EVERGREEN 2020 ONLINE CONFERENCE WEDNESDAY TRACK 2: UNDERSTANDING EVERGREEN REPORTS JUNE 10, 2020 CAPTIONING PROVIDED BY: CAPTIONACCESS contact@captionaccess.com www.captionaccess.com

>> It's 12:00, so I'm going to start the recording. Welcome, everybody. My name is Amy Terlaga. Closed captioning is being sponsored by Equinox Open Library Initiative. We like to thank our captioner.

This is in meeting mode, not webinar mode. So please leave don't leave your video often your mic off when you're unless you are asking a question. I am very happy to introduce Chris Sharp. Chris is system and mistreated for the PINES consortium. He will be presenting Understanding Evergreen Reports. So Chris, the floor is yours. >> Thank you, Amy. I appreciate it. I guess we will dive right in. I'm going to post a link in chat that will get you to a Google document that has some information, sort of an outline of the session and I'm showing my screen with the presentation.

You may see this address on the side next line that is at the bottom of the slide. If you want to follow along and don't have access to your own test server, that is available for you and there are logins on the second page of that shared document. If you have any trouble accessing that, just speak up and I will be able to do it.

And I don't remember whether Amy just said this, but the way I train, I like to be somewhat interactive. So feel free to ask questions by unmuting and asking or by posting something in chat, and if somebody sees a chat message that I need to see, please speak up.

Okay. So Evergreen reports, I was trying to think of an apt metaphor for this. I'm a jigsaw puzzle fan. And with the jigsaw puzzle, you take a box and you dump the puzzle onto a table and assayed bunch of pieces that you have to assemble into the picture you want to create. And Evergreen reports can feel like a giant stack of jigsaw puzzles. Basically you are trying to make a bunch of different things happen and when you have all the pieces mixed up, it can be very confusing.

Because of the way we think of things every day, is not the same as the way you need to think of things for reporting. Which is why I think we

have such a large number of people attending this session. Because it's complicated.

So I'm using a little bit of documentation. This was used in my presentation last year in Pennsylvania. And I have reused this slideshow before, too.

So anyway, let's start with what we know. I think all of us have worked with spreadsheets. And spreadsheets are nice tools to have because everything is organized into columns and rows. And if you have -- if you know that your data is in column C, row 3, that locates that column for you, that bit of data that you need.

So if you are to just naïvely start a record store, it if we don't start -- I guess there are some record stores that store customer information, but usually that's not what is going on to let's pretend we do want to store customer information at the record store. And their favorite albums and things like that.

So you might be tempted to start using a spreadsheet for that. So I am going to change what I am sharing here to illustrate. Sorry, I have too many windows open.

So this is in Libre Office, which is akin to Microsoft Excel. That's what we wanted to have a customer database, a record of our customers. So you might have the kinds of fields that you associate with a customer. First name and then last name and then address and then phone. Obviously more detail than that.

We are already seeing that to record this data in a computer means you are going to have to enter this customer information for every customer that comes in. So let's say you've got a customer, and I enter the address and phone number and then well, my wife comes in a decides to buy a record as well.

And she lives at the same address and has the same phone number. And then my son comes in -- you're starting to get the point. So there is

repeated data. This is a problem and there is really not a great way around repeated data when you're using a spreadsheet.

Again, with the music that customers like to do and in honor of any, we will have the artist and album so we will have -- being there. Or one of the older local albums. I'm working chronologically.

So to match which customer bought the album, how do we do that? Well, you can say Chris Sharp but that and another customer came in and bought that. And you continue repeating data. There is not a great way to do it, so how do you link customers with music?

That's when the data has become three-dimensional enough to consider using it database. Spreadsheets do work, and I'm sure libraries have lots of weird crazy spreadsheets that you are managing things with. But with database skills, you can do a lot more.

You would have a customer, but you have a table, let's call it a table, in other words, relation, that's a technical term, but for customers again, first name, last name, phone, email, whatever.

But we also -- we want to have something that identifies the customer uniquely. So what a database does is it assigns an ID number. In the first row gets 1, 2nd row gets 2, and eventually if the store is successful, we have thousands of customers.

So what this does is rather than -- I'm not going to retype it all out for you -- so rather than having you put each customer's name in the music table, we can do this. We can say customer one but this. And customer 3 bought that. And what that is doing is it's taking the ID from the customer table and you are referring to it in the music table. And music would probably be its own table. But you're getting the idea.

This constitutes a link between the customer and the music. We don't have to write the customer every time, so if I buy another album, I'm really dating myself my music choices, I know.

Let's say I buy another album. I don't have to put Chris Sharp and address and all that stuff. Because I can refer to it. And instead of having

to retype the address every time, I can have address in a separate table, and on.

Basically that's it -- create a situation where you decide where can repeated data happen? This is called normalizing the database. Where can repeated here happen, and if it can happen, it probably needs to be in a table somewhere.

So that's basically how you come up with the problem that the database solves.

Now, let's move to things that we work with day to day in libraries. So we work with books. And we all know what a book is. No one needs to ask plane what a book is a peer we also don't have to think about what attributes books have, like title, or author. If this were an in person session, there would be I would have you shout out, it would be chaos across these microphones, but usually what I hear is barcode, call numbers, because you are librarians, that's how you think. That even though it has a blue cover, and is by James Patterson combos or attributes of a book. People know that.

There is also money in the libraries we take library fines. Some of that is getting phased out, but I think lost and damaged fees are here to stay. So we are going to keep receiving money. And so we need a way to deal with money.

And then come of course, the people who come into the library, the users, patrons. We call them patrons, but there are also staff users. So there are different attribute of those users. The users are that they have a 1st and last name. They live in a location. They have a phone number and email address. And then you have the circulations themselves. So let's take a look at a book.

