

# Condo Stack Tool Guide

The **Condo Stack Tool** helps to model condominium parcel geometries in a “stacked” geometric form that meets the requirements of the Parcel Initiative’s data model.

Use this guide if your county’s condominium parcel data is modeled relationally (1:M) or not modeled at all in your land information system and you would like to use that parcel data to join (1:1) to the county tax roll information. This tool can help certain counties meet the Searchable Format by duplicating condo parcel geometries for every tax record in the tax roll, making it feasible to perform a 1:1 join between parcel geometries and tax records in the tax roll.

Geometric modeling of condos is required of the Searchable Format. Geometric modeling means there must be a one-to-one relationship between parcel geometries and records in the attribute table or tax roll. Each parcel must attach to one, and only one, record; each record must attach to one, and only one, parcel.

## How to Use This Guide

It is recommended you have the following materials at hand:

- The [Submission Documentation and webpage](#)
- Your GIS parcel data
- Your Link Table data in file geodatabase table (.dbf) format and containing:
  - **Join ID** (ID that correctly joins to parcel geometries)
  - **Parcel ID** (ID that is unique to each unit of ownership; each condo owner must have a unique ID)
- The county staff member(s) who will submit the data
- The **Condo Stack Tool** from [www.sco.wisc.edu/parcels/tools](http://www.sco.wisc.edu/parcels/tools)

## Background & Why is This Tool Necessary?

Condos are not as simplistically mapped as other forms of real property because they incorporate land access to common facilities which are collectively owned. Although condos involve “units” of individual ownership, these units are abstracted from their geographic locations and do not typically adhere to a discrete legal description. When maintaining taxable information, each individual “unit” of ownership is easily annotated in table form but when joining these tabular elements to geographic and geometric elements, a more sophisticated strategy must be employed. This strategy varies by jurisdiction or dataset and takes two general forms—**geometric models** and **relational models**.

### Relational Models

Several counties and municipalities in Wisconsin practice relational modeling for their condos. Figure 1 illustrates the relational concept. Jurisdictions who practice this model may find the condo stack tool useful.

Parcel Geometries		XREF Table			Attribute Table	
Parcel ID	Geometry PIN	XREF ID	XREF GeometryPIN	XREF TablePIN	Table ID	TablePIN
1	12345	1	12345	88-00-1111	1	88-00-1111
2	23456	2	12345	88-00-1222	2	88-00-1222
3	34567	3	12345	88-00-1332	3	88-00-1332
4	45678	4	34567	88-00-5661	4	88-00-5661
5	56789	5	34567	88-00-0001	5	88-00-0001
6	67890	6	45678	88-00-0991	6	88-00-0991
7	78900	...	...	...	...	...
8	88900	...	...	...	...	...
...	...	...	...	...	...	...

**Figure 1. Relational Model Concept**

### Geographic Models

Through data submitted to the Version 1 Parcel Project, the Parcel Initiative team observed several distinct ways that condo parcels were geometrically modeled in GIS. These four types are illustrated in Figure 2. All models depicted here are acceptable for the Searchable Format standard for the Parcel Initiative. However, the **Condo Stack Tool** will help achieve the **Condo Type #2** model illustrated in Figure 2.

