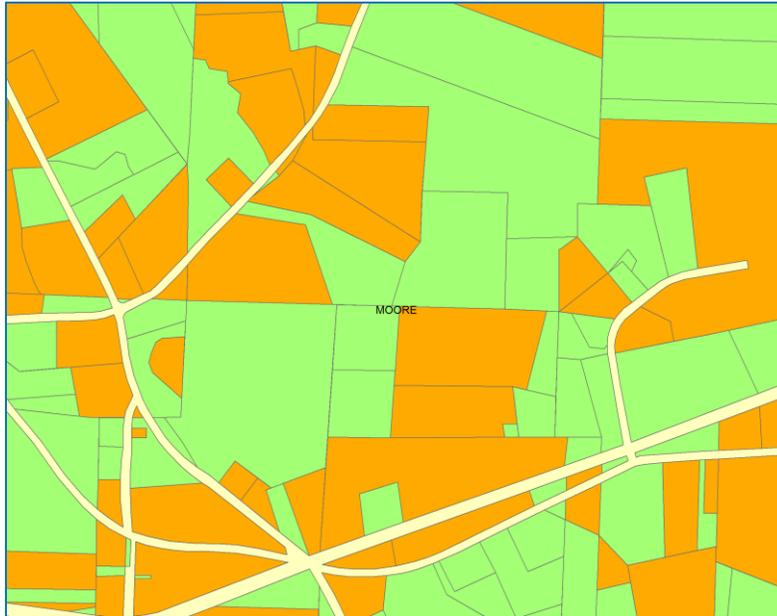


# Applying the NC State and Local Government Profile to Parcel Data: Guide for Data Managers



The purpose of this guide is to describe a step-by-step process for applying the new North Carolina State and Local Government Metadata Profile to parcel data to produce and maintain valid and useful documentation for internal GIS operations and for public discovery and access. This guide is specific to a commonly used GIS software in local government in North Carolina – ArcGIS 10.x including the ArcCatalog file management tool. Other software tools may be preferred by county data managers; the steps will be similar.

With any software tool, a GIS professional needs to do five things to document parcel data:

- ◆ View metadata for a parcel dataset
- ◆ Select a style sheet
- ◆ Import a template specific to parcels
- ◆ Edit the metadata
- ◆ Export metadata

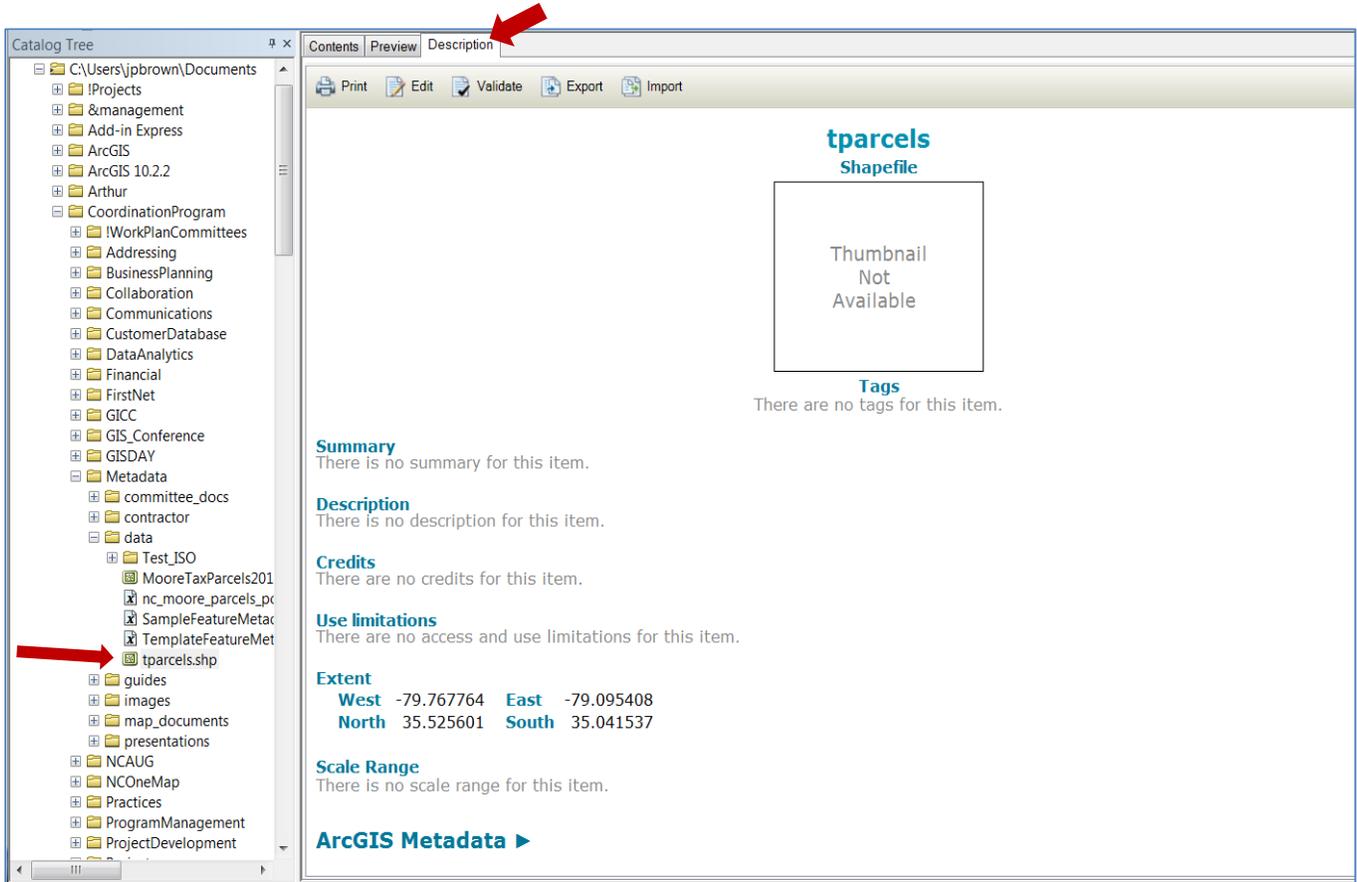
This guide describes how to apply ArcCatalog to those five operations.

# 1. View Metadata in ArcCatalog

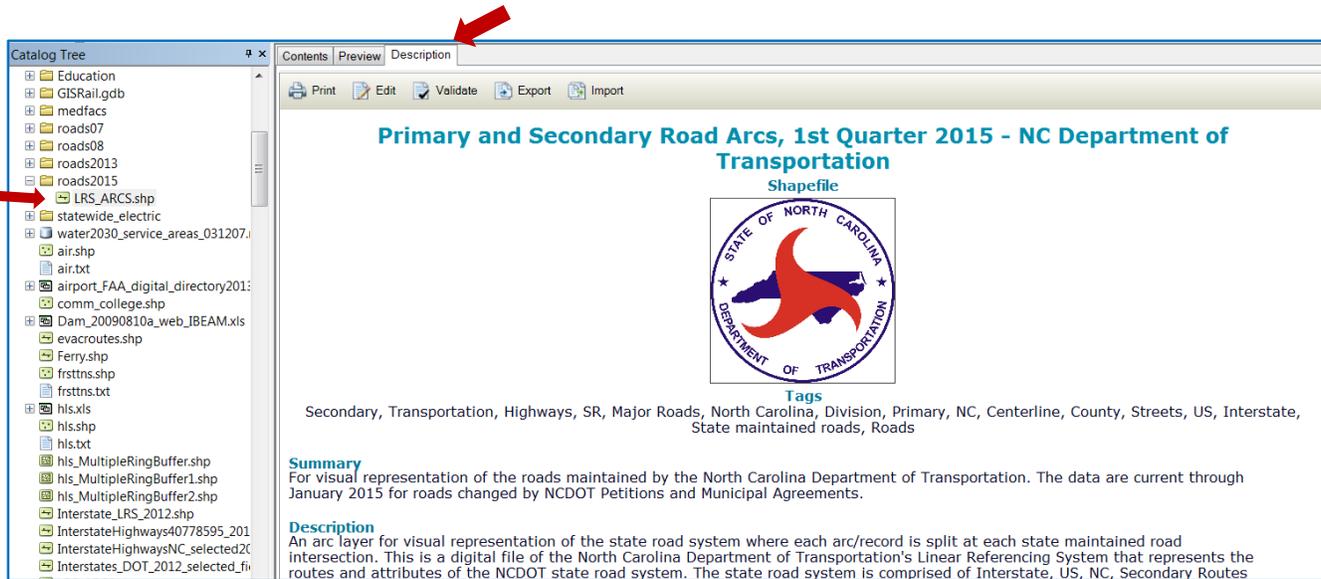
Locate the county parcel dataset (in this example, tparcels.shp) and view the current metadata for that dataset.

Open ArcCatalog (outside of ArcMap) and navigate in the Catalog Tree to the parcel shapefile or feature class and select it

Select “Description” to open the window below as shown.



In this example, there is not much information in the current xml file that is part of the sample shapefile (tparcels.shp.xml). A more populated metadata record, for example for state maintained roads from NCDOT, looks like the following in the same Description window.



The metadata is displayed by default with a generic view of available information about the dataset or service. The view should include title, thumbnail (optional), summary, description, credits, use limitations, extent and scale range. In ArcCatalog 10.2.2, used for this example, it includes Organization, Title, Publication Date, Place, Theme, and all other metadata elements from an XML schema.

Note: to do a word search within the metadata viewer, select inside the description tab window and use Ctrl+F to open a dialogue.

In the case of parcel data, the NC Parcels Program translates county source attributes to a standard set of attributes and publishes the standardized parcel data with complete metadata in Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata (CSDGM) format. This guide applies the new State and Local Government Metadata Profile to produce an xml metadata record for parcels. The complete metadata, viewed using the Description in ArcCatalog, looks like the following for parcel data for an example county, Moore County.

Contents Preview Description

Print Edit Validate Export Import

## nc\_moore\_parcels\_poly\_2016\_01\_29

Shapefile

Thumbnail  
Not  
Available

**Tags**

Assessment, Tax parcel, Property, Parcel ownership, USA, Cadastre, Land, Land use, North America, North Carolina, Land value, PlanningCadastre, Mapping, Assessed value, Ownership, Cadastral, Parcel data, Owner, Parcels, Land records, Property boundaries, Building value, Parcel, Planning, 015

**Summary**

This dataset was generated to publish a set of parcel polygons with standardized attributes for statewide analysis and mapping in North Carolina. The integrated data is intended to serve business needs that require information from multiple counties, e.g., response to a natural disaster, analysis of economic development potential, environmental assessments, and highway planning to name a few. An aggregated cadastral dataset serves to support and assist governmental agencies and others in resource management decisions. Additionally, these data provide a set of core attributes defined by the Integrated Cadastral Data Exchange project with the intention of adoption by the North Carolina Geographic Information Coordinating Council to update the current North Carolina Content Elements for Statewide Publication of Core Geospatial Parcel Data. The aggregated dataset is intended to facilitate the sharing, display, and use of cadastral data across the state.

**Description**

This digital geospatial dataset represents parcel boundaries with standard core attributes for a parcel data from Moore County, transformed by the North Carolina Integrated Cadastral Data Exchange project. This is one of 100 counties that share source datasets as a basis for a standardized dataset with consistent attributes (fields). The individual standardized county data sets are designed to be aggregated into a single web service. The initial aggregated parcel dataset included 25 of 100 counties in North Carolina. The 2105 dataset included all counties and lands of the Eastern Band of Cherokee Indians. The source geometry is retained as published by individual county data producers. This dataset includes attributes such as ownership, area in acres, assessed value, and other core cadastral attributes.

**Credits**

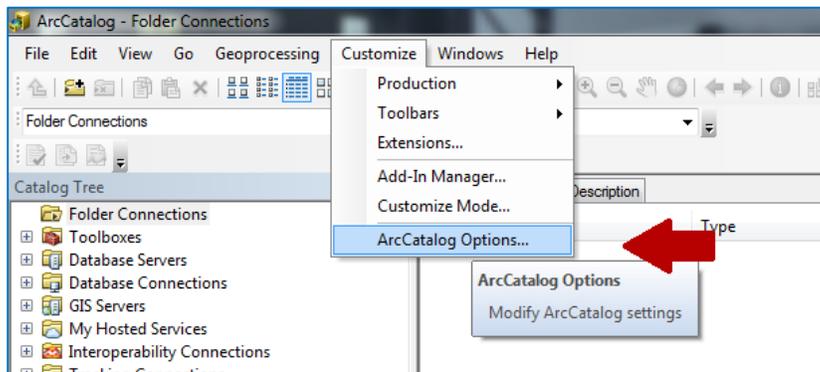
This dataset was transformed by the Project Team and Vendor Team for the NC Integrated Cadastral Data Exchange

The next section describes how to display a view of metadata in a specific style by selecting a style sheet.

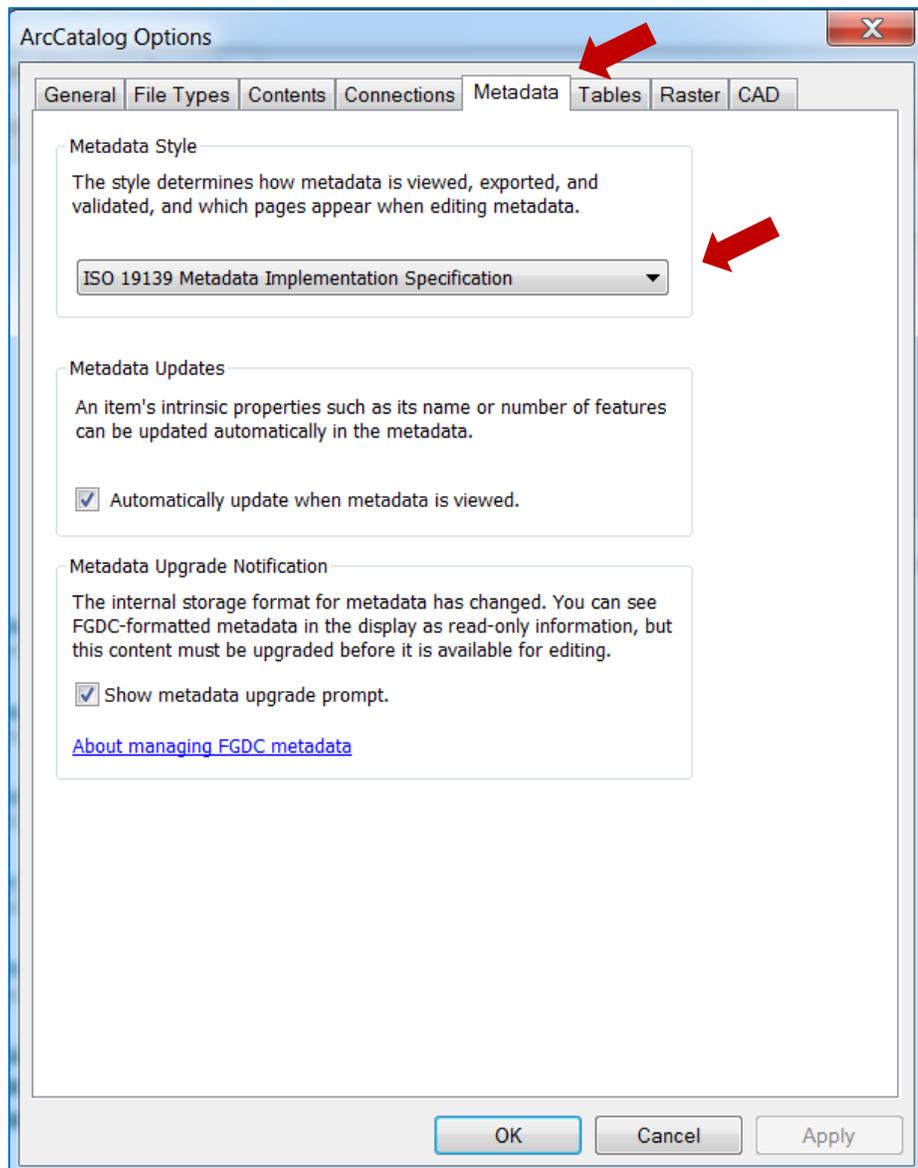
## 2. Select a Style Sheet for Metadata

To display a view of metadata in a specific style, select a style sheet for metadata according to the specific schema to which the data or service adheres. Examples of schema include *ArcGIS Metadata*, *FGDC Metadata* and *ISO 19139 Metadata Implementation Specification*. A style sheet sets parameters for display and is required for editing metadata in ArcCatalog 10.x.

