# Installing and Testing EME 5.0

## Install Files

Download the installation file appropriate for your environment here:

<https://github.com/Innovate-Inc/EMEMetadataToolKit/wiki>

If you previously had a copy of EME 5.0 installed, please use the control panel to uninstall it first. We are still working on including a utility that will upgrade/overwrite previous versions. It is not necessary to uninstall versions of the EME prior to 5.0.

Install Security Notices: Your security and firewall software may filter or flag this extension during install process. While EPA knows certifies this package comes from a trusted source, it was deemed judicious to conduct additional testing. This install package was scanned for risks using Symantec™ Endpoint Protection software on January 13, 2017. No risks were identified.

## Installed Components

Once installed you will find the "EPA Metadata Specification NAP ISO 19115 2003" in ArcCatalog Options >> Metadata. Selecting this stylesheet will enable the EME functionality in the normal ArcCatalog metadata editing interface. While you're in this dialog, please also uncheck the box next to "Show metadata upgrade prompt". We recommend not using Esri's default Upgrade tool and have provided an improved alternative described below.

A shortcut to the "EME Database Manager" is installed to your Programs Folder under EME Toolkit. (Start Menu >> Programs >> EME Toolkit)

## The EPA Metadata Toolbox

After a successful installation, this toolbox should appear in the My Toolboxes folder in the ArcCatalog Catalog Tree:



It won’t appear automatically in the “ArcToolbox” pane, although you can add it to that pane if you prefer. Simply right-click in that pane and choose “Add Toolbox”.

This toolbox has 5 tools:

#### EPA Cleanup ArcGIS Record

For use when a metadata record has already been upgraded from FGDC CSDGM to ArcGIS format (deliberately or inadvertently) using the default Esri Upgrade Metadata tool. This tool will help better align such a record with the EPA Metadata Technical Specification.

#### EPA Upgrade FGDC to ArcGIS

This tool should be used to upgrade all legacy FGDC CSDGM records to ArcGIS format. This tool will help align records with the EPA Metadata Technical Specification, ensure that embedded UUIDs are recognized and legacy elements are removed.

#### Export ArcGIS Metadata to ISO

This tool streamlines exporting ArcGIS metadata to compliant ISO 19115. It is equivalent to using the Export Metadata tool with ArcGIS2ISO19139 as the translator.

#### Merge a selected metadata record with a saved template

This tool merges a selected metadata record with elements from a saved template record. Elements from the template record will overwrite their equivalents in the selected record, but by design it will exclude those elements which must be unique in every metadata record, such as title, abstract, unique identifier, etc, replacing only those elements that are common across many records. Still, caution is urged when using this tool.

#### Save record as metadata template

This tool saves a metadata record as a reusable template by excluding those elements which must be unique in every metadata record, such as title, abstract, unique identifier, etc, leaving those elements that are common across many records.

## Synchronization and EME 3.x

All of the editing capabilities of EME 5.0 will work if EME 3.x is still installed, but Esri's metadata synchronization functionality (which allows many metadata parameters such as spatial reference, extent, and attributes to be automatically derived from dataset properties) will not work. We are working on a cleanup tool for this, but if you wish to perform a manual cleanup, uninstall EME 3.x and then edit the registry to remove the following two keys:

[HKEY\_CURRENT\_USER\Software\ESRI\Desktop10.4\Metadata\Synchronizers]

"{671D8157-A8DC-49AB-B9F6-AAC239825110}"=dword:00000001

"{DA3DAD56-FABE-49F5-86AA-EFB146575A8E}"=dword:00000001

If synchronization is not a key part of your metadata workflow, you may leave EME 3.x installed.

## Upgrading Legacy Documents

The first step in working with EME 5.0 is to upgrade any existing metadata documents you wish to edit. Please use the "EPA Upgrade FGDC to ArcGIS" tool that should be found in the EPA Metadata Toolbox under "My Toolboxes". Again, this tool is necessary because the standard Esri upgrade process fails to incorporate embedded UUIDs (even though they use Esri tags) and leaves many legacy FGDC elements in the document that aren't visible in the editor and thus aren't being maintained. It will produce a standalone metadata document that we recommend you review thoroughly before you replace your old metadata document. This tool may be run in batch mode, upgrading a whole bunch of documents at once - provided you specify an output filename for each.

## Editing Metadata

In ArcCatalog, select the Description pane, and click the "Edit" button at the top. If the EME 5.0 is properly installed and the Stylesheet set to EPA Metadata Specification, you will see an EPA logo displayed prominently at the top of the editing window. There will be a long list of sections or pages listed in a table of contents on the left, and each page contains potentially many metadata elements that can be edited. At any time you may save and exit the editor using the "Save" button, or exit without saving using the "Exit" button. Every time you save the document, the metadata Last Update date will automatically be set to the current time.

