

ArcGIS Workflow Manager - An Introduction

Tope Bello and Kevin Bedel demonstrate ArcGIS Workflow Manager, a spatially enabled enterprise workflow management system that lets you centrally manage your GIS operations.

http://video.esri.com/watch/657/arcgis-workflow-manager-_dash_-an-introduction

Video Transcription

00:01 My name is Tope Bello and with me here today is Kevin Bedel.

00:05 We will be going over an introductory section...session for ArcGIS Workflow Manager.

00:11 And is everyone here...as I believe everyone here has heard of the product. You have a brief idea of what the product does.

00:21 The goal today is to just kind of show you guys some of the key features within Workflow Manager with some demos.

00:30 So, we're going to start off presenting you with the framework of ArcGIS Workflow Manager...

00:38 ...and show you how you can actually use this with your business processes, and we'll sprinkle in demonstrations.

00:47 There's quite an interesting form I want to go with today, is to actually entertain a few questions after every demo...

00:56 ...just that way if people have questions, we don't want you to forget to ask them...

01:01 ...but we'll still have room for questions at the end of the session.

01:09 So the topics we're going to be looking at today, we're going to be looking at the introduction to Workflow Manager.

01:15 We're going to define workflows. You're going to see Kevin define workflows.

01:20 I'll talk a little bit about that prior to the demo and also see how you execute these workflows.

01:25 We'll see how you can integrate your workflows with ArcGIS...

01:29 ...because you already have a...your business processes defined within your organization.

01:34 I want to show you how you can use Workflow Manager to actually integrate your workflows with ArcGIS.

01:43 Lastly, we'll show you the tracking and reporting piece of the software and how we do that within Workflow Manager.

01:52 So what exactly is Workflow Manager? It's an enterprise-wide...it's an enterprise solution.

01:59 It's an enterprise workflow management application that allows you to integrate your GIS and your non-GIS work.

02:06 It basically provides you with a framework that plugs into existing systems within your organization...

02:12 ...or plugs your business processes into our workflow management system.

02:21 ArcGIS Workflow Manager is an extension of ArcGIS, and I'll talk a little bit about two different flavors that we have...

02:28 ...because as you find better ways to do some of the activities that you do within your organization...

02:30 ...flavors being Server and Desktop, in a moment.

02:33 It's basically a product that allows you to define your business processes.

02:38 It allows you to manage your workflows.

02:40 It allows you to execute your workflows. It allows you to keep track of your work.

02:45 In doing all of this, it leaves room for process improvement...

02:53 ...you may want to modify your workflows to kind of address those things.

03:00 We'll show you how you do that in a little bit in our demo here.

03:06 So right at the heart of the workflow management system is a geodatabase.

03:10 This is an SDE database that contains the Workflow Manager system tables.

03:15 The system tables get created when you run the postinstall utility that we provide with the product...

03:22 ...and the Desktop piece of it interacts with this repository...

03:27 ...so your workflow management tables or your workflow management...

03:32 ...sorry, your workflows basically reside in the Workflow Manager geodatabase.

03:37 We interact with it via the Administrator or the application. The Administrator is where you define these workflows.

03:44 Basically you define...you model your processes into Workflow Manager workflows...

03:50 ...and the application is where your end users go in and actually execute their workflows.

03:55 The last piece there is a developer kit for those of you that want to extend the Workflow Manager capabilities.

04:02 We do have an SDK and a developer kit that allows you to create more robust steps...

04:09 ...we'll talk about that later, or modify the look and feel of the application.

04:14 The Server piece of it, we have our APIs, SOAP and REST API, allows you to actually create either web applications...

04:23 ...or integrate this workflow management system with other systems...

04:27 ...by communicating via...with some of these services.

04:33 We do provide two samples, sample web viewers.

04:38 They're currently available. The Flex Viewer is part of your installs when you get this.

04:43 We have a JavaScript version too, which is also available on our Resource Center...

04:48 ...and I'll, you know, give you all this information as a last slide later on.

04:53 So the common question we hear is, Why would I use Workflow Manager Server versus Desktop?

04:59 Or what do I need to use Server for and what do I need to use Desktop for?

05:03 Well, Server allows you to leverage your investment across your organization.

05:08 It exposes the GIS capabilities to your non-GIS...I'm sorry.

05:12 It exposes the Workflow Manager capabilities to your non-GIS users.

05:16 So your GIS department and the other departments within your organization...

05:20 ...that contribute to the GIS work, can basically interact with the same system.

05:27 It provides a way for you to, you know, get feedback from your customers, maybe by, you know...

05:32 ...creating work for you or people within the GIS department...

05:37 ...and they can view status of their work progress real time.

05:43 It also plugs into existing applications, and examples of applications I have up here are, you know...

05:48 ...Maximo, SAP, and other in-house systems that you've developed.

05:53 A lot of you probably already have some form of mechanism of tracking your workflows.

05:59 Workflow Manager Server provides you a framework where you can easily plug these existing systems in.

06:12 So I'm going to hop right into defining workflows or processes within Workflow Manager.

06:18 So I guess the key thing there is, how do I model this business process.

06:22 A lot of people here, we talk about workflows, we talk about steps, we talk about activities.

06:29 Well, we're going to cover that in detail in this section. There's basically three things you need to do.

06:36 The first thing there is you need to define the steps.

06:39 These steps are basically activities that make up a certain project, right?

06:44 A project could have multiple activities that require to happen...

06:47 ...for that entire project to be completed or task to be completed.

06:51 When you define the steps, you drag and drop them into a canvas and you connect the steps together.

06:58 Or you can then update the step properties to give it more intelligent behavior.

07:05 An example of a workflow process, I guess, or of a business process, is map creation.

07:11 Map creation, for example, may require you to go out and collect data, prepare the data...

07:17 ...and create a map document to review that the contents of your data...

07:20 ...is what you really want it to be before generating maybe a PDF output of a map. This is just an example.

