IUA CONNECTIONS

The CA-IDMS Database and Applications

User Association

http://www.iuassn.com

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INSIDE THIS ISSUE

● LETTER FROM THE EDITOR

Our lead article in this edition celebrates the robustness of network databases in terms of modeling "the real world". Derek Smith in his article on "IDMS and Mental Philosophy" discusses his use of IDMS to model the neural network of the human brain to represent the thought process. This is not just a frivolous bit of esoteric "tom foolery" - as the research has relevance to AI and to robotics.

And the relevance to most of us in commercial and manufacturing? If IDMS can be used to represent such abstract concepts - it must be a really great tool for modeling the more concrete constructs of Bills of Materials, Customers, Orders, Vendors, Accounts and the like that are the more usual real world entities that we have to represent in our databases. Less "fun" perhaps, but no less important to the organisations that we work for. It's reassuring to know that we're using the best tool for the job!

The Perils of Outsourcing

My family and I recently had the good fortune to spend some time up in the far north of the Northern Territory here in Australia. Darwin and the surrounding landscape has to be seen to be believed - coming from the parched, dry south the abundance of water and lushness of the vegetation was mind blowing - and this is their "dry season".

"What does that have to do with outsourcing?", I hear you ask. Like many Australians and most foreigners I was not aware of just how devastating the Japanese air raids on Darwin in February of 1942 had been. It's a little known fact that more aircraft were involved in the Darwin raids than attacked Pearl Harbor in December 1941. Now this is where it comes to "the perils of outsourcing". Even today, parts of the far north of Australia are largely uncharted. Before Darwin my wife and I spent a week on a boat on the waters of the Kimberley region in northern West Australia. The skipper relied on satellite photos to avoid reefs and the like - as there are no maritime charts of the area.

1

Automated **Applications Analysis** for CA-IDMS – Improving Flexibility and Quality

- ✓ Support for ADS/Online, Cobol and PL/1
- ✓ Impact Analysis and component dependencies
- ✓ Applications CMDB, Graphical and Report views
- ✓ Correlation between Application Components and IDMS Schema / Sub-schema

EZ Source is a comprehensive Applications CMDB that provides automated analysis, knowledgebase and documentation for all CA-IDMS based applications. Whether your task is improved maintenance, greater flexibility or integration, EZ Source supports the entire technical team as well as providing a management dashboard.

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MESSAGE FROM INTERNATIONAL CHAIR

By Terry Schwartz

As I write this column CA World is only two months away and I look forward to seeing some of you at the event. I have never been to a CA World where I have not picked up some great nugget of information that helps me in my shop.

By the time CA World is convened, the US presidential election will be decided. Change had been a pervasive theme in the presidential candidate's campaigns. I would like to encourage you to be agents of change in your IT shops.

Although CA IDMS is a very mature product, I am not sure if IT management realizes the ability of CA IDMS to play a vital role in today's web based environment. It could be through CA IDMS Server with the ability to serve data to both .NET and Java environments or using the TCP/IP interface to provide or call web services, CA IDMS can become part of today's service oriented application environment.

If the data residing in your CA IDMS system is needed in applications on non-mainframe platforms, or your application presentation needs to migrate to a browser environment, you might already have the ability to accomplish those changes. Like the candidates in the US election, my challenge to you is to be an agent for change. If you have not done so, make people in your shop aware of the capabilities of CA IDMS to be a viable part of the web world.

If you need more information on how CA IDMS can interface in a service oriented application environment, the IUA can help. We can organize web casts on CA IDMS modernization or other relevant topics. The IUA is here to serve the CA IDMS community so consider using the IUA as a resource.

A friend of mine who is an application owner was commenting about how he rarely sees pages on his pager for his mainframe based IDMS system but sees a plethora of pages for non-mainframe based systems roll across his pager display. Sometimes the maturity of a platform and software is a good thing….

I hope to see you at CA World.

Letter from the Editor cont'd from page 1

So - how come the Japanese were able to find their way around the Northern Territory with such devastating accuracy? Easy. In view of their "local knowledge" back in the 1930's, the surveyor general asked the Japanese to map significant portions of the Northern Territory. Was this a case of "outsourcing gone wrong"? And have we learned our lesson?

One of our major Australian telecommunications companies, in fact the one that owns most of the physical infrastructure, has outsourced maintenance of the system that tracks and monitors that infrastructure to an overseas outsourcer. This system tells you about the major end points and connectors, and the major customers who rely on the bearers. If one part of the network has problems the engineers can work out how to restore services as quickly as possible.

Who might affected by an outage? Certainly millions of subscribers to the public, switched network, but also emergency services, broadcasters, state and commonwealth government departments and so forth. Should the "telco" be worried? Should some of their customers be worried? Would you be worried if the water system and electricity grid were owned or managed by foreign companies? Where does outsourcing cease to be a commercial decision and start to become an issue of "the national interest?". I don't know, I can't comment because I don't know enough - and I don't know if the situation is a real threat or just a case of my very vivid and overactive imagination getting the better of me.

But I do know that people who are not aware of history are fated to repeat the mistakes of their predecessors. I wonder if this is one of those cases, and if there are other cases being played out around the world?

The Perils of Advertorials

In this issue I have included an article about the use of a tool provided by EZ Legacy. I know that in doing so I run the risk of offending "purists" who probably find the article to be nothing more than a sales pitch. We're all entitled to our opinions, and if you are one of the people who feels this way I respect your opinion. But, that will not stop me from including articles about tools that may have some value to some of our readers.

In my own case at JIS our customers have asked us to "refresh and transform IDMS services". We're not sure what that means - but I have a sneaking suspicion that it will involve us getting a better understanding of the business rules that are embedded in nearly 4,000 ADS dialogs and close to 5,000 Cobol programs. This "knowledge base" of how Police, Correctional Services and Families SA run their business is not about to give up its secrets easily. I suspect some automated assistance would be helpful. I don't know if EZ Legacy's tool would be able to help us out or not, but at least if I know about
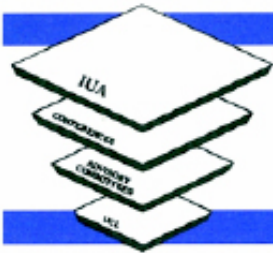
it and other tools, I can find out more so that I can make a decision.

