

What's New in ArcGIS 10 for Desktop

This session will discuss and demonstrate the key desktop functionality in the ArcGIS 10 release. ArcGIS 10 is the next major release of ArcGIS and is now available. This session will focus on the new improvements in ArcGIS 10 for Desktop. Topics include usability enhancements, improvements to editing, automating mapping workflows, map book creation, display enhancements, improved customization, access to online data, and much more.

<http://video.esri.com/watch/60/whats-new-in-arcgis-10-for-desktop>

Video Transcription

00:01 My name's Rupert Essinger. I'm originally from Leicester in England...

00:04 ...but I now work with the ArcGIS development team in Redlands, California.

00:10 These are my colleagues, Doug Morgenthaler and Craig Williams. We're all on the mapping team in Redlands.

00:21 This session is also being held tomorrow here in the same place, twelve noon; also on Friday morning.

00:28 Those of you who are new to the conference will have seen from the agenda...

00:32 ...that on Friday morning, there's a small number of tech workshops.

00:36 This is one of those workshops; it's at nine a.m.

00:40 So in this session, we won't be showing you everything that's new in [ArcGIS] Desktop 10...

00:45 ...so there's some related What's New sessions I'd like to highlight for you.

00:51 What's New in the Geodatabase is on...that's starting now, also tomorrow at noon.

00:58 And then What's New in Imagery and Raster is tomorrow and Thursday at noon, then it's Friday morning at nine.

01:06 It's one of those Friday morning sessions that we have.

01:12 Also if you want to drill deeper into the key new version 10 functionality, especially building map books...

01:20 ...which is a key new feature at version 10, built into version 10, we'll be showing you that a little bit.

01:26 But to drill in deeper, check out these two sessions. There's one this afternoon and one on Thursday afternoon.

01:32 Also Python scripting is being shown today at one-thirty and Friday at nine a.m.

01:43 The printed agendas don't show the Python Scripting for Map Automation in ArcGIS 10 session correctly...

01:50 ...so if you've been using a printed agenda and you're interested in Python, it might be good to write this down from the slide...

01:57 ...because the printed agenda doesn't show the Tuesday one-thirty and Friday nine a.m. session.

02:02 So a big takeaway from this session is if you don't know Python, make sure there's someone in your GIS team...

02:03 So Python scripting's a huge enhancement in version 10.

02:07 We've extended Python out so you can automate maps and map production.

02:19 ...who knows Python and becomes familiar with it, because at version 10...

02:23 ...the number of things you can do with Python expands dramatically.

02:28 Also parcel management. If you're interested in that, there's one session of that Wednesday, one-thirty.

02:37 So you don't need to take notes in this session unless, of course, you want to.

02:41 Because if you go to this web page, you'll find out everything about what's new in version 10.

02:46 Esri.com. It's actually on the home page, but esri.com/whatsnew or just go to Esri's home page and click on ArcGIS 10.

02:54 So it lists all the new features. There's videos, FAQs, you can drill into details.

03:00 There's also links into the online help, which is already available.

03:05 And in fact, if you want to access any of the online help for version 10 or for version 9.3, have a look at our new resource center.

03:14 We've been changing this a little bit; sorry about that, folks. The URL is as shown on the slide here, resources.arcgis.com.

03:22 This is a new resource center we recently released...

03:25 ...and that's where you'll find, for example, the map templates that we spoke about yesterday.

03:36 Also I really encourage you to get your questions about 10 answered at the [Esri] UC.

03:40 The [Esri] UC's a great time to meet characters such as these and myself, all the development team...

03:46 ...are in San Diego, and they're pretty much downstairs, I think. Pretty much directly below us in the Esri Showcase.

03:54 There'll be a little bit of time for questions in this session; actually, I'm not sure how much time there will be...

04:00 ...but don't leave San Diego without getting your questions about version 10 answered.

04:04 And I really invite you to take advantage of the resource downstairs in the Esri Showcase. All the teams are there.

04:11 If you don't get your question answered immediately, ask someone and make sure they direct you to the person...

04:18 ...because we really want to make sure you get all your questions answered.

04:22 The Esri Showcase is on at the moment till six, also tomorrow till nine till six.

04:28 If you're new to the conference, don't wait too long to get your questions answered or to visit the showcase...

04:34 ...because it closes at one-thirty on Thursday. Okay?

04:39 So Thursday afternoon, the whole Exhibit Hall downstairs, including the Esri Showcase, closes at lunchtime.

04:48 So ArcGIS 10 is easy, fast, and powerful. And I know we say that every single release.

04:56 In fact, I got this slide from an 8.2 slide deck originally.

05:00 But this time, it's really true.

05:03 [Inaudible audience participation]

05:05 Really, this time it's really true. And we're going to prove to you in the next hour that this is the case.

05:13 ArcGIS 10 lets you use geographic information everywhere, so from the Plenary Session yesterday...

05:18 ...the part that we're talking about introducing you to in this session is the green box on the left, the desktop part.

05:26 So in this session, we're not talking about server, mobile, or online. Just talking about desktop.

05:35 And I'm going to be telling you the single most important thing in ArcGIS Desktop 10.

05:44 The single most important thing is that the icons are much cuter in version 10.

05:50 So we've revamped all the icons. Bex the dog is still there, so the menu in the bottom left of the screen here...

05:58 ...this is the menu that you get in [ArcGIS] Desktop if you make a custom tool, and you can choose an icon for that.

06:04 And I'm now at liberty to announce that at version 10 there is going to be Mars the cat as a new icon in the bottom left-hand corner.

06:18 Lot of complaints from cat lovers that there wasn't a cat. Mars the cat is now in the release, so...

06:25 Actually, seriously, there are a few other things in addition to the dog and the cat...

06:27 ...that think are going to be really powerful about version 10.

06:31 For example, you can check licenses in and out, so you can check a license to your laptop then take it home...

06:38 ...or go into the field or go to Starbucks, then check it back in when you get back into the office.

06:43 There's a whole new model for how customizations are delivered that's much easier to use.

06:48 Instead of having to register DLLs and so on, when someone gives you some custom code, there's something called an add-in.

06:54 It's a single file, you put it in the right place, it automatically appears in your user interface.

06:59 There's better support for virtualization, and also we support online software distribution.

07:03 How many people have got access to version 10 by downloading it? Okay. Great.

07:12 So the [ArcGIS] Desktop user interface is easier and more productive as we'll be showing you.

07:16 Creating and maintaining data is easier. Spoke about this yesterday.

07:20 But there's a completely new palette-based, template-based editing user interface...

