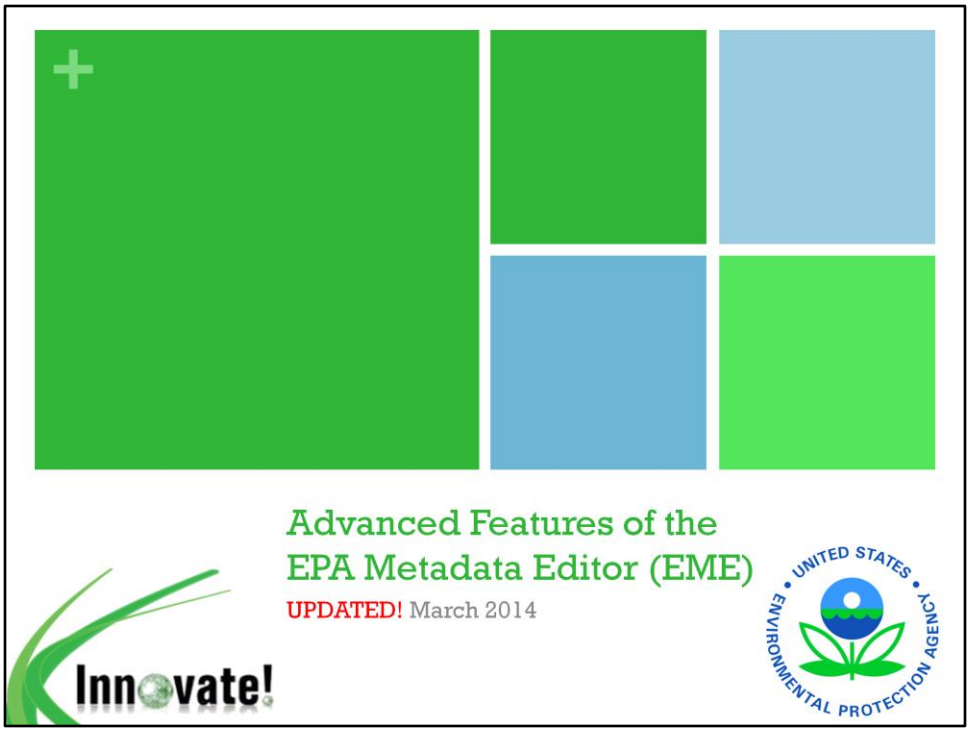
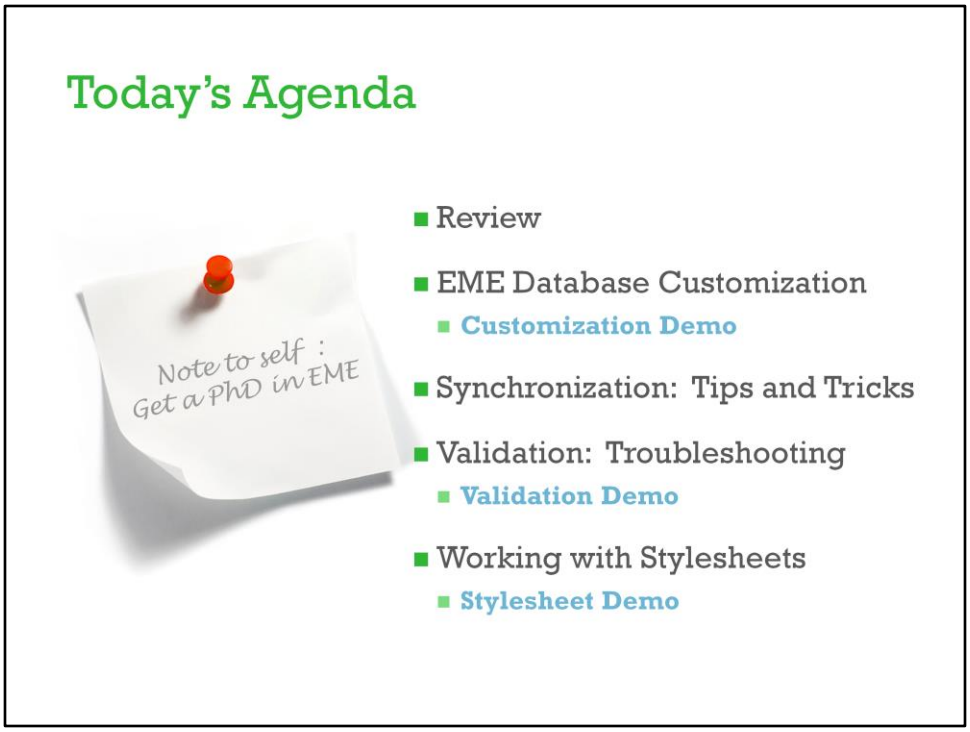
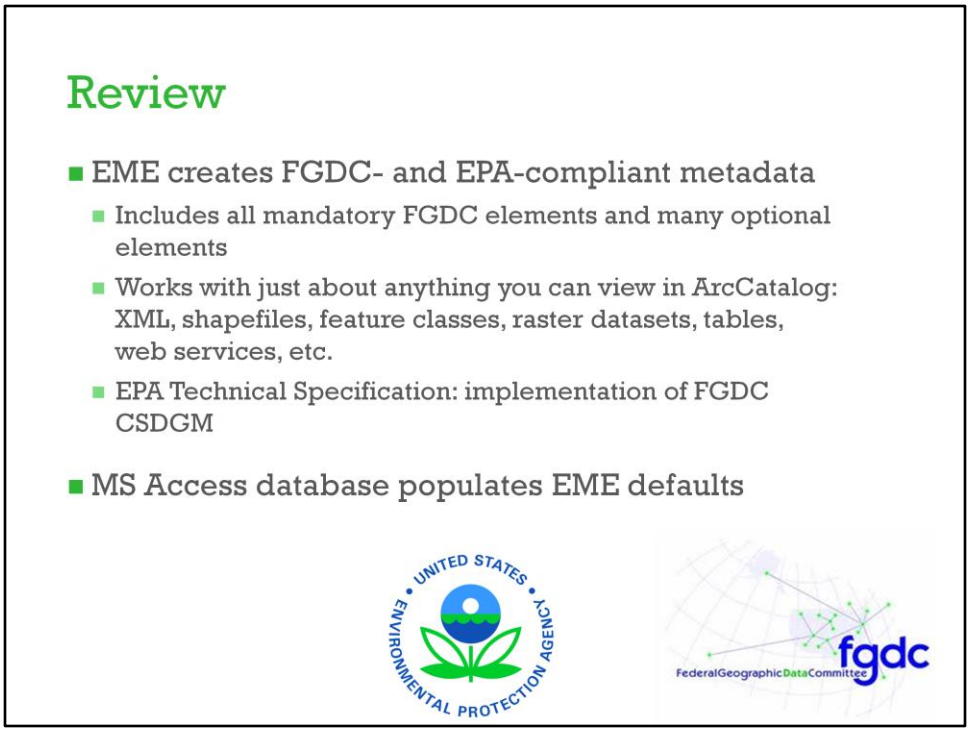