07:30 These simple activities like I have up here could be translated into what we call step types. Okay?

07:38 So you basically define these activities. These are things that you need to do within your organization...

07:42 ...or within a certain workflow and you break them down into step types.

07:47 They're translated into step types and they reside in the Workflow Manager system tables in the Administrator.

07:54 And once you've defined your step types, you basically grab them and drop them in a canvas.

07:59 For those of you that are familiar with ModelBuilder, it's a similar experience.

08:04 You grab a tool, you drag it into a canvas, and you plug in data elements to it.

08:09 With Workflow Manager, you drag a step type into the workflow and it becomes a step...

08:14 ...it becomes an instance of that step type. So you're just using a copy of it.

08:18 And now you connect the step types together with what we call paths.

08:25 These step types, sorry, these paths allow you to actually...

08:29 ...you can actually model more intelligent behavior into your workflow process, so you can have things like decision points...

08:37 ...or you can automatically assign a certain piece of your workflow to a particular group of users.

08:43 An example I have up here, I'm basically making sure that when that workflow step of

Perform Quality Check is reached...

08:50 ...this job gets routed to my quality assurance team.

08:53 I also have it set up so that the status of the job shows up as quality assurance.

08:58 And you'll see where all of this gets displayed in a second when we show you the demo.

09:02 Finally, I have a percentage completion so that when that step is done...

09:06 ...my entire workflow is about 75 percent complete.

09:10 All of these are fully configurable and controlled based on your business processes.

09:16 What I'm going to do now is turn it over to Kevin to just show us how we'd define a simple workflow.

09:22 Okay.

09:24 Thanks, Tope.

09:25 So throughout the demonstrations today, does this seem a little...

09:32 Alright, throughout the demonstrations today, we're going to look at a scenario involving an organization...

09:38 ...that is tasked with preserving the endangered Tahoe yellow cress...

09:42 ...which is a plant that grows along the shores of Lake Tahoe.

09:47 And throughout this scenario, we're going to focus on one particular workflow...

09:52 ...and that workflow consists of a developer making a request to have a new development approved.

10:00 And we already have that workflow defined in our system here, so I have the Workflow Manager Administrator open...

10:09 ...and I can go to my Workflows folder and I can see this Request for Approval workflow.

10:15 So I'm going to begin to edit that. But we want to make some changes to this.

10:19 We've determined that we can improve our business process by making some updates to our workflow...

10:25 ...so we're going to go ahead and do that.

10:29 So these type of activities that I'm doing here in the Administrator are usually performed by one or a couple of people...

10:37 ...within your organization that are tasked with managing your Workflow Manager system.

10:43 So we're going to start off by looking at this from their point of view.

10:49 So our existing workflow, I can see it in the canvas here, and right now it consists of the...

10:56 ...GIS analyst will receive a request from the developer. They will then acknowledge receipt of that request.

11:04 They'll then go out into the field and collect some GPS data, load that into their enterprise geodatabase...

11:13 ...create a version within their enterprise geodatabase, which will be used when they perform analysis.

11:20 Finally, they will come up with some recommendations based on that analysis...

11:25 ...let the developer know what their recommendation is, and then this request can be marked as resolved.

11:33 So we want to make some improvements to this process, because, right now...

11:38 ...the developer may submit a request in an area that our organization knows that Tahoe yellow cress cannot grow...

11:47 ...and so we don't need to go out into the field and look for instances of the plant in that case.

11:52 We can just let the developer know that it is...meets our approval process.

11:59 So I'm going to delete the Acknowledge Receipt path within our workflow and we're going to add a new step to our workflow.

12:07 It's already been defined as a step type within our system, so I can find our Location Analysis step type here in the library...

12:15 ...on the left-hand side, and drag that into our workflow canvas.

12:20 I can then resize or change the background color just to give this nicer look to the workflow...

12:29 ...and I can then begin to connect it to the remaining steps.

12:34 So I want this step to occur after the GIS analyst has acknowledged receipt...

12:40 ...and then depending on the output of this location analysis, we'll either continue with collecting GPS points...

12:49 ...or we can go directly to notifying the developer that they are able to proceed.

12:56 So I can rearrange my steps here just to make them look a little neater...

13:00 ...and I'm now going to begin to set the properties of my path to model that condition that I described.

13:08 So if I looked at the documentation of the Location Analysis step...

13:12 ...I would know that a return code of 1 means that the area that the developer has requested to create their development in...

13:22 ...does overlap the Tahoe yellow cress habitat, so in that case we need to go out and collect our GPS points.

13:31 But if that step returns 2, there is no intersection and we can move directly to notifying the developer.

13:40 I also want to set some properties on the step itself here.

13:44 In this case, I don't want to allow the location analysis to be skipped, so I will turn that off...

13:51 ...and I will proceed directly to the next step after this location analysis has been completed.

13:59 I can also set the Percent Complete to say that the overall workflow is 5 percent complete...

14:06 ...after the location analysis has been performed. So I'll go ahead and accept those changes.

14:13 And there's one additional step that I want to add to my workflow here, which is a Prepare step.

14:18 Again, I have it as a step in my step type library here, so I can just drag it in to add my new step...

14:25 ...and I want this to be the first step in my workflow here.

14:29 And I'm adding this so that the developer has a chance to fill out some additional information...

14:37 ...before they submit this to the GIS analyst.

14:40 And the way I'm going to then allow the developer to submit it to the GIS analyst is...

14:46 ...by setting a property on this Acknowledge Receipt step.

14:51 And in this case, we're going to assign this step to the GIS analyst group...

14:57 ...which means that when this step is reached, it's now moved from the developer to the GIS analyst.

15:03 And we'll see this in action in the next demonstration.

15:07 So I'll go ahead and accept my changes here, save my workflow...

15:13 ...it'll do a quick validation to ensure that the workflow I have defined is valid, and I'll turn it back over to Tope now.

15:24 Thank you, Kevin.

15:26 So, like I said, we'd like to take questions in between.

