

# **Delete Fabric Records** Parcel Editor Add-In

# **ArcGIS Parcel Editor Development Team**

This Add-in is available here.

# Rev 1.0 October, 2010

# Rev 1.1 February, 2011

• Added Fabric table truncate tool

# Rev 2.0 August, 2012

- Added Report and Delete Inconsistent Records tool.
- Added Delete Fabric Records toolbar.
- Improved batch deletion of unjoined parcels.
- Added tool for batch deletion of large control point selections.
- Toolbar and commands added automatically; does not require Customize dialog.

# Rev 2.1 September, 2012

- Improvements in Report and Delete Inconsistent Records tool:
  - Scalability and resource management.
  - Fixed bug preventing use on fabrics in PostgreSQL SDE.
  - Fixed bug in report for Lines orphaned from parcels.
  - $\circ$   $\;$  Improved report, with processing time and data source.

# Rev 2.2 January, 2013

• Fixed a crash that occurred when using Delete Fabric Orphans tool while in an open parcel, or construction.

# Rev 2.3 August, 2013

- Fixed an error message that occurred when using Delete Inconsistent Records tool.
- Now Disable tools when they are unavailable.

# Rev 2.4 December, 2013

• Fixed problem that occurred when deleting selected control points from control point sub-layers.

# Rev 3.0 June, 2014

- Bug fixes related to use of the Add-in with ArcGIS Desktop 10.0 client, and with an error message that would sometimes appear when deleting orphan points in an SDE environment.
- New tool for deleting a line point selection.
- New tests for inconsistencies in line points.

- New help button on the toolbar for quick access to information about this add-in.
- New Focused fabric scan for use with fabrics that have in excess of 1 million parcels, including:
  - Scanning fabric for specific problems to allow system resources to address each inconsistency type individually
  - Reporting line-point offsets, writing to a line points table field that you add.

## Rev 3.1 May, 2015

• New tool for deleting a selection of parcel connection lines.

## Rev 3.2 January, 2016

- Bug fix in Delete Selected Parcels tool; it would sometimes result in an error message resulting from an ill-formed SQL In Clause on line-points table.
- Enhancements to Truncate tool, making it faster for most database platforms, and adding ability to revert back to old behavior via registry key if needed, as documented below.

#### Overview

This Add-in will be useful for:

- Deleting a large number of selected control points, line points, connection lines, or parcels from un-versioned or versioned fabrics.
- Finding and optionally deleting inconsistent fabric records such as points that are not attached to lines, lines with the same from and to points, lines that are not attached to parcels, parcels with no lines, and line-points with incorrect point references, by one of two methods:
  - a. In batch for the whole fabric, or
  - b. By dragging a small rectangle over fabric lines and points in the map.
- Finding and optionally deleting empty plans.
- Truncating fabric tables on an un-versioned fabric (removes ALL rows from chosen fabric tables)

There are times when you may want to delete a large number of parcels, control points, connection lines, or line points. For example, during a data migration project where you are performing a series of batch imports, there may be data-loads that result in parcels with incorrect system attributes. Rather than creating a new empty fabric, and re-starting the entire series of loads, an alternative approach is to delete the incorrect parcels, fix the source data that had problems, and re-load the corrected subset.

Every parcel belongs to a fabric Plan. After deleting many parcels it is possible that you'll have a lot of empty plans. You may need to delete one or more of these empty plans. The Delete Empty Plans tool lists the empty plans in the fabric, and lets you choose the ones to delete.

Certain workflows from earlier releases may have caused inconsistent fabric records. For example, there are cases where points may not be attached to lines, or lines with the same from and to points. In some cases workflows have resulted in lines that are not attached to parcels, parcels with no lines, or line points with incorrect point references. The Delete Inconsistent Records button and the Delete Fabric Orphans tool provide ways to find these records, to report them, and to optionally delete them.

#### Installation

This Add-In is called DeleteParcelsAndPlans.esriAddIn. To install this Add-In you can:

- Double-click on the file from the *download* directory to install it for use on your individual machine.
- Copy the file to a shared folder used by your organization and then reference that folder through the Options tab on the Add-In Manager dialog. Deploying the Add-In this way will make it accessible to anyone that can get to the shared folder.

