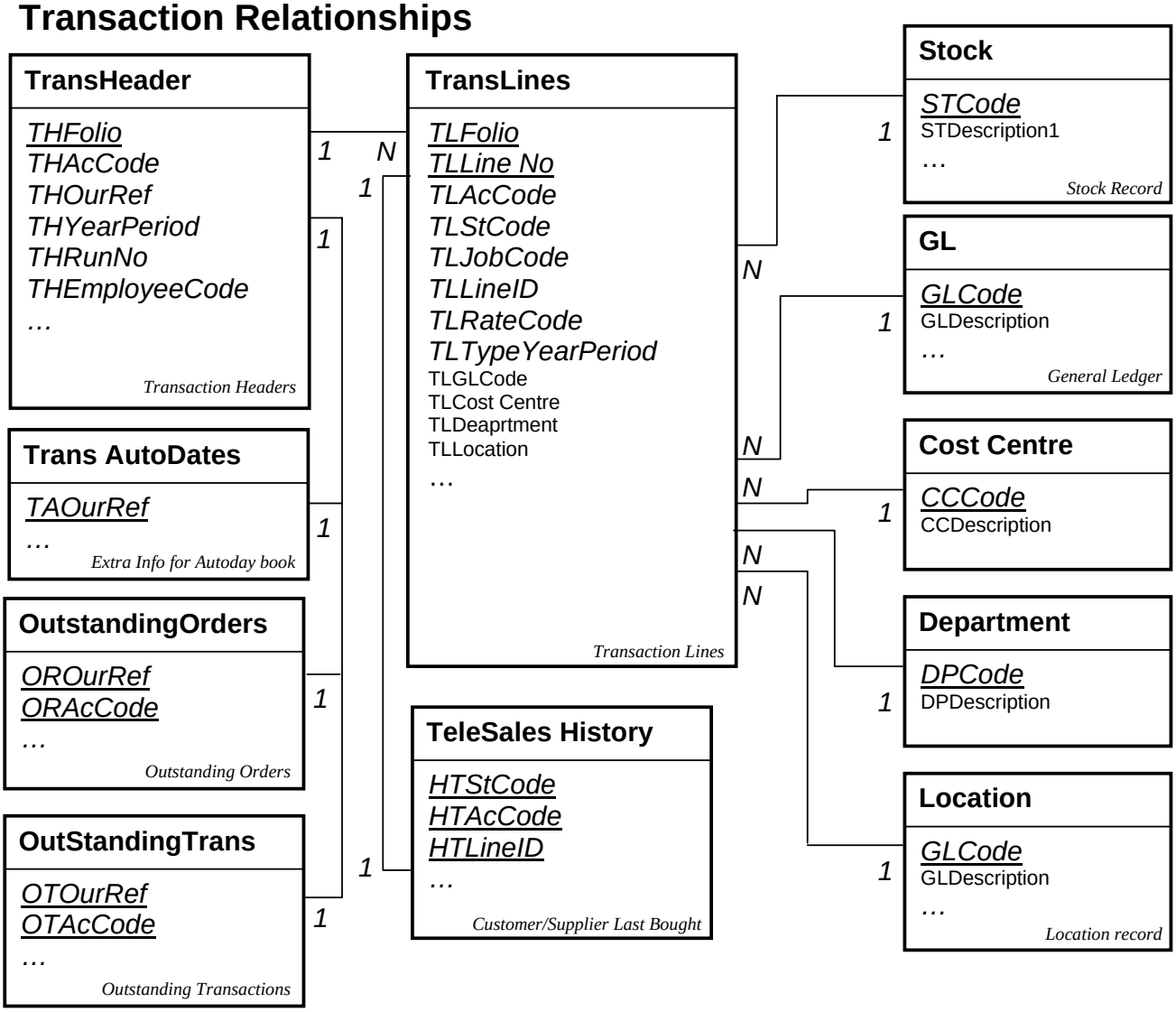
This menu is a customized Standard “Switch board” menu, therefore it can be edited using the standard Microsoft access “Switch board” add-in. Please note extra columns have been added to the “Switchboard Items” table to allow macros to be easily run before the report. A series of macros are provided which allow criteria selection. The selected values are written back to the table “Z Criteria”.