Thanks for joining us for the second EME training session. Welcome to anyone who is joining us for the first time.



The introductory training session provided a broad overview of what the EME is and how to use it for simple metadata creation. Today we're going to delve into some of the EME's underlying powerful features. Database customization, for example, isn't necessarily obvious to EME users, but if done correctly it can save you a lot of time in the long run. We're also going to walk through some common pitfalls of synchronization and validation.



If you missed the introductory training session, here's a very quick review. The introductory session introduced you to the EME, which is a simple geospatial 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, geodatabase feature classes, just about anything you can view in ArcCatalog. Since the EME was designed for the EPA, it complies with the EPA Metadata Technical Specification. The EPA standard is an implementation of the current FGDC standard, with a few added elements. That means that if a record complies with the EPA standard, then it also complies with the FGDC standard.

The information that populates the EME interface is stored in a Microsoft Access database. By editing that database, you can customize which defaults appear in the EME. The Access database is like the EME's backstage area. It's somewhat hidden, but it controls a lot of what you see in the EME interface. Today we're going to explore some additional ways for you to customize the database.

Review

- EPA Synchronizer synchronizes metadata properties with dataset
- EME Validator tests for EPA compliancy
  - If record is EPA-compliant, it is also FGDC compliant
- Getting Started training: https://edg.epa.gov/EME/resources.html

This is what you missed last session.

In the introductory session we also discussed the EPA Synchronizer, which is a tool that reads properties of a geospatial dataset and inserts those properties into the metadata.

The EME validator tests your metadata records for compliancy with EPA and FGDC metadata standards. If there are any problems with your metadata, the validator highlights those errors for you. Today we'll be talking about both synchronization and validation in greater detail.

If you need a refresher on basic EME functionality, training session documents and recordings of previous webinars are all posted to the EME resources page.

Database Customization

Changing the Database Location

- Default locations
  - C:\Program Files(x86)\Innovate! Inc\EPA Metadata Editor\template
  - C:\Users\{username}\AppData\Roaming\Innovate! Inc
- Revisions allow EME database to be shared by multiple users on a network

Henry and Roger shared everything – even their EME database

For this session we'll begin with database customization. One frequently asked question is whether the EME can be used on a network. By changing the location of the EME database, you can share a single instance of the database with multiple users. You can choose to point to a database that is stored in a different location than the default location provided by the EME.

By default, the EME database is placed in the install directory on the user's machine, in a sub-directory called template (usually "C:\Program Files\Innovate! Inc\EPA Metadata Editor\template"). **Note: May be in Program Files(x86).** The EME also creates an editable copy of the EME database in each user's user directory (for example, "C:\Users\{username}\AppData\Roaming\Innovate! Inc\EPA Metadata Editor").

Database Customization

- Database location specified in **config.xml**
  - C:\Program Files(x86)\Innovate! Inc\EPA Metadata Editor\template\config.xml
  - Copy and paste database to location of your choice
  - Enter new location as <MdbFilepathname> in config.xml
  - Close/re-open ArcCatalog
  - **Keep a copy of the original database as back-up**

EME creates a copy of the database in each user's directory so that users with managed desktop machines are able to edit the database. In order to change the database location, you need to make a minor edit to an EME file called config.xml.