### Optional Elements

ArcGIS Metadata includes all of the rich complexity of ISO 19115, so there are very many elements you can potentially include in your document, however, the vast majority of them are optional. Please feel free to explore these elements and provide as much information as you feel is appropriate for your end users. ArcCatalog includes some basic information about every element, but you may wish to use an online resource such as NOAA's [ISO 19115](https://geo-ide.noaa.gov/wiki/index.php?title=MI_Metadata) wiki for more guidance.

### Mandatory Elements

The ArcCatalog Editor provides real-time validation, and the EME 5.0 has refined that validation to comply with [EPA's Metadata Technical Specification](https://www.epa.gov/geospatial/epa-metadata-technical-specification). Pages with invalid elements are marked with a red X in the table of contents on the left side of the editing pane. When a problem section is selected, individual validation errors are listed at the top of the editing pane and textboxes are shaded in pink or peach (dropdowns and date elements do not support this coloring). These messages are designed to link directly to the individual problem elements when clicked, but due to a known Esri bug, most of the time clicking on the links does nothing. Esri understands how frustrating this is for EPA and is working on a fix. On some pages the problem element will be immediately visible and highlighted, however on some pages the problem element may be hidden in an expandable section. We continue to look for ways to bring these elements to your attention and make addressing any issues quick and smooth. All Mandatory elements are shaded in a light yellow, but be aware that because of nesting elements, it is possible that some mandatory elements may not be visible at first glance.

### Contacts Manager

The ArcCatalog Contacts Manager page can be confusing at first. What it will show are any contacts that are included in the current metadata document, along with any contacts you've saved to your local Contacts file (My Documents\ArcGIS\Descriptions\contacts.xml) by checking the box next to the contact in this pane. EME 5.0 also provides you with a long list of pre-populated EPA Contacts, which will always appear below the contacts that you've saved. We recommend checking the "save" box next to the EPA contacts you use frequently, this will copy them to your local contacts file and cause them to conveniently appear first in the contacts dropdown throughout the editor. Your local contacts file can then also be shared with colleagues who might be interested in having the same defaults listed prominently in their contacts dropdown.

**Editing contacts and updating the local contacts file:**

The fact that you can't make edits to contact details in the Contacts Manager pane might be the most confusing aspect of contacts management. If you do wish to make edits to a contact, you must first add them to a metadata document - in any of the various locations (Citation Contacts, Metadata Contacts or Resource Points of Contact). From the "Load a contact" dropdown, select the contact and click the "Load" button. You will now have the ability to edit that contact. If you do so, however, the new entry will appear at the bottom of the list in Contacts Manager, and if it had previously been saved to your local contacts file, it will likely appear to be a duplicate of that previous entry. To replace the old contact with the updated contact, uncheck the "save" checkbox next to the version at the top of the Contacts Manager, and check the "save" checkbox next to the new version at the very bottom. This will update your saved copy, however, it will not update that contact anywhere in existing metadata documents - you will need to go back through any documents with the old version of this contact (including the current document) and remove the old contact and add the new one, making sure to assign an appropriate role code at each point. We are working on batch tools to facilitate these updates, expect them in a version 5.1. In the meantime, the save/merge template toolset may help in updating contacts in multiple locations in multiple metadata documents.

## Reaching Validation

Here are some general tips we've found in working to get an upgraded FGDC CSDGM document to validate. You may not encounter all of these, and we are working on addressing some of them in an automated way, but you're likely to encounter some of them. We expect this guidance to evolve as the tool improves. Links to all elements that are part of the EPA Metadata Technical Specification are embedded in the interface.

Please DO NOT try to validate using the Validate button. It's not necessary and it won't pass anyway. Validation happens real time as you properly fill out your metadata.

### Item Description

* You may see a validation error if there are "Tags" included on this page. Using this one bin for all Tags is problematic for validation, please use the Topics and Keywords page instead so that the tags/keywords may be assigned an appropriate thesaurus citation. You may cut and paste any straggler tags here before deleting.

### Topics & Keywords

* You may that "at least one date is required" if you have a custom keywords section. The red Xs next to certain sections indicate those are the areas where dates are needed. Expand the first section with a red X. Expand Thesaurus Citation. Expand Dates and enter a date in the “Published” section that is highlighted (Created and Revised dates are optional). Known Thesaurus citations (ISO, EPA, Place) are autopopulated with the correct values.
* Program code has always been "mandatory" per data.gov, but it was not possible to include a program code in FGDC CSDGM records, and the EDG assigned all FGDC metadata a program code of 020:072 - IT/ Data Management. With ISO it is possible, and we are asking stewards to make an appropriate selection from the OMB list. To do so, click Add Keyword or Program Code. Click Choose Keyword or Program Code. Click on Program Code (note: those words next to *thesaurus type:* are actually buttons even if they don't look like buttons, we’re working on that). Scroll down and check the appropriate program code. (We’re also working on a way to choose program code by typing/autocomplete – look forward to the post-beta release).
* Make sure your place keywords are accurate.
* Make sure your custom keywords are accurate.

