JASON DREW: Well, it's 4:45. We'll just go ahead and get started here. So welcome to 3D Model Collaboration Plant 3D and Revit. My name is Jason Drew. Co-presenter today is Quentin. So just to give a little bit of background about myself-- well, first I'd like to say that I know everyone's tired. It's the last class of the day. You're probably ready to get out of here, head over to the Link. So hang in there with us for the next hour-- got a good topic here for you.

So just to give some background about myself, I joined Autodesk Enterprise Support Specialists back in October, 2011. So previous to that, I was an IT guy-- CAD support, things like that-- and then moved over into becoming a P&ID designer and eventually got over into the Autodesk Plant Design product-- so Plant 3D, P&ID-- started working with that. And I joined Autodesk and just been doing the same thing ever since. I'll let you go ahead.

QUENTIN CONTRERAS: Hi. All of y'all look really tired right now. So hopefully y'all can liven up a little bit. I know it's Plant, nothing exciting-- but see what we can do. I'm Quentin Contreras. I'm sure I've maybe communicated with some of y'all at some point as you've been using Plant. Hopefully you can come up and visit and say hi before you leave today.

But I've been doing product support for AutoCAD for about 4 and 1/2 years-- kind of came in on the coattails of Jason when he started, mainly supporting, like I said, Plant, P&ID, some core AutoCAD as well. I started out on front-line support. And then I right now, I'm currently doing premium support for our enterprise support customers.

My background leading up to my career with AutoCAD is that I've always done drafting. I started in high school, went to a tech school, worked for architectural firms, mechanical firms. I grew up in Texas. So my background was mainly the oil and gas industry. I was actually helping do as-builts, set up new projects for P&ID projects for ammonia refrigeration plants before I came to Autodesk. So that's a little bit about me.

JASON DREW: So for an overview today, what we're going to be talking about how is to get your models from Plant 3D into Revit, and then from Revit into Plant 3D, and then ways to update those models with design changes. And the other thing we're going to talk a little bit about is model optimization so that that update process is efficient and goes smoothly.

So by the end of the class today, you'll be able to accomplish these tasks up here, like I said before-- Plant to Revit, Revit to Plant, and then updating those changes. So before we go too

far into this, we want to talk a little bit about, I guess, the reasons why we decided to put this class together. So mainly, it was coming from customer requests. So Quentin and I were working in support.

We get a lot of tickets sometimes-- say, hey, I've got people working in Revit, got people working in Plant, and they want to share models back and forth. So customers were asking us, how do we get our models in there and how do we get them to show up properly? So that's where this came out of-- is we were just doing a lot of trial and error testing. And this is what we came up with as a best practice workflow.

So this diagram here shows what we're going out of AutoCAD Plant 3D to Revit. We're exporting out of Plant 3D, and we'll explain why we have to do that, do the process, here in a little bit. And we do have now a way to batch export that out to help automate that a little bit. So go into a DWG file.

And then we've got a new utility that just came out last Thursday from the Autodesk Labs. It's called DWG Sync. So that program is free. It's a beta. And that's going to allow you to not only import models into Revit, and also update them so the DWG Sync is the update side. And ultimately, those go into a part family. And then we put those into the actual Revit project.

So going the other way, from Revit to Plant 3D, we're going to go out from Revit to a DWG file. Now, there are some things you need to know about setting up Revit views before you export. That way, you can get the right geometry out before you take it into Plant 3D. And then we insert that into an XREF, which goes into the project. And then you can use that in ortho views and things like that.

So the first section here is AutoCAD Plant 3D to Revit. And Quentin's going to do a quick demo just to show you how to export out of Plant 3D into this DWG file format, and then how to use-- there's a batch export routine. So most of us know that there's not really a batch export from Plant built-in. So we talked to one of the specialists in Europe. And he's really good with Visual Basic programming for AutoCAD.

And I said, can you give us the utility that does this? And he was like, sure. So he wrote it up. It's just one DLL file. You load it, and then it gives you a new command. And you can just export out all the drawings at once. And that way, you're not having to right-click and do it over and over. So if you want to go ahead and flip over there to Plant, we'll go through that.