07:27 ...that makes it much easier to create features, and Doug's going to be showing you that.

07:33 There's easier and more powerful data management.

07:35 There's new query layers that enable you to set up a direct SQL connection in your map.

07:44 This enables you to get spatial data from a relational database management system that's not in a geodatabase.

07:52 There's also various improvements in the geodatabase. Go to the geodatabase session for a full description of those.

07:59 There's also 130-plus new geoprocessing tools across the entire software suite; almost 50 of those are in the core software.

08:09 There's also a great imagery platform as you started to see yesterday.

08:12 And again, there's a separate session about working with raster data.

08:17 There's enough that's new in version 10 for that to have its own session at the User Conference.

08:22 This is the Image Analysis window you can see.

08:27 As you saw yesterday, ArcGIS is a complete 3D GIS with 3D editing.

08:34 Okay. I've touched on a few things, but what is the most important thing?

08:38 Well, I think the single most important thing in ArcGIS Desktop 10 is that we're putting the focus back on maps.

08:47 And it sort of might seem a bit obvious because GIS is about maps, but I think it was worth doing a slide...

08:53 ...because I think over the years, we've sometimes made GIS seem rather hard and scary.

08:59 Now this isn't an official Esri slide, but I thought it was worth making the point...

09:05 ...that some of the things that we've made you do in order to do GIS have sometimes been a bit hard...

09:10 ...like ArcSDE, data models, object models, feature classes, metadata, versions.

09:16 Now, I'm not saying that these aren't important; these are things that we use to do our job...

09:21 ...but I don't think it's what gets us out of bed in the morning.

09:24 Like you don't really come into work 'cause you're pumped up about object models. Well, some of you are, but not all of you.

09:31 So the point I'm making is that we're really putting the focus back on maps...

09:35 ...because they're the organizing principle for everything we do.

09:39 And people understand maps.

09:41 When you go to a meeting in a city and you take your maps with you and you put them on the table...

09:46 ...there's a special sort of reaction you get from the people at the meeting.

09:50 People gather around and understand maps. People need maps.

09:55 Like if you've ever tried to explain to your friends or your parents what work you do...

10:00 ...they'll say, well, haven't we got all the maps we need?

10:03 But there's like an incredible demand for maps. We haven't got all the maps that we need yet.

10:08 Maps are what excite us as GIS pros. This is what we do.

10:12 So to focus back on maps, we're saying what is your basemap? What do you display on top of that map?

10:19 What's the authoritative data you need to do your work? How do you design a great map?

10:24 And there's some great sessions during the conference about that.

10:26 How do you automate map production? Who needs to use your maps? And what map-based applications do you want to make?

10:34 So to focus back on maps...

10:35 ...one of the ways in which we've done that is it's easier to get started in version 10 with built-in basemaps.

10:41 So this is the dialog in version 10...

10:43 ...that's built into ArcMap that gives you access to the online basemaps that we showed you yesterday during the plenary.

10:52 You don't need to have version 10 in order to use these, so if you're using version 9.3, just go to the File menu...

10:58 ...and choose the Add Data from ArcGIS Online command, and you'll get access to all of these free, online basemaps.

11:05 In version 10, we've built a dialog into the product to make it easier to get at.

11:11 Map templates are another area in which we're focusing on maps.

11:14 Talked about those yesterday.

11:16 Go to the Resource Center to find out about those. They give you professional results immediately.

11:21 So these map templates, what we're talking about here, these aren't .mxt files.

11:26 Map template is a little folder that you download that contains a map document, sample data, documentation...

11:33 ... metadata, geoprocessing tools perhaps, schema, style file, and so on.

11:38 Everything you need that specifies a well-designed map.

11:42 You can download those and immediately use them in your work.

11:46 We've also improved map production workflows.

11:48 Like we're saying, map books, that is, generation of map series, is built into the product for version 10.

11:54 There's a new Data Driven Pages toolbar.

11:56 There's also dynamic text, so you can put text on the layout that's going to change based on...

12:03 ...attributes in your table, other properties, and so on.

12:05 [Audience participation] Yea! Yeah, yeah!

12:09 [Audience question] Is it a simple tile or is it multiscale?

12:11 It's both. You can also automate mapping workflows with Python scripting like I said just before we started.

12:18 So big takeaway from the session, check out how Python lets you now automate things in maps.

12:27 You can, for example, you can...if you've got a set of map documents, say you've got 50 map documents...

12:33 ...you can write a Python script now that will go and replace a particular layer in each of those documents with a layer file on disk.

12:41 So you can update the appearance of a whole bunch of maps in bulk. Previously, you had to do that manually.

12:50 So Python has a series of coarse-grained functions. This is a list of some of the functions in Python.

12:57 And they're pretty understandable, for example, Add a Layer, Add a Layer to a Group, Export a Map to an Image...

13:03 ...Export a Map to a PDF, which can be a multipage PDF.

13:07 You can move a layer up and down in the table of contents, repair layers, and so on.

13:11 So it's going to be really useful in cases for...

13:15 Some of you have got hundreds of map documents, and then when you...

13:19 ...move to a different ArcSDE server or reorganize your data, you get lots of broken links in those map documents.

13:26 You can fix those now in version 10, without opening each map manually, by writing a script.

13:32 You can give it a list of all the maps in multiple workspaces or over your whole organization...

13:39 ...then you can write a script and update layer, replace layer A with layer B, and so on.

13:45 Sharing your maps. So at 9.3.1, we added layer package, layer packages.

13:51 A layer package is a layer plus the data it references zipped into a little file that's really handy that you can put on the Internet...

13:59 ...upload into ArcGIS Online, and share with other users.

14:02 At version 10, we've extended that to add map packages.

14:08 So a map package is an .mxd file plus all of the data the map references, all zipped up into one small, convenient file.

14:17 And when you make a map package, you can choose whether data that's on servers would also get brought into that map package...

14:25 ...or whether you want to reference that, those layers, over your network.

14:32 So, for example, if you're making a map package for distribution outside of your organization, you'd include...

14:37 ...you'd want to include your server, your ArcSDE data, in that map package.

14:42 But if you're making a map package for use just inside your organization...

14:45 ...where all the people using the map package are accessing the same database servers, you wouldn't need to include the data in it.

14:52 Lots of uses for this. Not just sharing data with other users but it also makes maps really portable.

14:58 'Cause previously, map documents sort of point everywhere and they're hard to move around.

15:03 But you can use map packages; for example, you might want to make an archive of the way that a map looks at the moment...

