

# The Journal

A publication for users of SquareSum's DREAM Corporate Accounting System ☀ Issue 7 ☀ May 1999

## Dream goes sailing with Inchcape Shipping



Transfer between two navy vessels in the Arabian Gulf

March  
Meeting  
Report

New and  
Old PCs

Windows  
Keyboard  
Shortcuts

## Dream Summer University Conference Programme

FIVE WEEKS AFTER the first distribution of the Dream Summer University booking forms, over two-thirds of the available places are taken. The user group is working closely with SquareSum to offer a tailor-made event that will benefit all those who attend. A full schedule is offered, with popular topics repeated to ensure that delegates can attend all the sessions of their choice.

So if you intend to come, please *book your place without delay.*

### New Users

WE WELCOME THE following new users of Dream:

- The Pensions Trust, London
- Consort Hotels Group, York
- High Quality Contracts, Wetherby
- Saville Gordon Estates, Leamington Spa
- National Society for Epilepsy, Gerrards Cross
- Lab Staff, Slough
- The Great Eastern Hotel Company, London
- Planned Maintenance Engineering, London
- Autobytel, Milton Keynes
- Tekdata, Stoke-on-Trent
- Inchcape Management Services Motors Division, London
- The Information Service, Glasgow
- Gooch Webster, London
- Ayr College, Ayr
- IM Properties, Warwick
- John Wheatley College, Glasgow
- Audio Partnership, London
- Stylo, Bradford
- The Institute of Materials, London

### International installations

S-Com Computer Systems has purchased additional licences for Germany.

#### Wednesday 30 June, 1999

10.00 - 10.45	Coffee and registration		
11.00 - 12.30	Introduction and complete DREAM system overview		
12.30 - 14.00	Lunch		
14.00 - 15.30	Reporting part I	Purchase Ordering	Updating and Tables
15.30 - 16.00	Tea/coffee break		
16.00 - 17.30	Reporting part II	VAT	Payments & Banks
17.30 - 18.45	Informal sessions	Informal sessions	Informal sessions
19.00 - 20.00	Evening meal		
20.00 - 22.00	Troglodyte Tour (Nottingham Caves)		

#### Thursday 1 July, 1999

09.15 - 10.45	User Defined Input part I	Multicurrency & Euro	Importing
10.45 - 11.15	Tea/coffee break		
11.15 - 12.45	User Defined Input part II	VAT	Payments & Banks
12.45 - 14.00	Lunch		
14.00 - 15.30	Reporting part I	Security	System Housekeeping
15.30 - 16.00	Tea/coffee break		
16.00 - 17.30	Reporting part II	Year end	External DLLs
17.30 - 18.45	Informal sessions	Informal sessions	Informal sessions
20.00 - 22.00	Evening meal		

#### Friday 2 July, 1999

09.15 - 10.45	User Defined Input part I	Year end	System Housekeeping
10.45 - 11.15	Tea/coffee break		
11.15 - 12.45	User Defined Input part II	Multicurrency & Euro	Importing
12.45 - 14.00	Lunch		
14.00 - 15.00	Open Forum/close		

## "We are the movers and shakers"

"We are the movers and shakers" proclaims the latest SquareSum advert, "and we are the dreamers of dreams."

The quote is from 'Ode' written by the Irish-English singer Arthur O'Shaughnessy. Because of its perfect blending of music and message, Ode is O'Shaughnessy's best-known piece and one of the immortal classics of verse.

It was used by Sir Edward Elgar's as the inspiration for 'The Music Makers', a 40-minute cantata for contralto, chorus and orchestra written in 1912.

So if you hear SquareSum staff humming an imposing Edwardian tune with overtones of 'Nimrod', you now know the reason. The words are printed alongside for anyone who wishes to join in!

*We are the music-makers,  
And we are the dreamers of dreams,  
Wandering by lone sea-breakers,  
And sitting by desolate streams;  
World-losers and world-forsakers,  
On whom the pale moon gleams:  
Yet we are the movers and shakers  
Of the world for ever, it seems.*

*With wonderful deathless ditties  
We build up the world's great cities,  
And out of a fabulous story  
We fashion an empire's glory:  
One man with a dream, at pleasure,  
Shall go forth and conquer a crown;  
And three with a new song's measure  
Can trample an empire down.*

*We, in the ages lying  
In the buried past of the earth,  
Built Nineveh with our sighing,  
And Babel itself with our mirth;  
And o'erthrew them with prophesying  
To the old of the new world's worth;  
For each age is a dream that is dying,  
Or one that is coming to birth.*

## Follifoot Hall

SquareSum is on the move with new premises underway for both the northern and southern offices. Contracts have been exchanged to purchase Follifoot Hall near Harrogate as the new corporate headquarters. The 8,000 sq. ft. building includes a modern open plan wing for support and development, as well as the traditional-style wing which will be



used for training and meeting rooms. SquareSum company secretary Dave Belmont is coordinating a July move and says there is planning permission for a further 5,000 sq. ft of office space should this be needed in the future.

The Uxbridge office needs to accommodate increasing sales and implementation staff and is planning a four-fold expansion in office space into a self-contained suite on the same office park as the current serviced offices.

## BASDA and MS

At the AGM of BASDA (Business and Accounting Software Developers Association) Philip Taylor was elected on to the BASDA General Council.

SquareSum has been invited to take part in the Microsoft 3-2-1 programme, which provides SquareSum developers with free consultancy on Microsoft's new technologies for use with future versions of Dream. Attendance was by invitation only, other members of the programme included ICL, Cap Gemini, JBA, Royal Blue, CMG, Staffware and Peterborough Software.

## People News

Wetherby has three new additions to the Support Team. **Martin Burnside** has worked in both the UK and France for the past nine years supporting a Unix-based accounts package. **Bill Dowling** has a background in accountancy. After spending six years at electrical retailer Homepower, he held several positions in the financial sector, the last with Abbey National. **Julian Lawless** has a background in finance and systems management, with a particular interest in the IT side.