### Metadata Details

* If you previously embedded a UUID in your metadata record, that UUID should be present here. If not, it would be a best practice to obtain the UUID from the EDG and embed it. (We are working on building a lookup tool to streamline this.) If this is a new record, you may simply populate this field with a new UUID by clicking "create".
* ArcCatalog will automatically update the DateStamp when you save the record, by simply opening this pane, you may make a validation error disappear.

### Metadata Constraints

* Don't confuse this with Resource Constraints - unless there are restrictions on sharing the metadata, leave this section empty.

### Resource Details

* Double check "Status" field
* Note that legacy "Purpose" field has been moved to "Supplemental Information" element because of ambiguous use of the new "summary" field.
* If your thumbnail is stored as a web-accessible graphic, use "New Browse Graphic" to include the URL to that thumbnail.

### Extents

* You may see an error "time instants are not allowed." To remove this error, expand Extent. Click the red X next to Temporal Instant Extent, and instead add a Temporal Period extent, if appropriate.

### Publisher

* You may see the error "publisher role is required." To fix this, select your contact from the dropdown and click 'Load.' Simply clicking Load without selecting the contact from the dropdown will not work. Please see the “Contacts Manager” guidance above for questions about the contacts dropdown.

### Constraints

* Open Legal Constraints and set them appropriately - this should already be populated with the License URL for upgraded records, but we're working on a streamlined way to populate LicenseURL for a non-upgraded record.
* Open Security Constraints and change the Classification (Access Level) from empty to the appropriate setting. If the data are not Unclassified (equivalent to public) then you will need to select one of the Controlled Unclassified Information (CUI) categories under from the User Note dropdown.
* System of Records notice elements are optional and apply to sensitive data and should be added separately from license information.

### Spatial Reference

* ArcCatalog should be able to derive this directly from the data, however if no spatial reference is defined or the metadata is a standalone document, enter a code from the EPSG - <http://spatialreference.org/ref/epsg/> and enter EPSG as the code space. 4326 is WGS84 and 4269 is NAD83.

### Quality

* You will likely see errors stating 'either a conformance result or a quantitative result is required.' You could remove these errors by clicking the red Xs to delete each Report, but it would be preferable to expand each report, add a "New Conformance Result" section and provide a brief explanation of the test performed (assuming the data passed some sort of QA) and a title under the Specification section, which could be as simple as referring to your organization's QA policy. If a conformance result is provided, a title and date for a corresponding specification (the procedure that was followed) is also required.

### Distribution

* We strongly recommend that you include links to your data in the Distribution -> Digital Transfer Options -> Online Linkage section, and if you do so, an appropriate corresponding "Function" is mandatory - we will also soon be providing a helpful dropdown to populate the protocol element. The other elements here are optional, but there is increased emphasis on making all data available at open and accessible URLs, and there is likely to be increased scrutiny of metadata records that do not include appropriate links. We recommend not listing Digital Transfer Options under a Distributor unless there is a real need to indicate separate distributors from whom the data may be obtained.

### Fields

* If your metadata has an optional Entity and Attribute information section, it's possible that you'll see a number of error messages saying that "attribute type is required" and "attribute width is required". These may be addressed by using the ArcGIS synchronization functionality (which should be automatic if you have ArcCatalog Options set to "Automatically Update intrinsic properties when metadata is viewed") but only if the metadata document is still associated with a dataset and not a standalone XML file. If many of the Entity and Attribute section elements are already populated, we recommend allowing those validation errors to persist until synchronization can be performed, as they will not prevent a successful harvest to EDG or Data.gov.

## ArcGIS Metadata and the EDG and Data.gov

The EDG should be able to handle ArcGIS Metadata documents just like FGDC CSDGM documents - they may be harvested from the same folders and will have a similar, if not identical, appearance in the EDG. The EDG will perform a transformation on the documents into ISO 19115 so that Data.gov can harvest them - we expect this will improve the fidelity of many key elements and how they appear at Data.gov, as the transformation that occurs today from FGDC to CSDGM on data.gov's servers seems to be problematic.

## ArcGIS Metadata and the EPA GeoPlatform

You should be able to successfully import an ArcGIS Metadata document into an EPA GeoPlatform content item, although we are still working on best practices and some validation inconsistencies. Please let us know if you encounter problems or have questions. Go to Item Details-->Metadata. Click the dropdown and select Edit. Now select 'OPEN' to upload your existing metadata. You will see a check box that says 'Populate metadata with item details' -- this means that the metadata document will be overwritten with the description and other elements from the GeoPlatform content item, which is probably not what you want. It's best to review the description/abstract in both the metadata document and content item and ensure they match before performing the import.