Presenters & Moderators:
Annabel Lee Enriquez, Getty Conservation Institute
Dennis Wuthrich, Farallon Geographics Inc.

Note: Q&A transcript begins on page 11

Good morning, everyone. And welcome to this webinar on Arches Version 5. During this webinar, we will be giving you a glimpse into the latest Arches features that launched in Version 5, which was released in January of 2020. Next slide.

To introduce myself, my name is Annabel Enriquez, and I am a member of the Arches project team here at the Getty Conservation Institute in Los Angeles. I'll be presenting some of the administrative notes for this webinar as well as moderating the Q&A. But the bulk of today's presentation-- as well as the answers, I'm sure-- will come from Dennis Wuthrich, who is the CEO of Farallon Geographics, the lead developers working on the Arches Platform.

Dennis is joining us today from San Francisco, and he will be controlling the slide deck today. So next slide please, Dennis. So some notes. For those of you who have been attending the intro to the Arches Platform webinar series that we've been running, we wanted to let you know that we will resume that series in a couple of months with part three.

Having said that, I wanted to alert you all that this webinar is not an introductory webinar, and assumes some familiarity with many intermediate Arches concepts. So if you are a beginner to Arches, there might be a little too much technical detail for you during this webinar. But feel free to ask questions if you need clarification on today's topics or any other Arches related topic.

Speaking of questions, if you do have a question, please type them in at any point during the webinar using the Zoom Q&A interface. This is different than the chat feature, which is just for general comments during the webinar. One of the advantages of using the Q&A interface is that if someone has typed in a question that you also have, you can click on the like button for that question to upvote it, and let me know that that question is a priority. We will try to address all of the questions at the end of the session.

Also we are in the process of updating the Arches Demo Site to Version 5 as well as making a demo of Arches Collector available, and we will let you know when that is ready through our social media channels, our forum, and our mailing list.

And finally, we made an effort to provide recordings and transcripts of all of our webinars. So don't worry about missing anything the first time. Next slide, please. As you can find all of the

webinar recordings and transcripts on the Arches videos page on archesproject.org. Normally, we will have those up within a week or two of the live webinar date.

The recordings and transcripts for the first two parts of our intro to the Arches Platform series are available as well as the webinar on Arches Collector. And if you are new to Arches, those three webinars are a great place to start as they are definitely geared towards beginners. Next slide.

And with that, I'm going to hand this over to Dennis.

Thanks, Annabel. And hello everyone. Thanks for joining today's webinar on Arches. Before we jump into the details, I'd like to lay out how I think the next 25 minutes or so we'll go. So our agenda for today will be to do a very quick recap of what Arches is and what it's trying to do. Then, we'll spend the bulk of our time talking about what's new and potentially most relevant in Arches Version 5.

And I'll say right up front that there's really way too much new in Arches 5 to get through and one webinar. So I'm going to cherry pick the parts that I think might be of most general interest. But if there's something that you're particularly interested in hearing about and you don't hear me address it directly, please do put a question in the Q&A list, like Annabel suggested, and we'll do our best to get to your questions.

I'd also like to make sure that we at least touch on the process for moving or upgrading from Arches Version 4, if you're currently running that, to Arches Version 5. And really just a quick summary of how that might go. And then, we will end with our best swing at trying to answer your questions. So let's jump into it.

First and foremost, a quick recap of Arches. And really, Arches is a information management system that aims, first and foremost, at helping you manage the information necessary to describe, inventory, and, ultimately preserve and protect your cultural heritage. And really in Version 4, that was our main ambition.

In Version 5, what we're doing actually is extending that goal, and actually including some additional ambitions. Primarily, we want to extend the types of information that you can manage in Arches in Version 5 to include additional kinds of interesting information.

Things like objects that you might be managing in a museum, and your protection and preservation activities for those objects, up to and including things like accessing and visualizing digital data that might describe objects. So arches Version 5 is really a continuation of the kind of work we're doing in Version 4, but with quite a new set of capabilities.

If you've been on previous webinars, this slide might look familiar. And what it is is an attempt to summarize, in a pretty pithy way, I think, the kinds of capabilities and tools that Arches includes. And in broad brush strokes, the key things done to get out of this slide are Arches tools for defining, managing, and structuring your data.

These are tools that allow you to create databases that include all the key information that you might consider important for managing cultural heritage. So databases for physical objects, for the people and organizations that are related to those objects, research activities, investigative activities, events, bibliographic resources, and really many other kinds of databases that you'll need to manage your cultural heritage resources effectively.