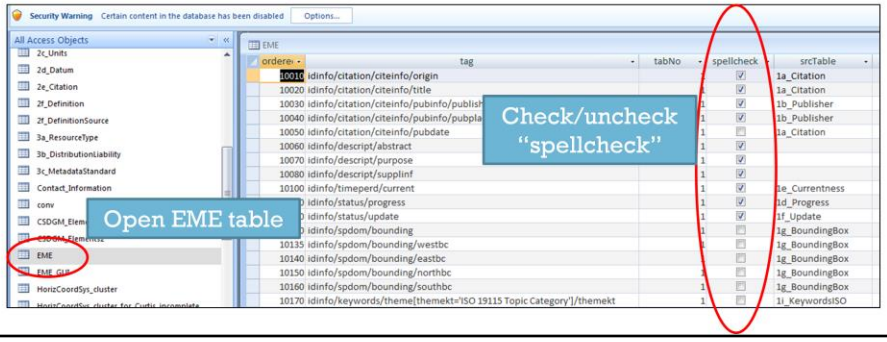
This file is located in the install directory on your machine (usually "C:\Program Files\Innovate! Inc\EPA Metadata Editor\template). **Note: May be in Program Files(x86).**

You can copy and paste the EME database to a new location and point to this new location in the EME's config.xml file. To specify the new location where the EME is stored, change the entry called "MdbFilepathname" to your new location. You must include the full path to the database, including the database name in the entry (e.g., C:\temp\metadata.mdb). After you have edited the config files, make sure to close and re-open ArcCatalog .

If you change your database location, we recommend that you leave a back-up of the original database in the original installation directory so that the EME has a backup database to access if the new location is unavailable.

Database Customization

- Spell-check
  - You decide which fields to spell-check
  - Enable/disable spell-check for each field in database
  - Open EME table in database to choose fields
  - Check/uncheck boxes in "spellcheck" column



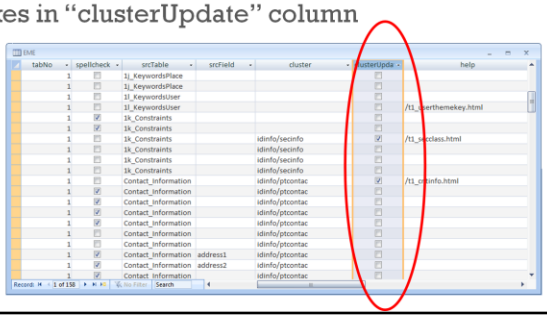
Another database customization is spell-check. You may want to enable spell-check for some of your metadata fields, but disable it for other fields. You can make those selections in the EME database.

When you open the EME database, you'll see that the database contains a lot of tables. Many of those tables correspond to the fields in the EME interface. If you scroll down through those Access Objects, you'll see a table called simply "EME." It's an important table to be aware of because it lets you make a couple of useful customizations.

The EME table contains a column for specifying which fields are searched when a user spell-checks a metadata record. This field can be enabled (checked) or disabled (unchecked) for each element in the EME user interface. Fields that have the spell-check field checked (enabled) will be included when the spell check feature is used from the EME user interface.

Database Customization

- Compound Elements
  - Compound elements: elements that contain other elements
    - Example: Contact Information (includes Contact Person, Contact Address, etc.)
  - You decide whether to update **entire** compound element, or only the elements that you have edited
  - Check/uncheck boxes in "clusterUpdate" column



You can also customize how you want the EME to update compound elements. This customization is also performed in the table called "EME."

Compound element update behavior affects the way the EME updates compound elements in a metadata record. Compound elements are elements that contain other elements. For example, the contact information element is a compound element that is comprised of fields such as contact person, contact address, etc. The EME user interface is designed to be simple, so it does not expose the entire set of elements contained in the FGDC content standard. Because EME doesn't show everything, there are some cases where only portions of a compound element are available for a user to edit in the EME.

When you edit one of these compound elements in EME, you can choose to update the entire element or only the part that you edited. The EME table allows you to specify settings for each compound element individually. By default, all elements are set to replace the entire compound element. It is recommended that users retain this default setting unless there is a good reason to change it for particular fields.

If you would like to replace the entire content of a compound element, open up the EME table (within the EME database) and select the clusterUpdate checkbox for that element. If you would like to only update individual elements within a compound element, deselect the clusterUpdate checkbox for that element. After making your changes, you will need to close and re-open ArcCatalog for the changes to take effect.