The Uxbridge Consultancy Team also has new members. **Elaine Edwards** was a Dream user at Inchcape Shipping Services in Immingham, and **Chris Davies** comes with a wide experience of accounting systems/solutions and IT development.

## Fast Payer!

According to the Federation of Small Businesses, SquareSum has the best payment record in the country, with an average creditor days (amount owed to suppliers compared to the amount bought during the year) of just one day.



Congratulations to Ian Clegg, the first SquareSum employee to reach the milestone of ten years service.

## Fast 50 award

SquareSum has been presented with a **Fast 50** award by Deloitte & Touche for being the seventh fastest-growing technology company in the North of England, (based on growth for the three years from 1994 to 1997).

## Hot 100 survey

According to the Dun and Bradstreet **Hot 100** survey, sponsored by Arthur Anderson, SquareSum was the 22nd fastest-growing privately-owned company in the whole of the UK (based on the four years from 1994 to 1998).



# Birmingham User Group Meeting

THE NATIONAL MOTOR Cycle Museum near Birmingham was a popular venue for the March meeting with over 120 attendees.

In the morning Jonathan Allcock of TECSYS gave an update on enhancement ballot procedures, which was followed by the Annual General Meeting of the user group. Ian Clegg then demonstrated the new features in DREAM versions 2.6 and 2.7.

Then it was over to the users. Attendees had been allocated to one of five groups which discussed *Building on the DREAM*. The original intention was to provide input to SquareSum regarding future development, although what also happened was that fellow users were able to explain how they had used existing features of DREAM to meet some of the requirements.

SquareSum support and development staff were allocated to each of the groups and were also able to field some of the questions and input directly, as well as give

details of features in upcoming releases of Dream.

During the lunch break the leaders of each of the groups discussed and categorised the points raised and in the afternoon session Andy Plumbly of Ashridge Management College presented a summary.

This article includes the items from the summary together with some of the background detail.

## Documentation and Implementation

The current documentation does not include an implementation roadmap, and if a new database is being established there is not a basic checklist to work by. It is hoped this point will be met by the current re-write of the manuals which have separate sections for users, administrators and techies.

At least two of the groups commented that there isn't enough documentation on the internal tables and how they interrelate. Two groups suggested that a data

model should be available—one suggestion was that this could be provided automatically if the information was fed into Microsoft Access.

The level of SQL administration required was considered to be too large by a number of delegates and was not supported sufficiently by Dream. It was suggested a move should be made to reduce the amount of SQL work involved in running the system and SquareSum should offer more support in this matter.

There should be an ability to set up common nominal structures across different companies.

It was felt that Dream is too stark for new users and that there should be some standard UDIs provided initially. Other comments within this topic included:

- beginner's guide (for training purposes)
- UDI Wizard (and/or undo function required)

## Release procedures

There is a degree of confusion as to whether user-written reports need to be re-tested or re-written after the upgrade to a new software release.

This is similar to the confusion about whether links to/from external systems need to be re-



certified after an upgrade. These points should be covered in SquareSum's software release notes, which should also include guidance as to which of the versions of software on the CD should be installed. The release notes should also include a list of bugs and enhancements fixed in that version.

One of the groups reported that most sites were not aware of the new HTML-based help system.

### Increased customisation

Several users expressed a desire for more user defined fields. One example was to store the four levels of authorisation. User-defined fields should be capable of being linked to accounts or keylists. Allied to this was a desire for a third ledger for increased flexibility.

Some users required to have flexibility on usage for field names within different ledgers. Data is not common but field names on account screen are uniform. This could also be met by introduction of spare field(s), the same applies to Key List field formats.

It was also suggested that user defined fields should be formattable or that input masks should be added to the functions within UDI, with the addition of field validation. Another

suggestion on user-defined fields was the addition of depreciation values/levels to account details to aid analysis.

A better system is required to deal with part payments such as rates and sales invoices, plus the ability to post invoices over a number of periods (the latter is an existing user group enhancement request).

### Reporting

This topic was met with divided reaction, the more technically minded members of the group like the fact that they could develop their own reports outside Dream, whereas others felt DREAM would be further enhanced by a better reporting tool, reducing the need for third-party applications. An example is the ability to easily configure Aged Debtor reports.

Philip Taylor indicated that in the longer term SquareSum is looking at utilising Excel-type functionality by including the Microsoft VBA product. Specific reporting points raised included:

- Links to Crystal/Access etc. should be improved
- Titles should accompany reports when downloaded to Excel and other applications
- Ability needed to introduce sub-totals into User Defined Reports.

- Nominal Report should be able to access second ledger fields directly. Similarly, drill down should be able to access second ledger direct.
- Company name (if multi-company) and name of nominal or account should appear on standard nominal/account reports.
- Print preview and fit-to-page
- It should be possible to include budget fields in nominal/account reports.
- Likewise, it should be possible to include Purchase Order commitments within Nominal/Account reports (as Register items can already be included).

### International support

Users with existing or potential overseas sites would like other language option.

A 'BACS' type file for use in other countries was suggested.

### Performance

There were two comments about database performance; that Dream should be configured to make better use of underlying databases (an acknowledged difficulty for a multi-platform package); and that performance should be improved for Centura and Oracle implementations.

At the moment, the same generic code is used regardless of which platform Dream is run on.

### System housekeeping

It was suggested there should be an ability to transfer detail (leaving balances) to an archiving system. This system could be much reduced and run from compacted data with only basic viewing function. The operator should be able to select different time periods for different parts of the system for archiving.

*Note: this is separate from the existing outstanding archive enhancement which was one of the top ten requests in the last ballot.*

Another request was the ability to export all the static data from an old system or database to a new one.

