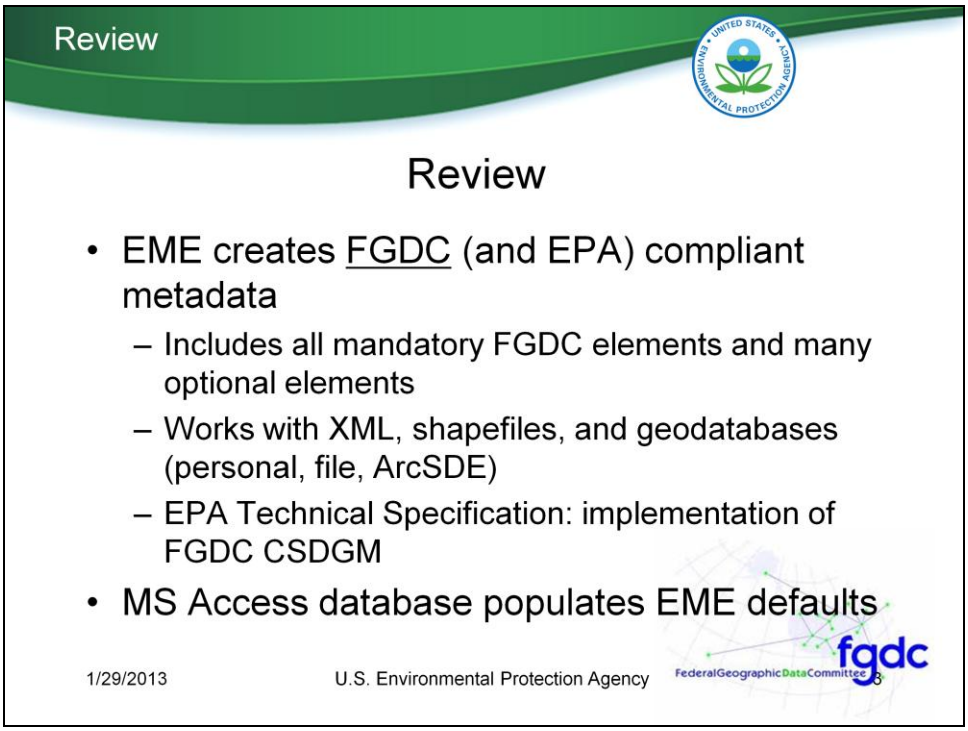
# Metadata in ArcGIS 10

August 15, 2012

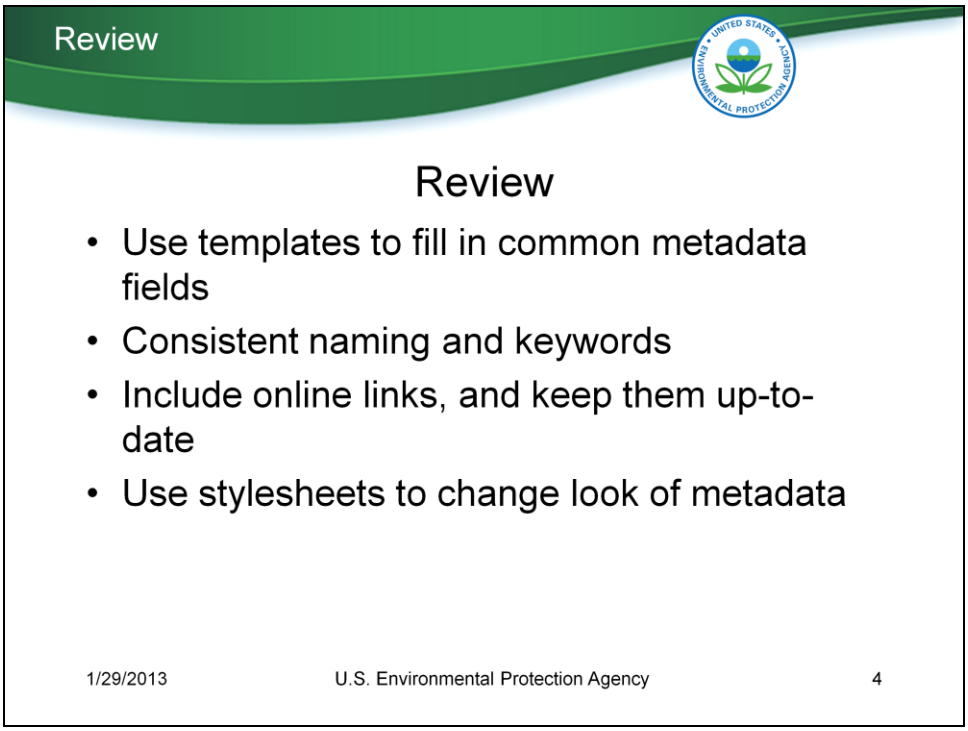
# Today's Agenda

- Quick Review of Prior Sessions
- ArcGIS 10: The Big Picture
- Demo: Upgrading and Editing
- What's new in 10.1?
- Metadata Toolset
- Common Errors
- Discussion

***A different sort of session.....***




It has been a few weeks since we last met, so I'll start with a brief review. In our first session we introduced you to the EPA Metadata Editor. You can run the EME as a standalone application or as an extension of ArcCatalog. You can use the EME with a variety of file formats, including XML records, shapefiles, and various types of geodatabase. The information that populates the EME interface is stored in an Access database.




The EME includes the EPA Synchronizer, which is a tool that reads properties of the dataset and inserts those properties into the metadata.

The EME validator tests your records for compliancy with EPA and FGDC metadata standards. If there are any problems with your metadata, the validator highlights those errors for you.

In our last session we covered several ways to customize the EME's Access database. We showed you how to change the database location, which is helpful if you are running EME on a network, as well as how to customize spell check behavior, compound element behavior, and create your own keyword thesaurus.

Our previous training sessions are available online at the address on this slide. Today's session will also be posted.

# ArcGIS 10: The Big Picture


- **What we are hearing**
  - Problems understanding why some records look fine and work well in ArcCatalog and others do not
  - What is upgrading and when do I do it?
  - What happens before and after upgrading?
  - Help! How do I revert from upgrading?

## ArcGIS 10: The Big Picture

- ESRI's ArcGIS 10 Workflow
  1. Select FGDC Metadata Style to view FGDC elements
  2. "Upgrade" to ArcGIS metadata format
  3. Edit metadata in ArcGIS
  4. Export ArcGIS metadata to FGDC (or other) format



http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/Creating_and_managing_FGDC_metadata/003t00000031000000/ [overview of how it's supposed to work]

## ArcGIS 10: The Big Picture

- **What happens during this workflow?**
  - 20 insertions, 22 deletions
  - Moves/Reformats: <citation>, <citeinfo>, <place>, <placekt>, <placekey>, <useconst>, attribute and entity tags
  - Deletes: <supplinf>
- Translates to ESRI specification
- No longer ***connected*** to the FGDC portion of the record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Esri is somewhat vague about what happens during the upgrade process (http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/The_ArcGIS_metadata_format/003t0000002w000000/). To investigate, I grabbed a record from the EDG (the SSA record), opened it in ArcGIS, upgraded, made a couple of simple changes, saved it, and exported to FGDC format. Then I used Word to compare the original SSA xml file with the new exported xml file and track changes.

