VPN and SCADA Training – 00:00

All right. So I like I just told brittni. We have VPN sign in and logging into SCADA today, and neither one of those things are actually that long by themselves. So I'm going to run through, I think, both presentations and then I'll have to send activation codes for you guys for duo to work. So we'll go through presentations we set up on duo and then we can have you practice actually signing into scada.

VPN – 00:33

So VPN duo. what did I just say? So our VPN is Ivanti formerly known as Pulse. You should only ever see it as Ivanti. Sorry, showing up dumb on here. You should only ever see it as Ivanti because it got installed on your computers. Installed on that computer as invanti. If you ever hear anyone say the word pulse though, pulse and Ivanti, are the same thing.

They had a rebrand like a year ago, and that is our VPN tunneling service. So we talked yesterday about how the firewalls are the only thing that have a public facing IP. So those are the only things that you can like hit from the Internet. But we don't want just any old Joe Schmo to be able to get to the firewall and then start getting to stuff behind the firewall because it's like a common hacking thing for people to start spamming IP addresses and then they'll start spamming their way through stuff which we don't want.

So we use ivanti as our VPN. You have to be signed into the VPN in order to get to anything that's behind the firewall. It won't allow traffic through that isn't from the VPN. There are a couple of like Web 600 PLCs that are not behind the firewall. We've been working to get everything behind the firewall. okay.

How the VPN Works – 01:54

And so then how the VPN works. I have a picture on the next slide which will probably make more sense. So we have your computer and when you sign into the VPN, you're signed into ivanti, you now, instead of using a local IP to get to a scada server. So scada servers are 192.168.149.241. That's our local IP now you use our 10.(insert number here.) IP address, the VPN recognizes that 10. blah blah blah as traffic that it can route. It knows where to send that to. So it sends it to the Centracomm data center in Bluffton. So they have their operation center. They have a big fancy firewall there. So your traffic goes from your computer to Bluffton. The Bluffton firewall then looks at that second number and your IP address and it routes it to the appropriate project.

Then once you hit your project firewall, that firewall will then route it to the appropriate device that you're trying to get to. With me? Okay. Each project has its own IP address, so this table here tells you what that second number needs to be in order to get to a specific project. All the IP addresses, like the back half of the IP address, they are essentially the same for the projects we really like.

Consistency makes everyone's life easy. So all of the servers, scada one is always ten dot number .149.241. If you want to get to Greenville's scada server, you would use ten dot eight. If you're trying to get to Marion, you'd use 10.5 and then the scada 2 and the ops server are those other two IP addresses. The SCADA webpage which is the second presentation was then turbine PLCs and then the relay slash meter.

So the relay and the meter are the things where we have I guess the least consistency across projects, you might see either 101 or 102 as that last octet. So that's where if you guys would need to get to that,

pull up the keepass, which hopefully someone either is going to talk to you about or has talk to you about maybe me and look it up in there.

Just make sure you have the right one. You don't have to guess. Questions on Ivanti, VPNs, how they work beautiful. All right. So Marathon Petroleum. Yeah. Powers Pump Station down there. There's nothing else, you know. So are you guys local ish to Harpster? Wyandotte, County. Okay. Yeah.

Ivanti – 04:41

Okay. So this is what ivanti will look like when you go to sign in. This is the desktop method. There is a web method. I personally always use this. I highly recommend doing this. So you have this one little window. You choose either one energy or one energy duo. You can get to a different number of things if you are signed in using Duo, which is our two factor, or if you are not using two factor.

And I think that's about two slides from now. I personally always just sign in duo. I always use my two factor because I know that I don't have to like you know come back and resign in to do two factor and just cut all that out start with two factor so I can get to whatever I want to get to. You'll choose which realm you want to use and then you put on your username and password.

And then unfortunately, the only thing I didn't have a picture of is if you're going to use two factor, you'll put in your username, you'll put in your password, it'll like process for a second. Like, you know, authenticate your first password and then It'll ask you for a secondary password. I always use the password push because that will then send a push notification to your phone.