15:11 ...including all of the data, like a snapshot, and you can make a map package, store that in an archive. So map packages.

15:25 Also, as you see in this demo, we've got built-in ArcGIS Online support.

15:29 So ArcGIS Online is Esri's data warehouse in the cloud.

15:33 You can upload your layer packages and your map packages into ArcGIS Online...

15:38 ...then people using 9.3.1 can access the layer packages, and people who've got 10 can also access the map packages.

15:46 And the dialog for accessing those in version 10 is built into the software. And that's a picture of the dialog that you'll see.

15:55 These are various resources that have been uploaded into ArcGIS Online, and when you upload your resources into ArcGIS Online...

16:03 ...you can choose if they'll be accessible to everyone or just certain members of private groups, and so on.

16:11 So I'm going to give you a quick demo; this'll just be five minutes.

16:15 I'm going to show you, if you haven't used version 10 yet...

16:18 ...I just want to orientate you around what you see on the screen when you first open it up.

16:24 So this is what you see. All I've done is open up an existing map; I've not customized anything.

16:29 So the first thing you notice is that the pull-down menus are pretty much the same as they were in 9.3...

16:37 ...so you don't have to relearn everything.

16:39 So it's not like moving from Office 2003 to Office 2007 where you're going crazy.

16:45 But we changed a few things like there's no longer... The Tools pull-down menu has been renamed to be Customize...

16:53 ...so it's just about customizing your application.

16:56 And things in the Tools pull-down menu that used to be in there are now...

17:01 ...things like adding data, geocoding, adding x,y data, and so on...

17:06 ...are in a pull-right in the File menu. So that's where we've put those.

17:12 There's also a new Geoprocessing pull-down menu...

17:15 ...that gives you one place where you can access all of the geoprocessing functionality.

17:19 And we've included some of the common geoprocessing tools right inside that menu.

17:24 So if you have GIS users in your team who want to do a buffer but don't want to learn all about geoprocessing...

17:32 ...it's much easier now; they'll find that command right in that menu.

17:36 You can also customize the contents of that menu yourself.

17:40 All of the geoprocessing tools are now accessible via the Customize dialog in ArcMap.

17:45 You know, that's the dialog that you already use to customize the user interface...

17:50 ...open up the Customize dialog and drag commands.

17:53 You can now drag geoprocessing tools into this menu or any toolbar you like.

18:00 Table of contents is no longer tabs at the bottom; you've got buttons at the top instead.

18:05 These views are pretty much the same as you had in 9.3...

18:08 ...but you see there's a couple of extra ones that make it easy to work with maps with a large number of layers like this one.

18:14 This view lets me see which layers are selectable or not.

18:18 This one lets me see which ones are visible out of scale range or not turned on.

18:28 Also the hawk-eyed among you will have noticed that the Add Data button's now got a little pull-down menu.

18:35 This is how you access the basemaps. So this is a dialog that gives you access to the free ArcGIS Online basemaps.

18:43 These are map services. You can add them into your map, and I've already added, I've added shaded relief into this map...

18:49 ...and I've used it as a background to my land-use and parcel map, which I've made slightly transparent.

18:55 There's also the command in there, which Doug will show you in a moment. This lets you add data from ArcGIS Online.

19:00 There's also a little...the Selection tool, you can now select things by a circle, by a lasso, by

polygon, by line.

19:10 So you can draw a circle and select things.

19:16 But the thing you've probably seen over here and probably already spotted is when you work with ArcGIS Desktop, okay...

19:21 ...you work with a catalog of data. You've all been creating those.

19:25 At version 10, the catalog is now a window inside ArcMap, so the application still ships with the product...

19:34 ...so ArcCatalog is still there; haven't taken that away.

19:37 You can still work with that, but it's much more convenient to use the Catalog window.

19:41 You can do everything that you can do inside [Arc]Catalog right inside the Catalog window.

19:46 So you can add data, drill into metadata, and so on.

19:50 All the commands are there, for example, you are already used to working with.

19:56 You can decide how you want to work with the catalog.

19:58 You can look at the list and the contents as well, or perhaps you just want to see the contents or the list.

20:05 You can double-click it, you can pop it out, you can pop it back in. All of these windows...I can hide it again.

20:18 I can work with them so they just pop out whenever I want, and then they'll pop back in, or you can dock them.

20:24 If you dock them, you can also rearrange both the Catalog window, the Search window, the table of contents...

20:32 ...the Table window, the Identify window. All these windows are dockable, so you can arrange the screen however you want.

20:39 It sort of looks a bit goofy on a small screen like this with low resolution, but it's really useful if you have dual monitors.

20:45 You can arrange your workspace exactly how you want.

20:48 For example, if you want the catalog to be over on this side, I can drag it over here, and notice how this...

20:56 Can you see this little triangle? I wonder if they're showing up, there's little triangle targets you can drop things onto.

21:01 So I'm going to drop the catalog so it's below the table of contents, so I can work with it like that...

21:06 ...and going to turn the contents view off, turn the list on.

21:09 And that's sort of okay, but let's dock it actually on top of the table of contents.

21:15 So I'm dropping it onto the middle of this target.

21:19 So now I've got the table of contents and the catalog together like that.

21:24 But anyway, play around with that when you get back home.

21:27 I double-clicked it again to bring it out, and I'm going to dock it back over here.

21:31 So when you do a GIS project, you normally make a folder and you put maps in there, you put your data in there ...

21:39 ...supporting files, and you also might access data on the server.

21:42 In version 10, it's much easier to get to the GIS project folder that your map belongs to...

21:49 ...because it's always shown at the top of the catalog.

21:52 So the top of the catalog, I've got my home folder, which by definition in version 10 is the folder in which the .mxd file resides.

22:01 So if I were to go into [Arc]Catalog and look for my folder connections, I don't even need to touch the folder connections at all.

22:08 As I browse down through those, if I want to go back to my GIS project folder, I just click the Home button up there.

22:15 Takes me back to that folder.

22:17 So it's much easier to get at the project folder where you're storing information about the work you're doing.

22:25 You'll see that little home icon on many of the dialogs inside ArcMap.

22:30 For example, if I press the Add Data dialog, you see the home icon there.

22:33 So you just press that to go to the folder for your project.

22:39 I've got about one minute left. I'm just going to show you a couple more things. Going to hide that.

22:42 So the catalog's nice if you know where your data is. What if you don't know where your data is?

22:47 So at version 10, we've added a Search window. This gives you a very nice, sort of weblike experience.

22:55 This lets you search your local data. It also lets you search your enterprise resources.