## ArcGIS 10: The Big Picture

- **OK, so now I've upgraded……what's going on?**

  - **Pre-upgrade**
    - Metadata is still stored using FGDC elements
    - FGDC Metadata is synchronized with ArcGIS Elements*
    - Users may edit records using EME or using ArcGIS
    - No translation required to ISO or FGDC, etc. to contribute to geoportals, catalogs, etc.
  - **Post-upgrade**
    - Metadata has been translated to ESRI Elements
    - FGDC metadata elements are no longer synchronized with ArcGIS metadata elements

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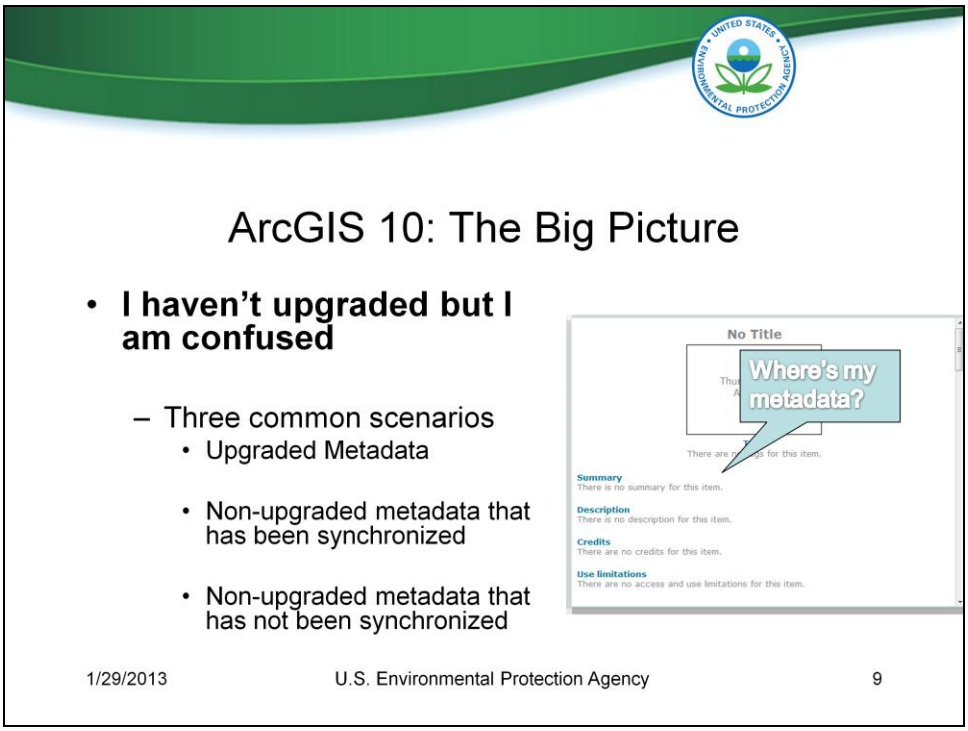
What is the ArcGIS Metadata format?

The ArcGIS metadata format borrows a few XML elements from the FGDC XML format—the elements that describe an item's attributes. It also borrows many XML elements included in the ESRI-ISO XML format (you can think of the ArcGIS metadata format as version two of the ESRI-ISO format).

ArcGIS metadata also includes many new XML elements, and stores some of the same information in a new way.

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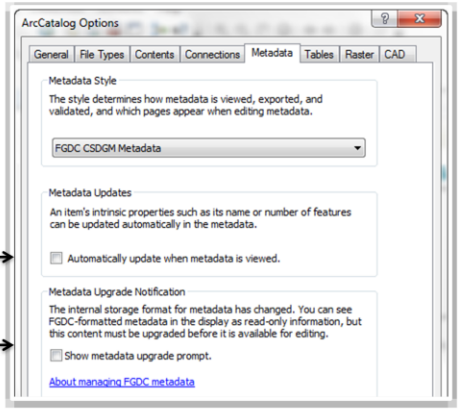
# ArcGIS 10: The Big Picture

- Help, I need some control!
  - Configure this setting in ArcCatalog->Options

**Synchronizing (ESRI)**

**Upgrading (ESRI)**



# ArcGIS 10: The Big Picture

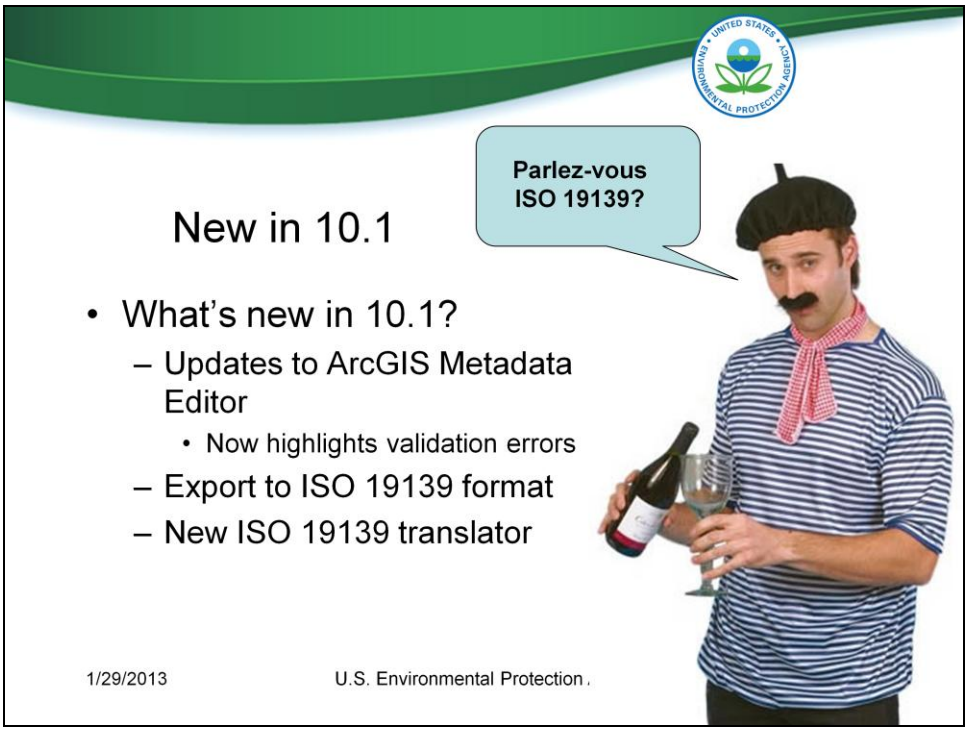
- Pros and Cons of "Upgrading" Metadata
  - Upgrade if you do not want to edit FGDC metadata elements any longer
    - Inserts Esri tags
    - Disconnects FGDC-ESRI Synching
    - Elements are moved around
    - EME edits will not be reflected in the ArcGIS section of your record.