Some users would like the ability to run audit automatically after the backup has completed. This should be available in release 2.7 as discussed at the meeting, through a time-delay.

### Add-on systems

Several users expressed interest in sales order processing and sales invoicing.

Document imaging was another popular request. The existing

system is cumbersome, slow and eats up disk space. Increased support from within the system is needed to allow easy drill down to supplier documentation.

### Payments system and bank

Payment runs need to be optimised to make better use of available resources. A drill-down filter is required in the bank reconciliation where large volume of transactions occur. Speciality Retail Group has produced a paper on a potential solution to this. Other points included

- BACS/Cheques overlap problem
- Treatment of discounts
- Midland Bank Hexagon compatibility

### VAT

One user had a problem with multiple VAT rates and was currently using one of the user defined fields in which to store the VAT rate, but wanted to know if Dream had any future plans to enhance the VAT processing within Dream.

### Importing

When data is being imported there should be an ability to indicate when fields are being updated. At

present, updates are rejected when fields pre-exist.

When it is possible to import index fields it would also be useful to be able to import comments.

The ability to import supplier price lists into Purchase Order Processing was another request.

### Security

Two levels of access security are required, one to view data and one to input data.

Should the Change Document function be restricted to originator? The general feeling was that this would be too restrictive in a management hierarchy.

Document Security should be made company specific in a multi-company environment to reflect different corporate set-ups.

The audit trail should track document changes (an existing user group enhancement).

### Licensing

Two suggestions were made regarding licensing. Firstly that licensing arrangement should allow for enquiry-only users that presently take up mainstream licence seats. The second suggestion was that Purchase Order Processing should be a low cost seat. The initial response from SquareSum was that POP was developed as a no-charge add-in on the basis that the development costs would be recouped by additional seat licenses.

Many attendees mentioned how beneficial they found the exercise, especially the help and advice they received from other users.

The information gathered has been passed to SquareSum and key points will be included within the user group enhancement process.

*Tim Cullis*



Richard Pierce gives his favourite presentation—the growing list of organisations using DREAM.

# Dream Performance at Inchcape Shipping

**I**NCHCAPE SHIPPING SERVICES is the world's largest shipping services company and handles over 32,000 port calls a year from 250 offices in 43 countries. The extensive portfolio of services has attracted many of the world's largest ship operations. Inchcape Shipping Services' customers include Cunard, Chevron, Shell and the navies of 19 nations.

The shipping services industry is fairly unregulated with traditional practices and a fragmented nature. Major international ports have hundreds of different agents and competition is fierce. Inchcape faced a need to introduce new systems to maximise customer service and reduce costs throughout the world.

## The search

Back in 1997 Inchcape started looking for a new accounting system to use world-wide. The original list included such systems as Oracle Financials, Coda and SAP; it soon became apparent that these were not suitable for dealing with many countries, some with small operations. The search eventually narrowed down to SquareSum's Dream and one other package. When Inchcape decided to allow the users to vote between these two packages, they confounded expectations by unanimously selecting Dream rather than the other well established international package.

Dream was first installed in the UK office at Immingham operating over a telephone link to a SQL

by James Paxman, with assistance from Philip Taylor and Ian Clegg

Server database in the London Head Office. After completing a few months' trials Inchcape contracted to purchase a 300 user licence for use on 22 servers with client PCs in 43 countries. Recently we have found that it is possible to make wider use of Dream and the licence is being increased to about 550 users.

We formed a team at the London Head Office to set up a standard 'shell' database that could be taken to each server. This database contains our standard Chart of Accounts, Years and Periods, Ledgers, some Accounts, Document Types and UDI Forms, UDO Print Formats, Currencies, Key Lists, Indices and UD Reports.

By the end of 1998 we had installed Dream on 16 servers with a total of over 260 users. During the last few months it has become apparent that there were very wide variations in performance. Certain operations were reported as 'instant' or '3-5 seconds' on some servers and up to a diabolical '10 minutes' at worst. In several countries different databases on the same server seemed to have very different responses. We also noted that on some servers dial up access was significantly slower.

Obviously with 16 similar installations around the world Inchcape is well placed to pick up differences and investigate them.

This article outlines the steps we took, what we found and the way we worked with SquareSum to identify the causes and cure the problems.

## Areas to investigate

We considered various factors:

- are the client PC, network and server working correctly?
- the parameter settings in the operating system, networking, database and in Dream itself.
- management actions necessary to keep the whole system operating efficiently.
- software 'errors' or inefficiencies that result in excessive work.
- could performance be improved by changing our procedures and the way we use Dream?

## Dream program

Dream is written in C++, a reasonably efficient language, and is not likely to use up many seconds of client computer power. Also, it is a reasonably small program so any PC capable of running Word and Excel should be able to run Dream.

We are typically running Microsoft Office with Microsoft Outlook as a mail system on modern Pentium-based PCs, usually running Windows NT 4.0. All PCs have at least 64MB memory and those with significantly more seem to run faster. We considered increasing the memory on all clients to not less than 128MB but



*Inchcape Shipping Services representative with crew on board a Maersk vessel*

with more than 500 clients planned this is a significant cost, even at today's low memory prices.

### **The database**

Dream prepares SQL commands to send to the database. If these commands are not correctly optimised this can result in a delay while the database selects data and returns it to the client.

There are many management opportunities in SQL databases and if the various actions are not carried out as required performance can fall off drastically.

### **The network**

Our network is not overloaded and we do not think that network load is a significant factor in the variable performance on our LANs. Where we get good LAN performance but poor dial up (WAN) performance, it may be a result of excessive network traffic.

### **The server**

The server PCs are powerful enough to run SQL Server for the small number of users connected to each machine. In some cases they are dedicated to running the Dream database, in other cases they are running additional applications.

