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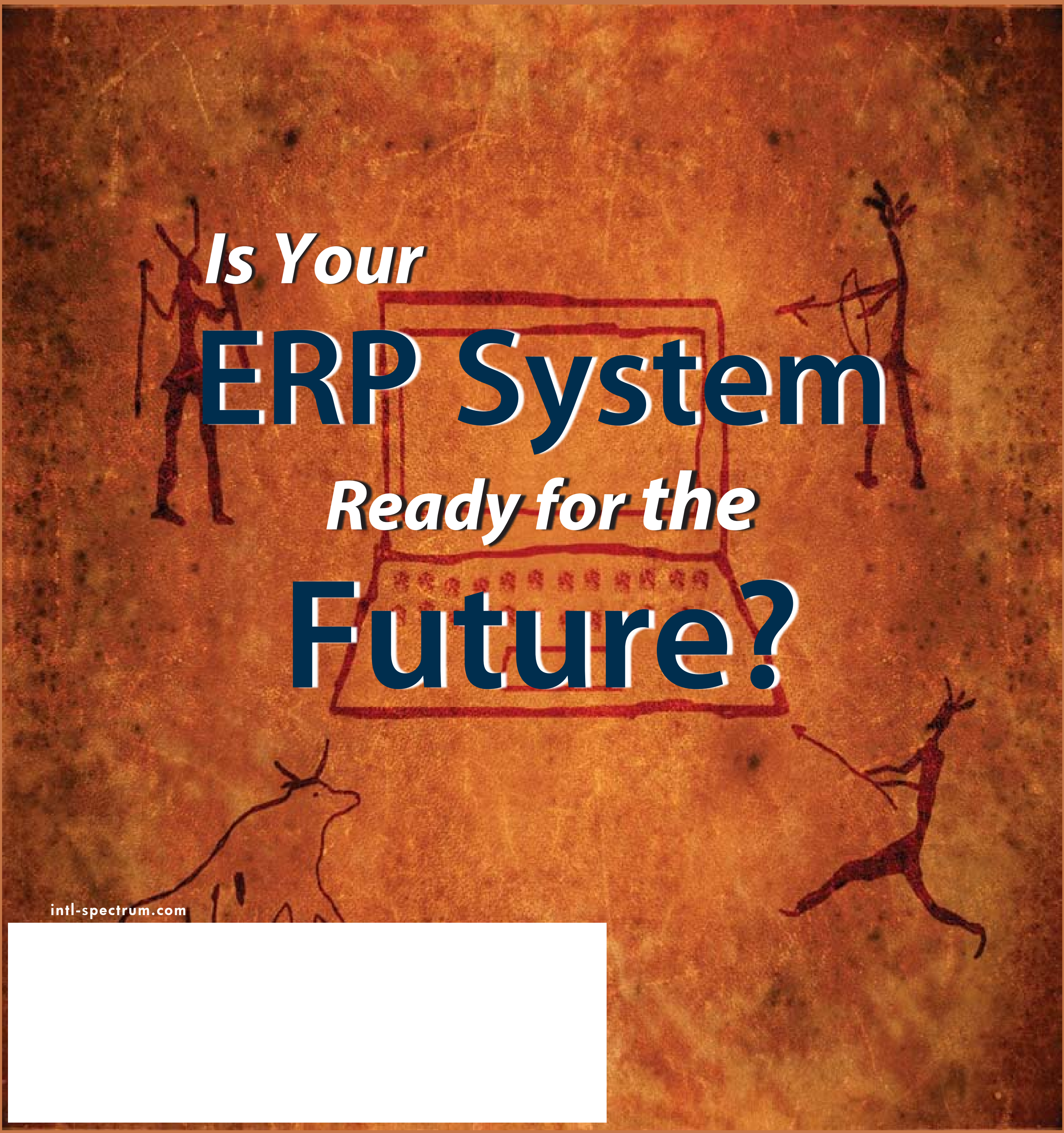

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FEATURES | JULY/AUGUST 2009

DEPARTMENTS

From the Inside

BY NATHAN RECTOR

http://blog.intl-spectrum.com

Starting this issue, Charles Barouch is reviewing Integrated Development Environments (IDE) and GUI editors for the MultiValue databases. This was a request I made after several conversations and listening to various debates on advantages and shortcomings of MultiValue databases.

The topic of why would someone use ED or AE, and the impression it leaves with new developers and management, was brought up multiple times. One of the ardent supporters of using a GUI IDE was Doug Averch at U2 Logic.

Years ago, U2 Logic created a GUI IDE for U2 databases to address a shortcoming he saw when dealing with his clients and new developers. The basic story goes like this:

Developer is working on altering a program and the only choice he has is AE. Client comes to look over his shoulder, and see this archaic editor, and the developer doing C/TEST/TEST1 and DE, DE, DE, FI, L100-120, 120, C/AR.I/ART.I, and so on.

The impression left is that there are no modern tools available to create programs, which then leads the client to think that this system and application is so old you need specialized skills to do anything on it.

Now, comes along a new developer that has only worked with Microsoft or JAVA IDE, or worked within MS Office's macro environment, and it becomes a month long training session just to get them up to speed on the editor. This is when they should be coming up to speed on the application, enterprise systems, and database.

There was a long discussion on LinkedIn about what editors most people are using, and 90% of the people listed ED or AE. While, I've worked with ED and AE for years when I was consulting (who hasn't), I ended up writing a full screen green screen editor many years ago to speed up development and replace what I thought were shortcomings of ED and AE.

I know that I'm not the only one that did this. For those that have looked for new editors or wrote their own, it's worth looking at the GUI IDEs that exists in the market. Many of the shortcuts and speed enhancements for a GUI environment will help you. If you have not used a GUI IDE, or looked at them, you are losing productivity.

Some of the short cuts and speed enhancements you can expect include:

- Cut and paste using clipboard and mouse
- Syntax highlighting
- GOSUB label jumps
- Block commenting and deleting
- Multi-document views
- Lower tool learning curve

In these times, productivity means money. The faster and easier you can do something, the more money you make. The other advantage is that it makes it easier to train new developers because the development tools in don't require a huge learning curve.

Keep watch of the next few issues, and you'll see many of the IDEs or GUI Editors that exist. Some of them you already have, or are free, so it doesn't hurt to try them. You may come to depend on them.

-NATHAN RECTOR
President, International Spectrum
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JULY/AUGUST 2009

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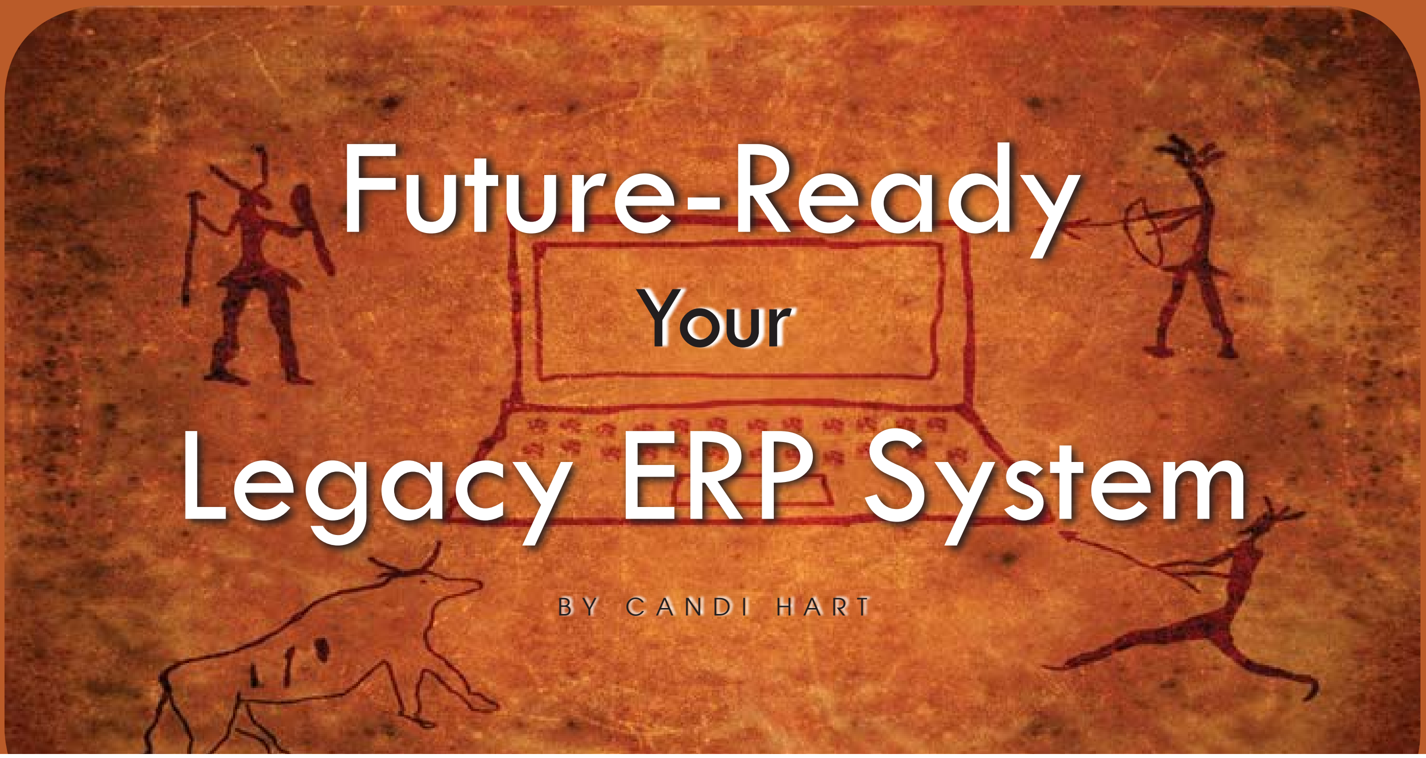


Future-Ready Your Legacy ERP System

BY CANDI HART

In previous articles I've talked about what an ERP package is and the newest features that companies look for when purchasing ERP software. Long standing MultiValue software vendors have recognized the demand in the marketplace and begun to upgrade their existing packages with the latest features. But companies with existing packages may no longer be supported by a vendor. They have an in-house IT staff that has customized their package to work efficiently with their unique business practices and don't want to replace their very functional software. But these companies, too, may be recognizing the change in perception in the marketplace and the need to upgrade.

New employees may resist learning software that doesn't look and feel like what they are used to. Therefore training may be difficult, and new employees may find work arounds like putting their information in a spreadsheet. The company begins to lose control of the consistency and company-wide availability of their data.

New management may be resistant to working with an IT department that appears "old school." They don't even think to ask if the software can do something they consider the latest and greatest feature. And if the management of the company is looking to sell the company, the valuation of the company will be less if you have an old looking software package. The perspective buyer will look at an old green screen, assume the package is antiquated and figure they will have to implement and buy a new ERP package.

So if your company has decided to bite the bullet and enhance the existing package, where do you start? What actually has to be done? You probably don't have the time, desire, or manpower to do a full rewrite of all of your programs. So what can you do today to prepare your software to add the cool features of the newer packages without losing the benefit of years of refining your business processes? A lot will depend on the status and structure of your existing software. Your existing reports may not need to be changed, but your input screens will need to be reviewed.