In much the same way as CA has its "Business Value Stories" (we at JIS are pleased to be one of them), I think that stories about 3rd party vendor's products that have helped to make IDMS users successful in the past, and that can help them to meet demands placed on them by their users to meet the trials and tribulations of the future - are well worth knowing about. So if you have a "business

were your major IT and business issues back then? What are they now? Have they changed that much - or is it that just the names (of the technologies) have changed? What are some of things that have affected the world in the last 10 years, let alone the last 20: there was 9/11, hurricane Katrina, SOX, globalisation and outsourcing to name a few things that have imbedded themselves in our collective psyche and in some cases have permanently altered the playing field. If you have any thoughts on any of this - please share them with us.

That's all there is because there is no more – cheers - Gary

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User Group (OZIUA)
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Connections

value story" about how a particular tool has helped you (as a user) or a customer (as a vendor) out in a difficult situation, I would like to hear about it. I reckon that in order to keep IDMS alive and well in the next 5, 10 or 20 years we will need to investigate some of the innovative tools that 3rd party vendors can bring to the party!

Connections **Continues**

So soon after the Beijing Olympics, the metaphor of "carrying the torch" in the relay of Editors who have put out issues of *Connections* for the last 20 years probably has some relevance. And to mix my metaphors I hope that, unlike some teams in the relay events, I don't "drop the baton". I've browsed through my hard copy archives and located some front pages of past editions of *Connections* - in order to show the changes to the masthead as *Connections* has evolved over the years. I hope that you enjoy this brief glance down memory lane.

And just on that subject - where were you in 1988? What

The opinions expressed in this editorial are the personal opinions of the editor and they may not be shared by the IUA board or its members, other contributors to Connections, or by Justice Technology Services.

CA-IDMS AND THE HUMAN MIND

Derek J. Smith, University of Wales Institute, Cardiff

It's been done a thousand times in the movies. Having settled his/her patient down on their couch, the psychiatrist says "I'm going to say a word, and I want you to reply with the first thing that comes into your head". And off they go, with each reply being followed by a new test word. Green - Grass. Long - Short. Ship - Sea. And so on. The method is essentially Jungian, and what the therapist is carefully listening for are anomalies either in response time (sometimes you get the classical "psychological block", and can't think of a reply), or in theme (your replies might start to cluster in a certain sensitive area). The therapist then homes in on these anomalies, and pretty soon you're profitably exploring your innermost painful secrets.

Now the principle behind this sort of "association of ideas" therapy is that the human mind is a vast mental network, in which each given idea leads naturally to the ideas it has been associated with in the past. This picture of the mind as a conceptual network goes back at least to Aristotle, was the basis of the influential 18th century doctrine of "Associationism", and can also be seen in modern theories of the "semantic network".

Which brings me to the point at hand. In 1990 I underwent a career switch, out of commercial IDMS design and into psychology lecturing. Recognising the networked nature of the mind, I confidently expected to come across applications of network database technology in the academic literature on artificial intelligence [after all, the Jungian technique can readily be seen as a CALC to the stimulus <IDEA> followed by an OBTAIN FIRST within the <ASSOCIATED WITH> set]. Nothing came to light - just the occasional use of relational analysis - and as the years went by I formed the conclusion (a) that the AI world was content to simulate the human mental network on non-network technology, and (b) that this might go some way to explaining their not particularly impressive progress towards machine consciousness and genuinely autonomous robotic control.

Eventually I appealed to the online IDMS community for support with a "proof of concept" project exploring not just a set-structured data model of the mind, but an actual IDMS physical implementation to test it against. The result was the Konrad system, specified and written between August 2007 and March 2008 as an academic collaboration between myself and John T. Abell of International Software Products, Toronto. Konrad's application platform is CA-IDMS (Release 16), and the database is accessed using COBOL applications executed under z/OS (Version 1.8) running on an emulated z System under FLEX-ES.

The first successful trial took place on 14th March 2008, and required the software to "think" in a rudimentary way about a test sentence before responding appropriately to it. It did this with only half a dozen substantive database operations, and what made the trial particularly significant was the fact that the software responded in Welsh to a question put to it in English. Given the input "Tell me about yourself", the machine replied Konrad y Peiriant ydw i, beth a hoffech chi ei wybod (roughly, "I'm Konrad the Mechanical, what would you like to know").

Work is ongoing on a more sophisticated data model, a highly data abstracted schema, and a more challenging series of tests. The long-term object of the Konrad Project is to test the hypothesis that the currency indicators maintained by the CA-IDMS DBMS have functional equivalents in the biological nervous system. To the extent that this hypothesis can be supported, the approach promises more "life-like" artificial intelligence, machine consciousness, glass cockpit, and robotic applications, both civil and military. It also promises to provide theoretical insight into the structure of the self, and, in turn, into how that structure can fail in characteristic ways in some, if not all, learning and/or psychiatric disorders.

DBA HUMOUR

DBA's . . .

- ... have hex on the brain
- ... have good table manners
- ... theme song. "Born to be a DBA" - variation of Bruce Springsteen song
- ... do it on the fly
- ... do it in clusters
- ... have good relationships
- ... theme song. "Born to be a DBA" - variation of Bruce Springsteen song
- ... have hex on the brain
- ... are good at insertion
- ... have big memberships
- ... don't mind if they are next or last
- ... have good table manners
- ... do it for the record
- ... are not insecure
- ... are One Of A Kind
- ... believe in the program's motto "I/O, I/O, it's off to work I go"
- ... believe IDMS stands for "It Does Make Sense"

Editor's note: can you, or the combined efforts of your local User Group, do better? Send in your best DBA jokes and get yourself published in this prestigious publication. It's just like being a Public Servant – we're in it for the glory – not for the money!

● IDMS APPLICATION ANALYSIS WITH EZ SOURCE

An industry leading Global Logistics organisation have relied on CA-IDMS for their core application for many years, using a combination of CA-ADS/O for the online components and Cobol for the batch tasks. The application has matured into a large scale, high performance application with rich functionality supporting a worldwide user base.