### **Database and network settings**

There are many local settings for both SQL Server and networking which can have a significant impact on performance. We have left the

SQL Server settings at their defaults and do not think this is causing any problems. Several of our networks only run TCP/IP, while others run TCP/IP and IPX. Although the additional protocol will cause a performance drop our worst results were in single protocol sites.

### **Actions**

The full report by one of our internal support staff, listing all the tests made on hardware, network and databases runs to 18 pages. Additional reports cover several more pages and SquareSum's replies to some of the points we raised with them cover yet more pages.

The first thing to appreciate is that performance is not an easy area to deal with. You need to know a lot about NT, SQL Server and your hardware. You also need a good understanding of Dream.

One of the key areas for research is database indexing. A standard SQL Server index report includes a comment on the index. This may be, for example, 'Very Good', 'Fair', 'Very Poor'. You need to understand how SQL Server reaches this decision and its impact—actually not very much—on Dream performance.

We found that action in several different areas improved our response time.

### **RAID array**

The performance of our Rotterdam server had suddenly and seriously deteriorated. It took up to six minutes to post a single invoice.

We found that the Compaq Smart-SL2 Raid Array was not functioning correctly. After fixing this the users were delighted to find that Dream was more than 10 times faster. However while the users were happy with an improvement from one invoice in six minutes to three in one minute we thought that we should be able to do even better.

### **Database indices**

In our Rotterdam office we ran two separate accounts operations each with a database on the same server. The difference in performance between the two databases was enormous—and getting larger.

We tried logging onto each database from the other department and satisfied ourselves that the problem was in the database, not in the client PCs or network wiring. We tried logging on from London over our WAN and found that we could post twice as fast as from the local PC. This pointed us in a different direction and could have caused us to miss the main error. We have not been able to explain why the WAN was faster than the LAN.

An investigation of the database showed that all the database indices had disappeared. We have no idea how this happened. SquareSum have pointed out that if a database is moved with Transfer Manager there is an option to move it without the indices but we do not think that this database had ever been moved.

We used the standard Dream feature to rebuild the indices. The database performance was then very similar to the other Rotterdam database.

## UDI performance

We found that similar input forms in different offices ran with wide variations in performance. In some cases the performance over our WAN varied enormously.

Our core set of forms were designed by our central team in London but the teams installing Dream in each country had made some changes for the benefit of local management. We collected together similar forms with different performance and tested them. Because the differences showed up over a WAN we concentrated on the volume of data transferred between the server and the client.

We found that tabbing off a Ledger Account number and showing the name of the account caused 200 bytes to be transferred on one form and 47KB on another. At a dial up line speed of 21.6KBPS the extra data accounted for the difference in performance. This enormous difference in data transfer only really shows up on a slow dial up line. However it will be causing extra work on the server. A fully loaded, or overloaded, server will have a generally slower performance if UDI forms have this problem.

We passed both the fast and slow forms to SquareSum and Ian Clegg investigated.

Ian reported that the problem, which can also affect loading the form, is in the way we had built up our Nominal (even though it happened when we tabbed off the ledger Account). What we, and Dream did was as follows.

In the slow form we had specified our Nominal in two parts, the first part was defaulted to AA and the second to 7000000. The correct Nominal is AA7000000. We had defined both parts as being UDI Type Nominal.

Dream took the first part of the Nominal, AA, and tried to validate it. It failed the Nominal validation so Dream then looked at the



*Matthew Fraser Moat and Willie Docherty at the London Worship Street office.*

Nominal Index to see it was an Index to the Nominal. Unfortunately AA is a valid index to many Nominals and SQL Server started sending them back to the client.

Dream is clever enough to know that it was only looking for one Nominal at this point so it immediately cancelled the Select.

What actually went wrong is that when we tabbed off the Ledger Account field Dream communicated with the database and, although the SQL Server client knew that Dream did not want the Nominal Index data, the server still sent it over the network to the client before dealing with the new requests. Because the data then vanished inside the SQL Server client, Dream was not aware of the problem.

## The fixes

- In the "good" form we had defaulted the Nominal to "AA7000000" so the problem did not occur.
- Ian is changing the Dream code to stop the select in a different way; this should prevent the surplus data being transferred.
- We could have given the two part Nominals the UDI Type of "Part Code" rather than "Nominal". This would have prevented most, though not all, the attempts at validation.

- Of course we could have arranged our data so that the part Nominal was not identical to an index entry.

The second fix, stopping the server transferring the data, brings up another point. SquareSum has to optimise Dream for typical users. There are two ways they could have dealt with the Index validation.

- They could, as they did, select entries with the Index value AA. The server finds the data and builds a results set. Dream then tried to cancel the data transfer when it found there was more than one item.
- They could have first selected a count of the number of index entries with the value AA and, on finding there was more than one, stop. Selecting a count should use less server resources than selecting the data.

This second option looks better, and indeed in this example it almost certainly is better. However if the normal case is that you enter a unique Index Dream would then select a count, find it is only one then select the data. This is two messages between the client and server. SquareSum assumed that in most cases there would only be on item selected and in the case Dream is faster.

*James Paxton*

# Windows Keyboard Shortcuts

by Tim Cullis, INFAR

IN THE ARTICLE in the last issue of *The Journal*, I described some basic keyboard shortcuts that you can use in Dream—or indeed in most Windows applications.

The final part of that article introduced some speedy ways of navigating around most word processing documents using the **Home** and **End** keys to jump to the beginning or end of a line, using the **Ctrl**+**→** or **Ctrl**+**←** to move through a document word at a time, and using combinations such as **Ctrl**+**Shift**+**→** to highlight words before applying text attributes.

This article continues in the same vein but with more emphasis on setting up your Windows environment.

The Windows 95 graphical user interface which is also used on Windows NT 4.0 and Windows 98 was a great improvement over Windows 3.x. What I often notice, however, is that many users choose to place shortcuts to commonly used applications on the desktop. This isn't ideal as you then can't see them without minimising any running applications. It's quite easy to setup some alternative shortcuts and this article and the next in the series will show you how.

