



## **Migrating from Parcel Editor™ to Parcel Builder™**



**Technical Document  
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## **Introduction**

The purpose of this technical document is to detail the steps necessary to convert data from the NovaLIS Parcel Editor™ Linear Editing Data Model to the Sidwell Parcel Builder™ Tag Data Model. The procedures outlined in this document represent the best known methods of converting data from one model to the other at the time of publication.

Any large-scale conversion process can be daunting. It is highly encouraged that the following procedures be performed by an experienced ArcGIS geodatabase administrator. If you have any questions regarding conversions between software platform data models, contact The Sidwell Company (see cover page).

## **Background**

The Sidwell Company co-developed Parcel Editor 8 with NovaLIS in 2002, which introduced the Linear Editing Data Model. The Linear Editing Model has since evolved into the Tag Data Model, which is supported by the MapEditor™ tools in Parcel Builder. Because of its development efforts in both software applications, The Sidwell Company is uniquely qualified as the leading authority on both models.

## **Differences Between the Two Models**

There are noticeable differences between the two data models and how they function within the ArcMap editing environment, and there are marked similarities. Both the Linear Editing Model and the Tag Data Model require three feature classes: a cadastral line feature class (the primary linear feature class containing all cadastral line features), a cadastral annotation feature class, and a cartographic line feature class (feature class containing linear cartographic symbols). The multiple feature tagging component remains in the Tag Data Model as well, with a table and relationship class enhancing the cadastral line feature class. In the conversion effort, very little change is made to the cadastral line feature class and its related components.

The major difference is how annotation and cartographic lines are handled. In the Linear Editing Model, annotation and cartographic lines function the same way as the cadastral line feature class; they are set up for multiple feature tagging with the requisite tag tables and relationship classes. However, it was determined that support for multiple feature tagging was unnecessary due to the fact that individual features never represented multiple phenomena (a parcel number is always just a parcel number, and nothing else).

A more efficient alternative is to use annotation classes and cartographic line subtypes to classify features within the same feature class. The ArcGIS 9.0 geodatabase provides a more enhanced structure for storing and maintaining annotation. Annotation features are classified by annotation classes, which can be displayed and edited on an individual basis. Furthermore, annotation symbology, which is rendered through the use of a style file in Parcel Editor, is now stored within the geodatabase. Cartographic lines are classified by subtypes in the Tag Data Model. As a result of this, the personal geodatabase should be significantly smaller in size.

Another notable difference is the establishment of a topology in a Tag Data Model geodatabase. MapEditor utilizes the topology engine on the cadastral line feature class to ensure sound topology among its features. You can establish rules on a subset of the lines classified by a subtype, which is added to the cadastral line feature class. Features can be dynamically reclassified as either having a selected feature tag or not.

## Data Conversion Workflow

The following are the steps involved with converting data from the Linear Editing Data Model to the Tag Data Model. Follow each step explicitly. If you need an example of how a finished Parcel Builder geodatabase is structured, open the sample geodatabase (kane\_4sections.mdb) at c:\Program Files\Parcel Builder\Data. You can also view a sample Parcel Builder geodatabase schema at [www.Sidwellco.com](http://www.Sidwellco.com).

### Before You Begin

Make sure you do the following before you begin the conversion process:

- Make a copy of the existing Parcel Editor geodatabase you are using, and perform the conversion on the copy. If you are performing the conversion on an enterprise ArcSDE geodatabase, you should establish a brand new database, and copy the contents of the existing geodatabase to the new one.

*Note: If you are working in ArcSDE, you may need to have Parcel Editor installed on your computer in order to copy and paste the existing Parcel Editor feature classes to a new ArcSDE geodatabase. This is due to the presence of a COM extension in the Tag, TagCarto, and TagAnno tables of the Parcel Editor data model. The Parcel Editor software does not need to be licensed for the copy / paste to work.*

For more detailed instructions on converting data within ArcSDE, consult the Parcel Builder on-line help system by clicking Start > Programs > Parcel Builder > Parcel Builder Help. Navigate to the Parcel Builder for ArcSDE section.

- Confirm that the AlphaTag column of the annotation and cartographic line feature classes are populated correctly, and that each feature can be classified within a unique category. The AlphaTag column is used to establish annotation classes and cartographic line subtypes of the annotation and cartographic line feature classes, respectively.

***Failure to do this step will cause very undesirable results after the Conversion utility is run.*** The most common problem is due to the presence of features with blank or NULL values in the AlphaTag column. Correct AlphaTag values should be entered for any such features before continuing with the conversion process.

- Confirm that the text symbols of the style file you have been using for Parcel Editor:

- 1) match with the AlphaTag field for the annotation features
- 2) contain the desired color, font, etc.

The style file is also used to establish default annotation symbols for each unique annotation class. ***This step is very important to retain the text styles you have used before.***

The style file is not used in the conversion process where the cadastral and cartographic lines are concerned. You can check the line symbols in the style file before or after the conversion process.