15:29 If you have any questions and you want to keep it till the end of the session as well, that's great.

15:34 So I have room for two questions right now. Any comments on what you've seen so far? Alright, great. Thanks, Kevin.

15:45 So, we're going to look at how you actually use this workflow.

15:48 So you've seen Kevin define a workflow, kind of modeled...we already had an existent workflow.

15:53 You've seen how he changed that up to, you know...

15:55 ...redefine the way the approval process works for the Tahoe yellow cress area.

16:02 We're going to look at how you actually use these workflows in a moment.

16:05 So it's, again, it's a couple of things that need to happen for you to be able to use our workflow.

16:11 First of all, you define the workflow, like you saw us do a second ago.

16:15 The next thing you want to do is associate your workflow with a job type. A job type is a template.

16:22 It's a template that allows you to define some key properties ahead of time, so that when a job of that type is created...

16:29 ...not only is it utilizing an instance of the workflow, it also has some preset properties...

16:35 ...you know, like dates, status, priority, and things like that, once that job gets created the first time.

16:43 Once the job type is defined, then you create what we call a job.

16:47 And a job could be anything you do within your organization.

16:50 An example we have here is creating a map product or, you know...

16:54 ...collecting points for a specific area, or updating data for a specific job, area of interest.

17:01 The examples we'll see today, we'll be executing a job of the type that we just talked about.

17:08 So how do you actually access these jobs? Within Workflow Manager...

17:12 ...the application, there's a couple of ways to access it.

17:15 The first thing you want to do is either execute a query.

17:19 A query is basically a user-defined criteria that allows you to say, I want to see either all the jobs in my system...

17:26 ...or I want to see jobs assigned to the GIS analyst group in my system. Or I want to see jobs of high priority.

17:33 When you execute these queries that have been predefined by the administrator...

17:37 ...the resulting jobs get displayed either in the list view or in the map view.

17:43 The list view is basically just a tabular view with existing fields that come out of the Workflow Manager system.

17:50 It displays the jobs. You can select the job and start interacting with it.

17:54 If your jobs have a spatial component to it...

17:57 ...so if they have like an area of interest where the work is going to take place...

18:01 ...then you can see this in the map view as well.

18:03 So there are times when you have jobs that have no spatial component, well, no spatial context to where they are.

18:11 These jobs will only get displayed in the list view, and you'll see that in a moment when Kevin does the next demo.

18:17 So once you select a job, there are a couple of things that are associated with the job...

18:21 ...and I'll kind of go over them in detail as we walk through today. But the heart of it is the workflow.

18:26 That's the key thing, right? That's your business process.

18:30 The job, on the other hand, also has more information associated with it like the descriptive information.

18:36 This could contain information like the job name, so that way you could actually, you know...

18:41 ...see a job and, you know, it just doesn't have a random number.

18:44 It actually has some descriptive information like maybe Create Map Job 1, Create, you know, Update Data Job 1.

18:54 It also...you could also have dates associated with your job and status, and I'll talk about that in detail in the next slide.

19:01 In addition to that, within Workflow Manager, for a job to be executed, it needs to be assigned to a resource.

19:08 There's two kinds of resources in the system. Most...I'll talk about that in detail later...

19:14 ...but we have groups and then you have users, and I'll talk about how those kind of relate.

19:19 You could have a geographic area of interest associated with your job.

19:22 It's not a requirement, but if you have a spatial component, it helps you refine the place the job's going to take place.

19:28 You could have a geodatabase version, and while everything's happening on your job...

19:33 ...we're keeping track of what's going on in an activity log.

19:36 So, you know who did what, when things happen, and when jobs were created, and things happen on the job.

19:42 So for job documentation, there're a couple of ways you can go about this.

19:45 You can either utilize the standard properties within Workflow Manager...

19:49 ...or have extended properties within Workflow...set up within your organization.

19:54 For the standard properties, these are very generic things that we believe every job should have.

19:59 For example, a name, due dates for a job...you want someone to know when a job is due...

20:07 ...assignment, and so on and so forth. However, this may not be sufficient for you...

20:11 ...because you may do things within your organization...

20:13 ...that require more specific properties that you want to associate with jobs.

20:20 You can define those using what we call extended properties.

20:23 These are tables that reside in the Workflow Manager system table...system as well.

20:29 It resides in the Workflow Manager repository, and you can basically interact with this and associate it with jobs...

20:35 ...so they can capture more business-specific information on those.

20:40 In addition to that, you can capture free text by just typing in notes when things happen on a job.

20:45 So for example, you know, something happens while I'm updating data for a specific area...

20:51 ...and I just want to keep track of that, put a note in there...

20:54 ...so if someone goes in and didn't know that, you know, an event happened during that process.

20:58 I can also add attachments to my jobs. These attachments could be linked to a file system somewhere.

21:05 It could also get embedded into the system, into the geodatabase, so you can add any file as an attachment to a job.

21:14 I think that's...that's a big deal, huh? So we've talked about resources. So how does it really work?

21:21 Within Workflow Manager you have what we call groups.

21:25 These groups are kind of synonymous to what you could think of as roles.

21:30 Groups could be a category of certain users within your organization.

21:36 You have users that belong to a group or multiple groups and these groups are used to...

21:41 ...actually control certain things within the application.

21:46 We have the application privileges that gets assigned to a group.

21:50 So the example Kevin showed a second ago was assigning jobs to the GIS analyst.

21:56 The GIS analyst within your organization may have...

21:59 ...you may want to limit what they can do within your workflow system.

22:02 So you basically give them application privileges that control what they can or cannot do.

22:09 Users belong to this group so they inherit those privileges directly from the groups.

22:18 So I've talked about the area of interest. So this is a spatial component of your job.

22:21 It allows you to refine where the work needs to happen.

22:26 It's a way for you to, you know, control user edits within your organization.

22:31 So if you're making spatial edits for two data, and you want to restrict your users...

22:38 ...from making edits outside of a certain geographic area of interest.