## Start keystrokes

When you see symbols such as **Ctrl**+**Esc** it means hold down **Ctrl** and press **Esc**.

Try it now, and you find the Start menu is displayed. Use the **↑** cursor to move up to Programs, then press **→**. Move up or down to Accessories if necessary and this time press **Enter**. If you have games installed, press either **→** or **Enter** to open that group, then select a game

and press **Enter** to start (note you can't use **→** to start a program, you have to press **Enter**).

If you don't want to start a game, press **←** or **Esc** and you will go back a level. Keep going until the Start menu disappears.

## Shortcuts for Win95 keyboard

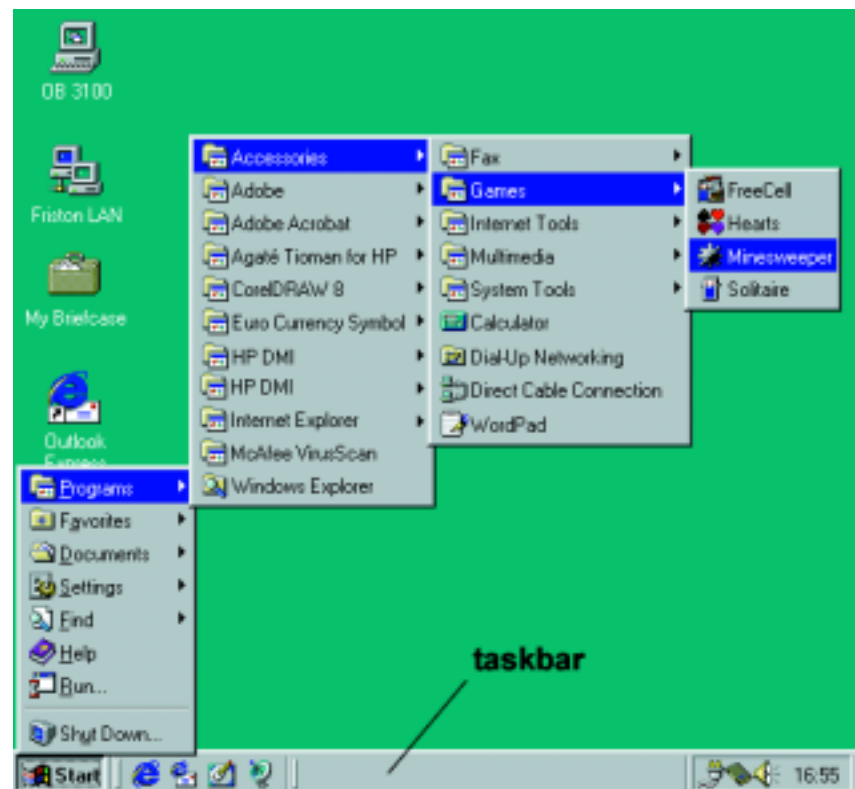
Does your keyboard have a couple of **Fn** keys on the bottom row? If so, you have a Windows 95 keyboard.

Hold one of the **Fn** keys down, then let go; the Start menu is displayed. As before, press **Esc** and it disappears. Now try **Fn**+**E**, followed by **Fn**+**R**, **Fn**+**F**, then **Fn**+**D**.

As you can see, **Fn**+**E** starts Windows Explorer, **Fn**+**R** brings

up the 'run' window, **Fn**+**F** takes you to 'find files', while **Fn**+**D** minimises applications onto the taskbar. You can close these minimised applications by right-clicking the application name on the taskbar and choosing 'close'.

To do the same via the keyboard hold down **Alt** and press **Tab**. This enables you to choose which application 'has focus' and whichever you choose will be brought back to the desktop. Some variations on this: **Alt**+**Esc** cycles through the programs in the order they were started; **Alt**+**Enter** switches the program between a window (if it can run in one) and a full screen; **Alt**+spacebar displays the program's System menu.



Start keystroke example

## Windows Explorer

When you start Windows Explorer, it normally displays the root directory of drive c: If most of your work is in a server directory it is helpful to change the Explorer setting so it starts in a particular directory. Right-click on the taskbar (the grey bit to the right of 'Start' and any loaded program icons), and choose 'properties'. Click on 'Start menu programs' and choose 'advanced'. This loads Windows Explorer pointing at your start menu settings. In the left pane, click on 'programs' folder, then in the right pane click on the Windows Explorer shortcut.

Make a copy of this by pressing **Ctrl**+C followed by **Ctrl**+V. Rename the copy to something like 'Explore server'. Now right-click on the new shortcut, choose 'properties' and click on shortcut tab. The target line should end with 'explorer.exe'. Add to the end of the line so it reads 'explorer.exe /e,x:\dir' where 'x' is the drive letter and 'dir' is the directory (for example, if you want to start in p:\data\dream\enhance, you need to add '/e,p:\data\dream\enhance' to the end. Now when you select the 'Explore server' shortcut it will automatically load up in the directory you specify.

Another useful trick when you are in Windows Explorer is to expand several levels of subdirectories. You can do this by pressing NumLock + asterisk on the numeric keypad. This used to be easy-to-access from the old File Manager but was hidden away in Windows Explorer as it can be heavy on server resources. If you do it on a file server with a complex directory structure, you can bring the system to its knees, so practice this first on a local directory such as your Windows folder!

## Accessory shortcuts

I don't bother with a desktop calculator; instead I use the

Windows calculator accessory.

This is normally buried somewhere in the Start hierarchy, and to make it quicker to access you can allocate a keyboard shortcut to it. Go to the windows shortcut file (start, settings, taskbar, start menu programs, advanced) and when you locate the shortcut, right-click on it and select properties. Click on the 'shortcut' tab and then in the 'shortcut key' box. Now hold down **Ctrl**+**Alt** and type 'C'. This sets up **Ctrl**+**Alt**+C as a permanent shortcut to the calculator.