### Special Case: Cartographic Plot Tags.

Some Parcel Editor cartographic feature classes make use of “plot tags” to distinguish cartographic features drawn at different scales, such as 100 vs. 400 scale. This was typically implemented by providing two tags in the TagCarto table per feature, one representing the type of feature (such as “Parcel Owner Hook”), and the other representing the size (such as Plot100). In these cases, the existing AlphaTag values may be “Parcel Owner Hook”, only indicating the cartographic type and not the size.

In these cases, to retain all the scale information in the converted cartographic feature class, the AlphaTag values must be modified to indicate both the cartographic type and size. For example, in the above case, there should be separate AlphaTags for “Parcel Owner Hook 100” and “Parcel Owner Hook 400”.

There are a number of methods to modify the AlphaTag value to reflect the scale information. One method is to apply a definition query to obtain the Cartographic features that have Plot100 Tags

- Create a definition query for the cartographic layers using the following query string:

```
[OBJECTID] in (select TagCartoCollLink from TagCarto where TagValue = 367)
```

where 367 is the subtype code for the Plot100 plot tag.

If you are working in ArcSDE, you may need to use the fully qualified name for the TagCarto table, such as <DatabaseName>.SDE.TagCarto.

- Next, open the attribute table of the Cartographic feature class and Calculate the AlphaTag value to equal [AlphaTag] & “ 100”. This will add the string “100” to the existing AlphaTag value.
- This process can then be repeated using Plot400 Tag Values. Revise the definition query to contain the string:

```
[OBJECTID] in (select TagCartoCollLink from TagCarto where TagValue = 368)
```

where 368 is the subtype code for the Plot400 plot tag.

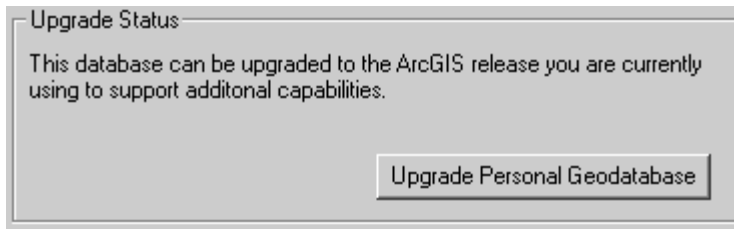
If you are working in ArcSDE, you may need to use the fully qualified name for the TagCarto table, such as <DatabaseName>.SDE.TagCarto.

- Next, open the attribute table of the Cartographic feature class and Calculate the AlphaTag value to equal [AlphaTag] & “ 400”. This will add the string “400” to the existing AlphaTag values for those features.
- The AlphaTag values should be examined after completing this process to ensure that the column contains only valid values. AlphaTags may need to be edited for cases where a feature contained both 100 and 400 Plot Tags, or for features that did not have any Tags.
- In addition, the style file that is used to render the cartographic features may need to be revised to contain values for any new AlphaTag values, such as “Parcel Owner Hook 100” and “Parcel Owner Hook 400”. This can be done through the use of the Style Manager in ArcMap. The simplest procedure is to copy an existing style such as “Parcel Owner Hook”, renaming the copy “Parcel Owner Hook 100”, and then repeating to create “Parcel Owner Hook 400”.

### Upgrade Personal Geodatabase to ArcGIS 9.0

If you have not made the transition from ArcGIS 8.x to ArcGIS 9.0, the first step is to upgrade your Parcel Editor geodatabase to ArcGIS 9.0. Many features in Parcel Builder and ArcMap do not work without upgrading. This process is accomplished in ArcCatalog.

- Start ArcCatalog
- Navigate to the geodatabase you want to upgrade, right-click on it, and then select Properties from the context menu.
- In the Database Properties window, click the General tab.



- Click Upgrade Personal Geodatabase, and then click OK.

