

INTERNATIONAL SPECTRUM®

THE MULTIVALUE  TECHNOLOGY MAGAZINE | MAY/JUNE 2019



Bespoke Software Development

Also in This Issue:

- Chaos and Control
- UPS WorldShip Pick and Pack
- Check Fraud Prevention with Positive Pay

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INTERNATIONAL SPECTRUM

THE MULTIVALUE  TECHNOLOGY MAGAZINE

MAY/JUNE 2019

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Bespoke Software Development In IT, especially in IT, we see the same ideas come back time and again, dressed in new terminology. The current crop of buzzwords includes Bespoke Software. This article discusses the advantages and disadvantages of this type of software and its value to business. **BY NATHAN RECTOR**

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Business Tech: A Seat at the Table — Chaos and Control

As we push our chairs up to the table, there will be pushback from other departments. Some of it might be politics or petty reasons. However, much of it has to do with how we are perceived. Are you someone's rampaging Godzilla? Do they see you as an agent of chaos and discord, trampling their workflows? Before we can fix that, we need to understand it. **BY CHARLES BAROUCH**

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Using UPS WorldShip to automate a Pick and Pack

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Check Fraud Prevention with Positive Pay

Identity theft and other forms of fraud are everywhere. Businesses are constantly looking for ways to assure that their information is both accurate and secure. Movies like "Catch me if you Can?", make check fraud look easy. Implementing Positive Pay can help address these issues. **BY NATHAN RECTOR**

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From the Inside

I need content providers and authors for articles. Are you interested?

International Spectrum Magazine has been around for many years now, and we have been rewarded with some very interesting articles.

While it seems like most of our material comes from programmers and consultants, many of the best pieces have come from end users, people in the marketplace who bring business and person experience to the page.

While we like to keep you up-to-date with new things going on, there are lots of existing topics and solutions that have been around for years. We need your articles on these topics, too. I understand that writing can seem daunting. You wonder how you'll find the time to do it. Good news. We are here to help.

Issue: Don't Know What to Write About

I can understand this one. I have to come up with a topic for the "From the Inside" every issue. It may seem insurmountable, but in reality, it is the easiest to address. The answer: Email me and ask.

Here are a few ideas now:

- FedEx Integration
- How to and gotchas of Avalara Sales Tax
- Search and Verification of VAT Numbers
- Success Stories: Implementing PowerBI
- Modern inventory forecasting

If you are reading this and would like to see a specific article in Spectrum Magazine, please feel free to contact me and let me know. I will add it to my growing list of topics.

Issue: I'm not a writer

Well, truth be told, neither am I. My spelling is horrible... My grammar makes my editor pull his hair out... and on about every article I write, I have to clarify at least one paragraph because he's not quite sure what I'm trying to say.

My suggestion is, don't try to be a writer. Be yourself. Write the article as if you are talking to someone or making notes on how to do something. We can take the rough materials and make it a finished product.

The article doesn't have to be a word document, it can be something typed out in email. Take an hour for lunch and use your smart phone to write the article.

So, if you are worried about your writing... Please don't! Let us polish of your articles. Trust me, the staff at International



INTERNATIONAL
SPECTRUM

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NATHAN RECTOR
President

CHARLES BAROUCH
Editor

TRACEY RECTOR
Layout



Learn more about the MultiValue Symbol and see what MultiValue Technologies and MultiValue Communities exist to help you support and manage your business and systems. To find out more visit

<http://www.intl-spectrum.com>

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NEWS RELEASES/UNSOLICITED ARTICLES

International Spectrum is eager to print your submissions of up-to-the-minute news and feature stories complementary to the MultiValue marketplace. Black and white or color photographs and diagrams are welcome. Although there is no guarantee a submitted article will be published, every article will be considered. Please send your press releases, articles, and queries to: editor@intl-spectrum.com. *International Spectrum* retains all reprint rights.

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Spectrum is very good at doing this.

Issue: Company Restrictions on Proprietary Code

This can be a major hang up for a lot of people, but you don't have to provide your company's code in the article. All you need to do is provide the problem and how it was solved.

This is called a success story, and they are just as important as any tech article, if not more so.

No company process or code is given away.

Issue: Everyone Knows How to Do This Already

Wrong! Wrong! Wrong! Just because you think it is common knowledge, doesn't mean that it is obvious to others. I see this every year at the Spectrum Conference.

Here is an example: Can you write an article on "How do you print your MultiValue data to

a PDF document?". Response: "Well everyone knows how to do that." Did you know how to do it before it was printed here in Spectrum Magazine?

I don't know about you, but I've found that many people want to do this, and know it can be done, but have no clue where to start.

Just because it seems like common knowledge, it doesn't mean that there aren't people that don't know how to do it.

So, Please, I need authors and content providers. I want to hear how you solved your business or technical problems.

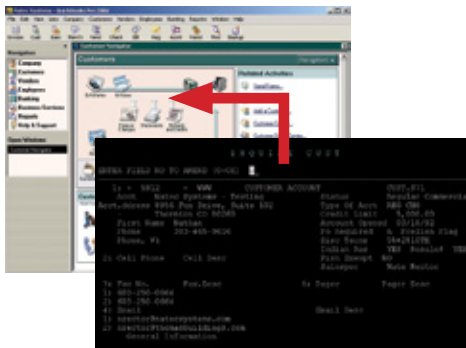
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NATHAN RECTOR
President
International Spectrum
nathan@intl-spectrum.com

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Bespoke Software Development

BY NATHAN RECTOR

There was a time when mass-marketed software threatened to destroy the market for custom-made software. Individual developers struggled to make their case against companies with advertising budgets and significant sales teams. Neither side won but the packages made serious in-roads.

