TODD SCHMOOCK: All right, looks like the time. How's everybody doing? Enjoying the AU? How many people are here for the first time? I had a feeling. We were walking around the halls like people had been here for a while, and we saw a lot of new faces, and didn't see some people that we thought we would. So I had a feeling that would be the case.

How many have attended a previous electrical class today? We got a good track record, right? This is the first year that we have a track, so that's great that you guys were able to come here this year and do it.

How many people-- I'm this curious-- are using AutoCAD Electrical right now? OK. Trying to, at the very least, right? So I want to make the assumption everybody else is using regular AutoCAD? So you're here trying to figure out whether AutoCAD Electrical will be the right one for you, right?

So I was there, too, before I worked where I have. So if you want to say my name correctly-- I mean, everybody can try to say it incorrectly if they want to. I'll give them a chance, so if you want to. But if you say it like "schmook," like that, but it's real similar to "book," right? But if I tell people that, usually they drop the C.

So I work for a reseller, and the very first year that I was there-- it was three months-- Autodesk actually dropped the C. And I had an Autodesk guy who was getting very mad, and they emailed my boss and the CEO of my company and said, this guy never responds to me. And my CEO said, well, if you would spell his name correctly, maybe he would respond to you. So that's how it all started off.

So I've been at this company for about 12 years. To this day, I guess somewhere in the system, my name is misspelled, and every once in a while, they pull my old profile out, so things don't get to me. So I thought that was kind of interesting. for

So for the AutoCAD Electrical piece of it, that's taking you from regular AutoCAD. You can look at it from two points of view. You can say, I'm going to draw a line in the sand and I'm going to just start with Electrical. Like you install the AutoCAD Electrical, and that's how I'm going to do it, right?

You could also go from the point of view, which is where this one really concentrates on it

mostly, are the conversion tools. So that would be the other way to go.

So before we get started, Synergis, which I work for, is actually located in Quakertown, Pennsylvania. I don't want to spend a lot of time on this slide because that's not why you're here, but we are on the east coast, pretty close to the Delaware River. So depending on where you're from.

We just moved-- well, not just, now. It's been about two years now. We moved into a new building that was a textile place, hosiery place. And it was all falling down brick building, and they turned it into that. And we actually used the Autodesk software to do all the modeling and different things into it, minus the electrical, because I guess we didn't need that for anything in there. Maybe the previous owners would have, right?

So anyway, you're here for this class, which is going to be the conversion, like I said, mostly. I did this class very similar to last year, and I think it was 2009 I did a lab kind of based off of this. So you might be able to Google the lab, or I don't know if they're still in the system for AU. You might even be able to get that document downloaded somewhere along the line. You still might find it.

But I changed it up because I was realizing over the last couple of years that we were putting in projects-- so I don't know if you learned in the first class today that AutoCAD Electrical is based off of projects. Anybody remember that when they were in that class? So that's really the biggest key, is that if you get the projects set up and organized correctly, the rest kind of flows very well.

So I had projects in there, but I was kind of going with the tools, and then talking about the projects. So I switched it around a little bit on that. But sounds like everybody at least has a lot of AutoCAD files in here.

I did the same thing. Prior to coming to this company, I actually implemented the software before it was called AutoCAD Electrical, so I got a little history with it and how to implement it and that type of thing. So everything that you're going through or will go through, depending on where you're at, I went through, too. Anybody who says they didn't, they're lying to you, I guess, you know?

So the bullets that we're looking at-- there could be a lot more here. But the project, like I said, I moved it up to the top. Once you get that down and you understand project properties and

drawing properties, that's going to be a huge piece, so I'll spend a little bit of time on that piece of it. Anybody have any questions for me before I get started? Anything that maybe you were trying to clear up from the first class that you saw today?

All right, so with the project information, you have the AutoCAD drawings. Just out of curiosity, does everybody have AutoCAD drawings that are attributed? Pretty much? Anybody still using, like, text and they're going around editing text in the block and that type of thing?

Unfortunately, it does happen, right? Maybe you know better, but maybe that's just the template that everybody's using, right? I mean, that could happen. If you can get it blocked and attributed, that's the best thing. You don't need to create a brand new one or make it anything special for AutoCAD Electrical. You can use it as-is, just the way you're using it currently. So you don't have to do anything special with it. But make sure your attributes are the way you want them because you're going to end up mapping them to that, OK?

So in AutoCAD Electrical, you would probably go in and double-click on the title block, right? You would end up going in and-- well, let me back up. If anybody isn't using an attributed title block, you're going around and editing text, right? I mean, that's a downside.

But everybody here knows what attributes are in a block? Most likely if you don't, you kind of heard about them, right? So if you double-click on it, you'll get that attribute editor, and you're editing each line, right?

And that can take some time. I mean, if you only got a couple of drawings in there, it's not that big of a deal. But what if you had hundreds or 1,000 drawings? You know, a couple hundred drawings in there? And you're editing that title block every single time? And if something changes, then you're editing it again to make a change to modify that. Anybody in here on that pain point? I know it was for me.

So with Electrical, key is you got an attributed title block. And then with Electrical, you're going to end up mapping those attributes to the electrical properties. So those properties that you most likely saw today or in the earlier class.

So we're going to go take a look at how this works. And I'm going to go back over to my Electrical if this thing's going to let me. I guess because it's the new PowerPoint, I guess I'll have to go this way and have to come back into it.

So right now, that makes you probably feel pretty good because it's just regular AutoCAD.