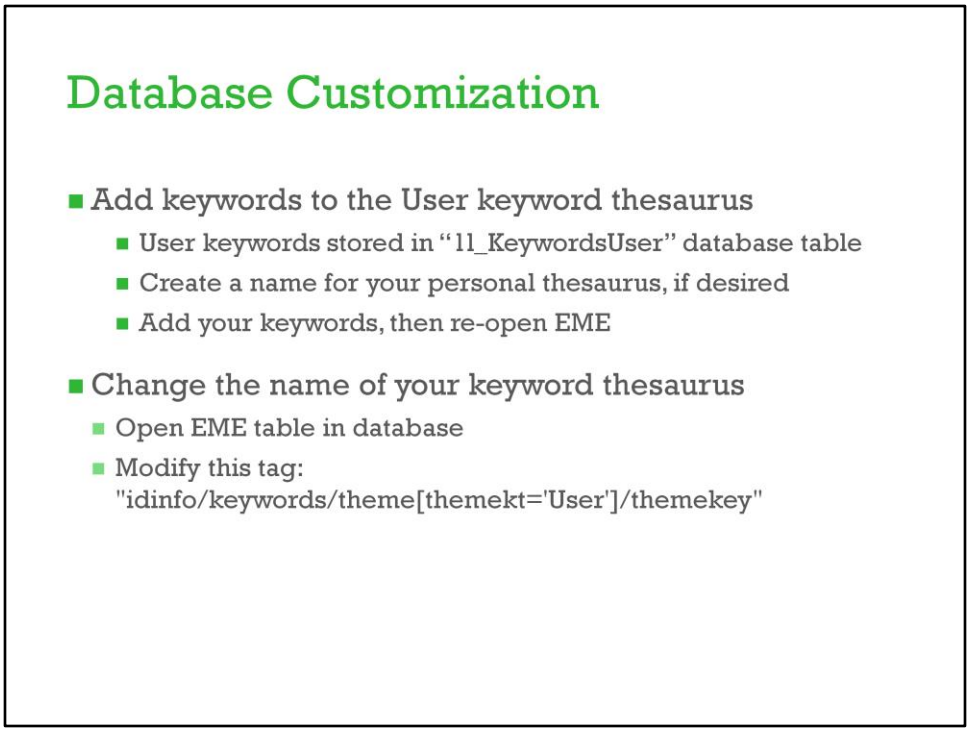
Database Customization

- Keywords
  - Make it easier for people to search for and discover your metadata record
  - EME includes several lists of keywords (keyword thesauruses)
    - ISO (required)
    - EPA (recommended)
    - Place (recommended)
  - You can customize your own User keyword thesaurus

Lenora takes creative license with her customized metadata keywords

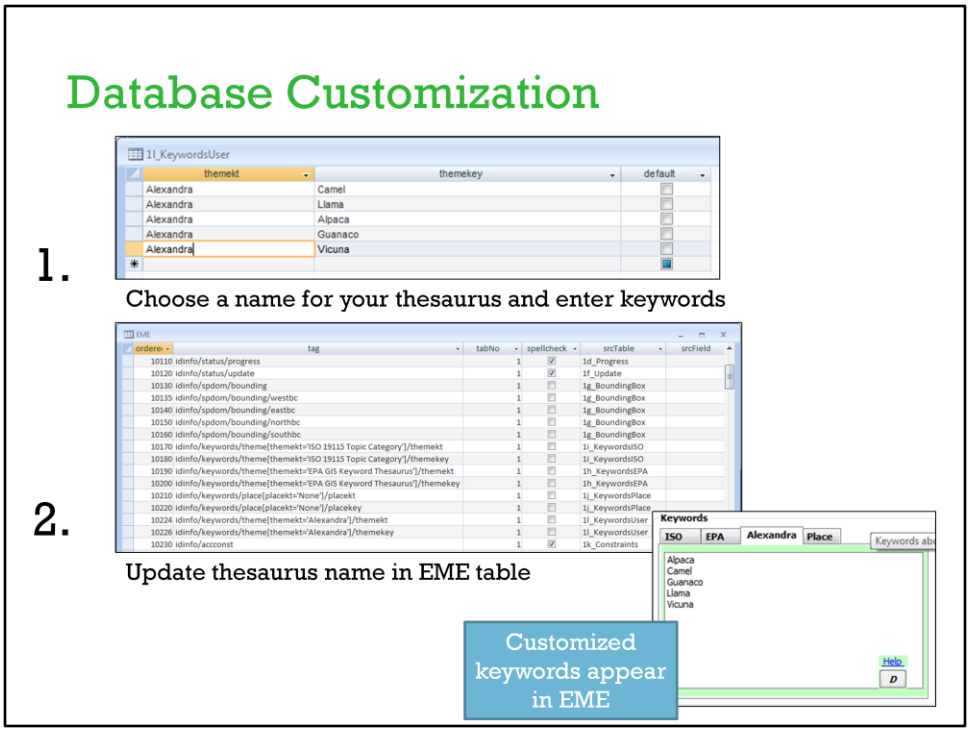
Moving on to the next customization, the EME allows you to customize which keywords appear in the EME and create your own personalized list of keywords. Keywords make it easier for people to search for and discover your metadata record. They provide a sneak peek of what type of dataset your metadata is describing. Keywords include terms like Environment, Emergency, Modeling, Water, etc.

If you open up the EME interface and look at Tab One, you'll see that the EME includes several keyword lists: ISO, EPA, User, and Place. You are only required to select ISO keywords, but we encourage you to select EPA and Place keywords as well. The more keywords you use, the better the snapshot of your dataset will be, and the easier it will be for folks to find your dataset. This is especially helpful if you contribute your metadata to a catalog like the Environmental Dataset Gateway.



The EME includes an additional keyword list called "User." If you want to add your own keywords to this thesaurus, you simply open the table called "1l_KeywordsUser" and add new keyword records.

You may also want to change the name, since "User" isn't particularly descriptive. This is done in the EME table within the database. First, find the tag that corresponds to that EME element (it's called "idinfo/keywords/theme[themekt='User']/themekt"). Then change the term 'User' to the desired term to be used for the keyword thesaurus (for example, "My Personal Thesaurus"). In addition, change the values in the "themekt" field in the "1l_KeywordsUser" table to reflect the new name. After this is done, you will need to close and re-open ArcCatalog for the changes to take effect.