Bespoke Software: The term comes from a story about a wealthy man who could afford a custom-tailored suit instead of a suit made to standard patterns. Ready-made solutions are being seen as buying “off the rack.” It is moving from being seen as *choosing the popular to choosing the ordinary*.

The idea of Bespoke Software is that the business or management gets to tell a software developer exactly how they want the application to look, operate, and feel. They want it to fit the business perfectly, much like a tailored suit

Why not use the off-the-shelf solutions?

fits a person perfectly. Such applications are presumed to be more user-friendly and more effective to the business since they are designed for that specific business’s needs.

There are other terms for the same concept: *Semi-Custom Software* and *Custom Software*. These two terms are often frowned at because the word “custom” relates to “expensive”, but Bespoke Software is a new and modern industry term/buzzword for custom software. It has escaped the negative connotation.

Necessity of Bespoke Software

The first question that often comes up: Why not use the off-the-shelf solutions? There are many reasons for this:

- The software needs to meet the business’s requirements, needs, and processors exactly, instead of requiring the business to conform to the software.
- It has no useless – or unused – features to confuse or distract the staff.
- When business processes evolve to handle new customer needs, the software can evolve to match.

These are the main reasons that most businesses use some form of Bespoke Software in their enterprise. This kind of software flexibility allows businesses to optimize procedures and processes so they can get the most of out of their profit margins. Without this flexibility, human procedures have to be developed to compensate which add overhead, decrease the businesses profit margins.

Almost all new software being created today is Bespoke Software. Consider the following.

Example: Company Website

The business wants to the website to have the same color, logos, and other branding components as the rest of their marketing. They also want an e-commerce interface and some kind of customer portal.

The business contacts a company, or the internal IT Department, and states exactly what they want it to look like, how they want the customers to experience it, and what they want to have saved in their systems.

Example: Mobile App

Most of us have used bank apps, or are at least familiar with how they work. This is the classic example of a cus-

tom developed application. No one bank allows itself to use off-the-shelf software because they want to make sure it matches their branded interfaces, nor do they want to share how they do things with competitors. They may start with an existing core package but they will push toward gutting and rebuilding most of it. They will focus on trying to make the software fit their business functionality for the best client experience.

Advantages

As developers and administrators of existing Bespoke Software applications in our MultiValue environments, we know there are many advantages.

1. Your Company's Personal Solution
Every business has different requirements. Only about 80-90% of processes and procedures are shared

by different businesses. That leaves 10-20% of those processes that define the difference between a business and competitor.

This difference may be how something is manufactured, designed, or how the business interacts with the customer. Custom software allows a business to do things their way instead of having to conform to an industry standard that may cut into profit margins.

2. Updates

The business has full control over upgrades, fixes, and deployment. Custom software can be updated or fixed on the business's time frame, instead of an application provider's time frame.

If there is an enhancement needed, it can be done quickly instead of



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This thirty-fourth issue of Tales from the Canyons of the Damned consists of four sharp, suspenseful, thought provoking short stories—each from a different featured master of speculative fiction.

Exclusionary Symbiosis by Nathan M. Beauchamp

Ship of the Dead by Charles Barouch

Last Visit to the Park by Terry R. Hill

Off-World Kick Murder Squad VII by Daniel Arthur Smith

Tales from the Canyons of the Damned (canyonsofthedamned.com) is a dark science fiction, horror, & slipstream magazine we've been working on since 2015. What is Dark Science Fiction and Horror? Think of it as a literary Twilight Zone, Night Gallery, or Outer Limits, it's Netflix's Black Mirror and Amazon's Electric Dreams in the short story format. And it's a bargain. Each monthly issue has three-to-five sharp, suspenseful, satirical tales from today's top speculative fiction writers.

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having to wait weeks or months, or even being told that the enhancement won't be done.

The business can also decide if they want to invest in a feature, rather than receiving a feature that might confuse or contradict that business's processes.

3. Security Assurance

Using a common application can be risky since you don't know what has been programmed into it. Nor do you typically have access to the code, which causes your company to be locked into a specific vendor or provider.

Your company, or software, may need extra security measures in order to do business. Custom applications allow those security measures to be implemented quickly so business can continue to be done.

4. Gradual Production

Custom software can evolve with the business. Most business systems evolve out of the standard models or into other models over the years. This is considered "Organic business practices."

Custom software allows new models to be implemented when they

are needed instead of when they are not required.

Disadvantages

1. Time and Energy

People are not always aware of the needs of their business, until that need has been uncovered. Creating custom software from the ground up without a starting framework can cause features to be missed without realizing it until much later.

Off-the-shelf solutions are good because of their versatility and they have features that one business might have requested that you are unaware was needed until the time comes.

This means that some custom software will look like it is always being maintained or worked on, versus the feature already existing or being added during off-the-shelf software updates.

2. High Upfront Cost

It may seem that buying a hundred licenses for a year is cheaper than developing your own solution. And it truly is. The upfront cost is relatively high, but what if you have to extend the number of users, plus

the support price, plus the price for, let's say, three years and you'll see that tailor-made programming is much more attractive in the long-term perspective.

3. Less Possibilities

Off-the-shelf software is designed for covering the needs of the masses. In the terms of a developing business, it is a great opportunity, since it will already contain some features that you may not realize you need.

With Custom software, any new feature has to be researched, designed, and then coded, rather than just having it available.