QUENTIN CONTRERAS: Sure. So as Jason was saying, part of the problem that we encounter with customers wanting to do to take this sort of workflow is you're going to have multiple drawing files perhaps that you want-- are going to need to export to use in Revit. So that can be very tedious-- to have to go into each drawing and open it, do the export to AutoCAD, then decide where you're going to save it, then open the next one, and so forth.

So what we're looking at is something that's going to save you a little bit of time. So as Jason was pointing out with our colleague that created the script and that's going to be able to do this for you, basically, you'll-- we're going to have the content available on the site that you can download. And then you can place it into your workflow.

But basically, when you do an export to AutoCAD, you have a couple of-- really, only two-- options to do this. So you can do it old-school way and go to your Export to AutoCAD and do it that way, or the other way that you could do this is first of all, you have to make sure that the drawing file is open. And then come over here to the actual file, right-click on it, and Export to AutoCAD that way as well.

But as we wanted to show you, what we've come up with is-- so here, with the batch utility, what you're going to be able to do is just once you net load it into your project here, then that command is going to be called Batch Export to AutoCAD right here. So once you select that, it's going to go through your project and it's going to find those DWG files and export them out for you. So it's an automated process. You don't have to go through the task of each one at a time.

JASON DREW: Yeah-- also did a P&ID export, too. So that's a little bonus because that one-- customers ask about that all time. Can I batch export out my P&IDs in bulk those to deliver to somebody? So that's in there, too. It's P&IDs Batch Export to AutoCAD-- so a little bit different. I think it only does a look-ahead on batch, though. For some reason, it's-- yeah, there's P&IDs, Batch Export to AutoCAD.

The HL is called the Headless. What that is is basically if you're going to do this overnight or something, where you're going to use Script Pro or something like that to launch Plant 3D, if you run the headless command, it's just going to do it in the background and you don't have to click anything. So he said that was sort of like an automated version if you're going to do it without intervention of anybody.

QUENTIN So like I said, when it runs through that process, you're going to have a destination folder that

CONTRERAS: you're going to be able to specify where those drawing files are going to be located. So it's not going to be in the same location as your project files, right?

JASON DREW: No.

QUENTIN CONTRERAS: So once it goes through the process, you can go to that folder, and then you can start pulling those drawing files to use to bring into Revit now. So I'll let Jason--

JASON DREW: Yes?

AUDIENCE: Does it allow you to pick what files [INAUDIBLE]

JASON DREW: This one just does everything. It just goes through the entire project folder and does a batch export and everything. Otherwise, you'd have to just go one by one to the ones that you know have been updated and doing it that way. I've asked him if he could do that, where he could bring up a box and check. But that's future stuff, I guess.

QUENTIN CONTRERAS: We can work on that one for you.

AUDIENCE: Vault files?

QUENTIN CONTRERAS: Vault files?

AUDIENCE: [INAUDIBLE]

JASON DREW: If you were using Vault, I would imagine you'd need to pull down-- you'll get the latest copy and then go ahead and batch it out. And then you could clear out your local workspace or erase those off of there. It needs to find them locally to do an export out.

QUENTIN CONTRERAS: Let's jump back into PowerPoint?

JASON DREW: Yeah. That should work. So [INAUDIBLE] over there. There we go. So what's happening when we do an export to AutoCAD is basically, Revit needs to have 3D solids in order to process the geometry and pull it in. And so what it does is it takes all of the specialized Plant 3D objects you see on the left here-- the valves, the fittings, the pipes, the equipment, everything-- and converts it to 3D solids. So that's basically all that the Export to AutoCAD command is doing.

It's like the old AC export, but it's just-- it's built into Plant 3D-- so a specialized command.

So a little bit of a background into this-- when we started looking into these workflows, we tried a lot of different things. And some things worked and some things didn't. We talked to some people. They said, why don't you just link your Plant 3D model directly into Revit? And I said, OK, we'll try that.

So we did that, and it looks like this. So for those of you that use Revit, you know that Revit doesn't have object enablers. So it can't really process the geometry of the native Plant 3D models very well. It just comes out with wireframe. So it's in shaded mode right there. But everything else is just wireframe, like all the pipes and fittings and things like that.