As I said, you got the different attributes. This is with catalogs and normal trainings, and they usually say things like obligation meter and those of the bibliographic elements of the book. But there is also the physical elements of the book. And the actual instance of the book that exists on

yourself. So you're already working in an abstract world where you are having to remember this metadata that describes these books. And with the patent, same thing. You've got their date of birth, their driver's license number if possible, their parent, guardian, physical location. And finally, you have a situation where you have to track what your patrons are doing. So circulations or hold requests or things like that.

So circulation, which we don't typically think of as a thing, like it is not a real -- you can look at a book. You can look at money. You can look at a person. You can look at a building. You can't look at a circulation. But we have to track it somehow. So circulations exist in a table.

And hold requests exist in a table. And transit exist in a table. In real life, we know that, for instance, the -- are on the way here. You don't think about that being a thing, we think about the T-shirts. But to be able to track it in software, you have to be able to quantify it in a certain way. So the reason that I am going through all this is that it takes a lot of different data sources to store -- to store this information for retrieval. So for instance, for a book, these are table names, not actually the table names, but to say there's the copy of the book, the actual instance of the book on yourself or in your hand at the desk. The call number or volume. Volume as catalogers know in Evergreen, is sort of an intermediate holding object that the copy belongs to, and that it itself belong to the bibliographic record. The bid record is where all of your title information is. The descriptive things that you find out about the book. And then metadata for searching. It's not just the bid record, which in Evergreen is stored in MARC -- is not even in a format you can read. So you have two pull that data out of the format that it is in and make it available. So that sort of explodes all of the attribute of the book that you're looking for or whatever it is. Into a form that allows search. And then we talked about circulations. So we have to type out what the

book does. Who has it right now? What is the status of the book? Are

there any hold requests for this title? Has this particular copy that is in my hand then targeted for a hold? As I say, not actual table names. Again, talk about transits, shelving locations, that's another part of the but that we have to consider is where in the library physically does it live. Circular modifiers are something that we use a lot, but that lets you set your circulation and hold rules around 8 particular item type. The only library or circular should library, and we will see when we get a little deeper those aren't always the same things.

And then users. So these are all the different tables that go into describing the physical object of the book. And the reason it is important to understand this is that reports has to pull all of these data pieces back into something that you recognize. So again, this is the big pile -- I also slip and say crossword puzzle, jigsaw pieces just laying all over the table. And you have to decide which box to pull from and which pieces do I need to use to come plead the picture and trying to complete.

The way we do that is by joining database tables together. I'm going to switch back to my spreadsheet for a second.

So here, the way we join these tables together is by a linkage between an ID that is then referred to in another table. And these also have IDs. So Wilco would have 1. This is the transaction table, but you get my meaning. So pretend these are albums. Now, when the ID belongs to its own table, that is what is called a primary key. The primary key doesn't have to be an idea, but for the sake of argument, let's say that's what it is now.

This ID number needs nothing on its own. It is just a serial number. But once it has been assigned, in this case to R.E.M. Green, that is the R.E.M. Green number inside your database. From there to eternity. It is unique and no other R.E.M. Green should be associated with that ID number.

Same with customer. Now, you have your primary key on one table, and you refer to another table's primary key, that's called a foreign key. Now,

we are getting into SQL concepts, and we are going to talk a bit about SQL or sequel as some people say. I just say the letters. When you are referring to the other table, it's a foreign key. When you are referring to your own key, that's a primary key. That is how we link, I keep using that word, link -- so that's what these are, chain links, and we use a select query to join tables together. So what you do with a select query in SQL, it's a very simple, very easy to read language that is used for database make elation. And in this case we are only concerned with select pick there's also update, delete, search, things like that. We are just talking about select because that is all we are doing. It's not changing any data, it's just polling data that you want. So you decide what you want to see, and you are deciding what fields do I want my report? From, where these fields need to come from. So if you need something about a book, there is a copy table that has some of the table has information, call number that has some of the information, and the bid record that had some information picks so you have to call from different choices. Sources. Join one or more sources, on foreign key relationships.

What I mean by that is what I just illustrated. From the foreign key is another tables key that is referred to in your join.

And where. So if you do select what you want to see from this table and not put anywhere, any sort of filter on there, you are going to get everything. And if -- I working PINES here we have been working with this for almost 14 years. So there's lots and lots of data. You don't want it all. And then there's another type of filter called having, which is called an aggregate filter. That gets a little more advanced. We might not get to it today for will see.

So this is -- it's called display fields not displayed fields. This is a correspondence between the SQL select query and what you actually see in the report interface, which we are going to get to in a minute. So these are display fields is they select. From, wherever your getting the stuff, your data source. Where is the filters, and having is more filters.

That used to be the old interface. I think that is the end of my slideshow, so I'm going to stop that.

So again, C Sharp-master death.GAPINES.org. I greeted my own user on here. But any of those logins will work or you can use your own system. And I forgot to do something. Is that showing through? That's cool. I'm finding there are subtle differences between these online meeting services. With Google it just as a single window. Good. I'm glad nothing embarrassing was on my screen.

Let's do this. We are back. So we are inside this client pick there are a couple of different ways to get to the module. The reports module. You can click here for reports or go to admin straightening click reports. They do exactly the same thing. And if you are logged in as a user that can run reports, and we will talk about permissions, you should see you are logged in as your actual username and then it will show you these icons here.

Let me sidetrack into permissions for a second. You need a couple of different permissions to be able to use reports fully. One of them is run reports. That is major can read report template that someone else has created. I'm sorry for making everybody full screen every time I change something. I have the same complaint.

There is also create report template and that's a promotion that you need to have to be able to use reports. And it used to be run reports, and anybody could do that.