Arches also brings to the party, I think, a pretty rich set of data discovery and visualization tools. So once you've built your data structure with Arches tools, including data entry forms, and you've ingested or imported data or you continue to manage data in Arches, a key aspect of what we'd like to do is make it easy for you to find, report on, and visualize the data in your Arches data repositories. And that's really the central data discovery and visualization part of Arches.

And then finally, as of Version 5, we've introduced really a brand new capability in Arches, what we call project and task management. You'll notice that this slide has a series of bluish boxes. And really, these are the areas that we've either added new capabilities to Version 4, or introduced brand new capabilities as of Version 5. So the blue boxes are an attempt to highlight what we've been working on in the latest version of Arches.

And as you can see, there's actually quite a bit here. And so I won't even attempt to address all of these things, but what I will do is highlight the things that I think are most important. And let's start with workflows.

So natural question, what are workflows? If you're in the tech world at all, you're aware that workflows are kind of a buzzword, and unfortunately so. We have a pretty specific definition of what workflows mean in Arches. And in particular, we see workflows as a way of supporting more sophisticated data, editing, and data management tasks with the idea that Arches is really implementing workflows to make it easier for you and your user community to manage sophisticated data editing procedures.

Workflows are super flexible. They give you all the tools you need to define multi-step data entry processes, and they're a way of orchestrating the data entry process for you and your users. They're really meant to make it easier to do data entry, and to ensure that sophisticated data entry processes are done consistently.

So that's, I guess, a fair amount of jargon. And I think maybe an easier way to think about workflows is to look at some examples, in particular. And I've identified a couple examples here on this slide that I think might be really representative of how workflows could be used in Arches. I don't mean to suggest that this is the only way that workflows could be used, but this is a good starting point for understanding what's possible with workflows.

We'll look at the permit application review process in a bit more detail. But just to give you some idea of how you can use workflows, think about the information you would need to manage when you start to enter data that describes the building designation effort. That is to say, a building and its proposed protection and designation status. Or the kind of information you might

manage once you visit a site, or the kind of information you might need to take note of when you're implementing a sampling activity on an object.

Let's look at the permit review process in a bit more detail. So what I'm suggesting here is think about the kinds of data you'll need to manage when you want to keep track of a building permit review application process. That is to say, imagine you're a planner, and one of the things you want to do is ensure that you have appropriate review of a building permit application, particularly how it might impact your heritage.

The kinds of things you will want to be concerned with are where is the proposed building application taking place, what kinds of activities are proposed, who is doing the proposal, what type of work will be done, if there are heritage resources nearby, are they at risk, what kind of schedule does this building permit application imply? If there are issues, do you need to you need to propose or define conditions before the application can be approved? And if so, do you want to track the mitigations that the applicant is required to meet?

So my goal here is to suggest that something that happens on a daily basis in most local governments is, in fact, when you look at it a bit more carefully, quite an a sophisticated data management problem. And we've tried to tackle this in Arches with workflows. And here's an example of an actual workflow that we're working on with historic England, or the city of London. And it lays out, I think, at least in broad way, what we mean by workflows.

So workflows, as I suggested, are a way of orchestrating data management steps. This blue box that's appeared on the screen highlights an area of a really kind of important aspect of workflows, which is workflows are really a series of steps. So in this particular example, there are eight steps that one would complete in the process of defining a building permit application.

At each step, a user is-- or a workflow participant is updated with the requirements of that step. So in this example, the first step of eight, the very first thing that's being asked of the user is to identify the location of the building permit. And this is really a bit of signposting so that a person who has to do this on a relatively infrequent basis has a way of understanding what the requirements are for completing this workflow.

And then, finally, every workflow step includes a data entry screen that allows them to do the work necessary to complete a step. In this example, the step really requires a person to identify the location of the application. That can be done in two ways. You can either do it visually by clicking on a building on the map, or by using the form on the right side of the screen to search for the building by either address or name, and to use Arches search functionality to identify the appropriate location.

The key thing here is this represents a step in the workflow. Each step can implement custom logic. So what does that mean? It means ensuring that people enter correct and complete data. And based on their entries, making a decision about what step comes next in the workflow.

I'm not going to bother showing you every step of this particular workflow, but I do want to indicate a couple of things that I think meet our goals for implementing workflows that are flexible and help people complete their tasks. So I've got a little video here. And I'm going to start it. But what this video is going to show is a step in this particular workflow where the requirement is to identify the reference number of an application. And reference numbers might be different depending on the organization.