Under “Customize” in the menu bar select “ArcCatalog Options...”



In the Options window, select the Metadata tab, and open a drop box for the style of metadata as shown below.



In ArcGIS 10.1, the State and Local Government Geospatial Metadata Profile utilizes a metadata style that most closely resembles the ISO 19139 Metadata Style.

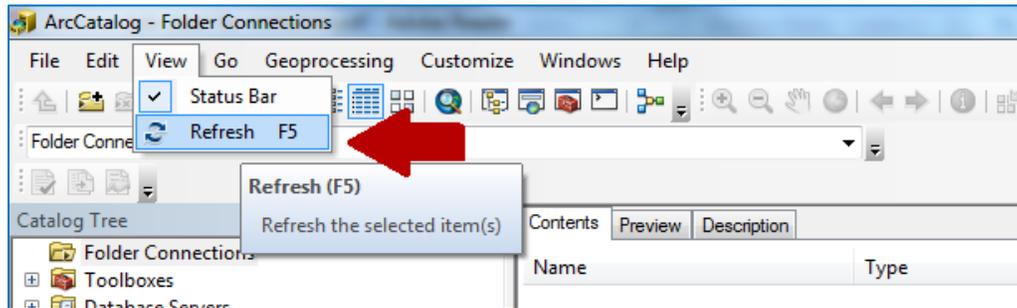
Select the ISO 19139 style in ArcGIS 10.1. In ArcGIS 10.2 and 10.3 this menu option reads “*ISO 19139 Metadata Implementation Specification*.”

[Do not use the “*ISO 19139 Metadata Implementation Specification GML 3.2*.”]

Click “Apply.”

Click “OK” to exit the ArcCatalog Options window.

Sometimes, in order to see the changes, the Description window needs to refresh. In the menu bar, select View → Refresh. This can also be done by hitting <F5>.

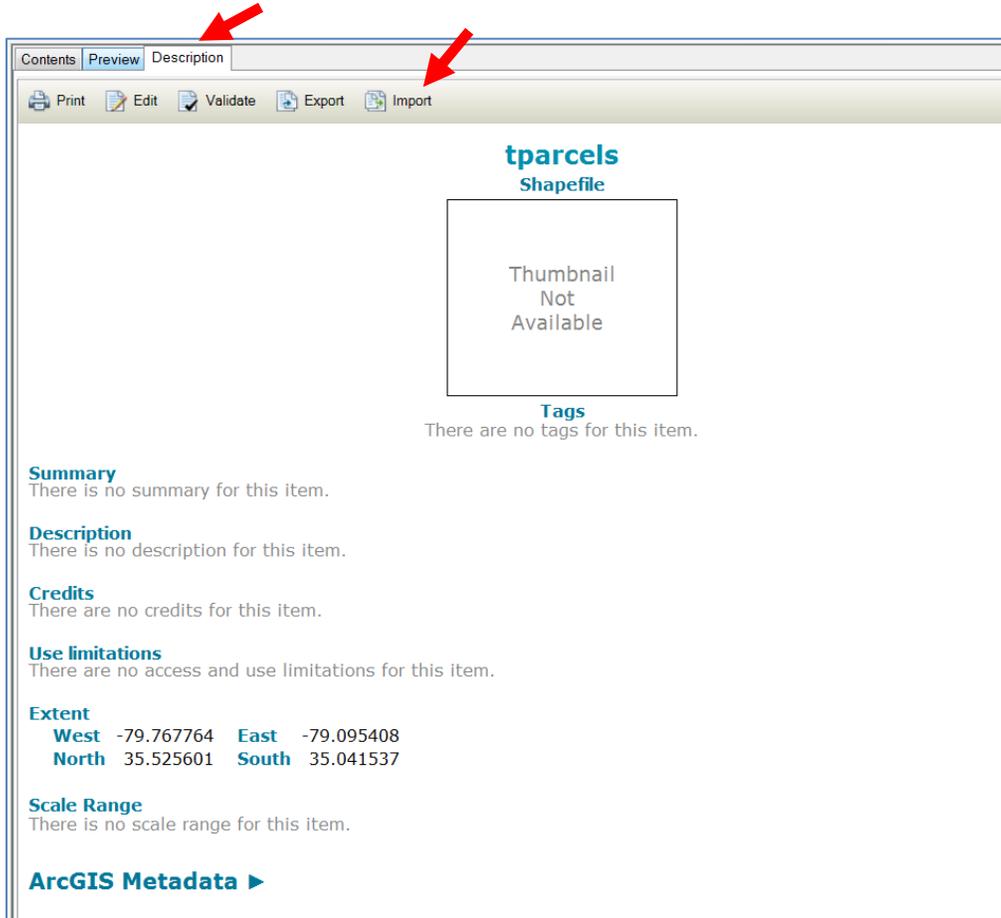


The next section of this guide describes the process for importing a metadata template, for parcel data in this case, to a dataset.

### 3. Import Metadata Template (XML) to Dataset

In the Catalog Tree, navigate to the county parcel dataset or service needing metadata and select it. You may have to connect to the folder where the dataset or service is contained. In the main window, there are three available tabs. Metadata is viewed under the Description tab.

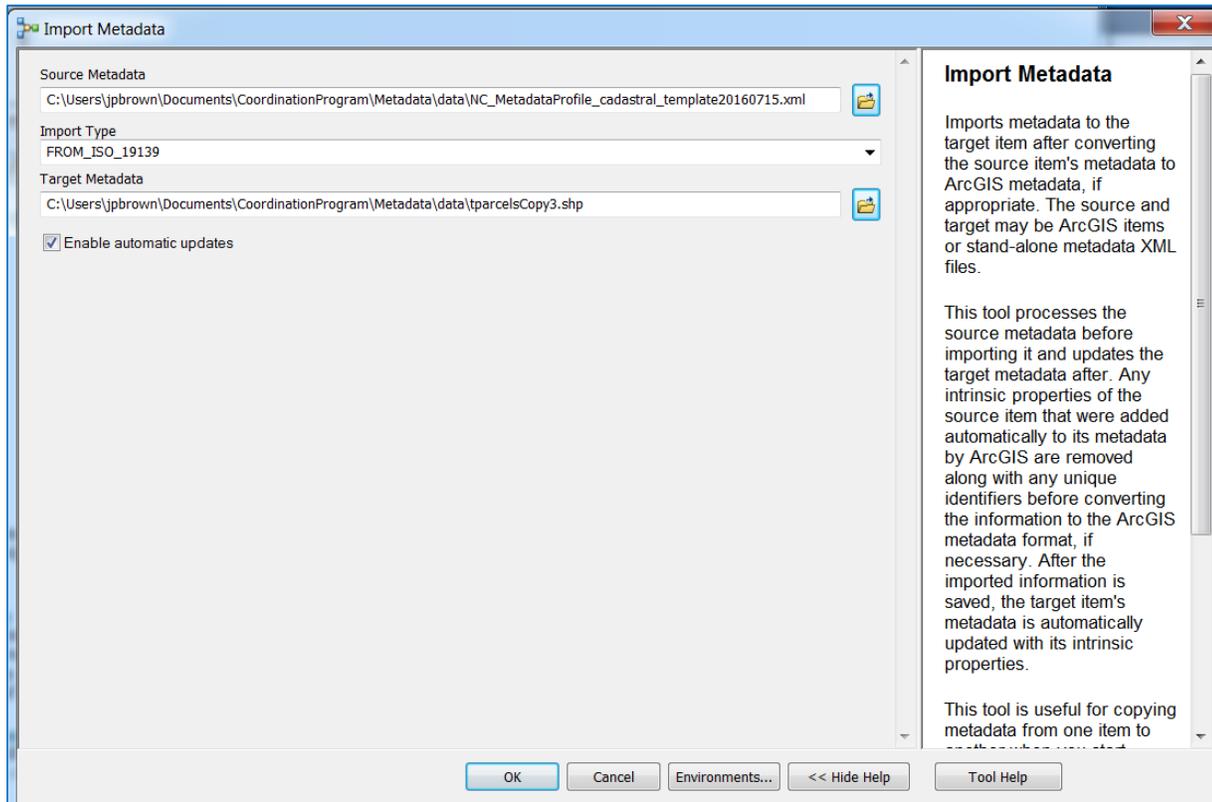
First, open the Description tab. In the example below, not much information is filled in. A template specific to parcel data offers a head start on completing a record.



The Description tab allows you to view the metadata for a dataset or service. The appearance of this information will change depending on the selected style sheet. In this case, the style sheet was selected in step 2.

Second, select “Import” from the toolbar in the main viewing window.

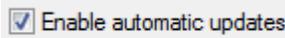
The import window will appear. Fill in the required fields. “Source metadata” refers to the item being imported as the metadata for the dataset or service. Use the windows explorer shortcut  to navigate to the metadata XML file and select it for this field. In this case, use the parcels metadata template based on the State and Local Government Geospatial Metadata Profile template; select that XML file for the “Source metadata” box as shown below.



“Import type” refers to the format of the metadata being imported. The appropriate type for the State and Local Government Geospatial Metadata Profile template is FROM\_ISO\_19139; select it from the drop down. Note: other choices for import include FROM\_FGDC, FROM\_ESRIISO, FROM\_ARCGIS if needed.

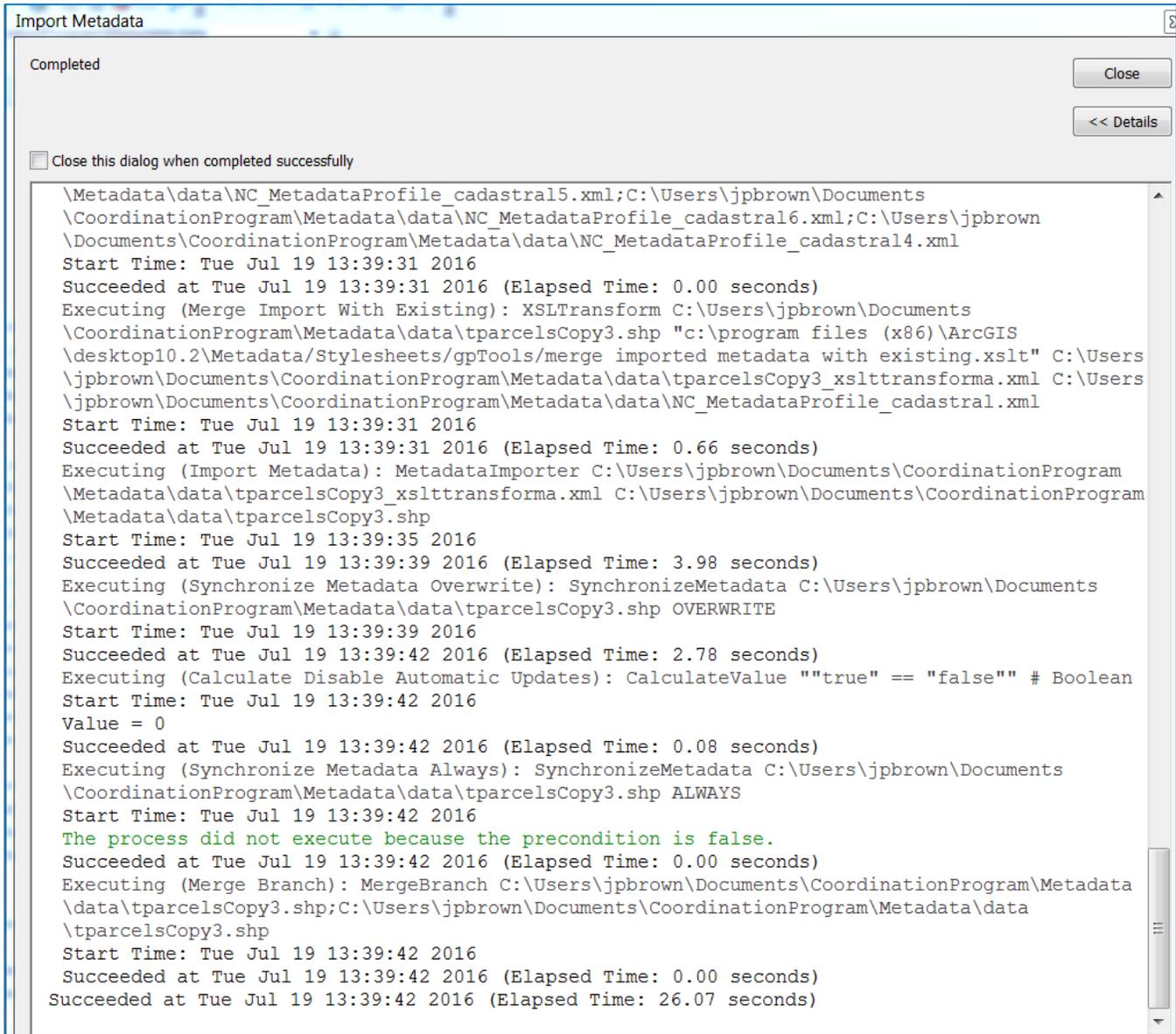
Target metadata refers to the dataset or service you are writing metadata for. Use the windows explorer shortcut  to navigate to that file (for geodatabases, select the feature class). In this case it is the sample tparcels.shp.

Make sure “Enable Automatic Updates” is checked.



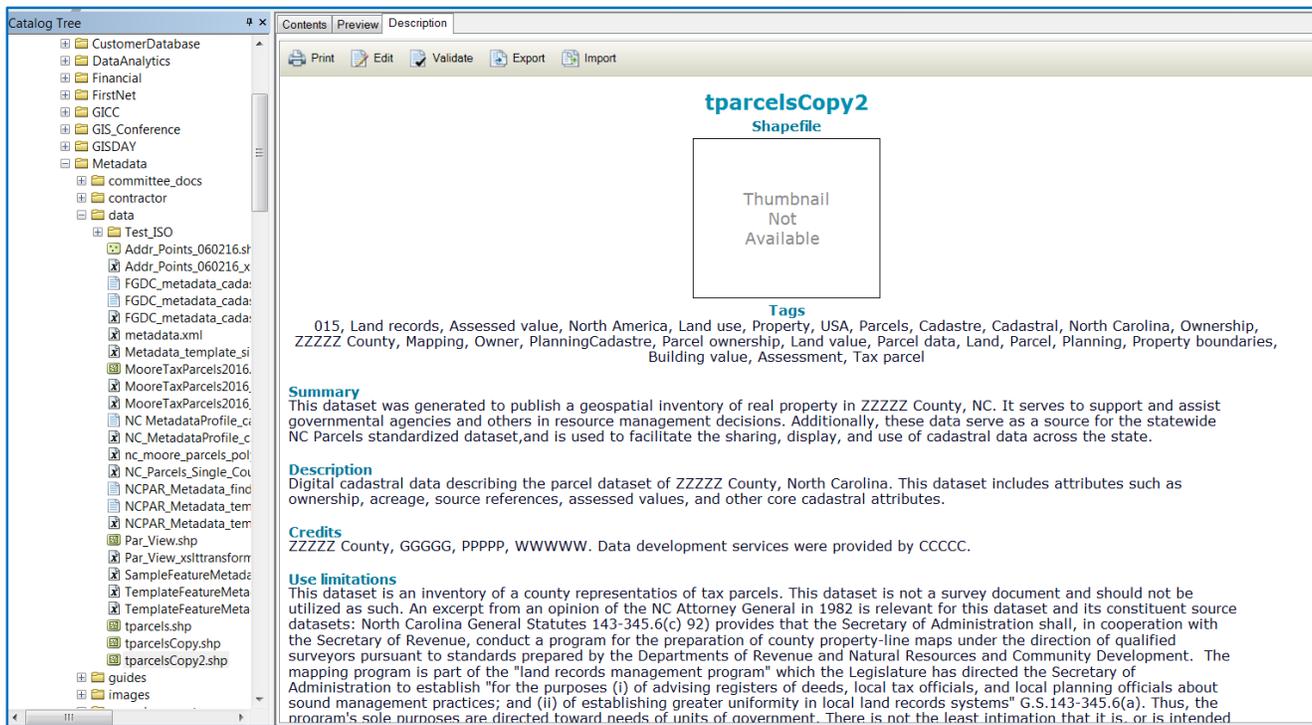
Click OK.