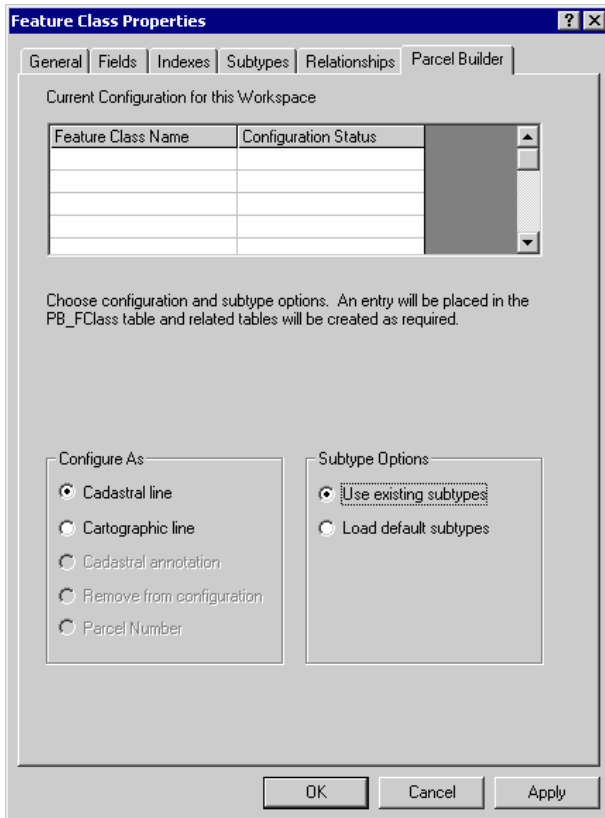
### Configure Tag Model Feature Classes

Parcel Builder includes a configuration utility in ArcCatalog whose primary purpose is to designate specified feature classes as the primary Tag Model and Administrator™ feature classes for use in Parcel Builder. In this step, however, you are using the Configuration utility to delete the COM extension for the three related tables (the COM extension is used in Parcel Editor to activate the Tag Inspector form within the Attributes dialog).

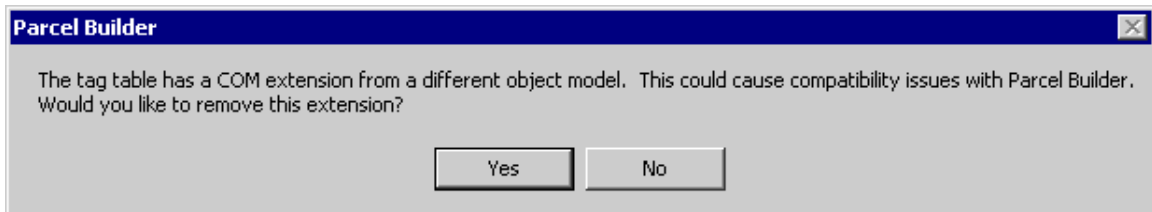
***First, be sure that Parcel Editor has been uninstalled from your computer.*** Otherwise the following process will not prompt you to remove the COM extensions, nor will it remove the COM extensions.

For a personal geodatabase:

- In ArcCatalog, right-click on the tagged linear (not cartographic) feature class, and select Properties from the context menu.
- Click the Parcel Builder tab.
- Select Cadastral Line in the Configure As options, and Use Existing Subtypes in the Subtypes Options. Then click OK.



- After a few moments, you are prompted to delete COM extension from the Tag table. Click Yes to do so.



- Remove the cadastral line feature class from the configuration by returning to the Parcel Builder tab, selecting Remove from Configuration, and clicking OK. You will reconfigure this feature class in a later step. This step is used exclusively to delete the COM extension.

It is not necessary to remove the COM extensions from the TagCarto and the TagAnno tables since these tables will be deleted in a subsequent step.

For an ArcSDE geodatabase:

At the present time, the Configuration tool will not remove the COM extension from an SDE feature class. Following is a workaround using ArcCatalog to remove the COM extension

- Create an empty personal geodatabase by right-clicking on a directory and selecting New > Personal Geodatabase.
- Copy and paste the Cadastral\_Line feature class into the personal geodatabase. The LineToTag relationship class and Tag table should automatically be copied into the geodatabase as well.
- Use the steps described above for a personal geodatabase to configure the Cadastral\_line feature class and remove the COM Extension.
- Delete Cadastral\_line feature class and the Tag table from the SDE database.
- Copy and paste the modified Cadastral\_line feature class from the personal geodatabase into SDE database.

### **Delete Tables**

There are several tables and records in the original Parcel Editor geodatabase that you no longer need in Parcel Builder.


- In ArcCatalog, right-click on the TagAnno and TagCarto tables in your cadastral geodatabase, and select Delete from the context menu. Confirm that the AnnoToTags and CartoToTags relationship classes were also removed (this should happen automatically). If not, delete them as you did the TagAnno and TagCarto tables.
- Delete the PlotScenario table from the cadastral geodatabase.
- Delete the LineToTags relationship class from the cadastral geodatabase. You are doing this for two reasons: 1) to ensure that the re-establishment of the relationship class (performed in a later step) is configured correctly, and 2) to perform calculations on the cadastral line feature class in later steps more efficiently. The relationship class is recreated later using the Configuration utility.

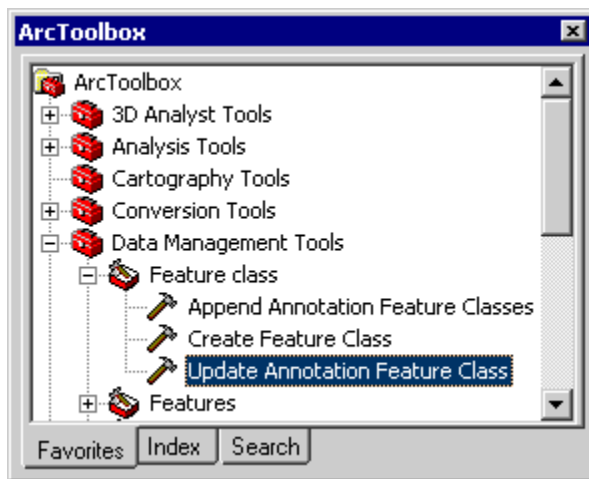
The next step is to remove the annotation and cartographic line entries from the TagInfo table. This can be done in either ArcMap or a database program that can edit tables in a geodatabase. Below are instructions for ArcMap.

