



MULTIVALU**E**

# 4 WAYS TO ENSURE YOUR PICK SYSTEM SURVIVES & THRIVES

*A step-by-step succession plan and resource guide.*

 **zumasys**<sup>®</sup>





MULTIVALUE

The PICK MultiValue community is alive and well; however, we must grow the number of available programmers. That's why Zumasys is investing heavily in MultiValue, specifically around education and community.

I'm optimistic that PICK applications will survive and thrive, **but only if we train new talent, teach our existing developers new skills and adopt modern open source web application frameworks and embrace the DevOps movement.** I also believe it takes creativity as illustrated in an included story about successfully training students in Zambia.

We hope you find these resources and success stories helpful as we navigate the future of PICK together. Anything we can do to ensure that developers remain available to modify and enhance your PICK application is our mission and passion at Zumasys.

Regards,

Paul Giobbi  
President, Zumasys Inc.



P.S. I would also encourage you to join the [PICK MultiValue Facebook Community](#) which has grown into the single largest independent gathering of PICK professionals.

## Contents:

### 4 WAYS TO ENSURE YOUR PICK SYSTEM SURVIVES & THRIVES

**01** Train New Developers on PICK

**02** Teach Your Existing PICK Developers Today's Web Programming Languages.

- **Success Story:** Old Dog Learns JavaScript After 40 Years of Programming in PICK

**03** Update Your Application's Interface with RESTful Web Services.

**04** Modernize your legacy PICK application with the DevOps framework.

**BONUS Success Story** - See how we are using this approach to train students in Africa.



# 01



## Train New Developers on PICK

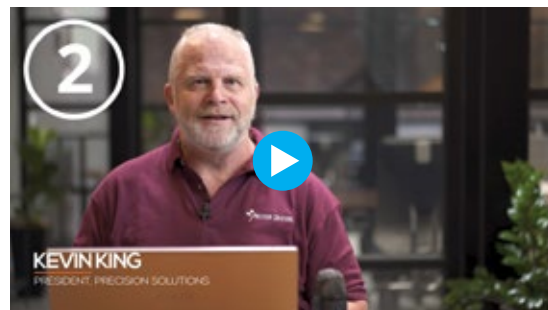
The biggest concern of the MultiValue community is whether there will be an adequate supply of development resources to meet demand and to give customers the application enhancements and improvements they need to remain ahead of peers in their respective markets.

A great starting place for training new developers is the video series and other resources found at [PICKMultiValue.com](https://PICKMultiValue.com)



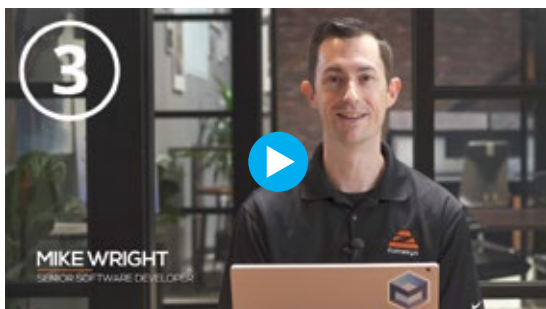
### 1. MultiValue Overview

with Josh Camacho, Senior Software Developer, Zumasys



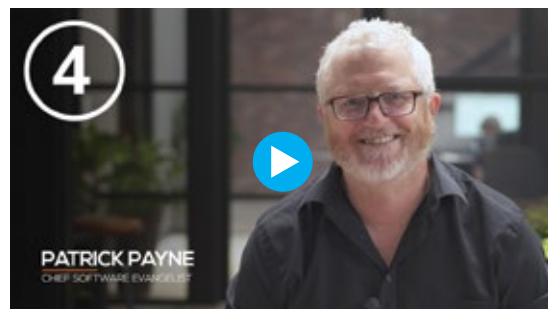
### 2. Terminal Control Language (TCL)

with Kevin King, President, Precision Solutions



### 3. PICK Programming Basics

with Mike Wright, Director of Technology, Zumasys



### 4. The PICK File System

with Patrick Payne, Chief Software Evangelist, Zumasys

Learn how we used these resources to train new developers at Northrise University in Zambia. [Read More >](#)





# 02



## Teach your existing PICK developers today's web programming languages.

With an average of 30-40 years of experience, today's PICK programmers have been developing in MultiValue longer than the average modern programmer has been alive. Although highly skilled in PICK BASIC, few have ventured into newer programming languages and frameworks, such as JavaScript and Vue.