23:01 You can also extend the search out to ArcGIS Online.

23:04 So, for example, I'm interested in the feature data I've got. So there's the feature data.

23:11 How about feature data for San Diego? I'm not quite sure where I put it all.

23:15 I know there's some workspaces out there with some data in.

23:19 So that's the feature data that's got San Diego anywhere in its metadata or in its folder name or in its file name.

23:26 So how about, I'm interested in San Diego shapefiles. But I'm really interested in all the polygons. Write polygon.

23:37 So don't have any of those. Let's look at lines. There you go.

23:42 So I've got a bunch of line features. So can you see it's really quick?

23:46 The way that you configure this, when you first install the software, here's what you do.

23:50 Go to the Search window and you'll see there's an Options dialog here.

23:54 So the way that Search works, it's very much like how Windows search works.

23:57 You configure, you set up, exactly what you want to search. You can point at folders, you can point at network folders.

24:04 Also there's something being introduced at 10 that's a search service...

24:08 ...where an enterprise can serve to its users a catalog that can be accessed from this window.

24:15 So I better actually shut up now and let my colleagues show you something. I'm going to hand over to Craig.

24:22 Hello. Can you hear me in back? Good.

24:28 Alright. So what we have here is just a map.

24:32 Specifically, this is a map of Fort Pierce, Florida, that we downloaded from the map template gallery that Rupert spoke about.

24:42 And what I'm going to be doing today is showing you...

24:45 ...this map in relation to the performance improvements we've made for drawing for ArcGIS 10.

24:51 So how many of you like to watch a map draw like this? Yeah, nobody does, right?

24:58 [Audience question] Take a coffee break?

25:00 So not quite time for a coffee break. That would be the geoprocessing session. Drawing's not quite that bad.

25:08 But couple things about this. You can go and download this map, you know, and see it yourself...

25:16 ...but what we have here is we have essentially two big group layers, a land base and the actual water network.

25:26 And what we've done in promoting this group layer structure here is we're bringing the kind of paradigms...

25:36 ...that we've been using in the server area to the desktop...

25:40 ...in that we're separating basemap content from operational content.

25:46 So in this particular instance, this map is provided for the water resources template...

25:52 ...and really, it's about this water network specifically.

25:56 So the water network is a group layer here; you can see the meters and hydrants, et cetera, and then there's the land base.

26:05 This is the content, you know, that we're using as a locational reference for the meters and mains...

26:13 ...but we're not actively working with it; we're just using it to kind of fill in the details and tell us where these items really are.

26:20 So in that sense, the data that we'd be working with here would be the water network data...

26:26 ...and we're just using the land base essentially to draw.

26:29 But we're taking the hit of the draw every time we pan around, and you'll see as we pan, you know...

26:36 ...you have this big expanse of white space each time you pan.

26:41 So in bringing these server concepts to the desktop...

26:46 ...one of the things at ArcGIS 10 that we've brought in is this concept of a basemap layer.

26:53 And the basemap layer is available from the Data Frame context menu.

26:58 I can simply say New Basemap Layer, and it adds a layer much like a group layer.

27:06 You'll see it get added here, new basemap layer.

27:11 And what I can do is I can actually just pick up this whole land base group layer and drag and drop it into the basemap layer.

27:22 And what you'll see is two things.

27:24 You'll see it redraw the map; you'll also see in the table of contents that there's some new cute icons, I guess.

27:33 Right? But it looks like an error, looks like a problem, right?

27:38 So basemap layers are our new way of promoting this concept onto the desktop of, you know...

27:44 ...separating operational and basemap content to provide really high-performance draw...

27:50 ...but they do not support everything that you may have in your map.

27:55 So what we're doing here with the icons is showing you when something is not supported.

28:02 When it's not supported, it's not going to draw, which is what we're telling you.

28:05 I can quickly show you the performance before I go and explain how to rectify those types of issues.

28:13 So I can pick up and pan the map here, and you can see that it's filling in content as I go.

28:23 The operational data, though, interestingly does not draw until I stop panning...

28:28 ...and that is right now a known limitation of the implementation.

28:37 The basemap layer content is drawing asynchronously in another thread for those of you who are computer geeks.

28:45 The operational content is drawing in the main thread so that it remains editable, queryable, et cetera...

28:52 ...and we can't draw that while you're panning and zooming and preserve those capabilities.

29:01 So one other thing you should note is the first time you create a basemap layer, you may see a little dialog.

29:09 And I didn't see that because I use them all the time, but I'll show you the option that you're being asked about.

29:16 You'll see in the center of this dialog, there is a Hardware Acceleration section.

29:22 And it says, "Enable hardware acceleration for supported layers." And basemap layers support hardware acceleration.

29:28 And what this means is they'll use the graphics card on your machine if the driver is suitable, and that will be used to...

29:38 ...sync up the refresh and the draw to provide an optimal experience where you won't have a lot of screen tearing and other issues.

29:45 If this option is disabled or you're not given the option the first time you create a basemap layer...

29:50 ...it's most likely because you do not have an updated video driver.

29:56 Alright. So I have this error situation.

29:59 Let me expand this table of contents here, and you'll see I have a bunch of different icons here.

30:05 I have an error icon and then I have a whole bunch of warning icons. Well, how do I know what these all mean?

30:10 If I go up to the basemap layer and I choose Analyze, you'll see that it's going to analyze the

contents of my basemap layer.

30:18 It's a very similar experience to publishing optimized map services, for those of you who have done that. It's the exact same dialog.

30:27 And it's actually the exact same drawing engine that's used behind the scenes...

30:31 ...so you will see many of the same errors and warnings because of that.

30:37 So what you have here is a list. We have one error and a hundred and fifteen warnings...

30:43 ...and what this dialog allows you to do is go through all these issues and rectify them. So I can go to the first error.

30:52 And keep in mind you can also filter here, so if you have too many warnings, you can turn them all off and turn them back on.

30:58 I'll leave them all on for now.

31:00 You'll see that layer uses a symbol that is not supported. Well, what's that about?

31:06 There's a couple different options here. I can right-click and I can say, "Change the symbol properties"...

31:12 ...I can view the help for this particular error to read more about what's going on...

31:17 ...or I can just select that layer in the table of contents.

31:22 This is a relatively small map, so obviously it was viewed right there.

31:25 If you look at the symbology, you'll see that it's actually a 3D building symbol, and if it opens for me, open the layer properties.

31:40 Somebody was goofing around with this map. Oh, wait. Yeah. I'll get to that point in a minute.