22:41 Maybe because you have...you've basically divided agreed...of areas of interest...

22:46 ...and you don't want me to edit what Kevin has edited.

22:49 You can also model rules around utilizing the job's area of interest to prevent this from happening.

22:58 Step descriptions are things that actually get...become a part of your steps, and this is also critical.

23:05 It's a very, very useful piece of the software, whereby you can provide your own users...

23:09 ...with some useful documentation on what needs to happen on a step.

23:14 Kevin had acknowledged receipt a second ago. That could mean anything to everyone, right?

23:20 With a little bit of descriptive information there, a user assigned to do that job can go in there...

23:26 ...and read what acknowledge receipt entails and be able to actually perform their work.

23:30 So this is pretty good because you can also link this to existing documents so you can link it to existing URLs.

23:39 For example, you can link it to web help rather than, you know, having to write up your own reason for creating a version.

23:45 You can just link it to existing documentation that is already on Esri, on our website...

23:50 ...and you can, you know, just have that as part of your step descriptions.

23:54 The last note there, it's also HTML based, so you can type things out and format them in HTML, will make it nicer and pretty.

24:03 Once these jobs are created, your users have tools within Workflow Manager to actually

execute these workflows.

24:10 I won't go into too much details about this. You're going to see this in a moment in the demo...

24:15 ...but you have tools that allow you to execute the tools and also tools that allow you to navigate the workflow canvas.

24:24 And lastly, we have holds and dependencies. Holds are basically a way for you to put in an arbitrary suspension on a job.

24:31 So you may want to make a...pause the job, for example. That's actually a good way to put it.

24:35 You may want to prevent people from continuing the work maybe because you haven't received data to continue the work...

24:43 ...and this is useful for you to go back and actually mine information on this job...

24:47 ...because, for example, the job might be due in two days, but it's, sorry...

24:51 ...the job might be due tomorrow, but it's, sorry, sorry, the job might be due today and it's not done yet.

24:58 You can go into the Workflow Manager system tables and take a look at the history...

25:02 ...or take a look at the Holds tab and realize that the job hasn't been completed because we haven't received data.

25:09 Lastly, you can model relationships with your job so you can have a job be dependent on another job...

25:16 ...so that way you can again have a job that maybe requires people to collect data before I make the map.

25:23 If the data is not...data collection is not completed, I don't want the guy making the map making the map...

25:29 ...because we don't want to have up there, you know, data that is not up-to-date.

25:34 So these are ways that you can model more intelligent behavior into your workflows.

25:39 I will turn it over back to Kevin now to just kind of show us how you create a job and manage some of the job properties.

25:50 Thanks, Tope.

25:51 So I'm now going to look at this from the point of view of the developer...

25:56 ...that wants to come in and make a request for the new development.

26:01 So I have the Workflow Manager Flex application open here.

26:05 This is the sample that Tope mentioned previously that is included with Workflow Manager 10...

26:13 ...and as well there's a version of it on our Resource Center.

26:18 And Tope will talk more about the Resource Center near the end of this session today.

26:23 So as a developer I want to come in and make my request for approval...

26:27 ...so I'm going to click the Create a Job button down here, and I will choose the Request for Approval job type.

26:36 I can then set some of those basic properties, such as saying, I'm requesting a due date of next week.

26:44 I can change the priority, I can enter a description if I wanted, and I'm just going to go ahead and create my job here.

26:52 I can see my list view contains my new job that I created, 2834 here. I can also run a query here.

27:00 I'm going to run the Active Request query so that I can see any other active requests for approvals that are out there...

27:08 ...and I see the area of interest show up on the map for my existing request.

27:14 So I want to create my new request next to that old one, so I'm going to zoom in here...

27:20 ...and I can then define my area of interest right on my map on the web here.

27:25 So I'm going to just draw a rough area of interest in here and save the changes to my area of interest.

27:35 And now I want to update some more properties of this job before I submit it to the GIS analyst.

27:43 So I'm going to go to my Properties tab here.

27:46 We can see that currently this job is assigned to the web user...

27:52 ...which is who I'm logged in as here, and we'll come back to that in a minute.

27:58 And you can see I'm unable to update any of those other properties...

28:02 ...and that's based on the privileges that the administrator has defined for this web user.

28:09 If I scroll down here, I can update some extended properties though, so I want to fill in my information...

28:18 ...requester information, and my requester e-mail here...

28:24 ...and I'm going to go ahead and save the changes to my job.

28:30 And then I'll flip over to the Workflow tab here within the Flex application...

28:34 ...and I can see my workflow image looking very similar to what we saw on the Administrator...

28:42 ...and I've now completed my preparation as the developer, so I'm going to mark the Prepare step as completed...

28:51 ...and once that happens, if I switch back to my properties here...

28:55 ...we can see this is now assigned to that GIS analyst group...

29:00 ...as we set up in the last demonstration in the Administrator.

29:04 If I once again go back to my workflow here, I'm no longer able to run any steps.

29:10 It's now moved away from the developer and is ready for the GIS analyst to pick it up...

29:15 ...which is where we'll pick it up in the next demonstration. So I'll turn it back over to Tope now.

29:21 Thanks, Kevin.

29:24 Any comments? Questions? So far? Great.

29:29 [Audience question] I just heard about Data Reviewer...

29:32 Okay.

29:33 [Audience question cont.] Is that part of ArcMap or can you go into Data Reviewer as a step?

29:39 So the question, or the comment is, he just heard about Data Reviewer and can...is that part of ArcMap...

29:44 ...and how can you integrate that with Workflow Manager. Is that kind of what you're asking?

29:50 So, there, as part of a step within a workflow, you can associate a Data Reviewer session with a job...

29:58 ...and there's actually two steps that get shipped with Data Reviewer that gets plugged into Workflow Manager...

30:04 ...and it allows you to do a batch Data Reviewer job within a job in Workflow Manager.

30:13 That's...that's...that's pretty much as far as I know.

