



Hello, everyone, and thanks for joining us for the third EME training session. Welcome to anyone who is joining us for the first time.



Today's Agenda

- Review
- Workflow for Preparing Metadata
 - Creating and editing templates
 - Naming conventions and keywords
 - QA
- Workflow for Managing Metadata
 - Keeping metadata up-to-date
 - Online links
 - Data organization
 - Stylesheets



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Last time we discussed several ways to customize the EME and troubleshoot problems with synchronization and validation. Today we're focusing on the overall metadata workflow. We want to provide you with an overview of how to prepare, manage, and share your metadata. Although we'll be talking some about the EME, you should be able to use many of these best practices regardless of your metadata editor. We will discuss how to use templates, how to manage your metadata efficiently while keeping it up-to-date, and how to share your metadata and link it to its corresponding datasets.



Review

- EME creates FGDC and EPA compliant metadata
 - Includes all mandatory FGDC elements and many optional elements
 - Works with XML, shapefiles, and geodatabases (personal, file, ArcSDE)
 - EPA Technical Specification: implementation of FGDC CSDGM
- MS Access database populates EME defaults

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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.



Review

- Synchronization and Validation
- Database Customization
 - Change database location
 - Spell check
 - Compound elements
 - Keywords
- Training Sessions (slides, recordings, Q&A docs)
 - <https://edg.epa.gov/EME/Resources.htm>



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.



Creating and Editing Templates

- Types of metadata templates
 - Customized MDB
 - C:\Program Files(x86)\Innovate! Inc\EPA Metadata Editor\template
 - Complete XML record
 - Partial XML record



Save time with templates.
Finish faster.

Today's first topic is how to create and edit metadata templates. Templates can dramatically save time and reduce effort by providing default values for your metadata fields associated with a record. Once you have a template customized for your specific project, that template can be exported and used as the default for metadata values across multiple datasets.

We have already talked about how to customize the EME's Access database to meet your organization's requirements. By editing the EME database, you can change the EME's default values. Then, when you click the "D" button in the EME interface, your record is automatically populated with the information that you specified in the database. You might remember from last week that the Access database is stored in a folder called "template." Although you can think of the database as a kind of template for the EME, today we're going to focus on XML templates.

An XML template is simply an XML record that contains information with which you want to populate many metadata records. It can be anything from a complete FGDC-compliant record to a partial record containing just a few fields. When you open your XML template in the EME, all of the template's fields will automatically be filled in. Once you have loaded your template, all that you need to do is fill in any remaining fields in the EME (using your customized Defaults, if possible).



Creating and Editing Templates

- Creating template for standalone XML files?
 - Use EME
 - Only complete common fields that you want to include in the template
 - Save file and use as a template for additional records



Depending on the type of data you are working with, you may want to create and import a template using either the EME interface or ArcCatalog. If you are working with a standalone XML file, then you can use the EME interface to complete the fields that you want to include in your template, and then save the file with a name like Metadata_Template.xml. Once you have saved a template XML file, you can simply open it up in the EME each time you want to create an additional record, fill in that record's individual information, and then save your file with a new name. If you have a metadata record that you particularly like, that can serve as a good starting point for creating a template.



Creating and Editing Templates

- Importing template for feature class?
 - Use ArcCatalog
 - ArcCatalog can apply templates to various types of datasets (e.g. file geodatabase, SDE database, service)
 - Save with other documentation of your service



ArcCatalog

However, you may be dealing with a type of data that does not give you access to standalone XML files, for example a file geodatabase, SDE database, or a service. In cases like this, you can use ArcCatalog to create and import a template. Catherine is going to demonstrate how to do that today. After importing the template, click the Edit Metadata button to add remaining values and specifics of the file. If you're working with a service, make sure to save your metadata with the rest of the service's documentation.



Creating and Editing Templates



Warning:

By importing a template, you override everything!



After Jared erased important metadata fields, his co-workers took steps to ensure that it would never happen again.

There's one important thing to remember when working with templates: If you import a template, you will override everything in your metadata record. It would be logical to think that by importing a template, you would only change the fields in the template, but that is not the case. If you have an existing metadata record, you will want to be very careful about importing a template.