This window will appear:



The metadata template for parcel data (NC\_MetadataProfile\_cadastral\_template20160715.xml) is now imported to the shapefile (tparcels.shp; the metadata record in this case is tparcels.shp.xml).

Using a copy of the shapefile, the Item Description in ArcCatalog looks like the following for the shapefile tparcelsCopy2.shp selected in the catalog tree:

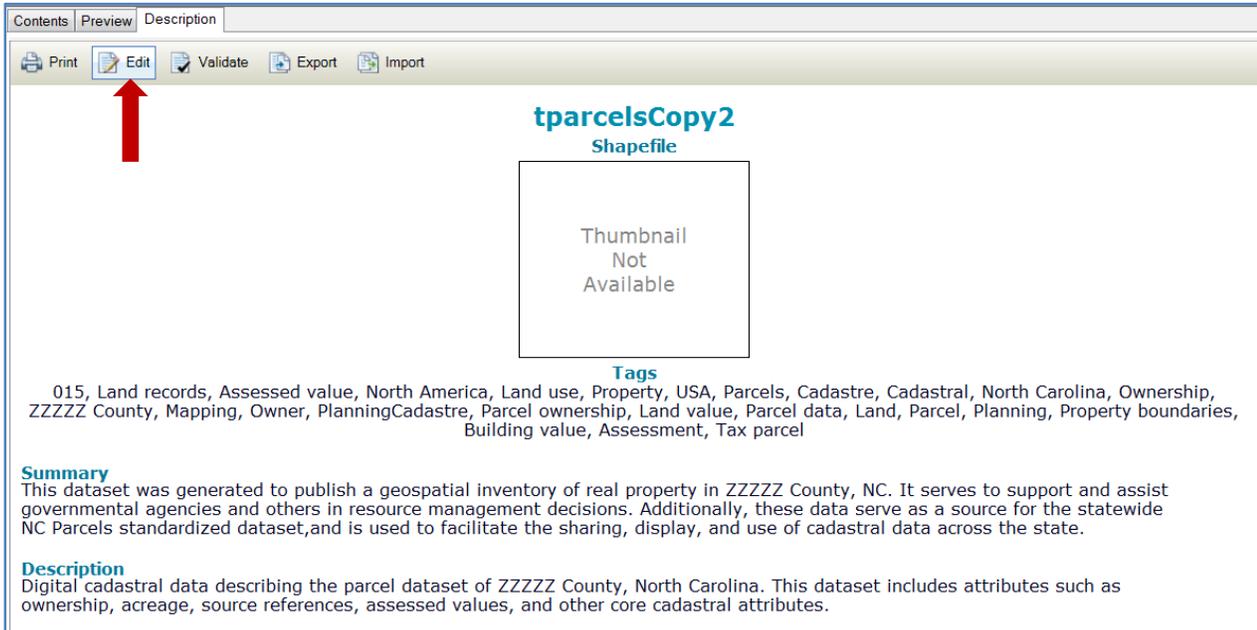


The metadata is ready for editing to customize the “Tags” or keywords, replace five-letter placeholders (e.g., *ZZZZZ*) for the name of the county, and replace other items that vary by county. The use limitations (disclaimer) and other details are copied from the metadata for the statewide NC Parcels.

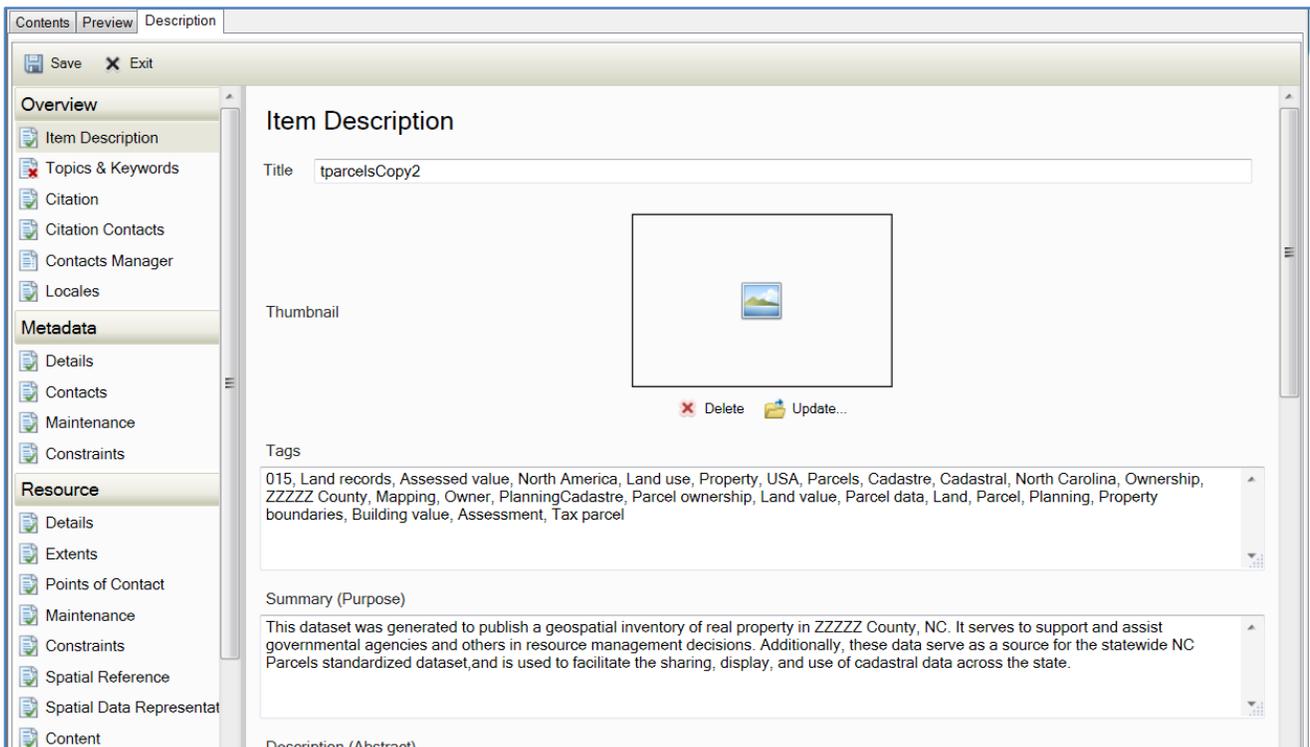
The next section of this guide describes the process for editing metadata in ArcCatalog to add specific information for the dataset, in this case a sample parcel dataset for Moore County, NC.

## 4. Edit Metadata in ArcCatalog

Make sure the file for which you are writing metadata is selected in the Catalog Tree. Click “Edit” in the toolbar in the main viewing window.



The editing window will appear:

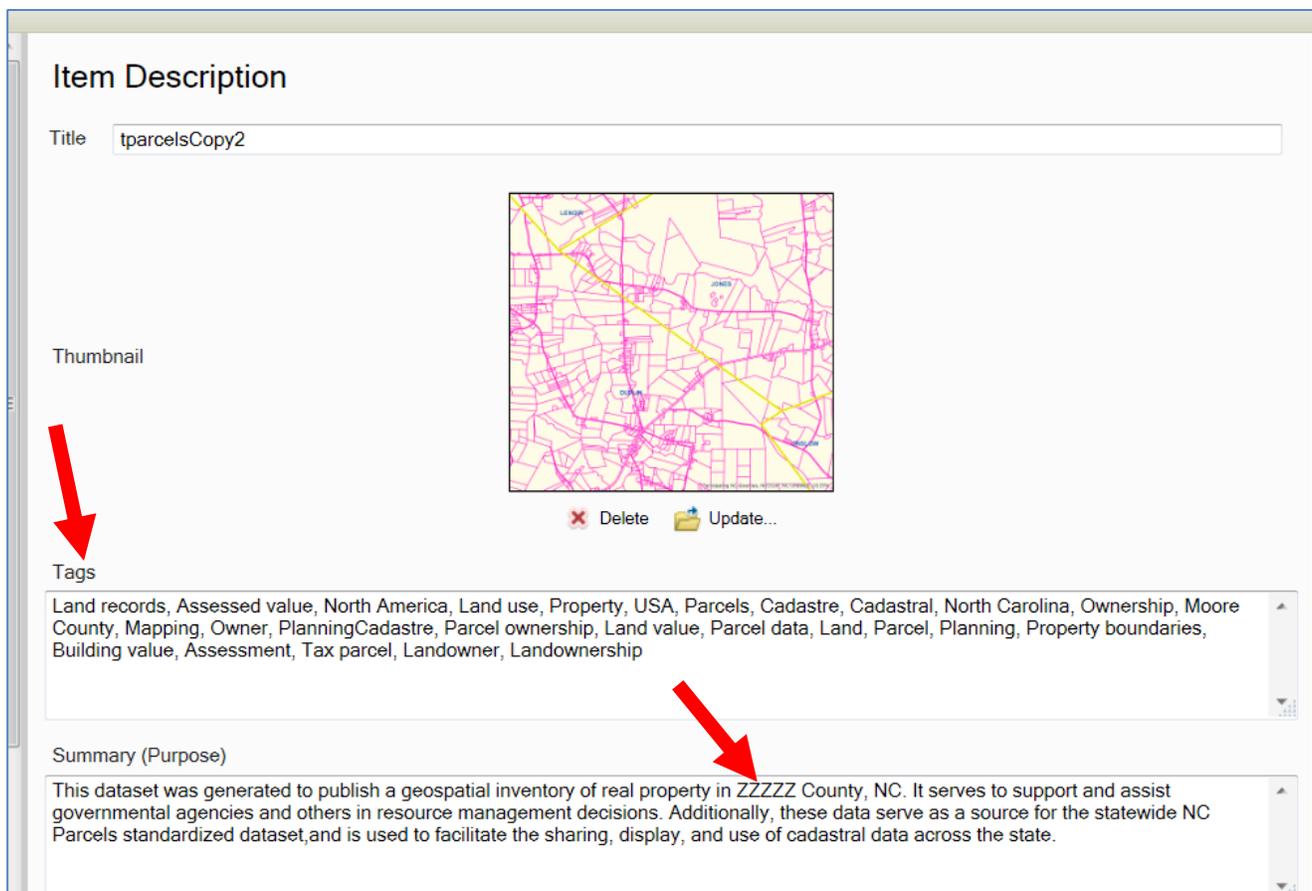


The left hand window is a navigation menu. There are three headings that separate the menu items: **Overview, Metadata, and Resource**. These options will help in guiding the editing process. A red “x” means something is incomplete or invalid (more on that below).

The edits described in this section are intended to meet the requirements of the State and Local Government Geospatial Metadata Profile and its required elements tables.

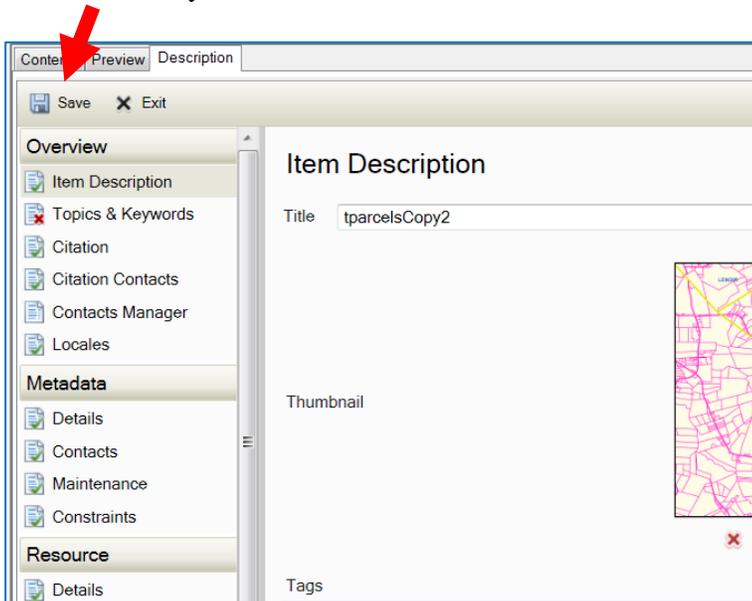
For the ArcCatalog interface, you may add a thumbnail, not required. Click on the picture inside the thumbnail box and navigate to an image file on your computer. In this case a sample image of parcel boundaries in an area including parts of four counties is added (.png format, 300 dots per inch in this case). There are buttons to delete the image or update the image.

The first section to edit is the “Tags” where keywords are listed. In this example, the tag “015” was deleted—this ISO number for “PlanningCadastrre” data is not required—and “Landowner” and “Landownership” were added as keywords that a data consumer doing a word search might use. Also, the parcel metadata template has placeholders that need to be replaced. For example, edit the placeholder for the name of the county for this parcel dataset (“ZZZZZ”) and entering “Moore” (where the sample tparcels.shp originated) as shown below.



Likewise, the Summary may be edited to insert the county name and change the wording as needed to customize for the specific county parcels data. Note: the Edit mode does not have a search function.

Click “Save.” It is recommended that users save multiple times throughout the editing process. Saving will close the editing session and return to the Description (Metadata) tab in ArcCatalog. Always save edits before ending a Metadata Editing session. ArcCatalog will not automatically save or prompt the user to save if you click Exit.



Note: if the user tries to exit the metadata editor by selecting another file in the Catalog Tree in the middle of a metadata edit session, ArcCatalog prompts with this message: “When the metadata editing session is over, review the metadata you have created thoroughly for errors.” Save edits before navigating to another dataset.

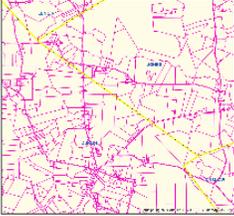
The Description view that comes up after saving edits reveals the need for a simpler thumbnail and the need to keep editing to replace placeholders and customize for the sample county.

Contents Preview Description

Print Edit Validate Export Import

### tparcelsCopy2

Shapefile



**Tags**  
Land records, Assessed value, North America, Land use, Property, USA, Parcels, Cadastre, Cadastral, North Carolina, Ownership, Moore County, Mapping, Owner, PlanningCadastre, Parcel ownership, Land value, Parcel data, Land, Parcel, Planning, Property boundaries, Building value, Assessment, Tax parcel, Landowner, Landownership

**Summary**  
This dataset was generated to publish a geospatial inventory of real property in ZZZZZ County, NC. It serves to support and assist governmental agencies and others in resource management decisions. Additionally, these data serve as a source for the statewide NC Parcels standardized dataset, and is used to facilitate the sharing, display, and use of cadastral data across the state.