So to customize your own keyword thesaurus, you'll want to follow two steps. Bear in mind that you will need to edit two different tables in the EME database:

First, choose a name for your thesaurus and enter your own keywords in the 1l_KeywordsUser table.

Second, update the thesaurus name in the EME table.

After that, close the database and ArcCatalog, then reopen ArcCatalog. Your personalized thesaurus will appear in the EME interface.

Database Customization

- Customizing the EME database for non-EPA organizations
  - Change your Defaults
  - Delete EPA-specific items from database
  - Future versions of EME may include generic blank database

Non-EPA users, you are not alone.

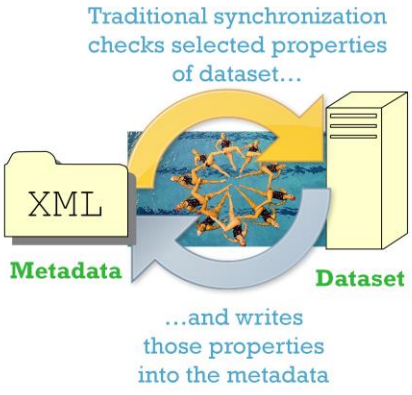
Another frequently asked question revolves around the EPA-centric default values that populate the fields in the EME. Specifically, “How do I use the EME if I’m with a different agency or organization?” Editing the database is the answer. Look through the database tables and modify the field values to meet your organization’s needs. If you need help with any specifics, feel free to get in touch with us.

Next we’ll do a demo of the customizations we’ve been discussing.

Demo: Customization

Synchronization: Tips and Tricks

- Synchronization in ArcGIS 10.X
  - Two different uses of term "synchronization"
    - **Traditional Synchronization:** FGDC Metadata → Dataset
    - **New Synchronization:** FGDC Metadata → ArcGIS Metadata

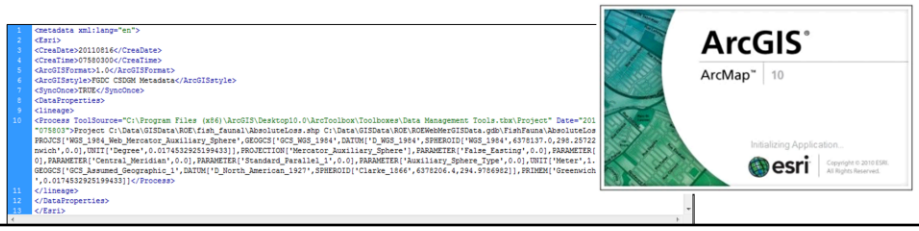


The next topic is synchronization. As we discussed in the introductory session, the traditional meaning of synchronization is synchronizing metadata with the corresponding dataset. However, since the release of ArcGIS 10 we've seen a new type of synchronization that refers to "upgrading" FGDC metadata to the new ArcGIS metadata format.

First let's talk a little bit more about how ArcGIS handles synchronization, and then we'll run through a couple of common problems with synchronization – and how to fix them.

Synchronization: Tips and Tricks

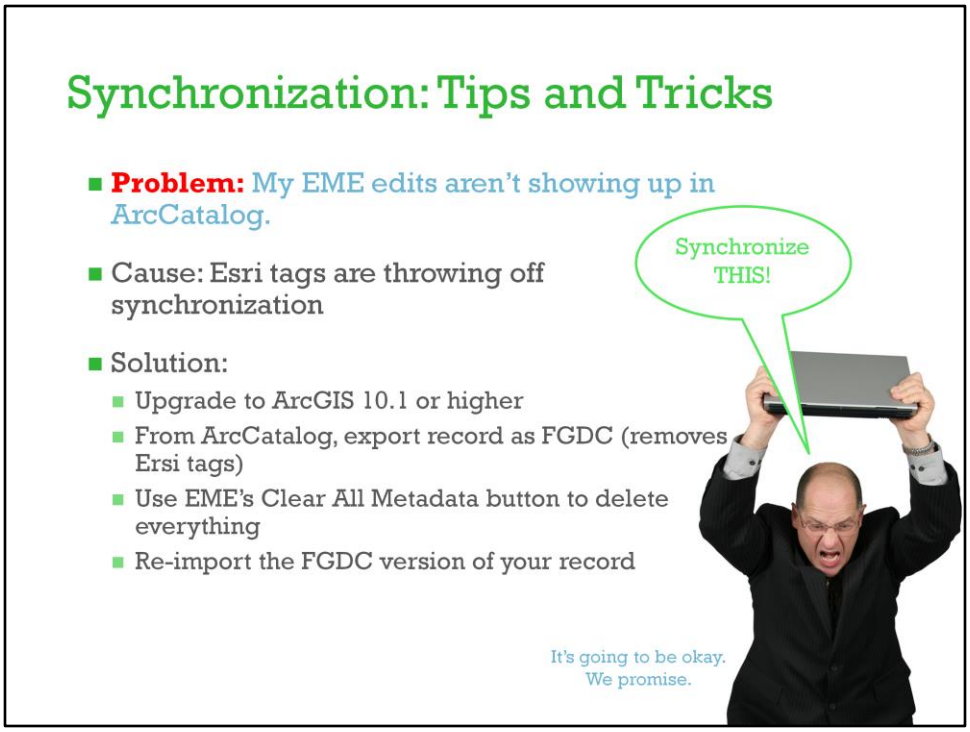
- ArcGIS 10 Metadata
  - New metadata format introduced in 10.0
    - Goal is to be compatible with multiple standards
    - More info from Esri: http://blogs.esri.com/esri/arcgis/2011/01/06/a-new-approach-for-metadata-with-arcgis-10-part-2/
    - Introduces some unnecessary XML tags
  - ArcCatalog prompts you to upgrade to ArcGIS format



The goal of the ArcGIS metadata format that was introduced at 10.0 is to work more smoothly with multiple standards. The link on this slide will take you to an informative Esri blog that gives some background on this new approach to metadata.