So I talked to the Revit product manager and I said, what's going on here? Am I missing something? Am I doing something wrong? He said, no, the link CAD in Revit is basically-- or was only designed to be working with 2D models-- so like a civil 3D layout, a plot plan, or something like that. It was never designed to pull in 3D geometry.

So I said, that makes sense. Let's look at another method. So then we started doing the export to AutoCAD. And we could bring it in with Import CAD and just place it right in there into the model. And that looked good. It showed up in views-- well, I'd say showed up just fine in the canvas. But then when we started making our views within Revit, we would check the-- bear with me here-- I'm not a Revit expert, I'm just starting to learn it-- the levels, the view levels, wouldn't work. It doesn't clip the geometry, in other words.

So you could put it in there. You go in to do your-- like an elevation on level two. And then you see all this pipe and equipment sticking through there. And it's like, that won't work. So that's when we got into using the part family import. So that's what we're going to look at here-- is the DWG Sync utility. And so I'm going to go into Revit and show you how that works.

And so when start to bring in your Plant 3D drawings with this DWG Sync utility, we recommend that you create a brand new Revit project to store this in because I started talking to some of the Revit folks. And they said, well, you want to minimize bringing in DWG files into Revit-- just general best practice.

I said, well, what if we create a brand new project, we import the Plant 3D models into there. That way, the Revit designers can load and unload that as linked files. And they said, yeah, that makes sense. So that keeps it from cluttering up your main Revit model.

So I'm just going to go into a blank project here for Revit. And I'll use this to bring these in. The DWG Sync add-in is already loaded on this machine. I think there was an update on Friday of the latest build. So when I go up here to the Add-Ins tab, you're going to see there's two new buttons.

The first one is DWG Sync. So that's what we're going to use to update the models after the change. And there's DWG Import. So what we're doing right now is using DWG Import because we want to bring our models in for the first time.

So if I click on that, it's going to ask me to go browse to the drawing that I want. I'm just going to pick one here from Area 1 of that sample project. So what this is doing right now is it's creating a new part family in Revit for me automatically. I'm using the generic model template. It's processing all of the geometry, 3D solids, from that Plant model. And it's going to bring it into this new part family.

And then it's going to go ahead and place it into the actual Revit project for me. So it'll take a little while to run. While it's running, I will say that you have to watch out for your XREFs. So for example, in that Area 1, I had the piping equipment and had the steel XREFed in there. So if I have an XREF as an attachment type, it'll just bring it in here with it. If you use overlay, it'll skip it. So depending on how you have your XREF set up, it'll have an impact. Yes, sir?

AUDIENCE: [INAUDIBLE]

JASON DREW: I think right now, it's 2016 and 2017 because I've loaded them both and it seems to work. Depending on how complex the models are, that'll impact how long this takes to actually bring it in. These aren't too bad. But if you had a really big model, it may take a little while to run through this.

And what we usually see customers doing is putting their models into areas and units and things like that. So you may want to have a general arrangement drawing for each area or each unit. That way, you can just bring those in together and you can basically update those as needed.

AUDIENCE: [INAUDIBLE]

JASON DREW: Yeah. Yeah. It's working on the second one now.

AUDIENCE: [INAUDIBLE]

JASON DREW: If you do a sync, it's going to have to reload it again. We'll see that in a second. So it gives me this warning. I don't know why it does this. I've sent it and take it to the Revit team, software team, to ask them about it. It doesn't really hurt anything. It's just a warning. It doesn't impact anything coming into the model. I don't see any geometry missing. So it's just a false message, I think. They're working on a fix for it.

So I click OK. Now it's going to go ahead and place that into-- you could see it flash up there-- put it into the part family. Now it's going to actually bring it into my project here.

So let's go back to the home view and go over here to the side. So you can see under Generic Models, there's the actual DWG file that I selected. So it gave it the same name as the DWG file, and that's one instance there of the part family it's placed in. Basically, it places it wherever you have your origin point relative in AutoCAD, like the 0, 0 point is basically where the project base point is in here. That's where it drops in. So just keep that in mind. This is where that's going to go.

AUDIENCE: Quick question-- when you say bring it into a part family, you mean that you're [INAUDIBLE] family in Revit [INAUDIBLE]

JASON DREW: Yeah.