You just say, Yes, that's me and go about your day. You can also do a phone call or a code off the app, or if you do push and get your notifications, its the easiest way to do it. apparently I'm getting ahead of myself. So then this is the web page, that is the URL that you use to go to this.

It's the same thing. Username and password put in push for your two factor. This dropdown is where you choose the realm, so you can pick either one energy or one energy duo if you want to use two factor or not. Again, I recommend the desktop app and just make your life easy.

DUO – 06:31

I talked about duo duo is our two factor. So a lot of different things use two factor now a lot of you know like banking websites or whatever will send you a text code or will send your code to your email. This is our way of doing this for our VPN. Very full diagram of you. Ask the VPN for, you know, access and then if you choose to use the duo realm, it'll go to duo and ask for Duo to authenticate you.

It does. Off you go on your merry way. This is what duo looks like. So this is what happens if you use PUSH as your secondary password. You'll get a notification when you say yes and you're good to go. Or you can also I believe it's CODE. But don't quote me on that for the secondary password and then you can put in the numbers. I always go with this one because it's really easy.

Ivanti Web Access Interface – 07:28

And then so this is the web page, and I promise we'll practice all of this and it will probably make a whole lot more sense when you actually do it. So this was this website. if you go here and you sign in using your two factor, this is all of the things that you can click on and access.

So these are bookmarks that will take you to SCADA web pages. You can also do terminal sessions. So like RDP into a computer, you can do all sorts of things. Or if you don't use two factor now, you only have this many things that you can click on. So number of things that you can do is much, much higher If you have signed in using two factor make your life easier, just do it. Cannot plug that enough in this lovely training presentation.

Levels of Access – 08:12

this is an example I guess this is our roles. So what all you'll have access to. I am 95% positive but not 100% positive that the control room operator account. I think it will have this one. So you guys should have all the access but that would be a Claire to verify what you all are going to have.

LANs – 08:43

Well, the lan 1 lan 2 lan 3 lan 4 is… Lan one is SCADA, Lan 2 I believe is cameras Lan three is OPs. So that's also the relay of the meter and then lan four, I believe, is any of our like weather station stuff. Basically, if you're signed in with two factor, you'll have all the things.

Cooper is Special – 09:03

And then sadly, I have to mention the second VPN, the Cooper Project is on a different VPN because Cooper set up their SCADA outside of us.

We didn't do that for them. They used open VPN because that's what the logo looks like. That's what it will look like when it's pulled up to sign in. Because we did not do Cooper SCADA, we didn't do open VPN. We don't actually control who has accounts on open VPN. I sadly can not make a password for any of you, which makes me just as sad as it makes you so the temporary solution for you guys is that we have this set up on that computer and one of the people who already has an account is going to sign in in the morning it times out I think in like 24 hours.

So like every day someone will come in, sign in. It's annoying. I'm so sorry. But when that person signs and the little like toggle here will switch over, it'll look green and then it'll start passing traffic and you'll be able to get to Cooper. Questions about VPNs.

Logging into SCADA – 10:18

Okay, I'm going to switch to my logging into scada presentation and we will blow through that quick and then we'll start doing fun things.

If I can find a mouse ever. As you can see, this presentation is real, real short. Although it's now over here somehow. Okay, so I did mention Keepass Keepass is your best friend, it has all the information you could possibly need. It has IP usernames, passwords, network details, basically whatever you could possibly need keepass has for you.

So it's your best friend. All right, so getting into Goldwind SCADA step one. Make sure that edge is set up and SPG viewer is set up. That should already be done. That should be good to go for you guys. Hopefully it is on your computer too, or we will have a bad time step two sign into Ivanti for everything that's not Cooper Cooper has to be have OpenVPN signed in honestly, that's first step for doing anything is just make sure you're signed to Ivanti because none of this is going to work if you're not in Ivanti. Step three

is find your IP that you need to use to get to that SCADA web page. The minorly annoying bit is that you need to use the ten dot whatever number and then put the port on the end.

And the ports aren't all the same. Most of them are colon 8080, some of them are 81. And then point of emphasis for Goldwind SCADA everything other than Cooper. You have to use edge. It will not work if you use Chrome. It does not function in Chrome. We hate it too.