Wherever you are in Windows you can use this shortcut to load the calculator.

## Custom groups

One of the first things I do when setting up a system is to create custom groups of applications that I use on a regular basis. 'Admin' might include Dream, Word, Notepad, Calculator, etc., while 'Production' might include graphics and layout applications.

As before, click on the taskbar, choose properties, start menu programs, advanced. Now click on 'Start Menu' in the left hand pane and then File, New, Folder. Create a folder called 'Admin', you can easily change the name later. Now expand the directory tree under 'Programs' and locate the shortcut for an application you use quite regularly. Copy (**Ctrl**+C) the shortcut in the right-hand pane, click on the 'Admin' folder in the left-hand pane and paste (**Ctrl**+V).

Using this method you can quickly build custom groups.

## Start in

One of the basic principles of using PCs is to keep user files and program files well apart. Nevertheless, many applications assume you want to store your files within the application's directory structure. If you look again at the Calculator Properties screenshot, you can see a box labelled 'start in'. In most cases, changing this to



Access the Calculator through a shortcut

'p:\prod\journal' will cause the application to use the p: drive directory for retrieving and storing files. Sometimes, especially with Microsoft applications, the program takes no heed of this at all and the setting is maintained within the application. Try looking under Tools, Options.

In the next article I shall explore at more ways to customise the user interface.

*Tim Cullis*

## My Crow Soft Word

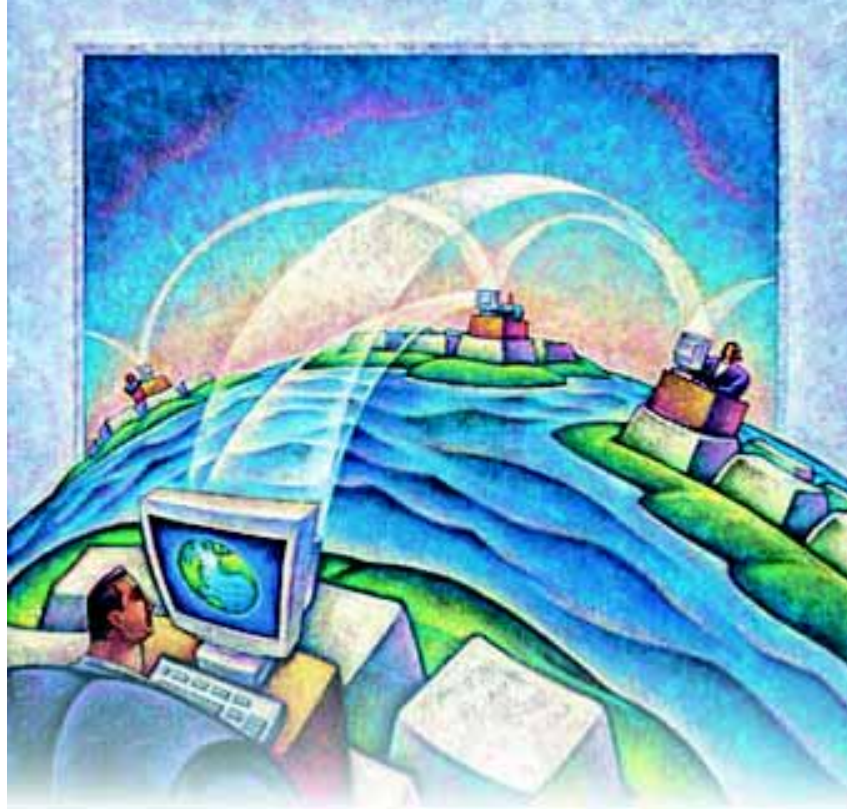
I have a spelling chequer,  
It came with my pea sea,  
It plainly marques four my revue  
Miss steaks eye cannot sea.

When eye strike a quay, right a word,  
I weight four it two say  
Weather eye am wrong oar wright  
It shows me strait aweigh.

As soon as a mist ache is maid  
I nose bee fore two late  
And eye can put the error rite  
Its rarely, rarely grate.

I've run this poem threw it  
I'm shore your pleased two no,  
Its letter perfect in it's weigh  
My chequer tolled me sew.

(Sauce unknown)



# New and Old PCs

by Philip K Taylor, SquareSum

ABOUT ONCE EACH year I write about trends in PC development and the type of PCs you should be buying as both clients and servers. The PC world moves very quickly and it is easy to overlook the latest features and price reductions. It is also very easy to miss some of the articles describing current developments and 'coming shortly' features.

## Still life in old PCs

For some of the older PCs 'still life' is a good description. For those of you old enough to remember trying to run Windows on a 286 or early 386 a modern machine is heaven.

The oldest machine we consider as a 'modern' PC is a 486/50 or 486/66 with its memory increased to 16MB, or if possible 32MB. Such a machine, with Windows 95, is still viable for use with Office 95 and can be used as a Dream client for simple tasks. In my view it is too slow for entering long documents or doing large allocations but if it is all you have, and you have to make

do with antique equipment and can afford to pay your clerks to waste their time, they are adequate for simple input.

The early Pentiums were not much faster. You really have to get to the Pentium 100 before you get a good modern machine. This CPU only existed for a month or two early in 1995, it was quickly replaced by the P120 which was itself replaced by the P133 later in the year.

By the end of 1995 we had new machines, like the P133 that were four or five times faster than the old 486/66. These machines running Windows 95 or 98 with 32MB memory, or Windows NT with 64MB, are the base machines for today. They are still fast enough to run Office 97 reasonably quickly and make a good DREAM client.

By the end of 1996 we were well into the P166 and P200 era. These machines were a little faster than the P133 and form the work horses of many of today's offices.