Matching their worldwide organization, responsibility for different aspects is spread across different departments around the globe, so whilst the core architecture and design authority is based in the UK, other Application Management tasks are the responsibility of both an internal near-shore service provider and a large Indian outsourcing organization.

As the application has grown over time and responsibility progressively distributed, more resources were dedicated to application analysis to both ensure accurate work estimates and costing, but more importantly to guarantee application's quality – the well known issue of making a change to one component producing an adverse effect somewhere else that was not known to be related.

One particular project involved analyzing the entire application (some 8,000 individual components) to understand the instances of a particular set of reference data that was both held in IDMS and hard coded in the application so that standard values could be introduced. This led to the requirement of needing to anatomise the application itself and the data structures in a way that revealed the dependencies and relationships between them both. Given the variety of instance types, often compounded by combinations with string literals, adopting a manual approach was identified as both time consuming and also produce estimates with a wide margin for error.

The decision was made to use EZ Source for the analysis and the following steps were taken:

- Load all application components (principally ADS/O, Cobol, Include files, JCL, IDMS schema and sub-schema definitions) in to the EZ Source Repository. During the load process EZ Source compilers complete the lexical, syntactic and semantic analysis and correlation of all components and data definitions

- Component Verification – automatically identify then add missing components from the first load (for example 1113 missing copybooks were identified along with various schema and sub schema definitions)

- Analyse and verify IDMS instances of referenced data and cross-correlate with the application components

- Analyse hard coded instances and instances where variables are propagated to other programs

For this project, reporting output was needed to both document and quantify the results. The analysis was completed in a matter of minutes and produced the following:

- 1162 program reference values in the list of identified reference data

- 8,000 components were analysed (5,000 ADS; 3,000 Cobol)

- 422 ADS programs and 139 Cobol programs contained relevant references

- Some of the 561 programs propagate to other variables

- Hard coding analysis was also completed. EZ Source delivered an extract of ALL hard coding in 103,000 'IF' statements in of which 54,000 matched known codes

- 347 programs used 4,480 identified variables in 'IF' statements against known reference values

- EZ Source has also highlighted otherwise undetected problems regarding source control which are now being investigated

Once the initial results were understood, additional reports were produced as criteria were refined and data was subsequently exported to Excel for additional cross referencing – a 'forensic' approach to analysis is a common result as visibility is provided that enables in turn a more detailed understanding. Not only was it felt that the accuracy of the results far exceeded what could have been produced manually, the project was completed in approximately 15% of the time had EZ Source not been used.

Although this illustration used a small subset of the EZ Source functionality, there is additional technical capability to support the analysis necessary as a precursor to most development activities. The major functionality can be summarised as:

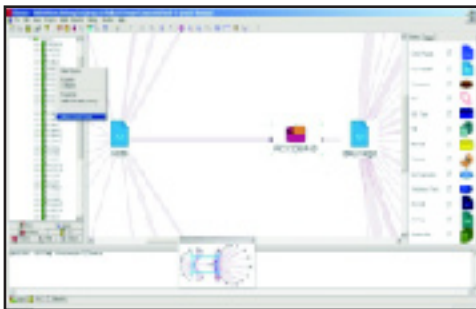Application's Configuration Management Database (ACMDB) view

- All application components including:
  - Cobol with embedded CA-IDMS/DB and DC commands
  - PL/I with embedded CA-IDMS/DB and DC commands
  - Schema and Subschema files
  - CA-ADS/Online

- Associated JCL, Copybooks, BMS maps etc
- MQ calls
- CICS calls
- Component dependencies and where-used
- Flexible hierarchy definition
- Filtering, search capabilities
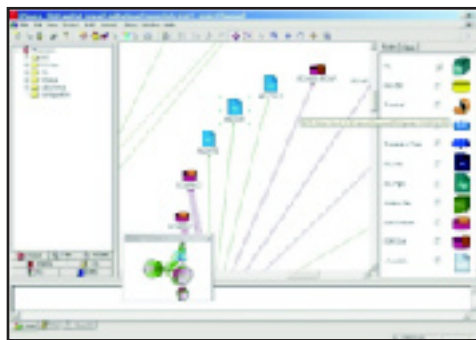
Graphic representations

- Defined starting point and calling level
- Multiple representations, for example IDMS 'where used'

Where-used Record view

- Progressive drill down – Cross Application, Paragraph, Statement
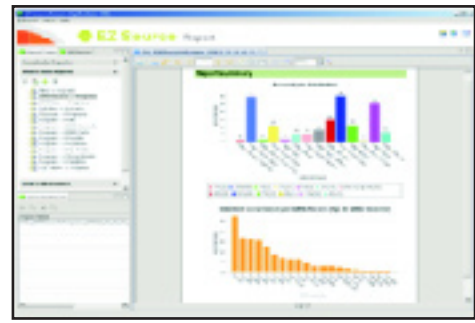
High level component dependency view

- Progressive incoming and outgoing logic
- Component and calling filters

Reporting

- Industry standard application's complexity analysis – Halstead, McCabe, Heuristic etc
- User configured reports
- Coding and quality standards
- Dead code analysis
- Where used dependency analysis

Where used reports for IDMS records and sets

At all stages of the analysis, Source code synchronisation is provided so the actual code can be fully understood.

For a variety of tasks PDF, Visio and Excel exports is provided for hard copy technical documentation, estimation and other tasks.

Automated retrieval from Source Configuration Management systems such as CA-Endevor and Librarian ensures that the EZ Source repository is kept synchronised with the latest versions of the code – versions can be kept as needed.

EZ Source is very much aimed at both the technical and management community and the functionality reflects the in-depth requirements involved in IDMS application programming

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● TRUST THE ORACLE

In the spirit of no article is too small - here is a short, sharp and snappy note from Phillipe Jacqmin. Enjoy - cheers - Gary

> IDMS was (and maybe still is) many times faster than Oracle

Where do you find this statement? In an Oracle User Group presentation

http://www.nyoug.org/Presentations/2007/200703_Niemiec_Keynote.pdf page 62

Trust the oracle ;)

This is my small contribution to IUA Connection

Best regards, Philippe Jacqmin

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● USING DMLO TO THE MAX – SUPERCHARGING YOUR TOOL USAGE

There are some little used features in DML/O that can reduce your keystrokes and boost your productivity. Two are:

- PF Key assignments
- EQUATE command

Before we go any further, let's do a quick review of the product.