Other important install notes:

- If you had a prior version of the Add-In installed, then use the Add-in Manager to Delete it
- Shut down ArcMap (and ArcCatalog if applicable). This is important because you can
  install an Add-In while ArcMap is running, but the newly installed version of the Add-in is
  not loaded until you restart.
- Empty the Recycle Bin. This is optional, but ensures that no deleted instances of the prior version can be mistakenly re-referenced.
- Install the new Add-in (unless you already did that while ArcMap was running)
- Restart ArcMap or ArcCatalog, and begin using the new functions

After installing the Add-in, the new Delete Parcel Fabric Records toolbar is added to ArcMap.



If it is not visible you can access it by clicking Customize->Toolbars, and then checking the Delete Fabric Records toolbar.

ere face face being a		3D Analyst
Customize Windows He	el	Advanced Editing
Toolbars •		Animation
Extensions		ArcScan
Add-In Manager		COGO
VBA Macros	~	Curves and Lines
Customize Mode		Data Driven Pages
Style Manager	_	Data Frame Tools
ArcMan Ontions	~	Delete Fabric Records
	_	Distributed Geodatabase

You can confirm the install by clicking Customize->Add-In Manager to see the version:

	Delete Fabric Re	cords
	Created by:	Esri
	Date:	1/15/2016
	Version:	3.2
	Digital Signature:	None
Tools to delete Repair tools to	parcels, control, cor report or delete inco	nnections, and line points. nsistent fabric records.
Types:		
Commands	3	
Catego	ory: Add-ins	
De	elete Selected Parcel	ls (Button)
De	elete Empty Plans (	Button)
Tn	uncate Fabric (Butt	ton)
De	elete Selected Contro	ol (Button)

Delete Selected Line Points (Button) Delete Selected Connection Lines (Button) Full Fabric Scan... (Button) Delete Fabric Orphans (Tool) Focused Fabric Scan... (Button) Help... (Button)

The Truncate Fabric, and Inconsistent Records scanning utilities are also automatically added to the Parcel Fabric context menu, accessed by right-clicking the fabric in the catalog window:



•

# Using the Delete Selected Parcels Tool

Click Parcel Editor -> Start Editing

To use the Delete Selected Parcels tool, you need to be in an edit session. (The tool will also work on un-versioned fabrics, but without the ability to Undo the delete.)

Click the Select Parcel Features tool on the Parcel Editor toolbar. Drag a selection box around the parcels in the fabric that you want to delete. -005 -021 -017 -004 -003 -006 -001-002 -022 -018 -020 -007 -023 -006 -002-005 -021 -019 -008 -024 -007 -003 -022 -009 -009 -020 -025 -008 Wood Lake Hills -023 -010 -00 -010 -026 -011 -021 -024 R<sub>011</sub> The Dells of -0b5 -027 Bloomfield 022

You can also select the parcels from the parcel table or from the Parcel Explorer. You would do this if you needed to delete parcels that were not visible in the map, for example, un-joined parcels.

• Click the Delete Selected Parcels button:



The parcel, along with its lines and points are deleted. When deleting large amounts of data a progress bar is displayed:

Working 🔀
Deleting linesStep 1 of 2
Cancel

The progress bar has been implemented with a cancel tracker.

You can click the Cancel button at any time to stop the delete; none of the data that you selected will have been deleted.

# Using the Delete Selected Control Tool

To use the Delete Selected Control tool, you need to be in an edit session. (The tool will also work on un-versioned fabrics, but without the ability to Undo the delete.)

- Click Parcel Editor -> Start Editing
- Click the Select Parcel Features tool on the Parcel Editor toolbar.
- Turn on the selectability for control layer in the map's table of contents.

• Drag a selection box around the control points in the fabric that you want to delete. (You can also select the control points from the control table.)



Click the Delete Selected Control button:



# Using the Delete Selected Line Points Tool

To use the Delete Selected Line Points tool, you need to be in an edit session. (The tool will also work on un-versioned fabrics, but without the ability to Undo the delete.)

- Click Parcel Editor -> Start Editing
- Click the Select Parcel Features tool on the Parcel Editor toolbar.
- Turn on the selectability for line points layer in the map's table of contents.
- Drag a selection box around the line points in the fabric that you want to delete. (You can also select the line point records in the line points table.)
- Click the Delete Selected Line Points button:



#### Using the Delete Selected Connection Lines Tool

To use the Delete Selected Connection Lines tool, you need to be in an edit session. (The tool will also work on un-versioned fabrics, but without the ability to Undo the delete.)