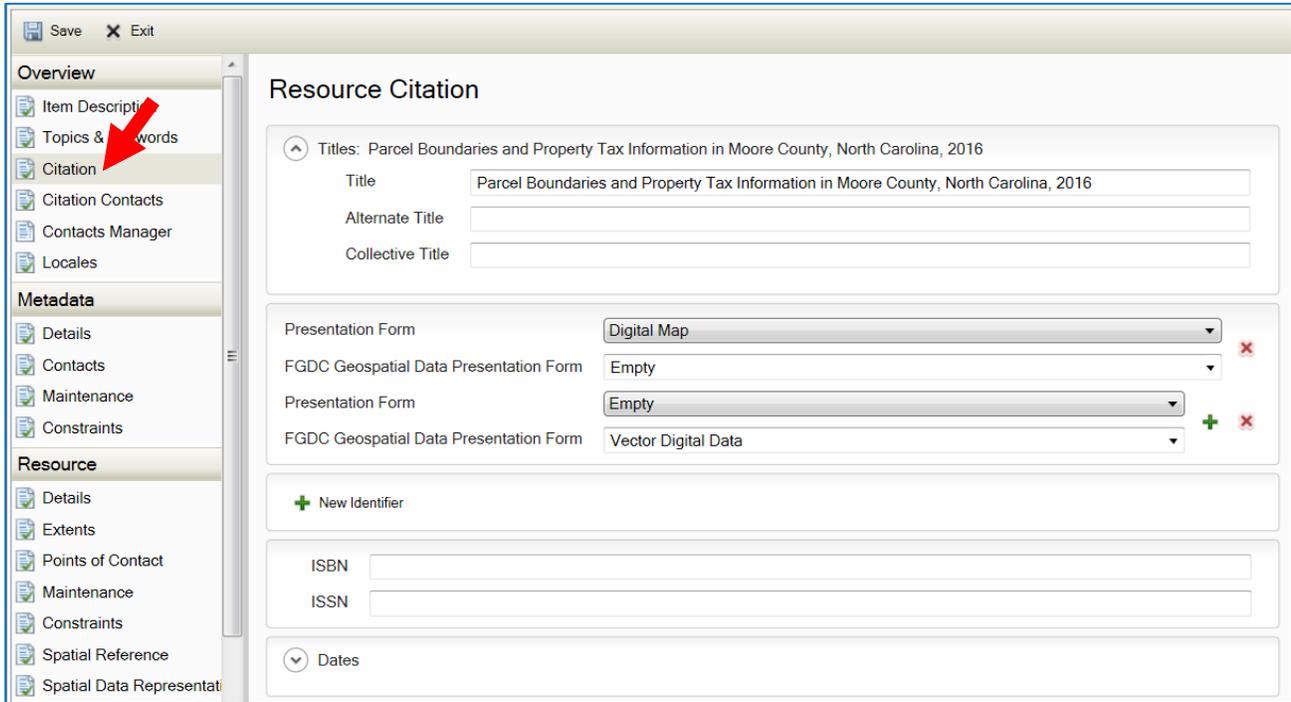
**Description**  
Digital cadastral data describing the parcel dataset of ZZZZZ County, North Carolina. This dataset includes attributes such as ownership, acreage, source references, assessed values, and other core cadastral attributes.

Click on “Edit” in the Description view, click on the Thumbnail “Update” icon, navigate to a different image and select it. Replace “ZZZZZ” with “Moore” in the Summary and the Description (Abstract) as shown below.

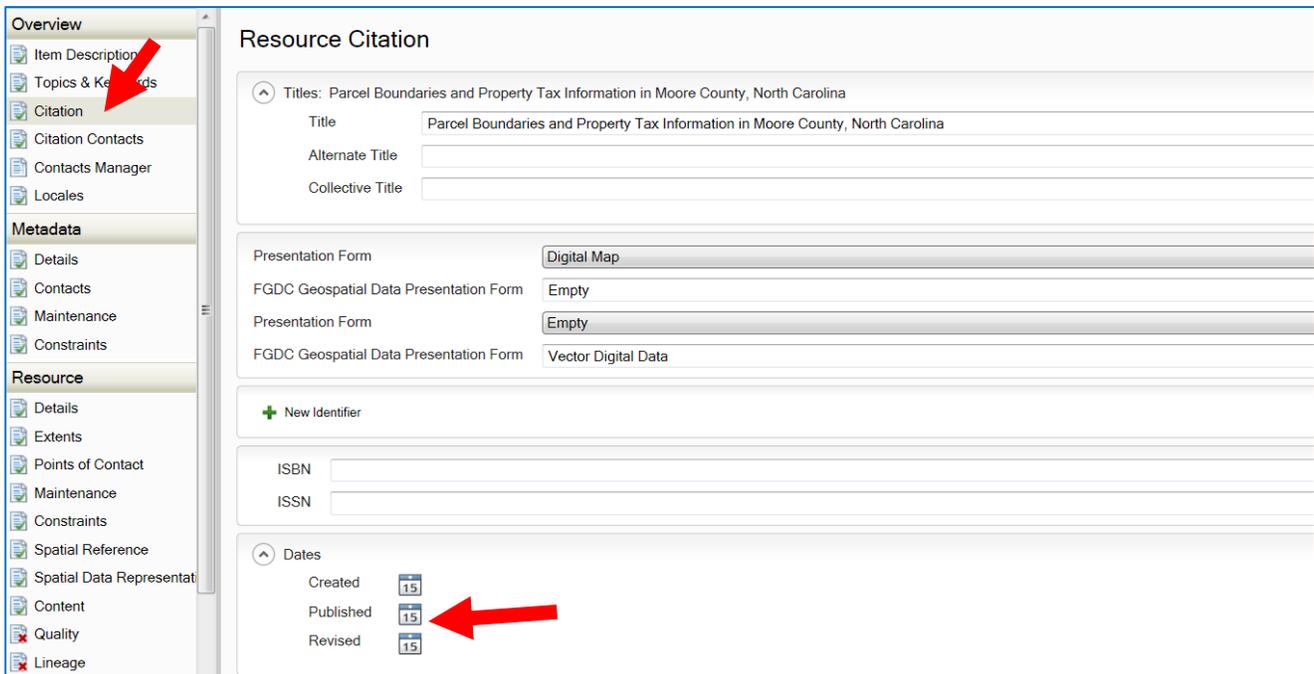




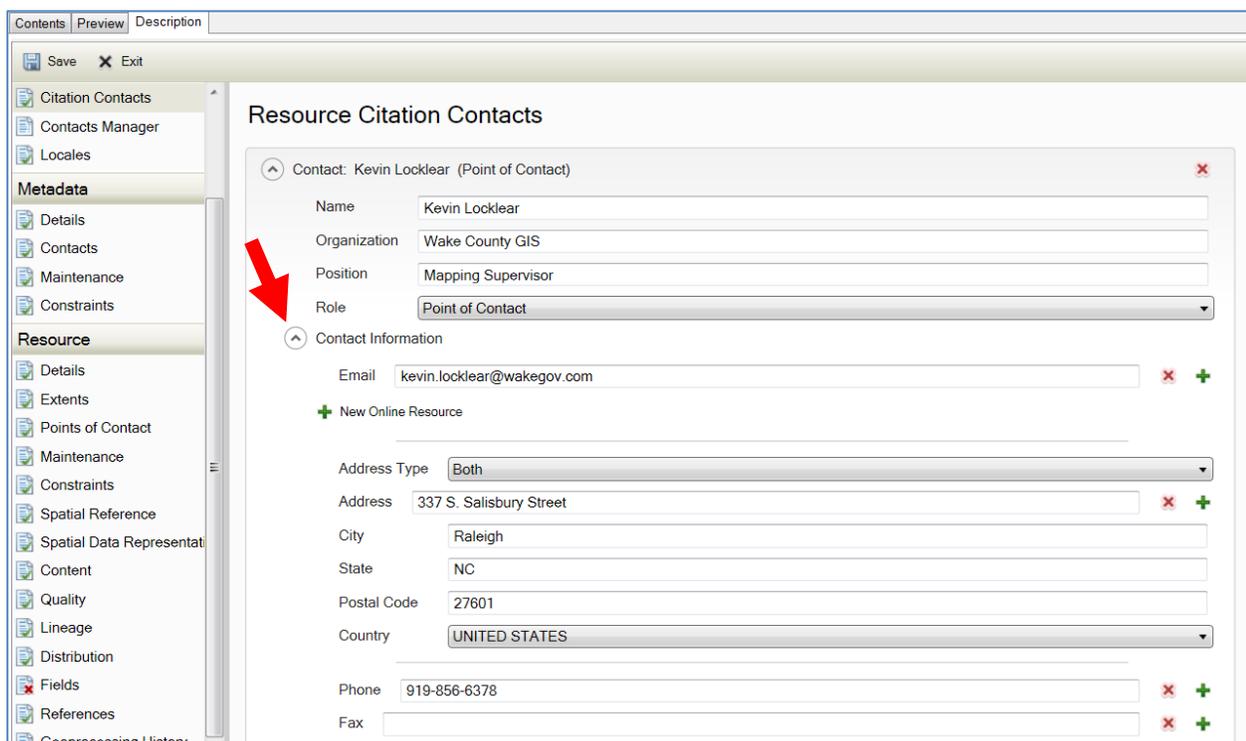
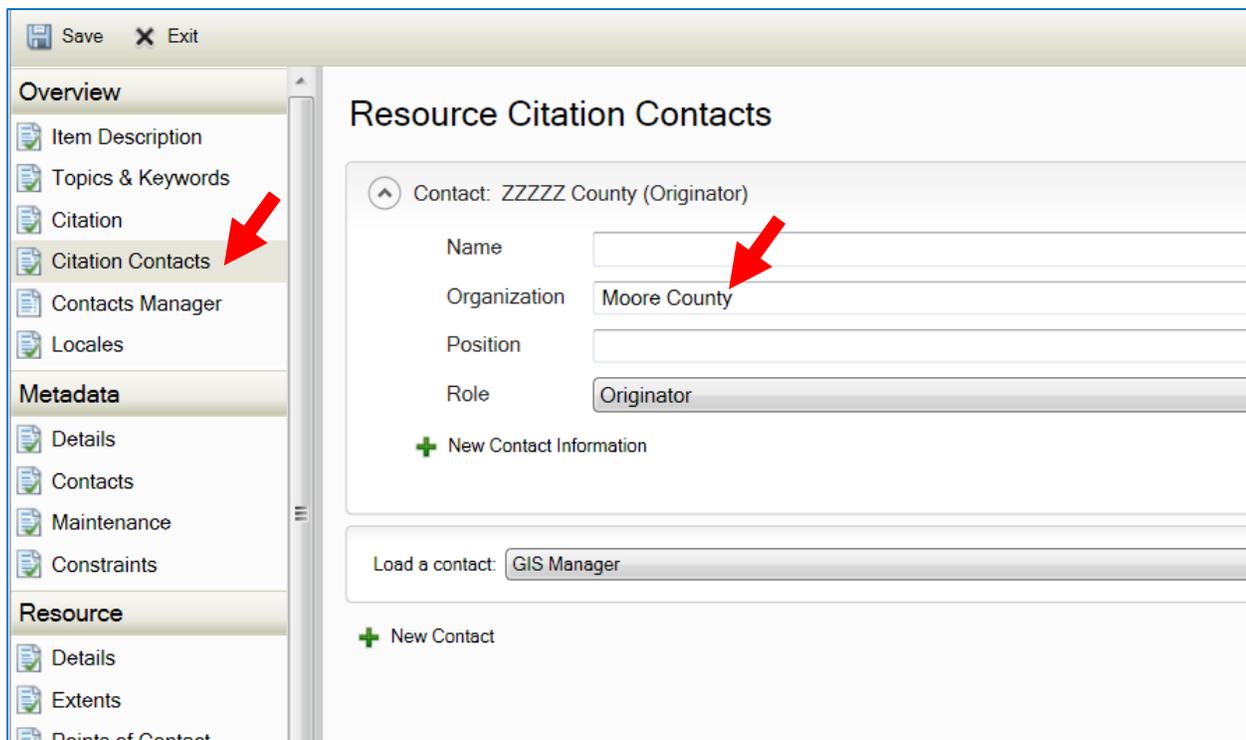
The next part of “Overview” is “Citation.” Edit or replace “Title” with a descriptive title such as “Parcel Boundaries and Property Tax Information in Moore County, North Carolina.” This does not affect the file name; it gives the data consumer more information. The “Presentation Form” may remain as “Digital Map” as in the following. The other elements in “Resource Citation” are not required.



Next, click on “Dates” and choose “Publication Date” which represents the date the dataset, new or revised, is published; select a date on the pop-up calendar for “published.”

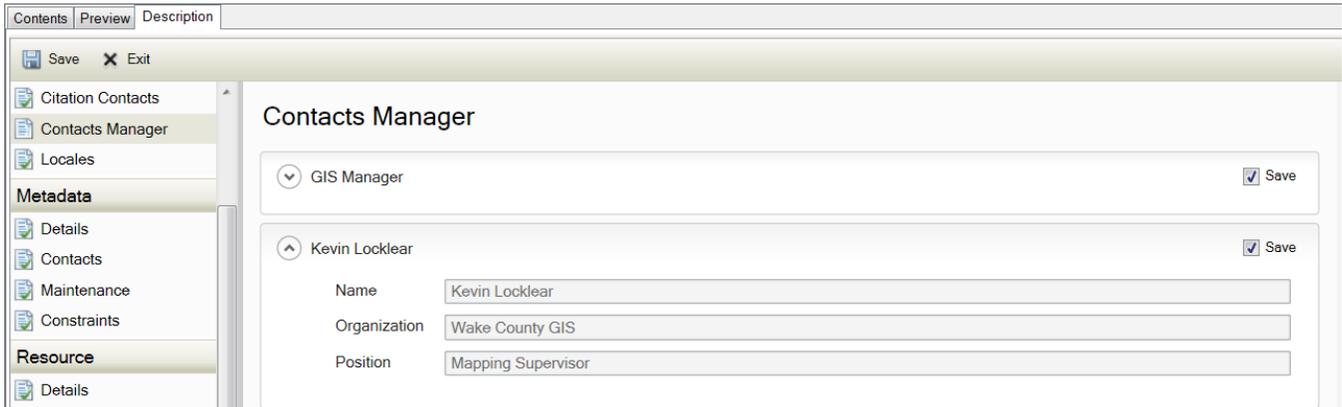


Next, click on “Citation Contacts.” There is a placeholder (ZZZZZ County) to edit with a person and a role (e.g., Point of Contact). See examples for Moore and Wake Counties below.

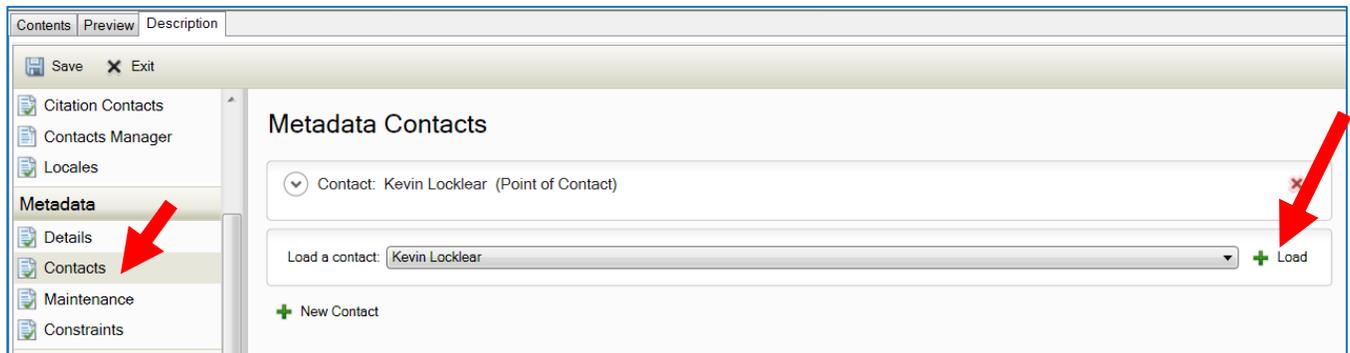


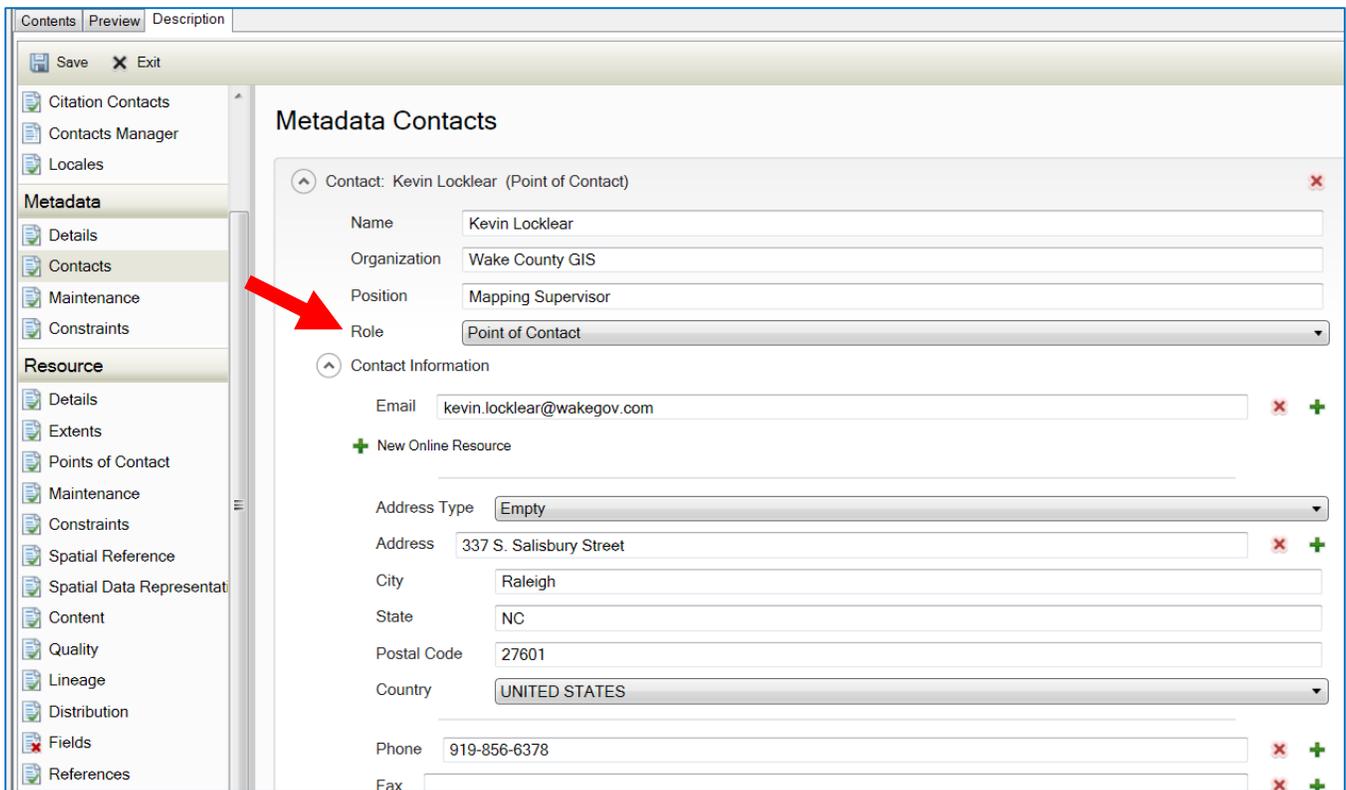
Save. Click Edit again for edit mode.