30:18 Yep.

30:19 [Audience question] What's the relationship of Workflow Manager to JTX?

30:23 So the question is, What's the relationship of Workflow Manager to JTX?

30:27 The answer, it's the same. It is the same in reality. Workflow Manager was a new name introduced at 10 and...

30:35 [Audience question] But it's still an extension?

30:37 Correct. So yes, it's still an extension. It's an ArcGIS extension.

30:43 We have a Desktop extension version and also a Server extension, and they're basically

based...

30:50 ...built on top of our ArcGIS Desktop for the Desktop extension and then Server.

30:55 So we require you to have Desktop installed before you can install ArcGIS Workflow Manager Desktop, and the same for Server.

31:02 Okay, one more question?

31:04 [Inaudible audience question]

31:08 Sorry?

31:09 [Audience question] The web edition is only at version 10?

31:11 Okay, so the question is the web edition only at version 10?

31:15 We had a web version at JTX. I believe the first version of the web that we created was at 9.2.

31:24 We used to refer to it as JTX web. So the web capabilities already existed prior to 10.

31:31 What we did at 10 was actually created a REST API so that you can have more rich Internet applications...

31:36 ...like Kevin showed a second ago with the Flex Viewer.

31:40 So, I'll take more questions after the session. I just wanted to, you know...

31:44 ...let you guys kind of not forget the questions before we got to the end. We'll pick it up at the end, okay?

31:50 Hold your thoughts please. Thank you.

31:53 So we're going kind of look into how we integrate this with...integrate the...your business processes and ArcGIS.

32:02 Basically, the reason why you want to do this is because you have some sort of...

32:06 ...spatial component or spatial piece associated with your job.

32:10 You may want to manage your geodatabase versions.

32:14 These are things that Workflow Manager provides you...provides you with tools to do.

32:18 You may also want to automate some processes like map creation or geoprocessing tasks.

32:24 We're going to look into more details on how these work.

32:27 We're also going to have a demonstration from Kevin on how you actually do this in a moment.

32:33 So for version management, version management is mostly required when you have a multiuser editing environment.

32:41 It's not a requirement that you have a multiuser editing environment to use Workflow Manager...

32:45 ...but we do provide you with tools and ways to actually manage that much more effectively.

32:50 You define...you define certain things within Workflow Manager, like connection parameters...

32:55 ...and we automate the creation of versions and we also automate the deletion of versions.

33:00 So basically, cleaning up your database when versions are done being used.

33:08 This actually happens in a couple of ways, and I'll talk about those right now.

33:12 So, first of all you define what we call data workspace within Workflow Manager.

33:17 This contains...it's basically an SDE file that contains properties on how your users will connect to your spatial data.

33:26 So you can have multiple geodatabases or multiple data stores within your organization.

33:32 You can configure that and set it up file at a time in Workflow Manager...

33:36 ...so that when a user is trying to connect to those spatial data warehouses...

33:41 ...they're using a set of predefined connection parameters.

33:45 When they connect to it off of a job, and Kevin is going to show us a demo on that...

33:50 ...version creation can happen either as a workflow step or as a click on the job properties...

33:56 ...so it creates a work...it creates a version and it basically associates that version...

34:01 ...with that job throughout the life span of the job.

34:07 Once these versions are created, we have the concept of what we call open up a map with a step...

34:13 ...in Workflow Manager, we call it the Launch ArcMap step.

34:16 The contents of that map would have...could have predefined layers with already predefined symbology.

34:24 The dataset would actually be pointing to the job version if a data workspace, like I mentioned, was configured.

34:32 These connections are basically done for you once you execute this step in the back end.

34:38 You don't even know that it's happening, but you just see that you're actually working in a...on a particular job version.

34:44 This information allows you, or allows your users, to be more productive and more efficient when...

34:50 ...you know, open up data to edit in ArcMap.

34:52 It reduces the chances of errors because Workflow Manager just takes care of that for you.

34:58 When you start utilizing these maps, you make changes to symbology, you pan around...

35:02 ...you zoom around, you add more content to it.

35:05 You save it. We save it back into the Workflow Manager repository.

35:09 And what this does is, it makes it available to the next guy who's going to be either taking...

35:13 ...taking the job or reviewing the work.

35:17 The example you saw a second ago was Kevin creating a job and assigning it to the GIS analyst.

35:22 If there was a QC step and edits were made to the map, changes were done...

35:26 ...the GIS analyst hands the job over to a QC guy.

35:30 The QC guy will see exactly the same map documents that Kevin worked off of, 'cause we store that in the database.

35:37 You also have an option to just store it to the file system. Again, that's an option for you if that's more preferred.

35:46 While you're in ArcMap, we have a bunch of tools within ArcMap...

35:49 ...that allows you to interact with the Workflow Manager system.

35:53 One of them would be to actually interact with job information and also interacting with the workflow canvas...

35:59 ...and I'll talk about that in a little bit.

36:01 But the step that drives you from within Workflow Manager into ArcMap is a step that we have...

36:09 ...well, I guess it's a step that comes out of the box with Workflow Manager...

36:13 ...and all you really need to do is define a map...define a map template and associate it with a job type.

36:20 You remember in the beginning I talked about, you know, you define your workflow...

36:24 ...you associate it with a job type, and you set up a couple of predefined templates...

36:30 ...or properties that are associated with that job type.

36:33 You also...you also set up the map templates...you also set up the map that you want this step to open...

36:40 ...whenever a user executes that step on a job.

36:47 While your users are in ArcMap, at 10 we introduced a concept of having a workflow canvas...

36:53 ...the entire workflow canvas, which you'll see in a moment, in ArcMap...

36:56 ...so you can do everything you can do in the Workflow Manager application while you're in ArcMap.

37:01 In addition to that, you can actually switch jobs from within ArcMap...

37:05 ...so this is very useful and it came from requirements from most of our users that...

37:11 ...most of the time they spent doing work in ArcMap.