- Click Parcel Editor -> Start Editing
- Click the Select Parcel Features tool on the Parcel Editor toolbar.
- Turn on the selectability for lines layer in the map's table of contents.
- Drag a selection box around the connection lines in the fabric that you want to delete. (You can also select the connection line records in the lines table.)



Click the Delete Selected Connection Lines button:



The selected connection lines are deleted. If there are non-connection lines selected, they are not deleted. If there are any connection lines that are downstream from the selected connection line, then they are also deleted. This ensures that there is no instance of connection lines that are disconnected from the parcel.

#### Using the Delete Empty Plans tool

To use the Delete Empty Plans tool, you need to be in an edit session. (The tool will also work on un-versioned fabrics, but without the ability to Undo the delete.)

- Click Parcel Editor -> Start Editing
- Click the Delete Empty Plans button

A dialog presents a list of the empty Plans. In some cases there may be no empty plans:

Delete Empty Plans		×
Select empty plans from the list, and then click Delete:		
ROS 14290	^	Select All
Map 13996	-	
Map 14751		Deselect All
Map 2141		
🔽 Map 7531		
🔽 Map 6323		
PM 9328		
ROS 11376		
ROS 12767		
ROS 12957		
ROS 6110	~	Cancel
327 of 327 empty plans selected		Delete

• Check the plans that you want to delete, and then click the Delete button.

#### Using the Delete Fabric Orphans tool

To use the Delete Fabric Orphans tool, you need to be in an edit session.

Start editing, and then click on the tool button. Use the tool to drag a box over the lines, points and linepoints that you'd like to validate. The tool will test to see if the lines/points/line-points are true orphans. If no orphans are found the Orphan lines and points dialog reports that there are no problems:

Orphan lines and points	
Selected area has no orphan lines or points.	^
	Ŧ
Close	

If orphaned points, lines or line points, are detected then the tool will automatically delete them, and will report what was found.

Orphan lines and points	×
Deleted: 5 orphaned lines 4 orphaned points	<
	$\sim$
Close	

Since the tool runs in an edit session, you can undo the edit operation.

#### **Using Truncate Fabric**

The truncate fabric tool will work with un-versioned fabric tables on an enterprise geodatabase, or with fabrics stored in a file or personal geodatabases. If the fabric is stored in an enterprise geodatabase, then you will need to unregister the feature dataset that contains the fabric before using this tool.

To start, use the Catalog window and right-click the parcel fabric that you want to truncate, and then click Truncate Fabric:



In the Truncate Fabric dialog, choose the fabric tables that must have all records removed. The data model requires that specific tables are truncated together as a group.

Truncate Fabric Classes	×
Choose fabric class groups and then click Next:	
<ul> <li>Drop all control points</li> <li>Drop all plans, parcels, lines, points, and line-points</li> <li>Drop all fabric jobs</li> <li>Drop all feature adjustment information and vectors</li> <li>Reset the Accuracy table to the default record values</li> </ul>	Select All Deselect All
	Cancel
	Next >

Note that there is also an option to restore the default values to the Accuracy table. These records are created for new empty fabrics. However, if the fabric schema was created by import from XML,

or from loading a package, these records may not be present, so this option can be used to regenerate the accuracy records.

Click Next to see a summary page of the table records to be removed, as well as the current row count for each table.

Truncate Fabric Summary		×
Truncate will delete ALL rows from these tables: SDE.TruncateTest_3_0_Control (3 rows) SDE.TruncateTest_3_0_Parcels (5150 rows) SDE.TruncateTest_3_0_Lines (47338 rows) SDE.TruncateTest_3_0_Points (15276 rows) SDE.TruncateTest_3_0_Plans (385 rows) SDE.TruncateTest_3_0_JobDbjects (22561 rows) SDE.TruncateTest_3_0_JobDbjects (22561 rows) SDE.TruncateTest_3_0_JobD (90 rows) SDE.TruncateTest_3_0_Vectors (empty) SDE.TruncateTest_3_0_Levels (empty) SDE.TruncateTest_3_0_Adjustments (empty) SDE.TruncateTest_3_0_Accuracy (7 rows) 	Cancel Cancel Cancel	