### Old Dog Learns JavaScript After 40 Years of Programming in PICK

As companies look for ways to modernize their PICK applications and build succession plans, traditional PICK programmers are increasingly being asked to refresh their user interfaces with modern programming languages.

Of course, elegant programming looks easy. But we all know that it takes a lot of hard work to get that good. This problem recently hit home for one of our own Senior PICK Developers, Wouter Schuchner.

When one of Wouter's longtime customers migrated off PICK – still a work in process — Wouter found himself picking up a new PICK account with challenging requirements for modernization.

---

#### Who knew you could mix JavaScript and PICK using RESTful APIs?

---

#### LEARNING SUCCESS STORY



In this interview, Wouter gets real about the process - the ups and downs of learning a new language.

#### What is it like to pick up JavaScript and Vue after so many years programming in PICK?

I'll be blunt: It is not easy. I often wonder, "How did so many people get so good at what is so difficult for me?"

After nearly 40 years programming in PICK BASIC, I am used to producing software that runs correctly on the first pass with little or no debugging or tweaking. I've been working with JavaScript and Vue.js for about a year, so I'm nowhere near where I am with PICK, which can be discour-



aging at times. On the other hand, when I do overcome an issue, it is thrilling. I get quite a lot of satisfaction from learning, and I'm also gaining confidence in my abilities to solve programming challenges on my own. Hard-earned experience is definitely key in learning this stuff.

### In what ways is Vue.js different from JavaScript? How has learning Vue.js benefited you?

It seems as difficult to me as learning JS coding. It took a while before I even recognized what was straight JavaScript vs. what was Vue.js. One nice thing about Vue.js is that when you find what you're looking for on Vue's website, you can copy/paste the code right into your project and it will work. Then you can start tweaking and adjusting to get the actual results you need.

It's clear to me how Vue.js became a wonderful tool for developers who started off doing everything in JavaScript. Vue.js encapsulates the formatting of web page details for you in a consistent and all-encompassing way.

### What has your experience been like with Microsoft's Visual Studio Code?

I was thrown into VS Code as a result of an existing project, so I started learning from scratch. I have no idea how it compares to other development environments. However, I love the way that a few well-picked add-ons, such as auto-indentation, auto-correcting, and color coding, can assist in coding.

I've been using the MV Basic extension with VS Code. After seeing how other add-ons make the VS code environment so much more developer-friendly, I can see how using VS Code to develop PICK BASIC code would be natural for a PICK-specific extension.

### What would you say to other PICK developers who are reluctant to learn a new language?

JavaScript is quite different from PICK BASIC, so I think a big first step towards learning JavaScript is understanding that PICK programming concepts and techniques do not generally carry over into JS coding. It's far from a line-by-line programming language. It is really an event-driven environment, so it is not the type of code execution that PICK developers are so used to.

As I said before, it's not easy, so be prepared to work. Here are some things you can do to make it easier:

- **Get a mentor.** It's really overwhelming to only learn from documentation. You just don't really know where to start. Find someone to bounce issues against and lead you in the right direction. I was fortunate to have Mike Wright (Director of Technology at Zumasys) help me in this process, and he has been my most valuable resource. He showed me how to search for the answers I needed myself and integrate that knowledge into my projects. A lot of the examples you find online are not that specific or straightforward, so you need to be able to extrapolate, and Mike helped me learn how to do that.

- **Get good at Google.** Like pretty much everything else these days, you can solve a lot of common issues with a simple web search. Many of the available resources include "sandboxes" (like the Try-It editor) where you can test and play around with the things being shown before incorporating the code into your actual project. Times have really changed as far as what's available online, so figuring out how to ask the question that will get you the answer you're looking for and finding it via Stack Overflow or whatever is really important.

- **Accept that you simply won't understand everything at first.** Stay focused on what you need to accomplish at the time, and eventually, other things will probably come to light. Once you find a way to accomplish what you need, don't get hung up on the other coding presented with it. Notice the concepts and techniques when you can. You may remember some of them later when you need them.

