

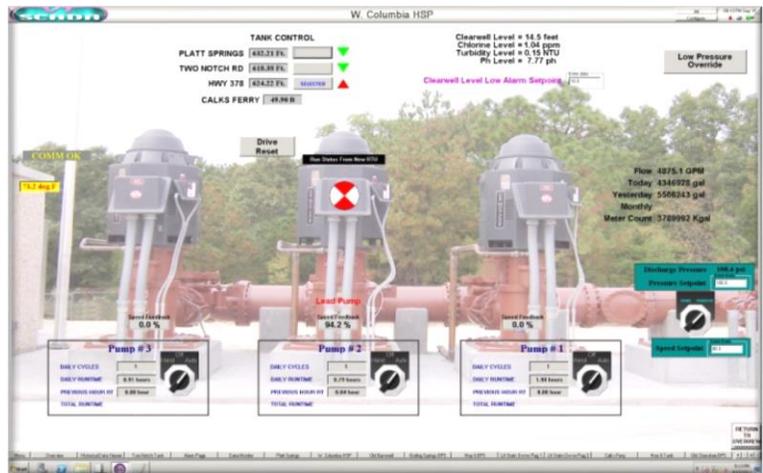


## Why Replace a Working SCADA Central?

- **Difficulty:** With the help of their integrator, Collins Controls Inc., the utility maintained their HMI software application in-house. "The product was really good. The problem was that it was just too hard to use. It would have been fine if there could have been someone from the vendor's company there all the time to guide us."
- **Additional Product Support:** "The HMI included some trending mechanisms. However, what I wanted to do required another software product that was compatible and licensed with our HMI.

This needed a SQL Server database running on a separate computer to compress the data. The alarming software was yet another license." As the system aged, it became more and more difficult to keep these separate products working together smoothly.

- **Lack of Support:** "The first sign of problems was when we had to move to a new alarm package because the original was no longer supported by the HMI. I had trouble setting up some alarms and I put in several help tickets to the HMI vendor. When I called, I wasn't able to speak with anybody personally. I didn't get a very quick response. When we did, we did not get a solution to our problem. We were paying a lot every year for what was supposed to be their highest level of support. I was concerned that if something happened to our integrator we needed to have priority access to support from the vendor. I felt like I owed it to our customer base."



A high service pump station page.

Despite these concerns, Nicholson was reluctant to replace the whole SCADA central. "What concerned me the most was that I had become so dependent on trend information. It was such a powerful mechanism that I didn't know what I would do if I lost it by changing HMIs. I didn't want to have to buy all new licenses. I didn't think we could justify the expenditure. I didn't want the risk of going through a changeover."

## Finding a New SCADA HMI

"Around 2008, we began seeing problems with I/O throughput to the HMI. It was more of an issue of outgrowing the original design limits of the system. Around that time, VTScada™ caught my attention at a trade show. I had seen a good number of HMI packages, but none quite like this. I thought that it couldn't be as easy as it looked. You could shift on the fly from configuration to runtime mode. The things I needed, like alarming, reporting and trending, were built into the system. Once your tag database was built you could quickly build pages and add graphics. You could easily set up the alarms. It all looked too good to be true. Still, our system was paid for and I couldn't justify investing in new software."

"Then, in the spring of 2009, our I/O jammed. Collins Controls brought in Dan Prouty to evaluate the system. His initial evaluation found several inefficiencies in the existing PLC codes. Dan developed a new I/O protocol that would maximize throughput and interrogate data as they come in and out. This included rewriting code in all PLCs and eliminating the traffic jam at the interface with the HMI. Best of all, this design will never have to be expanded or replaced, because it cannot be outgrown. He completed this upgrade in September of 2009 with no downtime on the system. The improvement in throughput was incredible. With that behind us, we had time to assess our long term needs."

"I looked at VTScada a couple of more times and talked to some people about it. Then I told Gary that I was bringing in some people to show us a product and I wanted him to find the holes in it. I consider Collins Controls an extension of my company. They are our SCADA department as far as I am concerned. After careful evaluation and cost/benefit assessment, we decided to give VTScada a try. We acquired the demo in spring of 2010 and bought our license that summer. It's been two or three years since I first saw VTScada and I am still looking for the hitch."

## The Conversion Process

Another factor in their decision was the new vendor's ability to convert the tag database from the previous HMI. This saved many hours of recreating all required tags individually as well as the time that would have been spent correcting errors. "Once we had that database converted, we just had to start building."

The team took advantage of the lack of an immediate deadline for the conversion. To reduce risk and smooth out the learning curve for staff they ran both the old and new systems side-by-side for six months.