So let's start the video here here. And what we're showing here is a person entering the internal reference number of an application for a local government. So we've just done that. I'm going to stop the video here, and then suggest that one of the things that this user wants to do is to also record the reference number that the applicant has used to identify this permit. So those might be two different numbers.

And in this case, the applicant doesn't appear in the list of organizations. So what's happening here is the person is creating a brand new record for a new organization. In this case, an organization called Farallon developers. Creating an instance of that organization in Arches, and now adding the reference number for that organization.

So what's happened here is the person's been able to, essentially, step out of the workflow, create a new record for an instance, or an organization in this case, that doesn't already exist in the database, and then return to the workflow to continue on in completing the definition of this building permit assessment task. And that's really a way of trying to highlight how workflows provide some degree of flexibility in how you can support your users in creating data.

Workflows are also flexible enough that allow you they'll allow a user to step back to a previous portion of the workflow to update or amend their data, and you can skip forward if successive workflow steps are optional. So one of the key things we've learned in working with real organizations is that there is this real balance between providing a consistent orchestrated steps to complete a task, and not making them so constraining that you can't actually complete the task without doing back flips.

So this is our attempt at trying to support both the need for simplifying multi-step data entry, and also assuring that there's enough flexibility in the process that people can actually get their work done.

That's a quick summary of what workflows are and what they're for. I want to actually now move on to something called plug-ins. And plug-ins in Arches are a way of adding both custom user interface, so custom screens, as well as custom capabilities into your Arches instance. Let's take a look at a specific example.

So here we see a plug-in, and this really is a natural byproduct of what you might need if you're starting to manage building application processes-- building applications. So here's an example of a screen that presents to a planner. All the currently active building application reviews. It presents them and shows their status. Yellow bars, the applicant reviews that have yellow headers, are getting close to the deadline. Those with reddish headers are lates, and those with

greenish headers still have plenty of time for completion. This is just one example of how you can start to implement custom requirements in Arches that meet the needs of your users.

In this case, planners who need to know which applications are late so that they can prioritize their work. This plugin also shows that you can support sorting and searching and multiple views of the data that also meet the requirements for your user community.

Really the key point here is plug-ins are a way for you to ensure that you can present the information that you're managing in Arches in a way that's specifically tailored to the needs of your user community.

Let's continue on. I'd like to introduce two additional new capabilities in Arches Version 5. We call them the task manager and the notifications modules. And although they're separate technologies, they really do go hand in glove, and I'll show you an example of how that works in a moment. But let's get some definitions out of the way.

So task management is a way of allowing Arches to process longer running tasks without you having to wait for the software to complete its work. Notifications are a way for Arches to alert you, that is, specifically the person who's requested a long running task, when that task has been completed and may be available for additional work or access.

Again, that's fairly jargony. Let's look at some specific examples to see what I mean by that. We'll start with task management. So what are examples of tasks? Well, there's, I think, a couple of obvious ones. Perhaps the easiest one to imagine is a task where you're asking Arches to download quite a large amount of information. You, I think, can imagine pretty quickly that for very large Arches data sets, say, on the order of hundreds of thousands or millions of records, it might take some time for the software to process the data for download.

And without a task manager, a user would actually have to wait for all of that to happen. By introducing a task management system in Arches, a person could request quite a large set of data for download, initiate the process, and then continue on with their work while Arches, in the background, is doing all the necessary processing to create a data set for download. That is to say, processing the data, formatting it in the requested file format, creating the file, and then making it available for access.

There's lots of other examples of how you might want to offload longer running processing without asking the user to wait. Plenty of data processing examples. You can imagine asking Arches to do some fairly sophisticated data processing based on user input, including things like going out and requesting information from other systems, pulling that data in, doing some processing, and updating an instance of Arches data.

So that's the kind of stuff that's possible with the task manager as well, and then synchronizing information between Arches and other systems. So one example of that might be uploading an image into Arches, having the task manager pass that on to an image server, say a IIIF image

server, that processes the image, makes the records for the metadata associated with the image, and makes it possible for systems outside of Arches to access the image.

So synchronization between Arches and other systems is the kind of thing you can imagine doing with the task manager. As far as notifications, again, I think probably some pretty clear ways to think about how notifications might be helpful. I think one example that's pretty common is alerting the user when their request for data download is ready. And we'll look at that example in a moment.