- **Whenever possible, learn by example.** The project I started learning on had already been developed into a well-rounded set of code, so I had working examples of much of the same type of coding I needed to accomplish. These examples were, in my estimation, the most helpful tools in getting started.

- **Finally, learn how to use the DevTools.** All the answers to why things aren't working right are buried in there.

Originally Published Here: <https://www.zumasys.com/2020/05/19/old-dog-learns-javascript-after-40-years-of-programming-in-pick/>



# 03



## Update your application's interface with RESTful Web Services.

Today's open source web application frameworks by Google and Facebook are powerful and fast enough for you to put a new interface on your application. It's easy to modernize your PICK application using RESTful APIs and front-end web standards such as Angular and Vue.js.

MVConnect affordably enables RESTful Web Services for D3, jBASE, OpenQM, Universe and Unidata and there is no proprietary vendor lock in.

The following tutorial includes a jBASE test application running in a Docker container with a free evaluation license to allow you easy and convenient access to a local development environment.

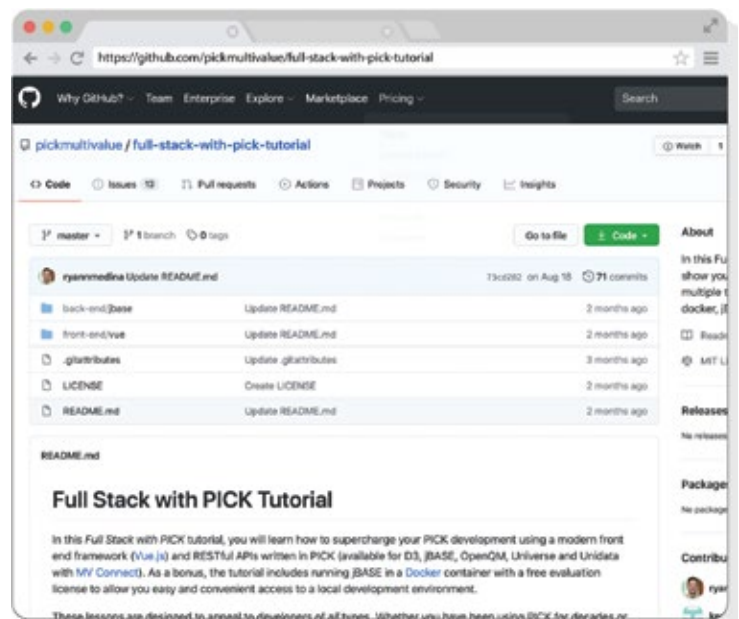
These tutorials appeal to developers of all types. Whether you have been using PICK for decades, or are just getting your first introduction, you will walk away with a greater understanding of how you can run jBASE in Docker, build REST APIs in PICK, and build a front-end Vue.js application that can communicate with those APIs.

- Docker is a popular and convenient way to run many different environments all from your local system (for development and even production purposes).
- REST APIs are a universal framework for allowing systems to talk with one another.
- Vue.js is a popular modern application framework that marries the best of Angular with the best of React.



[View Tutorials On GitHub](https://github.com/pickmultivalue/full-stack-with-pick-tutorial/)

<https://github.com/pickmultivalue/full-stack-with-pick-tutorial/>



# 04



## Modernize your legacy PICK application with the DevOps framework.

You hear a lot about IT modernization these days. But what does that really mean?

For a lot of customers, modernization means migrating off aging hardware onto a more modern application infrastructure, such as a cloud or virtual platform. From a Zumasys point of view, modernizing means decoupling any legacy infrastructure items that your PICK MultiValue system is on or is integrated with. That legacy infrastructure makes up what I like to refer to as “IT debt.”



*by Patrick Payne, Chief Software Evangelist at Zumasys*

### Dealing with IT debt and exploring DevOps

Whether you caused or inherited the IT debt, debt is not fun. And unless you have a fairy godmother or an unlimited budget, you are going to treat your IT debt like you would financial debt -- prioritize, dig in and methodically work your way through it.

Change is typically initiated from the top and that is where your DevOps journey begins. DevOps is a set of practices that combines software development and IT operations. It aims to shorten the systems development life cycle and provide continuous delivery of high quality software.