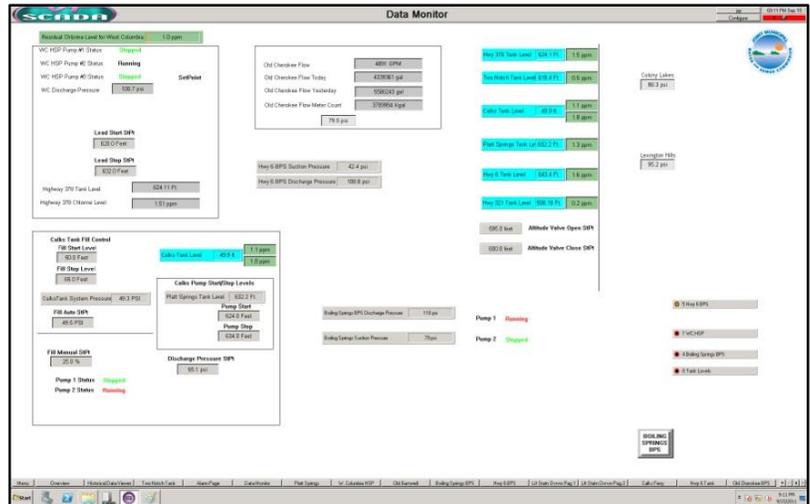
Both systems were reporting alarms and reading I/O from the PLCs but only the original HMI was writing values such as set points. "We were verifying that the alarms in VTScada worked the same as the ones we had set up in the original HMI."

"We have a host PLC at our HMI box that is the master for all the remotes/slaves. It is located near our master radio. Everything comes into the HMI from there. The idea is that if the HMI crashes, the host PLC can still run the system based on the last set points."

### Rapid Page Development

This overlap became important when the final conversion occurred sooner than expected. "It was then, as luck would have it, that our primary HMI crashed. I had the backup application that I could have installed on another machine but it didn't have the software licenses loaded. We also had an emergency backup plan for situations like this that involved our staff going out to each site and reading levels manually. Before I sent three or four people out all night to do that, I wanted to see what I could do with this new package."

At this point, VTScada was already monitoring levels and delivering alarms, but only controlling one station. No additional pages had been developed. "I went into the office. I opened configuration mode. All I had to do was go to the tag database, pick a tag, draw the graphic and check the alarm on it. It was pretty crude but I am very proud of it. It is still one of the pages we use (see above). In just three hours that night I built all my critical sites. I never would have been able to do this with our other HMI. Then, I just sat there and monitored it all that first night to make sure everything worked the way it should. That was when I knew we had made the right decision. We now monitor about forty sites with the new system."



The page of critical sites Nicholson created in 3 hours. It is still used today.

### Remote Smartphone Access

In addition to recreating the original functionality, they were able make use of other integrated tools within the new HMI. "The WAP (Wireless Application Protocol) application is great. Trihedral helped me set that up on some of our critical sites. That was a week before a major electrical storm came through this area. Instead of booting up our laptops and logging through the VIC (VTScada Internet Client), we could just pull out our Blackberries to check the status and acknowledge alarms. It takes four seconds from when I acknowledge an alarm on my phone to when it shows up on our server. That is really great. I know other systems can do that but with VTScada it's built in."

### Technical Support

"I don't know much about Trihedral's business plan, but they've got it dialed in. You can tell that everyone you talk to takes such pride in what they do. They are energetic and self motivated. They do everything they can to overcome whatever roadblock I have. I can't say enough about how special that is. It shouldn't be that unusual. It just seems like common sense to me. But it is and it means a lot. The first time I call, I usually have the solution to my problem before I get off the phone. That's how it works with people who take pride in what they do in my opinion."

### Future Plans

"I haven't yet scratched the surface with what I can do with VTScada. The trending is unbelievable. I am learning my way through the report generator. I have already created a couple of them that go to my email."

"Originally, all we did was duplicate the screens from the old system and then tweak them a little bit. As I learn more, I would like to explore some of the interesting graphic tools that are available and give the whole application a more polished look."

"The more I learn about what we can do with our SCADA system, the more things I want to monitor. Most of that information is right there, it's just a matter of tapping into it. This is what we needed all along."

Images used with permission from Joint Municipal Water and Sewer Commission (Lexington County, SC)

## TRY IT FOR YOURSELF

Download the 90-day Trial  
[Trihedral.com/demo](http://Trihedral.com/demo)

VTScada is a trademark of  
Trihedral Engineering Limited