Continues on page 23

BY CHARLES BAROUCH

Business Tech: Becoming a Software Vendor

Part 4

Projects aren't Products

Imagine if you bought a spreadsheet program and the instructions for creating a running total looked like this:

> "To create a running total, edit the software at line five hundred sixty-three. The change should be obvious. You also need to add a record to the control file with an ID of "RTO" and with a value of '1' in the third and seventh fields. Remember to recompile and re-link all packages. Build/rebuild instructions are similar to the ones for Blamco's open source ETL product, dataRanger, so you can look at their support site if you are having problems. Just substitute 'spreadsheet' for 'e-Engine Core' and most of it will make sense."

You wouldn't be very impressed with the vendor. So, let's make a pact that we will never be that sort of vendor. We want to deliver software with controls that can be managed through responsible interfaces. We want to deliver software that doesn't require recompiles to activate necessary features.

When I do a project, I don't always get to button everything up perfectly. If I do the work for a client that has programming staff, I can often leave the 'engine' open to the full-timers. At dollars per hour, I'm not always paid to take the time to tidy things at the end. So a project is rarely as complete as a product. This is not a small issue.

I was in business many years ago with a group out of Omaha. They had elected to release some software. It wasn't their main line of business; it was more of a marketing tool. But it still had to work. When I pointed out a flaw in the development, Steve said "Oh, that'll still work. You just have to do this..." and launched into a fairly detailed explanation. That's when the boss said, "Right, Steve, but we aren't shipping you out with every copy of the software. We do have to fix it."

It was the right answer. All of us, as product developers, need to come to that same answer. No one cares if your software can do <this>, <that>, or <the other>. They care if *they* can do <this>, <that>, or <the other> with your software. When you bury features deep, when you leave critical functions hidden and undocumented, you decrease the viability of your offering.

Loss of Focus is a Good Thing

My next project will be tightly focused on doing what that client wants it to do. Just like every project before it. If the client doesn't expect to do a particular thing with that project, they won't be interested in paying me to add that feature. Whether you are an employee or a hired gun, focus on specific needs *is* the expectation. Focus is the mantra of software *project* developers.

Generalizing is the mantra of *product* developers. If you want to sell product, you have to aim high and you have to go broad. A product is generally inferior to a project in that it isn't exactly tailored to my business. A product is better than a project because it is cheaper and has a wider array of features which I might need as I grow.

Product buyers are not, generally, looking to pay for customizations. They buy for stability over versatility. Project buyers are certainly looking for something which gives their business an edge. Keeping that distinction in mind helps us separate project from product.

Continues on page 10

BUSINESS TECH: BECOMING A SOFTWARE VENDOR - PART 4

Continued from page 8

Ugly, Really Ugly

One of the beautiful things about projects is that they can often be ugly and still be successful. Very few people assume a consultant or a staffer is going to be a code wizard and a graphic artist. However, very few people buy packaged software which is breathtakingly ugly.

In my experience, people aren't expecting business software to be profoundly beautiful. They know that they will be staring at the screens, so they want clean, clear text. They want controls which make sense. The things you can do when Madge from accounting is the only person who needs to know how to operate your software — they don't fly in product software. You owe it to your customers to make the effort to design your package.

> *"No one cares if your software can do <this>, <that>, or <the other>.*
>
> *They care if they can do <this>, <that>, or <the other> with your software."*

This Space For Rent

Remember that your software has to be marketable, and that means that the screen shots can't drive people away screaming. When I design a screen for a software product, it has to be useful and it has to give a clear — marketable — impression of what it does. My primary audience for the interface is the user. They will never get to be my audience if the decision makers don't become an audience for the marketing materials.

So I try not to create camera-shy software. Since I am not innately great at design, I've become great at versioning. By the fifth or sixth attempt, I generally produce something with reasonable colors, good lines, and obvious flow. Not being good at the *pretty* thing doesn't let me off the hook. It means that I have to work harder. Or, I might elect to spend a few dollars to get someone in on the project who is good at the *pretty* thing.

A Millennium to Learn

The claim made by the man who invented the game *Reversi* was "A minute to learn, a lifetime to master." Software is rarely in the minute to learn category. Far too much of it is in the lifetime to master category.

When I buy a word processor, I expect to be able to install it myself, in a short period of time, with little research. Obviously, certain products (e.g., 4GLs and ETL tools) should be more complicated to install; these are cases where the software requires integration into your own unique environment. When you create a project, you often install parts as you go. With product, you have to have a well thought out method of installation.

Likewise, when I buy a word processor, I expect to be able to type something immediately. I might need help files, documentation, or even a class to get all the esoteric features right, but the basics need to be basic. The newer or more foreign the concepts in your product, the more obligation you have to write excellent interfaces and documentation.

No Class

If your software is really, justifiably, that complex, then include training with the sale. It always sets the wrong tone when you quote a price that does not include enough software, hardware, and/or education to make it usable. When I buy a car, I don't want to hear about additional charges the day I pick it up. I want to know the costs up front. While there's always the unexpected, the normal case should never include surprise charges.

In one of my favorite Dilbert strips, the pointy-haired boss opines that "anything I don't understand should only take five minutes." Please do not consider this perspective when developing training. If the product requires a class, it had better be a good one. If you are charging me for product and training, then I'm paying for your product at least four ways:

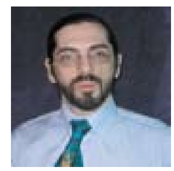
1. your product,
2. your training,
3. my lost productivity while my staff attends training, and
4. hardware.

If I spend the staff hours on getting my people trained, it is only because I expect a return on that investment in the form of future productivity. If the class is not complete enough to make my staff capable... you get the picture.

Finish Line

Imagine it. Your project is now a product. You have designed good, clean, easy–to-install software. You have trained three companies to resell and service the product. All three are offering training. Now you can finally relax. Sadly, no.

Next up is a crash course in managing — managing expectations, managing versions, and managing your sales channel. IS



CHARLES BAROUCH is the CTO for Key Ally, Inc. He is current President of the International U2 Users Group, and a regular Spectrum Magazine contributor.

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Transferring Binary Files *to a* Browser *with* D3, FlashCONNECT, and Apache

BY GLEN BATCHELOR

If you've been using FlashCONNECT to build web applications then you may have come across a need to send files containing binary data from the operating system to the browser. Many solutions have been discussed in various forums, and most of them lead to the temporary file link method. The temp-file is programmatically transferred to a public folder on the web server, and then a link is provided to access it. This, to me, is a horrible solution when the files are short-lived in nature.

To eliminate temporary file storage and management, I've spent several days scouring possibilities, testing methods that should work but didn't, and finally realized that I was looking at it from the wrong angle. This article discusses a methodology that allows transferring of D3-side binary files to the browser, through the FlashCONNECT call that requested the content. While the final solution I'll provide can be considered a hack and potentially resource intensive, it will demonstrate how to use FlashCONNECT in conjunction with Apache to perform binary file transfers.

Apache is a flexible and powerful HTTP server. There are many ways to serve files, proxy content, and filter content before it's sent to the browser. D3, on the other hand, is not very flexible when it comes to dealing with binary files. FlashCONNECT doesn't care what is being sent down the pipe. As long as that content is BASIC and D3 friendly, it can be sent to the browser using the W3PRINT routine.

If you read any of my articles on PickSource, then you may have seen the example of using OpenSSL and base64 encoding to safely capture encrypted data inside D3. A similar approach can be used to transparently send files from the operating system, through FlashCONNECT, and finally to the browser. This requires some HTTP header trickery, a base64 encoding and decoding step, an output filter, and possibly mod_rewrite to rewrite from pretty URLs to FlashCONNECT CGI requests.

The data flow is as follows:

1. Encode the operating system file using EXECUTE with CAPTURING
2. Undo the LF->attribute char conversions that CAPTURING performs
3. Set some HTTP headers with content-type and content-disposition
4. Send the content using W3PRINT
5. Trigger an output filter in Apache to decode the file and reset the headers

Step one is easy and can be done with the 'base64' utility. An example is shown in figure 1 that combines step one and step two. This will give you a base64 encoded version of the file specified in the EXECUTE statement, through the OUTPUT variable.

Step three consists of a Content-Type header to define the MIME type we will use to trigger output filtering and a Content-Disposition header to define how the browser should present the file. Figure 2 shows an example of presenting a custom-encoded PDF file as an attachment with a specific file name.

The Content-type can be anything you want as long as it's not a standard MIME type. You could call it something as goofy as "application/decode-my-file" if you wanted. The important thing to remember is that you will need to use this MIME type to control filtering behavior. If you are going to process multiple file types and/or encoding methods then you will want to establish your own MIME types for the various types/methods being used. I'll expand on this later since it is the central key to accomplishing some neat tasks!

As far as content disposition in this usage, the difference between inline and attachment disposition is the fact that inline documents retain the file name of the URL that returned the content. *Inline* means within the main document, while *attachment* means outside of the main document. The browser may operate based on that URL's file extension regardless of the content-type header. For example, let's say you use a mod_rewrite rule to rewrite myhost.com/account/myhist.html to /cgi-bin/fccgi.exe?w3exec=history.sub, which generates PDF content. When you click the link to myhost.com/account/myhist.html the browser will get confused seeing a .html file resource with an application/pdf content type being returned.

The results are unpredictable across browsers, with each specific browser behaving a certain way. You *can* use inline disposition, but you must use mod_rewrite to rewrite from a URL with the proper file extension. This will make sure that the browser doesn't get confused with the content type. For example, change /account/myhist.html to /account/myhist.pdf in the rewrite rule for PDF content.

The last step in this method is to figure out how to decode the ASCII blob that FlashCONNECT is sending back to the browser. The short term answer is to use mod_ext_filter (intl-spectrum.com/s1015). This filter module is available in Apache 2.x and allows you to create your own command-line-oriented content input and output filters.

If you are still running Apache 1.3 then you seriously need to consider upgrading! No joking there. Need help? Stop by the #httpd IRC channel on irc.freenode.net. Now that that's done, back to the article.

Please read the Apache documentation for this module. It's fairly short and straight-forward. The ext_filter module was meant to be a temporary filter testing tool, despite the fact that people use it as a full-blown filtering option for doing really resource intensive things. We will be creating a filter that simply executes the base64 program to convert the ASCII blob back to its original content. The converted content is then automatically sent to the browser.

The steps to enable the module vary from system to system. You can manually enable it using the LoadModule directive in your main Apache configuration file or by using module management scripts like a2enmod in Debian/Ubuntu. You can run "a2enmod ext_filter" in Debian/Ubuntu and then reload or restart Apache. Figure 3 shows an example LoadModule directive. The path to the shared library (.so) file will vary across Linux distributions. Visit intl-spectrum.com/s1016 to see where your system sets default locations for various Apache files.

If your web server is low on memory and CPU power then you may want to avoid using mod_ext_filter on high-traffic FlashCONNECT applications. The ext_filter module is expensive to use since it creates a child sub-process for each filter execution and passes the data around using standard I/O. This not only consumes additional processes and memory, but it also keeps the MPM (multi-process module) from reusing the request's Apache child process/thread until the filter returns. When lots of external filters are continually running, the pool of free children/threads shrinks and you could run into availability issues.

The long-term, and more suitable, component in this solution is an MPM-friendly base64 decoding module that can be loaded into Apache. I've not found another module that will do what's needed to complete this solution. You could hack together a Perl-handler using Perl and do the decoding

Continues on page 14

```
EXECUTE '!base64 /tmp/':MYFILEVAR CAPTURING OUTPUT
CONVERT CHAR(254) TO CHAR(10) IN OUTPUT
```

Fig. 1

```
CRLF = CHAR(13):CHAR(10)
PRAGMA = 'Content-type: application/pdf-b64':CRLF
PRAGMA := 'Content-disposition: attachment; filename=order-':ORDERNUM:'.pdf'
CALL W3HTMLPRAGMA(PRAGMA)
CALL W3HTMLINIT(",")
CALL W3PRINT(OUTPUT)
```

Fig. 2

```
LoadModule ext_filter_module /usr/lib/apache2/modules/mod_ext_filter.so
```

Fig. 3

TRANSFERRING BINARY FILES TO A BROWSER WITH D3, FLASHCONNECT, AND APACHE

Continued from page 13

there, but you're only compounding the problem points.