## New and cheap

The amazing pace of PC development has resulted in some very high-powered and inexpensive PCs. Today it is possible to buy a Pentium II 400 with 128MB memory and a good 17-in monitor for under £1,000.

The January 1999 issue of PC Pro reviewed 24 machines priced at £999. Half of them had 17-in monitors and half had 128MB memory rather than 64MB. The slowest CPU was a PII 350. Five of the machines were fitted with the 450-MHz Pentium II—at the time the latest, fastest, processor on the market—though all of these had only 15-in monitors—the manufacturers have to shave the specification to get under the £999.

Reputable manufacturers, like Dell, have very powerful machines at this price. In our view if you are buying new client PCs today there is no reason to pay more than £999 each for the 'off-the-shelf' model though you may have to pay a few pounds more for a network card.

## Servers

We are amazed to find, from time to time, that some DREAM users are still making do with very old servers. Of course if your work load has not changed substantially you can argue the performance is still the same as it was three or four years ago and your Pentium 60 is still working.

In our view this is a false economy; the improved performance from simply using one of the £999 clients as a server has to be seen to be believed. To make this even better all you need to spend is under £500 on some more memory and disks.

If you are buying a new server today you can get an excellent machine for a few thousand pounds, or pay an old-style price and get something unbelievable. One of our users recently purchased an off the shelf server with 2GB of memory ( yes I really do mean 2GB of memory, not disk). This machine comes with 16 128MB SDRAMs of error-checking and correcting memory.

Typically the modern inexpensive to mid-range server will be dual-CPU capable with about 512Mb memory and 4 to 6 disk drives.

The two things you can do to enhance this specification are to improve the performance and resilience.

## Performance

For many years we have pointed out that you can use a workstation as a server. Indeed in our own offices the new workstations, the latest fastest machines, go into development where they need the power to compile and link the system. When development get new machines their old ones are passed to support. A machine that was fast 12 or 18 months ago is perfectly fast enough for our support team.

When support get their next machines from development their

old machines become our servers.

To us, with our small server work load, using a two or three year old work station is quite acceptable.

As a matter of interest the old servers are then used in our training courses. An ex-server, now three or four years old, is quite fast enough to run DREAM.

The difference between a standard work station and a large server is a matter of improved performance and resilience.

To improve the performance of a work station being used as a server you just

- add more memory
- add more disks
- use a faster CPU

The most important is to add more memory. Until you reach the point where you are not making significant use of the swap file, the easiest and cheapest way to improve performance is to add more memory. It is not worth considering less than 256MB even for a small server. Increasing this to 384MB will cost only another £120 and is probably the best improvement you can make.

The next point is to add more disks, or add faster disks. If you are writing a lot of data to the database putting the database and logs on separate disks will improve performance. Having a third disk for the operating system and swap files will also help. A work station with a lot of memory and three good fast disks is the fastest server you are going to find. The only thing you can do to improve performance is to use a faster CPU.

This simple work station server does not have anything to make it resilient. If it fails you are out of action until you repair it, or move to a new server and you will probably have to recover your database from the backup.

## Super servers—multiple CPUs

A quick survey of server performance would not be

complete without some mention of servers with multiple CPUs.

Understanding the advantages, and disadvantages, of multiple CPUs requires an understanding of how programs are organised and how computers work. The short answer is that normally computers do not really do two things at once, they do one thing but change to do another thing so often and so quickly that they appear to be doing several things at the same time. To put it simply humans look at things over a few seconds. Computers look at things over a few hundredths of a second. If you have multiple CPUs then the computer really can do more than one thing at the same time.

Recently a number of the larger DREAM users have purchased database servers with two or four CPUs. These machines are becoming cheaper and over the next few years will become the 'normal' server. Both Windows NT and SQL Server are 'multi threaded' and therefore are suitable for use with multiple CPU servers.

The things you do to improve performance are to add memory, add disks (and faster disks), and then, third most important, get a faster CPU. Obviously this assumes that you have started with a reasonable CPU. Using two CPUs will give you a better performance than one provided you have threads waiting to run.

Magazine articles suggest that a server with two Pentium II 300s will run faster than one Pentium II 450 but of course the PII 300 uses an older, slower, bus and memory. It is better to say two 350s are better than one 450 but in view of the small difference in cost why not two 450s.

The conclusion is that if you have a reasonable work load and have already fitted extra memory and disks a faster CPU, or multiple CPUs are the next thing you can do to improve performance. A point you should remember is that each

CPU needs quite a lot of memory to run its own tasks. Multiple CPUs require yet more memory. You should allow at least another 64MB for each extra CPU.

### A practical point

A year ago, in issue 3 of *The Journal*, Tim Cullis wrote an article about the importance of defragmenting your disks. It is not much use spending money on a fast server if you let the disks fragment. NT5 Beta 2 (yes I know it is now going to be called Windows 2000 but the June 98 Beta 2 still calls itself NT5) includes the defragmenter Microsoft have bought in from Executive Software. You can download this free for NT4 from [www.diskeeper.com](http://www.diskeeper.com) or purchase the server version that will defragment a whole network of NT machines automatically.

### Resilience

Resilience is both reducing the probability of a failure and also making it easier to recover when (*when, not if*) one happens. The main difference between the cheap work stations and more expensive servers, with a similar specification, is that the server components should be better

quality and less likely to fail. A good server will use error checking and correcting memory. This will reduce the small chance of errors in the much larger memory causing an error.

The main thing you can do to make your server more resilient is to fit more disks and use these to enable you to recover from a disk failure. The most important point to accept is that disks do fail. They are mechanical devices working at high speed with frighteningly small tolerances. All disks will wear out at some time. The average life may be at least five years but some will fail sooner, perhaps much sooner.