Go to the “Contacts Manager” and see the entry for the contact you just edited. The Contacts Manager does not display the address information, but it is stored and available for the next section requiring a contact where you may “Load a Contact” and not re-enter the information.

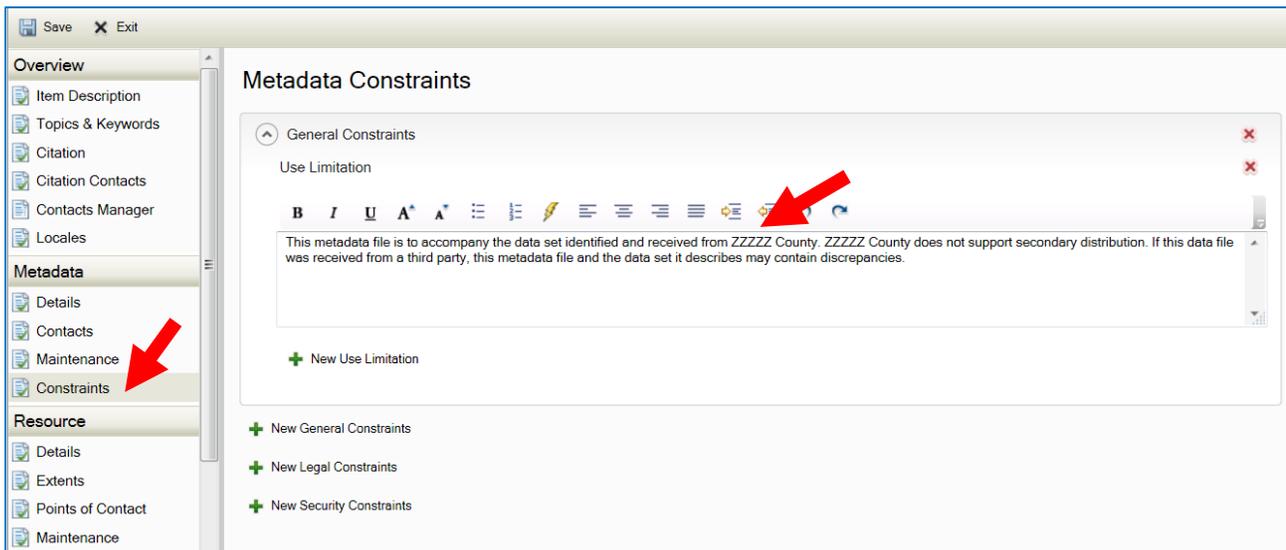


Next, move ahead to the “Metadata” section in the ArcCatalog editor’s table of contents on the left. Click on “Contacts” and “Load” the contact and edit the role to “Point of Contact” (or choose some other role) as in the example below for Wake County.



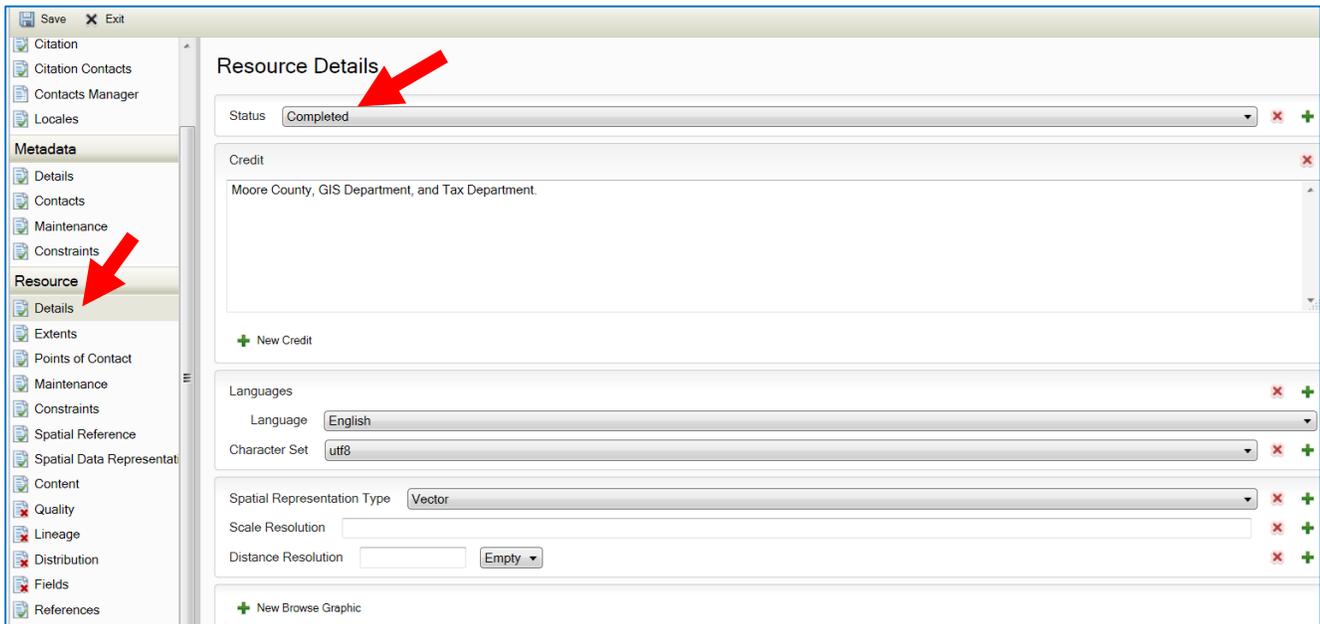


Metadata “General Constraints” has a statement from the template that may be edited to be consistent with the county for which parcel data are being documented as shown in the following example.

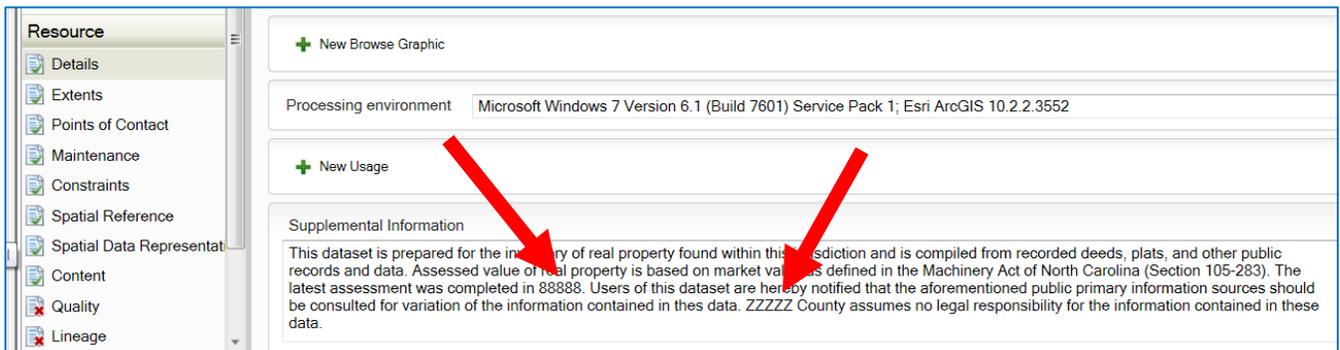


Remember to Save often, returning to Edit mode after saving.

The next step is to go to the “Resource” section of metadata and edit fields that have values brought in by the template. Select the first item, “Details.”

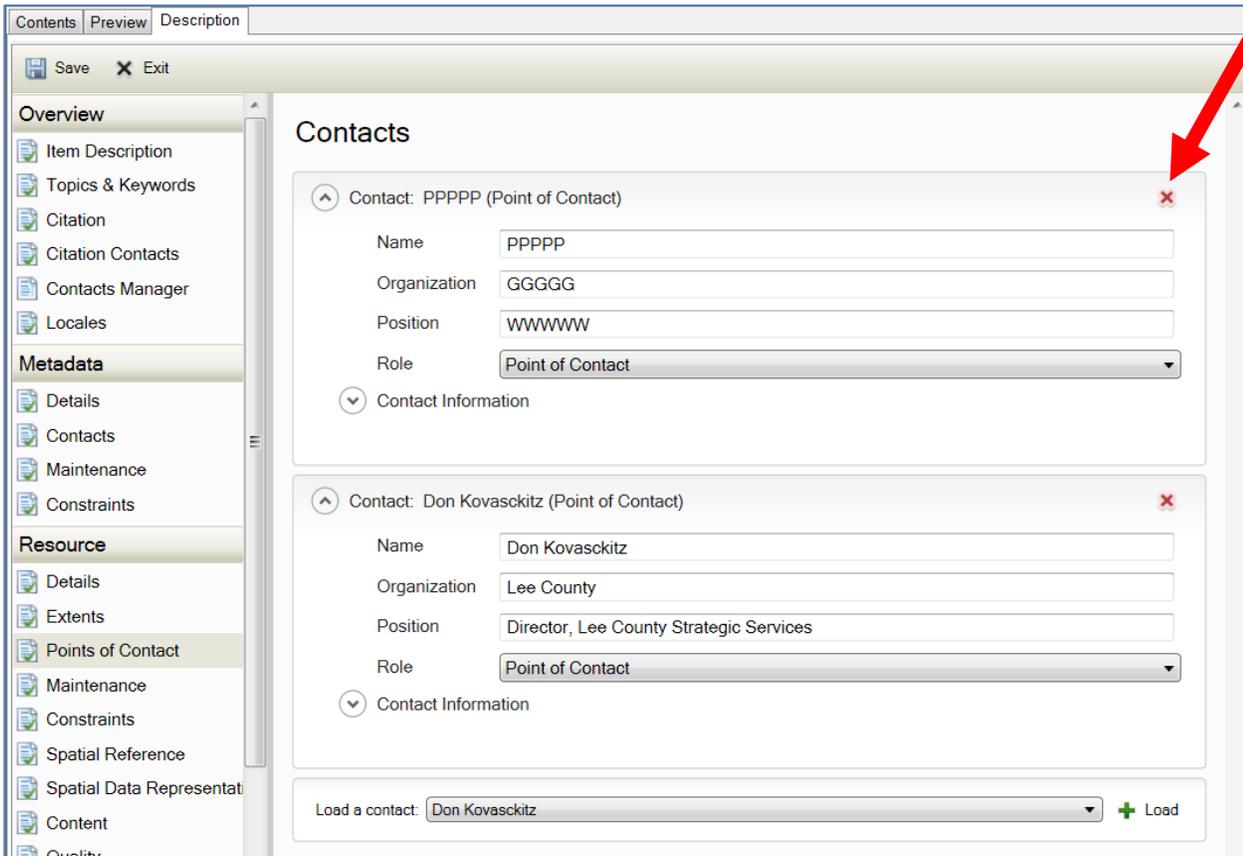
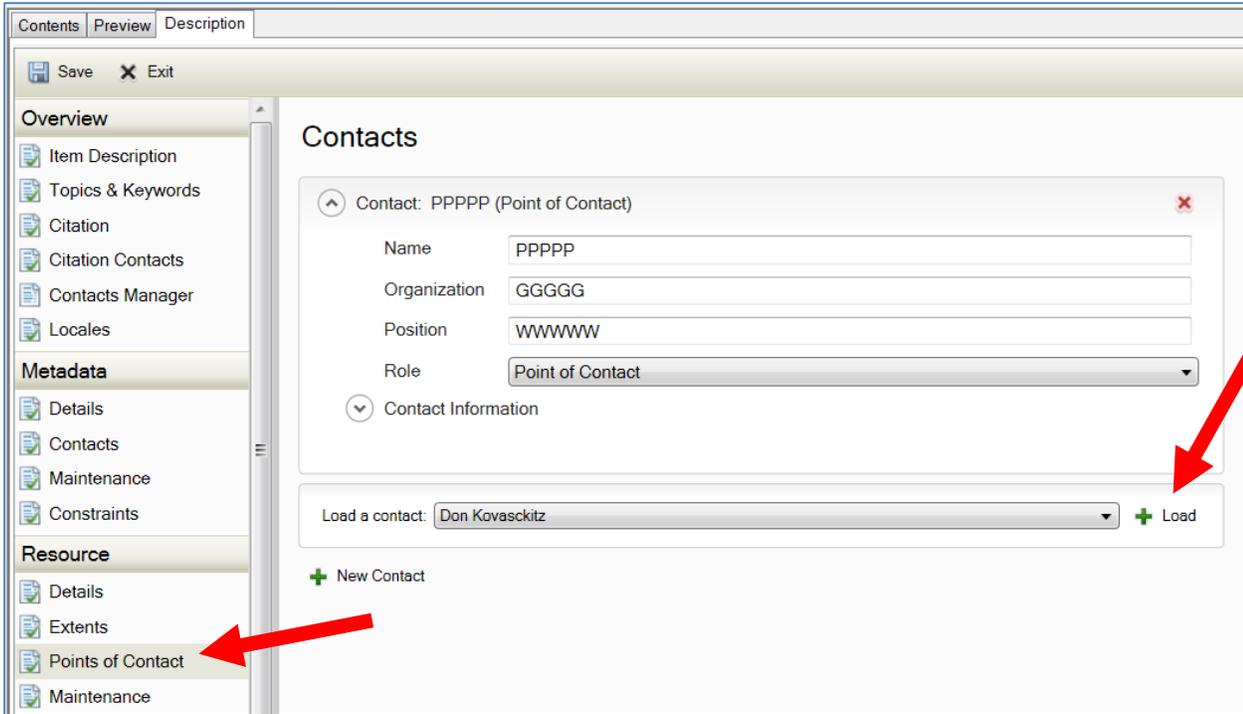


Verify that the Status shows “Completed” (appropriate in most cases) and “Credit” is customized for your dataset and organizations contributing to it. The “Spatial Representation Type” is populated as “Vector.” Scroll down and edit the “Supplemental Information,” replacing 88888 with the year of the last revaluation and ZZZZZ with the name of the county; customize further as needed.