37:15 They don't see a reason why they need to go into JTX or Workflow Manager...

37:19 ...to execute a job that drives them back into ArcMap.

37:23 So we provided with a list, a query view, in ArcMap, so that you can select the job...

37:29 ...and that becomes the active job while you're in ArcMap, and you can switch this back and forth.

37:34 Once you switch jobs within ArcMap, you can start to interact with the job information window.

37:38 You can update properties. You can actually assign work to people. You can change job names.

37:43 You can update data...the data source that...the job would be using.

37:49 You can add notes and attachments like you would see in a second from now.

37:54 You can execute steps or you can also view the job history.

37:57 So these are basic things that...productivity tools while you're in ArcMap.

38:04 We also went further and integrated more closely with the geodatabase archiving.

38:10 For those of you that are doing version edits within your organization...

38:14 ...GDB archiving allows...allows you to basically bridge...create a bridge or a link...

38:19 ...between a geodatabase archiving event, or geodatabase archiving edits, to a particular job.

38:27 It gives you a better way to track edits that happen to your spatial data on a job.

38:31 It tells you who did what, what happened, and you can basically go back and forth between different versions.

38:37 So kind of like a QA/QC process that allows you to revert changes...

38:42 ...and push changes back, and reconcile, and post this as well.

38:47 Lastly, we have geoprocessing tools that allow you to be more productive again.

38:50 With Workflow Manager you can get job information, take that...

38:55 ...take the job information and plug it into a much more broader geoprocessing, maybe model.

39:02 The classic example we use is maybe the Get Job AOI. You can get the job areas...

39:07 ...the job's area of interest to maybe create a checkout replica...

39:11 ...as basically containing data for that particular job's area of interest.

39:15 Or you could grab the job's data workspace information and the current job's version information...

39:21 ...to maybe push data back using geoprocessing tools within your workflows.

39:25 I'm going to turn it over back to Kevin now to just show us how all this kind of plot together in ArcMap.

39:32 Thanks, Tope.

39:34 So I now have the Workflow Manager Desktop application here and I'm going to pick up that job that we created as the developer...

39:43 ...from now the point of view of the GIS analyst that's going to look at the request that's come in.

39:50 So the first thing I'm going to do is run my active requests here, my query...

39:57 ...and I can see in the list view that I have this job here that's assigned to the GIS analyst group...

40:04 ...so I know that no individual has kind of taken responsibility for that.

40:08 So I'm going to do that now by assigning the job to myself here and saving the changes to my job.

40:19 So that means I'm now ready to work on this.

40:22 So now that I'm ready to work on it, I'm going to go and have a look at the workflow.

40:28 And I have different tools here on my toolbar to allow me to fit the entire workflow to my screen...

40:34 ...or zoom in to a current step, and I just pan around a little bit here so we can see the current step...

40:40 ...as well as the next couple coming up here.

40:43 So we can see we're on the Acknowledge Receipt step. Before I acknowledge receipt of this request...

40:51 ...I want to make sure that the developer actually filled out all of the information that I need.

40:56 So I'm going to go back to my Properties tab here and I can see that it says that an AOI has been defined.

41:04 We could go to the AOI tab and actually see that area of interest, but I just care that one has been defined.

41:12 I can also go to my Request for Approval Info tab here, and this is showing me those extended

properties...

41:21 ...that we set on the website as the developer, the name and the e-mail address.

41:27 I'm going to also choose, from a drop-down list here that has been set up through configuration...

41:34 ...my name as the Reviewed By person.

41:38 Again, I'll save the changes to my job after that, and now I would maybe go to my e-mail application, whatever that is...

41:45 ...and send the user an e-mail letting them know I've acknowledged...

41:50 ...or I've received your request and I'm currently working on it.

41:54 Once I've done that, I can go to my workflow and acknowledge that I have completed that by marking that step as complete.

42:02 Once that happens, I can run my location analysis step, and this is going to perform that location analysis I described...

42:11 ...which is an intersection between the area of interest that the developer defined on the website...

42:18 ...and the Tahoe yellow cress habitat sites.

42:23 So we can see that there is an intersection, so it took us to the collect GPS points here.

42:30 So at this point we would go out into the field or send a field crew out into the field...

42:34 ...they would collect GPS points of where they observed the Tahoe yellow cress growing within our area of interest.

42:42 And I now have that data as a shapefile on my hard drive.

42:46 So I want to, first of all, acknowledge that we have completed that step...

42:52 ...and I want to load the data from that shapefile or file geodatabase...

42:57 ...in this case it's a shapefile, into my enterprise geodatabase.

43:01 And so I'm going to do that through a geoprocessing model, which I will launch from my workflow here.

43:08 And when I run a geoprocessing tool or model from within Workflow Manager...

43:13 ...it's going to bring up the same dialog that you would see if I had run this from ArcMap or ArcCatalog...

43:21 ...and I've set it up to prepopulate with my location of my shapefile.

43:26 And you can see it's also prepopulated my current job ID here.

43:31 And when I run this, it's going to take that shapefile and it's going to load it...

43:35 ...into the data workspace that I have associated with this job.

43:40 Because my model is using that Get Job Data workspace tool that Tope talked about.

43:46 So my data has now been loaded so I can close my Geoprocessing dialog...

43:54 ...and it's moved us along the workflow, and we're ready to now create a version.

43:59 So I will run this step and it's going to go and create a new version for me in my geodatabase.

44:08 I'll run the Perform Analysis step here, and now this is going to launch ArcMap for us.

44:14 And as Tope mentioned, when you run the Launch ArcMap step from Workflow Manager, it opens the application...

44:21 ...loads the template map document that's been associated with, in this case our Request for Approval, type of job.

44:30 It's going to zoom us to the area of interest that the developer specified on the website...

44:36 ...and it's going to repoint the layers in our map document to the version that we created in that previous step.

44:46 So here we could see repointing and now we can see that it jumped as it zoomed us to the area of interest.