The Basics

What is DMLO? Simply put, its IDMS DML entered via an interactive tool rather than an application program. A basic working knowledge of navigational DML is required.

What is it good for?
- Ad-hoc navigation, retrieval, and update of records within an IDMS database

Who uses it?
- IDMS Developers
- IDMS DBA's
- (In rare occasions) trained end-users and/or application support staff

Why do they use it?
- Test navigation DML logic in a quick interactive method
- Correct and fix data integrity problems in the database without having to write a program (be careful here, this is very powerful)
- Create test data
- Analyze performance problems

  Train new developers

If you've been around DMLO for any length of time you may already be familiar with the uses mentioned above... but are you familiar with the shortcut power of PF key assignment and EQUATE statements? These little known or used functions within DMLO can supercharge your productivity! If you find yourself typing in the same or similar commands over and over, you need to learn about and start using PF KEYs and EQUATEs.

PF Keys and EQUATES

PF Keys and EQUATES allow you to create shortcuts for *your* commonly-used commands or partial commands (both DML and/or DMLO commands). Once defined, you can save them in a profile: the next time you want to use them, they will be there.

Both can include variable parameters so that the command can be customized with substitution values at execution time.

How do I use PF Keys?

Like most tools in the IDMS environment, DMLO comes with some PF Keys already defined. PF7 and PF8 usually represent page forward and back.

```
mm/dd/yy.........................PF KEY ASSIGNMENTS.....................hh:mm:ss
PA1 : INTERRUPT KEY
PA2 : FINISH NOSAVE
PA3 :
PF1 : HELP
PF2 : KEYS
PF3 : END
PF4 : DISPLAY 8D
PF5 :
PF6 :
PF7 : UP
PF8 : DOWN
PF9 :
PF10:
PF11:
PF12:
DML/O Rnn.nn ================================================= CA, Inc.
RECORD=                   STATUS=0000   DBKEY=0000000:55-0008 KEY=0000000000-0000
KEYS
  SUBSCHEMA=EMPSS01    SCHEMA=EMPSCHM    VER=0100    COL 001-080  LINE 0001 OF 0030
```

Before we assign a command to a PF Key, it's a good idea to know has already been assigned. To do this, enter the command SHOW KEYS on the command line. The following screen will be displayed:

This screen displays a list of PF/PA Keys and the commands assigned to each one for this session. You can use the page up/down keys to view all the key assignments.

Defining a command to a PF Key

To define a PF Key, type a string on the command line that starts with a DML or DMLO verb and then press the PF Key you want assigned to the command. Let's say you want PF9 to be associated with retrieving the next customer within its area. Type:

OBTAIN NEXT CUSTOMER WITHIN CUSTOMER-AREA
and
Press the PF9 key

PF9 has that command associated with it and every time the PF9 key is pressed, the next CUSTOMER record within the CUSTOMER-AREA will be retrieved from the database.

NOTE: if a PF Key already has an assigned value and the PF Key is hit with a command beginning with a DML or DMLO verb, then the PF Key will be reassigned to the new DML/DMLO command.

Current Value of PF9:

OBTAIN NEXT CUSTOMER WITHIN CUSTOMER-AREA

8

User types:

> `OBTAIN NEXT EMPLOYEE WITHIN EMP-AREA`
> *and*
> *Press the PF9 key*

New Value of PF9:

> `OBTAIN NEXT EMPLOYEE WITHIN EMP-AREA`

Values can also be assigned to a PF/PA key on the PF KEY ASSIGNMENTS screen. Simply type the command or phrase next to any PF key label.

Executing existing PF Key assignments:

DMLO will execute the command associated with an existing PF Key assignment if one of these two conditions exists when a PF Key is pressed:

- If nothing is on the command line, the command associated with the PF Key is executed.
- If the command line does **not** begin with a DML or DMLO verb, the data on the command line is used as variable parameter input to the PF Key command.

Using Variables:

Variables can be used in a command so that at execution time, the values entered on the command line can be substituted for the variables defined to the PF Key command. Typing into the command line:

> `OBTAIN NEXT &1 WITHIN &2`

followed by PF9, assigns "`OBTAIN NEXT &1 WITHIN &2`" to PF 9

Then at run time, if you enter:

> `CUSTOMER CUSTOMER-AREA`
> *and*
> *press the PF9 key*

the following is executed:

> `OBTAIN NEXT CUSTOMER WITHIN CUSTOMER-AREA`

CUSTOMER *has been substituted for the &1 variable*

> *and*

CUSTOMER-AREA *is substituted for the &2 variable*

EQUATEs

EQUATEs allow you to define your own shorthand for common commands or fields. These shorthand commands can also include variables similar to PF Key

definitions.

To view all the abbreviations created either during the current session or brought in via the PROFILE, enter the command SHOW EQUATES on the command line.

This is a display only screen. Unlike the PF Key Assignment screen, no changes to EQUATE values are allowed on this screen. Additionally, standard abbreviations are not displayed.

```
mm/dd/yy......................USER-DEFINED EQUATES......................hh:mm:ss
EMPID...... EMP-ID-0415
EMPLNAME... EMP-LAST-NAME-0415
EMPFNAME... EMP-FIRST-NAME-0415
EMPNAME.... EMP-NAME-0415



DML/0 Rnn.nn ------------------------------------------------------- CA, Inc.
RECORD-                      STATUS=0000   DBKEY=0000000255-0008 KEY0-0000000000-0000
SHOW EQUATES
  SUBSCHEMA=EMPSS01    SCHEMA=EMPSCHM    VER=0100    COL 001-080  LINE 0001 OF 0004
```

To define, use the EQUATE (EQ) command in the command line. Typing into the command line:

`EQ ONW OBTAIN NEXT CUSTOMER WITHIN CUSTOMER-AREA`

> followed by ENTER

assigns "`OBTAIN NEXT CUSTOMER WITHIN CUSTOMER-AREA`" to the symbol **ONW**.