Please examine the workings of example reports before designing you own.

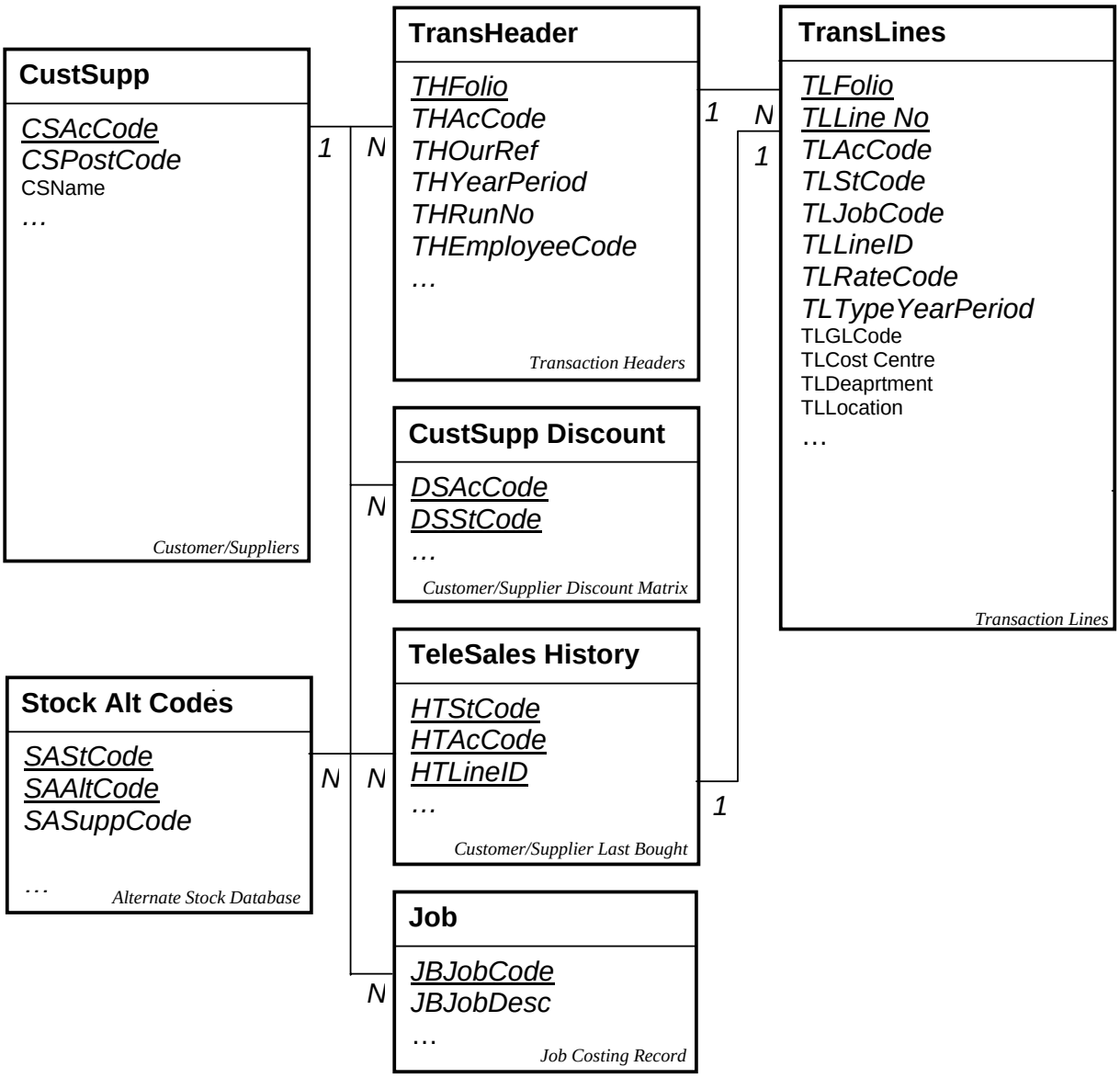
It may be a good idea to prefix every thing you add to the system with “C”. This will allow you to identify your own additions if you wish to upgrade the Access2000.MDB file in the future.