# ArcGIS 10: The Big Picture

- Considerations
  - Do you need to contribute your metadata to a geoportal, e.g. EDG or Geo.Data.gov?
    - ***If you upgrade, you will need to export metadata to a compatible standard (FGDC, ISO)***
  - Do you want to edit FGDC fields in your metadata?
    - ***Don't upgrade***.
  - Do you need to edit your metadata using the ArcGIS 10 editor?
    - ***Upgrade.***
  - Remember, you can always upgrade down the road, but once upgraded, you cannot go back to FGDC elements without **potentially** losing content.

# Demo: Editing records in EME – Common Scenarios

| "Pure" FGDC Only | "Upgraded" Metadata | FGDC Plus ArcGIS Tags… |
|---|---|---|
| 1 | 2 | 3 |




Esri released version 10.1 this past spring. As we've talked about during our previous training sessions, ArcGIS overhauled their system for handling metadata in verion 10. There were only minor changes to metadata in the 10.1 release. Although there are no sweeping changes this time around, there are still some updates that are worth noting.

In version 10.1, Esri is trying to make it easier to create metadata that complies with a specific standard or profile. Their metadata styles, which can be applied like filters, now include complete sets of rules that help users comply with standards. They've also made it easier to identify errors in the ArcGIS metadata editor. Now errors are highlighted in red, much as they are in the EME. When errors are corrected, they are marked with a green check mark. Esri is trying to make it easier for users to comply with standards. However, they have not yet fixed the problems associated with validating metadata in the EME and geoportals like the EDG and Geo.data.gov.

All metadata styles provided with ArcGIS other than the Item Description style are designed to support

creating formal metadata that follows a specific metadata standard or profile. These metadata styles now

include a complete set of rules to guide you in creating metadata that complies with their associated

metadata standard or profile.

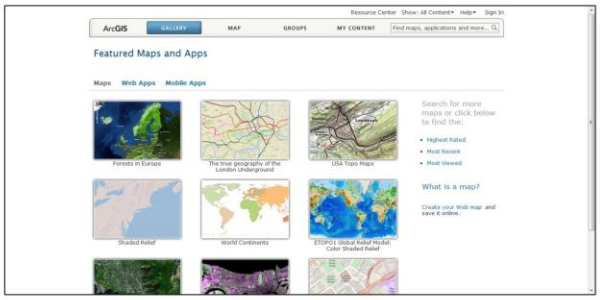

Perhaps the most noteworthy metadata update in 10.1 is the ability to create metadata for services. You can now create metadata for any item by right-clicking the item in ArcCatalog and clicking the Item Description. There is now an option to create metadata for services listed under a server connection. The metadata experience is the same for services as it is for any other item, so you will see the same familiar ArcGIS editing interface.

Metadata for services is also available to web developers using a REST request. Developers can append "/info/metadata: to the end of a service's REST URL to get an XML file containing all the service's metadata. Developers can parse this metadata and present it to the end user of the service in the desired format.

For more details on 10.1 updates, you can refer to the PDF listed on this slide.

## New in 10.1

- What's new in 10.1?
  - Use map service metadata to populate a geoplatform

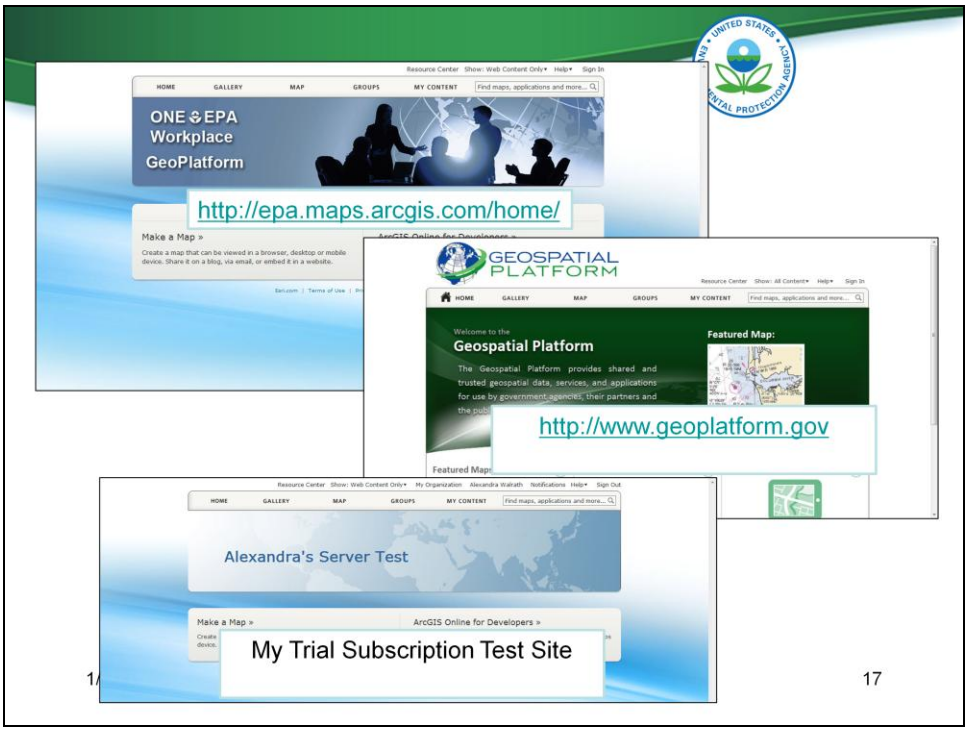



ArcGIS Online: http://arcgis.com/home/



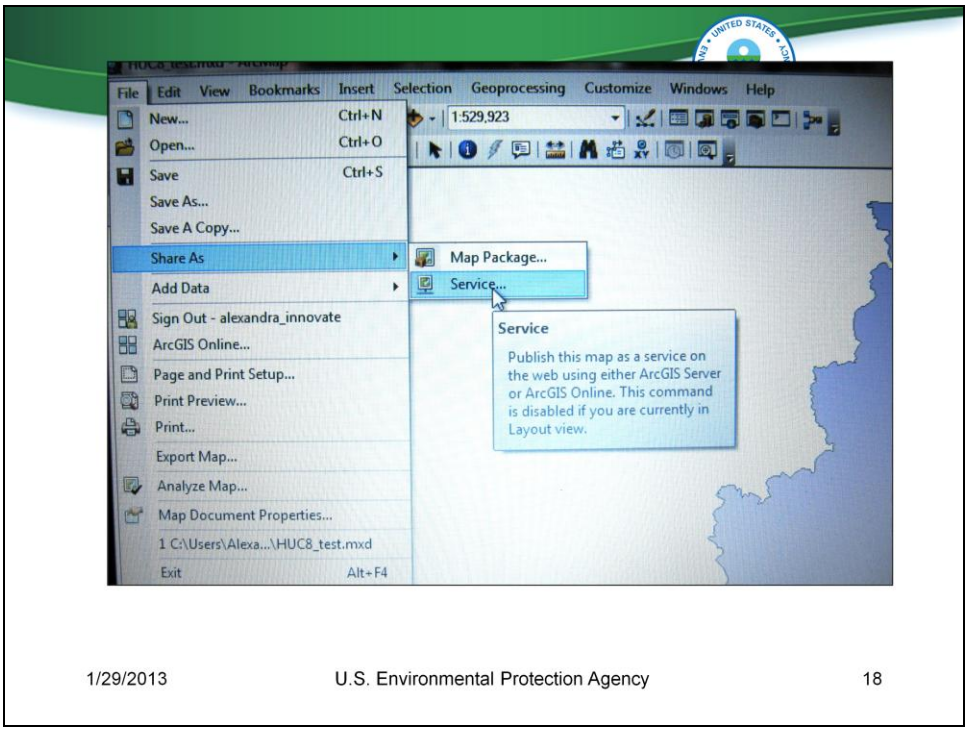
In addition to creating metadata for services, 10.1 allows you to create metadata for services on a geoplatform. You are probably familiar with geoplatforms already, but I will give you a quick overview. "Geoplatform" is another name for an Esri service called ArcGIS Online for Organizations. This is a subcription-based software-as-a-service. It lets subscribers create, publish, and share map services in the cloud. Non-subscribers can access those services and use them to create and share web maps on the fly. Non-subscribers can upload their own data to a specific web map, but they cannot publish their own map services. If you want to try it out, you can visit ArcGIS.com/home and look at their gallery of web maps.