Conclusion

Almost every successful business has some form of Bespoke Software in their enterprise to ensure their continued profitability: Website, excel macros, Mobile Application, EDI Interface are several examples.

Depending on the company, some stick close to the off-the-shelf software and just add people to address the shortcomings of the packages. Other companies will implement custom software solutions to keep company overhead lower and allow the business to do what it is good at, instead of what the software requires of it.

Look at your business systems, and you will likely find at least three Bespoke Software modifications, even when using off the shelf software. Bespoken Software is a requirement for modern business whether you realize it or not. **IS**



NATHAN RECTOR
President
International Spectrum
nathan@intl-spectrum.com

A Seat at the Table

Chaos and Control

BY CHARLES BAROUCH

Imagine if you came to work on a bright Monday morning and found out that the company you work for just banned your favorite software? Imagine if your coffee cup was deemed an inappropriate size and was no longer allowed on your desk? How about if they announced that chairs would no longer be provided? How would you feel?

That's how a lot of the company sees IT. We change things. Sometimes we are making them simpler, sometimes more complex. However, different is disruptive, and not in that market-hyped good way. So when we get our seat at the table, part of the pushback we face is: "It worked better until you people mucked with it!"

We aren't alone in this. Human Resources and Accounting often get similar anger directed at them. And, with them as with us, it is rarely something we chose to do.

HR 'n' Stuff

HR has three jobs in the company: Don't get the company sued, don't get the company sued, and don't get the company sued. Nearly every change

Communication is the key. Learn to tell people what the likely consequences are. Help them see alternatives.

which comes down from this department is based on a change in the law, a legal challenge to existing practices, or an expectation of a legal problem in the future.

It doesn't stop people from seeing changes announced by HR as changes that HR is advocating and gleefully endorsing. So, when they rule on the size of your coffee cup, it isn't their rule. HR is enforcement, not legislation. IT is often in this boat as well.

Account for Yourself

Accounting has a similar issue. People tend to forget that Accounting — A/R, A/P, and G/L — is the most audited department in most companies. They have clear rules handed down to them. And they have a lot of pressure to do everything exactly right. That often means being the bearer of bad news.

Accounting tells us when our pet projects have become financial sinkholes. They tell us when stock prices are falling. They tell us when we are over-budget on toilet paper.

It is easy for people to mischaracterize them as uptight, rigid, and relentless. Accounting is subject to a lot of abuse over rules that transcend company and industry. IT is often in that boat as well.

Whim See

We also have our own, unique issue: whims. Yes, HR might have to contend with bright ideas about vacation scheduling but usually, they are not a try-and-see department. Accounting, likewise isn't frequently asked to venture very far out of the box. IT, however, has whim-and-see projects all the time.

"Hey, what if we build a realtime cross-index of our product costs vs. our discounting strategy?" Whim-and-see. "What if we develop projections on materials costs for our six biggest clients?" Whim-and-see. "We should totally..." Whim-and-see.

The people suggesting these projects are often not IT staff, they are management. And, to be fair, many whim-and-see ideas tend to be good ones. Even the bad ones are frequently worth ruling in or out by attempting them. The problem, for us in IT, is that these projects, and their effect on existing processes and schedules, impact lots of people who think the scheme started with us.

War is Peace

The result is that end-users see us as agents of chaos. The genesis of all that chaos is actually control. Nearly everything we develop either enforces policies or creates policies. When we make that realtime index, well... someone has to receive it and act on it. When we do projections, other departments are stuck with meeting those projections. Every change, big or small, impacts someone.

I'd like to say that the backlash on us — and HR and Accounting — is only from people who don't have a seat at the table. They weren't there so they don't know. I'd like to say that. Truth is, managers who sat next to you and across from you when it was decided will have the same reaction.

There was a Simpson's episode where we find out that Apu fills his bin of bags of ice by dealing with men who travel to the Antarctic and chip away at the polar caps. We assume the ice is made in a local ice machine. We don't assume that lives are on the line so that we can pop a few cubes in our glass.

In this same way, executives will ask for things without understanding how easy or hard the execution will be on our staff. Bob's innocent request for a better KPI report might involve a hundred hours of programming, a

procedural change for several other departments, and more work for our overnight processing. Maxine's request to move a report from overnight to on-demand might require upgrading hardware or data warehousing.

That was on Purpose

Adding to all the chaos is the fact that we sometimes make mistakes. Just because much of what HR, Accounting, and IT does has non-obvious reasons, doesn't mean that we never do something that both looks stupid and is stupid.

The report that used to run at seven in the morning, so that users got it as they came in at eight, now runs at nine instead. That might be a policy change. It could be additional load on the overnight pushing all the timing forward. But, it might also be genuine oops.

Limits of Vision

If this is the problem, what's the solution? How do we fix this? We're IT, we like fixing things.

Communication is the key. Learn to tell people what the likely consequences are. Help them see alternatives. How do we do that without making things worse? Come back for the next installment and we'll discuss the art of communications. IS



CHARLES BAROUCH is the CTO of HDWP, Inc. and the Publisher at HDWPbooks. You can read his writing in

International Spectrum, Theme-Thology, Novo Pulp, Pax Solaria, PereheliionSF, and the Interrogative series, which begins with Tiago and the Masterless.

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FROM THE PRESS ROOM



Entrinsik Whitepaper Presenting MultiValue Data in Modern Reports

There are significant challenges accessing data in MultiValue databases. Originally designed as operating systems, MultiValue databases included the data processing programs with them. Reports could be printed directly from the environment by means of Basic programs, or 4GL tools such as SystemBuilder. This meant that reporting was dependent on the developers of the programs.