In the context of the EME, the ArcGIS format can lead to some problems with synchronization. If you allow ArcCatalog to synchronize with the dataset on its own, it inserts some Esri tags into your metadata. The problem is, these tags are not necessary for FGDC compliancy and can actually create problems with compliancy. That's why the EPA Synchronizer includes an option that lets you "remove Esri tags." When you select that option, you're removing tags like <CreaDate> and <ArcGISFormat>.

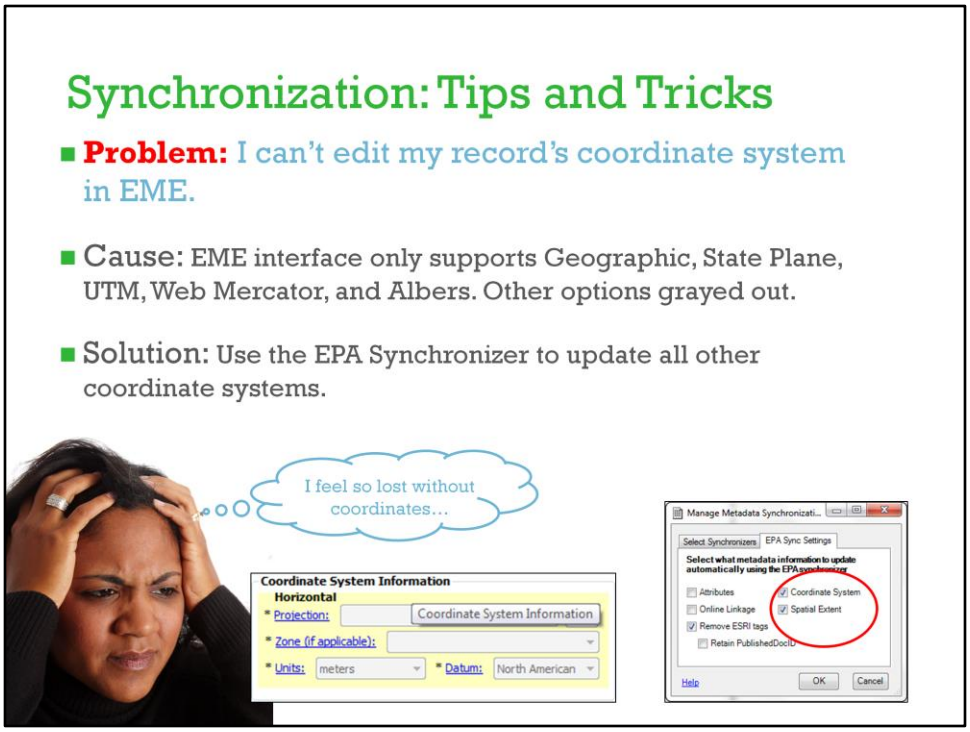
Whenever you open an FGDC metadata record in ArcCatalog, Arc will prompt you to upgrade the record to ArcGIS format. If you upgrade, an ArcCatalog tool will copy all of the record's FGDC elements to ArcGIS format. FGDC CSDGM Metadata is still editable through EME. "Upgrading" metadata will convert your FGDC CSDGM elements to ArcGIS elements, essentially populating ArcGIS metadata fields. The problem arises when ArcCatalog does an automatic synchronization--it takes the information from the ArcGIS metadata rather than the dataset itself and introduces those unnecessary tags. So when given the option to upgrade to ArcGIS format, decline!



Let's walk through a couple of the problems that users have experienced with synchronization. It's one of the more complicated aspects of the EME, but there are a few easy steps you can take to make you synchronization run smoothly.

First problem: What can you do if the edits that you make in the EME are not showing up in ArcCatalog?

This issue is likely caused by those Esri tags, so your first step would be to select the "remove Esri tags" option in the EPA Synchronizer. Second, you should check which version of ArcGIS you are using. If possible, upgrading to 10.1 or higher will sort out some metadata glitches. If neither of those strategies fixes your synchronization problems, then you might need to export your record from ArcCatalog in FGDC format to remove any lingering Esri tags. Once you have exported, you can use the EME's Clear All button to delete everything, and then re-import the FGDC version of your record into the EME. This will remove any Esri tags once and for all. The bad news is that it would also remove any information that you entered through the ArcCatalog style editor, so use this with caution.



Another common problem is that users have trouble editing their record's coordinate system information.