To use this command, enter "**ONW**" on the command line and the system will return the next CUSTOMER record within the CUSTOMER-AREA.

EQUATES with variables; increased utility:

You can add symbolic variables to an EQUATE just like a PF KEY. Typing:

`EQ OXW OBTAIN &1 CUSTOMER WITHIN CUSTOMER-AREA`

allows you the following options:

```
· You type: -> You execute:
· OXW FIRST -> OBTAIN FIRST CUSTOMER
                WITHIN CUSTOMER-AREA
· OXW NEXT  -> OBTAIN NEXT CUSTOMER
                WITHIN CUSTOMER-AREA
· OXW PRIOR -> OBTAIN PRIOR CUSTOMER
                WITHIN CUSTOMER-AREA
· OXW n     -> OBTAIN 5 CUSTOMER
  WITHIN              CUSTOMER-AREA
· OXW LAST ->  OBTAIN LAST CUSTOMER
                WITHIN CUSTOMER-AREA
```

depending on your particular need.

Removing EQUATEs

To remove a previously defined EQUATE, enter:

```
EQUATE equate-name NULL
EQUATE ONW NULL
```

Making things easier on yourself

If you use DMLO regularly, you can begin to make your life easier by starting with simple PF KEY and EQUATE definitions. As you become more and more familiar with them, you may find opportunities to further leverage these facilities through use of parameters, and even embedding EQUATEs within PF KEYs!

The ultimate labor-saver is use of the CLIST facility. Watch for an article on that in a future issue of *Connections*.

● SOAP HTTP HEADERS

The TCP/IP sockets feature, new with IDMS R16 SP2, makes it possible for IDMS to participate in the world of web services, both as a consumer (making requests to external web services) and as a provider (responding to external requests). Although there is no official web services message format, SOAP is rapidly becoming the de facto standard. SOAP is a format for encapsulating the request and reply data within XML. But this article is not about SOAP.

In addition to a message format, a web service also needs a transport mechanism. Just as with the message format, there is no official web services transport mechanism. But the most commonly used is HTTP. Once the request or reply has been wrapped in a SOAP envelope, it must be further wrapped in HTTP headers, which tell the network how to deliver the message. The SOAP message is now referred to as the HTTP "content", to distinguish it from the HTTP headers.

```
*   DECIMAL 3338 = HEX 0D0A.

    05  WS-CRLF-ASCII              PIC 9(4) COMP
                                   VALUE 3338.
    05  WS-CRLF-CHAR
        REDEFINES WS-CRLF-ASCII  PIC X(02).
```

Figure 1

HTTP headers are written in plain text, plus an annoying entity called a CRLF. CRLF is a combination of two non-displayable characters called CR (carriage return) and LF (line feed) that were originally used by printers. When they appear together in an HTTP message, they are to be interpreted as a separator, rather like the –STOP– separator that was used in telegrams. The hex value of the

ASCII version of CRLF is '0D0A'. Figure 1 shows how you can define it in the working-storage of a COBOL program.

```
POST /delayedstockquote/delayedstockquote.asmx HTT
P/1.1██ Host: ws.cdyne.com██ Content-Type: text/xml;
 charset=utf-8██ Content-Length: 00000461██ SOAPActi
on: "http://ws.cdyne.com/GetQuickQuote"███<?xml v
ersion="1.0" encoding="utf-8"?><soapenv:Envelope x
mlns:soapenv="http://schemas.xmlsoap.org/soap/enve
lope/"><soapenv:Body><tns:GetQuickQuote xmlns:soap
enc="http://schemas.xmlsoap.org/soap/encoding/" xm
lns:xsi="http://www.w3.org/2001/XMLSchema-instance
" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xml
ns:tns="http://ws.cdyne.com/"><tns:StockSymbol>CA<
/tns:StockSymbol><tns:LicenseKey>0</tns:LicenseKey
></tns:GetQuickQuote></soapenv:Body></soapenv:Enve
lope>██
```

Figure 2

Figure 2 shows an HTTP message sent from an IDMS region to a public web service that provides stock prices. The URL of the web service is:

 http://ws.cdyne.com/delayedstockquote/delayedstockquote.asmx

Most depictions of XML and HTTP headers show the pieces on separate lines for readability, but Figure 2 shows what it really looks like. The CRLF's are not displayable, but are indicated here by small colored boxes. The CR is red, and the LF is orange. The message consists of the following:

- HTTP header #1: This is composed of the word "POST", the last part of the web service URL, and the HTTP version.
- A CRLF.
- HTTP header #2: "Host: ", followed by the first part of the web service URL.
- A CRLF.
- HTTP header #3: Content type and character set. These describe the content to come.
- A CRLF.
- HTTP header #4: "Content-Length: ", followed by the length of the content in decimal format.
- A CRLF.
- HTTP header #5: The SOAP action. For a web service that does multiple things, this tells the program which thing you are requesting, like pressing a PF key in a CICS or ADS program.
- A CRLF.
- Another CRLF. Two CRLF's in a row are sometimes referred to as an empty line or a double CRLF. They indicate the end of the HTTP headers, and are followed by the content.
- The content. In this case, the content is a SOAP request message.

- A final CRLF.

To send a SOAP request from IDMS, you will need to assemble a string of characters consisting of all of the above items.

```
HTTP/1.1 200 OK▮▮Date: Mon, 28 Jul 2008 12:41:39 G
MT▮▮Server: Microsoft-IIS/6.0▮▮X-Powered-By: ASP.N
ET▮▮X-AspNet-Version: 2.0.50727▮▮Cache-Control: no
-cache▮▮Pragma: no-cache▮▮Expires: -1▮▮Content-Typ
e: text/xml; charset=utf-8▮▮Content-Length: 370▮▮▮
▮<?xml version="1.0" encoding="utf-8"?><soap:Envel
ope xmlns:soap="http://schemas.xmlsoap.org/soap/en
velope/" xmlns:xsi="http://www.w3.org/2001/XMLSche
ma-instance" xmlns:xsd="http://www.w3.org/2001/XML
Schema"><soap:Body><GetQuickQuoteResponse xmlns="h
ttp://ws.cdyne.com/"><GetQuickQuoteResult>23.41</G
etQuickQuoteResult></GetQuickQuoteResponse></soap:
Body></soap:Envelope>
```