- In ArcMap, open a blank document and add the TagInfo table into the Table of Contents. You may need to click on the Source Tab in the table of contents for the TagInfo table to be visible.
- Start an edit session.
- Open the TagInfo table, select the records that contain a TagType value of 'Annotation' or 'Cartographic', and delete them by pressing the Delete key on your keyboard.
- Save your edits.

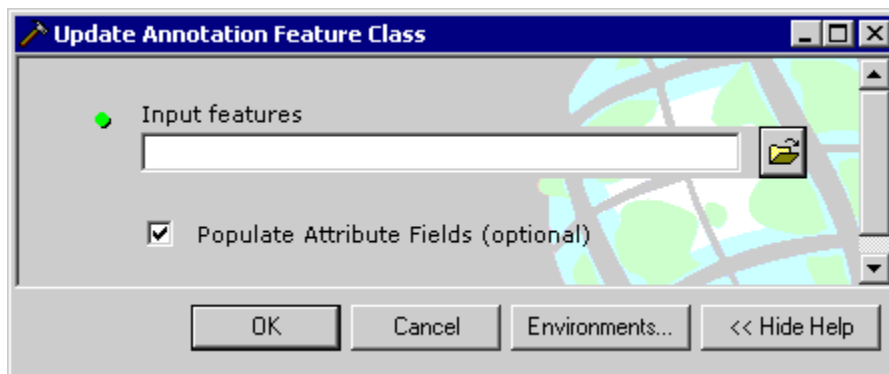
### Update the Annotation Feature Class


The existing annotation feature class needs to be updated prior to converting it for use in Parcel Builder. This is accomplished using the ArcToolbox module in ArcCatalog.

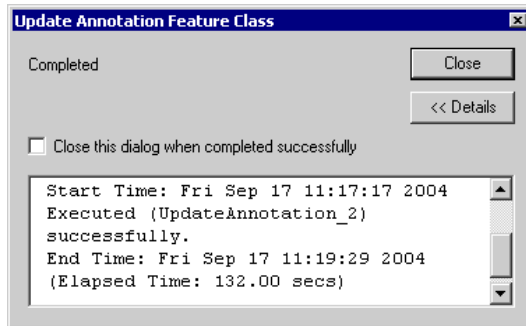
- In ArcCatalog, click the ArcToolbox icon  to open the ArcToolbox module.
- In ArcToolbox, navigate to Data Management Tools > Feature Class > Update Annotation Feature Class, and double-click the tool.



- The Update Annotation Feature Class dialog opens.



- Click the Browse button  and navigate to the annotation feature class you wish to update.
- Ensure that the Populate Attribute Fields option is checked. Even though it is an option, it is required for this workflow.
- Click OK. A processing window appears detailing each step of the process.



- When the Update Annotation Feature Class tool is run, a Default annotation class is created. Every annotation feature becomes a member of the default class. This changes after the Parcel Builder Conversion utility is run.

### Create Topology Subtype in Cadastral Line

The next step is to create and calculate the values of a field that will later be subtyped for use by a geodatabase topology.

- In ArcMap, open the cadastral line feature class attribute table. This should be done outside of an edit session, with ArcCatalog closed.
- Click on Options > Add Field. Add a long integer field to the attribute table named HAS\_SELECTED\_TAG.
- Right click on the HAS\_SELECTED\_TAG column heading in the attribute table, and select Calculate. (If the calculate button is grayed out, it may be because ArcCatalog is still open, or that the LineToTags relationship class was not deleted).
- Calculate the HAS\_SELECTED\_TAG field for all features to equal zero. This task is performed task outside of an editing session because it is much faster. When this step is completed, close the attribute table.
- Open the Layer Properties dialog for the cadastral line layer, and click the Query tab. Type the following definition query for the layer:

[OBJECTID] in (select TagCollLink from Tag where TagValue = 309)

where 309 is the subtype code for parcel lines.

If you are working in ArcSDE, you may need to use the fully qualified name for the Tag table, such as <DatabaseName>.SDE.Tag.

Click OK.

- Still outside of an edit session, open the attribute table for the cadastral line layer and calculate the HAS\_SELECTED\_TAG field to equal 1. The intended results is for all lines with a parcel line feature tag to equal 1, and all others to equal zero.

### Configure Tag Model Feature Classes

Even though you configured the cadastral line feature class to delete the COM object, you need to configure this feature class again. The annotation and the cartographic line feature classes must also be configured to make these three classes the primary feature classes for use in Parcel Builder.