There is also the Apache::Filter module for Perl which allows you to write input and output filters in Perl. I have not tested that approach yet, but I can only estimate that it will consume more resources than a C module. Similar to the C module development, the Apache::Filter Perl module requires that you develop with APR data buckets and brigades, as well as the APR filter API. Please be mindful of what you're asking of Apache, the filter application, and your operating system if you decide to implement a mod_ext_filter, Apache::Filter, or perl-handler based solution.

Figure 4 shows how to define a custom output filter using our custom MIME type. The intype parameter for ExtFilterDefine will cause the filter to only execute if the content type sent from the application matches it. We used application/pdf-b64 in our W3PRAGMA call to FlashCONNECT so this filter will only run on this code example and any other application that sets the content type to application/pdf-b64. All other FlashCONNECT applications, CGI programs, and content-types will be left alone.

The outtype parameter sets the proper MIME type for the post-filter content. This is the content-type that the browser will actually see. The ftype parameter is an internal value that tells the filter module initialization where to execute within the output chain. There is no reason, within the scope of this article, to use any other value than the one shown.

There are six total output chain stages in which output filters can operate. These stages range from the raw client connection to post-content generation, which is where we want to operate. For more detailed information on these stages, refer to the Apache filter documentation or look at util_filter.h in the Apache source. The cmd parameter is where you specify the filter command to execute. Commands that require no

```
Somewhere inside your main Apache configuration add the following:
ExtFilterDefine B64PDF mode=output \
    intype=application/pdf-b64 \
   outtype=application/pdf  \
   ftype=AP_FTYPE_RESOURCE \
   cmd="/usr/bin/base64 -d"

(the leading spaces and ending slashes are important!)
```

Fig. 4

arguments and contain no spaces can be entered without the quotes.

Since we've now defined our filter, we have to enable it somewhere. This is where I pulled my hair out for days. Instead of using the MIME type to trigger the filtering I had tried to use a <Location> directive, with the SetOutputFilter directive, to enable the filtering strictly by URL. That *does not work* with mod_ext_filter so don't even consider it! You can only activate mod_ext_filter from within a <Directory> section. Figure 5 shows how to enable the filter in the cgi-bin <Directory> that FlashCONNECT launches from.

Well that's it in a fairly short article. If you have questions, feel free to e-mail me or International Spectrum. Oh yeah, I mentioned that I'd expand on the MIME-type tweaks. If you can access a file in the O/S from D3, it can be encoded, and therefore transmitted to the browser. You can establish MIME types for each type of content you want to encode/decode/serve. While I don't suggest that you start testing audio and video streaming through FlashCONNECT, you can do some interesting things:

1. Encrypt a sensitive web page with OpenSSL, from D3, using the base64 encoding option, send it to mod_ext_filter and have it decrypt it on the other side of the pipe. This provides extremely secure data delivery from D3 to the web server which should already be communicating with the browser using SSL. (Bear in mind that your web server will slow down *considerably* if you use mod_ext_filter for this.) Consider writing a custom module to do the decode/decryption.

2. Tar a folder, gzip it, and base64 encode it. Your output filter solution will then be an archive serving application controlled by FlashCONNECT. Again, decoding large amounts of data will slow down the web server with mod_ext_filer. Try to avoid sending huge files or mass quantities of small files unless your web server can handle the load. A decoding module would help with performance in this case. In any case, you'd need to make sure your post-filter MIME types are set appropriately for the file types you are sending.

3. A D3-based image server. Why would you want to do this? You can generate Captcha images in the operating system and then serve them directly to the browser. Or, you can serve multiple copies of the same image file, with different content in them, based on session parameters or cookies. Example: set a site cookie in your main application and then your image server can serve a different image for /images/logo.jpg for lots of different web sites based on that cookie's value.

4. How about your own graphical chart generating server? There are numerous free and for-fee chart image generating tools out there. You can use them from D3 to create nice-looking graphical charts through FlashCONNECT. A FlashCONNECT application could be called with parameters for labels and data. You would simply encode the image file and set the post-filter MIME-type according to the file format you're sending back through FlashCONNECT.

5. Got an office document generating utility already? You can serve binary-containing office documents just like in the PDF example here. When setting the output filter's outtype, use MIME-types that are published standards.

And on and on. Submit your usage ideas for this solution to International Spectrum. **IS**

```
<Directory /path/to/your/cgi-bin/>
.. a bunch of existing CGI stuff and other Apache options
SetOutputFilter B64PDF
</Directory>
```

Fig. 5

GLEN BATCHELOR is the IT Director at All-Spec Industries, Inc., a stocking distributor for various industries including electronics rework/assembly, manufacturing, and telecom/datacom. Glen has been working as a full-time MultiValue developer for 11 years. He lives and works in Wilmington, NC with his wife and twin daughters. You can find Glen on many users mailing lists, the comp.database.pick newsgroup, several IRC chatrooms, and occasionally in person at a Spectrum conference.

BY CHARLES BAROUCH

IDEs and Editors:

mvDeveloper PE

Brian Leach, of Brian Leach Consulting Limited, has been putting together some interesting projects recently. One of them, mvDelevoper PE, falls neatly into our topic: IDEs and Editors. Brian shared the evolution of his product with us in a brief transatlantic interview.

SPECTRUM: ***So, what languages do you work in besides MultiValue Basic?***

BRIAN LEACH: On a daily basis — Delphi, C#, some VB.NET. Otherwise whatever I get paid for: ASP, SQL, XML, VB — everything except C/C++.

SPECTRUM: ***Why no C/C++?***

BRIAN LEACH: The last C program I wrote was on SunOS — an RPL compiler for UniVerse. I was banned from writing it after that by my colleagues.

SPECTRUM: ***How did the tools you use with those others languages impact the design of mvDeveloper PE?***

BRIAN LEACH: Well, I've always liked Windows-based editors, going right back to the first cuts of Visual Basic, and I guess further back to Turbo Pascal under DOS. The use of syntax highlighting makes life a lot quicker when scanning through code. And of course you get the benefits of using easier navigation keys.

SPECTRUM: ***This wasn't your first go at this, right?***

BRIAN LEACH: No, back around 1990 I wrote a Windows-based editor for UniVerse by the imaginative name of uvEdit — that was in VB 2, I think, and maybe some C++. I got used to using a Windows editor for Basic then. Of

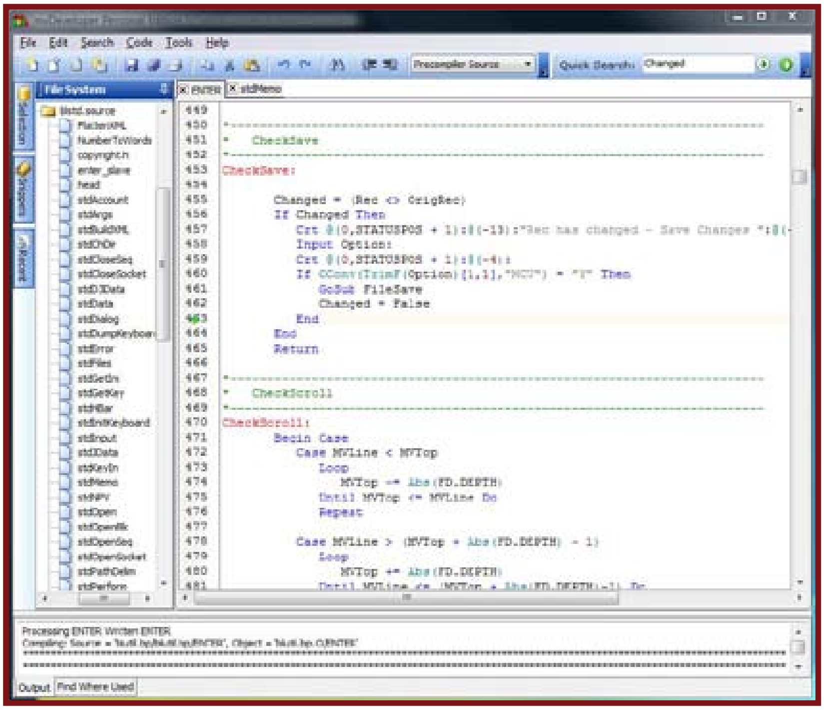

Fig. 1

Continues on page 18

Document Management Solutions with UnForm®

Production › Delivery › Archiving › Scanning

UnForm is a powerful enterprise document management software solution that seamlessly integrates with any application. The UnForm suite includes laser form and electronic document production, document delivery via email and fax, document archiving and management, and document imaging/scanning. UnForm is a platform independent client server application for Windows®, Unix®, and Linux.

UnForm Laser Forms

UnForm seamlessly integrates with any software application.

- Windows-based graphical design environment
- Eliminate pre-printed forms with laser printer output
- Produce presentation quality reports
- Create e-Documents in Adobe® Acrobat PDF format
- Email e-Documents automatically
- Print bar codes in most symbologies
- Create laser checks with MICR encoding
- Dynamic image conversion and scaling capability
- Database access via ODBC
- Microsoft® Fax Server support
- PCL 5 and Postscript® printer support
- Extensive programmability

Document Archiving and Management

The UnForm Document Archiving and Management component provides the ability to capture, store and retrieve paper-based and electronic documents.

- Rules-based document archiving
- Archive concurrent with document printing
- Store multiple versions of a document
- 10 levels of user defined category indexing
- Document linking control
- Fast web browser-based retrieval
- Client API for application-based retrieval
- Index oriented archive browsing
- Full feature search capability

Document Imaging/Scanning

Windows client application that provides a document scanning and importing tool for capture of documents external to the UnForm processing environment.

- Windows client application
- Integrated work environment for image capture and upload
- TWAIN compliant scanning interface
- Multiple property assignment modes
- Barcode and OCR zone detection
- Automatically match or group images with related archive documents
- Extensibility via VB Script

Universal web browser document retrieval

Document Image Manager

Synergetic Data Systems, Inc.
2195 Talon Drive
Latrobe, CA 95682 USA
(800) 446-7374 or (530) 672-9970
Fax: (530) 672-9975
sales@synergetic-data.com
www.synergetic-data.com

IDES AND EDITORS: MVDEVELOPER PE

Continued from page 16

course it was so far ahead of its time, nobody thought to buy it.

But I used it every day for several years and when I no longer had access to it, I decided to write another one for myself.

SPECTRUM: ***That's when this Editor started its 'life'?***

BRIAN LEACH: This one began about three years back. I'd gotten a screen editor — terminal-based — that offers syntax highlighting and a bunch of editing features for Basic — and that I still use on occasion when I need to be close to the database — but I missed the ease of a Windows editor, especially having multiple tabs open. Originally, I wrote this purely for my own benefit!

SPECTRUM: ***Your editor supports multiple tabs, syntax highlighting, word processing — like navigation — what other things does it offer?***

BRIAN LEACH: There's a lot of hidden stuff in there to just make life easier, but without getting in the way. For example, there are navigation keys that are tuned to Basic. You can quickly scan around a program by jumping up and down labels. I added a single click to open an include file or called subroutine. And, by the way, it also highlights PROC, which I think is unique!