Each web service on the geoplatform includes a limited amount of metatdata – similar to the basic "Description" elements in the ArcGIS metadata style. Now, with 10.1, you can create geoplatform metadata within ArcGIS. Since this is something that many of you may need to do in the future, I'm going to show you how it works.




I am not giving a sales pitch and encouraging all of you to purchase subscriptions to ArcGIS Online, but Federal government organizations have already started subscribing to this service and launching their own geoplatforms. Each of these government geoplatforms is a customization of ArcGIS online, populated with datasets relevant to that specific agency. The EPA has its own geoplatform. The FGDC is also heading up an initiative to create a national Geospatial Platform that will serve up data and services from a variety of government agencies. These are ongoing, expanding projects that are currently in development. I know that many of you in our audience are EPA or other Federal employees. If you aren't familiar with geoplatforms yet, you probably will be soon. It's likely that some of you will be responsible for publishing web services – and metadata -- to geoplatforms.

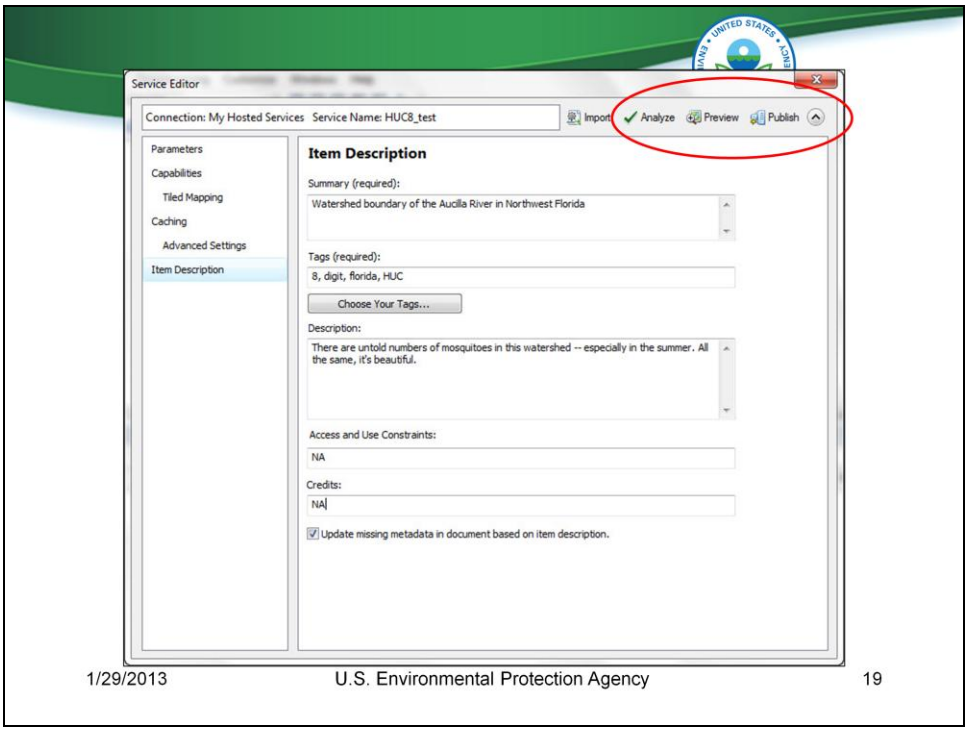
In order to publish a service, you need to have publishing privileges at a geoplatform. I don't have publishing privileges to any of the federal platforms yet, so I created my own test platform using ArcGIS Online's free trial subscription.




I'm going to show you have to create geoplatform metadata for a map layer, and publish that layer as a service on a geoplatform. I won't give you a live demo, but I'll show you the highlights.

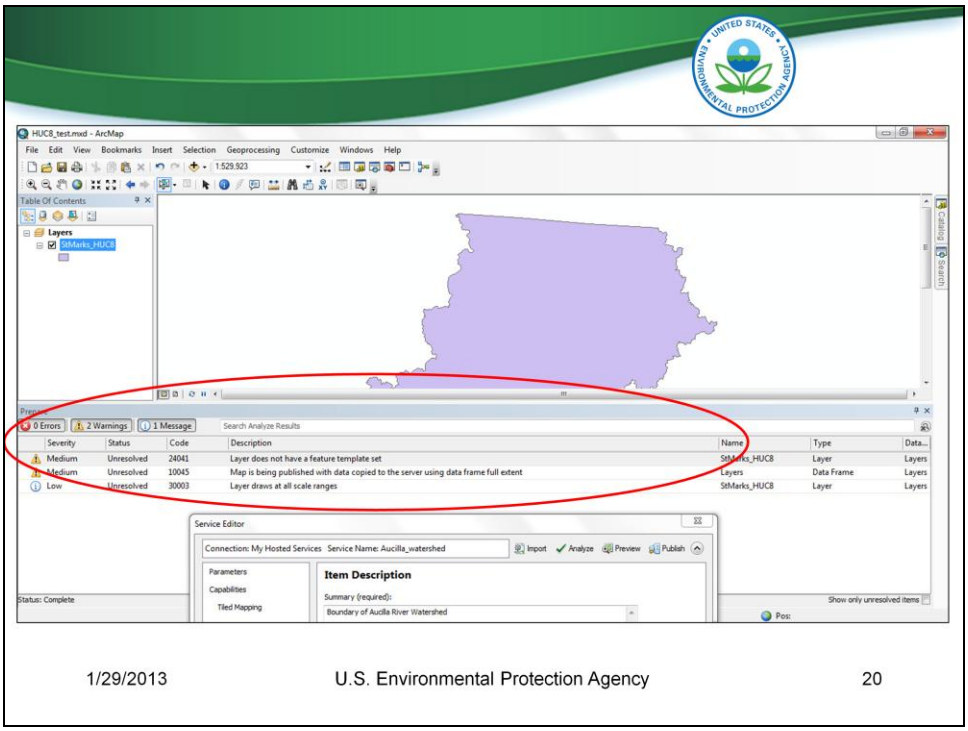
Before you try to publish a service you a geoplatform, you need to make sure that you have a geoplatform account and publishing privileges. That's your first step. Then, you will sign into ArcGIS Online from ArcGIS Desktop by entering your username and password.