31:46 Somebody was goofing around with this map and created a fancy 3D building, and if I right-clicked on that error...

31:53 ...and I opened the symbology properties, I could see that symbol. And there are a couple solutions here.

31:57 I can choose another symbol that is supported, or I could remove this layer.

32:03 I don't actually need this layer in this map, so I'm going to remove it.

32:07 But one thing you noticed is I got to that symbol property by changing the symbol...choosing Change Symbol Properties here.

32:14 When I opened layer properties, I only saw the General tab. Well, what's that about?

32:20 Well, we don't really want you to go in and change the symbology of your basemap layers actively...

32:28 ...because that's going to slow performance.

32:31 Basemap layers use a cache behind the scenes, and every time you make those types of changes...

32:35 ...you have to discard that cache and start over.

32:37 So we primarily see these as useful for authored content that you won't be changing very often.

32:45 If I did need to go and change layer properties, the way I would do that is I'd drag this layer out of the basemap...

32:51 ...edit them, and then drag it back in.

32:54 So I'm going to go ahead and remove this. So I'll remove that layer, and I'll reanalyze.

33:02 And you'll see that the basemap layer icon changed to a warning. It always bubbles up what the worst one is.

33:08 And you'll see that the remaining issues I have here are all pretty much projection related. They're all warnings.

33:15 Oh, what projection is this map in? Well, if I open up the properties here, I'll see, oh, it's in WGS84.

33:23 Well, let me choose a projection that the vectors are using here, change the map's projection.

33:32 It's giving me a transformation warning. I can rectify that later as well.

33:42 And if I reanalyze, the majority of these go away.

33:48 So I'm left with, okay, I have a few rasters here that are in a HARN dataset.

33:54 I could go through and repair each one of those. I'm also getting a warning about how layers use representations.

34:02 We warn you about that because the performance is a little bit slower...

34:06 ...although you'll need to verify that on your map-by-map basis.

34:11 I'm okay with these warnings right now, so I'm actually going to just leave them here.

34:16 Alternatively, if you didn't want to see them in the table of contents...

34:19 ...you can actually right-click on them and say Mark as Exception.

34:22 And you can batch mark a whole group of items as exceptions.

34:27 So I have my map. I think it's pretty good performed [sic]. Let's see how it draws. Well, it draws fast.

34:35 You'll notice a couple things here. As I zoom in, you'll see that there's actually street labels.

34:42 The street labels come from data in the basemap, but they're not drawn into the basemap's cache.

34:49 And we did that to promote a good experience where you still get quality labels that are drawn ...

34:54 ...in the order you want them to be in your map, and we're not burning text into tiles.

35:03 So, okay. And then one last item I wanted to show, Rupert hinted at this...

35:09 ...but we have the new Add Basemap option from the Add Data drop-down.

35:16 When you add a basemap, you'll see this gallery here that comes up.

35:22 And what we're doing here is we're actually querying ArcGIS Online to get a list of quality basemaps.

35:29 It'll come up here in a minute...in a minute.

35:41 Maybe...Oh, yeah. I don't have a network connection. Well, okay. I don't have a network connection.

35:47 I can show it.

35:48 Doug'll show it.

35:49 You can add basemap layers and the...

35:51 You can add basemaps from ArcGIS.com, and they will get added to basemap layers by default.

35:56 So all those great services like the topographic service, Bing Maps, they'll instantly be put into a basemap layer...

36:03 ...and you'll get this great, smooth panning and zooming performance for each pan and zoom.

36:09 So, alright? Now I'll hand it over to Doug to talk about editing.

36:16 Okay. Can everyone in the back hear me? Okay. Good.

36:21 So as you saw yesterday in the plenary...

36:24 ...one of the things we spent a lot of time trying to improve for ArcGIS 10 was the editing experience.

36:29 A lot of people were able to complete the task that they wanted to complete with ArcGIS 9.3.1 or earlier versions of the editor...

36:37 ...but you had to be kind of a guru, right? There was one of those people in the office that knew all the tips and tricks.

36:42 So we tried to really make it simple for everybody, not just the power users.

36:47 So first thing I'm going to do, I've just got a pretty simple map here with some utility data as well as some parcels and some buildings.

36:56 I'm going to go in and I'm going to start an edit session...

37:01 Get that out of the way. ...and you'll see that I get this window that pops up.

37:05 It's called the Create Features window.

37:08 And this Create Features window lists all the different types of features that you can create. Now how do you get these?

37:15 By default, the first time you start an ArcMap session, it will create a... These are called feature templates.

37:22 They'll create a feature template for each legend item that you have in the workspace you're editing.

37:28 So while that seems kind of complicated, really the point is it's really easy to use, it's very intuitive.

37:35 So when I want to create a point of service...

37:38 ...I can just pick something out of the list that I want to create and start dropping it on the map.

37:43 So couple things there. You see that you get this nice WYSIWYG experience...

37:48 ...so you know exactly what you're creating when you've created it.

37:50 How many times have you guys created something and realized it was in the wrong target layer?

37:55 I've done that more than a few times.

37:59 So it's very simple, right? So it's got a list of things that you can do here.

38:04 Now, of course it knew which layer to draw in, but it also...you can specify a lot more.

38:10 If we look at the properties of a template, you'll see that it defines things like a name...

38:17 ...a default tool that you use to create the feature, how it's going to be drawn...

38:21 ...but you also can determine what default attributes get defined each time you create a feature with this template.

38:30 So in this case, I'm going to say, in this case it was installed by Doug, so from here on out...

38:40 ...every time I create a point of service, if I look at the attributes, you'll see that it gets that value.

38:48 So pretty quickly, you can spend a little bit of time preauthoring these, and then each time you create it...

38:56 ...you're not having to go back and remember to attribute it; it's being done for you automatically.

39:03 Okay. So what is the...one of the most common things that you use when you do editing is snapping.

39:10 So the ArcGIS 9 snapping environment is very powerful, but it's also very tedious to work with.

39:18 At ArcGIS 10, we've introduced a new snapping environment that is very simple, and it works against the layers in your map.

39:28 So if you've got definition queries set or other things, it respects all those values.

39:33 That's true for all of the editing experience in general, so attributes, if you've set aliases, if you've set fields to be not visible...

39:41 ...that information's all respected now.

39:44 So I've just grabbed a distribution main template here, and I'm going to just create that on my map.

39:49 So the first thing you'll see is I get feedback at my cursor, and I also get a SnapTip.

39:55 Now, the SnapTip changes based on what type of snap agent is being satisfied.

40:00 So I get a lot of feedback right away to let me know exactly what I'm snapping to.