Leadership may not be technical, but they must understand and support these efforts as the change will require effort and may even be uncomfortable at times. If you

chose to ignore your IT debt, you could find yourself in several situations that lead to lost business or even the demise of your business:

- No source code
- Inability to change the functionality of your application or move it to other systems
- Unsupported hardware/software that experiences a critical failure

### Build the Foundation

Your PICK application was developed over several generations, by the founder of the company or several programmers who may have come and gone. Any attempt to update, migrate, monitor, or test your core application is left to the knowledge



contained in independent silos or application historians. Your priority is solidifying your application's future.

Let's start with documentation. Documentation and developers are like oil and water -- they just don't mix. However, there are many new tools that help make the documentation process quicker and much less daunting. The goal is to create a living document that answers questions like:

- Where is the source code located?
- What prerequisites are required to run the application?
- How do you compile the code?
- What systems outside of the server are accessing the application?

Once you know how to build the application, it is imperative to move the code into a repository, such as Git, Perforce or SVN. If you want to be able to move your application to other platforms or make changes to the logic, you must have access to it.

Next you need to stop coding in production. We don't change a car tire while its driving down the road and programming on a live system is just as dangerous. Some upgrades to your hardware and operating system may be required, but it is completely worth the benefit and better than losing money due to your PICK system being down as a result of an un-tested change.

With documentation, source control and a development environment, you need to make sure you know the system is up and running. The last thing you want is for users to know the system is down before you do. There are so many options for basic OS level monitoring, you just need to pick what you are comfortable with. Ideally, you can customize and fine tune alerts, as you deepen your focus on the application and critical services.

## Reduce Complexity through Normalization

Next you need to reduce the complexity in your environment. Normalization leads to simplification and that is the next step in your DevOps journey. This is when you move away from the unique snowflake of a critical system with one-off programs or processes to common and supported

platforms and services. This can be as simple as an operating system change to the entire system moving from a legacy hardware platform to a cloud or virtual server environment platform or replacing a 20-year-old email program with an API email service, like SendGrid. Why perpetuate the proprietaries found in your PICK application or lock yourself into the tribal knowledge of one person when standardized tools exist?

Getting your development team "bought in" is critical to the process. Utilizing version control is a fundamental shift and how they will produce software in a group setting. Version control enables a multi-developer environment, tracking changes that have been made to the code and merging them together, like how you can track changes in a Microsoft Word document. It is the path to automated testing of your application to identify an issue before it is introduced to the users.

It helps to deploy on a standard set of operating systems. Unfortunately, it is common to have inherited multiple applications in an environment all running on different operating systems from Linux to Windows, sometimes with different releases spanning multiple decades. Additionally, you may have the outlier systems that are running on AIX or legacy hardware platform that aren't supported.

No application is an island, and no application must do everything. Removing the dependency on unique programs and processes is core to normalization. Use of standard tools and services that are widely adopted and well documented helps you remove the unknown of your application. It also opens the door for new developers to learn your PICK MultiValue environment quickly. You can begin to peel away from the proprietary processes and standardize using off-the-shelf technology and over time you become confident in an upgrade or a migration into Azure or AWS. By this time the team is fully aware of how the application or services are architected.

The critical path to enjoying the benefits of DevOps is to remove the variances. Variances can be a killer, such as single points of failure of hardware or an operating system with no support. As mentioned previously, through the documentation you have already created, these difficult tasks become easier each time they are done and one-by-one you are eliminating the IT debt that is weighing down the organization.