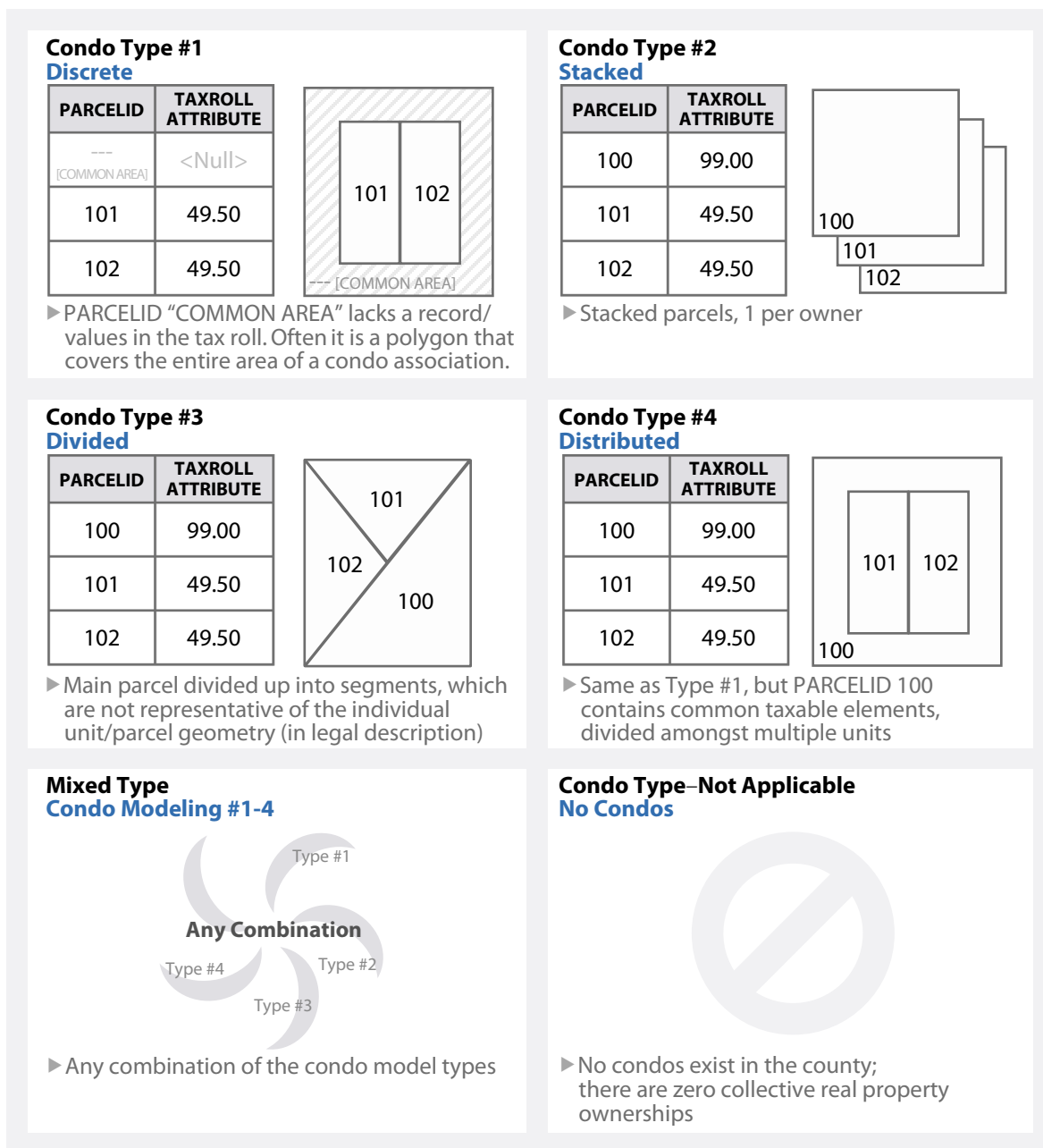


Figure 2. Condo Model Scenarios

#### Parcel-Attribute Relationships to Note

**One-to-one relationship.** There must be a one-to-one relationship between parcel geometries and records in the attribute table. Each parcel must attach to one, and only one, record; each record must attach to one, and only one, parcel.