The second step is to create a map in ArcGIS that you want to publish as a service. For the sake of simplicity, I'm just going to publish a single layer as a service. My layer is the watershed of the Aucilla River, here in Northwest Florida where I live. When your map is ready, go to File → Share As → Service. This is a new feature in 10.1., so those of you with older versions of ArcGIS will not have this option.



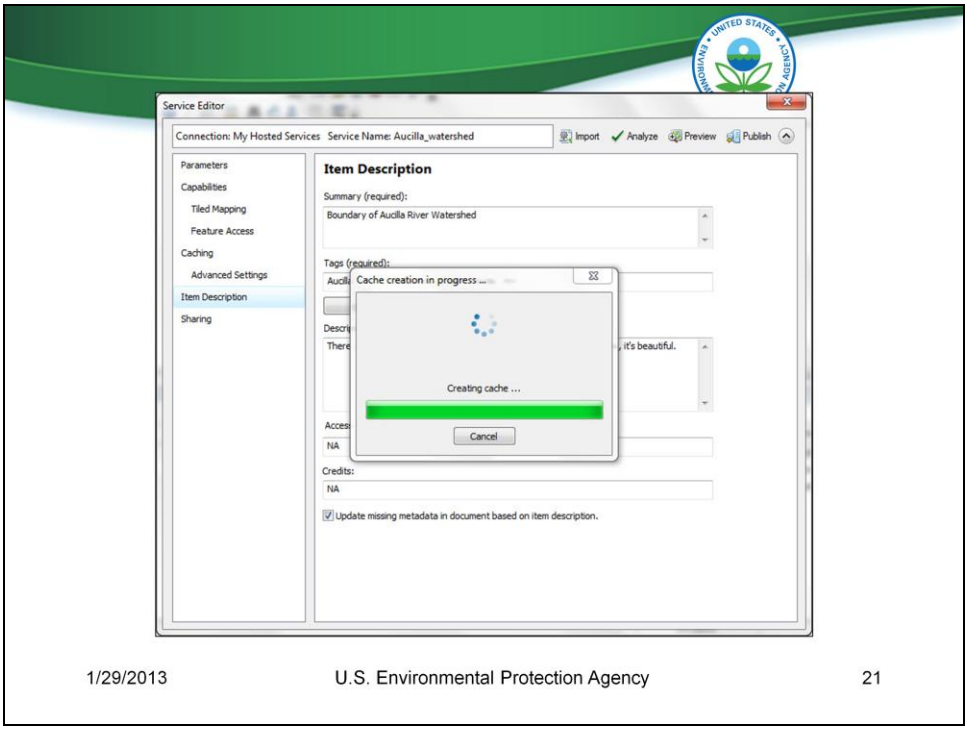

When you select “Share as a Service,” the Service Editor opens. In the Service Editor, you will specify who will be able to see your service on the geoplatform. Do you want to share it with the public, or limit it to a specific group of people? Do you want other users to have the ability to edit the service, or does it belong only to you? In addition to setting up these parameters, the Service Editor is also where you enter metadata for your service. This is the metadata that you want to appear online in the geoplatform. You’ll note that only a few metadata fields are available at this point, but Esri is working on including more metadata fields in the future. Since there are so few fields to populate, you can quickly copy and paste from the EME or another metadata editor.

Once you have filled in the fields in the Service Editor, look at the buttons in the top right corner. “Analyze” basically validates your new web service. It will alert you to any errors. “Preview” shows you what the service will look like after publication, and “Publish” uploads the service and publishes it to your user account at the geoplatform.

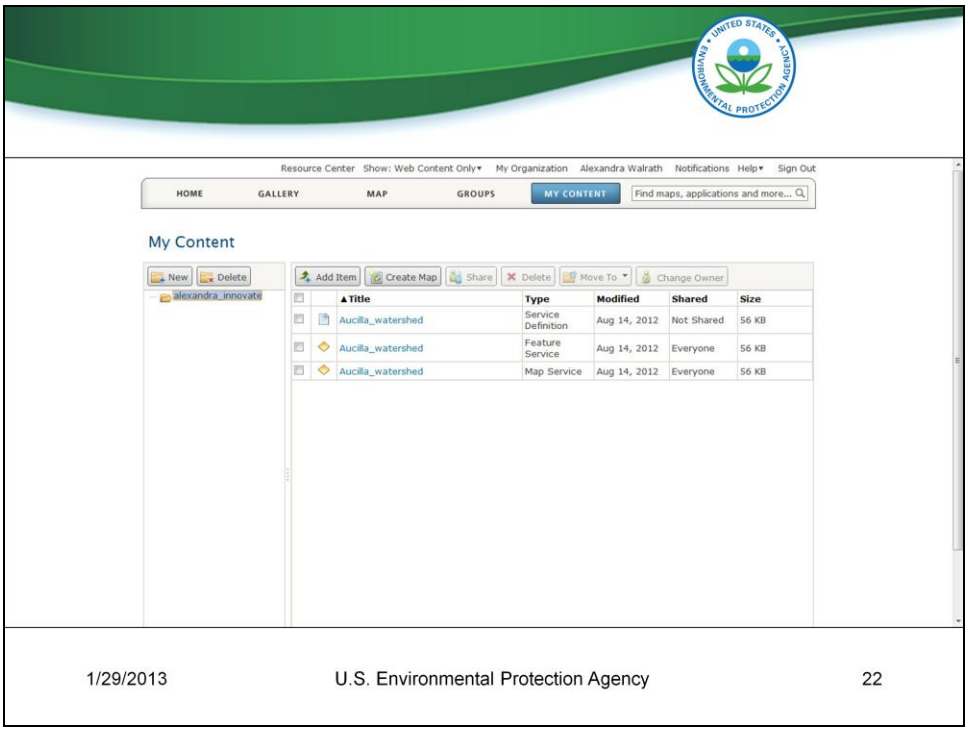



If you click the “Analyze” button, the results will be displayed at the bottom of the screen, circled here. Like in the EME, any errors will be highlighted in red. You cannot publish a service that contains errors. Warnings are highlighted in yellow. You can publish a service even if there are warnings. As you can see, this new service contained a couple warnings but no errors.