SPECTRUM: ***You've packed a lot into it.***

BRIAN LEACH: Then there are the build tools: you can format, compile, and catalog in place. And there's an API that lets you specify alternate commands and handler subroutines in case you use things like pre-compilers that update the source while you have it open. You can use a library of snippets, and the highlighting is all defined in files so you can update it to any additional commands you may use.

> *There are navigation keys that are 'tuned' to Basic. You can quickly scan around a program by jumping up and down labels. I added a single click to open an include file or called subroutine. And, by the way, it also highlights PROC.*

Generally it's all the things I find helpful in everyday coding, but designed to be as lightweight and unobtrusive as possible. For example, it's in Delphi so you don't need any additional libraries beyond just the middleware (UniObjects for U2 or QMClient for QM). That means you can run it against any system without loading anything on the server.

SPECTRUM: ***In Spectrum, we've been talking project (it works) vs. product (tunable without source, smooth, buttoned up). Is this a project or a product?***

BRIAN LEACH: I guess it's towards a product, but one you can carry around on a USB stick.

SPECTRUM: ***You mentioned UniVerse and QM, are those the only systems it works with?***

BRIAN LEACH: Today, yes. I've been asked about D3 and jBASE and I may be adding these. Tony Gravgno, of Nebula Research and Development, has offered to assist in porting it.

SPECTRUM: ***Can people get it (Free) or buy it (Fee) today? Where from? What costs?***

BRIAN LEACH: Yes, it's free. I already get the benefit of using it, so I don't see any reason to charge. You can download it from my web site: brianleach.co.uk/products.htm

SPECTRUM: ***Final question. What's on the "coming soon" list? What do you want to make it do next?***

BRIAN LEACH: I'm working with Susan Joslyn, of PRC fame, on a new API that will allow it to tie in to source control and management systems. Also, I would like to add a better dictionary editor than it has at present — that's its weak point. I don't want to add anything that would get in the way of it doing its job, or requiring stuff loaded onto the server to work. That would defeat the main design principle that is to just let you do your thing without interruption. Though it might be nice to get it working with the graphical version of RAID.

Got a favorite Editor or IDE (Integrated Development Environment) for MultiValue? Contact Charles Barouch (Results@KeyAlly.com) for consideration as a part of this article series. IS

CHARLES BAROUCH is the CTO for Key Ally, Inc. He is current President of the International U2 Users Group, and a regular Spectrum Magazine contributor.

Contact Charles at Results@KeyAlly.com, or phone (718) 762-3884 ext 1.

NEWSMAKERS

Datatel and HEP Partner to Help Colleges and Universities Increase Donations

Datatel, Inc. has signed a partner agreement with HEP Development Services to help higher education institutions boost monetary donations by coupling individual donors with affiliated corporations that will match or increase their contribution. By using HEP's E-Match — a link installed on the institution's web site giving page — donors can verify instantly whether their gift can be matched and will be provided with "how to" instructions and a link for downloading the applicable matching forms.

The agreement also calls for the integration of HEP's Match Screening solution with Datatel Colleague Advancement , which enables colleges and universities to meet their fundraising goals by expertly managing donor information to maximize their relationship with their donors. Match Screening provides institutions with electronic access to more than 15,000 matching gift companies. The integrated solution between Colleague Advancement and Match Screening is scheduled for general release this year.

Colleague Advancement is part of Datatel's Strategic Academic Enterprise, a holistic approach that focuses on and supports five cross-functional domains essential for achieving institutional and student success: Strategic Enrollment Management, Strategic Planning, Institutional Advancement and Marketing, Teaching and Learning, and Performance and Operational Management. The Strategic Academic Enterprise extends traditional enterprise resource planning (ERP) models by viewing administrative and academic functions as vital interdependent business processes across the higher education environment.

"HEP is excited to be partnering with an organization like Datatel and to make our resources available to its clients," said HEP CEO Steve Hafner. "This partnership will provide all institutions access to the best data and technology in the market specifically designed to increase donations."

Datatel President and CEO, John Speer commented, "During these challenging economic times, Datatel is extremely pleased to offer its clients another way to help boost support from their donors. Our partnership with HEP is one more example of Datatel's commitment to help our clients maximize their resources to accomplish their mission to provide successful student outcomes."

About Datatel, Inc.

Datatel is a leading provider of technology solutions and professional business services to higher education institutions throughout North America. Colleges, universities, and technical schools leverage Datatel's comprehensive expertise to construct Strategic Academic Enterprises that ensure student and institutional success. Serving five million students at more than 770 institutions, the company has focused on higher education for more than 30 years. Datatel is headquartered in Fairfax, Va. For more information, visit www.datatel.com.

About HEP Development Services

HEP Development Services has more than 4,000 customers and 17 years of experience in corporate matching gifts. HEP has developed proven tools to create donor awareness and assist nonprofits in finding matching gift-eligible donors, and, therefore, increase donations. For more information, visit www.hepdata.com. ■

IBM U2 Data Champions Recognized

The IBM Data Champion Program recognizes individuals who make exceptional contributions to the Data Management community. The U2 Team is delighted to congratulate Stuart Shepherd, Brian Leach, David Jordan, Martin Meier, and Clif Oliver on their inclusion in this select group.

Technical communities, web sites, books, conference speakers, and blogs all contribute to the success of IBM's Data Management products. But these activities don't run themselves. Behind the scenes there are dedicated and loyal individuals who put in their own time to run user groups, manage community web sites, speak at conferences, post to forums, and write blogs. Their time is uncompensated.

For 2009, IBM honors the commitment of 88 individuals with a special designation — Data Champion — as a way of showing our appreciation for the time and energy these exceptional community members expend.

Data Champions are objective experts. They have no official obligation to IBM. They simply share their opinions and years of experience with others in the field, and their work contributes greatly to the overall success of Data Management.

To read more about the program, visit www-01.ibm.com/software/data/champion/ and click on the "Featured Profiles" link to learn more about our U2 Champions and their important contributions to the U2 community. ■

INTERNATIONAL Spectrum®

29th Annual MultiValue Business Developers Conference and Exhibition

April 10 – 15, 2010

The Westin Westminster | Westminster, Colorado

New Products

Entrinsik Announces General Release of Informer 4.0

Entrinsik, Inc., a leading provider of cutting edge, web-based operational reporting and analysis solutions, has announced the general availability of Informer Web Reporting v4.0, providing organizations with unprecedented information access to multiple databases.

Informer was designed specifically to extend on demand self-service reporting and analysis capabilities to front-line, operational users. And now with only a few mouse clicks, Informer enables users to quickly connect multiple sources of data with a single point-of-access to dynamic reports via Informer's easy-to-navigate user interface. Informer presents information in drag-and-drop form to give users choices in how they want to assemble, schedule, and deliver reports.

"The improved interface and functionality in Informer's new release not only increases accessibility and retrieval speed to my data, but it adds the capacity for analysis and ability to integrate with other database platforms," says Jeff Jones, Institutional Research at Fresno Pacific University.

The new release of Informer gives users access to information from multiple systems, platforms, or locations, eliminating data silo constraints without relying on a data warehouse or centralized data mart. Informer's intelligent caching mechanism allows users to sort, filter, group, and analyze report results without bombarding the database server with repetitive requests. New report customization and ad-hoc query capabilities mean end users can query any data source, regardless of where it is stored across relational or MultiValue data, to build their own reports, and get fast answers to their own questions.

"Technology has evolved to a point where multi-database reporting and analysis can be achieved without requiring the huge investments that a data warehouse often demands, and we've effectively leveraged that technology in this latest release," says Doug Leupen, President and CEO of Entrinsik, Inc.

To see Informer for yourself, register for a FREE live webinar at www.entrinsik.com/offer/June or for more information visit www.entrinsik.com.

About Entrinsik

With thousands of users across various industries worldwide, Entrinsik's Informer Web Reporting solution is an industry leader in real-time data delivery — anytime, anywhere, from one intuitive interface. Entrinsik combines over 25 years of industry expertise with the latest web tools and technology to deliver an easy-to-use operational reporting solution that securely extracts data, performs analyses, and generates reports from multiple databases without the need for data warehouse management. The company, founded in 1984, is headquartered in Raleigh, NC.

For a demonstration of Informer or a free trial, call us today at 888-703-0016 or email us at sales@entrinsik.com. ■

CLIF NOTES

Continued from page 31

6 Numbered lists can be difficult to manage

When writing, you frequently get into a point and realize that you need to split it into two or more smaller points. Sometimes you decide to rearrange these points. You might even decide to take your last point and move it to the middle of your article or presentation. This takes a certain amount of care and discipline to keep your points properly numbered and in sync with the rest of the article and title. Since a lot of times you are working against a time crunch, it is easy to miss something. And that can have a negative effect on the professionalism of your work.

After all, if you have a different number of points in the body of your article or blog entry than you have given in your title, you end up looking dumb. IS

Customer Service Skill Training for IT Professionals Now Available Online

A new series of communication, customer service, and interpersonal skills (aka "soft skills") training is now available at itcustomerservice.com. The training is specifically focused for IT professionals, especially programmers, analysts, and managers, who are looking to enhance their job performance with stronger "soft skills".

Included in the new training offerings are audio versions of Shannon Stoltz's popular articles: "Are You Your Customer's Hero" and "The 5 IT Customer Service Mistakes IT Professionals Make"; as well as a recording of Shannon's "Customer Communications – The Art of Customer Service", presented at both the 2008 and 2009 International Spectrum conferences. A new 4-week online, self-paced class also begins on July 29, 2009.

For more information, visit ITCustomerService.com/spectrum.

FUTURE-READY YOUR LEGACY ERP SYSTEM

Continued from page 6

The primary objectives are:

- Isolate the input and output processes,
- Isolate your unique business processes, and
- Isolate the database updates.

Isolate Input and Output Processes

Many of the original packages included their own screen generators, or one of the newer application generators were purchased to make it easier for programmers to create new screens. If your software does include a screen developer of some kind, it may be easier to convert to a true GUI front-end and isolate the input and output (I/O). The reason is the structure or logic involved in the program itself.

If the management of the company is looking to sell the company, the valuation of the company will be less if you have an old looking software package. The perspective buyer will look at an old green screen, assume the package is antiquated and figure they will have to implement and buy a new ERP package.

Original MultiValue software was written with *drop through* code. It started at the top and processes were done as they came up. An order entry program, for example, would ask for a customer number, then read the customer file and any other files that pertain to that customer (like cross references to any existing invoices or current balances). Some packages assign a new order number at that point and update the sequence counter file. Later in the program if a user decided to exit without writing the order, everything done to that point would have to be backed out.

A screen generator is more likely to isolate the screen I/O and not do any updates until the screen is filed. With the many GUI options available today — web browsers, handheld data collection devices, etc. — programmers must think in terms of data capture first. Data may also be coming in from other systems, so the programs have to be structured to process raw data after the user has completed his or her input.

This means basic data entry programs need to:

1. Display screens,
2. Capture data,

Continues on page 31

BY JORGE E. CASARES

D3 Reporting *with* ODBC

Nowadays, there are several tools available for us to report the information that we have in our MultiValue databases. Many people are using the reporting tools already on their Windows applications or on the Web. But, there are also a lot of users still running applications without reporting tools. This is normally due to the lack of budget or because the company is thinking of migrating their legacy MultiValue applications to new databases or visual tools.

Unfortunately, this false idea of needing to upgrade or update a system is very common. They think that their application has reached the end. And, in many cases, they do not have an idea about what kind of trouble they are getting into, just because they want to change it to the latest and newest database.