40:06 I didn't have to spend any time setting this up; this is on by default, so just is there for you to use.

40:12 And it's also available for tools outside of the editor. So the Measure tool uses the same snapping environment.

40:19 The Georeferencing Link tool uses the same snapping environment.

40:24 Okay, so created a distribution main here. I'll drop in a couple of services.

40:31 So I got a long list of templates here. I can easily... Serviced, not services.

40:42 ...come up and filter that list to just show me ones that I'm interested in working with.

40:47 In this case, I'll put in a one-inch copper service, and as you've noticed there's this little toolbar, the mini toolbar...

40:55 ...if you're familiar with Office 2007, that follows me around.

40:59 So rather than spending time searching around the application for tools that I'm going to be using ...

41:04 ...this thing just follows me around, provides access to tools; I didn't have to find a context menu. Very simple to use.

41:11 So in this case, I'm just going to constrain this to be perpendicular to my main. And again, I'll just finish the sketch.

41:20 So very easy to work with. Pretty simple.

41:27 So some of the other things that you struggle with sometimes is selection. Right?

41:33 In addition to snapping environment, sometimes you spend a lot of time managing your selection.

41:38 So when I've got the Edit tool here and I click on my map, you'll see that I get this little selection chip.

41:46 And this shows me all the selectable features at that location, so I didn't have to go and say...

41:52 ...ah, jeez, I've got to turn off one or more of my layers so I can make this selection.

41:58 And I can see which features are there, and then I can just select it. Very easy to work with.

42:04 In addition, the Attributes dialog, as I mentioned, now respects layers, layer-based settings.

42:11 So in this case here, I've got some hydrants.

42:16 We've tried to present this in a much nicer way, uses the docking windows that Rupert was describing earlier.

42:24 And I have access to a lot of really simple capabilities.

42:28 So if I need to change the install date here to yesterday, I can easily do that.

42:35 Again, I'm getting all this information, subtype values, domains, et cetera, that you're used to.

42:41 One new concept in ArcGIS 10 is the concept of an attachment.

42:44 So you may have photos of your assets or other things, and...

42:50 ...you know, a raster field is okay except you can only put one picture on it...

42:55 ...and what if I have a video or a PDF?

42:58 Well, at ArcGIS 10, you can enable your feature class to support attachments.

43:04 And at that point, I can add any type of file that I want to this.

43:09 So in this case, I've added a PDF of the diagram, the schematic, for this particular fire hydrant. I've also got a picture of it.

43:25 So I can add as many of these as I want.

43:27 And these are available, if I publish this out to ArcGIS Server, these attachments will be available in a map service.

43:34 So as the desktop author, if I'm starting to capture that information, it gets used every place else inside the ArcGIS system.

43:43 Okay. Let's move on a little bit.

43:46 [Inaudible audience question]

43:51 So the question was, was it attached to one point. It's attached to the individual feature.

43:56 So if you have, you know, a set of photos that's related to that particular feature, you attach it

to that feature, so it's a...

44:04 And it goes along, if you've run geoprocessing operations to generate output, that would go along with it.

44:09 [Audience question] Stored as a hyperlink or stored in the geodatabase?

44:12 It's actually stored in the geodatabase, so not as a link.

44:17 So it's a little different than some of the other capabilities with the hyperlinks that we've had in the past.

44:23 So we've talked quite a bit about creating new features, and we've updated the attributes of existing features...

44:29 ...but we haven't really spent any time talking about how you update geometry of existing features.

44:36 And I've got some building footprints here, and I've turned on my basemap layer...

44:43 ...and you can see that I've got some buildings that don't quite line up.

44:49 So, you know, this is one of those tedious tasks, as imagery gets better, you have to come in and make changes.

44:56 So if I grab the Edit tool and I double-click this feature, it takes me into edit vertices mode.

45:02 And rather than selecting each one of these vertices individually and moving them, I can move them all...

45:10 ...select and move them all as a group. Seems so simple, doesn't it?

45:17 So very easy, very easy.

45:18 So I can come in, I can make changes to this building.

45:22 If I needed to move this over slightly, I can just select the segment here...

45:30 I actually forgot to unsave my edits when I practiced this demo.

45:34 So let's just pretend that this was a straight segment when it was initially captured.

45:40 You can see that this building is actually curved.

45:43 So I can quickly change it to a circular arc and allow that to match my building.

45:55 Similarly here, reshape. How many of you guys, I mean, have you used Reshape, Cut Polygons, all these things?

46:02 They used to be tasks, and they're now tools on the main Editor toolbar.

46:07 So if we go up here, we can see that there's a Reshape Feature tool, there's a Cut Polygons tool, and I can just use those.

46:15 The other thing too is that, with the editor, we've tried to make the tools very accessible...

46:20 ...so rather than having a tool disabled and not knowing what's wrong, we actually allow you...

46:26 So for this example, I have nothing selected. I can still select my Cut Polygons tool, and it tells me, hey, I don't have a selection.

46:33 Or, you know, if I'm trying to reshape and I have multiple features, and I say, oh, hey, I've got multiple features selected.

46:39 Just giving you a lot more information that you don't have to try and figure out what's going on.

46:45 Okay. One last thing in terms of attribution.

46:49 So I've made a couple of changes to these buildings; I'd like to update the attributes.

46:54 I can update attributes in a number of ways.

46:58 I can obviously do these one by one. 'Course I can do them in bulk.

47:03 I can see that I can change how it was captured and make those changes automatically.

47:10 The other thing here is that I can show only the information that I need to show.

47:16 Again, because I'm only showing the fields that I want, as an editor, to see, it improves my productivity...

47:23 ...but also I can order the fields properly.

47:27 If there's fields that I need to have access to, that I need to see it in order to make...I need context but I don't want to edit them...

47:34 ...I can go into the field properties here and mark them as read-only.

47:41 So if I come in and I say, well, as a matter of fact, I don't need the street name and the street suffix...

47:47 ...I can take that and mark that as read-only, and then any place in the application, that will be shown up as gray.

47:54 I can't accidentally edit it. It helps me improve my accuracy.

47:59 Okay. So with that, I think we'll switch it back over to Craig for another quick demo.

48:07 Alright. We're back in Fort Pierce, Florida, this time with a slightly different map.

48:12 And what I'll be talking about is the new capabilities, generically we internally call it map automation...

48:19 ...but primarily it's about making map books in the ArcPy Mapping module and what capabilities are there for ArcGIS 10.

48:30 So in this area, I have this water network and a map here with some street labels.