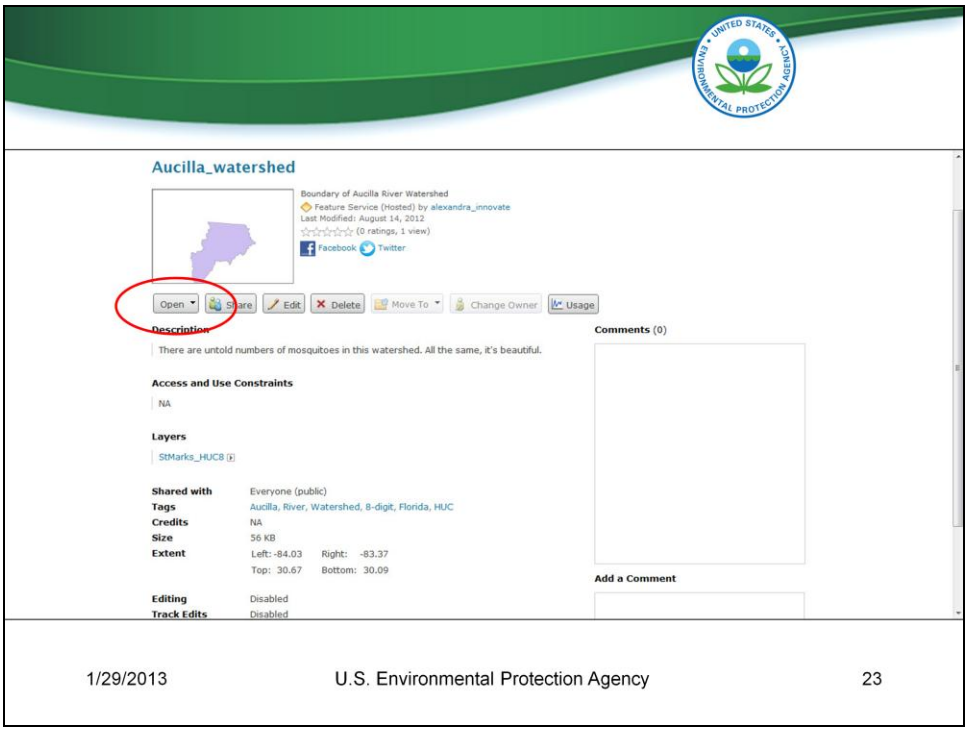
One thing to note is that, if you decide to play around with the trial subscription like I did, Esri only lets trial subscribers publish very small datasets. The trial is designed for test purposes only. I had to keep clipping my layer until it was small enough to publish.



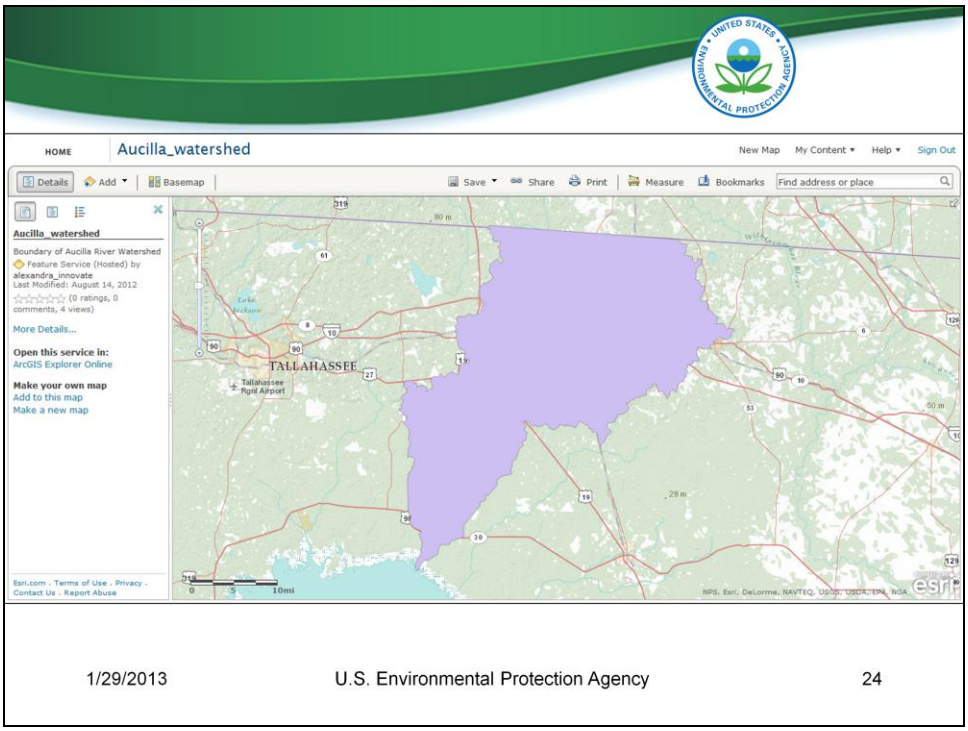

Once you have analyzed your service, click “Publish” to upload it to the geoplatform. For me this only took a matter of seconds, but like I said it was a small layer.




After progress pop-up box closes, you'll need to log into the geooplatform to view your service. It will be listed in the "My Content" tab. By default, ArcGIS publishes a Service Definition, a Feature Service, and a Map Service. If you click on the name of the service, it will take you to the service's details page.

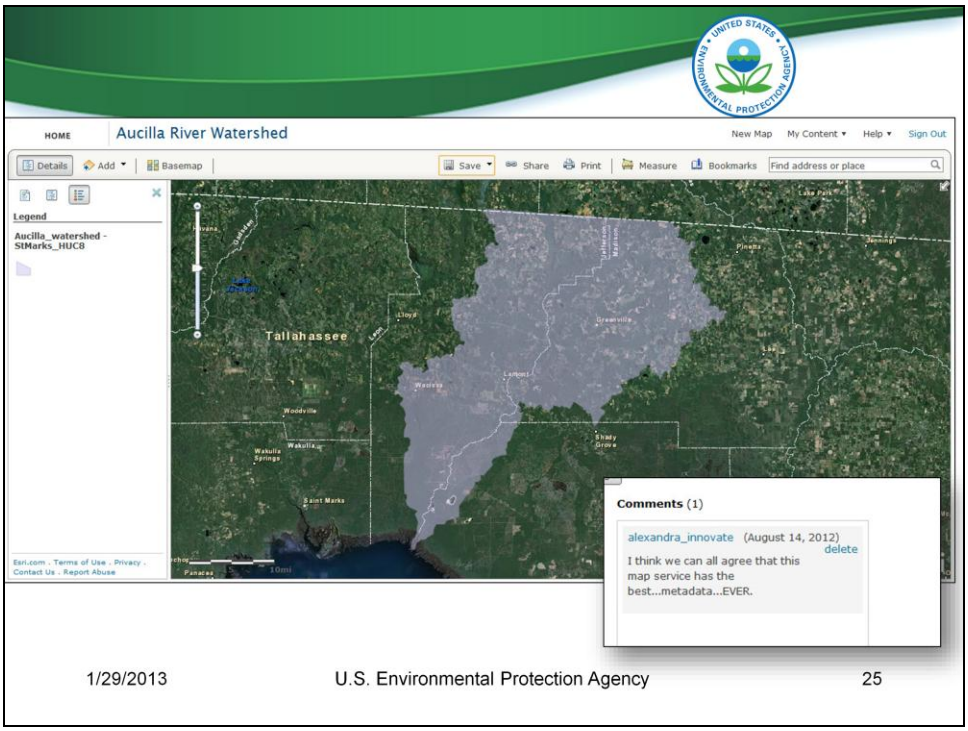



The details page displays the metadata that you created in the Service Editor. If you chose to make your service public, then this metadata is visible to everyone. Users can discover your service by searching the geoplatform. To view the service in the geoplatform viewer, click the Open button and select “Open in viewer.”