Click Truncate to drop the table rows. Note that the truncate process does not allow Canceling of the operation once it has started, and so the deletion is permanent, as soon as the Truncate button has been pressed. On some database platforms truncate on non-spatial tables does not function. If you are experiencing problems using truncate on Jobs table, for example, Truncate can be re-configured to delete the records using a row-based approach. To setup this configuration you can add a key to the registry as follows:

- 1. Click the windows Start menu and click Run
- 2. Type regedit in the Run dialog box.
- 3. In the Registry Editor window, navigate to HKEY\_CURRENT\_USER \\Software\\ESRI\\**Desktop10.x**\\ArcMap\\Cadastral

Change the Desktop10.x for your release (for example Desktop10.4)

- 4. Right-click the Cadastral folder, point to New, then click String value.
- 5. Type AddIn.DeleteFabricRecords\_Truncate as the String name.
- 6. Double-click the new String value to edit it.
- 7. In the Edit String Value dialog box, type DeleteByRowOnStandardTables in the Value data text box.
- 8. Click OK to add the registry setting.
- 9. Close the Registry Editor window.

<b>ġ</b>	Registry Editor			- 🗆 🗙
File Edit View Favorites Help				
Cadastral	Name	Туре	Data	^
LastUsedPlanProperties	Real I SAListingDetailLevel	REG_DWORD	0x0000001 (1)	
Edit String	× asurementView	REG_DWORD	0x00000000 (0)	
	geCopyParcels	REG_DWORD	0x00000000 (0)	
Value name:	CDegree	REG_SZ	0.100000	
AddIn.DeleteFabricRecords_Truncate	CDelete	REG_DWORD	0x0000001 (1)	
Value data:	CRadialFactor	REG_SZ	2.000000	
DeleteByRowOnStandard Tables	CRadialMeterValue	REG_SZ	0.999988	
	CRadialOption	REG_DWORD	0x00000000 (0)	
OK Cancel	celJoinMode	REG_DWORD	0x00000000 (0)	
	hDirectoryShow	REG_DWORD	0x00000000 (0)	
PropertySheets	💐 Proportion remaining breakline distance	REG_DWORD	0x00000000 (0)	
Recent File List	antic Records_Truncate	REG_SZ		~
Recent Geodatabase List	<			>
Computer\HKEY_CURRENT_USER\Software\ESRI\Desktop10.4\ArcMap\Cada	stral			.4

#### Using Inconsistent Record Fabric Scans

The Inconsistent Record Fabric Scans work from a selected fabric in the Catalog window and can be used to report the inconsistent records without deleting them. Stop editing the fabric before running this tool. If the fabric is being edited by another process then a message will appear.

There are 2 types of fabric scans, the Full fabric scan, and the Focused fabric scan. The Full fabric scan will check for the most common inconsistencies across all the fabric tables.

The Focused fabric will allow you to choose a specific type of inconsistency to check.

#### **Full fabric scan**

To start, use the Catalog window and right-click the parcel fabric that you want to check, then move over the Inconsistent Records pull-right and click on Full Fabric Scan:



A progress bar will appear indicating the current activity. Click Cancel to exit this process at any time.

#### **Delete Fabric Records**



#### The Full Fabric Scan dialog appears:

Full Fabric Scan	×
Full scan done. Choose the type of records to report or delete Points that are not connected to lines Lines with the same To and From points Lines that do not belong to a parcel Line points with invalid point references Parcels that have no lines Invalid feature adjustment vectors	e: Select All Deselect All
	Cancel < Back Next >

In the Delete Inconsistent Fabric Records dialog, choose the type of records that you'd like to report or delete. The default is all types. Click Next to get the report:

Save Report
Cancel
< Back

If no inconsistencies are found for the type of records tested, then the dialog lists them with a green check box icon. Otherwise a yellow icon appears next to the type of record that had 1 or more inconsistencies. In the example indicated in the graphic, there are 5 line points that do not have valid fabric point references.

Saving the report in a file will let you keep the information about the inconsistencies for further analysis, without necessarily deleting the records right away.

To save the report, click the Save Report button, browse to a location, and click the Save button:

Save Report as File	
😋 🔍 🗢 🚺 « OS	Disk (C:)   Cadastral
File name:	InconsistentRecords
Save as type:	Text (*.bxt)
💿 Browse Folders	Save Cancel

The information in this file is formatted as SQL, so that it may be used as a definition query on the map layers.