Naming Conventions



- Use descriptive names
 - In the XML title
 - **Good:** R1_Hydropower.shp.xml
 - **Not So Good:** AlphaXMLRDFSOS_Web.xml
 - In the record
- Keep names consistent for your office

Once you have finished your metadata record – using templates and customized default values when possible – it is important to give your record a descriptive file name. This will make it easier for others to work with your record, and it will make multiple records more consistent. It may be helpful for you to include the dataset date in the title of your XML record. Or, you may want to use the EME's default export name, which will match the text in the EME's title field. Those of us who work with the EME have seen some seemingly nonsensical file names consisting of random strings of letters. Whenever possible, you should give your file a name that anyone can understand.

Whatever naming convention you use, you should keep it consistent for all records in your office. For example, if you work for EPA Region 1, you should decide whether your metadata records will start with R1, Region-1, EPA_R1, etc.

It is also a good idea to use descriptive text within your record. When you are editing your record, try to think about adding terms that users might search for in a metadata catalog. This is a good habit that will help make your record more easily searchable. It will help users find your record based on common terms that may not be in your Keywords.



Keywords

- Be consistent
 - Acronyms and full terms
 - Include application names
- How will users search for your metadata?
 - Consider common search terms



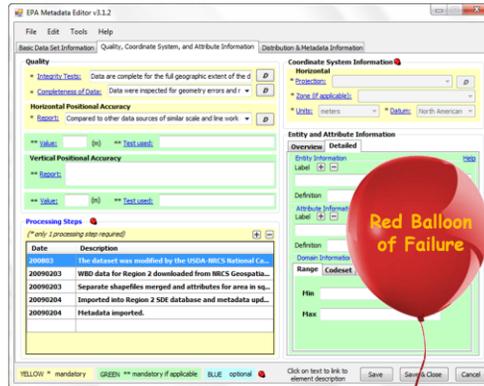
As night fell over the prairie, Kevin continued his long and fruitless search for metadata.

Speaking of keywords, they can make a big difference in how easy it will be for users to track down your metadata. When you are brainstorming your list of keywords, it's a good idea to include both acronyms and full terms. For example, your keywords could include both "Toxic Release Inventory" and "TRI." If your metadata is related to any applications, it's a good idea to include the names of those applications in the keywords. Take a moment to put yourself in the shoes of a user searching for your metadata and consider some terms that a user might include in a search query.



QA Practices

- Common validation errors
 - Errors vs. warnings
 - Deleting unnecessary elements



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Some of you may need to upload your metadata records to catalogs like the Environmental Dataset Gateway or Geo.data.gov. Be aware that that it's okay to upload to these catalogs even if your metadata has warnings. Often our users see errors from elements that aren't required to meet EPA and FGDC standards. If that's the case, you can delete those optional elements before uploading to a catalog. Catherine mentioned this in the last session, but it's such a common situation that it bears repeating. Deleting optional elements can solve a lot of your validation problems. The EDG also offers its own validation service, which you can use to double-check your record's compliancy.



Warning:
Removes
any info
entered
using
ArcCatalog
style editor

QA Practices

Review: Removing Esri Tags

1. Import existing XML
2. Validate and fix errors
3. Export from ArcCatalog as FGDC
4. Delete everything with EME Clear All button
5. Re-import FGDC version into EME

The other QA practice that I want revisit is the technique for removing Esri tags, which can be helpful if you're having problems working with FGDC vs. ArcGIS format. We worked through this process in detail in the last session on Advanced Features, but I've summarized the steps on this slide.

I did want to note that when you use the EME's Remove Esri Tags button it does not remove the newest Esri tags associated with the new ArcGIS format. It does remove older Esri tags like the thumbnail tag. If you need to remove the newer tags, you can do that using the USGS Metadata Translator tool in ArcToolbox. We can provide you with additional details if you need them.



Common Metadata Mistakes

<http://www.nj.gov/dep/gis/top10.pdf>

- 10. Defining your data set too finely or too broadly
- 9. Using incorrect State Plane Coordinate System Zone Identifier values
- 8. Confusing 'Currentness Reference' with 'Publication Date'
- 7. Misunderstanding resolution
- 6. Putting too much faith in metadata tools
- 5. Taking the minimalist approach
- 4. Understanding assessments of consistency, accuracy, completeness, and precision
- 3. Glossing over Section 5. Entity and Attributes
- 2. Thinking of metadata as something you do at the end of the data development process
- 1. Not doing it!

Drum roll,
please...