But more interesting examples also abound. One is imagine a person running through a workflow, and a step in the workflow being a step where you indicate the need for an inspector to visit a site and do a site inspection. Well, selecting that person in the data entry form might then prompt Arches to notify the person that they now have a new task that they are required to be aware of.

That's another, potentially, interesting way of using notifications. Other examples also include being notified when Arches completes data transfer to another system, or when Arches completes the import and integration data from an external system. So really, your imagination is the limit for how you use task managers and notifications in Arches.

I guess I'd like to show you a real world example. Here's an example where we're going to search Arches, request data for download, and then get a notification when the data is ready. So I've got this video here and I'll start it. This, by the way, is brand new-- this search interface is brand new in Arches Version 5, and shows, I think, some of the things that are possible with data filtering and data downloading.

So let's start the video here. Here's an example where I'm coming to Arches and I want to download a full data set. In this example, 18,000 odd resources. And I'm naming my expert, giving an email address, I've just pressed the download button, and you can see that Arches has now notified me that it's going to start working on downloading and processing these 17,000 odd instances that I've requested.

So that's now happening in the background. Let's start the video back up again. And you can see that that doesn't preclude me from doing some additional work. So I'm going to do another query here, and I'll stop the video. Notice what's happened. I've queried for all the public houses that exist in this data set. And if you look at the export search results panel now, on the right hand side of the screen, you'll notice now that I don't have to enter an email address for notification because we only have 285 results to download. This is small enough that Arches can do this quite quickly, and it doesn't make sense to ask someone to wait.

So this is an example of using task management and notification and Arches new data filtering capabilities to make the experience of accessing information and downloading information a lot less onerous. So let's start up our video again. You can see when I press the download button now, after making my ordinary precision selection, I go directly to the download, I can download to my local machine, and those are my 285 results.

I can come back up and look at my notifications panel and see that my full export is now ready for download. I can press that button, and now I can download the full export of Arches in this example. One just quick note that I'll make is that data downloads are a new capability in Arches Version 5, and they respect all the data security permissions that have been assigned to a particular user. So I only get to download the data that I have permissions to access.

Let's move on. And I'd like to make-- I hope is a strong point, which is to say that workflows and plug-ins and task management and notifications don't have to be seen as separate entities. These are things that can be worked with together to create quite sophisticated and quite capable data management systems-- data management applications on top of Arches. So it's really, again, up to your imagination to think about how you might be able to take advantage of the combination of workflows and plug-ins and, in longer running tasks, the notifications to build the kinds of data management systems that your users need.

If you're a developer, or you have a development team in your organization, you can really think of this combination of workflows and plug-ins, et cetera, as a collection of LEGO blocks with one really key difference. And that is that Arches not only provides you with LEGO blocks out of the box to start building interesting applications, we also give you the blueprints to create your own LEGO blocks.

So if there's something that you need that Arches doesn't provide, you have all the blueprints you need to create your own custom new LEGO block, if I can torture that analogy a little bit longer, so that you can create exactly the kinds of data management systems that you need.

Let's move on. I want to at least quickly address the idea of interoperability in Version 5. So presumably, Arches is now a key tool in your data management environment. You're doing ongoing data management, and you'd like to make sure that the information you have an Arches is accessible to external systems. So that's what we mean by interoperability. And I want to focus on just two very specific examples of a whole suite of ways that Arches can interoperate with other systems.

For the more technical members of the audience, I'll just say that, although I'm not going to specifically show it here, Arches has an API, an application programming interface, that supports quite sophisticated interoperability. That is to say, real time data transfer between Arches and other systems. So exporting from Arches to other systems, and importing from other systems into Arches.

But let's look at two examples. And these are really probably most germane to the people working in the GIS or geospatial worlds. I'm going to start with an example of how Arches can talk directly to the Esri ArcGIS ecosystem. So here's another video, and I'm going to start it. And what we're going to see is a person in Arches identifying a-- let's stop the video here, just see what we've got.

This is a map that shows the extent of building permit applications in Arches. Each of the grayish dots on screen represents the location of a building application. And I'll start the video up again.

And we'll see that we can move to the Esri ArcGIS online environment. Cut and paste an Esri feature service end point into ArcGIS online.