But it's actually better to break them out for several reasons, but one of them, honestly, I think we have lived in a kind of naive bubble for the last 15 years or so until maybe the last five years we have gotten more and more in the way of cyber threats and the possibility that people can use this wonderful software we have created for evil intent.

And you don't want to widely give permission for just anybody to run reports just anybody to create report templates. Because it gives them the ability to report out personally identifying information. I was talking with my colleagues yesterday about how are we going to deal -- we had a staff member actually said a report result that contained Patron names and addresses to a shared Pines list. When we saw that, I was very armed and thought, oh, maybe we should consider having a policy of not putting Patron names on reports unless you just need it. This was just the standard report that had everybody's name on it.

So there are things you have to think about when you run reports. So run reports is one and create report template. You have to have both of those who do the things we are talking about today. I will get off my soapbox on that one.

So if you are visiting this for the first time, your my folds are going to look like my shared folders here. So really, this is a sheet of paper icon, but actually designated folder. And I know there's a usability issue there. So the way you create a folder is you click on the name templates and you have to have subfolders. You can't just creating some without an actual folder. That belongs to templates that belongs to reports and belongs to output. I already have one in here, but I'm just going to call this on training or whatever.

You have the option to share or not share. By default it is not shared. She reports folder is also another permission, and that's where you can set the depth. We and PINES allow sharing only within the library system. We don't show across all systems because report for us is already a gigantic mess and we don't want to make it worse.

But you can share with the people that you can share with them at you said you do want to share, you can designate consortium, system, branch, or whatever. And then you just create subfolders and it should pop up with this action succeeded.

Now, when I look under here, I have the original that I did share and that's why it says CONS, that means consortium, there's the training for that I just created, and you need somewhere to store your report.

Let me back up a second. We are already a little bit confused. When you open this. Because it says my folders and shared folders. And the use of my and your and our and whatever can always be confusing. But my folders means your own folders. The folders that I have control over and that I can make sense of.

Shared folders will be where other people's reports folders that they had shared top up. They will pop up in this list pick so you may already see my C Sharp folder. I have anything in them yet. Preference of the templates took

So the template a reports templates, well I will ask, what is it template quick sensibly answer, what is a template, like in general? It's like a blank form. An outline. It remade form. Prototype. Those are great ways to think of this.

So when we create a reports template, you're pre-configuring everything you can so that all you do when you actually run the report is to put the data in. So that's what templates are and that's where we will spend a lot of our time today. But just in the way we have two source circulations, we have to store reports where we stick the data in, that object needs to be saved somewhere. And that is what reports is. So that's a little confusing to have a folder called reports after you have entered what your calling reports. It's just a confusing thing right off the bat.

In any case, I already have my C Sharp folder, but I can click on the name reports, and it will pre-popular with what I've just used it I can share things and put a subfolder there. So when you run the report, you end up with reports output. And that's what this third folder is.

I'm going to create folder like that. This procedure here making the same folder for each one, that can be very clarifying. I am a person who thinks pretty linearly when it comes to this sort of thing. If your sort of a pack rat and an portal he there's not a search option at the top so you can find templates that have been created, but if you are more of a pack rat type, you might just have a randomly named tempo folders without consistently named reports or output folders. I would recommend while you are beginning, to prevent unnecessary confusion to just create the structure that I have.

So what do we do now that we have created our template folder? We will click on -- I'm going to do something else. So just to illustrate, we will run a report with a quick and then create a template.

Let's look at a template created recently. I don't like this. I will pick a different one. I actually did have something prepared for this, but I'm changing my mind midstream. Let's do this. Let's do -- this is our Action Trigger report. Once you got reports coming see what a mess my folders are, I was just preaching to you about folders.

What you do here is you select where your template is, in this case a little further down. You can keep creating subfolders as deep as you want. For consistency's sake, resist the urge to do that. So I clicked on misc, which is under C Sharp share, which is under templates. So I'm going to do the action, and put a checkbox there, so I will then put in a report name. And I can put in a report description and then you can get into -- but we are not going to worry about it now. We can talk about it later, but it's not a priority.

So I've got my report folder that I'm going to store this in, and I selected Chris, and I got my selected output for here at the bottom, which I selected Chris as well. Again, for consistency.

In here I have a couple of forms I filled out. It's a template, we are just sticking our data in. So this is our action report, so we look at the one we ran yesterday. So between yesterday and yesterday, you can make it further, but basically -- you can also with this, that's a real date. You can also select relative date, which lets you run it X days ago in this case. There is a way you can change this from days to months or whatever as well and we can talk about that if you want to. At this point there is not a way to change it, but you can create your template.

It gives you output options by default Excel, HTML and bar charts are selected. If this is going to go to your web person to put on a webpage, they may want it in CSV instead of the other outputs. There is also recurring reports. So if I click this and I keep it at one day, this report will run every day.

It is actually true that we run this report every day, but I don't want to run every day right now. But you can set this to run every 1 day or you can set it to up to, I guess, 24 days. I'm not sure why they have that only two to four days.

You can do every week, every two weeks, every month, every 12 months, if your forecasting out that far, the annual report is run, and not having to think about it, it would just come into your inbox.

So if your report is recurring, it's important that you do select relative date. Because if you do a real date, it will just report June 9th every time you want to report. And that's not what you want.

Run as soon as possible. That's usually what you want when you are running a report. What that will do is it's now 12:37 p.m. Eastern, and if I said run report as soon as possible, it will run today at 12:37, and the next day, and the next day. And that may not be the most convenient time for you to receive that report. So I can actually set a time for it to come to me, including times in the past. So if this were a monthly report, I can set this to the first of the month and I want to run it at noon. A lot of system administrators really appreciate it if you run reports overnight, they are not urgent, so you pick 2:00 a.m., it comes in on the 1st of June, I walk in the door to my office, COVID 19 is over, and I sit down and there is my report.