Entrinsik Informer enables you to surround your database with a robust metadata layer. You can define Mappings which represent database files. You define Fields to translate dictionary entries as typed, friendly named columns. You define Links to seamlessly include fields from other files, as a SQL join would. Correlatives and I-types become part of mappings.

Since multivalued data has a structure and purpose, its structure should be retained by the reporting software that presents it. Solutions that deal with SQL data, which is nor-

malized, won't be able to do this. Informer does.

Informer enables you to offload the nuanced approaches to complex queries to the software, giving greater access to the data and helping ensure that it will be accessible in the future. Informer will evolve with the culture of the organization, forever retaining the knowledge necessary to access the data. [read now](#) ■



Carnation Software Releases MacWise Version 19

MacWise version 19 is a 64-bit version. (The 32-bit version will no longer work with the next major MacOS release.)

- Requires MacOS Sierra or later.

Advantages of this new version:

64-bit application will no longer have warning messages that the app is not optimized for OS X and needs to be updated.

Text is easier to read because a TrueType font is now used as a screen font. (The 32-bit version used a bit-mapped screen font that has been increasingly difficult to

support with each release of MacOS.)

Dark Mode is supported in Mojave.

Fkeys work with the Touch Bar on MacBooks.

All dialog boxes have been redesigned and now have a pleasing sheet-window effect. ■



Evoke Delivers Enhanced Support to Ensure the Successful Deployment of Apps

More and more companies are understanding the value that the right app can bring to their business whether by use internally or by their partners or customers. An increasing number are also seeing that a low-code app development environment could provide them with the best opportunity to create and deploy their desired app. But where do you go from there? How do you select the right platform on which you can confidently base your development and, just as important how can you be sure that your chosen platform will provide you with all you need so you can progress to release a successful app? BlueFinity believes it has the answer as they have

combined the advanced Evoke Rapid App Development platform with an unrivalled level of Support, what it calls the Evoke Premium Support Package. This package provides Evoke clients with a comprehensive range of assistance sessions which are designed to take the new Evoke user from the initial installation of the Evoke Developer through to the successful deployment of their first live app.

Evoke Premium Support starts with an Environment Review, making sure your app can access your chosen database(s), works properly on your chosen computer and that there is nothing to hinder your development. It continues with the live person User Training which guides you through the creation of the first few screens and functions of your app and finishes when you have a version of your app ready to deploy. Underlying this Support is a comprehensive, context sensitive user help system written in understandable plain English that provides advice and guidance on the exact area you want to work on. On call support rounds out this proven package, answering questions about Evoke capabilities and techniques and helping ensure full understanding of features and options. Finally, as your experience level grows and you continue to develop apps, App Reviews are provided to help with design, optimization, use of advanced features, etc.

FROM THE PRESS ROOM

Malcolm Carroll a Director of BlueFinity said The problem is that once you have evaluated and selected your chosen platform, there is the actual development process to consider. User training must always be provided but we think that it is so important to go further. So we help with the integration of the app builder into your existing systems environment and then continue with supporting the developer throughout the app creation process. Even seemingly incidental questions are answered and functionality is explained. Although we provide on-line user assistance and comprehensive context sensitive help screens, sometimes you just need to talk to someone who can help with your specific requirement or obstacle.

The pricing structure introduced by BlueFinity is designed to reinforce the approach taken to Support by the company as it employs value-based pricing. The developer license (which comprises everything you need to create your apps) is available at a nominal fee. Subscription fees are only payable when the app is deployed live, and when the client obtains actual value. The Premium Support Package is included in the cost of the Evoke Developer License.

Carroll adds This approach to pricing and support sends a clear message to our customers and partners that we have a shared interest in the de-

ployment of successful apps. We are as committed to this being a success for the client company as the client is. The ever increasing number of clients and live apps created by Evoke is testament to this

Evoke is a low-code/no-code Rapid App Development Platform which provides for fast start up as well as unlimited customization and growth potential to support the future of your business. It allows businesses to design, develop and deploy adaptive business apps across multiple mobile and desktop devices using a companys existing in-house skills and expertise, in a fraction of the time and cost of traditional methods. Evoke supports the creation of professional business apps by companies of all sizes and diverse app requirements, from start-ups to the largest multinational. ■



Mercury Flash V5.1.2 Released

Paradigm Systems has announced the release of version 5.1.2 of their UniVerse and UniData database management system Mercury Flash.

Some of the improvements you will find in Flash 5.1.2:

- Improved Master Scheduler with custom user fields and the ability to allow/deny verbs
- Improved early warning system alerts when:
 - UDT or UV License usage approaches capacity
 - LCT usage approaches capacity
 - When a record lock exceeds a present time limit. (UniData only at this time.)
- Two-factor authentication using TOTP, SMS or PIN number.
- Restrict IPs from accessing Mercury Flash.
- AntiScan detects vulnerability scans and locks out IPs.
- Customize web page headers for security purposes
- New desktop widget available for monitoring your system at a glance.
- Improved file resizing keeps files tuned correctly, longer

Mercury Flash is the state-of-the-art web based management console specifically designed for the UniVerse and UniData databases. Mercury Flash version 5 was released in July of 2018 and over the past year it has experienced incredible growth and acceptance in the community and has quickly become the go to solution for U2 database management and tuning. ■



Kosday Solutions Release LINKAR 1.5 and LINKER PowerBI Connector

We are pleased to announced the new Linkar 1.5 release. Now, NoPick-Multivalued environments will understand your files using Linkar Schemas, you can shape your Files and Dictionaries so they can be visible from other environments.