Aside from the capital investment required to change systems, it is hard to believe that a system that has been developed and debugged for many years can be substituted only in a few months. I know of many companies that have been through a systems change; and in very few cases they have achieved their goal. But, in most of the cases, it is a process that has taken several years and lots of money. And, they cannot even reach what they already had, inclusive. Some quit the process and find themselves without a new system and, in the worst of the cases, they do not even keep the previous one.

I am sure that in many cases where the decision of replacing their legacy system has been taken, everything would have been different if the users had had a "known" formula of making reports. That is why I dare to write this article. By only changing some of the report formats, the idea and feeling that the users have about our database will change radically. At least this has happened at companies where we have applied this theory. And, best of all, this solution is very simple and free.

What we are going to use here is Microsoft Excel software to report data from our MultiValued database using the ODBC as a connector. But, unlike using the ODBC in a common way, what we are going to do is to make a small macro in Excel that will call a subroutine in D3. This way we do not have to be experts at developing macros in Excel and we can reuse this macro on different reports since the only thing we would change is the name of the subroutine in D3.

Basically, for every report, we use:

1. An ODBC connection previously configured.
2. An Excel worksheet that includes a macro.
3. A subroutine in MultiValue Basic.

ODBC Connection

An ODBC connection is necessary to establish the communication between D3 and Excel. However, it is possible to use the same connection with only one configuration for any report that we need to make. That is, we do not need to create a connection and configure it for every report.

Figure 1 is an example of the configuration we can have for an ODBC connection. It is worthwhile to emphasize here the section under “D3 Server Info”, where the Virtual Machine setting says “pick0”. That is the value — by default — for D3 Linux systems. For a D3 NT system, use the name or IP of the computer where the D3 system is installed.

The D3 Account setting can really be any D3 account, no matter where we are getting the information from, since in the subroutine we can use the full path and access to any account.

Excel Worksheet

We can use defined formats in Excel to show the information or inclusive and to generate those formats from the D3 subroutine. Evidently, the easiest way is to use an already defined format and simply ask the D3 subroutine to send us the information that we are going to spread.

The Excel worksheet will include a macro that will mainly have two functions:

1. To compile and transfer all the necessary parameters to the D3 subroutine.
2. To spread the information that we will receive from the D3 subroutine.

This way, we are leaving all of the information processing on the D3 side, to make it faster, steadier, and, above all, familiar for us.

Figure 2 shows an example of a report we will work on.

Our example report is not simple, but not very sophisticated either. I chose this example so I could show what can be done on the Excel side as well as on the D3 side.

The orange part shows the parameters that have to be sent to D3 to process and return the suitable information.

The information that we receive from D3 starts a line 11. The other information and formatting comes from the previouslyy formatted Excel spreadsheet.

This way we do not have to be experts at developing macros in Excel, and we can reuse this macro on different reports since the only thing we would change is the name of the subroutine in D3.

The Excel Worksheet Macro

The other part that our worksheet comprises is a macro. We can use this macro as a sample for any report and you will only need to make minimum changes.

Figure 3 shows the Excel macro code and I will explain briefly:

From line 2 to line 9, the variables are only defined and initialized for Visual Basic.

From line 10 to line 16, we read the parameters on the Excel worksheet that we will send to our subroutine on Pick Basic

On line 18, our subroutine localization path is defined. This one has to be compiled on Flash and cataloged.

Line 21 is the one that calls the D3 subroutine, it sends the parameters and will receive information output in the encab parameters and matrix.

From line 26 to line 45 we spread the information that the subroutine sent us back in the “matrix” dynamic variable.

From line 49 to line 57 we organize the information according to the desired

Continues on page 26

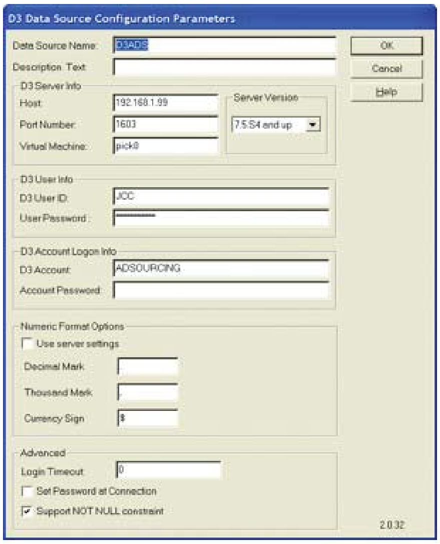

Fig. 1

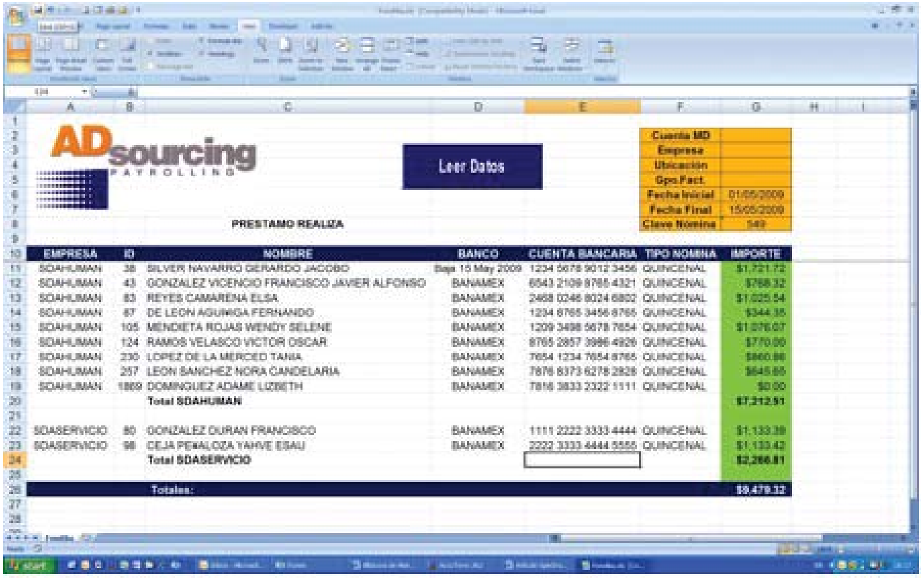

Fig. 2

Continued from page 25

column; in this case, it is ordered alphabetically according to column “A”.

From line 59 to line 74 it is grouped and totaled for the desired column (column “7” = “G”)

Lines 10-16, line 18, and line 21 are important for the process and the same ones that we would have to change to make different kinds of reports. As seen in figure 2 we can use all of the Excel virtues (i.e., colors, bold, different fonts, etc.) to give the desired look to our reports.

The Subroutine in MultiValue Basic

This is the most important part of our development. For a sample of the MultiValue Basic code, visit intl-spectrum.com/s1021. The objective of this subroutine is to send the information to generate the report according to the parameters that are received from Excel.

To do this, the only thing that we have to do is to fill a dynamic variable called “matrix”. It does not matter the kind of report desired, our objective is always to fill the dynamic variable with the desired information.

We have to fill this matrix according to the following reasoning:

The information we desire is reflected on column “A” in Excel and will have to go to attribute 1 of the matrix; the information on column “B” in Excel will have to be in the attribute 2 of the matrix; the information on column “C” in the attribute 3; and so on and forth.

For the example, where we use attribute 1, it has all the values that go under the column “COMPANY”. The attribute 2 contains the values of the “ID” column, etc.

Fig. 3

```
001 Sub Fondika()
002   Dim E As New clsD3Environment
003   Dim C As clsD3Connection
004   Dim fcosto As clsD3RuleModule
005   Dim mmatriz As clsD3DynamicArray
006   Dim ids As clsD3DynamicArray
007   Set C = E.brOpenConnection(“odbc”, “D3ADs”)
008   Set mmatriz = E.brOpenDynamicArray
009   Set ids = E.brOpenDynamicArray
010   cuentamd = Sheet1.Cells(2, 7)
011   empresa = Sheet1.Cells(3, 7)
012   ubicacion = Sheet1.Cells(4, 7)
013   gpofact = Sheet1.Cells(5, 7)
014   fecini = Sheet1.Cells(6, 7)
015   fecfin = Sheet1.Cells(7, 7)
016   cvenom = Sheet1.Cells(8, 7)
017
018   Set fcosto = C.brOpenRuleModule(“ADsourcing,bp, Fondika.mcr”)
019   Sheet1.Rows(11) = “”
020   reng = 10
021   fcosto.brCall fecini, fecfin, cuentamd, empresa, ubicacion, gpofact, cvenom, encab, matriz
022   mmatriz.brCString = matriz
023   E.brCloseConnection C
024   Sheet1.Cells(8, 3) = encab
025
026   Set ids = mmatriz.brExtract(1)
027   nids = ids.brDCount(D3VMChr)
028   For i = 1 To nids
029     reng = reng + 1
030     If Sheet1.Cells(reng, 3) = “Totales:” Then Sheet1.Rows(reng).Insert
031     For j = 1 To 7
032       Sheet1.Rows(reng).Font.Bold = False
033       Sheet1.Cells(reng, j) = mmatriz.brExtractStr(j, i)
034     Next j
035   Next i
036   If reng = 10 Then
037     Do While Sheet1.Cells(12, 3) <> “Totales:”
038       Sheet1.Rows(reng + 1).Delete
039       Sheet1.Rows(11) = “”
040     Loop
041   Else
042     Do While Sheet1.Cells(reng + 1, 3) <> “Totales:”
043       Sheet1.Rows(reng + 1).Delete
044     Loop
045   End If
046   ‘ Sumamos
```

code continues on page 27

Among the aggregated values, we can mention the following:

- All the information control is found practically on the MultiValue database side. That is, almost any modification that we need to apply to our report can be done by modifying exclusively our MultiValue subroutine and this will be automatically reflected on the Excel worksheet for all the final users.
- The final output is an Excel worksheet that the user can manipulate at will, send by e-mail, print it, store it, etc. And all this without affecting the data source. And, if by mistake, there is an error when manipulating it, they just have to press the button and the report will be generated one more time.
- We can also use our MultiValue subroutine to deliver information to other applications than Excel, like web applications, web services, Windows applications, etc. Any information that can make calls to MultiValue subroutines can use our same routine to generate reports. That way we will only work once, and we can duplicate the report in different means. **IS**

ING. JORGE E. CASARES CEBRECOS has a professional title in Engineering in Computation at the "Instituto Tecnológico Autónomo de México (ITAM)". Since 1988, He has been the Systems Director at EDP VenSer, a company VAR of Pick Systems,where we develop custom-made applications for many clients. He is also the Systems Director of ADsourcing Group, a Human Resources company with annual invoicing superior to US$15,000,000. He can be reached at jorge.casares@adsourcing.com.mx

Feed**back**

What came first, the letters or the letters-to-the-editor department?

We are making another change to International Spectrum Magazine — a Feedback Department, sometimes known as Letters to the Editor.

We want to hear your comments, your reactions, your agreement or disagreement with what you see. Also, do not hesitate to let us know about things happening in the MultiValue Community we may not have heard about yet.