Looks like AutoCAD. I know when I go out and train, I try to make it look like regular AutoCAD because that makes him feel real good, because you don't want to have to learn too many new tools, right?

So right now, if you look at it, it has the Home tab, and it has just your regular interface. Now, I've turned off things to get a nice, clean screen, but I have a drawing, right?

And that's how you look at it. From an AutoCAD standpoint, that's how you're looking at it. It's just a drawing.

And in this drawing, you have, possibly, some blocks, right? How many people are using blocks for their components? Or are you just using lines? I'm sure there's some people who are just using lines and text here, right? So, I mean, there's a little bit of everything going on in there. And that's typical for the AutoCAD users.

So in Electrical, we have a project manager. So in the project manager, we can look at a list of projects that we may have. And in this project manager, we have folders.

So if you had a manila folder like this one sitting on your desk, and a bunch of them, that's how that project manager is looking at it for you right now. That's what it's like. And when you're done with it, you file it away.

So that's how you want to think about this project manager. So when you're done with it, you can close it. So when in doubt, right-click so you can close it.

And then whatever's sitting there, whatever's left up there, are the ones that you're currently working on. So you close it when it's done.

And just to give you an idea how a project would look, there could be three drawings in there, or there could be-- I'll just try to pick one of these that has a lot. So you could have a lot of files in there.

So these are all projects that you're working on, possibly. The good thing to do when you're not working on them is to close them. It's like when you're not working on it physically, file it away, right? So do the same thing.

So in this case, we can base projects off of, like, a standard NFPA, the European standard, different ones. Several of them come out of the box. You can make new ones, tweak them,

base them off of what you got.

And if you're going to create a new project, you click a tool-- let me back up here so you can see where I clicked. You may have seen this earlier, too, but you can pick the new project tool right up in the project manager. Several tools that we can use.

The tools are created specifically for the electrical environment, for the people that are drawing for controls. And this concept of the project-- you get this dialog box that you can give it a name, and then you can tell it where you want to place it or if it's already created. There is a checkbox right down here in the bottom or right underneath the address that if it's already created, you can uncheck it and browse to where it's at, or you can be right in your project area and it'll create it for you.

The key here is that there is a project file, which is a WDP, that is going to be created. And this piece right here is a spot where you can say, I want to base this new one off of an existing standard that I have. So this standard, in this case, if I chose to use that one, would be the NFPA. But if you have a European one, you can do that.

And what if you have projects that are already done? You can base them off of that. So that's what that whole concept is. And I'll show you in a little bit when we go into the properties.

So like I said, several tools that are here. We could create new drawings, we can use new drawings up here.

But if you already have the project done and you're resurrecting it, you want to pull it out of that file cabinet, you can just do Open Project. And in this project manager or in AutoCAD Electrical, there is only one active project at a time, and it's always at the top and it's bold. The other ones will be alphabetical. So when you're looking at them after that, they're all alphabetical.

So I can just go navigate to where I have that project. And this is my list of projects that I may end up having. And I can go into the folder that I've created and the project that I have. So in this case, we're looking at a WDP. And I created one for today, of course, the AU 2016. And I can open it up, and then it will activate that one. So it's always at the top, always bold.

Even though this is kind of laid out alphabetically, it wouldn't have to be. So if I right-click and activate that one, these go alphabetically and this one's out of order because it's at the top, and it's the active one. So just navigating around there like that.

I think a lot of emphasis should be put on the project management of it. Just creating that project's not a big deal as far as doing it. Once you make one or two of them, you'll realize it's pretty easy. But the key is you don't want to kind of let this go to the wayside.

It's kind of like if you go to Vault, and that's a new interface. And in the beginning, you're a little nervous because you're working with it. This is nothing like Vault, of course. You know, we just have a folder with drawings in it. Just got to learn some of the tools.

I actually have this drawing in the projects already, and all down because of time. So if I wanted to add this or any other drawing, I just need to right-click on it and go down and add drawings. So it's really that simple just to add these in.

But the real key is-- and I only have one, but I could add many more, right? Just like these other guys that I showed you here. You know, they have as many as you want.

And in the folder, the explorer folder, you can have as many files in there as you want. They don't have to be attached to the project. They can just be sitting in that little bucket right there, that project folder, through Windows Explorer, and you can add them if you want. Maybe they're just reference files so you don't really need to add them.

And I often have a lot more files in there because maybe I'm pulling things from it. Maybe I just got them there temporary. They're drawing from a customer or trying to show me something. So I'll only add what I need to add or create. So here we have to create one.

So I mentioned that there are properties. So inside, when you create that project, I based it off the NFPA so I have projects property. And in that project property, it's more concerned with the global part of it. If I've got 100 drawings, it's worried about, well, what do you want to do with those 100 drawings? Not down to the drawing.

And right now it's like, well, what library are you going to be using? So since I based it off the NFPA, it's going to be using that library.

Plenty more we could go into here, but for right now, it's not worth it because of time, basically. We would need days to go into it. It's very powerful.

But we could create properties that are specific. Even if the one that's out of the box isn't like yours, you can tweak them and change them to whatever they are.

So we can do line reference, which is what I have right here. So if you're wondering why this drawing-- and I'll zoom in later to let you see what it looks like. Why does it look that way? It's because that's what the property of the drawing or project or both say.

So why do the wire numbers look that way? Cross-reference, styles-- what do you want the drawing to look like? And the drawing format-- what do you want that to look like?

So notice I have a change here-- the project's width for ladders. And you don't need to do ladders, by the way. I mean, you can have just straight wires running in there, even though ladders can save you a little bit of time if you're in there. But notice the width of that.