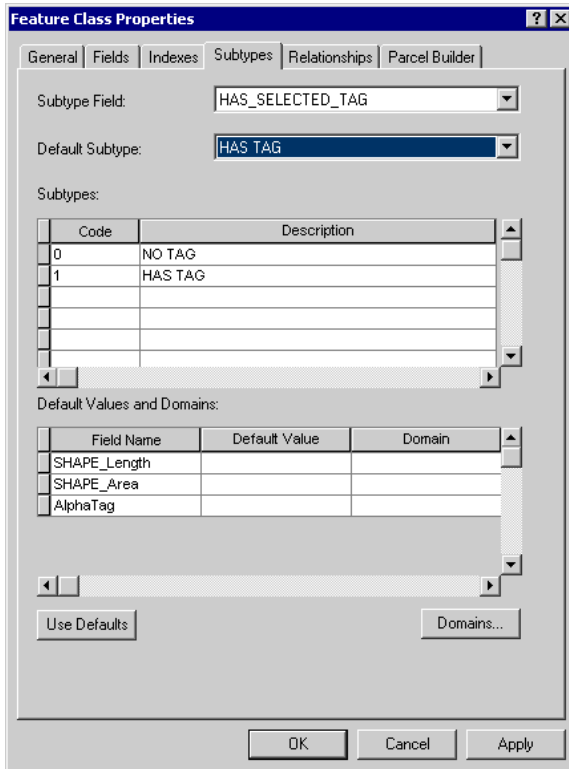
- In ArcCatalog, configure all three (cadastral line, cadastral annotation, cartographic line) feature classes using the Parcel Builder Configuration utility. Select the Use existing subtypes option for all three.

If you do not have a LineToTags relationship class between the cadastral line feature class and the Tag table, it will be created at this time

### Establish Cadastral Line Subtype Field

Set up the subtype field for cadastral line to be used for a topology to be established later.

- Establish a subtype on the HAS\_SELECTED\_TAG field (which you calculated in the previous step). Return to the feature class Properties dialog in ArcCatalog, and click the Subtype tab.
- Select HAS\_SELECTED\_TAG as the subtype field, and create two subtypes: 0 = NO TAG, 1 = HAS TAG. Make HAS TAG the default subtype.
- ***Be sure that there are no default values listed for any fields for either subtype.*** This can cause undesired results when edits are made to the lines.



- The Feature Class Properties dialog should look similar to the above. Click OK.

## Convert Annotation and Cartographic Lines

The next step is to convert the annotation and cartographic line feature classes to the Parcel Builder data model. The Parcel Builder Conversion utility in ArcMap makes new annotation and cartographic line feature classes from the originals. The converted annotation feature class contains annotation classes based upon unique AlphaTag values in the original feature class. Furthermore, you can use the text symbols in a style file (like PB\_Cadastral\_screen.style or PB\_Cadastral\_mono.style) to define the default annotation symbol for each annotation class. The converted cartographic line feature class is subtyped based upon unique AlphaTag values. The utility adds the new subtype field to the original cartographic line feature class.

The Sidwell Company has created an enhanced version of the Conversion utility that resolves several issues when applying the Conversion utility to large annotation databases. This enhanced version can be obtained by installing Parcel Builder Patch 1 from the Sidwell Web site at [www.Sidwellco.com](http://www.Sidwellco.com).

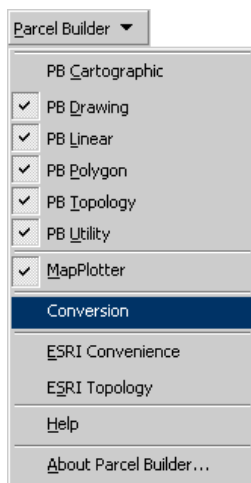
The major change with the enhanced Conversion utility is that it now can be applied to an ArcSDE 9.0 annotation and/or cartographic feature class. This means that the Conversion utility can be applied to feature classes of any size. Additionally, the Conversion utility can now create the new annotation feature class in a different personal geodatabase than the original annotation feature class. This provides users with another option for converting large annotation feature classes outside of ArcSDE. You can then copy / paste the converted annotation feature class back into your original geodatabase.

The Conversion utility uses the information in an existing annotation feature class to create a new feature class in Parcel Builder format. The new class can also be created within the original personal geodatabase. However, be aware that there is a 2 GB size limit to personal geodatabases, and the new feature class, in conjunction with intermediate programming steps, can cause the 2 GB limit to be reached, generating an error. To lessen the chance of reaching this limit, first reduce the size of your geodatabase by using the Compact Geodatabase command in ArcCatalog.