Like I said, putting it in the past might seem a little weird, but the weather report scheduler works is it finds the oldest report in the list and puts it first. So that's what make this possible. So that we don't have to say I forgot to start my report on the first, and is the 10th, so if I run this monthly, is going to run to June 10th. So this is how we solve that problem.

That also let you get the data you want now and not wait to -- until the 1st of July.

Email addresses, this email is pulled from the Evergreen account from the person who is running the report. You can add addresses. You can separate by space. Can separate by a comma or semicolon.

>> The question for what run multiple reports close no, it will run one report. I haven't experiment a lot about that, but it will just run once. It occurs from then on out. I don't know if I've tried that. So try it. The see what happens. I don't know. That's interesting.

So the way -- and I got my report name, I thought use for discussion, and another thing to know that these, and I will show you this, how do you know if it's rank? It looks like mine is sitting here in a pending state. I wonder why it is taking so long. Okay. Let's pretend that this report here is what actually ran. So you can click this, make sure that says view report output, and click submit. That will open a new window that will then have your totals.

Now, notice that my report title is visible on this. If I put in a description on this report, it would show here. And I would say that so that it is clear to you that if you get cuter than blah blah and you start writing other four letter words for I hit my coworker so much for making me run this report, whatever you are feeling at the moment, this is not a place to voice your frustration because anybody can see this.

Anybody with the report output can permission can see these reports. So I'm going to close that off.

You mentioned that is still set for June 1st. That should be running because that is in the past.

It must have been waiting pick it might have been cute. And that's another thing. You can configure how many reports can run at a time. So let's do the report I just created. You report output.

So it says my title, it has my useful description, and that it has a bar chart which was automatically formed -- it's not particularly useful, I think. It does let you know your report worked. It will run 10 reports. Don corrected me.

So please wonder system administrator before you do that. So tabular output. That's are HTML output period what this will do is it has this nice visible table. You sort of click on that and see results without having to open up an Excel file. It's one of those massive 67,000 row spreadsheets, you probably don't want to do this. It will freeze you trying to bring all the data in.

But this shows the fields I chose and it's a really useful report get every day.

So the applet opens in lever office because that -- I have Linux and that is what I have installed. You can edit it, you can cleaned up and make it feel for your coworkers argue director you can see the totals, this is the sort of thing that PINES libraries in the past wanted Evergreen to do all of it. The fact they can take as raw data and stick it into a program that is built for statistical manipulation like Excel, there is no reason for ever ready to -so if you are ever in an argument with your libraries, tell them they need to go to an Excel training. Because that's the way that that would work. So I want to get back to my window.

So the third link here is debugging info. I'm not going to go into that yet. We will go into that little bit later.

So we now have some got successfully into the database and we have run a report so that we can sort of see how that process works. Are there any questions before we move on to creating a template? I will pause for a minute or so. All right. The tablet folders aren't that -- it's all a matter of relativity when it comes to messiness. My wife is a professional organizer, and every house she has gone into people say things are so messy. But she has seen real squalor before. We all think our closets are messy until someone else sees our closet and says you are really neat. So we are back to my C Sharp master server so we don't disturb the PINES library.

To create a template, first of all, before I jump into that, let's talk about existing templates. So this is PINES production. So you're getting if you into what this looks like for us. And that's probably a good thing for you to see. So if I am in shared folders Now, I get to see other people's stuff. So these are staff folders, these are odd cataloger folders that should not exist. For instance, this is the admin users folder, and years ago there were some tempos created by the original developer to accommodate some PINES needs. And that's where these were stored. And then there were some took equinox delivered is about a decade of that spirit proper that another thing. Reports, depending on what upgrades you to your database, reports can sometimes break. Existing reports can change. Because the schema underneath the changes and that's not a bad thing per se, but create an reports template is such a bear that people get really panicked about that if it does happen.

So anyway, we've got our folders here and there is one on give the graphic records. I can now look at this report and run it. Or I can take this report -- I'm going to click on selected template. Cloning this case means just copy, make an exact copy of the template and in your able to store it in your own folder. It prompts me to choose the folder where I want to store this template. Again, these are template folders. This area here is I'm going to click double-click Chris, and select folder, and then automatic the opens our interface here -- that's interesting. It didn't work.

So this is probably an old enough template that the template upgrader piece just did not know how to handle it. And that's okay. This is probably 2007. We won't worry too much about that.

But that's cloning. Cases for cloning are, I created the report myself and I forgot to add a field or I made a certain thing wrong, I can clone it, work on the clone, there is no way to go back and edit the original template. This is a common issue. Some reports just want make it. I have actually seen the upgrader piece do a pretty good job with our staff. But I think it's just the mileage will vary. I would say just create new templates for but I'm comfortable with this interface in ways that my colleagues aren't necessarily. So template breaking is not a big problem for me. Again, I created a report, I made a mistake, I can clone the report and fixed the clone and rennet again. That's use case number 1. Use case number 2 is what I just demonstrate it, really there is a report out there that somebody else has created and you can then clone that, put it in your own folder so it doesn't make you have to dig for it again, but you might want to add a field was nothing like that. In that situation, it will vary, but that's a use case for cloning. Take some of the ulcers report, tweak it a bit, and make it your own.

And really just making a copy of the report to go somewhere else. When you clone a report it will populate this template name with the title and description that was put there. And it will add clone in parentheses to the title. So if we save this and clone this, it will say clone clone, and do that again it was a clone clone clone and so on.

So I typically don't want it to say clone clone clone especially for something that I'm going to show other people. So I might say version 2 or something like that. So that's cloning.

Any questions on cloning? I know that a lot of people have talked in the past about wanting to just directly edit the template. And I understand that desire. But is not that big a deal to work on the copy. It's actually a little safer as far as if you are a system administrator and you work on

continuation files, you always want to be copy of the original so you know it is around. So that is one way to look at it.