48:36 I also have an index grid.

48:38 Many of you who work in local governments especially already have a predefined index grid that you may use for a lot of your mapping.

48:46 Here I have one, and this one actually was created with a set of new tools we added for ArcGIS 10.

48:52 In the Cartography toolbox in the Data Driven Pages toolset, you'll see quite a few tools.

49:01 There's the Grid Index Features tool, which was used to create this grid index intersecting with those water mains.

49:09 There's also a tool to create strip map index features if you want to create strip maps.

49:17 So I have this grid and what am I going to do with it? Well, I'd like to set up pages from this grid.

49:25 So on the Layout toolbar at 10, you'll see a link to launch another toolbar, the Data Driven Pages toolbar.

49:34 And from that, I can set up what we're calling data-driven pages. And I can enable them.

49:41 And it already makes some judgments based on what's in your map.

49:46 For this one data frame, I want to set up data-driven pages, and the layer I want to use as the index layer is the grid index.

49:56 And because it was created with this tool we have in ArcGIS 10, it already has fields like a page name and a page number.

50:05 And there are some other options.

50:07 Well, how much outside of the extent of that grid do I want to expand the bounds of the data frame, et cetera.

50:14 Because it's actually a square grid, I don't want to expand them at all. So going to make this say size a hundred percent.

50:24 And I clicked okay, and it created my pages, but I'm in data view and I also have the grid index turned on...

50:32 ...so it looks kind of ugly. So let me turn that off and flip over to layout view.

50:38 And you'll see here that I have a page layout set up and what we have here is the first page of the data-driven pages set up...

50:51 ...and there's also an index map that's using a locator extent to indicate which area that other data frame is drawing.

51:02 Now, I said "locator." I can't remember the exact term we're using these days.

51:07 We used to call them locator rectangles, 'cause they were always rectangles.

51:12 They don't have to be rectangles at ArcGIS 10.

51:16 So in this case it actually is, but it's a good feature when you have nonrectangular extents.

51:23 So I'm going to choose to show the name here of the pages here.

51:31 Maybe I'll show a number, or show the page. I guess that's okay.

51:35 So I have 46 pages in this. Well, I'm viewing page 1; how do I get to the next page?

51:40 Well, there's simple commands here. I can just choose to go to the next page.

51:44 And you'll see that it's moved the extent and then the indicator has moved as well, so you can see it traverse this grid.

51:53 Well, that's great, right? I have this set up, I have all these pages, these virtual pages here. What can I do with them?

52:00 Well, I can export them.

52:04 So if I open the Export dialog, you'll see now that there's a Pages tab for PDFs, and I can export page ranges.

52:15 I can choose to export as a single PDF file, which is the default; that is new.

52:23 So you can export one PDF with all the pages of our grid in there.

52:28 Or you can also choose to export them as single PDFs if you'd like to.

52:34 Note that there's also an option here for selection. I don't have a selected feature right now...

52:40 ...but if you think about it, you can now integrate this with your analysis. Say you want to perform an analysis.

52:47 Find the areas that have the items of interest, make this selection the basis for your export...

52:57 ...and export only the pages that you really need for that particular analysis.

53:02 I am not going to do this export right now, 'cause it's going to take a while 'cause there's 46 pages...

53:06 ...so I'm going to pull it out of the oven, precooked, and you'll see that what we have here is a multipage PDF with the 46 pages.

53:18 Now, looks good. It has the 46 pages, but it's not really a map book. This is just a giant dump of 46 pages in one PDF.

53:28 If you're really making a map book, you're going to want other information in there.

53:32 You're going to want things like a header page, maybe a footer page, and whatever information your organization requires.

53:44 Something more like this, where you have this overview map as the first page, and then you have the pages of actual map content...

[53:53](#) ...and then the last page is just some simple contact information from your organization.

[53:58](#) Well, how do you make that in ArcGIS 10?

[54:01](#) Well, you make this type of PDF by using ArcPy Mapping.

[54:07](#) And what I'll show now is the simple script that we are providing.

[54:15](#) There's lots of examples of this in the help, and we'll continue to expand them in the Resource Center.

[54:22](#) But what you'll see here is a very simple Python script that uses the ArcPy Mapping module to essentially export a PDF...

[54:33](#) ...append some pages and then save and close the PDF. It's pretty simple, right?

[54:45](#) So that one type of map book I showed you isn't the only type of map book that you can do in ArcGIS 10.

[54:51](#) We also have, like I said, we have strip maps, so we can do these complex maps of the mains here, is what we did...

[55:00](#) ...where you have these wacky polygons that are all sorts of angles following the actual lines...

[55:07](#) ...but then we have nice page layouts, you know, for each one of them.

[55:11](#) Now one thing you may be noticing is as I'm going through these pages...

[55:15](#) ...this sheet number down in the lower right-hand corner is actually changing.

[55:20](#) Well, how did we do that? Well, there's two ways you can do that.

[55:25](#) You could actually write scripts that go through and edit the text of the page...

[55:30](#) ...and you might need to do that for some complex scenarios.

[55:33](#) Or you can use what we're calling dynamic text. So on this particular map I've set up, I'm going to insert some dynamic text.

[55:44](#) And you'll see here, there's a Dynamic Text menu...

[55:48](#) ...which displays things that some of you have always had to go in and edit by hand in your documents...

[55:56](#) ...such as where's the path of this thing I'm printing or what's the user name of the person who printed it or even the current time.

[56:05](#) That's kind of an interesting one. Twelve fifty-four; we're running a little late on our demos. Better hurry up.

[56:12](#) You'll see, if I refresh it, it actually updates.

[56:17](#) So you think about pulling out an MXD that you have stored on some file server and you print this...

56:23 ...it's actually going to print the time you printed it. It's pretty cool.

56:28 So I'm actually going to import another common one, which is the data-driven page with count...

56:34 ...and this is going to tell me that I'm on page 5 of 46 here.

56:40 And what we've done in this menu here is we've provided you, essentially, precanned examples.

56:45 But if I go in here and I look, you'll see that really this dynamic text is just a formatting tag.

56:53 And this formatting tag is pretty flexible, and if you go to the About Formatting Text option here...

57:01 ...you'll see that there's quite a lot of tags that we do not have precanned defaults for...

57:07 ...and lots of examples of things you want to do.

57:10 Especially when it deals with something like map projections, there's all sorts of items you could pull out of map projections.

57:20 Alright. So making map books is not the only thing you can do with ArcPy Mapping.

57:26 There's actually a lot of functionality there for inventory-type tasks.