Figure 3

Figure 3 shows the reply that the stock price web service sent in response to the previous request from the IDMS region. The first step in reading an HTTP message is to locate all of the CRLF's. These are indicated by small red and oranges boxes, as in the previous figure. This reply consists of 10 HTTP headers, followed by some content. Important things to note:

- The "200 OK" in header #1. This indicates that the web service was able to process your request and return a valid reply.
- The content length in header #10.
- The double CRLF after header #10. This indicates the end of the HTTP headers, and is followed by the content.
- The content that follows the double CRLF. In this case, the content is the SOAP reply message.
- Keep in mind that you cannot depend on any of these items beginning or ending in a particular column of the HTTP message. The number of HTTP headers may vary, as may the order in which they appear. You will need to parse the message based on its contents, not on a specific record layout.

```
HTTP/1.1 200 OK▮▮Date: Mon, 28 Jul 2008 12:41:39 G
MT▮▮Server: Microsoft-IIS/6.0▮▮X-Powered-By: ASP.N
ET▮▮X-AspNet-Version: 2.0.50727▮▮Cache-Control: no
-cache▮▮Pragma: no-cache▮▮Expires: -1▮▮Content-Typ
e: text/xml; charset=utf-8▮▮Transfer-Encoding: chu
nked▮▮▮▮10e▮▮<?xml version="1.0" encoding="utf-8"?
><soap:Envelope xmlns:soap="http://schemas.xmlsoap
.org/soap/envelope/" xmlns:xsi="http://www.w3.org/
2001/XMLSchema-instance" xmlns:xsd="http://www.w3.
org/2001/XMLSchema"><soap:Body><GetQuickQuoteRespo
nse xmlns="http://ws.cdyne.com/">▮▮64▮▮<GetQuickQu
oteResult>23.41</GetQuickQuoteResult></GetQuickQuo
teResponse></soap:Body></soap:Envelope>▮▮0▮▮▮▮
```

Figure 4

Sometimes an HTTP message will be sent in "chunked" format, in which the content is broken up into pieces. Figure 4 shows what the Figure 3 message might look like if it had been sent in chunked format. Everything is the same until header #10. The content length has been replaced by the literal "Transfer-Encoding: chunked". We then see the usual double CRLF that separates the HTTP headers from the content. The content is different now. Each "chunk" consists of the following:

- The length (in hex this time) of the content in this chunk.
- A CRLF.
- The content itself.
- A CRLF.

In Figure 4, we have two chunks. The end of the chunks is indicated by a length of zero, followed by two CRLF's.

Additional resources: Sometimes the site of the web service will have information that can help you code your HTTP headers. For example, the URL of the web service used in these examples provides sample SOAP syntax and sample HTTP header syntax. I also found the two sites below helpful in learning about HTTP headers:

http://www.jmarshall.com/easy/http/

http://web-sniffer.net/

Biographical note:

Kay Rozeboom is a DBA/Systems Programmer with the State of Iowa. She has 19 years of IDMS experience. Her special interest is in integrating mainframe data and applications with other platforms.

● FROM IDMS-L ARCHIVES - EASY WAY TO GET AN SVC DUMP

Sent: Friday, June 20, 2008 12:35 PM
To: IDMS-L@LISTSERV.IUASSN.COM
Subject: Producing SVC Dump

Does anyone know an easy way to produce and SVC dump where the system stays up? I am doing testing and need to produce this type of dump. Cancelling the system will not work, nor will just creating a 'system abend' where the system comes down. Those scenarios cause the dump output to go to SYSMDUMP and I need the dump to go to SYS1.DUMP datasets.

Thanks in advance for your help.

-----Reply-----

Sent: Saturday, 21 June 2008 3:17
To: IDMS-L@LISTSERV.IUASSN.COM
Subject: Re: Producing SVC Dump
Yes, simple at "Enter Next Task Code" type:

LOCKMON SNAP SYSTEM

If system snaps are turned on, an SVC Dump request will be issued.

● CA IDMS ABENDS: TO DUMP OR NOT TO DUMP - NO LONGER A QUESTION

By Charles (Chuck) Hardee

The age old question facing the CA IDMS System Programmer is whether or not to include a dump DD statement in the CV's JCL. Often, the choice is not to include a DD. This is not always a convenient decision. When problems occur that require a dump to solve, more and more often the answer to the CA IDMS Technical Support Technician is "We don't have one." When asked why, the majority of the answers were, "Not enough DASD to dedicate to a dump file which is not needed 99% of the time." Another answer often heard was "Well, we had a dump file allocated, but it B37'd while it was being written so the dump is incomplete." So, the question becomes, "What is one to do?".

Traditionally, the options for capturing a dump in the case of a CV abend are SYSMDUMP, SYSUDUMP or SYSABEND. If a SYSMDUMP or SYSUDUMP DD was included, it only made sense to assign it to a disk file. If a SYSABEND DD was included, it usually was directed to SYSOUT.

Unfortunately, as CVs get bigger and bigger, the JES output queue just wasn't a good place to point to for a dump. In a great many cases, it meant that the output queue filled up and other, more critical, reports were delayed. Additionally, the question became, "What do I do with it now that I have it?". Because of this, the DD of choice quickly fell to one of the SYSxDUMP options. When a SYSxDUMP DD was used, then the question became one of DASD placement. "Where can I put this file so I lose the lease amount of flexibility in the DASD pool?" and "How big do I make this thing?" became the questions.

Again, as time moved on and CVs continued to increase in size and complexity, the dump options are revisited time and again and soon the question of having a dump file allocated to CV was answered, "No, too much DASD, remove it!" Once this decision was made, Mr. Murphy decides to visit and, during a critical period, a problem occurs and CV comes down with a resounding crash that echoes through management with the echo being, "What happened!". So, the CA IDMS System Programmer calls Technical Support and when asked, "Do you have a dump?", answers, "Sorry, no. We don't have the DASD space." or, "Sorry, no. It ran out of room while being written.".