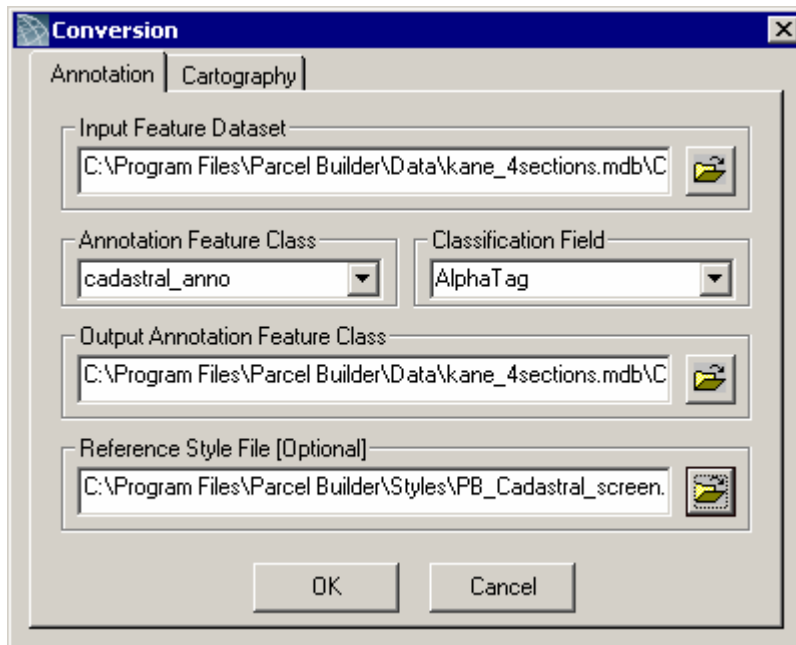
The enhanced Conversion utility is the basis for the following conversion description.

## Convert Annotation Feature Class

- In ArcMap, click the Parcel Builder menu on the Parcel builder toolbar, and select Conversion.



- Click the Annotation tab in the Conversion utility dialog. (If your dialog box does not look like the version shown below, go to [www.Sidwellco.com](http://www.Sidwellco.com) to download and install Parcel Builder Patch-1)

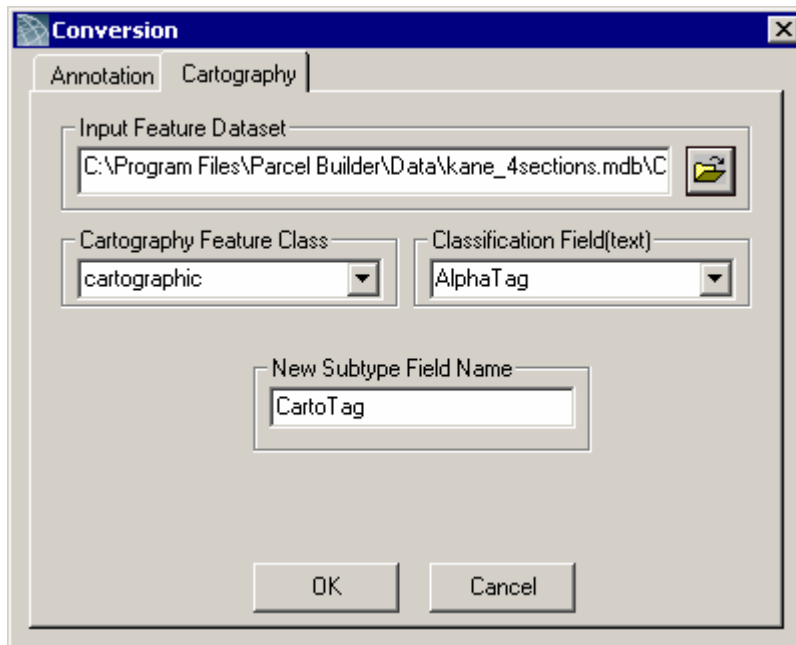


- Click the Browse button next to the Input Feature Dataset field. Navigate to the cadastral geodatabase, select the feature dataset housing your cadastral feature classes, and click Add.
- The annotation feature class you wish to convert is in the Annotation Feature Class drop list. Select it if there are multiple annotation feature classes in the geodatabase you specified.
- Select the text field from the Classification Field drop list that is used to classify the annotation features. In this case, choose AlphaTag.
- By default, the output feature class is called Appended\_Anno and is created in the same geodatabase as the input feature class. You can specify a different geodatabase and feature dataset to create the new annotation feature class by clicking the Browse button next to the Output Annotation Feature Class field, navigating to the geodatabase and feature dataset you wish to store the new feature class, typing a name, and clicking Save.
- Select a style file by browsing to it on disk. If you do not select a style file, the first annotation feature the utility discovers for a unique value in the specified text field defines the default annotation symbol for the annotation class it creates. Parcel Editor style files are typically in the bin/Styles folder of the ArcGIS installation directory (even if you have uninstalled Parcel Editor).
- Click OK to convert. This operation may take a significant amount of time depending on the size of your database and the processing speed of your machine.

- In ArcMap, compare the original annotation feature class with the new Appended\_Anno feature class. After making a backup of the geodatabase, remove the original annotation feature class from the original geodatabase.