And what we get is immediately a native access, that is to say, native Esri access to Arches data. Both the spatial data, so in this case, the locations, as well as attributes about that data. This gives you the opportunity to access Arches data in real time from Esri, and incorporate them in your cartography or data analysis workflows. And I haven't shown this, but it works the other way, too. Arches can consume Esri endpoints as overlays for maps.

Assuming that there will be a question about this, I'll just say that one of the things we're working on right now is the ability to support real time bi-directional data access between Esri and Arches. So what does that mean in plain English? We're building an add-in to the Esri Arc map application that will allow you to access Arches data and update it, or create it, or delete it, if you have the appropriate permissions directly from Esri's Arc map products.

Let's move on to the next example, which is a similar thing. We're now looking at QGIS, which is an open source alternative to Esri. So same data here. The location of building applications. Let's start the video and see how this works in QGIS. So let's look at a specific location. This is 421 School Trail. I'm going to jump over to the QGIS application now. Ask Arches to serve those data into QGIS. We're going to use a GeoJSON service, which is a key difference between QGIS and Esri.

QGIS supports a native web protocol for accessing information. It's super well supported. And here you can see we have the same thing. We've got now a data layer in QGIS that is a real time rendering of the information in Arches, complete with geometries and attributes. A key difference, or key enhancement here is, in this case, Arches building applications are represented as more than just points. In some cases, they're represented as polygons and lines. And those are all represented as part of the same service.

So I guess the point I'm trying to make here is that Arches gives us the tools necessary to support external systems in the manner that is best and most optimum for the target. So in the Esri world, we feed Esri feature services for the open source world. We support the GeoJSON standard, which is the standard that most people use in open source geospatial data.

I'm going to start rounding down here, and I want to, I guess, talk about the technology upgrades that have gone into Arches Version 5. And they're a little bit of an alphabet soup of technologies. These are all the core technologies that Arches is built upon. I'll just say that these are phenomenal technologies. For those of you who recognize some of these, probably Python is something you've seen. Potentially, Postgres and PostGIS, Django and Elastic.

These are excellent open source technologies. And Arches really stands on the shoulders of giants here. What we've done in Version 5 is move from previous versions of these technologies to the most recent-- the latest long term supported versions of the technologies. So in the case of Python, for example, in Arches Version 4, we were using Python 2.7. In Arches Version 5, we're using Python 3.7.

And it's completely legitimate for you to ask, who cares? Why is this important? What difference does it make to me? Why should I care? And the answer is, I think, really simple. The simple answer is, well, new technologies provide new capabilities that are usually faster or more secure or they provide more functionality. And that's all true of the technologies we've chosen.

But the more important answer-- and I think the really important answer is that you'll never know just by looking at Arches what the underlying technologies are. What we've done is make an investment in the long-term sustainability of Arches as an enterprise information management tool. We really said, we're going to take on the hard work of ensuring that Arches has long term sustainability so that you or your IT department can be absolutely certain that we're maintaining the key technologies to support performance and security and long-term maintainability as a key portion of our commitment to Arches.

Let's wrap up by talking about how do you get to Version 5. And in particular, if you're already running Version 4, what are the things to worry about in moving from Version 4 to Version 5? Well, first off, I'll just say that if you've got models-- if you're using Version 4 and you've got models in Version 4, you can export those models and they will import directly into Version 5 without issue.

So one of the key commitments we wanted to make in introducing Version 5 is to make it clear to you that you can export your models that you've spent time working on and perfecting those models will get pulled right into Version 5. Your data that you've spent so much time curating and managing in Version 4 can load directly into Version 5 as well. That is also a key promise that we wanted to make to the Arches community.

We wanted to make sure that if you're happy with the way you've structured your data, it'll get imported directly into Version 5 with minimal fuss. And then, of course, the key part of any data management system is managing your control vocabularies. In Arches, our terminology is a reference data. Reference Data Manager manages thesauri in Arches. Your reference data manager information, so all your control vocabularies, in Version 4 will load directly into Version 5. So those are-- sorry-- those are key promises that we wanted to make as part of the Version 5 upgrade process.

So conceptually, how can you do this? Well, here's what I would say is the recommended approach. First, identify the computer or computers that you want to host Version 5 on, and install and configure Version 5. This isn't strictly required. I mean, if you know what you're doing, you could load Version 5 alongside Version 4 on the same machine. I would call that a more advanced Implementation strategy.

The really preferred approach is to load Version 5 onto a new machine. For those of you who've already loaded Version 4 once, I can tell you that Version 5 is easier to install. And the experience you gained in Version 4 will absolutely be useful installing and configuring Version 5.