After having heard this many times over and over, the CA IDMS Support Team looked into what could be done about correcting the problem and insure that in as close to 100% of the time, a dump would be available to assist

in debugging and resolving the problem. Enter APAR RO01011 into the world of CA IDMS. APAR RO01011 implements a change to the CA IDMS abend process that will request an SVC dump when CV is about to come crashing down.

With RO01011 applied, when a request is made to abort the address space, the abend handling routine within CA IDMS will be given control as usual, but during the abend process, an SVC dump will be requested prior to attempting ANY cleanup of the address space. What this means is that when you call in to Technical Support and provide them with the dump, the dump you provide will be closer to the actual cause of the problem than if you had a SYSxDUMP or SYSABEND DD statement in your JCL.

But what does RO01011 mean to you, the client? Well, for one, all of those files in the DASD pool can now be given back as they will no longer be needed. You can, however, still leave the files allocated to CV and pointed to by a SYSxDUMP data set, and that, in and of itself isn't a bad idea, a second opinion is always a good thing to have when a problem occurs, however, in the strictest of sense it isn't really needed, maybe.

Why maybe? If an SVC dump is requested, where does this dump get stored? An SVC dump is written into the SYS1.DUMPxx datasets. Because the dump is now going to be written to the SYS1.DUMPxx data sets, a few other things need to be taken into consideration. First off, each dump data set in the system dump data set collection needs to be large enough to hold the entire address space of your largest CV. Your first thought is "I'm just moving my DASD around, then." Well, yes, and no. More than likely your system dump data sets are already large enough or almost large enough to contain your largest CV. If they aren't large enough, more than likely they are close and adding a little more space to each of them will probably be less than all of the space being returned when the data sets allocated to each CV are returned to the pool.

What else is impacted by using the system dump data sets? When a dump is written, it is directed to the "next" available data set in the group by the operating system. However, when the last data set is used, the operating system starts over with the first. So, there will need to be a mechanism in place that will copy the newly taken dump from its data set and copy it somewhere. If this isn't done, then it is possible that before the dump can be sent to Support, it could be overwritten by another abend of another address space. So, when RO01011 is implemented, a conversation needs to take place with your System Programming Group about the size of the system dump data sets and how they are saved.

Given everything said here, what does one gain by implementing RO01011? In today's world of fast turn around times, a CV needs to be restarted as quickly as possible when it crashes. With the traditional dump options, the CV can't be restarted until the dump has been completely written. This is another reason why some clients do not have a dump DD in their JCL. With RO01011 implemented, the time to take a dump of a CV becomes extremely short. With an SVC dump, a copy of the address space is made in a second address space and then, when completed, the requesting address space is allowed to continue. Once the copy of the abending CV's address space is made into the second address space, the CV is allowed to continue aborting and can then be restarted. In the meantime, while the CV is being restarted, the second address space is written to a system dump data set.

R16 SP3 and Later	R16 SP0/SP1	R15 all SP levels
RO01011	RO01010	QO99488

| R16 SP2 | Is available through Technical Support only | |

The bottom line, it now becomes extremely cheaper to get that dump of the CV when it abends than it ever has in the past.

Finally, in order to take advantage of this new functionality all one needs do is download and apply RO01011. Once applied and active in all of your CVs, if desired, the process can begin to remove the existing dump DD statements and return the existing dump data sets to the DASD pool.

Note: The functionality described herein is available for the following releases:

A related Knowledge Base article, TEC464075, can be found on Support Online.

Chuck Hardee is a Senior Sustaining Engineer for CA IDMS Level II Support. He began working with CA IDMS in 1978 as an application programmer and joined Cullinet in 1988 in the Field Support organization. He moved to CA Level I Support in 1990 and to Level II Support in 1994, assuming the support responsibilities for the CA IDMS Lock Manager component, He is currently supporting the CA IDMS SQL Engine and its related components.

IDMS-L
WHERE IDMS TECHIES MEET

● CA WORLD® 2008 – WHAT'S IN IT FOR CA IDMS™ CUSTOMERS?

By Carla Pereira

As your business grows and evolves, it is more important than ever for you to get maximum value out of your mainframe. As the world's largest and most exciting ISV mainframe event of the year, CA World 2008 offers you a unique opportunity to see the latest and greatest solutions for managing the mainframe under one roof.

CA World 2008 will be held November 16th-20th at the Venetian Congress Center and Sands Expo in Las Vegas, Nevada. This year's conference offers a full track of CA IDMS sessions designed to help you optimize your CA IDMS investment. Attend CA World to understand the CA IDMS roadmap with focus on features coming in the next release and the benefits they provide. Hear first-hand CA IDMS r17 experience from a Beta customer. Learn about various options available to enhance performance of your CA IDMS system. Learn how CA IDMS offers the flexibility to participate in Service Oriented Architectures (SOA) for reuse of CA IDMS data and business logic assets, and how to enable existing CA IDMS databases for modern access. Hear about real world experiences using these technologies directly from customers.

By registering for the conference you also may attend two days of FREE pre-conference CA IDMS education. You must pre-register if you wish to attend either of these two classes.

> **CA IDMS: Implementing and Maintaining the Database *(EC802EN)***, offered Saturday November 15th from 8:30 am – 5:15 pm, examines some of the most common types of database maintenance that a CA IDMS DBA may encounter when supporting both network and SQL-defined databases. Learn about the reasons for required database maintenance and the utilities and steps necessary to implement them.

> **CA IDMS Performance and Tuning *(EC801EN)***, offered Sunday November 16th from 8:30 am – 5:15 pm, focuses on the process of monitoring and tuning CA IDMS/DB and CA IDMS/DC systems to help meet SLAs and other performance goals. Multitasking, Data Sharing, and operating system features that can improve total cost of ownership are also discussed. As access to CA IDMS systems increases from the web and distributed environments, performance is more important than ever.

In addition to these fantastic educational opportunities you can take advantage of many networking opportunities:

- Make appointments to meet with CA IDMS managers and executives at the Customer Value Corner.

- Discuss specific CA IDMS questions or issues with development and technical support staff at the Technical Campground – make an appointment or just drop by.

- View demonstrations of CA IDMS Modernization software in action at the Exhibition Center.

- Network with CA IDMS peers at Power Lunches.