I also don't control that and you have to use edge. I'm so sorry. So this is what Golden scada looks like. So this is for everything. That's not Cooper. Cooper looks like that. Usernames and passwords all live in Keepass and then fun tidbit The captchas are not case sensitive so you can be real lazy and use lowercase if you want.

And this is probably extremely blurry and you probably can't see. But that is the port that I was talking about very faintly :8080 and Keepass will have the full IP address for you with the port on the end, and that's the end of the slideshow. So let us get you guys set up with duo I will push activation codes to everybody, so you're going to get a text that has instructions for installing the app if it's not already on your phone, and then also have like the activation for you to join our little hub search.

Let's go with 10.3.149.241 Colon. Yeah and then 8080. Enter and if this doesn't work it's gunna be real awkward. Okay, so now we've got scada and it's loaded. But before you do anything else, because this is edge, and this whole software was designed to work in Internet Explorer. There is a little Internet Explorer logo up in the right click that you're gunna reload the tab in Internet Explorer mode. I'm it's dumb. You can hit the toggle to open this page in Internet explorer mode next time. I don't guarantee that it actually works because Edge I think likes to try and boot you back to more normal settings. So as you're opening SCADA pages, I would just always check that top right corner every time you open one then hit done okay.

So this will be the Whirlpool Findlay SCADA page. All right so now SCADA is loading. Look at her she's great. Tell it Yes, it can do that. Sure. Okay. So this to me looks like there's a setting that's not quite right on edge. Typically, what happens is that you will see these numbers here update. So as the populates with what wind speed and what power the turbines are currently seeing.

And so as SCADA is like it should be updated every couple of seconds. You also see down here in the corner it'll have a timestamp and like that will also count up and tell you what time it is if you ever see it have task delay in the bottom right corner, it means that you're not seeing a live version of the page.

And that means generally either that you've been timed out of Ivanti and you need to sign back in, or that we, for whatever reason, have lost connection to whatever thing. we're having a comms issue. And then I know I think it's Lukas is tomorrow is telling you all about SCADA all I have to tell you about how to get in to SCADA.

SCADA Practice – 16:05

So can you guys do the same thing of… let us pick?

We're going to save IP address because it'll let more people come in. So if you if you see any things pop up asking for like a SPG viewer, that needs to be allowed If it doesn't pop up, I don't actually know. okay He's got it. Okay. Sidney turn around and look at Dusten's. His is actually updating and you'll see the graph on the left side is moving.

Okay. Okay. I hate it I hate the settings for this so depends on I can't see that window from here what direction the wind's coming from because so turbines, if you know this already tell me. I'll stop talking as they spin they take energy out of the wind. So a turbine that's behind another turbine is going to see a lower wind speed than the turbine in the front.

It's called wake loss. So that is why our turbines are all kind of spread out in a line and why our lines are in specific orientation so that we can minimize wake loss. Okay. Without looking out the window, my guess is that they're facing such that W two is seeing less wind and w one is my guess. So generally task delay and then it'll start counting seconds of how long it's been in task delay.

let's see. I think we will actually also potentially take a field trip down to look at Cooper. So we can go over to your room to look at COOPER.

RDP Remote Desktop Protocol – 17:50

The other thing I supposed to talk about was RDP. So remote desktop protocol. Sorry, I don't have slide for this. RDP is how you can remote into a server and you would see on your screen the same thing that you would see if you were standing in front of that computer.

So if you in your little search bar, you type RDP should see a remote desktop connection, I think is what it says when it comes up. Yes, that is what you're looking for. You do have to be signed in to ivanti with two factor to get to any of our servers. You would put in your IP address as the computer excuse me

And then in Keepass you'll be able to find the username and the password for that computer. Next step will be it'll ask for username and password. Put those in and then usually It'll give you a flag about like whatever. Do you still want to do it? Yes. You want to do it. Something. Something's not safe whatever.

So you probably won't need that too often in the room. But something that we wanted to tell you about, as an option. And I believe Claire also told me that we might be getting more training on that later in the week.