You know, it's not perfect because the cloning, the cloning mechanism didn't accommodate every single part.

So let's look at your interface now. Let's do a full overview of it. We are coming up on an hour. I do want to work in maybe a five minute break. Let's do that now so we can bring it on home once we get in. So let's say at 1:00 we will reconvene and I will myself to biological break and get your caffeinated beverage because we are going to dive right into template creation when we get back. So see you in a minute.

(Break Taken.)

All right. To respect everybody's time, and to get through everything, I'm going to go ahead. All right.

So again, I got here by going to the folder I'm going to save my stuff in. We will use this training fully. And there is this link off to the side that says create a new template for this folder. So I do that, it brings me into this area.

This gets a little hairy. So ongoing to go and introduce a piece because it can get pretty overwhelming if you just dive right in.

So you have your template name, which, you know, we are going to say basic weeding list. You were required to have a template description in previous versions. You may still be required to do that. And in recent versions you don't have to.

I will mention that I use the description field to record sort of a breadcrumb style -- let's see where -- this is an example of what I would put in the template field -- or the description field. I would say what source it comes from. In this case I had no ability. We are not going to get into that today. I think that's too much to cover in a session this short. And then I will show the paths I take, you understand what I mean in a second, to get to the data for both the fields and the filters that I use. And if there is something to know about the report, I might have a usage.

So that the way I use discretion typically. Because sitting and watching me type is super boring, and just meant to say very useful description. Proper documentation URL can be something like point to a Wiki page on your systems documentation, the PINES library is one. The one, that is, the PINES library us or they want to know how the reports are set up. So we have a dedicated page and we can put that URL out and they are looking at this report, and they can click on that documentation URL and it will take them where they need to go.

There is the save button. Now, you're getting into the more complicated things. There is a word called core source. And that allows you to pick where your data is going to come from. Again, with our examples before, this is where the core source comes from. It's from. If you're connecting this to an SQL query, this is from. So there is the select source drop-down. We are going to skip this nullability part. It's a pretty subtle idea. I just want to get into it. I would be happy to talk about it later.

Documentation URL is not required. You can leave it out. The other thing that is required is template name and the data. That's a great question. I will show you, I have that in my head. So not everybody does, not everybody has access to a database little on a production database. If somebody can dig up the diagrams and post a link, that would be awesome. Otherwise, I will get back to this. Because there are some reference diagrams in the documentation.

So we are going to look at the sources. First of all, it's as core sources. And if you scroll down enough, it will say non-core sources. So the idea behind core sources is that these are going to be sources that you would use a lot more often. The non-core sources are everything else. As I mentioned in my example about record stores, there's probably going to be a table that records the transactions between the user and music that they buy. Or the customer and the music that they buy. And if you just view that table without the context of having the customer information and the music information at hand, all you're going to get is a big list of numbers, IDs. That's really not use multiple reports on. But there are cases where you want that kind of data, so Evergreen does give you access to basically every table. It's not literally every table in the database, but most of them.

In this case, and going to use the item source. Another working that morning, we have these classic things. These were convenience views that were enabled for us. These were -- these exist on the list, but they may not actually exist in the database for use. So to your system administrator about that if you have questions.

So I'm going to go to item, and I click item here, and all of a sudden, this is populated. Yes, that is an important thing to know, Beth. Source names are not necessarily the same as the table name. For instance, item, the actual table that item is referring to, is a table called asset.copy. So just as in the interface so the call volumes in the background there's something with column respect so there's a lot of confusion around terminology, and this is not unique to Evergreen and it's not unique to library software. This is just how to name things is always a problem in programming.

So item, and has this little triangle pointing at item. If I click on item itself, not the triangle, this middle pain is populated with some stuff. What do we think this stuff is? If I were to guess, I would guess that this is fields that are available to item.

This will illustrate my point that I made in the presentation, because if you look down this list of fields that are available on item and you try to find title, or author, you are not going to find those. They are not there. So we have to go get that information from somewhere else. Which we will do in a second.

But these are things -- you know about these things. Catalogers do anyway. The active date/time, is when it became a real copy in Evergreen. Hold protection, is at three months old and get put a hold on it outside of a grand jury system, that kind of thing. Barcode, not going to read them all to you, but all these names are things that you should basically know what those are. Some of those may be a little confusing. And beside those you will see these little icons.

Something I didn't cover, in the original set up of this is data types. Who can tell me -- first of all, a database stores data. So you have different things that you are storing, constants in our spreadsheet. We've got our ID, and we have our artist, album, and things like that. And we might have purchase date, something like that. And we put that in. So let's pretend that they are, and then purchase price. \$15. I know that that is monies, so I will format it that way.

So these are just text. Like letters, candy numbers, but is not supposed to be a number. Van Halen had an album called 5150. Is that supposed to be a number using math? No, it's the name of an album. It's text. And the database needs to know what kinds of items are stored and what kinds of fields because that is how it works. It needs to know how to retrieve data, cancers for things, can search for numbers, do math, things like that. For instance, the ID is an integer. You remember an integer is a whole number. No decimal or in a fraction. Again, these are text. Customer, also an integer. A whole number. This is a date, which in the database was stored in southern called a timestamp. The timestamp gets down to the millisecond. And we don't think of milliseconds unless we ask or see them, so everything you're going to see here is cleaned up. So you see the real thing.

And purchase price. That's money. And that is not an integer because it has a decimal. And money is a type that Evergreen treats its own way. Internal to the database -- in programming language called a floating-point number. But in this, we are just want to call it money. So that is different types of data. Another type that we are going to see is

Boolean. It gets more collocated list of your take a course, you can see how collocated it gets. But Boolean and Evergreen just yes or no. That's how it's stored. Money is another type. Text is another type. Timestamp is a type. And let me look at my list here.