Second step is to decide if you want to export your Version 4 data. As I mentioned, that's all something we assume you're going do. So again, there's a lot of ways to do this. But in concept, export your models, export your data, export your RDM information. Those come packaged as files that can be loaded directly into Version 5. Once you've done that, test, test, test, test your new instance to make sure that you're happy with it.

And when you've confirmed that the transition from Version 4 to Version 5 has gone as expected, you're then free to turn off your Version 4 instance. I don't mean to trivialize the work that goes into thinking about an upgrade to software, but I do want to suggest that we've spent a lot of time thinking about how to make this as simple and straightforward and really as robust as possible.

So it really is, conceptually, as straightforward as implementing Version 5, exporting your Version 4 information. If necessary, this is your chance to rethink how you want to structure your data. If you do so, you can do. But ultimately, you're going to pull out Version 4 data and push it into Version 5.

With that, I will finally stop and give Annabelle the floor again so that she can continue the conversation. So thank you very much for your attention.

Thank you Dennis for that presentation. And as Dennis mentioned, the aim today was not to give you an exhaustive survey of everything new and updated in Arches Version 5, but to give you a glimpse of the most exciting and potentially impactful feature is now available. Also I want to remind you, if you do want Dennis to expand on anything you have just seen, do ask a question using the Zoom Q&A interface.

We already have 16 questions. So you can go ahead and add your question there, or if there are questions there that you really want to know the answer to, be sure to upvote them so that I know that those are a priority to the audience.

OK, so before we get to the Q&A, I just want to remind you what's coming next in regards to Arches webinars. Next slide, please. So continuing the intro to the Arches platform series, part 3 data technology concepts will be next. And we should have an announcement via our mailing list, social media, and our discussion forum next month about when exactly that will take place.

So let's go ahead and start the Q&A. The next slide.

Question 1:

All right, so it looks like the burning question, when uploading a 3-D model, which is the most appropriate file extension? Dennis, do you want to tackle that really quickly?

Answer:

Sure, yeah this is a good question, and appropriate technical question. So in in Version 5, we introduced this idea of supporting loaders through files. And loaders are a way of identifying the processing, so the parsing and visualization parameters that you want to support for any file, including 3-D files. So really, the answer to this question is, you can upload the format of a 3-D model that's most appropriate for you, and then use an Arches loader or create your own loader to support that file extension.

So at the moment, we're working on support for Collada models, and that's something that we'll ship, I think, by default with Arches Version 5. Other 3-D formats like point clouds are also supported. And we support point cloud upload. But if you've got a specific or exotic file format that you want to support, that's possible to support. You'll very likely need to write your own loader to do that, though.

Great. Thank you, Dennis.

Question 2:

So the next question is does Arches support multilingual records and entities?

Answer:

Yeah. Also a good question, and the short answer is yes. The Arches code implements everything you need to support multilingualism. That is to say, you can support multiple languages. And it can support multiple scripts as well. So Arches can not only support alternate languages and Latin based scripts, but also other scripts like Chinese or Arabic or Thai or Vietnamese.

So Arches is fully capable of supporting that. What we don't do is automatically translate for you. But if you want to support data entry and alternate languages, absolutely can do that.

Great. Thanks, Dennis.

Question 3:

And then the next question, and I've seen a couple of other questions which relate to this question, which is, how do you configure a workflow? Do you have a workflow designer slash editor interface on the back end, or does it use BPMN. Or do you hard code workflows within Arches?

Answer:

Yeah, I was quite confident that somebody was going to ask this question, and it's a good question. So as of Version 5, workflows are implemented as a combination of Python and JavaScript files, and are implemented by web developers. So as of Version 5, there is no designer

or editor interface for workflows. That's something that we've informally talked about in at least at Farallon, but we don't have any immediate plans to support that.

The idea here is that workflows are the kinds of things that you're going to want to think through. They can be endlessly sophisticated. It's the kind of thing that would-- we want to make sure that you can implement the workflows that you need, even if you've got fairly sophisticated real world use cases. And the best way to do that, initially, is to let you as a developer, or your IT department, or anyone who wants to support Arches implement those workflows for you.

So that's the short answer. Pragmatically speaking, we expect that workflows could be deployed in a matter of days as opposed to weeks or months. So once you've got your workflow identified, once you know what the business process is that you want to support, then implementing a workflow should be a nice straightforward process for a mid-tier web developer.