Linkar Schemas will convert your Multivalued and Subvalued to independent Relational child tables, with all the relations between them builded.

We also present the New Linkar PowerBI connector plugin. PowerBI will directly see your database . Without WebServices, without MVBasic programs...

Linkar 1.5 release includes:

- New Linkar Schemas Structure for defining additional properties in files definitions and dictionaries.
- Linkar adjustments in order to work with plugins.
- New Linkar Http Server for Linkar Schemas connections.
- New Evaluation License with Expiration Date.

FROM THE PRESS ROOM

- New Linkar Schemas parameters. General Parameters named Master Parameters and EntryPoint Parameters.
- COMMON BLOCKS for files. Linkar could have 100 opened files in each EntryPoint improving performance.
- GetVersion function enlarged.
- New LkSchemas, LkProperties and GetTable functions.
- New Linkar Client library for .Net Framework Core.

Linkar MANAGER changes:

- Configuration Tab:
 - New Linkar Schemas button in the main bar that gives http access to Linkar Schemas.
 - New Linkar Schemas buttons in the Linkar Manager Section that gives http and https access to Linkar Schemas.
 - New Master Parameters section for Linkar Schemas General Parameters.
 - New property in the User Section allowing or disallowing users the access to Linkar Schemas.
 - New Plugins Section in License Data, for Plugins management and activation.
 - Possibility to enable or disable handshaking in Socket or Telnet type connections (f.i. with

D3/Windows Telnet).

- Monitor Tab:
 - New option in the started EntryPoint contextual menu that allows you to reset COMMON BLOCKS.
- Client Sessions Tab.
 - client type (.Net, Mono, Schemas,C Linux,C Windows) New Plugin Ref column that shows Session Plugin if it has been started by a plugin.
 - New ClientLibrary Type column. It shows the connected ■



Norse Systems announces IDMS - Integrated Document Management System

User's of Norse Systems
ScreenDriver Enterprise Ap-

plication Environment are already familiar with its Source Code management - among the best-of-breed in terms of Library services - Check-in/out, automated version archive, version compare, pre-release audit, release documentation and Installation scripting.

By the same token, ScreenDriver user's are already familiar with 'Attachable' objects - available for the last two years. Any database item, perhaps a customer record, while being maintained via the SCREEN method, can have digital 'objects' attached to it. Users can use a menu 'Link' to see a list of existing attachments, perhaps spreadsheet, .jpg, .pdf, .bmp, or any other relevant digital assets. Clicking on a listed file opens it on the user's client, or a 'New' option allows any file on the client to be migrated to the server and added to the list.

Effective with the January 2019 release, these two ScreenDriver services are

combined to provide IDMS support.

Site administrators can create and structure any number of 'ObjectDirectories' and define a variety of characteristics for each. One may house objects where Contention (Check-in/out) services are needed but auto-version archive is not. Another may house 'basic' source code items with a full compliment of 'code' services. Yet another may be dedicated to a certain kind of 'sensitive' documents (perhaps employee reviews?) where the administrator may specify that any of several types of security protocols are required.

If your application is not running within a ScreenDriver environment then perhaps it time to call Norse Systems to schedule a demo. ■



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Using UPS WorldShip to Automate a Pick and Pack

Shipping is a core part of business for many companies, and that means that integrating shipping into your LOB (Line of Business) software has an immediate and tangible value. While we might dream of a single, unified method, most major shipping companies offer proprietary solutions.

UPS offers WorldShip. Since it is used in a variety of industries with differing needs, it contains a number of integration options. The two main features we will focus on are batch label printing and individual label printing. The most common way to use UPS WorldShip is through method typically referred to as “Pick and Pack”.

Many of us already have software to do this, but we usually don’t cover the “last mile” of connection to the shipping company. This is where Worldship connectivity comes into play.

Overall Breakdown of Process

There are a few steps involved in integrating your system with WorldShip. Let’s look at high-level breakdown of the process.

1. An order is placed and a picking slip is created.
2. A warehouse “picker” then prints out a packing slip that contains a barcode.
3. WorldShip then grabs the order information from the ORDERS file and inserts the shipping information into its application.
4. The WorldShip operator then presses F7 which will process the shipment with UPS, thus retrieving a tracking number.
5. WorldShip marks the order as shipped and inserts the tracking number into the ORDERS file in the database.
6. WorldShip prints an active shipping label for your customer’s order.

Setting Up Your Database

The interface we will be using in this article is ODBC. While you might implement a different connector between your application and Worldship, much of the thought process described here, and some of the implementation, will be the same.

As we all know, our business applications are very complex and contain lots of data that a third-party shipper doesn’t care about. Unfortunately, all that excess data actually causes problems when using ODBC and WorldShip.

The best way to keep a stable ODBC connection between WorldShip and our database is to simplify the files to only hold the information that’s relevant to our shipping partner.

To do this, I recommend creating a separate account call WORLD-SHIP or UPS, and then create two files: UPS_ORDERS and UPS_ORDER_TRACKING. Why a separate account? It has more to do with keeping things clean and secure than anything else. It’s a personal preference. The two new files, however, are very important and help keep things clean. This is especially true if we are going to link other shipping partners in the future. We’ll use this model throughout the article.

The UPS_ORDERS file will contain the shipping information for WorldShip to query against. This file will not be updated by WorldShip. This does

give you options to use correlatives or I-Types, but I don't recommend it. It is best to follow the KISS (Keep It Simple Shipping) principle.