So that covers most of them. There may be something I'm forgetting. So these icons actually mean what it is. So this top one this active date/time, is an indicator that that thing is stored as a timestamp. So that icon means something like timestamp. It's supposed to be a calendar. I'll start it looked more like a telephone or an auto battery, but it's a calendar. We will skip this one for a second, and look at the letter A, which stands for text. That seems pretty clear.

There is a checkmark here. That mixed you think maybe a checkbox like nullability here. Check to CS, unchecked it's no. So that would be Boolean. We are going to skip the tree here.

This little barcode symbol, and this is a usability issue, I think, this barcode symbol does not mean barcode. The barcodes are stored as text. So they are long numbers, but they are text. This is an integer. So if it's got that little barcode looking thing, that means integer. So welcome to Evergreen.

We note dollar sign means money. And then there is this little scale -then we have this scale. It's going to be a number. -- this is not integer. This is ID, which is its own type.

It is an integer for -- ticket supposed to be a scale, actually. Sort of oldstyle scale. It means integer.

So the find level here is going to be 1, 2, 3, the long-duration is as well. So those are sort of the basic types, and then I'm going to talk about these other ones.

There is this chain here, and you may have seen something earlier that looked like a chain or was a chain, right? It was this, right? Does anybody remember the point I was making with this chain? Links. Yes. Okay. So barcode is actually not stored as an integer. That allows you to make a barcode that is not numeric. You can actually just create a stream, you can use your name or random sub characters to be a barcode. The database is text, so it allows for barcodes to have different types, different types of data in there.

So a barcode is a different type of data. So A is beside barcode because barcodes are stored as text. So even though it's numbers, it's text. If you keep having questions, feel free to ask them. So as we mentioned, links. So I'm going to look at that again. In this case, barcode, this is a bad choice. They should have chosen a different icon. I'm not even sure what to suggest. But that means ID. And we will talk about what ID means in a minute. It is actually a data type. It's not just an integer. So link, back to our spreadsheet for a second, this points to this, right? We showed that customer ID here, in this music table point to customer ID over here, and we said that it's a foreign key because it's using that to get that data.

So this is a link between this and this. So since a link is a number, what do we think age hold protection is? It's got that link symbol. It's going to be a number exactly.

So if we report this data out, thinking I'm going to see what the age hold protection is, and you are expected to see six-month, it's not going to say six months, 20 days, 2 or something. All right. Same with call number volume. There is a link for that. That again, is going to be an ID number for another table. Same with Circulation Modifier, circulation type, create new user, floating group, these are all telling you that the data you are after is not here, it is somewhere else.

So we are going to talk about ID player. ID is the primary key for the table. And IDs have what I call magical properties when dealing with Evergreen reports. And the magic that is brought by ideas when you use the ideas a filter, and I will show you this in a second, it will create a nice, selectable list that of things that you can actually identify when you are running your report. So we will get back to that when we actually get to that point.

Circulating library has this pine tree here. That is an organizational unit. And what that means is it's got magical properties as well. If you use this as a filter, it should populate your filters when you are running your report with a nice selectable list of organizational units you can choose from. Just a warning, the range has gotten really heavy here. It doesn't look like it from my video, but it's very dark in this room. Hopefully my power and Internet stay up. I will say a quick prayer to the Internet Gods. So with linkages, now going back over to this little triangle, and I expand that. Oh, what is that? What just happened? And you are like, I quit. You just say, Chris, I've seen enough. I know now that I never want to work with reports. But before you lose all hope, there is a relationship between this link symbol and the presence of something on this list. And I sought linkages over here that are not on the list. But if something

is here, it's probably going to be available on this list here. So what do we think is going on here? I mentioned that age hold protection. If we see that if they link, we can go over here and click age hold protection, and then boom, the middle pane just changed. That is interesting. After so you can see that it's bold here, so these are the fields that are available here. If you click age Patron the circulations, a new set of fields appears. Now, what's going on here? What is going on is the item as links and this is where you can actually go get the data that is linked to the table. So that's what this is. It's not just a confusing mess of pieces, it's actually useful thing.

So in the interest of time, I'm going to sort of keep going. I have a couple of hints for you that I was putting together in a document that I will share as well. Maybe I will put it in that same link.

When I talk about paths, and this is my breadcrumbs, I showed you my breadcrumbs documentation, I start with item, and that I go to, let's say circulating library. That's where the item is physically shelved as opposed to the -- library, which is call number. So it has expanded, and then expanded again. And I just lost track. So I just closed it back up. And if

you don't want to see any of this, you can close that. We will open it back up because we do want to see it.

Circulating library is where the item is shelved. Call number/volume, this is confusing, the volume has an owner and that is actually the owning library of the copy, is at the call number volume letter level. It's going to be the same thing in Evergreen. They divided us out when they were designing software so that you can have a collection that is owned by headquarters that maybe gets shall that bookmobile or a temporary collection over here. It is still owned by the main library, but has a different actual physical place.

We will just say circulating library.

So we are going to create a report now. But we want to see is the library name, into this case I'm going to choose the short name, this is a policy code. In PINES we use this like, it will be ARL-ATH. The rain is getting really heavy.

But I did hear his I clicked on short policy name and it becomes bold, and I click add fields, edit here. And these are tabs so I'm on the display field tab, so this is going to show us what we want to see. So we want to see the library name in our report.

Since I don't like the fact that that is a short policy name, I can right-click and click change column label. And that will let me say circuit library. I just changed the name of that so when I come back later, and I look at this report, how my going to know that it is the circ library? That's where the breadcrumbs comes in handy. So I will have another text window open that says item, arrow, circulating library, arrow, short policy name as circ library. That way I will know that I read that circ library it is actually a short policy name.