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To wrap up today's discussion of preparing metadata, I included a link to a helpful document available from the New Jersey Department of Environmental Protection's website. It discusses the top ten mistakes that people make when preparing metadata, which include everything from misunderstanding certain metadata elements to procrastinating until the end of the data development process to create your metadata. All of these mistakes are described in more detail in the PDF, so I'd encourage you to take a look at it. Personally I found it really useful.



Demo 1: Creating & Importing a Metadata Template

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With that I'll hand it over to Catherine for a demo of metadata preparation.



Keeping Metadata Up-to-Date

- Automatic updates
- Using EME Synchronizer
 - Use only for dataset-attached records, e.g. file geodatabases
 - For standalone XML records, update manually



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The second half of today's session focuses on how to manage your metadata. Once you've gone to the trouble of creating and validating complete, well-thought-out, easy-to-find metadata, you might be tempted to save your records in a safe place and never look at them again. Thankfully, the process of keeping your metadata current does not have to be painful. By making regular updates to a few select fields, notably the online links, you can keep your metadata up-to-date.

The EME Synchronizer, which we discussed in the previous two sessions, can automatically read some properties from your dataset and apply any changes to the metadata record. However, it's important to remember that this only works with dataset-attached metadata records, for example file geodatabases. If you are working with a standalone XML file, then the EME synchronizer will not provide automatic updates. It won't know where to look for the dataset. If you're working with XML records, you'll need to make your updates manually.



Keeping Metadata Up-to-Date

- What happens if your data moves?
 - Update your **online links** to reflect new location
 - Do not rely on synchronization to point to accurate location
 - Syncing points to local drive by default



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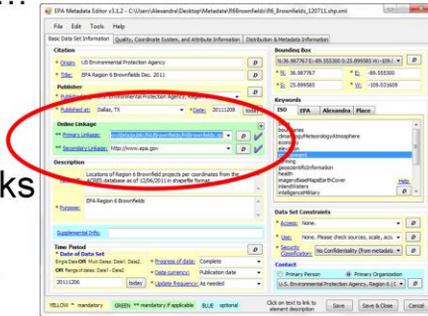
One of the most common problems that we see in metadata records is an out-of-date Online Linkage field. The Online Linkage field is particularly important because it allows anyone who looks at the metadata record to access the corresponding dataset. If you move the location of your dataset you should update the Online Linkage fields in your metadata.

If you are working with a dataset-attached record, you can set the EME Synchronizer to automatically update the Online Linkage. However, by default the Synchronizer will automatically point to your local storage location. If you are trying to share your data with other users, you may not want that. Be sure to check the Online Link field and include the proper address, or addresses of your datasets. We're going to spend a few minutes talking about the types of online links you may want to use, and why they matter.



Data Organization

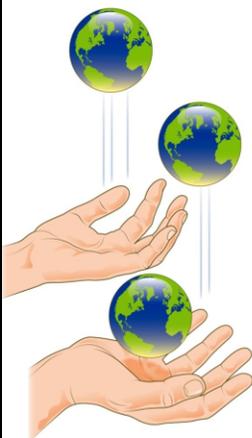
- Online Links to point to...
 - Downloadable data
 - Live services
 - Web pages
- Use multiple Online Links when possible
 - **Primary:** Link to data or service
 - **Secondary:** Link to program website



EME Tab 1

If you haven't looked for the Online Linkage field before, you can find it in Tab 1 of the EME. You'll notice that there are two fields: Primary Linkage and Secondary Linkage. The Primary Linkage should be a link to your dataset. Some of the most common and useful types of links are to downloadable data and live services.

If you want to include a link to your program's website, or information related to your dataset, you can enter that link in the Secondary Linkage field. You can also use your Primary and Secondary Linkages to link to multiple ways to access the dataset, for example a downloadable data link and a link to a service. Whenever possible, we suggest that you provide multiple online linkages. The more ways to access your datasets and related information, the better.



Data Organization

- Web Accessible Folders (WAFs)
 - Ex: <https://edg.epa.gov/metadata/waf>
- Catalogs/Geoportals
 - Ex: www.data.gov
 - Ex: <http://edg.epa.gov>
- Geoplatforms
 - Ex: <http://epa.maps.arcgis.com/home/>

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There are many ways for you to distribute and share your metadata. You can store it in a Web Accessible Folder, which is an online folder that users can access, or contribute it to a more complicated system such as a metadata catalog or a geoplatform. If you are sharing your data, then you should ideally also be sharing your metadata.