AUDIENCE: You're not actually [INAUDIBLE] sticking it there, and then [INAUDIBLE]

JASON DREW: I'm not sure how they coded the DWG sync or what it does in the background. I know I've done it before. Before, we had this utility manual, I'd just go create a new family, pick Generic, import it, and out it in. So I don't know if that's the same as what you're--

AUDIENCE: [INAUDIBLE]

JASON DREW: So that's all done here. Everything looks good. So I'm going to go ahead and save this. So basically, you could take this and attach it to a building model. I can go back out of here and we'll take a look at that [INAUDIBLE] building.

AUDIENCE: [INAUDIBLE]

JASON DREW: The file size? Let's see. I think that one was just a few megabytes. It wasn't too bad coming out. The DWG file was a few megabytes. I'm not sure what the part family comes out to be. I'd

have to go look and see where it wrote that and find out how big that ends up being.

So here's just a standard building model. And I can go in here-- had this linked earlier. So let me go to Manage Links, get that reloaded. So it pretty much works just like any other attachment. Let's see. I do have to change my view, though. It's turned off. What did I do wrong?

AUDIENCE: [INAUDIBLE]

JASON DREW: It's on. Yeah, it did this to me earlier. I don't know what I did wrong-- should be showing up right out here. I'll just unload it and reload it here.

AUDIENCE: [INAUDIBLE]

JASON DREW: Let me go back to this real quick. Revit Links.

AUDIENCE: [INAUDIBLE]

JASON DREW: It looks like it's all turned on. I'm not sure what I did wrong earlier. I had it in here, but it went away. I think I broke this project or something.

QUENTIN CONTRERAS: It was working. I did see it earlier.

AUDIENCE: [INAUDIBLE]

JASON DREW: What's that?

AUDIENCE: [INAUDIBLE] RH.

JASON DREW: RH. Don't have it hidden-- it is hidden. Interesting. So anyway, I don't know what I did to this. Sorry. So now we want to talk a little bit-- so that's bringing your models from Plant 3D and getting them into Revit.

We want to talk a little bit about going out of Revit into Plant 3D. So in order to do that, I'm going to go get this back open again-- to the building model. You do have to set up some views. There are some I've configured in here because basically, your views are going to drive what you export out.

So for example, I've got a view template here for export to AutoCAD. So you can see in this building here, it has quite a bit of stuff in it if I actually look into it-- the mechanical and the-- let's see-- go over to Coordination. And I really don't want to export all this into Plant. That would be way too much.

And honestly, if I was just routing pipes, say, around the outside of the building or up to the roof, I wouldn't want to have all that in there. If you dump that out to Plant, it's going to be not only a very large file, but it's going to take forever for the orthos to generate because the way the hidden line removal works in Plant is if pipe's going everywhere, it has to go and process all of the geometry that's in that model. So that's going to take a long time.

So basically, what I'll do here-- I'm going to flip back over to my export view template. And that template has just turned on, basically, what I needed. I just left on the walls, the floors, the ceilings, things like that, windows. That's really all I'm after for this example here. So make sure you turn off what you don't need before you export.

The second thing as far as configuration-- if I go up here to the Export and down to Options-- you have to move it back and forth to get down to that one-- so what we're looking for here under Options is the Export Setups for DWG and DXF. So if I bring that up here and I go over to Solids, you want to make sure you have the [INAUDIBLE] Solids checked because if you don't, the orthographic view generation in Plant-- it doesn't process poly mesh very well at all, poly mesh surfaces. Usually, you'll find if you do that, there'll be things missing in your ortho. So just keep that turned on before you export.

So now if I want to go ahead and send out this building to a DWG file, I'll go back up here to the Application button, click over to Export, and we'll go to CAD Formats and DWG. So there is options up here for your export setup. Right now, I have this one set up for-- it's still set to Solids over here.

You can configure layers and how you want it to come out into the DWG file if there's a specific color setup that you want or lines and patterns and things like that. The other thing that I was checking into was on the General tab of this export setup. If you check this box, what it's going to do is it's going to create a DWG file with the name of the project. And then it's going to create another file and attach that file as an XREF. And the XREF is actually your main project model. I usually don't want that. I just want one file. So I just untick that box and leave that off there.