The Database window is hidden in the example but can be easily viewed by pressing F11.

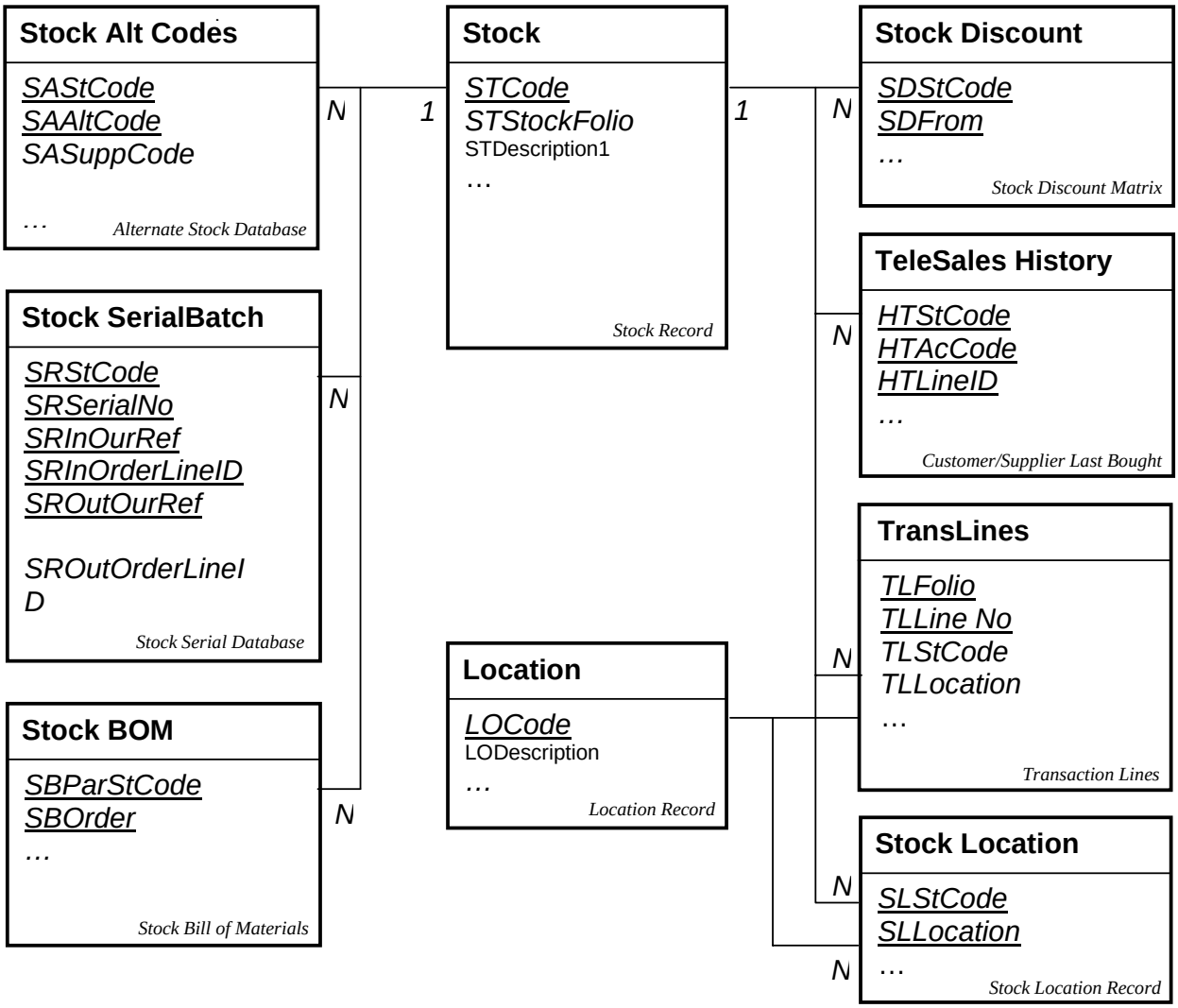
Transaction Relationships