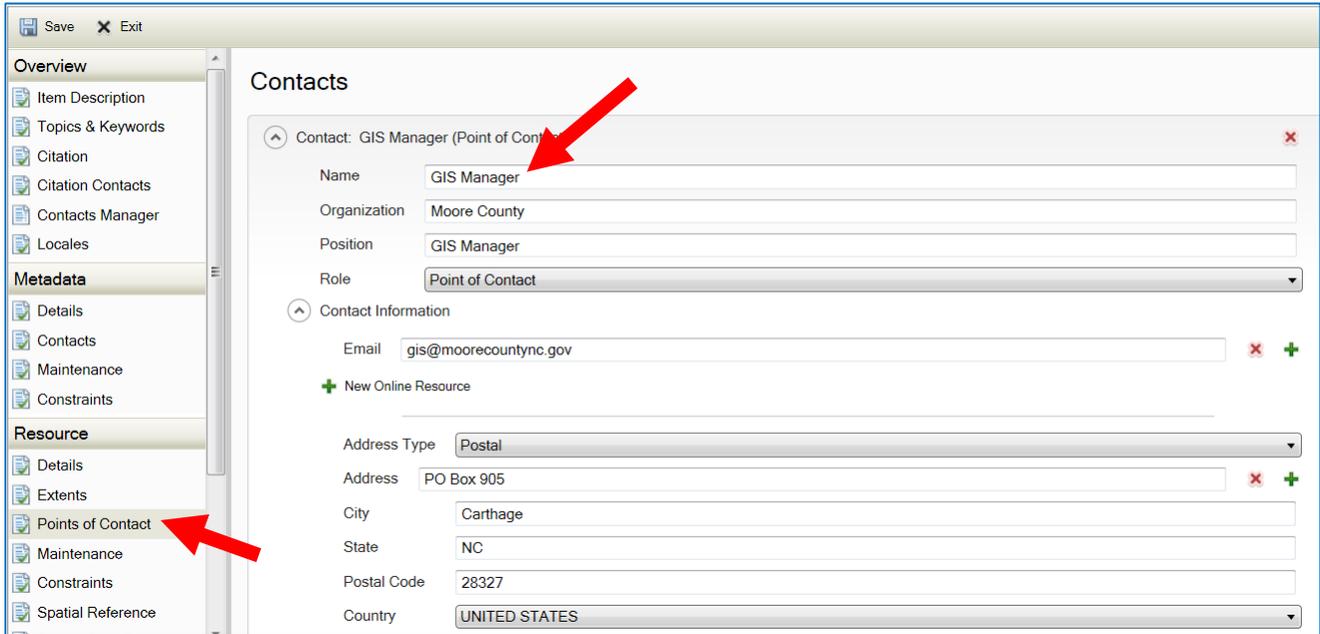


Remember to Save often, returning to Edit mode after saving.

The next editing needed in the Resource section is “Points of Contact.” If this person is the same person who is the Metadata Contact entered already, look for “Load Contact” and select the contact already entered as shown below. Delete the first (default) contact box so the loaded contact, in this example for Lee County, rises to the top.



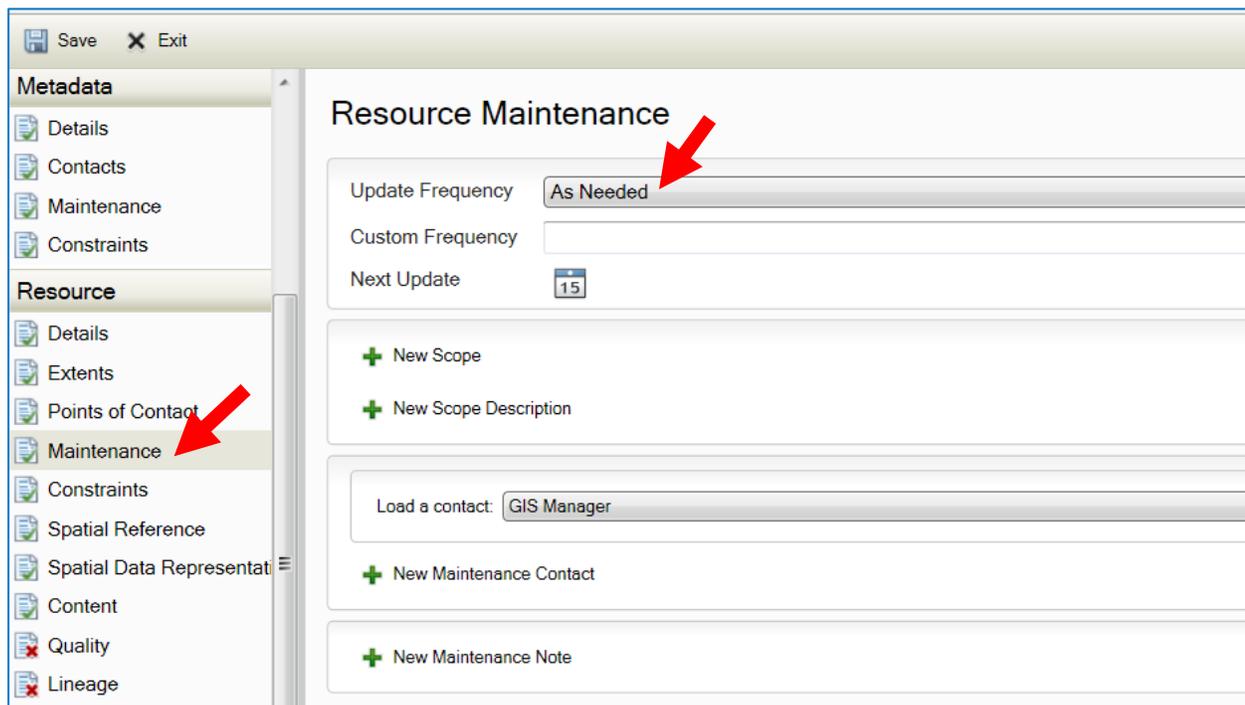
If the contact for the Resource is different, replace the placeholder characters with name, organization, position, and contact information, and leave the selected “Role” as “Point of Contact” for the dataset.



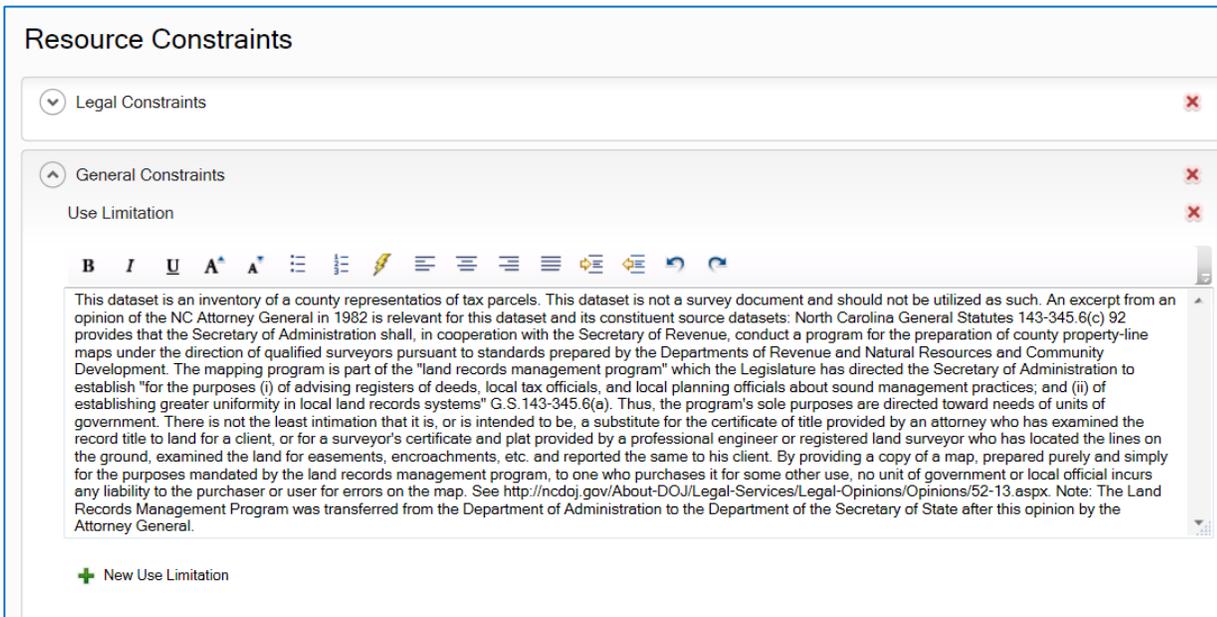
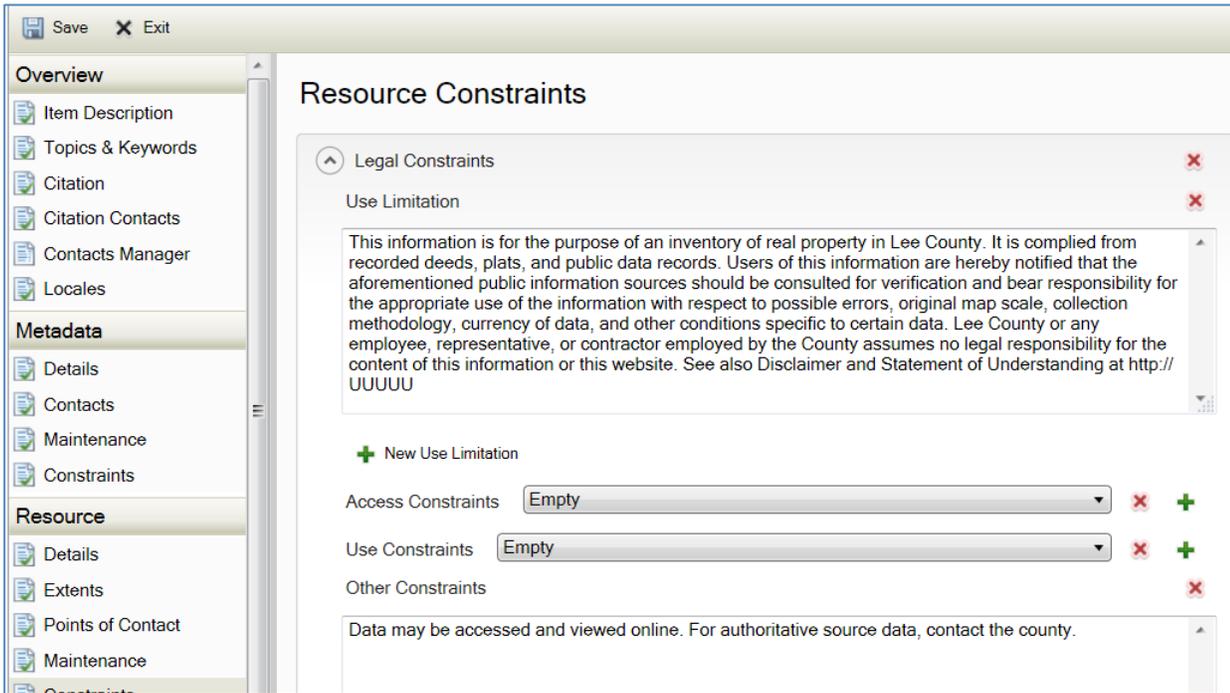
The Resource “Maintenance” information is to give the consumer an understanding of how frequently the dataset is updated. The State and Local Government Metadata Profile has the following set of codes for stating the maintenance of the data:

Maintenance Frequency Code	Description
<b>continual</b>	data is repeatedly and frequently updated
<b>daily</b>	data is updated each day
<b>weekly</b>	data is updated on a weekly basis
<b>fortnightly</b>	data is updated every two weeks
<b>monthly</b>	data is updated each month
<b>quarterly</b>	data is updated every three months
<b>biannually</b>	data is updated twice each year
<b>annually</b>	data is updated every year
<b>asNeeded</b>	data is updated as deemed necessary
<b>irregular</b>	data is updated in intervals that are uneven in duration
<b>notPlanned</b>	there are no plans to update the data
<b>unknown</b>	frequency of maintenance for the data is not known

The ArcCatalog view for “Maintenance” looks like the following. Under “Resource Maintenance” choose an Update Frequency; it may be “As Needed” if parcel geometry and property tax information are updated as changes are needed, or it may be more systematic and better described by “continual” or “daily” from the code set above. A “maintenance contact” is not required but could be loaded or entered if desired.



Under Resource “Constraints” the template contained disclaimers used in the statewide NC Parcels standardized parcel data, based on information from the Land Records Management Office. The “Legal Constraints” needs editing to replace the county name. If there is an online statement, the URL may be entered in place of UUUUU; if not, the sentence may be deleted. The “General Constraints” may be left as-is, customized or replaced as needed. The following two screen captures show the Constraint wordings.

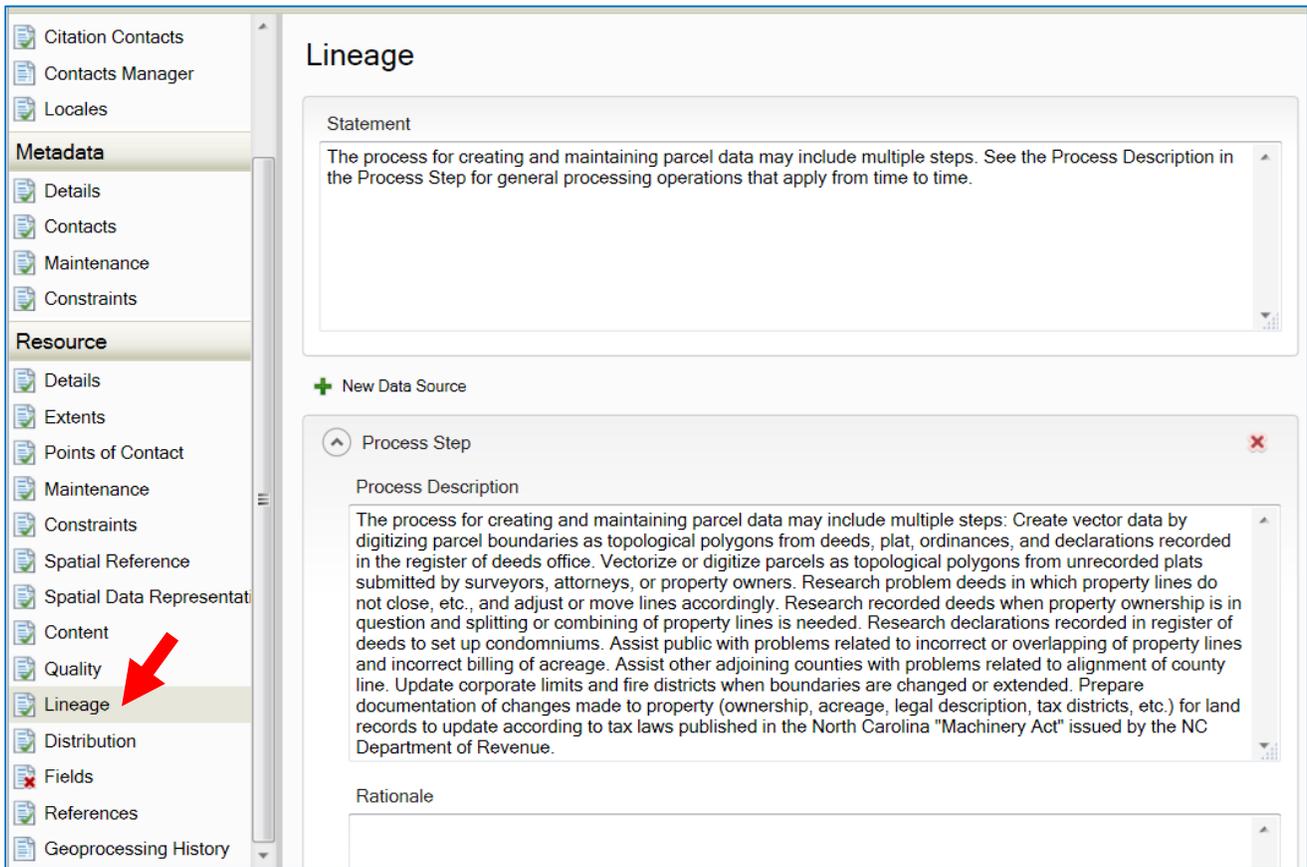


Save the edits, and re-enter edit mode.