In this example, the string highlighted in the graphic can be copy pasted into the definition query for the line points of the fabric's sub-layer for line points in the map's table of contents:

🖃 🥌 Layers	
□ 🔽 ParcelFabric	Layer Properties
– 🗹 Control	
Others	General Source Selection Display Symbology Fields Definition Query Labels Joi
Active	Definition Query:
LinePoints	"OP ISCTID" IN (99 00 1155 1505 2050)
•	Objectio 14 (88,50,1106,1353,2565)
Points	
•	
Lines	
- Boundary Lin	

This makes it easier to further assess the nature of the problem, as this definition query will show only those records that were detected as having an inconsistency.

#### **Focused fabric scan**

To start, use the Catalog window and right-click the parcel fabric that you want to check, then move over the Inconsistent Records pull-right and click on Focused Fabric Scan:

#### **Delete Fabric Records**

Catalog		□ ×				
수 🔹 🖒 🖒 🕡		🖬 🕶   😫   😫 📃				
Location: 🔀 ParcelFab	ric					
A Parc	elDi elEa	mensions	_			
🗄 📴 Parcell	ð	Сору				
⊞	×	Delete				
H G Sewer		Rename				
<	$\diamond$	Create Layer				
Name		Locks				
ParcelFabric_Cont		Information Models	•			
ParcelFabric_Linel	2	Check Parcel Fabric				
ParcelFabric_Line		Inconsistent Records	₽¥	Full Fabric	Scan	
ParcelFabric Plan	М,	Truncate Fabric		₿≓ Focused Fabric Scan		
ParcelFabric_Poin		Import	•	Help	Z	
		Item Description			Focused Fabric Scan	
	P	Properties			Scan the fabric	for a specific type
	1	Extended Fabric Properties			of problem.	
<		•	_			

The Focused Fabric Scan dialog appears, with the different types of errors that may be scanned. For the focused scan you can only choose one category of error to scan for each time the tool is run:

Focused Fabric Scan	ୄୄ	X
Choose the type of records to scan:		
Points that are not connected to lines		<u>^</u>
Lines with the same To and From points	-0	
Lines that do not belong to a parcel		=
Line points with invalid point references		
Line points with displaced geometry		
Parcels that have no lines		-
Cancel	St	art

Click the '?' button on the top right of the dialog, and then click the scan method to get specific help for that method. This information is also described in the following sections.

#### Points that are not connected to lines

The points table is searched for all ids, and a collection is created. Then the scan checks each of the lines stored in the parcel fabric table, and looks for references to the FromPointID and ToPointID values, and removes these from the first list. Any points that remain in the first list after all the lines are checked, are orphan points and reported as inconsistencies.

Fea	ture Class Propertie:	;				×	Ĵ	
	General         Editor Tracking           Subtypes         Feature Extent         Relation           Z Coordinate System         Domain, Resolution and Topical System         Domain, Resolution		king Relatio ution and Tol	onships erance	XY Coordinate Repre Fields	System esentations Indexes	- 23	<ul> <li>ParcelFabric</li> <li>ParcelFabric_Control</li> <li>ParcelFabric_LinePoints</li> <li>ParcelFabric Lines</li> </ul>
	Field Name		   Object II	Data Type			ParcelFabric_Parcels	
	Shape			Geometr	, У			ParcelFabric_Points
				Long Inte	eger	[		
	Sequence			Long Inte	eger eaer	_		
	FromPointID			Long Inte	eger			
	ToPointID			Long Inte	eger			
	Bearing			Double				

#### Lines with the same To and From points

This scan will check each line and find records where the value stored in the 'FromPointID' field is equal to the value stored in the 'ToPointID' These line records are reported as inconsistencies and can be deleted if you choose to.

#### Lines that do not belong to a parcel

Every line record in the fabric must belong to a parcel. This scan will build a list of all the parcel id records in the fabric's parcel table, and will then check each line record in the fabric lines table looking for the 'ParcelID' value in the parcel id list. If the line record's 'ParcelID' value does not exist in the first list it is added to a second list that contains those lines that have no parcel. These lines without parcel references are reported as inconsistencies, and may optionally be deleted.