Please send your comments by e-mail to:
editor@intl-spectrum.com

Fig. 3 *code continued from page 26*

```
   Sheet1.Cells(reng + 1, 7) = “=SUM(G11:G” & reng & “)”

     ‘Ordenamos
     Dim ordenar As String
     ordenar = “11:” & nids + 10
     Sheets(“Fondika”).Select
     Rows(ordenar).Select
     Selection.Sort Key1:=Range(“A11”), Order1:=xlAscending, Header:=xlGuess, _
         OrderCustom:=1, MatchCase:=False, Orientation:=xlTopToBottom, _
         DataOption1:=xlSortNormal
     Range(“F8”).Select

    ‘Subtotales por Cuenta
     subtot = 0: contad = 0: i = 10: totalgral = 0

     Do While contad < nids + 1
       contad = contad + 1:  i = i + 1
       If i = 11 Then ctaant = Sheet1.Cells(11, 1) Else ctaant = Sheet1.Cells(i - 1, 1)
       ctaact = Sheet1.Cells(i, 1)
       If i > 12 Then subtot = subtot + Sheet1.Cells(i - 1, 7) Else _
           subtot = Sheet1.Cells(11, 7)
       If ctaact <> ctaant Then
         Sheet1.Rows(i).Insert: i = i + 1
         Sheet1.Rows(i - 1).Font.Bold = True
         Sheet1.Cells(i - 1, 3) = “Total ” & ctaant
         Sheet1.Cells(i - 1, 7) = subtot: totalgral = totalgral + subtot: subtot = 0
         Sheet1.Rows(i).Insert: i = i + 1
       End If
     Loop
     Sheet1.Cells(i, 7) = totalgral
 Exit Sub
 End Sub
```

BY ROBERT CARTEN, REVELATION SOFTWARE, INC.

MultiValue Mashup

Introduction

Like many of us, I have been doing a lot of web interfaces lately. A common development technique is make a *mashup*, where a little work to combine elements from different sites yields a big increase in value. Overlaying your customer data on Google Maps is the classic example. Mashups mean code and data re-use on a grand scale. Wikipedia has a good description at intl-spectrum.com/s1017. Of course, I see things from a MultiValue perspective — my database is whatever I decide to attach, my programs are just smart data that I read from one of my locations. I want to be able to use data and code from any location on the Web.

In this article, I focus on some of the plumbing you might use to accomplish a mashup. I present a specific example — pull data from the Web and load it onto a form. Along the way, I try to maximize my use of available web services and scripts. I used Revelation Software's OpenInsight for the solution. The solution utilizes OpenInsight's Basic+ features to embed Windows COM objects into a program. The code examples may not translate well to other products. However, the general ideas are the same in any product. I learned a lot with this little task and I hope you do too.

The Task

For my example, I chose to load data from an RSS web feed into an OpenInsight form. RSS is a widely used format for publishing news updates, stock prices, or changes to web sites. RSS is described at intl-spectrum.com/s1018. You have probably seen the orange and white RSS logo in a web browser. I used the BBC World News feed. Figures 1a and 1b show the BBC news feed as it appears in a browser, and the same data contained in an OpenInsight form. The remainder of this article discusses the approach I used.

Simplify with a Web Service

RSS is a fairly loose standard. It is XML-based, but there is plenty of wiggle room; so it can be difficult to work with feeds from different publishers. The RSS standard describes an XML encoding, or set of tags, to use when building RSS messages. XML is designed to embed all of its context in the message. When working with XML you can spend a lot of effort packing and unpacking the data so it can be used by any client.

A newly popular format for less formal data passing is JSON. JSON is short for JavaScriptObject Notation. JSON is explained in detail at www.json.org. JSON is closer to MultiValue in the sense that it is a minimalist approach designed to be read by a specific client. The strength of JSON for web usage is that it is optimized for use by JavaScript, and most web browsers run JavaScript.

Converting RSS XML to JSON is so common that both Google and Yahoo provide web services to do this for you. These services are widely used, tested, and debugged. The web services do the work of simplifying and standardizing the different RSS feeds. By piping my RSS feed through one of these services I make my job easier and create a solution likely to

Fig. 1a Web view of the RSS data

Fig. 1b Window view of the RSS data

work with any RSS feed, not just the BBC example.

Parse with a Canned Script

Parsing JSON using JavaScript is another very common need in web development, so I expected to find an existing solution for that too. In fact, json.org supplies a canned script which will pack and parse JSON structures for you. Their script is widely used, tested, and debugged. I decided to use the json.org script directly rather than re-create the functionality in a custom Basic+ program.

Put It All Together

Grab the data, pipe it through an RSS to JSON service, and manipulate the result with the canned scripts. The approach avoids a lot of coding and leaves me running mature, reliable code. The approach is not as efficient as a completely custom written solution, but running and reliable immediately. That is the essence of a mashup.

Technical Details

I created two OpenInsight Basic+ programs named RSS_EXAMPLE and RTI_JSON. RTI JSON handles the low-level paring of the JSON data, while RSS_EXAMPLE is a higher-level program which reads the RSS data from the web, calls the parser, and then loads the result into the form shown in the earlier screenshot.

RSS_EXAMPLE

The first program, RSS_EXAMPLE, is simple. I get the URL of the news feed, change it into the URL needed by the web service, and then read the data from the web service. Figure 2 shows RSS_EXAMPLE using a BBC news feed. Figure 3 shows the call to the web service.

After I read the information, I have it available as a JSON string. Figure 4 shows the data as it appears in the OpenInsight Debugger.

The remainder of the RSS_EXAMPLE program calls RTI_JSON to extract the title, link, and summary description for each entry. Figure 5 shows the program.

More interesting (to me, at least) is a debugger view of the variables in RSS_EXAMPLE. If you look at figure 6, you can see that the debugger shows <idispatch> for "json_obj", "feed" and "entries". That is how the debugger displays COM object variables. The Basic+ program is passing COM objects in and out of the JavaScript processor. When RSS_EXAMPLE finishes, the LIST variable is populated with a regular multivalued string, ready to load into the OpenInsight form.

So, with RSS_EXAMPLE, my mashup is done. I can read from any of over fifty thousand RSS information sources and integrate that data into my MultiValue application. I focus on the business needs of my application, not the mechanics of pulling and parsing the feed.

Continues on page 30

```
* What rss feed? Default to BBC
If Assigned(feed) Else feed = ''
If feed = '' then
    feed ="http://newsrss.bbc.co.uk/rss/newsonline_world_edition/front_page/rss.xml"
end
```

Fig. 2 Use BBC news feed

```
* In openInsight, the internet is the URL file
Open 'URL' To f_url Else
    Call Set_Status(1, 'Unable to open URL file')
End

* Read the feed from the json service url
* This is akin to CALL @Webservice(mydata, myresult)
JsonService = "http://ajax.googleapis.com/ajax/services/feed/load"
url = JsonService:"?q=":feed:"&v=1.0"
Read json_Data From f_url, url else json_data = ''
```

Fig. 3 Read the feed via the Google web service

```
JSON_DATA : Inspect/Modify
<1>:{"responseData": {"feed":{"title":"BBC News | News Front Page | World Edition","link":"http://news.bbc.co.uk/go/r
```

Fig. 4 JSON Data string read from Google

```
list = ''
stat = RTI_JSON(json_obj, 'GetValue', "responseStatus")
If stat = "200" Then
    * The enties are contained in the feed object
    feed    = RTI_JSON(json_obj, 'GetValue', "responseData.feed")
    entries = RTI_JSON(feed, 'GetValue', "entries")
    ecount  = RTI_JSON(entries, 'GetValue', "length")
    For i = 1 To ecount
        entry = RTI_JSON(entries, 'GetValue', "[":i:"]" )
        list<i,1> = RTI_JSON(entry, 'GetValue', 'title')
        list<i,2> = RTI_JSON(entry, 'GetValue', 'link')
        list<i,3> = RTI_JSON(entry, 'GetValue', 'contentSnippet')
    next
end
```

Fig. 5 Manipulating the JavaScript object

```
Local Variables
  CTRLENTID 'RSS_EXAMPLE'
  ECOUNT <unassigned>
  ENTRIES <unassigned>
  ENTRY <unassigned>
  FEED 'http%3A%2F%2Fnewsrss.bbc.co.uk%2Frss%2Fnewsonline_world_edition%2Ffront_page%2Frs
  F_URL 'URLBFS²F'
  I <unassigned>
  JSONSERVICE 'http://ajax.googleapis.com/ajax/services/feed/load'
  JSON_DATA '{"responseData": {"feed":{"title":"BBC News | News Front Page | World Editic
  JSON_OBJ <idispatch>
  LIST <unassigned>
  METHOD 'CREATE'
  STAT <unassigned>
  URL 'http://ajax.googleapis.com/ajax/services/feed/load?q=http%3A%2F%2Fnewsrss.bbc.co.u
  X '0'
```

Fig. 6 Debugger view of RSS_EXAMPLE, showing <idispatch> variables

Continued from page 29

RTI_JSON

RSS_EXAMPLE, the mashup program, hides the details of the JavaScript parsing in RTI_JSON, another Basic+ program. Specifically, RSS_EXAMPLE uses the "parse" and "getvalue" methods of RTI_JSON. Let's look at RTI_JSON, starting with the parse method. Figure 7 is a snippet of RTI_JSON, showing the parse section.

As Figure 7 shows, the real logic is not in the Basic+ program. The Basic+ parse method simply uses OpenInsight's OLECALLMETHOD to have oJson perform the parsing. This "oJson" is the handle of an OLE object holding the JSON parsing script from json.org. A look at the INIT section of the Basic+ program (fig. 8) shows how the script is loaded.

A few interesting things happen in the Init section. First, we use the MsScriptControl.ScriptControl to host the script. This is a Microsoft Activex control present in Windows 2000 and above, also known as the Windows Scripting Host. Documentation for the scripting host exists on the Microsoft web site. Revelation has previously published examples showing how to use the script control to embed Microsoft Excel or Word in a Basic+ program.

Here we show you can embed and call any JavaScript function too. This ability to host scripts is a feature of the scripting host, not OpenInsight. The Basic+ program uses the AddCode method of the scripting host to load the JSON parsing JavaScript from a file. If the JavaScript file is not found on disk, the program reads the script directly from the Internet. The program parks a handle to the script in a common variable named oJson. Notice that we are importing and using the code verbatim. No work to translate it, no chance to corrupt it.

This is a powerful idea. There are a lot of useful JavaScript functions on the Web. You can embed any of them in your application. Of course, real-world issues such as licensing, copyright, security, and availability need to be managed. In this example, I pull the script directly from a web site I do not own. In a real-world application, you place a copy on a trusted server or as a record in a table.

One more interesting technique I needed is passing objects from Basic+ into JavaScript functions. RTI_JSON uses this technique in the GetValue method (fig. 9). GetValue accepts a JavaScript object and a string name. It returns the value with that name. Where the parse method we accepted in a string and returned an object, here we pass in an object and return an object or string. The Basic+ program uses a clever trick: use AddObject method to load the object as a known name, then create and evaluate an expression that returns the object's value. Note that this would work for any JavaScript object, whether or not it was created by the JSON parse method.

Using AddObject means Basic+ and JavaScript exist on an equal footing in the application. I can solve a problem in whichever language is more convenient, and I can leverage other people's solutions. This idea extends beyond the JSON example presented here. There

Continues on page 31

```
Parse:
* from string to javascript
String = If Assigned(param1) Then param1 Else ''
object = OleCallMethod(oJson, 'parse', string, '')
retval = OleStatus()
Return
```

Fig. 7 the parse method of RTI_JSON

```
Init:
* Load scripts. Use a local copy if available, else pull from web.
oScript = OLECreateInstance("MSScriptControl.ScriptControl")
oScript->Language = "JScript"
status = olestatus()

* JSON
jsFile = '.\html\json2.js'
OSRead jscode From jsFile Else jscode = ''
If jscode = '' then
    jscode = Ole_GetWebPage("http://www.json.org/json2.js")
    OSWrite jscode On jsFile
End
x = oScript->AddCode( jsCode )
co = OleGetProperty(oScript, 'CodeObject')
oJson = OleGetProperty(co, 'JSON')
status = olestatus()
```

Fig. 8 Init Method loads scripts from web

```
GetValue:
name = If Assigned(Param1) Then param1 Else ''
If name # '' Then
    this_Script = OLECreateInstance("MSScriptControl.ScriptControl")
    this_Script->Language = "JScript"
    x = this_Script->AddObject(valueObj$, object, true$)
    Begin Case
        Case name[1,1] = "["
        Case name[1,1] = "."
        Case otherwise$
            name = ".":name
    End case
    expression =  valueObj$:name
    retval = This_Script->Eval(expression)
end
Return
```

Fig. 9 Using AddObject to accept object parameters

MULTIVALUE MASHUP

Continued from page 30

is a large base of useful JavaScript examples, especially from the Ruby on Rails community.