57:31 If I go to my home directory here, I have a toolbox with some precanned tools; these are just script tools...

57:42 ...and I can show you what a couple of these can do.

57:44 So I can do an MXD summary. So let me browse for a path, browse for a path of maps, and I'll run this tool.

57:57 And what it's doing is it's actually going through all the MXDs in this directory recursively...

58:02 ...and it's looking at data paths, and it's going to make a little text file report. Pretty simple.

58:08 But one of the interesting things is we've written this report so it tells you if there's any broken data layers in those MXDs.

58:17 So essentially, you could write a script that'll go through, say, a huge directory of MXDs and tell you what's broken.

58:24 How do you do that at 9.3.1? Well, you write a ton of ArcObjects code, or you open every MXD. Right?

58:33 You don't want to do that.

58:35 Additionally, we can report things such as what data sources are used here.

58:38 If you thought about migrating data in the past, you can use this as a tool to...

58:43 ...know which data sources that could potentially be broken if you move that data and actually

update those data sources as well.

58:51 So I'll turn it over to Doug again to finish off our demos for the day.

58:58 Thanks, Craig. So one of the things that we've talked a lot about yesterday and Rupert's talked about today...

59:04 ...is the use of online content in ArcGIS, and that includes ArcGIS Desktop.

59:11 So the first thing I'm going to do is I've basically got a map here with some information for Grand Teton National Park.

59:16 It's local data, but it's a pretty boring map, so I'm going to add a basemap.

59:22 And you can see that we have a number of precanned basemaps that you can use.

59:27 I'll use the Community Topographic Map and add that into my map...

59:35 ...which will immediately give me a lot of context about where in the world am I.

59:40 Mind you, this map just looks prettier just from doing that.

59:45 So what else can you do with ArcGIS Online and online content from within [ArcGIS] Desktop?

59:52 So the first thing you can do is you can find content that someone else has published.

59:57 So I'll go to add some data from ArcGIS Online, and it brings up this window.

1:00:03 And this window, unlike what you saw at 9.3.1...

1:00:06 ...is a window that's focused on only showing you content that makes sense inside ArcGIS Desktop, and specifically in ArcMap.

1:00:14 So I don't see web apps, I don't see globe services; I only see what I can use.

1:00:20 So first thing is there's a bunch of featured content. This changes regularly, so it's information that is selected and highlighted.

1:00:31 So how do I usually find information? I search for it.

1:00:35 So I'm going to look for other information related to Grand Teton National Park.

1:00:40 I see I've got a couple results. I get something about the national park boundary.

1:00:45 That sounds good; I'll go ahead and add that to my map.

1:00:48 It automatically downloads that information, adds the map, adds the layer or layers to my map...

1:00:56 ...and I can immediately begin working with them.

1:00:59 So this was when I was not signed in to ArcGIS Online, so this content was available publicly.

1:01:08 I can also sign in to ArcGIS Online and look for other content.

1:01:15 And not only will I get content that's publicly available, but it will also show me my content, content I've published...

1:01:24 ...that I can manage; I can update the properties in here or any groups that I'm a member of.

1:01:31 I can also do that same search and, because I happen to be a member of a group related to Grand Teton...

1:01:39 ...I'm getting more information back.

1:01:41 So I can share information with everyone, with no one, or with a selected group of people.

1:01:48 So I'll add this to my map as well, and I've dropped in a couple of layers for the trails.

1:01:54 So in this case, what I'm trying to do is I'm trying to...

1:01:58 ...figure out which particular trails in Grand Teton may be at risk of avalanche damage.

1:02:04 So I'm going to use geoprocessing, and I'll do a simple clip function, pass in my trails as the input...

1:02:12 ...use the avalanche chutes that I had locally as my output...or as my clip features...

1:02:17 ...let it go to my default geodatabase as an output.

1:02:21 And while that's running, you notice I'm not sitting here waiting.

1:02:25 I can do whatever I need to do because we have background geoprocessing in ArcGIS 10.

1:02:31 So I can continue to interact with the map while that GP operation is running.

1:02:37 And once that operation finishes, in the right-hand corner here, you're going to see that I get a little dialog...

1:02:44 ...kind of Outlook style that says, okay, the clip operation finished.

1:02:47 And I see I got a new layer here in my map.

1:02:50 So I want to share this with other people, these results, so I'm going to spend a little time authoring this information.

1:02:57 So Trails Clip 1 probably is not very interesting to anyone, so I'll name it At-Risk Trails...

1:03:07 ...denotes trails that may be subject to avalanche damage; we'll set some scale suppression...

1:03:25 ...and I'll change the symbology to be something a little more ominous. Something big, nasty, and red.

1:03:34 Okay. So now I've authored my map, and I've authored this layer; now I'd like to share it.

1:03:40 So how do I share that via ArcGIS Online?

1:03:44 So I can right-click on the layer or layers and say I'd like to create a layer package.

1:03:50 I can choose whether or not I prefer to upload that, or I could also save it to disk.

1:03:57 And then I can validate that to make sure all the necessary information's been specified, and then I can share it.

1:04:04 So at this point, I can put in some information so people can find my content on ArcGIS Online.

1:04:11 So At-Risk Trails in Grand Teton National Park.

1:04:25 I can specify some tags, so probably avalanche, damage, trails.

1:04:38 And then I can choose who I want to share this with, so again, I'm just going to share this back to that same group...

1:04:43 ...that I'm a member of, this Grand Teton National Park group, hit OK.

1:04:47 And at that point, it's packaging that up, it's putting it all inside a layer package, uploading that to ArcGIS Online.

1:04:55 So it's very easy to share your information.

1:04:58 Now this was a layer package, but the same concepts and the same ease of use apply to sharing map packages as well.

1:05:05 So now that my content's been uploaded, I can go back to ArcGIS Online and look in my groups...

1:05:13 ...and see that that information has been published and is now available for other people.

1:05:18 So this is a really powerful way to distribute and disseminate your information rather than DVDs and FTP sites.

1:05:25 This is really a great way to share your content with people you work with...

1:05:30 ...or if you're an organization who publishes a lot of content for public use, this is a great way to do it.

1:05:36 So at that point, I think we are over time, so I'll pass it quickly back to Rupert, and he'll finish up.

1:05:46 Yeah, thanks a lot, folks. That's all we have time for. Couple of sessions.

1:05:50 There's a session in half an hour, one-thirty today, which is going to go into Python scripting more.

1:05:56 Also at three-fifteen this afternoon, Building Map Books if you want to drill more into those.

1:06:04 Thanks very much for coming, everyone.