So I'm going to click Next. And then I'm going to export this out to the export file, let that run. So let me go back over here to Plant 3D. So I've got my DWG file. I could go in here.

Well, first, there's-- what we recommend doing is creating a new project drawing to hold or host that file coming out of Revit. So I'll go ahead and do that. And the reason we recommend doing this is that accomplishes a couple of things.

So by having an XREF container drawing, I can keep those Revit models wherever I want. And then if I go ahead and attach it into this drawing, when I run an update, I don't have to copy it in the project every time because if you don't copy the drawing into the project, then the ortho views really don't work. It want it to live in the project. So we're kind of tricking it here by putting a drawing inside the project, and then go ahead and attach to that drawing.

Let's see. Make sure I'm in my export folder. Gotta get that building drawing. So that one was only-- it about three megabytes there. So I've got the building in there.

Now, if you have changes that happen, basically what you're going to do is you're going to open this drawing, this Revit export drawing, and let it-- it's going to tell you in the corner that you've got an update. And just let it update, and then save this drawing. If you go back to run your ortho views, it's going to pick up that change. And then it's going to show up in those views as well.

So I can attach this. Go back to my sample project here, the one on the C drive. And it's Revit export. And I'll just leave that a default location. Invalid-- what's it telling me here? Can't be found. I don't know if it's still running back over here. It should be done.

Well, never fails. Live it doesn't work. You saw it work earlier. Let's see if I've got another one here. I've got one that I'd sent out earlier that saved. Let me save this first. Very odd. I don't know what's going on with my machine.

I'll work on that. I'll see if I can get that one going. But normally, you'd bring the building right in there. And it'll show up there with your regular Plant models. Let me try it one more time. There we go-- not found. Get rid of that one in there.

And of course, we're building that position. Like I said, I'd messed up that project earlier. But you can see there, that's where it's bringing it in. This is all the Revit geometry.

Now I can use this. In ortho views, it'll pick up this geometry. And it will show up when you

generate those views. [INAUDIBLE] in there twice. So one thing we'll look at is what happens after I have an update in the drawing file that I brought over here to Revit, back to DWG Sync. Let me go back over here.

Now, I already had this one loaded earlier. Let's say somebody makes a change in the drawing. Somebody routes some pipe, makes some changes, things like that, and I want to update this. So let me go back into this model.

I'll just make one change, like draw a line in here. Save that. So when I go up here to DWG Sync, Add-Ins, DWG Sync.

So it basically recorded earlier when this change occurred-- the date stamp of when this was brought in here originally, and then the time and everything. So it says that it's synced over here. Let me go back in here and I'll make this change. Save it. [INAUDIBLE] open at the right one. Open.

I think I just had the wrong-- I was working in the project directly. This is an extra export out. I went to the wrong one. So let's say you do an export overnight of all of your drawings out of Plant 3D. When you come in here, it's going to tell you that there's been a change. Let's see. That's not the right one. Area 1.

I should have [INAUDIBLE] it earlier. That same one should be picking it up the change there. That says that one's still synced. So I don't know why.

What it should do is show up this in yellow. And then you can just hit the button. It'll re-import this again. But it's not picking up this file change.

AUDIENCE: [INAUDIBLE] exporting.

JASON DREW: Let me get back in here.

QUENTIN CONTRERAS: Are we exporting?

JASON DREW: From which one?

QUENTIN CONTRERAS: [INAUDIBLE]

JASON DREW: Yeah. Let me go this again. I may not be saving it because if it doesn't save it, it won't show up on the DWG Sync. It's just sticking here.

AUDIENCE: But the file you're bringing into Revit is the exported file, right?

JASON DREW: Yeah.

AUDIENCE: So this has to be exported to that same location.

JASON DREW: Yeah. Let me do that. I'll just go over the top of it. But it won't even let me export it again-- just weird because I just saved it.

QUENTIN CONTRERAS: [INAUDIBLE]

JASON DREW: Because usually, open it up and you do File, Save [INAUDIBLE]. So let me try this again. Area 1. And that was PE001.