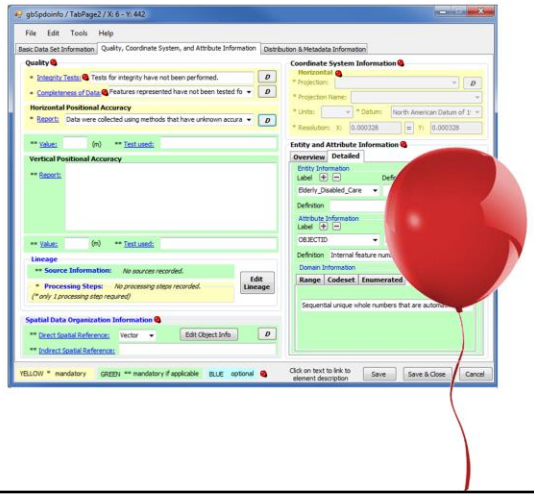
EME supports Geographic, State Plane, UTM, Web Mercator, and a couple of versions of the Albers coordinate systems/projections. When a metadata record contains content that describes one of these supported systems, EME allows the user to edit the information. If the coordinate system described in the metadata record is not one of these five, then the EME controls are locked and the user is not able to edit the coordinate system content. Because this element is fairly complex, if a metadata record contains coordinate system information that EME doesn't recognize, it does not allow the user to edit that information. It is recommended that you use the EPA Synchronizer to update coordinate system information in your metadata records.

Demo: Synchronization

Now we will walk through a few of these synchronization issues in greater detail in this demonstration.

Validation: Troubleshooting

- Validation Results
  - View in web browser
  - View in EME
- Errors vs. Warnings
  - Errors: Need to be corrected
  - Warnings: No action required



Depending on the settings you've configured for viewing the results, you will be presented with the results of validation within a web browser or the EME user interface as shown here. You may choose to view results using either or both of these options.

The “View in browser window” option will open a web page and list the errors and/or warnings found during validation (if any) along with information about the specific line(s) where errors and/or warnings were reported. It also displays the total number of errors and warnings found in the record. You may scroll through the record to view the element(s) that caused the error. Errors will be highlighted in red and warnings will be highlighted in yellow

The “View in EME” option highlights errors in the user interface using a red balloon. Red balloons are displayed at each location within the EME user interface where errors were found in the metadata record. Users can hover over the balloon to understand what the nature of the error was and then fix the error(s) accordingly.

Validation: Troubleshooting

Le Ballon Rouge indicates a whimsical French metadata error

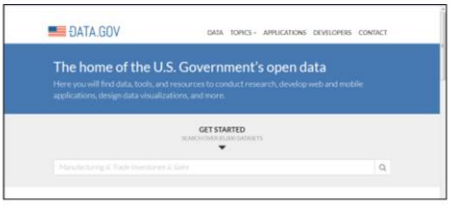
- EPA Errors vs. FGDC Errors
  - EPA Errors: Denoted with "EPA requires"
    - Specific to EPA Geospatial Metadata Technical Specification
    - Non-EPA users can ignore
  - FGDC Errors: Do not include "EPA requires"

In cases where the error is described using the term "EPA requires", this error is specific to EPA's Geospatial Metadata Technical Specification Version 1.0. In cases where the error is a standard FGDC error, the "EPA requires" term will not be shown. In cases where a required element is missing, the parent element will be highlighted to so that users can understand which section was missing the required information.

It's worth noting that non-EPA users may choose to ignore any "EPA requires" errors, but it might be worthwhile to review the errors to determine if the information required by EPA will add value to your metadata.

Validation: Troubleshooting

- Uploading to metadata catalogs
  - Environmental Dataset Gateway
    - Ok to upload with warnings
    - Can double-check with EDG validation
  - Geo.data.gov
    - Ok to upload with warnings

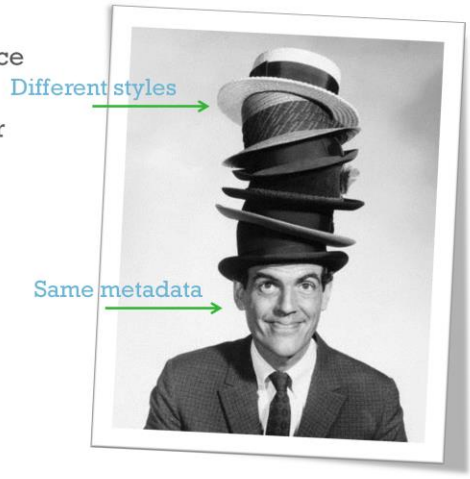


Some of you may need to upload your metadata records to catalogs like the Environmental Dataset Gateway or Data.gov. Be aware that that it's okay to upload to these catalogs even if your metadata has warnings. Often our users see warnings from elements that aren't required to meet EPA and FGDC standards. If that's the case, you can delete those optional elements before uploading to a catalog. The EDG also offers its own validation service, which you can use to double-check your record's compliancy.

Demo: Validation

Working with Stylesheets

- Stylesheets
  - Change the way metadata is displayed in ArcCatalog
  - XLST file – changes appearance of XML doc
  - Designed to make it easier for Esri users to switch between standards



The final topic in this advanced session is working with stylesheets.

For anyone who is unfamiliar with stylesheets, they change the way metadata is displayed in ArcCatalog. A type of file called an XLST changes the appearance of your XML document.