So I'm going to get out of here, and I'll look at the properties of the drawing. So if I go into the properties of the drawing, what's a drawling worried about? A drawing's worried about the description of the drawing, right? Might be worried about location.

You know, maybe everything on that drawing goes to some location. So I could put a code in there. If it's got electrical codes that I could work with. And maybe the drawing name, sheet, all that kind of stuff.

But I have the same options on the other tabs. How do I want this drawing to look? Line reference, sequential? What is the further setup for that? What are the wire numbers? What should they look like?

Back to the cross-reference. Cross-referencing a variety of things, where maybe one wire ends here and picks up on another drawing or another location. So how do you want those arrows to look?

Right now on you're drawing, possibly, all individual drawings, you're putting dumb text on there. And every time that drawing changes, you have to go manually edit that text, right? So you don't have to do that in Electrical, and that's the real key. And this tab right here is part of that. Just part of the piece that makes it better.

So then here, we have what does it look like? The arrows for the source and destination arrows. Maybe your PLC, maybe you want to change it to that style, so you come in and you make those changes.

The other piece that's in here-- and this happens a lot. You go, well, I don't put loops in because in AutoCAD, I had to trim them. Well, Electrical does it automatically, although I could

make them solid. But you won't have to trim them any more because Electrical does it automatically, just like the dots.

But notice that this drawing has a width of 10 versus the project had the 4.5. So this particular drawing-- for whatever reason, you want to make it different. So I could have 1,000 drawings in here, and I could have all but three of them could match the project, and these other three got to be different for whatever reason, and you're able to do that. So look at the drawing first, and then you can possibly look at the projects.

Plenty other tools we won't have time to go into that we could be looking at from a project standpoint.

From a drawling standpoint, we could look into properties because I was just there. What if the drawing-- I brought it in, I go, oh no, I meant them to look like the project. Well, I could say apply the project defaults. So that 10 would now go to 4.5.

I could also come in and compare them. So these are the differences from the project to the drawing. So if I wanted to match them, I could select all, and I could match the properties of the drawing or the project. Just to kind of give you a heads up on how that works.

I could also have a description for the project. So there's another text file that sets up what do I want these references to be on the side? Because this is important. I need a title. Maybe it's a job number, whatever you have. Of course, I filled it with the AU stuff. Put today's date.

Anything I want to show up in reports, so I put a little checkbox there. So I have the drawing properties, the project descriptions. Anything that I feel like filling in. Anything I need mapped to that title block-- the attributes in that title block. So now you're back to if anybody is in here using a title block with text, probably the first thing you want to do is convert it over to make sure that it has attributes in it. So that would be my first step.

I'm trying to give you a feel, like, look at that information that's in there. Because now that I have that done and I have that information in, just in case, you double-click on it. This is what people usually do. They go in and start editing that. Something changes, you got to edit it again.

Sometimes I've seen where people have made some scripts and batch files, and that's pretty good. So I guess that's probably what Electrical, you know, has it all done for you. You don't

have to worry about it.

So all that information that you saw there-- I can come to the title block update. Matter of fact, I'll come over here and move that guy out of the way. And I'll come to this dialog box that has all that information that I just showed you.

Top part is from a project standpoint, so remember all that stuff that I showed you in there? And then down in the bottom's all about the drawing. So I'm a little lazy, so I'll go select all. I could select one individually, but I look at it if I don't have a filled in, I don't have it mapped, or I screw it up, I can always run it again, so it's not a big deal. I want to make sure that my project properties and my drawing property are correct and everything in it, because I want to take advantage of the drawing application that we have here where we can populate it.

By the way, it's probably a good time to say I have several customers that I work with that don't even really do electrical. They bought Electrical just for the project management of it and what I'm about to show you right here.

So we have a circuit-building company or circuit builder. I mean, I guess they could take advantage of circuit builder in here for, like, circuit boards and that type of thing. We actually have two mechanical customers that completely revamped it for their mechanical world. They actually use their blocks and that type of thing from running reports and doing this. But their motivating factor was this one right here.

So maybe I want to put in the drawing description from the drawing. I want to put in the drawing number, sheet number, so I pick what I want to populate or what's important to me. Then I got to make a decision down here-- do I want to run it project-wide or drawing-wide?

Now, we only have one drawing in here, so it wouldn't really make a difference for me. But if I had 100, I want all that information to go into each one of those cells. So I'll go active drawing just for time-wise, and now all that gets populated.

Something changes, I'm not going to go edit this. In a perfect world, I don't edit this. I go back to the properties. What's wrong? Did I put the wrong description in here? So then I go fix that description, put in what it should be.

So when I come back to the project, what if it was my description that was wrong here? So I go back into that and I make those changes, those necessary changes that you have to make. And then I'll come back into here and rerun it.

And I'll go back, do whatever I got to do, whatever I want to pick. I'll just show you the project property. This would list all of the drawings in this that I could pick and choose from. So if I had 10 drawings in here, I could pick and choose which ones I want to do, anywhere from one to all of them.

And then you can process or do all. And then you just run it again. So if anything changes, it just updates. So that's how, moving forward, you should be using that. And whatever it takes.

Let me show you the background of what that text file would look like. So if I go into my AU folder-- remember, I created that folder-- I have my project file sitting in here. here's my descriptions that I changed. And here are my mapping.

So left side equals the attributes. You identify the block name. Left side equals the attributes, right side equals the properties. So that's how that would work. Any questions before I move to the next phase in it? Everybody good?

OK, so I'll go back to this guy right here, and I will go back down to this one and get this thing set up.