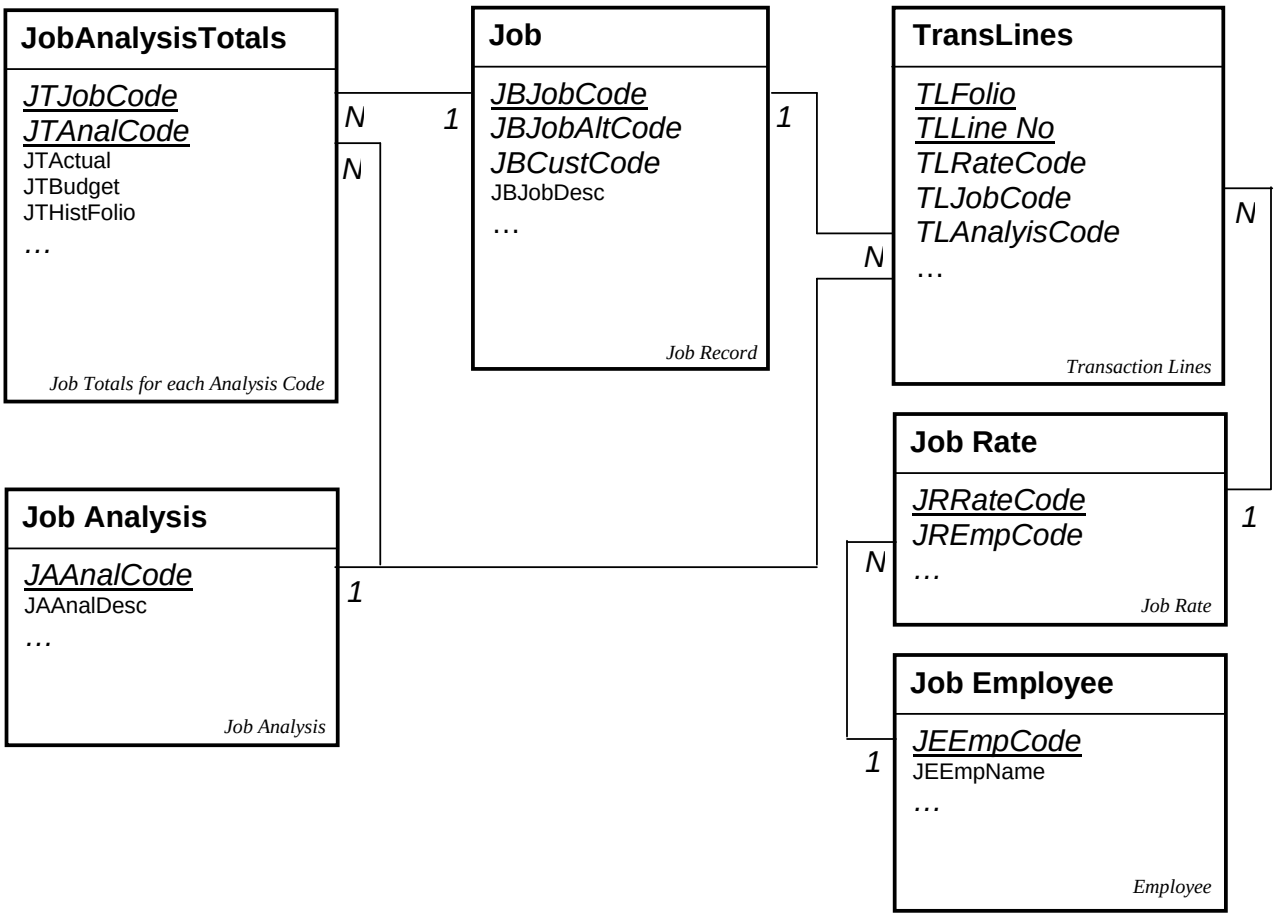
Customer/Supplier Relationships



Stock Relationships



Job Costing Relationships



Tables

CustSupp (prefix CS)