So we want to see the library. We want to see where this thing is shelved. So we are still on the main thing, and we are going to look at shelving location. Again, you look at item, you see shelving location here. But remember it's a link because we don't want that because it's a number of. So we are going to go down here and look at Shelving Location so we can get that data we actually want. What we want is the name of the shelving location. So I am going to click on name, which makes it bold, and click add fields. Now, I have this field down here called name. Once again, have to rename that is something useful. So click change label again, college shelving location.

I now have my circ library, my shelving location. When we are creating reading lists, I'm assuming that the goal is to physically locate the item in a physical location. And so I start with the library and that I go to the shelving location and the call number and then I will add barcode as well. That sort of what we are going to do here.

So circ library, shelving location, the next thing is the actual call number. You look on item, and see call number/volume, that was to get is a link. Again, it's a number, but it's not the caller. So we choose call number/ volume, I will look for the field, I know that is called call number label. I will add fields, I don't like call number label, because I don't know what that means, so I name the column over here. So circ library, shelving location, call number.

At this point, if you had it is to me and I'm running up to the shelves to grab something, I'm going to display the -- oh. You learn something every day. So I'm going to click on column here and that's very nice. That just taught me something. So fields show up in the order you add them below? Yes. Let me keep going.

So now I'm going to put some information here. I want the title and author because we need to have that. So I know this because I know the database structure, so this is something going to want to understand. It goes from item to call number volume two live record. Call number is going to immediately -- catalogers are going to know this is true. But if you don't work with catalogers, has volumes attached to it but has items attached to it. So underbid record, I'm not going to click on the record, I'm going to expand it, and there are more tables here and more sources here. The one that I want is simple record extracts. So that path again, item, call number/volume, bib record, simple record extracts. If you don't remember anything else on this training, remember that.

Here we have title and we have author and we have publication year and all kinds of stuff. So I want more than one thing here so I'm but to click title and this matters the order I click it in, author, and let's say publication year. And I want them in that order. So there they are. Title proper, author, publication year. I don't like that. Give me a second. I design reports so that the person who is going to be using them is not mad at me for giving them confusing information.

So if it says normalize, and especially since the data isn't normalized anymore, they are like to be mad at me. I don't want that. After so circ library, shelving location, calm, title, author, publication year. And we probably need the barcode, and status two.

Barcode is actually an item itself. So it's up here as we are talking about it. So I will click barcode period remember status that there is a status, it's copy status, that that's a link. All right.

So item, barcode, I will keep that as is. That's the only one so far, right? And its debts. So we have item, copy status. It's right here. And again it's not going to be a pretty name, so I need to change it. Okay.

This is all right. So if I run this report right Now, what do I get? Everything. I get all of the items. I don't to want all the items. You want your items. So we need to do some filters. Again, these are tabs.

Filters work the same way as display fields. You select them the same way. So you click filters, they have slightly different columns and slightly different things you can do with them.

So this is still lit. We haven't talked about transformers yet but we will in a second.

Any questions so far? I'm always concerned I'm going to test. I'm also a little worried about the time. I actually want us to run this report before it's all said and done. Keep the question coming in if you have them. So we are going to want to filter by circulating library, and if you know you're going to be filtering by something you're also displaying from the same table, you can do this. I talked about the magical properties of organizational unit ID, so I'm going to add that. And that gets added here. There are a couple of things you have to do to filters, because by default it expects raw data. And raw data is whatever is in the database. It's just unadulterated data whatever is there. Not talking about time stance and stuff like that progress was going to look like in the database. You can do things to clean up. That's called a transform.

It also allows you to do things like counting, things like that. We don't want to do that. And we don't need to change for that.

Operator is like operators in math. It's like equals, we look at the list, contains matching substring, and greater than greater than or equal to, et cetera. In this case we only care about in list.

What this is going to do is create a nice selectable list of all the units you can choose from. So that is one.

So if I run this report right Now, what do I get? Everything within what I select. That's probably not what we want. For one thing, this is not filtering out whether or not the item is deleted. So fortunately, item has this is deleted field, it's a Boolean, that's true/false, so I'm going to add this, and I wanted to change the back and change this value, and it's called -- and set it in the template so I don't have to set up later. I click that, and it depends on the version of Evergreen has you type true or type false, which are the same thing. In this version it has this. So deleted equals false.

This is one of those things where you want to do this right now and not have your people running the reports point why is all this deleted stuff on our report? You also don't want them to have to pick deleted true or false. Again, your goal is to give them data and make it easy. Not having to chase it down.

So right now if we run this report it gives us all the items that are selected that are not deleted. Again, that's probably not narrow enough for a real library situation. So it's probably a good idea to use our shelving location. This is what you hand to your staff member who was on Facebook too much and you just want them to go do something. Run this report and handed to them.

So we want shelving location, which is off item, shelving location, and I will put the shelving location document the cure going to click ID. And that seems weird part, but remember it has a magical property. Magical property is that you can create a selectable list. In this case I will also choose the in list operator.

All right. So it's going to display circ library, shelving location, call number, title, author, publication year, and status. It's going to be filtered by circuiting library, whether it's deleted or not, and is going to be by the shelving occasion.

I think we are ready. I'm going to click on save template. It is possible to filter by anything you see. Whether is doing what you want or not is a matter of extremity should sometimes.

So the up side to all of the complexity of all this, as you can become extremely fine-grained. Our catalog often asked me to do specialized reports that get deep into the mark market record. So you can do all kinds of things with reports. Today we only have a limited amount of time, so were keeping it simple. We are really just talking about how to use this in the first place.