So in this next one, we're going to be converting wires. And we got our project done. Now we make the [? wire ?] [? smart-- ?] and they're not just lines anymore. They are actually wires.

And in AutoCAD, you're just looking at lines, but in Electrical, you're looking at wires, and you're looking at the text of the ladder. Right now that's probably just dumb text if that's what you happen to be using. And then you're going to use tools to convert them.

So no more of this drawing from point A to point B in AutoCAD. You can actually add information as you need it. I won't get into the details of the other tools like inserting the ladder. You can learn that later.

But these loops right there-- you see that other bullet in there talks about automatically adding them, right? So we'll see if I can get back into this guy. Yeah, it's not going to let me, OK.

So I'll go back to here, and I'll zoom in on this one. I was about to change-- I actually had a whole different data, and I decided to go back to this because this is the one that you'll see the most. When I change a dataset, a lot of times customers, when they're trying to learn it-- because this is where the videos are around, all the files around, so it all blends in. You could

repeat what I'm doing here right out of the box, so that's the main reason why I stuck to this rather than change it up.

Anything that has information in it that's electrically smart will be the ones that are colored. So I got a little blend here of both. So when you right-click on a smart block, you get that information right here.

And you can go Edit, Component, and you'll get this dialog box. So the information that's in that dialog box comes from those attributes that's in the blocks.

So this one is not smart. I can tell you that right now for two reasons. One, the name of it. But there's not as many attributes in there. That's the other reason.

But if I right-click on here, I just get the AutoCAD stuff. That's usually your first clue, right? So people send me drawings. It could be a mixture. So that's that one.

So if I'm working on project information, I can go the Project tab. So I'm up here at the ribbon. If I'm a schematic, I give me a Schematic tab.

But I'm going to fast forward up here. We're going to be converting, so I'm going to go to this Conversion tools, so inside of here-- because I've made a decision that this drawing would be easier to convert. So we're back to you can create it a from scratch, which is fine. I mean, if you got to draw them anyway, go ahead and create them from scratch. But if you think that you don't want to take the time to do that, we're going to start using some of these conversion tools here.

Back to there's a heck of a lot of them on here. I probably tried every one of them just out of curiosity. They all work very well. So I picked out a few important ones that you're going to be wanting to look at, and actually wanting to use.

So one of them is this is a dumb wire. You know, you're representing it as a wire, but even though I brought it into Electrical and I got it in a project, Electrical doesn't recognize it. So you may think it's a wire, but Electrical sees it on layer 0 and that is not a wire, because Electrical doesn't see it as a wire. I can tell it to look at 0 as a wire, but we didn't do that in this particular case. Right now we have, like, a red one that's a wire, so I know that one's not in here.

We have a ladder that is not smart. How can I tell? Because if I try to right-click on that top text, I don't get the electrical right-click. It's just a piece of text. So if I try to double-click, that's

kind of maybe how you're at right now.

So how do you convert all that stuff? So one example, I could go to this tool right here, and that converts a line into a wire.

There's also this tool right here, converting a ladder. So the first little tool right here, converting a ladder. So that's saying I got this dumb piece of AutoCAD text, and I want to read that line that you see down there, and I want to make that smart.

A lot of times, order doesn't matter. I could convert the wire first, but in this case, remember all that line reference that I was talking about in my properties that I was setting up? Probably makes sense to do the ladder first, convert that and make it smart.

So I'll go ahead and use this tool right here, and I'll go read in the command line. How many people in AutoCAD they say, read the command line, right? I'm guilty of that, too. It's kind of like just driving and saying, you know, I'll look at the map later.

So it's probably a good idea when you're getting familiar with it, read the command line. But basically, it says pick that first piece of text. So I go ahead and pick that first piece of text.

That quickly it turned it into a smart ladder. I can tell because of that dialog box right there.

And it's saying that those guys right here are 1 inch apart, so it knows that. It counted how many rungs in there because it counted all the text underneath it. And then it converted that text into the start.

And go like that and hit OK, and it's done. I already converted this one. So if I right-click on here, now I get the right-click option that's in there. And now both of those ladders that are smart are showing up, that I can modify and change.

What if the first reference wasn't right? I wanted to change it, make whatever adjustments I have, and then run it. So that's your first line of defense, to convert this into a smart block.

Well, the other piece was this dumb wire right here. Maybe I'll just deviate a little bit and I'll show you that. If I go back to the schematic, this is what's smart. These wires are smart in AutoCAD Electrical.

So these wires right here. So you notice layer 0 is not in there, right? So we know that's not smart.

So I'll go back over to this conversion tool, and I'll take this guy, which is convert the wire. And I'm going to say I want to make it red, so I'll come in here and pick the red, and I'll window around. Notice I can window around everything, and it just ignores all the blocks. So now it's red. And they are, in fact, that smart wire now.

And then I can go back in and say, you know, I want these to be black, so I'll come in here, make black. I'll come back in and say, I want these to be white, so I'll come in and make that white. So now I have all my wires converted.

Now, I only did that little piece. I could have done the entire drawing. One of the tips that I would say is have a wire-- so you don't really need to make those other layers, by the way. You could just have one wire layer, and that's how it comes out of the box, basically.

And you could just convert all those dumb lines into wires, and that's your first thing. You don't have to waste your time going around and changing them if you don't want to. That's up to you. That's your option.

So now we have the smart wire. What about the smart piece of text that goes above it? So that's dumb, right? So our clue right here will be that's a smart one, this wire number down here. If I hover over that, you see it's on wire number.