The UPS_ORDER_TRACKING file will be updated by WorldShip with the tracking number for each order.

Keep in mind we are creating these files to be used with ODBC/SQL and that it is important to live within those limitations. For example, do not use dots in your dictionary names; Use underscores instead. If your data is longer than the dictionary lengths, then trim it.

WorldShip and ODBC can be very picky about its data and the error message won't always be helpful, and sometimes don't even show up.

UPS_ORDERS

The layout in figure 1 is the bare minimum needed by WorldShip in order to fill in the shipping information for a package.

Like I said before, since WorldShip is just querying the data, you could re-

place all the SHIP_TO fields as I-Type or Correlatives, but it is simpler to just create each shipment record when you need it and clean it up later.

There are two approaches you may want to consider when managing the content of this table. We can opt for a deep integration and change our programs to update this table in lockstep with the production ORDERS or we could create this data from ORDERS with an after-the-fact method.

Either way, as you can see, the data is really simple. The one thing I would like to point out is the difference in ID and ORDER_ID. The ID dictionary is the shipment id, which can be different from the ORDER_ID. I've added the ORDER_ID into these records for reference and so it can be used by the program that will be processing the UPS_ORDER_TRACKING file.

UPS_ORDER_TRACKING

This file acts as a temporary holding location for the tracking number for individual shipments. It is much easier to have WorldShip insert rows to an

ODBC table than have it updated an existing dataset.

The layout in Figure 2 is all that is required if we are just having WorldShip add new records to the database.

Getting this information back into the main database can be done several different ways. The simplest is to have a program process them in batch if real time isn't a requirement. The next best way is to add a file trigger that will copy the tracking number back into your main application.

File Triggers

This article is written with Universe as the database. Each system has a different way to handle file triggers, but in the general sense they all do the same thing. You will need to make the appropriate adjustments for your environment.

Figure 3 shows a sample of the file trigger. If you need to know more about file triggers, make sure you visit the International Spectrum website. We have plenty of other examples.

Once you have the trigger compiled and cataloged, then attach it to the file:

```
>CREATE TRIGGER UPS.TRACKING.  
UPDATE AFTER DELETE ON UPS_  
TRACKING FOR EACH ROW
```

Now, every time WorldShip adds tracking information to the database, your system will get updated.

Integrating UPS WorldShip

Since we are talking about using an ODBC connection to interface with WorldShip, the following steps are focused on the Connection Assistant.

You will need to install the appropriate 32-bit ODBC driver and configure it with your database. If you have never setup ODBC for your database, then

Name	AMC	Description	Justify	Display Length
ID	0	Shipment Id	R	30
ORDER_ID	1	Order Id	R	30
SHIP_TO_NAME	2	Ship To Name	L	80
SHIP_TO_ADDRESS	3	Ship To Address	L	80
SHIP_TO_ADDRESS2	4	Ship To Address2	L	80
SHIP_TO_CITY	5	Ship To City	L	50
SHIP_TO_STATE	6	Ship To Region	L	50
SHIP_TO_ZIP	7	Ship To Postal Code	L	10
SHIP_COUNTRY_REGION	8	Ship To Country	L	50

Figure 1

Name	AMC	Description	Justify	Display Length
ID	0	Shipment Id	R	30
TRACKING	1	Tracking Number	L	80

Figure 2

```

SUBROUTINE UPS.TRACKING.UPDATE (TEST, SCHEMA, TABLE, EVENT, TIME, NEWID, NEWREC, OLDDID, OLDREC,
ASSOC, ASSOC.EVENT, COUNT, CHAIN.CASCADE, CASCADE)
COMMON /UPS/ UPS.ORDERS.FILE
FILEOPENED = FILEINFO(UPS.ORDERS.FILE, 0)
IF (FILEOPENED # 1) THEN
  OPEN ' ', 'UPS_ORDERS' TO UPS.ORDERS.FILE ELSE CRT 'COULD NOT OPEN UPS_ORDERS';
  RETURN
END
*
UPS.SHIPMENT.ID = NEWID
UPS.TRACKING.NO = NEWREC<1>
UPS.TRACKING.DATE = DATE ()
UPS.TRACKING.TIME = TIME ()
*
READ UPS.ORDERS.ITEM FROM UPS.ORDERS.FILE, UPS.SHIPMENT.ID ELSE
  UPS.ORDERS.ITEM = ""
END
*
ORDER.ID = UPS.ORDERS.ITEM<1>
*
*** Do something with the data
*
RETURN
END

```

Figure 3

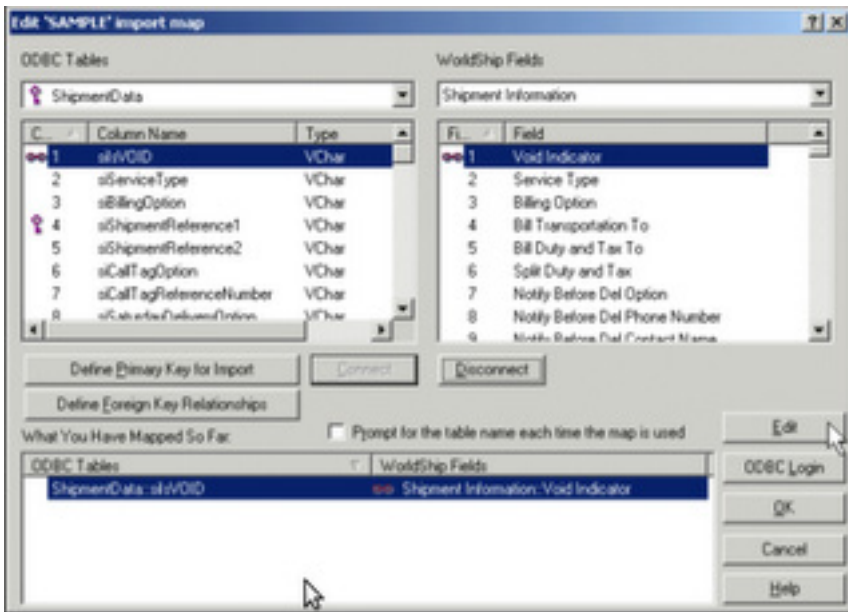


Figure 4

we have more details instructions on the International Spectrum website for each database.