OK. Great. And I think as a part two of that question, here's the next question.

Question 4:

In the workflow demo, you illustrated creating a record for an organization, the small side branch in the flow. Is there a function that sets a flag notification for that incomplete new record to be improved as a separate task? And generally, are there minimum completeness validations with notification? And I think the update to that question is that it might have been answered in the task manager notification section of your presentation, but maybe you can expand a little bit on that, Dennis?

Answer:

Sure, yeah. This is a really nice insightful question. And the short answer is workflow steps are a place where you can implement custom logic. And an example of that custom logic might be, oh, if a user does this little sidestep and creates a new organization, make sure to notify the editor that this new organization has been created and might need additional information to flesh out the instance.

That could be done within the workflow step logic. It could be done via the task manager. You can imagine the task manager inspecting every new instance that's been created for Arches, running it against a series of data completeness queries, and then alerting the appropriate person or people if that instance is incomplete in some way.

So that's how we envision workflow steps working. The last little coda to that answer is that data validation can be implemented as part of the workflow step. So the step itself references a card in Arches, which defines data validation, and then the workflow step itself can add additional validation if necessary. So I realize that's probably a subtle technical distinction, and I'm happy to pursue this line of questioning offline if people are really interested.

Thanks, Dennis. And that's probably a good point for me to mention that we do have our Arches Project Forum where if we don't get to your question today, or if you have follow up questions for Dennis, or for anyone in the Arches community, you can post your question there.

Question 5:

So I'm going to go and continue with questions. And I made a note on the following question, is there a roadmap for future Arches development?

Answer:

And there is a roadmap on archesproject.org. I posted the link there. And I don't think that-- I don't think, Dennis, you have anything to expand on that, or maybe you do.

No, that's a nice, concise answer.

Yes. Thank you.

Question 6:

All right, next question is, will Arches 5 be available on Docker Hub?

Answer:

The short answer is Arches is already Dockerised. I believe the Getty has a developer who is taking the lead on ensuring that Arches is deployed as Docker containers. So the short answer is yes. This would be possible.

OK, yeah. And I think, again, for more information on that, you can ask a question or post on the forum, and that particular developer might be able to answer that question. Great.

Question 7:

All right, next question, can you upload drone imagery into Arches?

Answer:

Yes, you can upload drone imagery into Arches.

Question 8:

All right, and then just a quick note here, this question about Arches manual.

Answer:

There's a link that has been posted in the Q&A panel for Arches documentation, which is hosted on Read the Docs. So you can check out that link if you need more documentation on Arches generally.

Question 9:

All right, next question, can the workflow also apply to things like importing and sifting through Dublin Core metadata?

Answer:

I'm not sure I completely understand the question. What I will say is that workflows are meant to be run by a person. And if the question really is hinting at looking at Dublin Core data as part of an import process and making revisions or approvals, then yes, that would be the kind of thing you could do with a workflow.

OK. Great.

Question 10:

All right, next question, can the mobile user receive notifications while offline, i.e. In an area of no connectivity?

Answer:

Well, the short answer here is, there's no way for a offline user to be aware of changes to the Arches server until they are connected again. So that's just-- I think that's just physics. Once your mobile user actually can access a network, so either a cell or Wi-Fi network, they can be made aware of changes to Arches.

So that's when they could re-sync their data. We actually are currently talking about how, and if so, how to support notifications for Arches collector. And we are in the very, very early stages of that conversation. So this is an interesting question. To what extent should a mobile person be-- which notifications makes sense for them to be alerted to, and how should we do that? So it's a good question.

Yeah, and I think I've said the follow-up to that from the submitter was that if it was SMS. So I think the distinction was trying to be made between data versus SMS texting.

Oh, I see. The question is about what kind of channel to use. So notifications right now are supported as either in app, so what we call an in app notification. That is to say, when you're logged onto Arches with your user credentials, Arches knows how to pass notifications to you. We also support email notifications. We don't currently support SMS notifications for a couple detailed technical reasons. It's something that we're also considering doing, but we currently don't support SMS based notifications.

All right, great. Thank you.

Question 11:

So the next question is regarding the QGIS. So is it possible to QGIS software project on the Arches Platform? I'm assuming-- well, actually, I should assume. Maybe, Dennis, you can try to tackle that.

Answer:

Well, the short answer is no, we aren't supporting uploaded QGIS projects. QGIS projects include all the information necessary to keep track of what data sources and what layers are participating in a map. And so we don't support that. What we do support is upload of data that QGIS can manage. Via either GeoJSON or Shapefile or CSV.