Conclusion

The techniques described in this article can leave you surfing the wave of web development instead of paddling to catch up. I have presented a Windows-only solution and glossed over security and license issues, but there is a lot of potential here. This MultiValue application is functioning as middleware, coordinating the collection and processing of information, even if the initial source and final consumer are not MultiValue applications. That is an ideal role for a MultiValue tool. IS

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Notes

The source for these RSS_EXAMPLE and RTI_JSON is available for download from Google Docs at the following links.

RSS_EXAMPLE:
intl-spectrum.com/s1019

RTI_JSON:
intl-spectrum.com/s1020

RTI_JSON will be part of the next release of OpenInsight.

FUTURE-READY YOUR LEGACY ERP SYSTEM

Continued from page 23

3. Validate and do edit checks after all data has been entered,
4. Include any logic for the companies unique business processes, and
5. Update the database.

As Clifton Oliver has discussed in his classes on refactoring, there should be a plan, or list of program changes that should be included in any program the programmer has occasion to modify. One of the portions of that plan should be the program flow or the order of the logical steps. Writing Basic programs in true structured code trains a programmer think in these logical steps. A single gosub, for example, that validates a customer number and checks to assure that the customer is not obsolete, or on credit hold, can be called first when a new order requests a customer number, called again if the customer number is changed, and finally called before the record is filed.

This final validation is a new way of thinking from the old MultiValue drop through design, because it assumed you checked everything before you were allowed to file a record. In a web browser, you have no control of the order in which the data is entered. They could click on "OK" before even entering a field. If the data string is coming from another collection source, you may not have been able to validate when the data was entered. If your Basic program has been structured, the logic is there to check a customer number, for example, before writing to your database. If some part of critical data is invalid at that point, in a web browser you return to the input screen. But if the data was received from another source, you many need to generate error reports of records that were unable to be written.

Continues on page 35

CLIF NOTES

Continued from page 37

like a good half hour of "1, 2, 3" to lend a more authoritative feel to things.

I haven't quite figured that out, yet. Why is it that numbers add such an air of authority to a bunch of paragraphs strung together, whether it is a sermon or a sociology lecture?

4 Numbered lists are best reserved for procedures

If you spend a little time reading about writing, you are sure to come across advice about the use of two types of lists, especially in technical writing.

- Numbered lists are best reserved for summarizing procedures where the steps have a specific sequence.
- Bullet lists are the list of choice for a simple listing of facts whose order is independent of each other.

It appears that this concept is unfamiliar to many bloggers, preachers, and conference session presenters.

5 Numbered lists have no clear beginning or end

Most essays or articles have three main parts: the beginning, the middle, and the end. In the beginning you usually state your premise or hypothesis. In the middle, you expand on that, giving your facts and reasoning. Then, in the end, you summarize and state your conclusion.

Numbered lists, on the other hand, are frequently just a bunch of "factoids" thrown against the wall to see what sticks. It's nothing but middle. If it is a good post, it might even be useful. But it's unsatisfying. As such, it is kind of like chocolate cake with no frosting. It might still be worth eating, but wouldn't it be so much better wrapped in icing (beginning and end) with icing between the layers (transitions)?

Makes my blood sugar spike just thinking about it.

Continues on page 22

My Journey Inside *of* PDF Files:

Converting Text Print Files To PDF Files

Part 1

BY KIM AMANN

In the May/June issue of International Spectrum, I described some of the internals of Adobe PDF files and how to insert user-defined metadata into them. In this issue, I will explain how to convert standard &HOLD& line printer text files into PDF files. This was done for the Colorado Springs Police Department (CSPD), who has been running their police applications under PI/open for many years and Prime Information before that.

The CSPD wanted to provide their users, their upper echelon commanders, City Hall officials, and the general public, via web site, with the information that had previously been condemned to lay around as stacks of unread green-bar paper. One of the best ways to accomplish this was the use of Adobe PDF files as the vehicle to perform this distribution. If their current line printer reports could be converted into PDF files, this objective could be achieved.

So once again I was tasked with venturing into the *Adobe PDF Reference Manual* and doing some more reverse engineering of PDF files that contained only text lines to determine what PDF commands would be necessary to accomplish this.

At this point, please read the May/June article on this topic as a primer to what is about to follow if you have not already done so. There are terms defined there that will assist in the understanding of what follows here. (*Editor's note:* the May/June 2009 issue can be downloaded from intl-spectrum.com, if needed.)

Another Use Of The &HOLD& File

It obviously takes extensive data massaging to turn a line printer report into an Adobe PDF File. And the most logical and easiest way to get access to the report data itself is to direct the line printer reports to the &HOLD& file. For those programs that printed directly to a printer, it was easy and quick to redirect those reports to &HOLD&.

Once there, the power of a Basic program did the heavy lifting (reading the line printer data and then placing the converted PDF file into a special directory that was used to move them onto their ultimate destinations). This program was written as a subroutine (TXT2PDF) that the application program called at "end of job". So a couple lines of code inserted in each application program turned all line printer reports into PDF files.

Line Printer Report In Adobe PDF File Format

Perhaps the best way to start the explanation of this process is by using an actual line printer report from the CSPD's system that has been converted to a PDF file as an example of the process.

To save print space for this article, report pages/lines have been removed. So the actual byte counts of some of the command controls are inaccurate but they still make the point of what is required by Adobe.

In the May/June article, "MetaData in PDFs", I talked about creating streams and layout a few of the required objects. In this article, I'll talk about how to create a few other objects.

Create a PDF Object

When you are creating a PDF object, there are two things you need to do, or the PDF will not be readable. The first and the most important is to keep track of the number of characters in each object. You will need this when you create the Xref Table object.

The other thing you need to do is keep track of the object number than you supply for each object. Many objects will reference or nest the object number of other objects within themselves.

Object numbers are always numeric, and follow the format in figure 1.

Info Object

The Info Object tells what version and some basic information about the PDF, like who created it, and the date it was created and the date it was modified. See figure 2 for a sample layout of the Info Object.

Line Report Objects

One of the first things to note is that we are creating a PDF that contains all ASCI readable text unlike most PDF files which contain both text and binary. Since the actual data to be displayed by Adobe Reader is all text characters, there are no hieroglyphics defining pictures, graphics, etc. in the PDF file.

The second thing to note is that each text line from the original line printer report is encased in a begin "(" and end ")" parenthesis. So it is very easy to distinguish the data that will appear on the Adobe report from the Adobe commands.

Break the your line printer report into individual pages based on the form feed mark CHAR(12). Each page will become a new object, so you will need to keep track of the number of pages you have, and what the object number is that you assign it.

See figure 3 for a sample line printer page. We have striped down the some of the page content in order for it display well in the magazine. If you want

Continues on page 34

```
1 0 obj
{object data}
endobj

2 0 obj
{object data}
endobj

etc
```

Fig. 1

```
%PDF-1.4
1 0 obj
<<
/Creator (TXT2PDF)
/CreationDate (D:20080318092746)
/ModDate (D:20080318092746)
>>
endobj
```

Fig. 2

```
2 0 obj
<<
/Length 3480
>>
stream
BT 1 0 0 1 25 760 Tm /F1 7 Tf 7.0 TL
(VTS715              COLORADO SPRINGS POLICE DEPARTMENT              DATE: 03/17/08) '
(NIBRS ADMIN REPORT    FOR PERIOD OF 03/02/2008 THRU 03/08/2008    PAGE: 1) '
(AREA COMMAND: GOLD HILL) '
(                                    THIS        YTD   THIS PERIOD    YTD          % CHG) '
(         OFFENSE                  PERIOD       2008      5YR AVG   5YR AVG     5YR-2008) '
(HOMICIDE                               0          0         0          1        -100.00) '
(NEGLIGENT MANSLAUGHTER               0          0         0          0           0.00) '
() '
(ROBBERY - BUSINESS                    0          4         1          8         -50.00) '
(         - STREET                      0          9         1          8          12.50) '
(         - RESIDENCE                  0          2         0          4         -50.00) '
(         - OTHER                       0          1         0          3         -66.67) '
(    TOTAL ROBBERY                      0         16         2         23         -30.43) '
() '
() '
ET
endstream
endobj
```

Fig. 3

MY JOURNEY INSIDE OF PDF FILES: "CONVERTING TEXT PRINT FILES TO PDF FILES" - PART 1

Continued from page 33

to see the full layout of the finished PDF file, go to intl-spectrum.com/s1022.

There are some key fields to look at:

/Length The number of characters from BT to ET

stream What follows describes the appearance of a page and other graphical elements.

BT 1 0 0 1 25 760 Tm /F1 7 Tf 7.0 TL

Just hard code this information for now. This contains information about the font type, size, and text height to use and margins. I'll cover this more in depth in other articles.

ET This is the end tag associated with BT

endstream Indicates the end of information describing a page

Catalog Object

The catalog object (fig. 4) starts telling the PDF document where to find each page, and how many pages the PDF has. This object can also contain information about the PDF outline and other key information.

So a couple lines of code inserted in each application program turned all line printer reports into PDF files.

Pages Object

The Pages object (fig. 5), tells the PDF the number of pages, what the page context objects numbers are, and the "paper" size to use.

Procset Object

The Procset object contains all the references to the font type and sizes that the PDF uses.

Page Context objects

The Page Context objects references the actual page display data that we created from the Line Printer report. This seems redundant, but is required for PDF to see the actual page data. You have to have a Page Context object for every line printer report you add to your PDF.

Font Objects

Font object can get complex, and you can have more than one. The Adobe Reference Manual has 90 pages describing how fonts can be manipulated. I chose to keep it simple and use the font definition objects (fig. 6) that came from the sample file the appeared very similar to the original line printer reports.

Xref Object

A table of object locations is located towards the bottom of the PDF file. The first 10 digits of each line is the starting byte count from the beginning of the file to where that particular object begins. Each entry in the table is assumed to be numbered starting from zero and represents the object number. So the first line is object 0, the second object 1 and so on.

Trailer

The final group of information in a PDF file is the trailer and contains:

/Size Indicates the number of entries in the xref table

/Root Indicates the number of the catalog object

Continues on page 37

```
<<
/Type /Catalog
/Pages 9 0 R
>>
```

Fig. 4

```
<<
/Type /Pages
/Count 6
/MediaBox [ 0 300 612 792 ]
/Kids [ 12 0 R 13 0 R 14 0 R 15 0 R 16 0 R 17 0 R ]
>>
```

Fig. 5

```
<<
/Type /Font
/Subtype /Type1
/Name /F1
/BaseFont /Courier
/Encoding /WinAnsiEncoding
>>
```

Fig. 6

Continued from page 31

Isolate Your Unique Business Processes

Now let's discuss your business processes. Your business process may be one of the most valuable aspects of your ERP software. Too often, however, it is buried within your program code. If you ship internationally, for example, you may have included logic which makes it invalid to assign a ground transport carrier to an international customer. See figure 1 for an example of the logic embedded within your I/O. This code should be changed to include two gosubs (see figure 2). This may seem like a lot more code, but it makes it very clear what is validation logic and what is unique business logic, and in reality each gosub would probably include additional code.