QUENTIN CONTRERAS: Another thing to mention as Jason's going through this is I think one of the things that you have to look at, too, when you're working on projects and the part that can get confusing sometimes is making sure that your file management is good because you're going to have tons of files. And doing this process, make sure you're having a good workflow. Don't just dive into it and start doing it. Make sure you know what you're saving to where, where you're saving it to where, what files are related to which workflow that you're going to do.

JASON DREW: So there it goes. It finally picked it up. I had to overwrite the right file. AutoCAD was hanging up. So now it's yellow. It tells me the status is refresh, and it's automatically got the box checked over here for Import. So however many you've updated overnight, it's going to automatically check the boxes and show you. All I have to really do is click OK.

It's going to go back to the process of-- so what it's going to do-- it's going to open the part family. It's going to erase the existing geometry. And then it's going to place the new updated drawing in there. And it's going to load that family back into the project-- so really don't have to do anything manually. This is eliminating a lot of picks and clicks.

Before we had the DWG Sync, we had to go in and basically do that same thing-- open it manually, erase the stuff out of the part family, reload it. It was very, very time-consuming. Flip back over here real quick.

So let's see. The next session-- we're already gone through the Revit to Plant 3D. The one part we want to talk about here was the model management and optimization. So one thing we talked about earlier is equipment models and vendor models, things like that in Plant 3D. So if you start adding-- this is a general tip for Plant just overall.

You want to watch out for using extremely complex vendor models, like you can see that valve up there has-- you can see the butterfly. In the section down there, there's probably internals in there [INAUDIBLE] and things like that. You want to strip that out and make it more like a parametric shape or just streamline that a little bit. So that's really going to help with your file sizes, jittering ortho views, and things like that. So try to avoid using those if possible.

And then you wanted to mention this one here.

QUENTIN CONTRERAS: Yeah. And I don't know if any of y'all have had the opportunity to take some other Plant classes since you've been here. But I sat on Scott Hallmark's class yesterday. And Scott had a very good class to where he went through, and went through the process on some of the vendor models that you get sometimes and how to break those down to make them like what Jason's showing here.

So if you get a chance, definitely look at his class because it could help in that process on getting some of that detail down. I can't tell you how many times I get a call from a customer and they're like, my performance really stinks. What's the problem? It was working good the other day.

And then I look at it, and it's like, well, what did you do yesterday? I put in all this valves and stuff. And I was like, well, which ones? And I started looking at them, and there's the name etching on the valves and the bolts and [INAUDIBLE] just like, guys, you don't realize what's going on. So just that little bit that you do with this and taking some of that detail down and simplifying it is going to keep your performance where you want it to be because if you get too detailed, you're just going to crash all the time.

JASON DREW: So let's go to the-- talking about the Revit models again. Basically, make sure that you optimize your models. Set up your views. Don't export everything out of there. I think there was one model I got one time. It had the furniture, the fixtures, all the way down to the paper towel holders in the kitchen areas.

It was running ortho view. It was taking, like, three or four hours to generate. And we looked at

it, and the entire building model had been sent out-- it was just huge. So make sure you strip that down and just take out what you need when you're going out of Revit into Plant.

So earlier, I had a question-- the file sizes. This one on the left was the full Revit export from that model. So you can see it has all the-- actually, MAP, the ductwork. Everything is in there. And then when it's simplified down, it goes-- so basically from 12 megabytes down to three megabytes. So it really makes a huge difference. Are there any questions on-- so far on just the process or how this works? Yes, sir?

AUDIENCE: Is there any [? plans ?] that have a tool, like shrinkwrap tool and [INAUDIBLE] built into Plant 3D?

JASON DREW: I haven't heard anything like that. Right now, it's basically Inventor.

QUENTIN CONTRERAS: It's just Inventor right now.

JASON DREW: I have seen people using regular AutoCAD. I think there was an AU class last year that goes and explains how to take just regular 3D solids to make equipment and putting that into an XREF and then converting that to equipment. So you would pretty much have your nozzles built in there into the 3D model. But most people do that as well.

So does anyone actually have two design teams where you have Plant 3D users and Revit users trying to work right now? So that's what we're curious about-- is how popular that is. It seems to be pretty popular. And then so if you have any questions, let us know. We're here. We left some extra-- well, plenty of extra time-- so bonus time back to you.