### Mirrored disks

The first technique is to mirror your disks. You have two disks and use the second as a copy of the first. If one of the pair fails you can use the second while you obtain another disk to restore the mirroring. NT supports mirroring in software but it is better to do it with hardware. A software mirror has to write the data twice and slows down the server. Hardware mirrors act at the disk controller level and do not impact your performance.

### RAID

RAID means 'redundant array of inexpensive disks.' There are six different types of RAID numbered 0 to 5 (see sidebar). RAID 0 is a special case, it improves performance but provides no resilience, RAID 1 is a method of mirroring so provides resilience without impacting performance. All the other RAID types reduce performance but improve resilience, the only one in general use, and recommended for databases, is RAID 5.

RAID 5 spreads the data across a number of disks with parity. It enables you to 'hot swap' a failed disk—when a disk goes down you can replace it without stopping the server or losing data.

### RAID / mirroring considerations

There are some practical points you need to take into account when setting up a RAID.

You need an experienced consultant to purchase and set up RAID. A recent article reports that "poorly-tuned RAID 5 configurations are four times slower" than well-tuned ones. The article also suggests that you need a multiple CPU server to drive RAID hardware at full speed and points out that the most expensive offering was one of the worst performers.

RAID 5 provides the best resilience but the worst performance. If you are going to use this method you need to spread your data over at least three (five recommended) disks. You also need to make sure that you use high-speed disks.

Do not put the database log files on the RAID 5 disks—doing this really hits performance. Since the five disks you will use as your RAID 5 set will be far larger than your database there is a temptation to use the array for all your disk storage. You should NOT put your log files, or your swap file, on the RAID 5 disks with your database.

However you must secure your logs. It is no use paying for RAID 5 to hold your database and then leaving the logs on a separate disk on their own. If the log disk fails you lose the database as well. The best option is to have a mirrored pair for the logs.

### RAID

While RAID 0 to 5 are the normal types there are some others. RAID 1/0 or 10 is a combination of 0 and 1, this offers the performance of 0 with the mirroring of 1. RAID 7 is a special, proprietary, method that offers both performance and resilience at high cost.



You need to consider where you are going to keep your operating system and swap file. You can keep them on the mirrored log disks, if you have increased your memory to reduce swapping. You can also partition this disk to keep the log files in a separate part of the device.

If you put the operating system on a separate disk you should also mirror this. It is no use having your logs and database safe if you lose the operating system, swap area and applications. Of course you will need a boot disk to allow you to restart the computer using the mirror in the event of the operating system disk failing.

### Disk resilience summary

Repair the computer and recover from backup. This is the cheapest method but takes the longest to recover. If you use a standard work station as your server this is your only recovery method.

Mirror disks. Recover by restarting and using the mirror while you obtain a replacement disk and restore the mirroring.

RAID 5. Keep on working through disk failure. Hot swap the failed disk to restore full resilience.

### The future

Where next? PCs are continuing their rapid development. Current forecasts are that all the normal CPUs you can buy today will be obsolete by summer. Only the latest top of the range CPUs currently available, the Xeon range, will still be manufactured.

New, faster and cheaper has been the hallmark of PCs for a decade. For most of this time we have cried rubbish every time a pundit has said that the new, more powerful, machines were only needed as servers—486s will never replace 386s on the desk top. “Rubbish we said”, thinking of the slow response of Word. Pentiums will never replace 486s on the desk top. “Rubbish we said”, thinking of

all the things we could do with several programs open at once.

Now it is getting harder. Really the only jobs we do that can benefit from faster PCs are development, particularly compiling the whole of DREAM, and support working on the whole manual at once. All our normal day-to-day work is perfectly satisfactory on a P166, we don't really need the PII 350s we use today.

Obviously faster servers will be useful but for the desk top we need a new generation of applications introducing new ideas, speech, full motion video, or other processor and memory intensive work.

### Slim displays

A year ago I said that the new notebook-style flat thin displays would be available for desktop use at a price we could afford within two years. The resounding reply

was “*Rubbish, it will never happen (or at least not for five years)*”.

Well a year ago we were happily paying (happy is a relative term, lets just say we were prepared to pay) £500 for a good 17-in monitor. Today you can buy a Philips Brilliance 151AX for £499 (see the Simply Computers November catalogue) . This is a LCD display with 1024x768 resolution and a true 15.1-in diagonal, equal to the picture area of a typical 17-in monitor. This has had an enormous impact on the market, the old style CRT 17-in monitors are now selling for about £200.

If you want a larger display there are 18-in flat panels at 1280x1024 on offer at less than £2,000. This is about the price we were paying for a 19-in monitor only five years ago. My guess is that these will be under £1,000 by 2000.

*Philip Taylor*

## Support Korner: solving the Y2K bug

An inexpensive alternative has been identified to the many Year 2000 bug fixes. The goal is to remove all computers from the desktop by December 1999.

Instead, everybody will be provided with an Etch-A-Sketch. There are many sound reasons for doing this.

- 1 No Y2K problems.
- 2 No technical glitches preventing work being done.
- 3 No more wasted time reading and writing e-mails.
- 4 Substantial hardware cost savings.
- 5 The IT department can be disbanded.

### Frequently asked questions from the Etch-A-Sketch help desk:

**Q. My Etch-A-Sketch has funny lines all over the screen. What do I do?**

A. Pick it up and shake it.

**Q. How do I turn off my Etch-A-Sketch?**

A. Pick it up and shake it.

**Q. What's the shortcut for undo?**

A. Pick it up and shake it.

**Q. How do I create a new document window?**

A. Pick it up and shake it.

**Q. How do I set the background and foreground to the same colour?**

A. Pick it up and shake it.

**Q. What's the proper procedure for rebooting my Etch-A-Sketch?**

A. Pick it up and shake it.

**Q. How do I delete a document on my Etch-A-Sketch?**

A. Pick it up and shake it.

**Q. How do I save my Etch-A-Sketch document?**

A. Don't shake it!

# SQUARESUM AD