- Attend the CA IDMS Birds-of-a-Feather session.

Don't miss this outstanding opportunity to enhance your CA IDMS knowledge. Register for CA World 2008 today and experience four days of great learning plus two additional days of pre-conference education. Do not forget, IUA User Group members are eligible to receive a $200 savings on their registration. CA IDMS falls under the "Mainframe and Multi-Platform Application Development" Focus area. Visit www.caworld.com to view the preliminary agenda and find out more details on the conference.

Carla Pereira is a Sr. Sustaining Engineer for CA IDMS in the Framingham, MA development center. A Northeastern University co-operative education student working at Cullinet Software from 1986 to 1988, she was hired upon graduation in 1989 by CA into the CA IDMS Level II Support organization. She currently supports CA IDMS SQL and has also been the CA IDMS Track Leader for CA World since 1996.

WWW.IUASSN.ORG
YOUR PORTAL TO IUA SERVICES AND IDMS CONTACTS

CHECK OUT THE IUA ARCHIVE LIBRARY OF IDMS PRESENTATIONS

● JTS HELP DESK

I don't know if you have ever thought about "What happens when the Help Desk needs HELP!". Well in my case, after I've exhausted all efforts to solve a production or developer problem, I hand ball the issue to our outsourcer.

We are fortunate indeed to have people on their team who used to work for either or both Cullinet and CA. If they can't come up with an answer, and they often do, then of course the next "court of appeal" (remember I work in a Justice environment) is CA.

In Australia we are fortunate indeed to have Ed Gorga who first started work with Cullinet Australia and is still plugging away there at CA. When I have polled my OZIUA User Group meetings about the "best and most ordinary" experiences with CA - CA support, and the support from Ed in particular always "gets the gong".
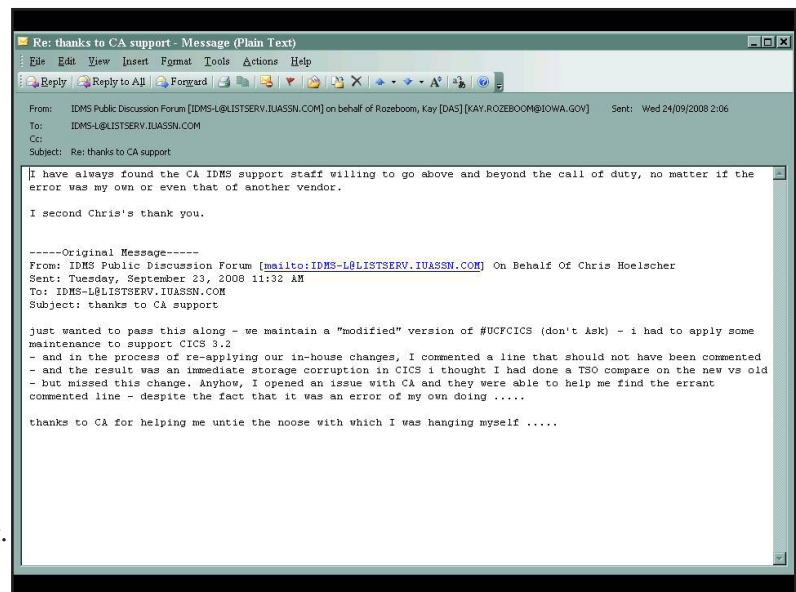
Like the correspondents in the e-mail below, I too have "shot myself in the foot" with can most generously be described as "very ordinary" - which has resulted in problems in either Research, Development, or Production systems. I have been so impressed by the CA staff's ability to hone in on the problem with virtually no "background" about what the code is doing - that I could not resist the temptation to add in my $AUD0.02 worth on this subject.

User Contributed Library

For those who don't subscribe to IDMS-L, and there is no shame in that as this publication strives to reach a wider audience than IDMS-L does, you should be aware that at http://www.iuassn.org/english/ , as a registered member at that site (it's FREE by the way) - you can download a paper that explains how to locate the offending line of ADS code when a dialog abends and it has not been compiled with either Symbol Tables or Diagnostic Tables.

When we first announced the availability of this paper at the IUA web site on IDMS-L - we got a flurry of "hits" - that was in addition to the many copies that I e-mailed out prior to its upload to the User Contributed Library (UCL). So if you have been frustrated in the past about how to locate the problem line of code in ADS abends - go there or be square.

That's all folks - cheers - Gary

● CA-WORLD IDMS SESSIONS

By Steve Rundle

For general interest, here is a concise list of the IDMS sessions at CA-World which can be found on the agenda-builder (This includes the free Pre-conference education sessions and the Mainframe Kick-off session.)

Note: I have to give a warning that the schedule is subject to change but we are confident that all these sessions below will go-ahead as planned.

- EC802ENA/B: CA IDMS: Implementing and Maintaining the Database - Parts 1 and 2
- EC801ENA/B: CA IDMS Performance and Tuning - Parts 1 and 2
- MF103SN: Preparing for a New Generation on the Mainframe
- MI200SN: CA IDMS Status and Plans
- MI210SN: CA IDMS Birds of a Feather (BOF)
- MI220SN: CA IDMS Business Value in the SOA World
- MI230SN: CA IDMS r17 Features Overview
- MI240SN: CA IDMS r17 Beta Experience
- MI250SN: CA IDMS zIIP Exploitation for Improved Total Cost of Ownership
- MI260SN: CA IDMS Tuning Options for Performance
- MI270SN: What's New with SQL? CA IDMS r17 SQL Features

- MI280SN: Encrypting CA IDMS Data
- MI290SN: Audit Trail for CA IDMS Security
- MI300SN: 21st Century CA IDMS DBA Modernization Techniques
- MI310SN: Modernizing CA IDMS for SOA
- MI320SN: Department of Homeland Security: Leveraging CA IDMS in a SOA Environment
- MI330SN: Justice Information Services: Exploiting CA IDMS Server and CA IDMS SQL
- MI340SN: Modernize Your CA IDMS Database: Best Practices
- MI350SN: .Net Development for CA IDMS
- MI370SN: Cost Effective SOA Enablement of CA IDMS Systems using zIIP/zAAP Specialty Engines

Hope this is useful.

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