#### Line points with invalid point references

This scan searches for inconsistencies in each line point's attributes and tests for the following problems:

- 1. 'FromPointID' is the same as the 'LinePointID'
- 2. 'ToPointID' is the same as the 'LinePointID'
- 3. 'FromPointID' is the same as the 'ToPointID'
- 4. Orphaned line points, where the combination of 'FromPointID' and 'ToPointID' on the line point does not have a matching line in the fabric lines table with these same point ids.

Any problem line points with these conditions are reported and can be deleted, if you choose to.

#### Line points with displaced geometry

This scan searches for geometry inconsistencies between each line point's geometry and the geometry of the stored fabric points. A line point should always be at the same location as the fabric point. The scan tests for line points that have a point geometry that does not match the fabric point location referenced.

Any line points with this condition is reported and can, optionally, be deleted.

This second line point scan can also be configured to write the offset distance to all line point records in the fabric line point table. The offset is computed perpendicular to the line between the referenced 'From' and 'To' points stored in the fabric points table. In this case, you would not choose to delete the line-points, as the reported value is placed on the line point record.

In most cases the line point should be close to the straight line computed between these points. However there are varying degrees of acceptability for how large this quantity can be before it is considered a bad line line-point.

To write line offsets for all line points add a field called 'LINEOFFSET' to the line points fabric table. The field must be of the type <Double>.

ture Class Proper General Subtypes Z Coordinate Syst	ties Editor Tracl Feature Extent em Domain, Resolu	king Relationshi ution and Tolerand	XY Coordinate S Is Repre e Fields	System Sentations Indexes	<ul> <li>LinesAnno</li> <li>ParcelEditing_Topology</li> <li>ParcelFabric</li> <li>ParcelFabric_Control</li> <li>ParcelFabric_LinePoint</li> </ul>
OBJECTID Shape ParcellD FromPointID ToPointID LinePointID FlexPoint LineOffset	Field Name	Obj Geo Lor Lor Lor Lor Lor Dou	Data Type ect ID metry g Integer g Integer g Integer g Integer g Integer g Integer ble	•	ParcelFabric_Lines ParcelFabric_Parcels ParcelFabric_Plans ParcelFabric_Points A Tax_ParcelsAnno e

Once these values are present on the line points table, you will be able to make more informed decisions about any line points that may need to be selected and removed using the Delete Selected Line points tool on the Delete Fabric Records toolbar, installed as part of this add-in.

#### Parcels that have no lines

Every record in the parcels table should be represented by at least 3 lines for the case of closed parcels, and at least 1 line for unclosed parcels. The exception is for construction parcels. This scan method will ignore constructions. The scan works by building a list of ids for parcels in the parcel table, and then will search through the fabric lines table records and remove any record from the first list if there is a line record with a 'ParcelID' value that exists in the parcel id list. Any items that remain in the parcel id list are parcels that have no lines, and are reported as inconsistencies by this scan method. These may be deleted if desired.

#### Invalid feature adjustment vectors

This scan will check for cases of records in the vectors table that have x and y coordinate fields that have values represented as "NAN" (an acronym for "Not a number") values.

#### Invalid feature class associations

Early versions of the software would not properly remove associations to feature classes that had been associated, but then later deleted from the database. This scan method will detect those cases, and optionally remove these invalid records.

#### Parcel Deletion and Data Model

It is useful when using these tools to understand the data model of the parcel fabric. For complete information on the data model, please see the on-line help topic for the <u>parcel fabric data model</u>.

Since each parcel in a fabric is defined by records that span different fabric tables, the deletion of a parcel requires removing records from each of the *fabric* tables. The related line records that define the parcel need to be deleted from the *lines* fabric table, and the points at the ends of those lines that are no longer used by any of the remaining parcels also need to be deleted from the fabric *points* table. Also, any *line points* that belong to a parcel need to be deleted, and any active control point that has its associated point removed are marked inactive.

When editing parcel fabrics in a multi-user environment, *edit locks* are created for parcels, and these are used to prevent reconcile conflicts. Edit locks are released when the version is posted to default. Whenever an edit is required on a parcel, the system tests whether the parcel has already been locked for edits.

If a parcel is edit-locked then it will not be deleted. For more information on edit locking, please refer to the on-line help topic for Editing the parcel fabric and versioning.