Once you have your ODBC connection setup and working with your database, you will need to create your data import and export mapping.

Import Data

Follow these steps below which reference the UPS instructions starting on

Page 10: UPS Importing Shipment Instructions (Importing_Shipment_Data.pdf).

Please note the following steps from the PDF:

- Step 4: Make sure you select 'By Known ODBC Source' and select your installed ODBC driver you setup previously.

- Step 8 (part 1): You want to select the 'ups_orders' table and map the appropriate shipment information to the WorldShip fields on the right.
- Step 8 (part 2): When mapping your data from your orders table, make sure you set the Reference ID field to the shipment id. This allows you to 1) Use the shipment id later when exporting your tracking data and 2) You can then search UPS by your tracking number OR your Reference ID which is also your shipment id (very convenient if a tracking number is lost!) [Figure 4]
- Step 12: If you have custom shipping options that is predetermined make sure you map these as seen in this step.
- Name your map something meaningful (i.e.: 'Shipment Import').
- Step 20: Make sure you select your newly named import map under Keyed Import as this is how World-

Ship knows to use your ODBC driver and map to import your shipping data [Figure 5].

Exporting Data

Follow these steps below which reference UPS Exporting Shipment Data Instructions (Exporting_Shipment_Data.pdf).

Please note the following:

- Skip to Page 8: 'Export Shipment Data using Connection Assistant' since we want to automatically update our 'ups_order_tracking' table after a label is processed.
- Step 8: Make sure you map the tracking number and shipment id to the 'ups_order_tracking' table.
- Name your map something meaningful(i.e.: Shipment Export).
- Step 12: You can either configure WorldShip to update your UPS_ORDER_TRACKING table at the end of day or after processing each shipment.

This really depends on your system requirements. I would recommend having WorldShip update UPS_ORDER_TRACKING after each label is printed so the data is immediately available in the database.

End the day processing requires your WorldShip computer to be on and the WorldShip application to be running. If computer is off or the WorldShip application is closed, then the tracking numbers will never be sent back to the database.

Processing the Shipment

Now that you have setup WorldShip to interface with your database, you can use the 'Keyed Import' functionality to start processing packages. If you plan on using a barcode scanner to enter the shipment id, then make sure the 'Keyed Import' box has focus and is waiting for import.

Once the shipment id is entered, WorldShip will query UPS_ORDERS for that shipment id, and populate the

proper WorldShip fields. Once everything is correct, the user can press 'F7' to process the shipment and WorldShip will insert the tracking number back into UPS_ORDER_TRACKING.

Your shipment — and depending on the actions in the file trigger, your order information — is now marked as shipped, updated with a tracking number, and you have a package ready to be picked up by UPS.

Email the Customer a Tracking Number

Just recording the tracking information in your system may be enough for your needs, but you don't have to stop there. Since the data is now fully exposed to you, you can do things like email the tracking information to your customer.

While this can be done from inside of WorldShip itself, I recommend doing from within your business application. To give one critical example, Worldship doesn't offer much in the way of customizing the email.

By taking control, you can provide branded emails and more details about the shipment like what was included and how to handle returns

Summary

While this seems like a lot of steps to go through, it's a lot simpler than you might think. It also streamlines warehouse processes and saves your company time and resources, not to mention reducing mistakes. **IS**

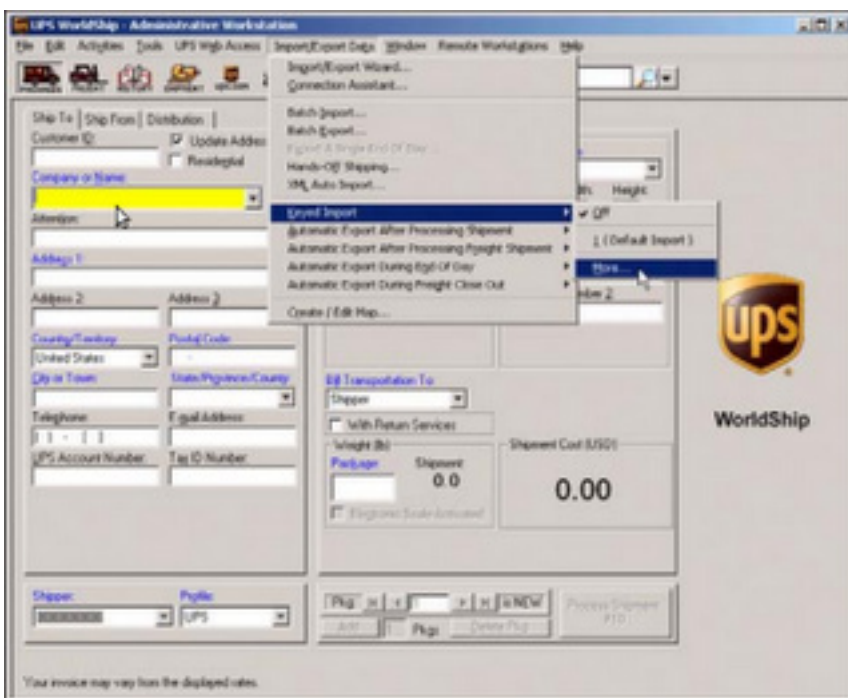


Figure 5




NATHAN RECTOR
President
International Spectrum
nathan@intl-spectrum.com

MARKETPLACE

ACCOUNTING

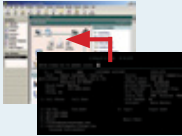
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Check Fraud Prevention with Positive Pay