So that's a smart one. That's a smart electrical layer. But this one is not. That's my version of just the piece of text that you're going to have.

So conversion tools-- they have a convert piece of text into a smart wire number. So we can go ahead and use that tool, and then we're back to read the command line. It says pick the wire.

People screw this one up all the time-- I did it myself. You think, oh, I can just pick the piece of text. No, it's going to want to know what that wire is underneath it, then the text. The fact that it changed color-- the magenta is a good thing for me.

And then I could repeat this one over here. And now when I hover over it, you've got that wire fixed. That happens to be one, too. Fixed means that it will never change. Once you make it fixed, I could run and update all you want.

By the way, another tip would be remove all the wire numbers because once you make the

wire smart, there is a utility that you can run to put them all back on with a click of a button. So that would actually be quicker than what I'm doing here, right? But if you wanted to do it this way, that's fine. And it gave me a chance to show the tool, right?

So I happened to turn my snap off in that case because I was trying to grab that piece. So what about these blocks? Matter of fact, I guess I'll go back to the PowerPoint.

Here's your lines, right? So if I go back to the other area, we're looking at blocks. How do the blocks match?

So right now, I showed you I have dumb blocks. And you don't necessarily need dumb blocks in there. There are other tools that you could take kind of the exploded blocks that are around there, but I have some not smart blocks, so that's what that one is.

So in this particular case, you have a block that has attributes, they just aren't electrically smart. But you're going to end up using tools to convert them. In a perfect world, windowing around the entire drawing, doing either one at a time-- doesn't really matter how you want to look at it.

But once you make them smart, once you have the blocks smart, it'll automatically trim your wires. It'll automatically recognize them as wire connections. So you have the different wire connections that are going to be in there. And you won't have to worry about trimming them, so that's a big key, too, to your working with it.

So I'll just go back to Electrical. And now I have this block right here, which I proved, just by double-clicking on it, that it's not smart. Maybe you don't realize it's not smart right now, but I'll show you this one being dumb one. Even though there's a naming convention, there's not enough attributes in here. So if I double-left-click on this one, look at all the attributes that are in there.

And Electrical's reading those attributes. It's looking for specific attributes. So that's how knows it-- a name and the attributes that it's looking for. So we have catalog information, we have manufacturer. So that's what these attributes are. So we know it's not smart.

So how can I get those converted over? Well, we have a conversion tool right here, Swap Update Block. And, of course, there's plenty other ones that are in here, but this is the one I'll pick for right now.

So this tool you're going to want to get familiar with. We're back to it can do drawing-wide, project-wide. My company changed its logo. This is the way I used it, not even thinking about Electrical.

My boss came up to me and he said, it's going to take you a while to change all your datasets over to the new logo. Anybody that's worked in a company that has changed your logo, and then now you got all those title blocks that you got to update, I'm going to guess that some of us have been in that situation.

So whether they were Electrically smart or not, I created a project, put them all into the project, and then I ran the title block update and swapped the old logo out with the new one. Of course, I told my boss that it's going to take me a few days, and you might want to have me work at home because I need peace and quiet, right? So maybe I shouldn't have said that, right? I think this is being recorded.

So anyway, I got a few days off. So I came back, and I showed him my dataset, the different ones, and they're already done.

So even though you're using it for electrical, think outside that box. I've used Electrical many times for mechanical, because I do the mechanical piece of it, too. The interoperability with Inventor. I use it to convert blocks into Electrical smart ones for Inventor or vice versa, however you look at it. So look outside that box, and that's an example of it.

I'm often going to companies, and they go, well, I got this block and it's not Electrically smart. I'm like, I don't care. You want to swap it out, that's how I can use it. I can use this tool right here.

I've dabbled with this bottom one, mapping. It's looking at the attribute mapping. But if you look at this, I'm going to swap it out with an out-of-the-box symbol. So I have two options that I'm considering. Option A says swap it to a different block name, and most likely that's what it is because my company or me just made this block, and I just named it whatever I wanted it to be. So most likely, that's what I'll do on this particular one.

But I could go drawing-wide or project-wide. I got 100 drawings in that project-- I could swap every one of them out across the whole project. Another example of don't tell your boss. Hopefully there's no bosses in here. Because right now in AutoCAD, you're going one at a time, possibly, and you're swapping and deleting them, putting them back in. But in Electrical,

it's going to maintain the wire number.

So there's the different options in here. I'll do one at a time just so you can see this. And then I can pick from the icon menu, pick one just like it. If I got some that are already converted, I could just go pick one that's just like it and go convert them. So read these, try them out. They all work really well.

I'll do this one here. And I'll say, I'm going to pick from the icon menu. So now I get that nice little icon menu that came out of the box. And making your own symbols ends up being pretty easy. A lot of times, people think it's going to be worse.

I know AutoCAD pretty well. Of course, I know Electrical, but I can make them just from an AutoCAD standpoint in 10, 15 minutes depending on how complicated they are. Maybe not even that.

It's more if you had bad practices before, it's all that stretching and tweaking to make it work right in Electrical. Because Electrical, when you say 1 inch apart for ladders, it means 1 inch apart. I can't tell you how many times I've gone to companies and it's like, one ladder rung is 0.999 and the other one is 1 point, you know, whatever. And I'm like, that's when I just kind of take a slide because I know that's going to be the work. It's the AutoCAD work. Poor practices, right?

So I want the push button, and I went this normally open. So I'm going to go grab that normally open and I'm going to say, again, the command line. Read the command line. That quickly, it swapped it out.