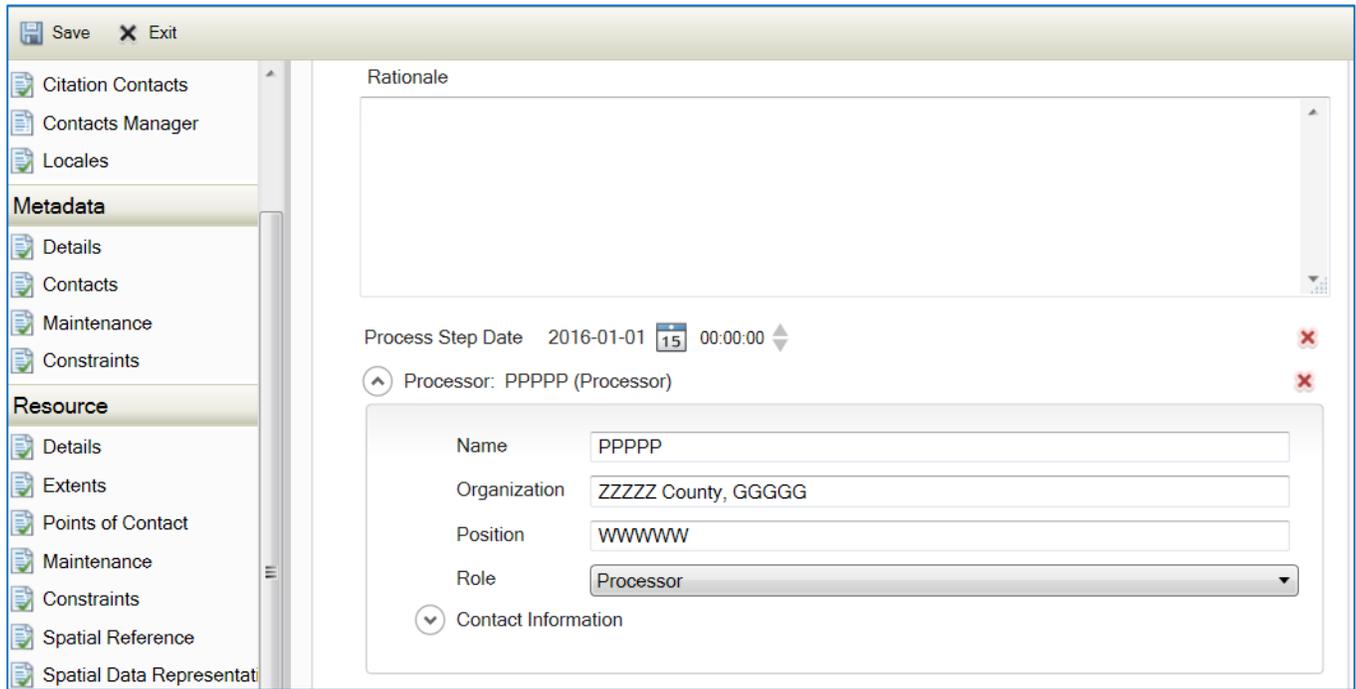
“Spatial Reference” and “Spatial Data Representation” are generated from the dataset itself and should not need editing.

Skip “Content” in the Resource table of contents at this point as an optional item.

The State and Local Government Metadata Profile requires a “Process Description” using free text. Process Description fits best in “Lineage” in ArcCatalog. The template includes a Statement and a Process Step under “Lineage.” The text in the template includes general statements for processing that should be reviewed and customized as needed.



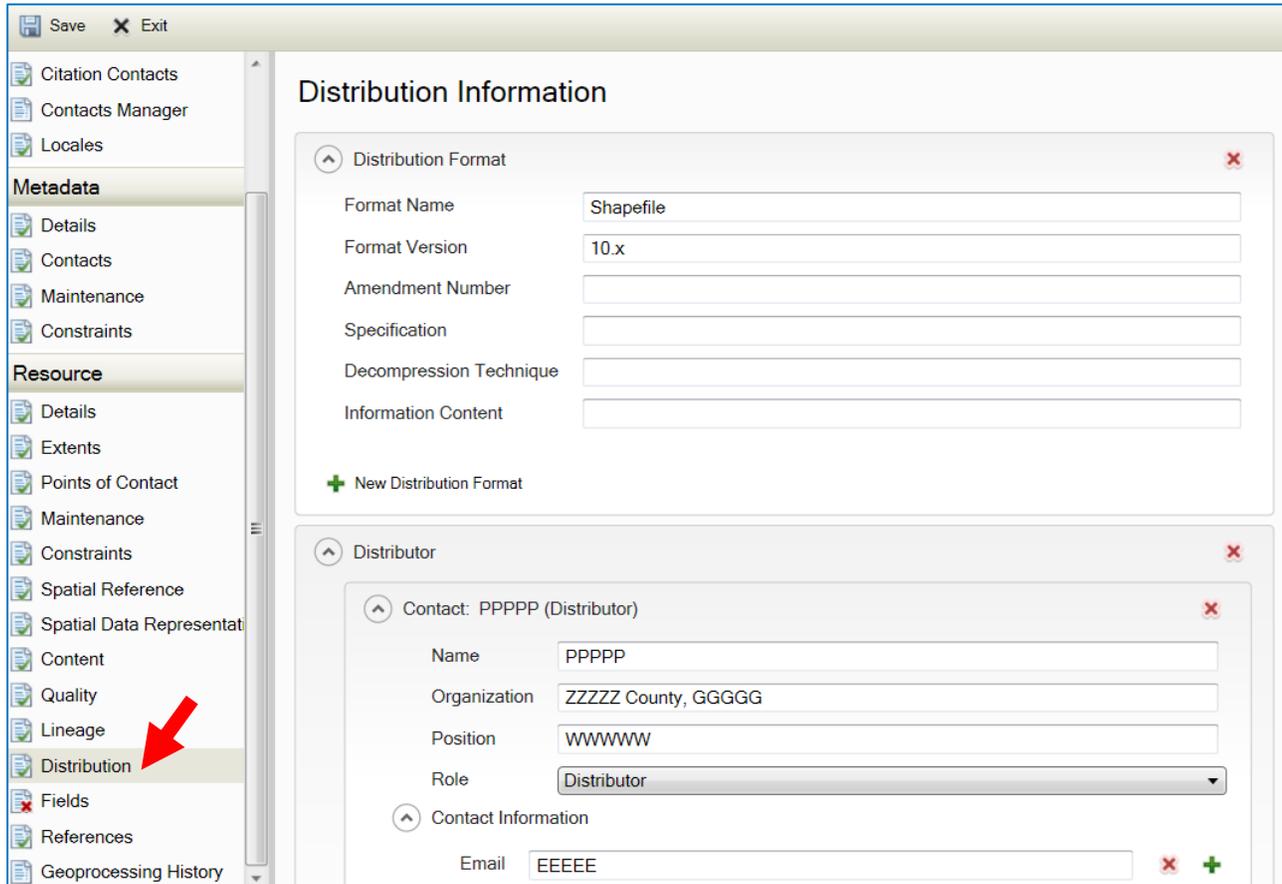
Also, select a date (January 1, 2016 is the default in the parcels template) and edit the placeholders for contact information for county parcel processing as follows:



Save the edits.

The State and Local Government Profile requires an “Online Linkage” reference. The metadata template for parcels includes information for the “Distribution” section, including online linkage.

Edit the placeholders to complete the data distribution section so that consumers can find the resource from the metadata record, as follows.



Continued:

Save X Exit

Citation Contacts  
 Contacts Manager  
 Locales

**Metadata**  
 Details  
 Contacts  
 Maintenance  
 Constraints

**Resource**  
 Details  
 Extents  
 Points of Contact  
 Maintenance  
 Constraints  
 Spatial Reference  
 Spatial Data Representat  
 Content  
 Quality

Address Type: Both  
 Address: AAAAA  
 City: TTTTT  
 State: NC  
 Postal Code: 99999  
 Country: UNITED STATES  
 Phone: NNNNN  
 Fax: FFFFF  
 Instructions: Please email first.  
 Hours: 8:30 - 5:00 EST

Continued:

Save X Exit

Citation Contacts  
 Contacts Manager  
 Locales

**Metadata**  
 Details  
 Contacts  
 Maintenance  
 Constraints

**Resource**  
 Details  
 Extents  
 Points of Contact  
 Maintenance  
 Constraints  
 Spatial Reference  
 Spatial Data Representat  
 Content  
 Quality  
 Lineage  
 Distribution  
 Fields  
 References  
 Geoprocessing History

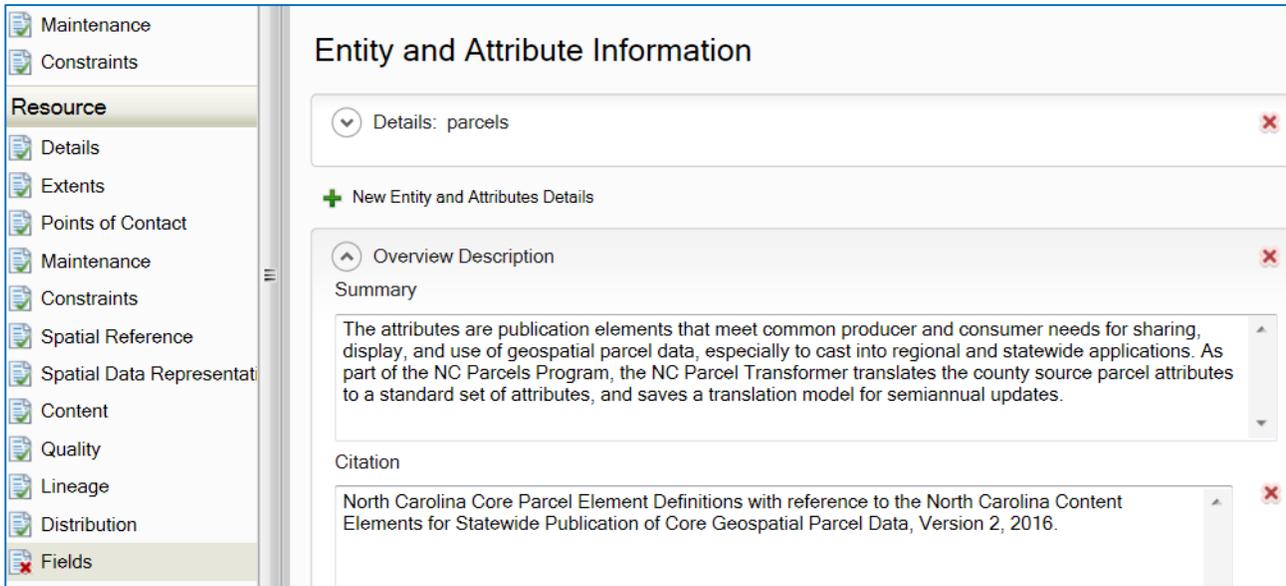
Ordering Process (Available Time Period)  
 Fees: Contact ZZZZ County, GGGG for details. No universal currency  
 Available Date: 15  
 Available Date Period  
 Begin Date/Time: 15  
 End Date/Time: 15  
 Ordering Instructions: Downloadable data at http://UUUUU  
 Turnaround  
 + New Ordering Process

+ New Distribution Format

Digital Transfer Options  
 Units of Distribution  
 Transfer Size: 56.572  
 Online Resource  
 Linkage: http://UUUUU  
 Protocol

The State and Local Government Metadata Profile requires information on “Entities and Attributes.” In the sections in “Resource” the “x” on the icon for “Fields” indicates that ArcCatalog expects one or more values.

The metadata template for parcels has an “Overview Description” for the Fields section that should be customized as needed (caution, ArcCatalog may not transfer the Summary and Citation from the parcels metadata template):



Parcel datasets should include a robust set of metadata elements that describe the property entities (features) and their attributes. ArcCatalog automatically populates the *attribute labels* but it is up to the metadata creator to provide information about the CSDGM mandatory supporting elements: *attribute definition*, *attribute definition source*, and *attribute domain values*. This level of detail is burdensome given the number of attributes commonly associated with parcel data. A further complication is that if the supporting information is not entered, ArcCatalog will not include the *attribute labels* when the metadata record is exported.

Fortunately, both the ISO and CSDGM implementations of the *NC State and Local Government Metadata Profile* allow for reference to an existing attribute description document managed separately from the metadata record. Therefore, it may be more practical to:

1. document a parcel data dictionary using a spreadsheet, or other document format
2. make the data dictionary available online
3. provide an ISO *Feature Catalog Citation* or CSDGM *Overview Description Entity/Attribute Citation* complete with the URL for the online data dictionary

If the parcel data is developed in compliance with the statewide *NC Parcels Program Parcel Data Dictionary*, the metadata could provide a Citation, with the parcel data dictionary URL (<http://www.nconemap.com/Portals/7/documents/NC-Parcels-DataElementDefinitions.pdf?ver=2016-07-14-160824-2200>).

Be sure to save edits.

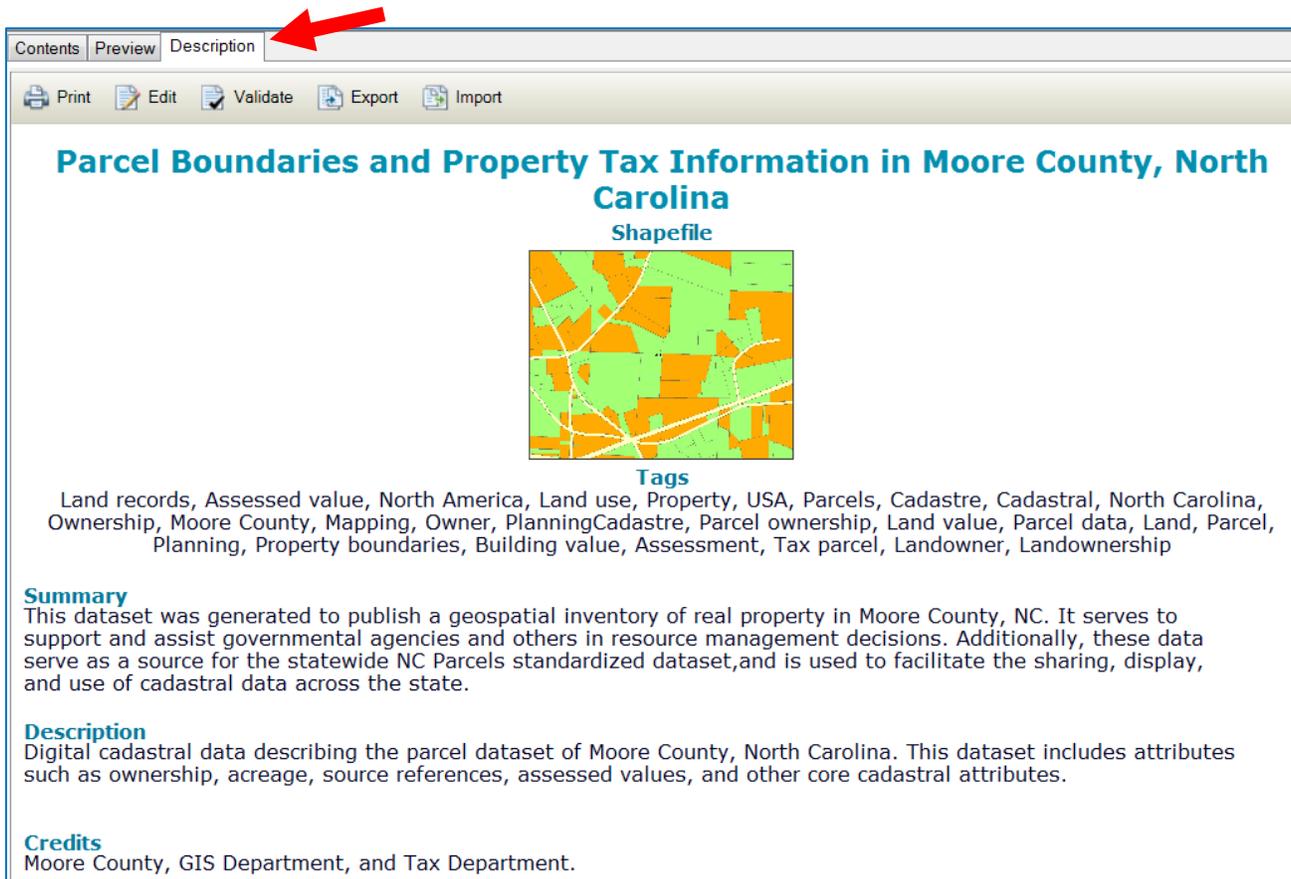
The next section describes how to export the metadata record in xml format from ArcCatalog.