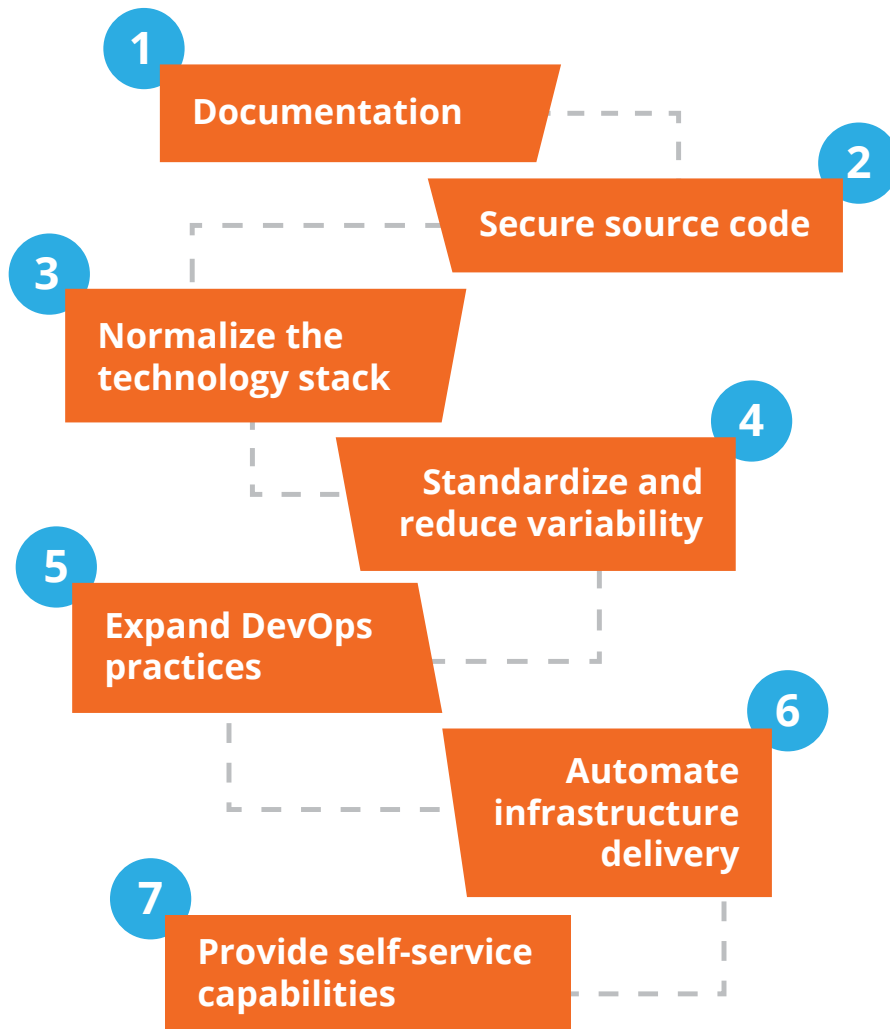




**DevOps is the key to ensuring that your company can keep running its MultiValue application well into the future.**

From a business perspective, there are many benefits to DevOps standardization: reduced licensing costs; ability to hire for a specific skill set; and shared knowledge across teams, which ultimately leads to greater agility and faster delivery of higher quality software.

Like your business, the practice of DevOps itself is constantly evolving. And even though your company utilizes what some may deem a “legacy” application, PICK can and should be modernized. Starting with specific technologies within a single team’s sphere of influence, standardization spreads to technologies and new user interfaces that ultimately garner buy-in from the entire organization. DevOps is the key to securing your company’s MultiValue future.



# Training Developers Halfway Around the World in Zambia.

In a matter of months, a small group of Northrise University computer science graduates were able to learn how to code REST APIs on jBASE with Dynamic Objects and create modern web applications with Vue.js.

We sat down with Mike Wright, Director of Technology at Zumasys, to talk more about how Zumasys is helping train the next generation of developers through a special partnership with Northrise University in Zambia, Africa.



## How did Zumasys get started working with Northrise?

Our founder and President, Paul Giobbi, has always been passionate about improving the lives of people around the world while simultaneously championing the MultiValue community. In 2011, that passion led Paul and Zumasys to Northrise University and its founder Doreen Zimba by way of one of Zumasys' customers. That customer knew our expertise in technology would make a positive impact on the school.

The relationship started with Zumasys helping Doreen fix Northrise's web server and grew into helping them create their own private cloud. In 2018, Zumasys donated \$20,000 through its Happyness Is a Choice corporate giving program and upgraded Northrise's IT infrastructure with NetApp storage and Cisco UCS servers. As a growing university in a developing country, they've been able to use that technology to train their students at a higher level, giving them real-world experience on enterprise technology.

## How has Zumasys' relationship with Northrise evolved?

With a technical infrastructure established, the next step forward came in the form of a paid internship with one Northrise graduate, Chazya Sinkamba, to learn PICK, specifically the jBASE database. From the start of that engagement, it was clear there was additional potential for Chazya, so the conversation shifted to software development. Together with Doreen, we made the decision to teach him and a few of his peers jBASE, RESTful APIs, and Vue.js.