44:53 Just close this dialog here. And so we're now ready to work in ArcMap.

45:00 Well, if I'm a new user, I may not be familiar of what exactly do I need to do for this analysis step...

45:09 ...so I can go to my Job Information tab here and bring up my step description and I can see here we have the HTML page...

45:19 ...with some screen shots showing me exactly what I need to do to perform this. So I'm going to start editing here.

45:29 I already know what the steps are, so I'm just going to hide that window and go through it here.

45:33 So I'll start editing, and if I look down here in the right-hand side of my area of interest, I can see a couple of yellow dots...

45:44 ...which I know mean they are new occurrences of yellow cress. They did not...had not previously been observed.

45:53 So I'm going to just zoom in a little closer here and we can see we have a growth site here...

46:00 ...in green with a couple of yellow dots inside of it.

46:03 So I'm going to select...oops. Before I do that, I'm going to turn off some selectable layers here...

46:11 ...just leave our growth sites as the selectable layers. So I'll select my growth site.

46:17 Here I could see that there's two dots, but if this was a large site, I can go select by location...

46:23 ...choose my yellow cross discoveries that fall within my selected growth site...

46:29 ...and I can see I have two...so, two yellow cross discoveries within this.

46:35 So I'm going to bring up my Attribute Editor here, select my growth site, enter...there's two occurrences...

46:44 ...and now I know because we have two new occurrences, we want to protect this area...

46:50 ...so we're going to change the site type from Open to Reserved.

46:55 And you can see my symbology is updated as I do that, so I can save the changes to my edits...

47:03 ...we can see that this is happening in our job 2834 version here that we created...

47:10 ...and I'm now ready to make my recommendations based on my analysis.

47:16 So I can bring up the same workflow window that we saw in the Workflow Manager application.

47:24 So I'm going to mark my Perform Analysis step here as completed, and I'm ready to make my recommendations.

47:31 To do that I'm going to go back to my Job Information window...

47:35 ...and I'm going to enter some information about my decision into the notes.

47:40 So I can say, due to two new occurrences of yellow cross, it is recommended this application be denied.

47:57 Save the changes to my notes. And the developer probably wants some more information...

48:03 ...than just saying, two new occurrences, denied.

48:07 So I could go and take a screen shot or create a PDF map from my map document here...

48:14 ...and I've already saved out an image that would be like that.

48:20 So I'm going to go and attach that to my job here. So I can go to my attachments.

48:26 We can see there already is an attachment here. And this is something that was automatically added...

48:32 ...and it's the output of that geoprocessing model that we ran.

48:37 So if in the future there are some questions as to what happened...

48:40 ...we have that documentation along with our job here.

48:45 So I'll add a new attachment and I want to store it in the database, so I choose Embedded...

48:51 ...and I'll choose my screen shot that I have taken, store that with my job, and I'm now complete.

49:04 I've now completed my recommendations, so I'll notify the developer of what those recommendations were...

49:12 ...and I can now mark this request as Completed.

49:17 So I'll turn it back over to Tope at this point.

49:23 Thank you, Kevin. I almost got carried away there. It's exciting stuff, right?

49:29 So, we saw how Kevin's kind of gone through defining your workflow and executed your workflow.

49:36 We're going to see how Workflow Manager helps you track your work.

49:40 And this is probably a critical part of, you know, what a lot of us do.

49:45 Within Workflow Manager there are a couple of ways to do this.

49:49 Well, there're a couple of reasons before I go into that. There're a couple of reasons you want to do this.

49:53 First of all, you want to enhance communication within your organization...

49:57 ...and make sure that people know when they have work waiting for them to be done.

50:01 You want to provide real-time status to your stakeholders.

50:05 This could be done in multiple ways, and I'll talk a little bit about that in a little bit.

50:10 You also want to capture events when they happen on your job automatically.

50:14 It shouldn't be an extra step, right? You don't want me to, you know, go in there...

50:18 ...and type that I acknowledge receipt, when I can just check it off and it automatically logs it, and so on and so forth.

50:25 The first...the first feature I wanted to introduce to you guys is our notification piece.

50:30 You can send e-mails when things happen on a job or when a workflow step is executed.

50:36 For example, when a job is assigned to a user, you may set it up so that Workflow Manager...

50:41 ...actually sends an e-mail alert to that person telling them they have a certain job waiting in the queue for them to execute.

50:47 You may also make this a part of the workflow.

50:50 Similar to what Kevin showed us a second ago, which is notify development...

50:54 ...that could be a step that sends a detailed description of what...what happened on a job...

50:59 ...and share some, you know, additional information for you to keep track of, or to identify the

reason...

51:04 ...for the decision not to approve your development...development request.

51:11 What's interesting about this is, it's all fully configurable.

51:15 Right now it's available to you as a user on your own local SMTP.

51:19 You can extend that and get your...remember in the beginning when I talked about our SDK?

51:23 You can extend it and create your own notifiers within your organization if you wanted to.

51:29 In addition to job notification, you can also get e-mails sent to you when things happen to spatial...your spatial database, right?

51:37 For some of you, it may be critical to know when a certain feature is modified...

51:41 ...or when a certain feature class is modified or when a certain feature within an area of interest is modified.

51:48 These are ways that you can keep track of what's going on within your organization.

51:53 Again, these are rules that you define into Workflow Manager Administrator...

51:57 ...and if these rules are met, an e-mail gets triggered.

52:00 Again, it's fully configurable.

52:05 I talked about capturing history, when things happen.

52:08 Within Workflow Manager we keep track of who's doing what based on their Windows login...

52:13 ...and when they're logged in to the system, every event or every activity that they do within the system...

52:18 ...within the Workflow Manager system, is captured in the activity log.

52:22 So you can go into the history and take a look at who did what, when they did it, and if it was actually successful or not.

52:31 In addition to that, the user can go in there and just type in, you know...

52:35 ...free text, and that gets stored in our table as well.

52:38 One key thing with all of this that I've said is, this information is stored...