There's talk about supporting the Geo package, which is not quite a QGIS project, but a step in that direction. But we don't currently do that.

OK, great.

Question 12:

Next question is, does arches identify the material of the objects recorded?

Answer:

So this is a data content question, and the answer is Arches lets you decide whether that's important attribute information to capture. And if you feel that it is, then you would include that information in your model. So Arches can support this if you choose to implement it. Again, this is a data modeling question. And Arches gives you all the tools you need to create data models. And it's up to you to decide what the content of those data models are. Specifically, do you care about materials? If you do, include them in your data model.

Great. Thank you, Dennis.

Question 13:

All right, so the next question, and I think this is a really good one, could you please explain the new features and future changes regarding related resources?

Answer:

Yeah, this is a really good question. So one of the key things with Arches is that it has the ability to manage the way that different resources in Arches are related to one another. So a real world example might be the relationship between an architect and a building, or the relationship

between an investigation that you conduct and a set of objects that you observe. And the kinds of relationships that you manage in Arches can get quite rich and quite deep. So Arches lets you do that.

In Version 4 we implemented a new data type that, really, we see as superseding the current way of managing resource to resource relationships. And the data type is semantic. It participates in models, so it's a true participant in the data modeling process. And that's really the right way to manage relationships between resources. And so that's how we would propose that people should be thinking about managing resource relationships.

We're about to start working on extending that data type to support some additional functionality. And ultimately, we're going to be updating the related resources visualization tool. It's the, for lack of a better explanation, the force directed graph that you can use to start to see how resources are connected to one another. We often internally call it Boris the spider. It's a visualization for how resources are related.

That currently relies on the old way of managing resources, and it'll be superseded in an upcoming release with a much improved way of visualizing related resources.

Great. And I think this next question is going to be our last question. I'm going to jump a little bit to this question.

Question 14:

So would it be necessary to upload a complete other system into the Arches server to synchronize the data? I think-- only CSV file, et cetera, regarding when you mentioned the possibility of other systems information?

Answer:

Yeah, so I was probably very glib when I was mentioning that. So let me just be super clear about this. When you synchronize data between systems, you're not uploading the system. What you're doing is establishing a trusted connection between Arches and a target system. And part of that connection that you establish includes the permissions on the data as well as the format of the data.

So you might decide that what you want to do is transfer information between Arches and another system as CSV files, or as a specific flavor of JSON, or as, in the case of the Esri example that I showed, a proprietary service that the target system, in this case, Esri supports. So the exchange of information between Arches and other systems is done at the data level, and usually through an API.

So it's not uploading systems, it's creating a trusted relationship between systems and how they are going to broker exchange of data.

Thank you, Dennis.

Question 15:

One more question and then we'll close the question and answer session. Do you plan to create a full dependency installation script for Ubuntu 19 as well?

Answer:

I think that the community, if it isn't already working on this, probably will be working on this. This is a good time for me to say that Farallon isn't the only-- we aren't the only developers in the Arches community. There are others who develop on Arches, and share their efforts with the community.

Ubuntu scripts are a good example of that. I've seen others in the community share enhancements or new versions of scripts for, in this case, installing Arches on a target platform. And that works really, really well. So if the question is, is Farallon going to do this? The answer is probably we'll help, but my suspicion is that there are others in the community who are already working on this, and have, in the past, been more than happy to share their efforts.

And I think there's a question down below about can I develop my own plugins for Arches? And again, this speaks to the nature of the open source community in Arches in that, yes, of course, you can develop your own plug-ins for Arches. And I'm sure there will be some documentation or assistance with that from Farallon in some way. But as an Arches community member, you are absolutely free to develop plug-ins for Arches additional functionality.

OK, and with that, those are some really great questions. And Dennis, could you advance the slide. I wanted to thank you all for attending this webinar. If you have any feedback regarding the webinars or this webinar in particular, feel free to contact us using the email address you see on the screen. In addition, if you have more questions, as I mentioned before, please post them on the Arches forum. And again, to find the webinar recordings and transcripts, go to archesproject.org/videos. All the best everyone. And until next time, cheers.

*Part of the Q&A transcript was modified from the original version for formatting purposes.

[course title] presented by the Getty Conservation Institute.
License: Creative Commons BY-NC-SA

©2019 J. Paul Getty Trust