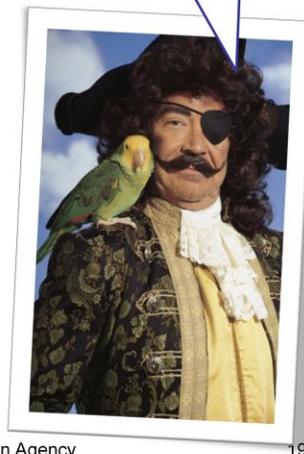
I want to turn your attention to a few EPA data organization procedures. This information is EPA-specific, but those of you who aren't with EPA can still use it as an example of how to link metadata to datasets and distribute data within your user community.



Data Organization

- Environmental Dataset Gateway (EDG) data download options:
 - EDG Data Download Location
 - ZIP files
 - <https://edg.epa.gov/data/>
 - EDG Clip 'N Ship
 - Web services
 - <https://edg.epa.gov/clipship/>

Shiver me timbers! For once me downloads be free 'n legal.



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The EPA's metadata catalog is the Environmental Dataset Gateway (EDG). EDG contains thousands of metadata records, which have been contributed to the EDG by metadata stewards at each regional EPA office. All of those records are managed by a team of EDG administrators who are responsible for checking and approving contributions. Many of the records are updated automatically on a regular basis by a process called harvesting.

The EDG started out as a metadata catalog, but it has been evolving into a place where users can access and download datasets. The EDG makes data available in two ways: the EDG Data Download Location, and the EDG Clip 'N Ship. Any EPA office that publishes metadata to the EDG can use the Download Locations and the Clip N Ship to store and share their data.



Data Organization

- EDG Data Download Location
 - Provide online access to data
 - Zipped shapefiles and geodatabases
 - Internal and external locations, organized by regional office
 - Access via FTP
 - EDG metadata record's Online Linkage points to Data Download Location



The Data Download location is a place to store and share EPA data. It includes downloadable ZIP files – mostly shapefiles and geodatabases. The EDG Download Locations can be used to provide data via an internal only URL that is available only to those users who have an EDG login; the other option is a download location that is made available to both internal EPA and external public users. If you are interested in storing your data in the EDG Data Download location, just get in touch with one of us on the EME/EDG team and we will set you up with access via FTP. Once your datasets are stored in the Download Location, you can link that location in your metadata's Online Linkage field.

 **Environmental Dataset Gateway Download Locations**
Connecting EPA's Environmental Resources

Download EPA's Geospatial Data
Access geospatial data provided by EPA's Program Offices, Regions, and Labs by clicking on the folders below.

- Public
 - EPA Office of Chemical Safety and Pollution Prevention WEDNESDAY, JANUARY 30, 2013 4:52 PM
 - EPA Office of Pesticide Programs MONDAY, JANUARY 28, 2013 9:28 PM
 - EPA Office of Compliance and Enforcement MONDAY, OCTOBER 14, 2012 10:33 PM
 - EPA Office of Environmental Information MONDAY, MARCH 25, 2013 11:48 AM
 - EPA Office of Policy THURSDAY, MAY 23, 2012 10:48 AM
 - EPA Office of Research and Development MONDAY, APRIL 15, 2013 2:47 PM
 - EPA Office of Solid Waste and Emergency Response THURSDAY, MAY 16, 2013 9:48 AM
 - EPA Office of Water WEDNESDAY, SEPTEMBER 26, 2012 2:38 PM
 - EPA Region 1 MONDAY, JUNE 18, 2012 2:15 PM
 - CG_line_r100.zip MONDAY, JUNE 18, 2012 2:05 PM 15 KB
 - CG_poly_r100.zip MONDAY, JUNE 18, 2012 2:05 PM 15 KB
 - ESA_points_r24.zip MONDAY, JUNE 18, 2012 2:05 PM 201 KB
 - ESA_polys_r24.zip MONDAY, JUNE 18, 2012 2:05 PM 2 KB
 - FuelFacil_r_EPA.zip MONDAY, JUNE 18, 2012 11:04 AM 18 KB
 - NPL_AIX_Boundaries.zip MONDAY, JUNE 18, 2012 2:05 PM 10 KB
 - NPL_NPLPAD.zip MONDAY, JUNE 18, 2012 2:05 PM 2 KB
 - NPL_Site_Boundaries.zip MONDAY, JUNE 18, 2012 2:05 PM 128 KB

<https://edg.epa.gov/data/>

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Here's a screenshot of the Data Download Location. As you can see, the Public folder contains zipped datasets from various EPA offices, all available for download.