QUENTIN CONTRERAS: One of the things I wanted to point out, and I didn't know if you noticed during Jason's presentation, but can you go back to your workflow?

JASON DREW: Let's go back to the-- so that would be the PRAXIS. Here we go.

QUENTIN CONTRERAS: And Autodesk Labs-- there is a new flow diagramming application that they're currently under development still. So this is what Jason used to do this. So if you're wanting to create some of these diagrams like that, it's free.

JASON DREW: Yeah. It hasn't been highly publicized, I would say. But it's sort of like Visio. It's in the lab. So you go to labs.autodesk.com. It's called Project PRAXIS. You can join for free. You can go in in

a web interface and create these diagrams, change the shapes, colors, and stuff like that. And then you can save. It'll give you a web link. And you can go and actually share this with somebody.

Now, on the handout, we've got a lot of information in there. We have links to this live. If you want to go share it with somebody, you can just send them the hyperlink, pull that right up. And as far as the DWG Sync, so that is also in the labs. And I don't know if everybody has really worked with the labs project.

So what happens is they pull in a new project. They put it out there to the public like a beta. And then usually, it goes for maybe a year or so. And at the end, they decide if it graduates the labs, it usually ends up in the product. If it doesn't graduate, it sort of just dies.

So depending on how much you use this, it'll probably determine whether or not it goes out and eventually becomes part of Revit, or maybe it'll come out on the app store as a free utility. But if you get into the DWG Sync beta on there, there's a forum. And you can actually go in and ask questions. If you run into problems, just make a post in there. And all the product managers are in there. And there's a lot of different users testing it out right now. So it's free.

AUDIENCE: Do you think that would be-- [INAUDIBLE] you have to have a local DWG file to [INAUDIBLE]

JASON DREW: Yeah.

AUDIENCE: Plans to make that [INAUDIBLE]

JASON DREW: Well, you could have it stored anywhere on the network or on a box folder, even if you want to just-- [INAUDIBLE] like that. With Vault, you would have to pull down the file out of Vault and have it sitting there. But I pointed to the-- actually, the fix on Friday, the build that they just sent out, was to fix a problem I found. I was trying to import a linked DWG file off a network drive and it was just freaking out-- some kind of error message. So they fixed that. So you should be able to link in Yeah?

AUDIENCE: You talked about the process [INAUDIBLE] a structural [INAUDIBLE] architectural [INAUDIBLE]. You've got a [INAUDIBLE] Plant 3D [INAUDIBLE] go through the coordinate system [INAUDIBLE]

JASON DREW: Yeah. That's tricky. I know that we've had several customers come to us with questions about coordinate systems in general. So keeping things lined up-- it's really difficult if you don't

determine a common coordinate system at the beginning of a project because then everyone's trying to move their models around mid-project.

I would say probably from Revit side, it's more about shared coordinates, keeping things lined up. There's some stuff on the handout that [INAUDIBLE] how to set up [INAUDIBLE]. You probably know that if you use Revit. But I would say for the most part-- is just at the beginning of the project, if you have world coordinates or something like that, make sure everything lines up and that you have a common point between Plant and Revit because when you export those out, you don't want to have to go back and shift your models. It's just another step. So I'd say for the outside contractor, just work on them with-- at the beginning to determine that point, coordination point. Yeah?

AUDIENCE: [INAUDIBLE]

JASON DREW: Yeah, that's true because if you shift that, it's-- it throw everything off.

AUDIENCE: [INAUDIBLE]

JASON DREW: Yeah.

AUDIENCE: [INAUDIBLE]

JASON DREW: There is an article in the handout that links over to a paper that Joel Harris wrote on state plane coordinates. It's really good-- about how if you have to shift something, on how to do that and keep it there. But yeah, that's true. You do want to make sure that everything's lined up for the ISOs, especially.

QUENTIN CONTRERAS: Going off of what Jason said, we do have some other colleagues that we work with on the Plant side. Joel Harris is one of them. But I'm pretty sure most of y'all know about the Knowledge Network that's out there for Autodesk. So if you go to-- they call it the AKN. That's our repository for articles.

So basically, what some of us specialists do is as we're going through and we're figuring out some of your workflows and solving some of your problems, what we try to do is replicate that workflow, find a solution. Then we type it up in an article. And that gets posted to the AKN.