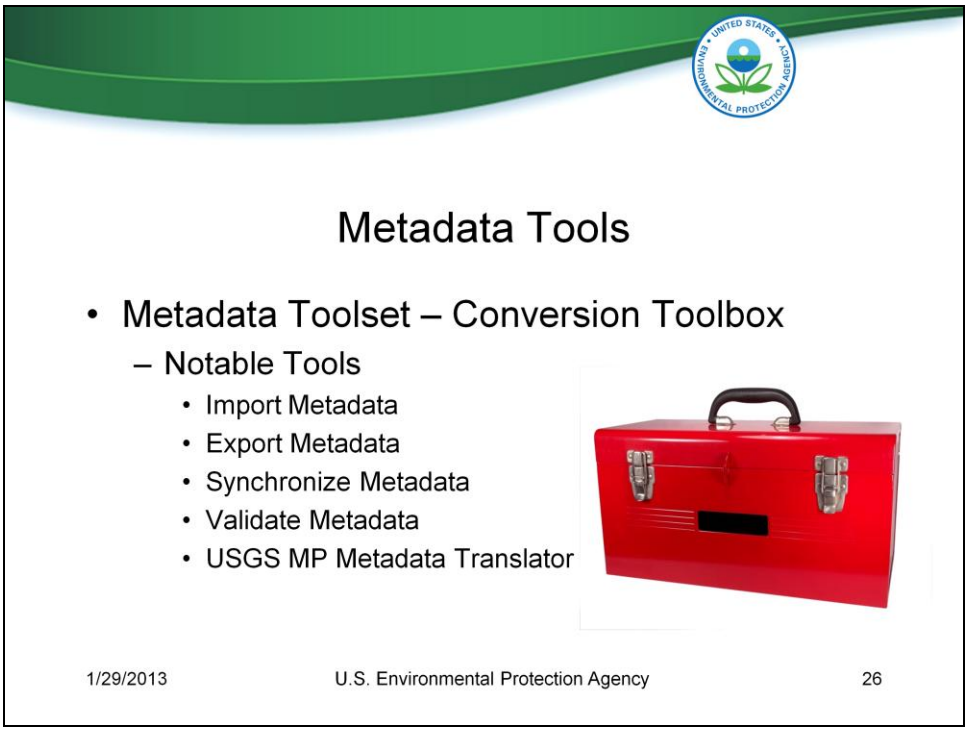





At this point your web service is visible in the geoplatform.




You can change basemaps, alter the symbology, give your map a catchy title, and add more layers. You will be able to add other layers on the geoplatform, web services from other sources, and data that you upload. You can then save your map or share it with a link generated by the geoplatform. Or, you can simply sit back and wait for users to start leaving your web service glowing reviews in the comments section.



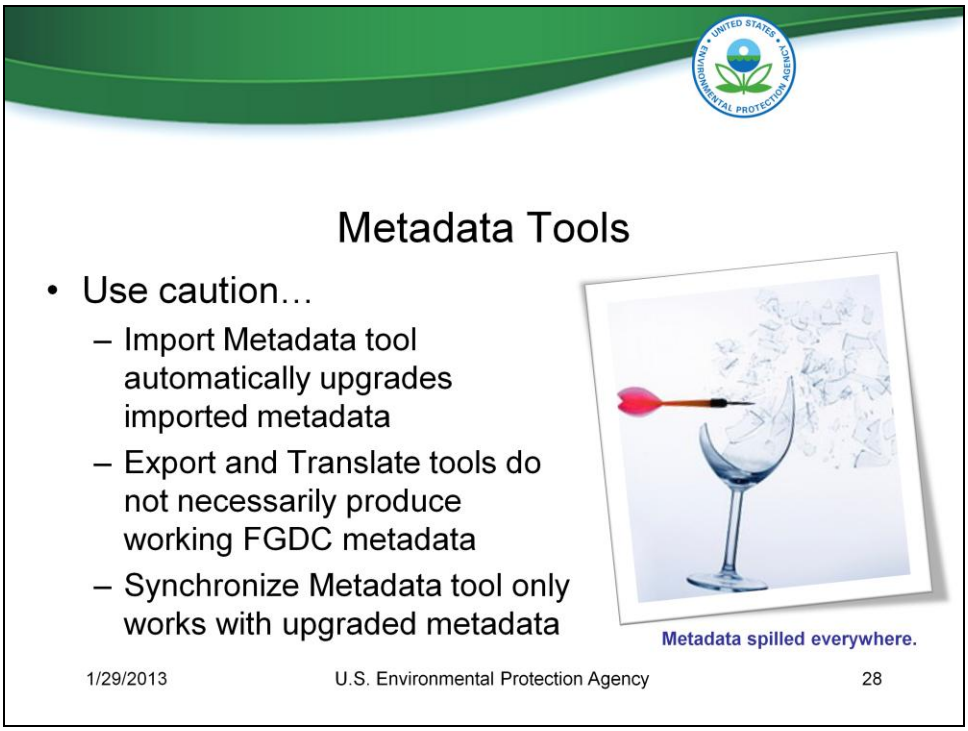

Moving on to a subject that's not specific to version 10.1, I wanted to talk briefly about the ArcGIS 10 Metadata Toolset. ArcGIS metadata tools now reside in the Conversion Toolbox. The toolbox contains a variety of tools, including Import, Export, Synchronization, and Validatin tools.

http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/An_overview_of_the_Metadata_toolset/00120000000r000000/

| Tool | Description |
|---|---|
| ESRI Metadata Translator | Uses the ArcGIS metadata translation engine or an XSLT transformation to export metadata content from ArcGIS to a stand-alone metadata XML file. |
| Export_Metadata | Updates metadata to contain the most current properties of the ArcGIS item before processing the metadata and finally exporting it to an XML file that conforms to a standard metadata format. |
| Export Metadata Multiple | Exports metadata for many ArcGIS items to a designated folder. This tool is a model that uses Export Metadata to export metadata for many ArcGIS items. |
| Import Metadata | Imports metadata to the target item after converting the source item's metadata to ArcGIS metadata, if appropriate. The source and target may be ArcGIS items or stand-alone metadata XML files. |
| Metadata Importer | Copies metadata from the source item to the target item. Metadata is retrieved from the source item and transferred to the target item without changing it. |
| Metadata Publisher | Publishes metadata to a metadata catalog such as an ArcIMS Metadata Service. |
| Synchronize_Metadata | Automatically updates an ArcGIS item's metadata with the current properties of the item. |
| Upgrade Metadata | Updates an ArcGIS item's metadata or a stand-alone XML file to the current ArcGIS metadata format. |
| USGS MP Metadata Translator | This tool only uses metadata elements in an item's metadata or a stand-alone metadata XML file that follow the FGDC CSDGM metadata format. |
| Validate Metadata | Exports metadata to a standard metadata format then validates the exported file. |
| Validate Metadata Multiple | Exports metadata for many ArcGIS items to a designated folder, then validates the exported files. |
| XML_Schema_Validation | Uses the .NET 3.5 Framework's XML software to validate an ArcGIS item's metadata or any XML file. |
| XSLT Transformation | Uses the .NET 3.5 XML software to transform an ArcGIS item's metadata or any XML file using an XSLT 1.0 stylesheet and save the result to an XML file. |

The entire toolset is listed in this table, which you can refer to if you need more details.

http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/An_overview_of_the_Metadata_toolset/00120000000r000000/




If you are trying to steer clear of upgrading to ArcGIS format, it is generally wise to avoid the tools in the Conversion Toolbox. For example, the Import Metadata tool will automatically upgrade any metadata that it imports to ArcGIS format. The synchronization tool will only work on metadata that has already been upgraded. And as for the Export and Translate tools, they do not necessarily export FGDC metadata in a format that will validate in the EME or a geoportal.