Data Organization

- EDG Clip N Ship
 - Viewer allows users to preview datasets, clip by spatial extent, and download
 - Contact us for more information about contributing data
 - More information:
https://edg.epa.gov/metadata/webhelp/en/gptlv10/inno/EDG_ClipAndShip_procedures.pdf

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The second EDG option for data download is the EDG Clip N Ship. This option lets users access your data via a web map. Users can preview data, clip it by spatial extent, and download it to their local machines. If you're interested in adding your data to the Clip N Ship, our team can help. We will gather some information from you, launch your data as a service, and add it to the Clip N Ship.

<https://edg.epa.gov/clipship/>

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This is a screenshot of the Clip N Ship viewer. All of the available data layers are listed in the table of contents. The icon circled in red links to the dataset's metadata record in the EDG. By clicking this button, users see a pop-up preview of the EDG metadata description. That way they can learn a little bit about the dataset before deciding if they want to download it.

EPA Environmental Dataset Gateway (EDG)
Connecting EPA's Environmental Resources

HOME ABOUT SEARCH BROWSE DATA REUSE

Details Review Relationships Preview

Region 9 NPDES Outfalls - Waste Water Treatment Plants

Identification Information

Title: Region 9 NPDES Outfalls - Waste Water Treatment Plants
 Originator: US EPA Region 9, GIS Center
 Publication Place: San Francisco, CA
 Publisher: US EPA Region 9, GIS Center
 Publication Date: 20120620
 Website URL: https://edg.epa.gov/data/Public/R9/R9_Stakeholder_Outreach/NPDES_WWTP_Outfalls.gdb.zip
 Resource(Server) URL: <https://edg.epa.gov/clipship/>

Abstract: Point geospatial dataset representing locations of NPDES outfalls which generally represent the site of the discharge. NPDES (National Pollutant Discharge Elimination System) is an EPA permit program that regulates direct discharges from thousands of water facilities of the US. Facilities are issued NPDES permits regulating discharges to surface waters. The location of a facility is determined by the National Pollution Discharge Elimination Act. A facility may have one or more dischargers. The location of a facility is determined by the National Pollution Discharge Elimination Act. A facility may have one or more dischargers. The location of a facility is determined by the National Pollution Discharge Elimination Act. SIC code 4952 is used to identify water supply plants from the database.

Purpose: This data is specifically designed for use with ArcGIS and related software for determining locations and general information about discharge points.

Progress: Completed
 Frequency: Annually

Online Linkages connect EDG metadata record to Data Download Location and Clip N Ship

This is an example of an EDG metadata record that is connected via its Online Linkages to both the Data Download Location and the Clip N Ship. A user can go to the EDG, search for a record of interest using search terms like “Region 9,” “NPDES,” or “Waste Water,” and find this metadata record. Then, with a few clicks, the user can either download the entire dataset from the Data Download Location, or preview, clip and download the dataset using the Clip N Ship. Your metadata record is now more than plain old metadata. It lets the EDG user find and access this dataset quickly and easily – and without needing to contact your office and ask for help.



Sarah breathed deeply,
embracing the
Circle of Metadata.



Data Organization

1. Contact EDG Team to add your datasets to Download Locations and/or Clip N Ship
2. Enter Online Links in EME
3. Upload metadata records to EDG

<https://edg.epa.gov/metadata/catalog/content/about.page>

If you're interested in taking advantage of this data organization system, you should follow a few steps: First, get in touch with us EDG folks to add your datasets to the Download Locations or Clip N Ship. Second, enter the Online Links to those locations in your metadata. Third, upload your metadata records to the EDG.

More details are available at the address on this slide.



Working with Stylesheets



Rachel strived to be as stylish as her metadata.

- The finishing touch
- Change the way metadata is displayed in ArcCatalog
- Necessary for working with FGDC format

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Stylesheets are today's final topic. They put a finishing touch on your metadata, changing the way it is displayed in ArcCatalog. One reason why stylesheets are important is that they can be necessary for working with FGDC metadata in ArcGIS 10.



Working with Stylesheets

XLST file – changes appearance of XML doc

“Metadata styles” are new in ArcGIS 10

Designed to make it easier for Esri users to switch between standards

Different styles

Same metadata



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When you apply a stylesheet in ArcCatalog, a type of file called an XLST changes the appearance of your XML document.