So I created a template. It's out of my training folder, and you knows it exists here. It's got mic documentation link. If I click that, it's going to open a new window, and so to -- like we did in the beginning, we will select the report on the list. By the way, you can also delete or move reports to other folders. In this case, not the default. I am going to create this report called weeding list. I wanted stored in the training folder. Okay. What organizational units do we want? By default, it selects whatever number I'm logged in as. And this will be whatever library you are logged in as. So I logged BR 1, and there are different shelving locations. It is interesting because there are some that are the same. That's interesting to me. I don't why that is true.

So let's say I want A/V, biography. Let's say they are next to each other in the library. So I selected those and you can do a shift click or you can do a control click to cherry pick them. So that is what I am using to do that. Or you can add them one at a time. You can select add delete, whatever that -- that how that works.

So we are going to run this period you can see that item is deleted equals f. So that the filter I put in there. That way I don't have to select this every time. If I left that undone, it would make me choose every time. Which would make someone mad.

So choose my output folder, training, I'm going to leave these defaults. Yes for control A will control -- select the Holy Spirit it's good to learn basic browser skills to do this.

As soon as possible, we don't want it to recur, and I don't think this is set up to email out. So save report. Action succeeded.

What happens now is it sitting in pending items. Edit completed. It ran. Yay. It works. So you saw impending a second ago, and it ended up completed. If this were a recurring report, it would be pending the next runtime. It would have the time set for the next run.

So I'm going to click, view report output, and you can see useful discussion here, it's got my external template link, tabular output, the bar chart didn't generate anything, but here is our list. You will notice that it is sorted the way we want it to. And that's an important point. All sorts left to right, based on the up to down selection of fields.

So that's our report. And again, it is showing the status. I could have done something where it was available -- in this case I just didn't think of that. Because I'm going for an example.

So there is our list. You can see that it looks like -- this is a bug since we don't normalize titles and authors anymore. This particular generator, HTML doesn't know those codes are. So that's why all that stuff is there. Also known as diacritics if you are catalog.

Then I can download into Excel. I want to look real quick at the debugging info to give you an idea of what is there. And well have to into there.

The most important thing I wanted to show you was this generated SQL. That should look familiar to you. You got select, from, where, and then grew by an order by. Even though it's got these ugly things here for the tables, this is actually pretty readable. What I do and somebody asked me to troubleshoot a report as I will copy and paste this into a text editor, and I will do a find and replace all of these table names. And that it is suddenly readable. I can see it, and it's something I can make sense of. And often the problem is here in the joining. We didn't have a chance today to get into the specifics of how joints work.

That gets into nullability, which is another issue. But that is walking through template creation. I think that's as far as we can go. I did want to point you to the Evergreen documentation, which will reinforce a lot of the information we talk about today. This is likely last version of this. It's a good subway for the session next, which is about documentation because that's the transition. This is the old-style documentation. This part 12 of the admin section is reports. And it's got a lot of the information, data types there, how transforms work, all of that is here. So any questions? I will open the floor to Q and A. You can put it in chat or unmute.

Best organization practice for admins to develop templates, et cetera, for users. I'm glad you asked that. One of the things I think is a mistake --

one of the things that PINES do that I think is a mistake is that our consortium -- by the way, I've added some documentation to the end of that to him that I shared with you at the beginning that shows you the common sort of -- in what we did today.

This is all stuff that we have dealt with. Yes, you can share whatever you want. It's public on the web, and I'm good with sharing anything here. I am happy to share.

Anyway, one of the things PINES did I think is wrong, they just said -they created a free-for-all and it's a giant administrative mess that we are still cleaning up there are reports out there that God knows what they are getting. Personally, we have taken control over reports. We also implement a feature called quick reports that you may have heard of that work pretty well for us. It's got a -- that's a PHP interface that lets you just run a bunch of canned reports and not worry about the stuff we just talked about.

What I would suggest to the administrators if you are an administrator on this call, is to take this part on as much as possible. Like, if you're in the administrator of the office, just take on the responsibility of creating a core set of templates and making them public in a shared template way that you saw PINES doing. When we started doing that, we were able to reduce the number of specific reports request a lot. Because every library think they are snowflake and very different at whatever, but we found with quick reports, almost all other needy same stuff. We do get a number of reports requests through the week, but is not bad.

Jeremiah, that is definitely an approach you can take, running in the background. There's another library that uses Jasper reports which is an open-source alternative to Crystal reports that will generate a PDF from a database or something like that. There are lots of ways that people deal with it. I guess remembering that it's just a database and whatever help to get the data you need is okay.

This is a built-in tool. It is very powerful. It is designed to do what librarians wanted, even though it's too complex in a lot of ways. So I would advise against another sort of the free-for-all sharing of temperance across libraries because in PINES that didn't work at all for us. Because it lets an incompetent person share a not very we'll constructed report and results in bad data. And given the number of budget cuts we are looking at right now from lost revenue and everything, you want those numbers to be as wide as possible. Don't want to have to issue corrections are be crazy inflated. So accuracy is more important right now.

Yes. The ones you create, share away. Ones that I create, I will share. I have a shared folder, Karen has a shared folder. It probably would make more sense to have a single shared folder.

Sorry, I lost my train of thought. I would share any ones of mine I can vouch for as far as it did work when I created them. And that's all I can say. Reports change. The ones from 2007, I would put a lot of stock in. They want from 2013 I probably would put a lot of stock in, even if I created them. The converter doesn't always do its job. Okay. All right. I think we should clear the room for the next session.

>> Yes. Chris, excellent as always.

>> Thanks, everybody, for your time.

>> Any presentation or has a local reference and it is good. If you are not staying for the next session, please clear out. And I see the numbers dropping, and that's good. So very good. I guess that's it. Thank you very much.

>> Thanks, Amy. Have a great afternoon.

>> You, too.

>> Bye-bye.