Our software is a somewhat contained world. Inside of it, we have a fair amount of control. This allows us to build audits, edit-checks, and other mechanisms in to protect the integrity of our data. When information comes in from the outside, we have the opportunity to vet it before allowing it in. And that's great for catching in-house malfeasance.

None of that protects us from others changing our checks after they have left our control. None of it prevents someone sitting half a world away from creating fake checks with our-company name on them. This is where the concept of "Positive Pay" comes in, and banks are starting to push business into using it.

What is Positive Pay?

Positive pay is a cash management service provided by banks to help them catch check fraud. They use positive pay to match the checks written by the company with those that are presented for payment. If they don't match, then the check is considered fraudulent, and will not clear.

Positive Pay vs ACH/EFT?

Positive Pay is not to be confused with the term 'ACH' or 'EFT'. Although

Our software makes sure accounting isn't defrauding the company, but that doesn't protect us from others changing our checks after they have left our control.

both entities generate check information and submit it to the bank, Positive Pay is only used as a form of check verification. It does not create an actual payment to the bank.

How does it work?

When a company issues checks, it sends a list off them to the bank. The information transmitted includes the check number, date, and dollar amount. In some cases, the payee may also be included on the list. This prevents anyone from altering the name of the recipient. As checks are presented to the bank, it compares each check with information on file.

If the information does not match, the bank notifies the customer through an exception report. They withhold payment until the issuing company advises the bank to accept or reject the check. The bank can flag the check,

notify a representative at the company, and seek permission to clear the check. If the company finds an error or other minor problem, they can advise the bank to clear the check.

The Drawbacks?

Realize that there is generally a charge incurred for using the positive pay system, although some banks now offer the service for free. False positives – your company sends an incomplete file or forgets to send any file – might incur additional charges.

There are no standard for the Positive Pay file format or submission. Looking at five different banks, I have not found four different formats. And the submission practices are all different. Some even require a user to physically log into a website and submit the file that way. Others permit automation-friendly methods like sftp.

Depending on the what the bank requires, positive pay may or may not verify the payee information, which means that check fraud can still happen as long as the check number and dollar amount don't change.

Reverse Positive-Pay?

Reverse positive pay is similar, but... in reverse. The company still gets a chance to verify the check number,

amount, and sometimes payee, but instead of providing the information ahead of time, the company has to review lists sent by the bank.

File Formats

Like I said earlier, different banks use different formats. Most file use fixed-length formats. This usually means that you a normal accountant or controller can't just export a report into Excel and be done with it. It requires an export tool or program of some kind.

The example in Figures 1 and 2 is for KeyBank.

Wells Fargo on the other hand, used a file format that includes a header and a footer as seen in Figures 3 and 4.

Final Thoughts

Positive Pay is a feature that should exist in most business systems. Implementing Positive Pay takes a little bit

of effort, but since banks are starting to pushing companies into this, it is a good time to update our accounting software with these features. **IS**

```
000000000012345671000023476201606290000168812 M DOUGLAS
HURLEY LINDA HURLEY
000000000012345671000023477201606140006894573 SENEGA
MCCANN
000000000012345671000023478201606150000069500 Invoice
3456 BRISBANS, MILDRED SERVICE COORDINATOR
```

Figure 1

Begin	End	Description	Format
1	2	Region Code	"00"
3	17	Account Number	Zero-Filled, right Justified
18	27	Check Number	Zero-Filled, Right Justified
28	35	Date	YYYYMMDD
36	45	Amount	Zero-Filled, Right Justified, not decimal
46	46	Void Flag	'C' if void, ' ' if check
47	61	User Data	Space Filled
62	136	Payee Line 1	Capitalized, Spaced Filled
137	211	Payee Line2	Capitalized, Spaced Filled
212	220	Filler	Space Filled

Figure 2

```
*03123450000005050858010
000015279710120700336980793200000013633Lizzie McGuire J
000015279810120700336980793200000013384Miranda Sanchez
& 00002 0000027017
```

Figure 3

Begin	End	Description	Format
Header			
1	3	*03	"*03"
4	8	Back Id	Zero-Filled, right Justified
9	23	Account Number	Zero-Filled, Right Justified
24	24	0	"0"
Details			
0	10	Check Number	Zero-Filled, Right Justified
11	16	Date	MMDDYY
17	26	Account Number	Zero-Filled, Right Justified
27	29	Transmission Code	"320"- check, "430"- Void
30	39	Amount	Zero-Filled, Right Justified
40	79	Payee	Space Filled
80	80	Fillter	Space filled
1	1	&	"&"
2	15	Filler	Space filled
16	20	Detail Count	Zero-Filled, Right Justified
21	23	Filler	Space filled
24	33	Total Amount	Zero-Filled, Right Justified
34	80	Filler	Space Filled

Figure 4



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