May not be so good in this particular case because I also lost all that other text, right? But this is one option. Maybe in this case, that option is not the greatest, but I now can right-click on it, and I can go to Edit, Component, and it knows.

The only problem is it doesn't know that it's coming from line 403. Well, AutoCAD Electrical comes with an update. This is just a single update. I can do drawing-wide, project-wide-- we're always back to that.

And when I click this update, it's going to update it and make it 403 because it read that now-smart ladder. That's why that order probably would make a pretty big difference because it knows now that that's 403. So that's one way to do it.

I'm back to the problem is I don't want to lose this stuff either. So maybe I might want to use this tool, converting to a schematic component. I talked about source and destination arrows, so these guys right here. This wire is coming from another drawing. So I could use those here.

But I use this component one. It says go ahead and pick your block, so I got that block. Which one do you want to use? Well, I want to use this one because it's very similar to that one.

And now it says go ahead and put it where you want it. It actually is over top of each other right now. You can kind of see it-- the blue, the tag right here, that 403.

But now it's reading all those other attributes. So now I can say, well, I want that one to be here, I want this one to be over to the description 1. Well, maybe not that one. I want that one to be description 1.

I want this to be on description 2, and so on. What if your blocks were full of other attributes? You're just mapping them over. And then notice this little guy right down here, that checkbox. It's an eye chart for people in the back. It says I'm going to delete the block, the other one, the old one, out when I hit OK or Done. So I'm going to go ahead and hit Done. It deleted that other one out and got rid of it.

And then I could just keep going on. Maybe I'll do these, looking at the time. Yeah, we get some time in here.

So I'll go grab this one, and I'll do the relay, and I'll drop that one in here. And now I can come in and say, what do I want them to be? So I'm just mapping them over. Let me go do it the right way. And then I can just keep going this way.

I'm purposely doing this now because I want you to see the parent-child, and then when I run a report, I want you to see it. So I want to swap this one out also. And I'm going to go get the child here, and it's a normally open, and I'll drop that one in. And this one wasn't too bad, right? I didn't really even have to do that, to be honest with you, because I'm going to map it, link it together.

So now I have that one in here. And I could do that light, too, if I wanted to, but I would just be repeating the same thing.

So this child is orphan, so this child right here is orphan. So when I right-click on it and I go Edit, Component, I get this dialog box, which is the child component.

So I can use these drawing and project properties, and I can say, I want to make this one linked to this one. So before I do, I'm going to go make a change over here.

And by the way, there is a report that I can run to scan all the drawings in the project individually for all of the children that you may have put down that are orphaned. They're not connected to anything. Because a lot of times, you might drop them in, convert them, and you think you're done, but you're not. So there's probably a tool for almost everything you want.

So I'm going to edit this component. I'm going to go in and give it a bill of materials. I'm looking at the database right now, so I'm going to give it information for the bill of materials.

So I'll go in here and look at my contacts, and I'll purposely pick one of these guys right there. Go OK. I picked three normally open, one normally closed. And now it gives me information in here.

As tempting as that is, I get people that will edit that themselves or put information in there. Don't do that. Look it up in the database. Make sure it's there. It's a best practice.

So now I'll go in and add it in. By the way, if I would have had them linked before, that would have known that the child was there. I'll make a little change. You'll see how that comes up. It would have said, hey, I got a child that needs to be updated.

So now I'll go back into this one, and now I'll say, you know, I want to look at the drawing for all of the information that is on this drawing. Well, there's my 403. We're back to it was originally dumb and now it's smart, right?

So I can look at the drawing, the project. What if this child was on a different drawing? Well, that be OK because I could go look at the project. It would scan all the drawings in the project and list every one of them that were in there.

So I guess I'll just show that to you real quick. So here are all the ones that didn't really change much because of only being one drawing in there. But that's the one that I want right there, so I'm going to go ahead and link it and have it come up. So now it comes in, and it populates that information in there. I should have pointed out that it would populate that one there.

But here's the other one that, again, you may have seen earlier. I could right-click on this and go surfer. It's going to update. Update's good. And now it's looking at the children and the parent. So the p is the parent. You got the child. So now the blocks and everything are getting

smart.

So how about this one? There are a couple of ways that I could do this one. I could right-click on this wire now that it's smart, and I could try scooting it. So notice that connection dot right there did not update automatically. So that's a problem, right?

So this one would because that dot right here is one of the smart ones. So I don't know if you guys were doing this, but we were inserting the dots, so they weren't smart.

So then I started thinking, even back my old company I said, you know, how could I do this? One would be let's say I get rid of that one right there, or maybe I'll do this one. I'll get rid of this one up here just to prove to you that once I make it smart, it will go along.

So what if I did this Swap Update Block, and I said, you know, I want to pick one at a time, and I want to pick one just like it? So I come in here and the command line says, pick the block that's the master. So I go, all right, well, that's the master. That's the one that I want.

And I shouldn't have deleted that one out right now, but I could come up here and I could go like that, and now that one is now smart. So I could do it drawing-wide, individually like I did.

The other one that I was going for with this one is I could also insert it manually. And then I say, well, this one is where I want it to go right there. Now I have it smart.

So now when I come in, I can right-click on this one and go scoot wire, and now it's going to go with it. We're proving that it's smart, right?

What was the tool that I said you should get familiar with it, where I got three days to work at home? Remember that tool? I lied to my boss and I told him that I needed to work from home? That was that Swap Update Block.

So if I come in to my Swap Update Block again, so the same one we've been using, and I go I want to do drawing-wide or project-wide, and I'll pick one just like it, but instead of doing it one at a time like I did, I'll do it drawing-wide.