The introduction of metadata styles was part of the ArcGIS 10 metadata revamp. They are designed to help users switch between metadata standards. The idea is that you can switch between standards without having to go back and edit your metadata. Instead, you can simply apply a new stylesheet.



Working with Stylesheets

Esri's new default is Description style

Lola's style did not comply with standards.

Simple style designed for users not required to comply with metadata standards

More details:

<http://blogs.esri.com/esri/arcgis/2011/01/12/a-new-approach-for-metadata-with-arcgis-10-part-3/>



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The new style introduced in ArcGIS 10 is called the Description style. That's the style that you'll see by default when you open a metadata record in ArcCatalog. The Description style is designed to be simple. It caters to users who are not required to comply with metadata standards, who just need to create some minimal metadata. When you open a record in Description style, you'll only see a few basic metadata elements. Users working with FGDC metadata need to download and install the FGDC Style Patch.



Working with Stylesheets

- FGDC Style
 - Allows you to export ArcGIS metadata to FGDC format
 - Install FGDC Metadata Style Patch (free!)
<http://resources.arcgis.com/content/patches-and-service-packs?fa=viewPatch&PID=160&MetaID=1637>
 - ArcCatalog → Customize → ArcCatalog Options → Metadata Tab
 - Select “FGDC CSDGM Metadata”

The FGDC style patch allows you to view all FGDC elements and export ArcGIS metadata to FGDC format. The FGDC Metadata Style Patch must be installed on your machine in order to select the FGDC Stylesheet in ArcGIS 10. The Patch is freely available at [Esri's website](#). After downloading the patch, you install it using the standard ArcCatalog customization process, and then select “FGDC CSDGM Metadata” on the metadata tab.



Demo 2: Working with Metadata from Other Sources

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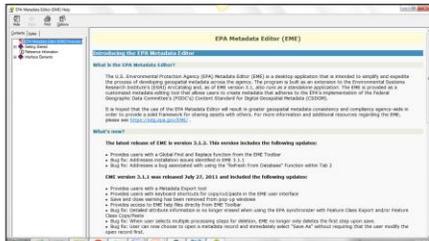
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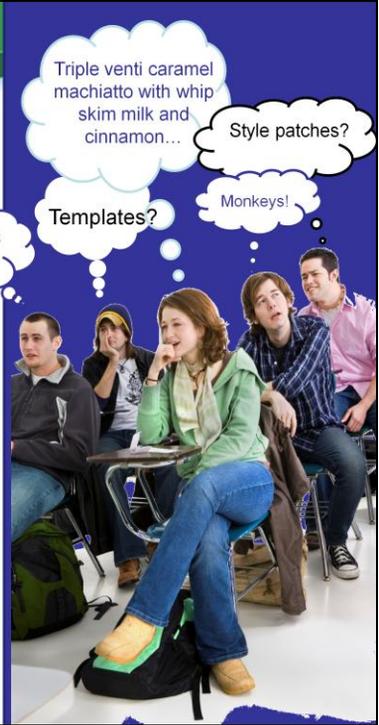
With that I'll turn it back over to Catherine for today's second demonstration, which will walk you through how to manage metadata that you get from other sources.

Getting Help

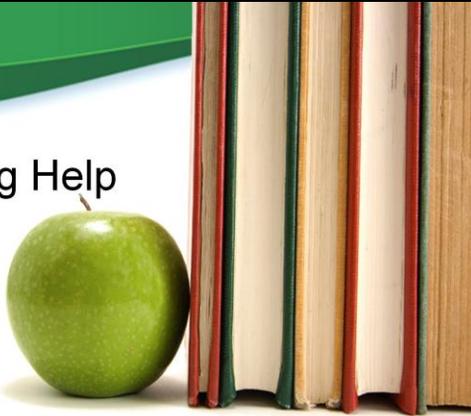
- EME Help
 - Extensive information available in EME Help
 - Help→Contents



Automatic updates



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.

A green apple is positioned to the left of a row of several books with various colored spines. The background features a green curved banner at the top.

Getting Help

- EME web resources
 - Fact sheets
 - Training presentations
 - Helpful links

<https://edg.epa.gov/EME/Resources.htm>

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
 - Metadata in ArcGIS 10.1 – August 15, 2012
 - 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.