### Convert Cartographic Line Feature Class

- In ArcMap, click the Parcel Builder menu on the Parcel builder toolbar, and select Conversion.
- Click the Cartography tab on the Conversion utility dialog.



- Click the Browse button next to the Input Feature Dataset field. Navigate to the cadastral geodatabase, select the feature dataset housing your cadastral feature classes, and click Add.
- The cartographic line feature class you wish to convert is in the Cartography Feature Class drop list. Select it if there are multiple linear feature classes in the geodatabase you specified.
- Select the text field from the Classification Field (text) drop list that is used to classify the cartographic features. In this case, select AlphaTag.
- Type a name for the new subtype field for the cartographic line feature class in the New Subtype Field Name input box. By default, the name CartoTag is used.
- When everything appears satisfactory, click OK.
- After several minutes the cartographic line feature class is updated to include the new subtype field and subtypes.

## Create Cadastral Topology

The next step is to create a topology for the cadastral line feature class. Rules are established for all linear features in the feature class as well as those features classified in the HAS TAG subtype.

- In ArcCatalog, navigate to the cadastral geodatabase, right-click on the feature dataset that contains the tag model feature classes (cadastral line, etc.), and select New > Topology from the context menu.
- Click Next> on the first screen of the New Topology wizard.
- On the next screen of the New Topology wizard, specify a name for the topology and enter a cluster tolerance. The cluster tolerance you select creates permanent changes to your geodatabase when the topology is validated. Please consult the ArcGIS on-line help system for guidance in selecting a cluster tolerance value (we typically use 0.01). Click Next>.

**New Topology** ? X

Enter a name for your topology:

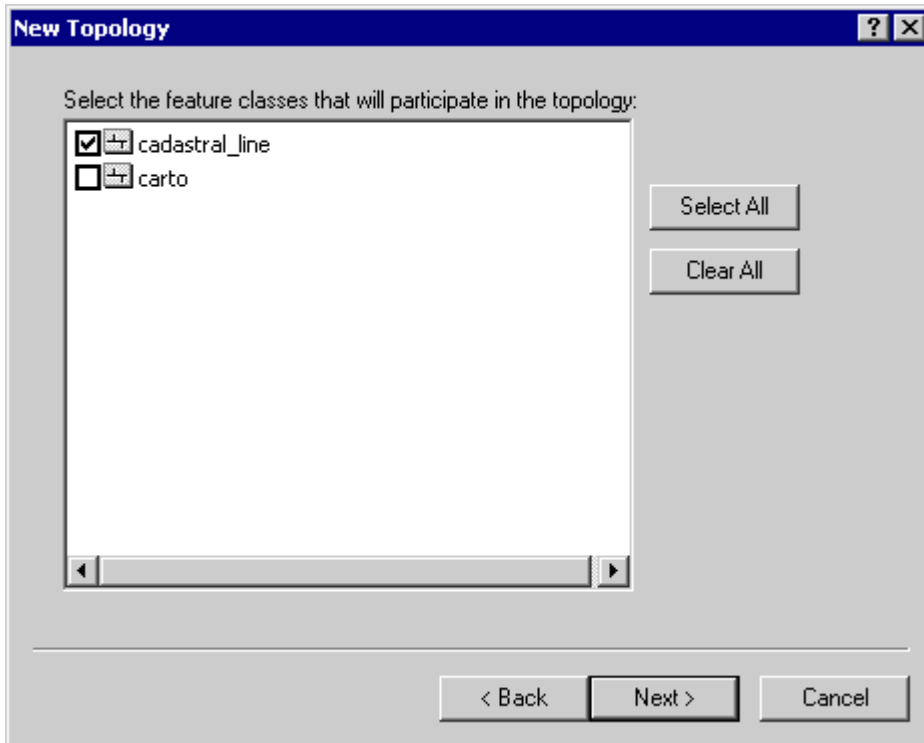
Enter a cluster tolerance:  
 US survey feet

The cluster tolerance is a distance range in which all vertices and boundaries are considered identical, or coincident. Vertices and endpoints falling within the cluster tolerance are snapped together.

The default value is based on the precision defined for the spatial reference of the feature dataset.