**In a matter of months, a small group of Northrise computer science graduates were able to learn how to code REST APIs on jBASE with Dynamic Objects and create modern web applications with Vue.js. These skills have been immensely valuable for Zumasys, Northrise, and our customers, and they serve as a perfect illustration of how accessible jBASE and this technical stack is to the next generation of development resources.**

*"I'm pleased to say that the application has been very stable, despite handling record order volumes. I want to give a big thank you to all the Zumasys and Northrise folks who made this project such a great success!"*

*- Chris Bennett, IT Delivery Manager, Wickes*

## What about working with Northrise has surprised or impressed you?

Their ability to acquire knowledge and then execute on the work they do is outstanding, and their willingness and capacity to learn is second to none. They do a great job of digesting the information and then exploring it on their own time. With so much information available on the internet, Northrise is excellent at continuing to utilize these resources so they're expanding their own knowledge and capabilities without our help.

This partnership has reinforced my view that anybody can become a full-stack developer who is eager to learn. Throughout my career, I've seen just how easy it is to bring new development talent into the tech space. It doesn't matter what your background is, what you know, or even where you are in the world. I believe anybody can learn PICK and a whole host of other programming languages to become a valuable resource in any IT organization. You just have to be willing to do the work and apply yourself.

I was surprised at just how easy it is communicating with the teams in Zambia. Although we're an ocean away, we're able to seamlessly communicate over the internet with VoIP and video calls. When we started working with Northrise, we anticipated that there might be some disruptions because of the bandwidth. But even if their main internet connection goes down, they just swap to mobile hot spots, and nobody misses a beat. Their ability to stay connected and available has been on point.

Working with Doreen and Northrise is great. Their positive attitude and outlook on life shines through with every interaction.

It is contagious, encouraging, and has me extremely excited for what the future holds in store.

## How do you see Zumasys' relationship with Northrise growing and changing in the future?

We plan to use our experience and our knowledge from training this new pool of developers on MultiValue and JavaScript, to help other companies. Our goal is to enable customers to extend the life of their applications and to help them create their development team of the future.

I see us leveraging Northrise as an extension of our global team that is helping us grow our services customer base. For our projects that need extra development or support assistance beyond what we can provide in-house, we can leverage Northrise's team to help alleviate some of the strain on our staff. It has been especially helpful for our customers in EMEA, as the time-zone alignment with Zambia is ideal for getting a faster response time than what we can offer stateside.

We're pleased to see that MultiValue is gaining traction with a new generation, especially in other parts of the world. It's great to see that MultiValue can provide hope to a community looking for opportunity and to businesses looking for a competitive edge.

- ✓ Trained 3 new developers
- ✓ Writing front end interfaces in Javascript
- ✓ Started providing those services to large mid-market customers in Europe

*"With a relational database systems background, it was hard at first for me to wrap my head around the concept of MultiValue. With nothing but a copy of jBASE 5.7.x, a curious mind, and lots of support from Zumasys, I started building programs that made use of jBASE functions, documenting what they did as I went along. This exercise was part of an effort that resulted in a significant pool of online, up-to-date jBASE documentation."*

*- Chazya Sinkamba,  
Software Developer/Team Lead, Northrise University*



At Zumasys, we love the PICK data model and we protect the decades of investment that our customers have put into their MultiValue applications. We provide a path to modernize these applications and guidance through the DevOps movement. We work hard to make PICK more appealing to Full Stack developers and we are creating a much-needed succession plan for everyone in our industry through our technical and community-related efforts.

Zumasys develops innovative software products and provides high-touch programming services for the PICK MultiValue community. Our products include [jBASE](#) and [OpenQM](#), two powerful NoSQL databases; [MVConnect](#) for adding RESTful services to any MultiValue system; [AccuTerm](#) software for remote access to PICK applications; and MultiValue Dashboard for presenting reports and business data within a web-based graphical interface.

Learn more at [www.zumasys.com](http://www.zumasys.com)

Zumasys, Inc.  
1050 Calle Amanecer, Ste A  
San Clemente, CA 92673-6296

949-346-4228  
[multivalue@zumasys.com](mailto:multivalue@zumasys.com)