## 5. Export Metadata from Dataset to XML File

The completed metadata record for parcels may be useful to apply as a template for a subset of parcels (e.g., properties owned by the county) or to some other local government dataset, as a starting point. To export the metadata to an XML file (suitable for another dataset to import as ArcGIS metadata format), use the following steps.

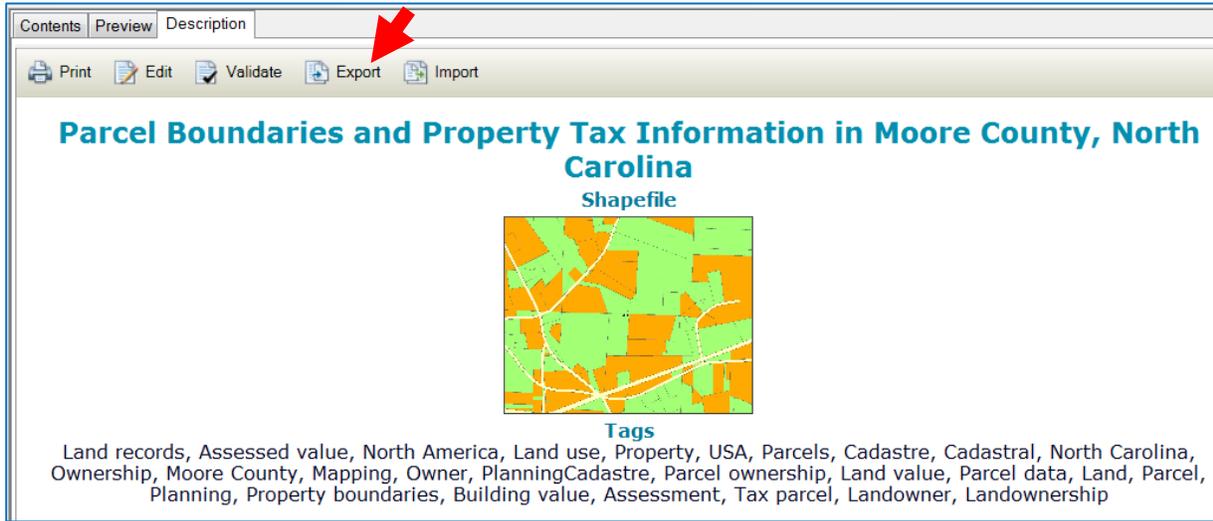
In the Catalog Tree, navigate to your dataset or service and select it. You may have to connect to the folder where the dataset is contained.

In the main window, there are three available tabs. Metadata is viewed under the Description tab. Open the Description tab.

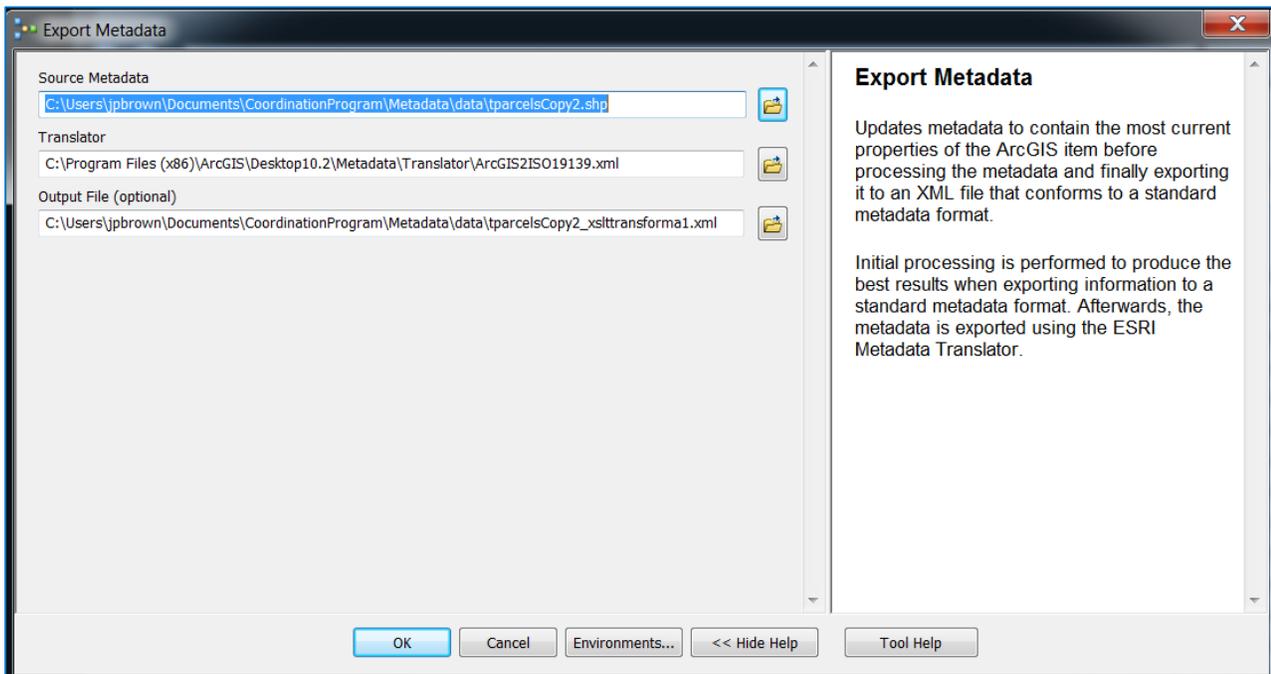


Select “Export” from the toolbar in the main viewing window. Be sure you connect to data that has metadata that is exportable (county parcel data in this example). If an item has existing metadata content that is not in the ArcGIS metadata format, the current version of ArcGIS Desktop cannot use that information. For example, the ArcGIS metadata editor and the “Export” and “Validate” buttons only

work with content that is stored in the ArcGIS metadata format. When you use the “Import” button, the metadata content you are importing is converted to the ArcGIS metadata format.



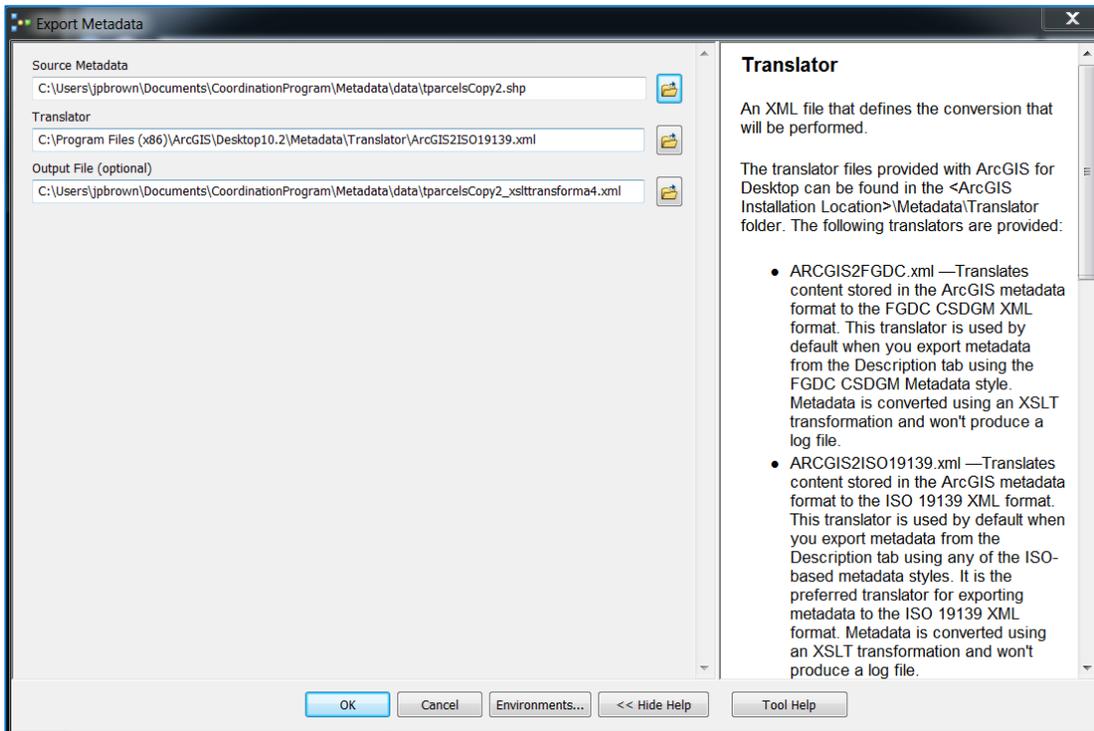
The export window will appear. Fill the required fields:  
Source metadata refers to the item being exported as the metadata for the dataset. Use the windows explorer shortcut  to navigate to the metadata ArcGIS data item file and select it for this field.



“Translator” refers to the specific XML schema translator file that will be used to translate the metadata from the ArcCatalog native format into the standard defined XML document created at output. For users

wishing to export their own customized template based on the State and Local Government Geospatial Metadata Profile template, the appropriate translator is ARCGIS2ISO19139.xml.

Other choices for export include ARCGIS2FGDC.xml, ESRI\_ISO2ISO19139.xml, FGDC2ESRI\_ISO.xml, FGDC2ISO19139.xml, and ISO19139\_2ESRI\_ISO. Select the appropriate type based on the xml file that serves as the source metadata.



The window to the right in the example above contains information to assist you in deciding on the correct translator. This full text contains descriptions of each of the types of translators provided by ArcGIS for this purpose.

The default path for the translator is the location where the default XML translator is stored. This default is defined by the metadata style sheet chosen. All of these XML schema translators are stored in this location on computers with ArcGIS Desktop installed.

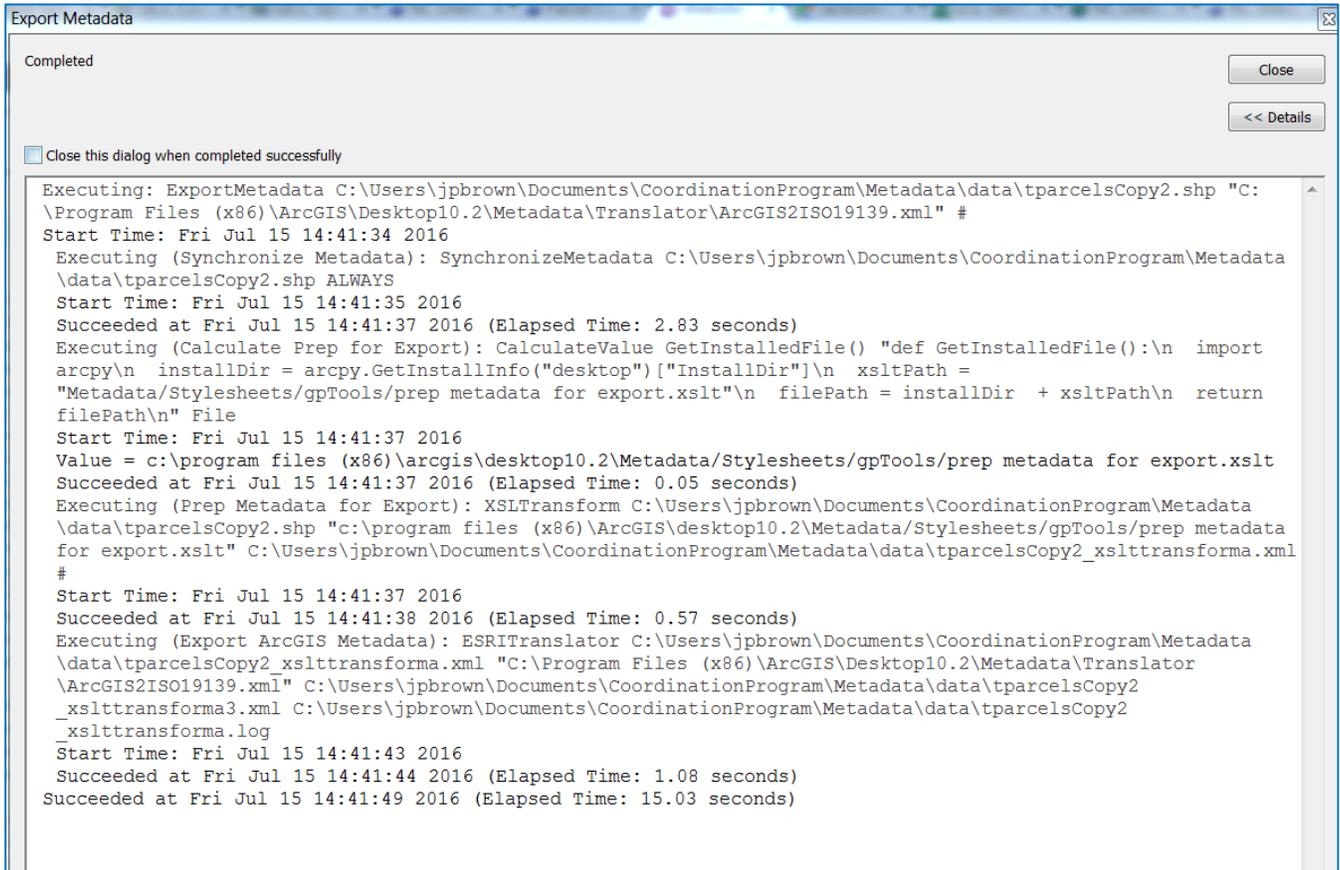
Output file refers to the XML file that you are creating as you export metadata. Use the windows explorer shortcut  to navigate to the folder where you wish to store your XML file and save as filename.xml. For users wishing to export their own customized template based on the State and Local Government Geospatial Metadata Profile template, this output XML file will serve as your new template for your agency’s geospatial metadata. Import this customized XML file to begin each new metadata record.

Make sure “Enable Automatic Updates” is checked.



Click "OK."

This window will appear:



The exported metadata looks like the following in ArcCatalog Description:

The screenshot shows the ArcCatalog metadata description for a dataset. At the top, there are 'Print' and 'Import' icons. The main title is 'Parcel Boundaries and Property Tax Information in ZZZZ County'. Below the title, it lists the 'ISO 19139 metadata content' with a bulleted list: Resource Identification Information, Spatial Representation Information, Reference System Information, Data Quality Information, Distribution Information, and Metadata Information. A horizontal line separates this from the 'Resource Identification Information' section. This section includes fields for CITATION (TITLE: Parcel Boundaries and Property Tax Information in ZZZZ County), PUBLICATION DATE (2016-07-15), PRESENTATION FORMAT (mapDigital), RESPONSIBLE PARTY - ORIGINATOR (ORGANIZATION'S NAME: ZZZZ County), THEMES OR CATEGORIES OF THE RESOURCE (planningCadastre, boundaries), two sets of DESCRIPTIVE KEYWORDS (one listing various planning and land ownership terms, the other 'Downloadable Data'), a THESAURUS (ArcIMS Metadata Service Content Types), and an ABSTRACT (Digital cadastral data describing the parcel dataset of ZZZZ County, North Carolina. This dataset includes

This exported metadata in xml format is ready to import as metadata for a county parcel dataset or a similar local government dataset, with some editing required to customize the information for the particular dataset.

Note: An option for using a metadata xml file as a starter for another dataset is to copy the filename.shp.xml of the dataset with the complete metadata, and replace the auto-generated filename2.shp.xml by renaming the copy xml to become part of the second shapefile, then edit the metadata in ArcCatalog to customize.

For more information on geospatial metadata, search online for *NC OneMap* resources <http://www.nconemap.com/DiscoverGetData/Metadata.aspx> and/or Federal Geographic Data Committee resources <https://www.fgdc.gov/metadata>.

This guide was prepared by NC Metadata Committee in July-September 2016 based on the guide prepared by NC Central University for the committee in January 2016.