Contains all the customer and suppliers denoted by Type=C/S
Contains all Exchequer fields

Other fields of interest:

CSFull Address	Full address in Memo format
CSFull Del Address	Full Del address in Memo format
CSNotes	Account Notes ☐
CSDatNotes	Accounts Dated Notes ☐
CSSalesP1	Sales for the last 1-26 periods •
CSMarginP1	Sales for the last 1-26 periods •
CSBudgetP1	Sales for the last 1-26 periods • P1 being the current period
CSBalance	
CSSalesY1-4	
CSMarginY1-4	
CSLastPaid	Date Last Recipt
CSLastPaid2	Date Last Recipt or PPI/SRI
CSPostCodeArea	First section of postcode (e.g.PE13)
CSFirstBoughtSold	Date of first account activity

• if the data file uses 52 then each field summaries 4 periods. Note margin is not updated when 52 periods are on

☐ Notes are updated on every update. In SQL Version, notes are written to a different table, see later section.

System Flag and CSAcCode must be indexed
This table is only cleared down when runNo is Set to zero. Therefore additional fields can be added to store extra information.

CustSupp Discount (prefix DS)

Contains all the customer and suppliers discount matrix

System Flag, DSStCode and DSAcCode must be indexed
Cleared down on every update

Stock (prefix ST)

Contains all the Stock Ledger records
Contains all Exchequer fields

Other fields of interest:

STFull Description	Full stock description in Memo format
STLast Bought	Date last bought
STLast Sold	Date last sold
STHeading 1-6	Parent Headings 1-6
STFirstBought	Date of first purchase
STFirstSold	Date of first sale
STNotes	Stock Notes ☐
STDatNotes	Stock Dated Notes ☐
STNew Band Price A	New price *
STNew Band Price A Date	Date to apply new price *
STSalesP*x, STCostsPx, STQtyPx, STBudgetPx*	*Sales, Costs,Qty and budget for last 26 periods* •
STSalesYx, STCostsYx, STQtyY, STBudgetY	*Sales, Costs,Qty and budget for last* 4 Years

* Extra module to update prices on given date

• if the data file uses 52 then each field summaries 4 periods. Note margin is not updated when 52 periods are on

☐ Notes are updated on every update. In SQL Version, notes are written to a different table, see later section.

System Flag, STCode, STFolio must be indexed
This table is only cleared down when runNo is Set to zero. Therefore additional fields can be added to store extra information.

Stock Location (prefix SL)

Contains all the Stock Ledger records
Contains all Exchequer fields

Other fields of interest:

SLLast Bought	Date last bought
SLLast Sold	Date last sold
SLSalesP*x,* SL*CostsPx,* SL*QtyPx,* SL*BudgetPx*	*Sales, Costs,Qty and budget for last 26 periods* •
SLSalesYx, SLCostsYx, SLQtyY, SLBudgetY	*Sales, Costs,Qty and budget for last* 4 Years

• if the data file uses 52 then each field summaries 4 periods. Note margin is not updated when 52 periods are on

System Flag, SLStCode and SLLocation must be indexed
This table is only cleared down when runNo is Set to zero. Therefore additional fields can be added to store extra information.

TransHeader (prefix TH)

All Transaction Headers

Other fields of interest:

THAcCodeIncDel	Delivery account code if an invoice
THNotes	Transaction Notes
THTotal Weight, THNet	In Base currency and original currency
THCost Discount and THGross	
THPaymentInBase/Cur	Contains any payment figures
THRunNo	-50 Outstanding POR's -40 Outstanding SOR's -35 Timesheets (Posted) -30 Stock Adjustments (Posted) 0 Unposted transactions >0 Posted Transactions Automatic Daybook: -1 / -2 NOM -51 POR -41 SOR
THVATDate	VAT period date, only update if ODBC DDF files are in place
THSubType	F=Financial Transaction (SIN..) P=Payment O=Order Q=Quote A=ADJ T=TSH W=WOR N=NOM
THGP	Transaction Gross Profit
THNotes	Transaction General Notes ☐
THDatNotes	Transaction Dated Notes ☐

☐ Notes are updated only while the transaction is outstanding or in the daybook. In SQL Version, notes are written to a different table, see later section.