< Back    Next >    Cancel

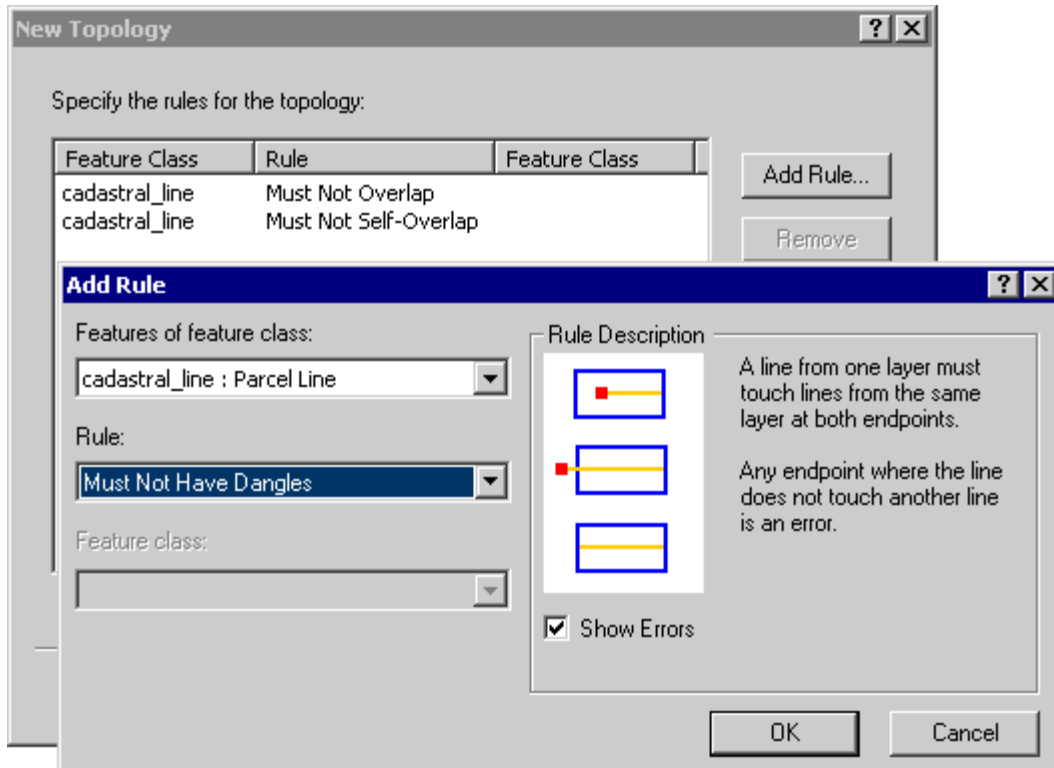
- On the next screen, specify the feature classes that will participate in the topology. In this case you should only select the cadastral line feature class (cartographic and annotation do not have any topological structure). Click Next>.



- On the next screen specify a ranking for the feature classes. Because you only have one feature class participating in the topology, the ranking should default to '1'. Click Next>.
- On the next screen, you add topology rules. It is recommended that you add the following three rules to the topology. You can add and remove rules as you see fit.

Feature Class	Description
Cadastral_line	Must Not Overlap
Cadastral_line	Must Not Self-Overlap
Cadastral_line:HAS TAG	Must Not Have Dangles

- Click the Add Rule button. In the Add Rule dialog, specify the features used in the rule (all or subtype), and a rule. When it appears satisfactory, click OK, and it is added to the rule list. Repeat this for the three rules listed above, and any other rules that you wish to employ.



- When you are satisfied with the rule list, click Next>. A summary screen appears showing the properties of the topology. Click Finish>.
- After ArcCatalog finishes creating the topology, you must validate the topology to apply these rules to your database.

### Final Steps

These final steps are to clean up the remaining objects and fields in the geodatabase that are unnecessary for use in Parcel Builder.

- Delete the original annotation feature class from the geodatabase by navigating to it in ArcCatalog, right-clicking it, and selecting Delete from the context menu.
- Optionally, you can delete the AlphaTag column from the new annotation and cartographic line feature classes by opening their respective attribute tables using the preview tab in ArcCatalog, right-clicking on the AlphaTag column header, and selecting Delete field from the context menu. These columns will not be maintained in the annotation and cartographic feature classes by the Parcel Builder editing process. (AlphaTag is required and maintained in the cadastral\_line feature class, however).
- If the LineToTags relationship class is located within the cadastral feature dataset, click and drag it outside of the feature dataset in ArcCatalog.
- Check to be sure that there are no default values for any fields based upon the HAS\_SELECTED\_TAG subtype. These can be deleted by accessing the subtype properties in ArcCatalog.

- Ensure that the COM extension is removed from the feature classes. You can configure and reconfigure the feature classes in ArcCatalog, and if prompted to remove the COM object, click Yes. Note that Parcel Editor must be uninstalled from your computer for this test to work.
- Compact the geodatabase in ArcCatalog by right-clicking on the geodatabase and selecting Compact Geodatabase from the context menu.
- In ArcMap, bring in the cadastral\_line and cartographic feature classes. Using the cadastral\_line properties dialog, symbolize all features using your style file based on the AlphaTag field. If any features cannot be symbolized, there is most likely a mismatch between the values in the AlphaTag field and the style file.
- Using the Cartographic properties dialog, symbolize all features using your style file, based on the CartoTag field. If any features cannot be symbolized, there is most likely a mismatch between the subtype names in the CartoTag field and the values in the style file.

## **Technical Support**

It is important to us that the migration of your cadastral based GIS to the Parcel Builder data model be as efficient as possible. If you have any questions, concerns or issues related to this document and/or the workflows described herein, please contact The Sidwell Company at our technical support line:

(630) 549-1080