So now I'm back into this one again. I'll go back into my master. So I want one that is right here. So now I'm going to pick the one that's swapped out. So I'm trying to get it to where you can see it. You got the green dots sitting at each end right there right now, and I got one up here. And I'm going to swap out that one.

And that quickly, it swapped them all out. So even if you did have those dumb dots in there, you're using that tool to swap them out across the drawing across the project. And now that circuit-- once we were done with that one, it would be done. So that's how that one would work on that one.

So I won't go back to the PowerPoint in this case. I'll go right to that last piece of that was now that we have a smart file, a smart project, more than one drawing, ideally, because they're all linked together, I could run a report off of this smart information. So if I'm going to run a report, what's nice about Electrical-- how many people were going from the toolbars to the ribbon? And you end up having, like, oh, I got to learn the ribbon now.

What's nice about Electrical is that unlike AutoCAD in lot of ways, I'm back to when I'm on a Schematic tab, I'm probably going to be working on a schematic drawing. When I'm on a panel drawing, I'm going to be on the Panel tab. So I get different tools for the different ones.

You saw that I was on the Conversion tab for the conversion tools. Well, I have a Report tab also. I want to run a report on this update. Yes.

I don't know if this can be done quick or not, but if this is an existing drawing that we're converting, then the wiring in the cabinet is probably already existing.

Yes.

AUDIENCE: So that junction dot that you put on from the normally open contact that goes up to the 403 rung, how does it know if it's wired to the push button or the emergency [? slot? ?]

TODD SCHMOOCK: So there's plenty of tools in here, and there is a wire sequence tool in here that I could use, and I could tell it that. So that's how I would now. And in a perfect world, if we had more time, we would have other drawings in here that would be the cabinet, and then they would all be connected and linked. And that surf tool that I used, I could surf to either one of them. But yeah, there's plenty of ways that we could make it smart. But that's a great point of now we're not just looking at a dumb drawing anymore, right?

AUDIENCE: That would be totally our problem.

TODD SCHMOOCK: Yeah. So you tell it which way to go.

AUDIENCE: We don't building anything that would maintain a powerhouse, and so we have control cabinets for all sorts of things in the powerhouse that you would be converting all of those types of drawings. And we have schematics and connection diagrams that show all of those relationships that are not related to one another at all except by [INAUDIBLE].

TODD SCHMOOCK: Yeah. And there is a tool in the cabinet that you could put the wire information onto that cabinet, also. So, I mean, there's a lot of ways we could go with this.

Another way, just to kind of build on it-- I don't have to have a network. Like, I mean, it is a network, but I could go up. I could go on an angle and connect to the component that I want to connect to, and then Electrical's going to know it automatically that way. So it'd be another way to do it, right? So I don't even have to do the wire sequencing. It just knows because of what it's connected to.

I mean, I could scoot all these guys here. And I could come in here and scoot them. It's going to automatically know to reconnect. I could automatically align them. I mean, there's so many different things that we could do in that.

So now, just think about that circuit right there. We could be looking at a report. Kind of building or what you just said, you know, we have a perfect world. We got all the drawings in here-- the panel, the schematic, the different ones. I could run a panel report, but I'm in a schematic, so I'll run a schematic report.

So from a schematic standpoint, we got plenty of reports I could run. It's an eye chart, but you got your basic ones-- you know, bill of material. There's even a missing one. Matter of fact, I'll run that real quick.

You think you're done, and you may not be. Because lo and behold, there was a couple of them that you didn't put the part number in for. And you thought you had it done, so that's just one report that you could run.

Well, what about running a bill of material? It doesn't matter, again, which one I do because I have one drawing in here. Here is the bill of material for this smart drawing now. It was dumb, but now it's smart.

That looks familiar, right? I don't know if you can read it, but it's 403. That was this one right here. So it knows that it's in there. And that's the report. Just one report, like I said.

We could run a label-- a wire label report. I'll do for all of them. Here are all the wire labels. So they have the one for the beginning and the end.

I could then save that any of these reports out to any file that your label printer would make or use. Excel is pretty popular, right? And then I could print them.

So at my last company, it was kind of the same deal. We had some that they would put their headphones on, and they would start killing some time and listening to music and do the label, and they were worried that it was going to take their job away. And I said, don't worry, we'll have plenty more for you to do. It just freed us up to do more stuff.

So just a couple examples of how you could run this. But definitely get familiar with these reports.

A wire [? from/to, ?] I didn't talk about that, but there is actually location codes in here that you can assign to those smart ones. The question marks are because I didn't assign them. So I could say I just want to see what the operator station is wired to, whatever. Or I could do all of them. I'll just do all for now. And I can change these reports around, by the way. Here's what's available.

What is being displayed is here. That's what's going across here. And what's available is here. All these properties that I talked about.

And in this particular case, it's saying here's your wire number. Question marks are because I didn't update them. Where's t the wire number. Where is it going from and to? So that's just one example. Another example of how that would work.

So definitely, when you make them smart, get familiar with them, right? Any questions before I go to the end? Yes.

AUDIENCE: Does that convert that into, like, an Excel spreadsheet?

TODD SCHMOOCK: Yeah.

AUDIENCE: Can you put it, actually, into AutoCAD? Do like an update report?

TODD SCHMOOCK: Exactly. So if I run a report and I want it in Excel, it is truly putting it into an Excel spreadsheet. But it's interesting you bring it up because there's also a tool that I could export this entire

drawing out to an Excel, tweak it. Like you know how I said I didn't add the description here, I didn't add these location codes? Maybe I was just trying to get the circuit done. And you're like, oh, what am I going to do now?