In a sense, upgrading your FGDC metadata to ArcGIS format breaks your metadata. Export and Translate tools try to put it back together in FGDC format. Although all the FGDC elements may be there, any lingering cracks will show up when you try to validate it.

http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/An_overview_of_the_Metadata_toolset/00120000000r000000/

## Metadata Tools

- Telltale signs that you're dealing with an upgraded metadata issue…
  - Some fields appear blank in EME
  - Edits made in EME do not show up in ArcCatalog

It's upgrading, my dear Watson.

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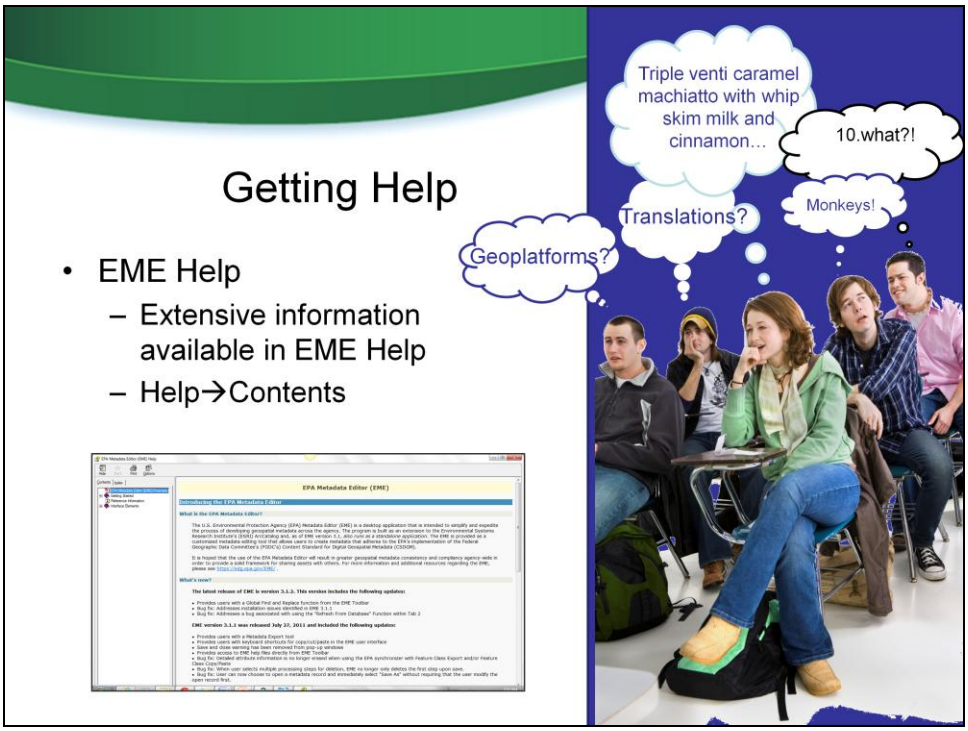
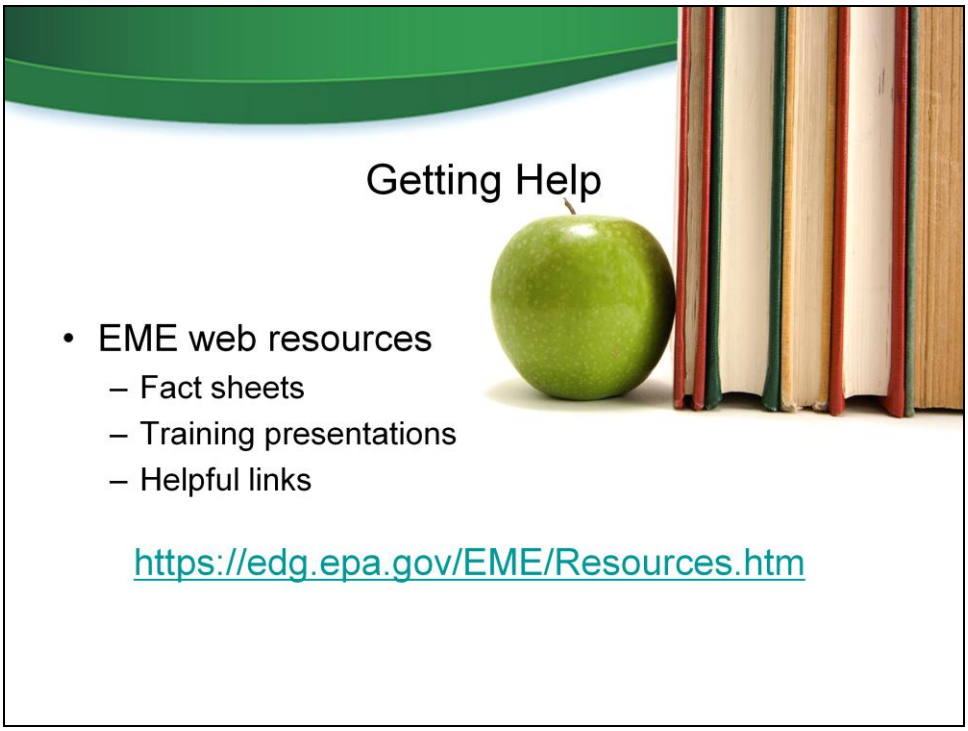
Inevitably, upgrading issues are going to keep showing up until the kinks get worked out of the ArcGIS 10 metadata format. Even if you avoid upgrading yourself, you will probably run across metadata that someone else has upgraded. The more editors FGDC passes through, the more likely it seems to be that there will be validation errors. If you are working with the EME and run across a metadata record that is acting weird, an upgrade is probably the culprit. Be on the lookout for these two most common upgrade-related issues: Blank fields appearing in the EME, or EME edits not showing up in ArcCatalog. If you notice these issues, try to return the record to its pre-upgrade, FGDC state. If you need a review on how to clear a metadata record, you might want to look back at our last two training sessions. Our team hears a lot of variations on these problems, and very often upgrading is to blame.

# Discussion




I mentioned EME help at the beginning of the presentation, but it's worth repeating that a lot of information is available to you in the Help documentation. We've sped through a lot of content today. All of what we've talked about is included in the Help documentation, which you can access from the EME interface.




There are also some useful resources available on the EME website, including fact sheets, training presentations, and links to other metadata resources. Today's presentation will also be posted at this address.

## Getting Help

- Upcoming training sessions
  - EME v. 3.2 – September 19, 2012

We do have a few more training sessions coming up this summer. Please watch your inboxes for reminders about dates and times.

## Getting Help

- Contact Us:
  - edg@epa.gov

We're standing by to answer your questions.

If you'd like to get in touch, feel free to contact me, Catherine, or Jessica. You can reach all of us at once using the address on this slide. We always appreciate questions and feedback from EME users.