So, in conclusion, existing ERP packages can be preparing to be compatible with new tools by little day-to-day modifications of the software which separates the I/O and the business processes, and makes the file updates independent. Then these pieces of code can be picked up and used with any new tool. You will be able to clearly identify your unique business processes, and therefore be able to estimate the modifications that would be required if you were to migrate to a new ERP package. No matter what the future may hold, you need not lose any of the functionality of your very efficient MultiValue ERP software. IS

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```
SHIP.VIA:
LOOP
   PRINT @(0,15):"Ship Via: ":
   INPUT SHIPVIA
   VALID=TRUE
   IF SHIPVIA = "END" THEN EXIT.FLAG = TRUE ELSE
       READ SHIPVIA.REC FROM SHIPVIA.FILE,SHIPVIA THEN
             READV INTL.CODE FROM CUSTOMER.FILE,CUST.NO,15 ELSE INTL.CODE = "N"
        IF INTL.CODE = "Y" THEN
           IF SHIPVIA.REC<15> = "GROUND" THEN VALID=FALSE
        END
      END ELSE VALID = FALSE
   END
UNTIL VALID DO REPEAT
RETURN
```

Fig. 1 Embedded validation and business logic

```
SHIP.VIA:
LOOP
   PRINT @(0,15):"Ship Via: ":
   INPUT SHIPVIA
   VALID=TRUE
   IF SHIPVIA = "END" THEN EXIT.FLAG = TRUE ELSE
      GOSUB VALID.SHIPVIA
      IF VALID = TRUE THEN
         PROCESS.TYPE = "SHIPVIA"
         GOSUB BUSINESS.LOGIC
      END
  END
UNTIL VALID DO REPEAT
RETURN
*
VALID.SHIPVIA:
   READ SHIPVIA.REC FROM SHIPVIA.FILE,SHIPVIA ELSE VALID = FALSE
RETURN
*
BUSINESS.LOGIC:
BEGIN CASE
    CASE PROCESS.TYPE = "SHIPVIA"
         READV INTL.CODE FROM CUSTOMER.FILE,CUST.NO,15 ELSE INTL.CODE = "N"
         IF INTL.CODE = "Y" THEN
            IF SHIPVIA.REC<15> = "GROUND" THEN VALID=FALSE
        END
    CASE 1
END CASE
RETURN
```

Fig. 2 Isolating I/O from validations

Tech Tips

BY JOHN P. RACINE

IN with QM

This innocuous looking new feature in QM, descended from a tool of mine called "LIST.HANDLER", has been implemented to add a new dimension to Pick Access and to solve a particular problem programmers have faced for years. Basically, it allows the TCL operation shown in Example 1 (fig. 1), where save_list_name is the name of a list in the $SAVELIST file.

This can be used with virtually any size list and eliminates the need to construct secondary files containing IDs which might be translated to verify the existence. It can also be used on a every day basis to select items from code files in the following manner seen in Example 2 (fig. 1).

Where the CODES file might have 300 entries of TYPE=1. On other systems, to do this would otherwise usually require writing a dictionary item. "IN" or "LIST.HANDLER" is then useful on systems where TCL users do not have the permission to create dictionary items. There are also many times where the IDs do not come from a file on the system and are loaded into temporarily created temp files and file translations must be made, then the files deleted when complete. In my experience, this is actually common, tedious, and time consuming.

Another important application of this device is where the source of the values is a multivalued attribute in a file. Using the following criteria, the technique shown in Example 3 (fig. 1) is possible.

This worked using a file translation, does not work on many versions of MultiValue but will with "IN" or "LIST.HANDLER". (It does not create a list of IDs from FILE but a list of values from the MV.ATTR attribute in FILE. That list is then saved, then searched using the CODE values, as in a Basic LOCATE.)

Note that the converse of "IN" is also available. When "NOT.IN" is used, all items which are not found in the list cause the condition to evaluate as true.

This capability is now available in QM as standard equipment, or, on a less elegant implementation, as LIST.HANDLER in my BB4GL. In QM, it will work with all dictionary items, but on my BB4GL, only most. IS

JOHN P. RACINE of Racine Enterprises Inc. can be reached at www.purveyorsoftware.com.

Do you have a Tech Tip to share? E-mail it to editor@intl-spectrum.com

```
Example 1
SELECT FILE WITH DICT1 IN "save_list_name"
Or
SORT FILE BY NAME BY DICT1 WITH DICT1 IN "save_list_name" DICT1 DICT2 DICT3 HEADING" …

Example 2
SELECT CODES IF TYPE = "1"
SAVE-LIST ABC
SELECT FILE WITH CODE IN "ABC"

Example 3
SELECT FILE IF DATE = "01/01/2010" MV.ATTR
SAVE-LIST TEMP
SELECT FILE2 WITH CODE IN "TEMP"
```

Fig. 1 Examples

MY JOURNEY INSIDE OF PDF FILES: "CONVERTING TEXT PRINT FILES TO PDF FILES" - PART 1

Continued from page 34

/Info Indicates the number of the info object.

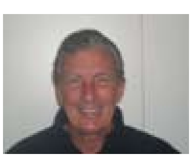
startxref Locate the start of the xref table as a byte count for where the xref table begins in the file. In this example, the xref table begins as byte number 18,632 in the file.

%%EOF Always the last line of a PDF file.

Summary

The programming required to convert line printer reports to PDF file can be accomplished in 200-300 lines of code by anyone. The key to success is generating the correct Adobe commands that wrap around the text lines of the report.

If you have a need to do this and are too busy to take it on yourself, please feel free to contact me to take advantage of the work I've already done. This article is meant to be an exposure of this technology to the reader and how to do it yourself. It is not meant to be a sales pitch. But the practical reality is TXT-2PDF exists and is available to use. IS



KIM AMANN began programming for a bank in 1964 in COBOL and Assembler. In the early 80s he crossed over from the dark side and began developing Prime Information based applications as an independent contractor. Now using UniVerse and UniData, he has help a wide variety of businesses and organizations become more efficient.

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CLIF NOTES

Continued from page 38

to link thoughts together in a logical chain of reasoning.

Whatever the reason, numbered lists seem to encourage just tossing out a bunch of short quips about a subject, numbering them to give the illusion of some kind of structure, and resting comfortable in the knowledge that you have probably produced something that the majority of the masses will be able to scan through, believe they understand, and therefore think you are "deep."

In fact, I have observed that the use of numbered lists is a good indicator that very little knowledge, let alone depth, is to be had as a reward for spending the even small amount of time it takes to read.

For example, there is a psychology web site I used to follow daily. The articles were well written, reasoning was explained, and sources and follow up reading citations given. Then they added another contributor. Unfortunately, this person is a blogger in style. Most of that content consists of items with titles like, "10 Ways To Break An Addiction," or "5 Techniques For Coping," or "7 Things To Avoid In Order to Keep From Developing An Eating Disorder." As the number of these offerings have increased, the site as a whole has taken on more of the feel of a self help paperback than a serious psychology site run by professionals.

3 Numbered lists make everything sound like a sermon

I don't know if most seminaries have a first-year course in, "6 Reasons For Using Numbered Lists On Sunday," but it sometimes seems that way. I suspect it is more that when religious lecturers are talking about topics that are, after all, subject to a wide range of interpretations and opinions, there is nothing

Continues on page 31

CLIF NOTES

Continued from page 39

The Top 5 Reasons Numbered Lists Are Evil

1 Numbered lists are a popular style with blogs.

I admit it; I am not a fan of blogs. Yes, there are some good blogs, but they seem to be few and far between. I have noticed that the blogs that rely heavily on numbered lists tend to be characterized by lazy writing, and many times, lazy thinking. These blogs display little in the way of essay skills. Paragraphs are disjoint and have no transition linking one to the other even within one of the points, let alone any kind of rational, smooth connection between the numbered points themselves. Simply having unlinked points and paragraphs not only makes for choppy reading, it leads to other transgressions, such as poorly executed re-use.

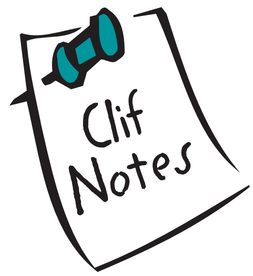
Have you noticed how often, usually after the initial brain/opinion dump period, some blogs will simply re-segment, re-order, and re-number previous blogs entries? Voila! A whole "new" article rehashing tired content to make it appear to be some kind of new thoughts. You can do the same thing with a well written essay, but it takes a lot more thought, time, and work. Of course, many blogs are so limited in scope that ten essays pretty much covers the entire subject area. In some blogs, ten sentences are really enough to exhaust the topic.

2 Numbered lists encourage sound-bite thinking

There are a number of reasons our society has an ever dwindling attention span. Some people blame television, hence the term "sound-bite" thinking. If it takes more than 30 seconds to read, people skip it. Others blame culturally encouraged attention deficit behavior, most notably the myth of multi-tasking. And some believe that as a species, we've had it too easy for too long and are just losing the ability

Continues on page 37

The Top 5 Reasons Numbered Lists Are Evil



BY CLIFTON OLIVER

Sometimes little things really irritate me. Sometimes really big things don't. So when I find myself getting irritated about something, I tend to go into this self-analysis mode to determine why it irritates me, whether it is worth being irritated about, and if it really makes a difference. So give me a moment…

Ok. This is a "tweener." To me, it's worth being irritated about, but it is not a big enough issue that I am inclined to give up my four day jobs and fight against it full-time. But it does bug me enough to attempt to draw it to your attention, and if you are one of the culprits, yell, "Stop It!".

I am referring to the current trend of reducing a lot of what we read down to a numbered list. These things are all around us. If you spend much time on the Net, you see them everywhere.

Numbered lists seem to be ubiquitous. You can't go a day online (or on any other media) without getting a list shoved in your face.

"10 Ways To Have Great Sex!" (With those type of lists, I always wonder why #1 isn't, "Get a Partner.")

"1,001 Ways To Simplify Your Life." (Um, by not wading through 1,001 dumb or trivial ideas?)

"23 Things To Avoid In MultiValue Basic." (On the other hand, some lists are too short.)

One of my favorites: "20 Ways to Reduce Business Processes to 10 Steps or Less."

Whether it is late night TV, blog postings, staff meetings, articles online or in a magazine, you can't seem to go a day without having something enumerated for you. It's as if the entire world has stopped writing and only engages in taking notes.

So why are we inundated with these numbered lists meant to organize our lives, reduce our workload, or lead us on the fast track to peace, happiness, and the tranquility of amassing Big Bucks? I think one of the big causes is…

…David Letterman.

Ok, ok. I don't really mean that. After all, he did not invent numbered lists. But his Top 10 List routine not only became a trademark of his, but it was so popular that it seemed to have sunk its hooks deep into the cultural (il)literacy. Yes, it is a bit different. He starts with ten and counts down to one. That's nothing original. So did Verner Von Braun. Other lists do the opposite.

Why do these things rankle? Why have I concluded that the presence in an article of a main numbered list is an indicator, almost a litmus test, of whether or not it is worth reading, at least now, or whether it gets dumped in that folder we all have and periodically delete — the one labeled, "Reading for later"?

Let me count the ways.

Continues on page 38

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