So some of the common problems that you might be running into that you're going wondering, why is this happening, do a quick search on there and see if you can find your solution there

before banging your head into a wall trying to find a needle in a haystack sometimes of what's going wrong.

JASON DREW: Any other questions?

AUDIENCE: [INAUDIBLE]

JASON DREW: Let's see.

AUDIENCE: [INAUDIBLE]

JASON DREW: Yeah. So you're saying that a batch export could be something that's built into Plant?

AUDIENCE: [INAUDIBLE]

JASON DREW: Selective, yeah. Let me just make a note of that.

AUDIENCE: [INAUDIBLE]

JASON DREW: I think he probably could. If you want to come up here afterwards and give me your contact info, I think he could probably try to do that for you. I can either post another update to the AU site, or I can just email it to you directly. So yeah, I'll check with the developer on that and see because it's really not developed by the Plant 3D development team. It's by one of our colleagues over there in Europe. But there's no reason why he couldn't give that over to the product team and maybe get that built into Plant as well.

Is there anything else that the batch export would be helpful if it did, because I was trying to think of improvements for it there, like error handler. He did say one cautionary thing with that is if you run that overnight, if somebody leaves Plant 3D open and they've got a drawing open, it may error out because it can't-- it has to open the file, save it, and run export to AutoCAD. If it can't save the file, it's going to stop and say, hey, I can't go any further.

So he's probably going to have to work on some error handling in there as well. Otherwise, just make sure you kick everybody out at the end of the day and then you run that overnight. And it'll export all the files just fine.

So I think that's about it. I'm sorry, more questions-- go ahead.

AUDIENCE: In the future, do you see Plant 3D pictures being added to Revit, or do you see Plant 3D as something that's here to stay?

JASON DREW: Yeah. I don't know. It's tough to say. We've got people using both products. And they're kind of similar. But it seems to me that most people, if they're using Plant 3D, it's because they got to generate ISOs. Otherwise, they'd probably be using Revit. I don't know. Sorry, I can't-- [INAUDIBLE]

AUDIENCE: [INAUDIBLE]

JASON DREW: I don't really know. I haven't heard anything about that. And without all of this being a publicly traded company, I really can't say futures. But I just have to see where it goes in the long run.

I would say another thing that you want check out when you go to the lab site is go check out Project Calgary. I don't know if-- how many of you have heard of Project Calgary? So a few of you. It's basically Plant 3D in the cloud. So what you can do is you can take an existing project, you can go ahead and sign up for-- it's part of BIM 360 Team.

So you get an account with that. You can push your project up to the cloud. Then you can invite people to it from anywhere, really, to join the project and work on it. And so when you save a drawing, it's king of like working with a Vault. When you save a drawing on your local machine, and the project-- it's going to synchronize that drawing. And then it's going to push all the database information, the SQL Server information, up to the cloud-- so just something else to check out on there. Yeah?

AUDIENCE: One thing that I've been playing around with is [INAUDIBLE] getting [INAUDIBLE] a really large [INAUDIBLE] bringing it into Navisworks [INAUDIBLE]

JASON DREW: Yeah. That's a good point, the coordination model. Right.

AUDIENCE: [INAUDIBLE]

JASON DREW: The only downside is that-- is if you need to use orthos, the ortho view won't see it. That was the biggest complaint.

AUDIENCE: Nowadays, it's a much smaller file.

JASON DREW: Yeah. And I know some people will take the dual monitors. They'll have Navisworks on one

side with everything in it. And so they're constantly updating Navisworks [INAUDIBLE]. I don't know. It seems like it would work. But this method here where you get the models in there seems like it would be better for routing things around.

Just a reminder to go to the labs, download everything. The batch export to AutoCAD is actually on the site here, or the class site. You can download that as additional download. And then the handout is on there as well. Be sure you get the handout because it has everything in detail that we talked about today, step by step with screen captures, and then the AU class survey.

And if you have any questions, just feel free to come up here. We'll be here for a little while. We can talk to you about anything you wanted. If there's anything else, just let us know.

QUENTIN CONTRERAS: Thanks, everybody.

JASON DREW: Thank you, guys.

[APPLAUSE]