Metadata styles 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 Description style
  - ArcCatalog default is "Description" style
    - Simple style designed for users not required to comply with metadata standards
    - More details from Esri: http://blogs.esri.com/esri/arcgis/2011/01/12/a-new-approach-for-metadata-with-arcgis-10-part-3/

Lola's style does not comply with standards.

The style that Esri 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 and cater to users who are not required to comply with metadata standards—users 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.

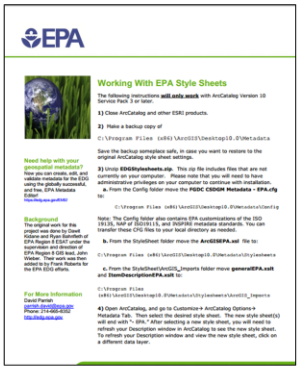
Working with Stylesheets

- FGDC Style
  - Allows you to export ArcGIS metadata to FGDC format
  - ArcCatalog→ Customize→ ArcCatalog Options→ Metadata Tab
  - Select "FGDC CSDGM Metadata"

The FGDC style allows you to view all FGDC elements and export ArcGIS metadata to FGDC format. With ArcGIS 10.1 and higher, simply navigate to the Metadata Tab in the Customize options within ArcCatalog and select the FGDC CSDGM Metadata style. Folks that are still using ArcGIS 10.0 may need to install the FGDC Style Patch, which is available at Esri's website, or upgrade to 10.1.

Working with Stylesheets

- EPA Metadata Stylesheet
  - You'll need…
    - ArcCatalog 10 or later
    - Administrative privileges
  - Download EPA Metadata Stylesheet and instructions
    - https://edg.epa.gov/EME/resources.html

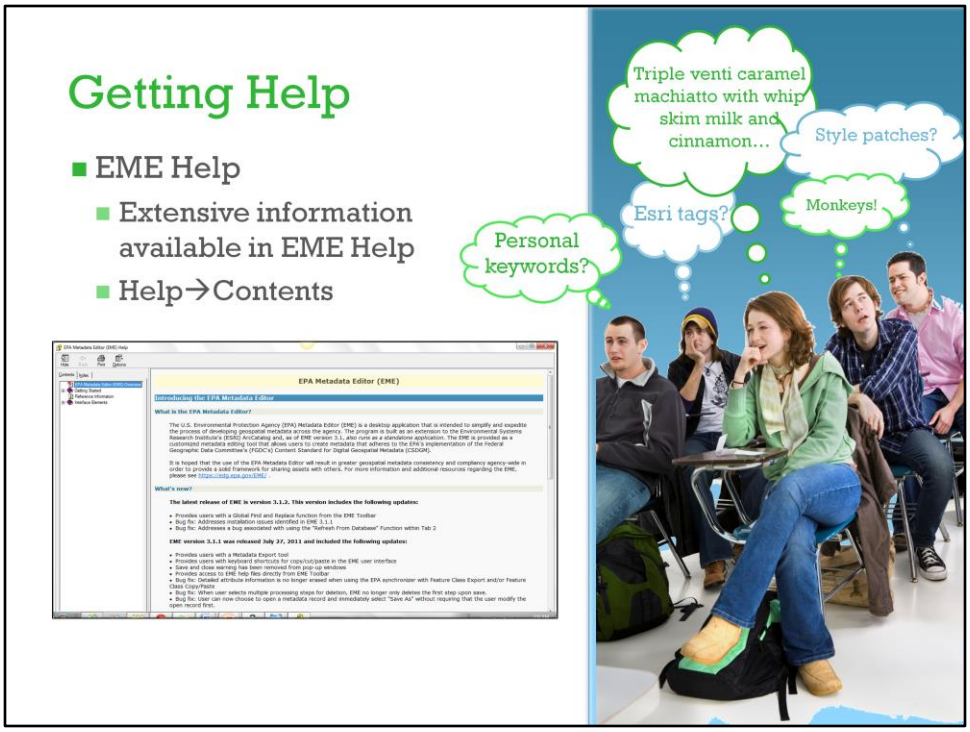

EPA

Working With EPA Style Sheets

Download PDF for detailed installation instructions

The EPA also offers its own stylesheet. To download it, go to the EME Resources pages. We have also posted detailed installation instructions. Before you download it, be aware that you will need ArcCatalog 10 or later, along with administrative privileges on your computer.

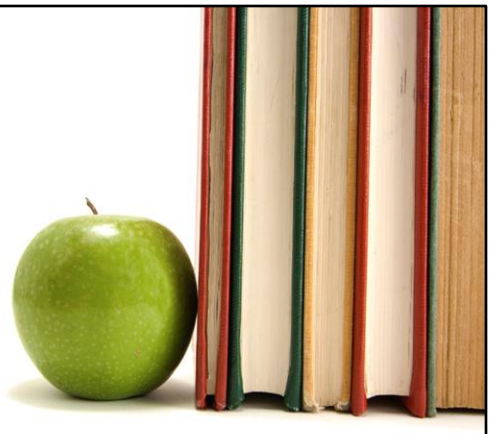
Demo: Stylesheets



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.

Getting Help

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



https://edg.epa.gov/EME/resources.html

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

Getting Help

edg@epa.gov

If you'd like to get in touch, feel free to contact the EME team. We always appreciate questions and feedback from EME users.

Questions and Discussion

Question: Is this some type of cake? Please discuss.

At this point I'd like to open it up for questions and discussions.