I could tweak it in Excel and then bring it back in. So that's another tool you could run.

And if we weren't down to the low minutes that we have here, I would do it, but it's just using these tools right here-- exporting to Excel, tweaking it, and bringing it back in. So definitely experiment. Try it, anybody that already has it. Anybody that doesn't have it, hopefully we're convincing you to go ahead and use it.

So you saw how we went from-- yes, go ahead.

AUDIENCE: How well does Electrical build into Vault?

TODD SCHMOOCK: Electrical's great into Vault. What's interesting for me-- for years I've been trying to get people to go. I've been doing a lot of implementations over these 12 years.

And for whatever reason, electrical people work kind of separately from mechanical a lot of times. You're kind of like that child that's kind of off to the side, you know, the black sheep. And you don't want to do their stuff and they don't want to do yours type of thing.

And now what's happening this year, a lot of electrical people, or groups and departments, are going to the Vault. I've done more Vault implementations this year than in all the years combined. It's pretty amazing.

And just so you know, in that project manager, if we had more time, I'd go there too. But in that project manager, you will get to the left of this, and all these drawings-- you'll get that as Vault icons, and you'll be able to tell whether something is in and needs to be checked in, just like you would if you've seen it with your other groups in your other department. So it works very well, and I'd highly recommend going to the Vault if you can. Anybody else?

AUDIENCE: In the more complicated schematics and stuff, have you found people-- we're looking like we're going up and making part of the changes.

TODD SCHMOOCK: Yeah.

AUDIENCE: [? And the rest of it ?] [? not. ?]

TODD SCHMOOCK: Well, that's very interesting because that's been happening a lot lately. So you know how when I started off that drawing, and the stuff that wasn't smart was basically white or whatever color you want to use? Everything else that was colored in here. I could tell at a high level that that was smart.

So they only convert what they need to convert for right now. It was a revision, it was whatever. And then if another change comes through, or if they just keep-- and that's kind of how they're progressing in there. They only do what they have to do. So it's a hybrid.

AUDIENCE: And that's working?

TODD SCHMOOCK: And that's working perfectly. And then if they come back to this, or this drawing needs to go into another project, they can tell what they've got done. And you can change those colors to whatever you want, just so you know. I highly recommend using colors to your advantage. So it's like a perfect one. There was a question in the back over there. yes.

AUDIENCE: Currently, we have all drawings for a project just [INAUDIBLE]. They're all the same ones that were in the Vault. What does and ideal project look like in the Vault [INAUDIBLE]?

TODD SCHMOOCK: So you know how I had a folder and all the drawings in there? That's exactly what-- when I went to Windows Explorer and said here are my projects and you got a workspace, you're going to check it in, and all that folder and all the drawings are going to be in that Vault just where you told it to go.

AUDIENCE: So if you check out the project, you check out all the drawings [INAUDIBLE]?

TODD SCHMOOCK: If you go back a few years ago, when you checked out the project, you had to take all the drawings whether you wanted them or not. It's not like that anymore. You check out a drawing or a project, and then if they're related to each other, Vault will ask you, hey, I got to check that out because I got a child here that you're messing with the parent or vice versa, and I need both of those out to make that connection.

AUDIENCE: So it's more like Inventor then?

It's very, very close. When I implement Inventor, I use the same technique as in Electrical. Some differences, but I do kind of the same thing. We're looking at different files and different needs, but I have the same process because I implement both of those.

AUDIENCE: [INAUDIBLE],

TODD SCHMOOCK: I'm going to say yes, because in Meridian, you're going to want to export to an Excel, most likely, and you're going to need that plug-in for it. So one example of that-- you're exporting the information to Excel and bringing it in. If you're looking at any other Vaults that even aren't electrical, it's that project file that is the smart one, and that's where you make that the parent and you make the drawings the children.

So I'm on connecting to Vaults that aren't electrical. I'm connecting to Vaults that I didn't even think I'd be connecting to. And the big key is I take that project file and say these are your children. And then it's kind of on their own because we don't support that, but it's been working out very well. Yes.

AUDIENCE: On average, how longs does it take to convert, like, [INAUDIBLE]? Give me a conservative estimate about a complex schematic into [INAUDIBLE].

TODD SCHMOOCK: Yeah, it can be challenging from a standpoint of what do you know. To answer that question, what do you know? What don't you know?

But once you're trained and you understand what's going on-- because you can do drawing-wide and project-wide about the same amount of time that it would take if you do it from scratch, but the difference is now you've started with something you already knew, and now you can reuse that. So you can use copy project, you can bring the drawings from another project. That's the difference. You're saving a lot of time that way.

Any other questions? Matter of fact, we're right on it. But I'd like to show you, just in case you guys weren't doing this. And if you have questions, feel free to come up and talk to me afterwards.

But AU passes are awarded on a regular basis, so don't forget to fill out your surveys, OK? And then these are the best things that you should probably do. It's to your advantage. I heard that it's to your advantage. I may be wrong, but that's what they told me.

And then let's see what else we got in here. There was a slide, just in case. This one's kind of important. It was kind of last-minute slide. I have that right there. That one. That's the one I was really trying to get to.

There are other classes. I got rid of the other two because I'm the second one, but these are

the other ones that are in there. If you want to take a picture of it, I'll leave it up there. Any other questions?

So thank you. Hopefully you got a lot out of it. And if you got any questions, come on up and I'll answer them for you.