52:42 ...in a centralized location and you can generate reports off of it.

52:47 You can mine this using some of the existing built-in reports within Workflow Manager.

52:53 These reports are available to you on both the desktop, when you run it from the Desktop application...

52:59 ...or via server, when you run it from the Server application.

53:03 You can also use some of our web charting functionality that Kevin's going to show you in a little bit...

53:08 ...or maybe you want to use your own in-built, in-house reporting system...

53:13 ...or something more fancy like Crystal Reports.

53:17 I'm going to turn it over back to Kevin now to just kind of give us a demo on how you keep track of your work.

53:26 Thanks, Tope.

53:27 So I have open now the e-mail the developer might have received automatically when the analyst ran that Notify Developer step.

53:40 This is just a sample here because I'm not connected to a mail server...

53:44 ...so I can't bring up the actual e-mail that would have been sent...

53:47 ...but we could see it's included the job name and the subject.

53:53 We can see it's included the notes here within the text...the subject...or pardon me...

53:59 ...the body of the message, and that's all configured by the administrator.

54:06 So I'll close that, and as the developer, I've received that e-mail and now I want to go find out...

54:11 ...some more information about why my job is being recommended to be denied.

54:18 So I can come back in and I have my job already selected here.

54:22 I'm just going to click on it again to refresh my job and I can see the workflow is now completed.

54:29 All of the steps have been grayed out here within that.

54:33 So I can go to my job history and I can see what steps were done as part of this.

54:40 I can go to my notes and see the information that was filled out by the GIS analyst.

54:48 And I can go to the Attachments tab here and I can open up that screen shot that was attached by the GIS analyst here.

54:59 You can see the sample screen shot that I attached showing my area of interest here with my reserved growth site...

55:00 ...or a couple of different jobs. But what happens if you're that very first user that we talked about...

55:09 ...so maybe I need to go back and reevaluate the area of interest that I provided...

55:14 ...and maybe move the boundary over a bit.

55:18 So, close that. Go back to my web application here.

55:22 So that's...kind of gives you an idea of how the individual user can look at their individual jobs...

55:35 ...that Workflow Manager Administrator user who wants to get an overview of all of the jobs in your system?

55:43 So I'm going to just switch the user that I'm working as in my Workflow Manager sample application here...

55:53 ...and I'm going to, first of all, look at a report out of all of the different requests for approval that have come in.

56:01 So under my Reports tab here, I could see approval...the approval request summary report...

56:08 ...and it's showing me that Freddy Smalls has made three requests for approval and they're in different statuses here...

56:18 ...and Kevin Developer, that user that we were working as, has one request that has been completed.

56:30 We can also view this type of information in a pie chart form through this sample application.

56:38 So if I go back to my queries here, I'm going to run a different query here...

56:42 ...which is the Annual Inventory, and this is going to show a different type of job that's set up in our system.

56:50 So if I pan over here, I can see I have six areas of interest in a line here for users...

56:57 ...to go out to do a comprehensive survey looking for the yellow cross.

57:03 And I can see my list view here has those. So then if I go to my Charts tab here...

57:09 ...I can categorize my pie chart based on any of the text fields that I see down here in my query results.

57:19 So I'm going to choose Status here, and that gives me my pie chart and I can see...

57:24 ...that two of my six jobs are in working status, two are closed, and two haven't begun yet.

57:31 So maybe as the manager I want to know more about these two that haven't started yet.

57:36 I can click on that section of the pie, and you can see it's filtered my results...

57:41 ...both in the map and in the list to the jobs that meet that status.

57:48 I can then drill down into an individual job and maybe begin to evaluate why this job has not begun yet.

57:56 And maybe we would come up with some ways to improve our business process...

58:00 ...basically taking us back to where we started all the demonstrations off by evaluating our

business process...

58:07 ...modeling improvements to it, and you can see how that's kind of a continuous process to improve your workflow.

58:15 So I'll turn it back over to Tope now to wrap up.

58:19 Thanks, Kevin.

58:21 Alright. So we're going to take questions after this.

58:25 So overall what you've seen today is just a demonstration that we came up with.

58:31 The key thing there is this could be your process, basically modeling your process...

58:36 ...managing your work, going back in circles.

58:39 You know, it's what Kevin just talked about. You could go back and redefine your workflow...

58:44 ...maybe because there's a better way you can do things, because, you know...

58:47 ...you could do things more effectively, and so on and so forth.

58:51 The key takeaway is this is a demo, but everything we've done today could be...

58:56 ...you know, simply done with your own business processes.

59:00 You can find us at the Geodatabase Island. I don't know if this map is...

59:08 ...well, you can find us in the Geodatabase Island in the showcase. We're just kind of there, at the bottom there.

59:15 We're going to be there today 'til 6:00 and then tomorrow until about 1:30 p.m.

59:21 In addition to that, we have some sessions that you may want to attend...

59:25 ...one for the version management and the road ahead. So we're going to have that tomorrow.

59:30 And again, it kind of gives you an idea of what we're working on for 10.1.

59:35 It's a good opportunity for you to come in and, you know, tell us things you want us to actually include.

59:41 Not only can you do that tomorrow, you can also do that today, or, you know...

59:45 ...throughout the, throughout the conference while you're here.

59:49 Please provide feedback at that URL.

59:53 Additional resources. We have a Resource Center like Kevin talked about.

59:58 The Resource Center contains some of our sample viewers, some other very, very useful information.

1:00:05 We don't have a blog dedicated to Workflow Manager yet...

1:00:09 ...but we do have posts being put up on the Production Mapping blogs.

1:00:14 So occasionally you may see Workflow Manager blogs, Workflow Manager topics probably at that.

1:00:20 We do have our user forum, so you can...you guys can, you know, exchange ideas...

1:00:24 ...or put your questions out there and see if other people have experienced the same things you're experiencing.

1:00:31 The Product page is there, if you want to request an eval. That's definitely a good place to start.