System Flag, THFolio, THRunNo, THYearPeriod must be indexed
Appended on every update, all transactions not posted from daybook get updated.

Please note: Notes on Posted transactions DO NOT GET UPDATED unless they are outstanding transactions (SIN/PIN).

TransLine (prefix TL)

Contains all the Transaction Lines which relate to TransHeader

Other fields of interest:

TLTotal Weight, TLNet TLCost Discount and TLGross	In Base currency and original currency
TLTypeYearPeriod	Used to calculate History Starts with: S – Sales Invoices P – Purchase Invoices Y – Payment lines A – Stock adjustment lines O – Sales Orders U – Purchase Orders
TLPaymentInBase/Cur	Contains any payment figures
TLGP	Transaction Line Gross Profit

System Flag, TLLineID, TLFolio, TLAcCode and TLTypeYearPeriod must be indexed
Appended on every update

Trans AutoDaybook (prefix TA)

Contains all the addition information which auto transactions have, such as increment units and next post date. Only updated if ODBC DDF files are in place.

Please note “TANextPeriod” and “TANext Year” are wrong in V1.

System Flag, and TAOurRef must be indexed
Updated on every update

TeleSales History (prefix HT)

Contains a list of stock codes last bought (SIN/PIN) by account or delivery account. Note this is only updated when the Invoice has been posted.

Other fields of interest:

HTLineID	Relates to the last line in the Trans Line table

System Flag, HTStCode and HTAcCode must be indexed
Updated on every update

Stock Discount (prefix SD)

Contains the stock discount matrix

Other fields of interest:

SDNewValue	New value to update stock discount *

SDApplyDate Date to apply change *

* Extra module to update prices on given date

System Flag and SDStCode must be indexed
Cleared down on every update

Stock BOM (prefix SB)

Contains the stock Bill of Materials

System Flag and SBParCode must be indexed
Cleared down on every update

SerialBatch (prefix SR)

Contains the Serial Batches

System Flag, SRStCode, SRInOurRef, SROutOurRef, SRInOrderLineID and SROutOrderLineID must be indexed
Updated on every update

Stock Alt Codes (prefix SA) **(not implemented)**

Contains the Alternative stock codes database

System Flag and SAStCode must be indexed
Cleared down on every update

OutStandingTrans (prefix OT)

Contains a list of outstanding SIN/PIN transactions

Other fields of interest:
OTTriggerDate Trigger Date (could be Due date or Trans date according to system settings in Exchequer)

System Flag, OTOurRef and OTStCode must be indexed
Appended to and paid transactions are deleted on update

OutstandingOrders (prefix OR)

Contains a list of outstanding SOR/POR transactions

Other fields of interest:
ORTriggerDate Trigger Date (could be Due date or Trans date according to system settings in Exchequer)

System Flag, OROurRef and ORStCode must be indexed

Processed Orders are deleted when posted from the daybook

Cost Centre / Department (prefix CC,DP)

Contains all the Cost Centres and Departments in separate tables

CCCode/DPCode must be indexed
Cleared down on every update

GL (prefix GL)

Contains all the General Ledger code/descriptions

Other fields of interest:

Heading 1-10	Parent GL codes 1-10

System Flag and GLCode must be indexed
Cleared down on every update

Location (prefix LO)

Contains all the Location codes/description

LoCode must be indexed
Cleared down on every update

Job (prefix JB)

Contains all the Job records

Other fields of interest:

JBNotes	Job Notes ☐
JBHeading 1-6	Parent Headings 1-6
JBLastTimesheet	Last Timesheets date
JBLastPurchase	Last Purchase date
JBLastSale	Last Sale date
JBFirstTimesheet	Last Timesheets date
JBFirstPurchase	Last Purchase date
JBFirstSale	Last Sale date
JBFirstTrans	Last First Transaction date
JBLastTrans	Last Transaction date
JBTotalActual	Total Actual
JBTotalBudget	Total Budget …
JBRevenue	Job Category YTD
JBLabour	Job Category YTD
JBDisbursements	Job Category YTD
JBNon recover Expenses	Job Category YTD
JBStock issues	Job Category YTD
JBOverheads	Job Category YTD

JBProfit	Job Category YTD
JBReceipts	Job Category YTD
JBWIP	Job Category YTD
JBRetension S/L	Job Category YTD
JBRetension P/L	Job Category YTD
JBTotals for each category	
JBBudget for each category •	
JBGP	Gross Profit for Job

Note : Budgets will only be updated if they are posted against the actual analysis code in the Job tree. The Job budgets are not updated up the Job Tree in this record.

☐ Notes are updated on every update. In SQL Version, notes are written to a different table, see later section.

System Flag and JBJobCode must be indexed
Updated on every update

JobAnalysisTotals (prefix JT)

Contains all the totals for Analysis codes booked to Job records or in other words all the sections which make up the right-hand side of the job tree in Excehquer.

Other fields of interest:

JTTotalActual	Total Actual
JTTotalBudget	Total Budget …
JTHistFolio	Used to call OLE functions (see Exchequer ODBC documentation)

System Flag, JTAnalCode and JTJobCode must be indexed
Updated on every update

Job Analysis (prefix JA)

Contains all the Job Analysis records

Other fields of interest:

JAAnalOrder	Sort by to put Analysis codes in logical order
JACatagoryHistFolio	History Folio number of Job Category, can be used to get Category total for job by OLE

System Flag and JAAnalCode must be indexed
Cleared down on every update

Job Employee (prefix JE)

Contains all the Job Employee records

System Flag and JEEmpCode must be indexed
Cleared down on every update

JobRate (prefix JR)

Contains all the Job Rate records

System Flag and JRRateCode must be indexed
Cleared down on every update

Notes in the SQL version (prefix NO)

In the SQL Version of the Data Warehouse the Notes Are Written to a Separate Table.

	Column Name	Data Type	Length	Allow Nulls
🔑	NOID	int	4	
	NOCode	varchar	16	✓
	NONote	text	16	✓
	NOType	char	3	✓
	NOLength	int	4	✓

Where a NOType, denotes the type of note record:

Code	**Description**
CSG	Account general notes
CSD	Account dated Notes
STG	Stocks general notes
STD	Stock dated Notes
THG	Transaction general notes
THD	Transaction dated Notes
JBG	Job general notes
JBD	Job dated Notes

System (“SystemVars” in SQL Version)

Contains last date updated and several other variables used by the program

ReReadStockHeadings	Set to true to cause the Stock heading fields to be updated
ReReadJobHeadings	Set to true to cause the Job heading fields to be updated
CostCurDP	The D.P.
SalesCurDP	
QtyDP	
OLE Code	Exchequer OLE code for company updated
CompanyName	Company name
Period	Current period
PeriodsInYear	Periods in year
YearStartDate	Year start date
ExchFilePath	Exchequer path
DataFilePath	Data file path
ProgPath	Data update Program path
Year	Current Year
Last Updated	Date and time of last update
LastupdateLog	Last update Log
ErrorLog	Last update errors
NoErrors	Number of errors in last update

Do not alter this table

Trouble Shooting

I get an error 87 when the Data warehouse reads a large Transaction?

On Client/Server, before Pervasive 2000

Increase the number of “Microkernel Database Engine >> File Settings >> Handles” on the Btrieve Client/Server engine to 20480 or the max number of lines on any transaction.

When I connect to the Data warehouse using Crystal reports I get an error about INNER/OUTER SQL joins.

Set-up an MS Access ODBC connection to the database and it will work fine