- Every record in the tax roll should attach to a parcel geometry. If a record exists in the tax roll but not in the parcel geometry, it is a missing parcel geometry. There should be no missing parcel geometries.
- See [Submission Documentation](#) for full details.
- **Exceptions.** Note, there are exceptions to the one-to-one relationship rule:
  - **Annexations** – e.g., parcel 9-1-1 was annexed to 10-15-0
  - **Split Parcels** – e.g., parcel 9-1-1 was a 40 and has been split into four 10 acre lots now numbers 9-1012-1; 9-1012-2; 9-1012-3; 9-1012-4, etc.
  - **Merge Parcels** – e.g., parcel 9-1-1 and 9-1-2 were merged together to 1 parcel, and is now known as 9-1-3
  - **Combination of Split and Merge** – e.g., parcel 9-1-1 and 9-1-2 merged together then divided into 4 lots (9-1012-1; 9-1012-2; 9-1012-3; 9-1012-4)
  - **ROW changes** – Parcel changes due to road right-of-way
- In the case of condos, or other collective real property ownerships, if there is more than one tax record for the same area of land, each record must attach to one and only one parcel geometry.
- Note that under Condo Type #1, a polygon (for a condo association) with no attribute information is acceptable.
- Multiple parcels should not be used to denote multiple site addresses, multiple owners, multiple classes of property, or any other attribute within the same real property.

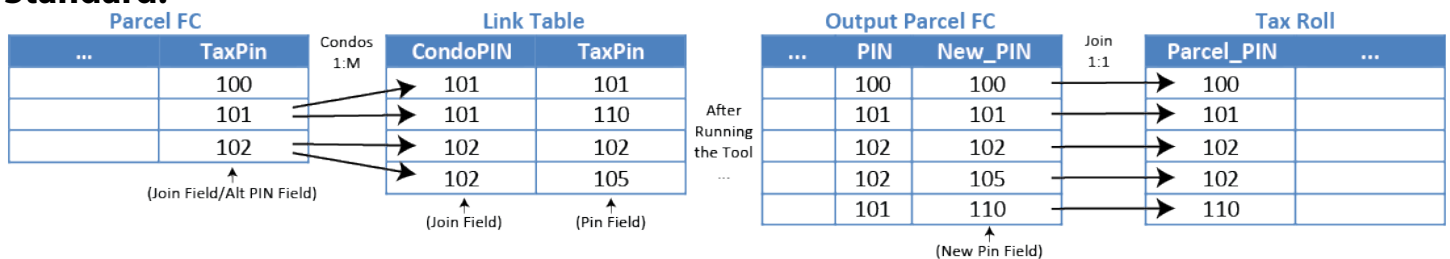
## Notes About Common Parcel-Link Table Relationships

There are three prominent and common relationships between a given condo parcel geometry, the link table, and tax roll records.

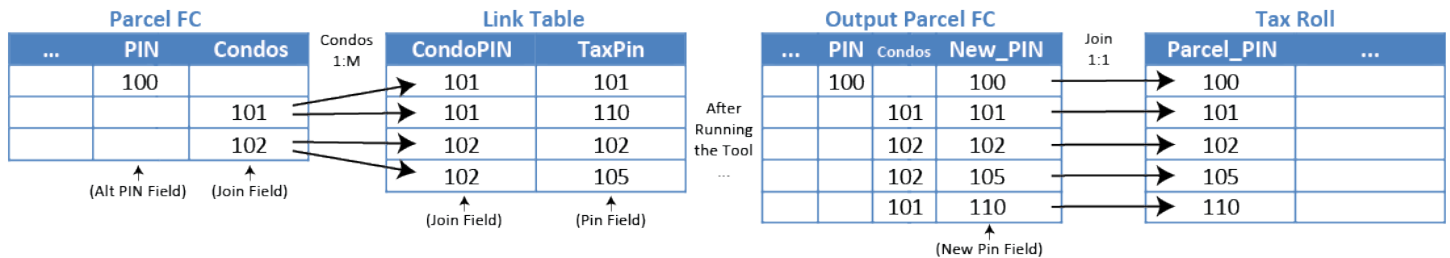
- **Standard:** Involves the parcel geometries, the required link table, and the stand alone tax roll
- **Alternate PIN Field:** Involves the same elements as listed above, but the join field is specific to condos only, so the actual PIN that will be assigned to the standard parcels (i.e., the ones that do not need to be stacked) will be pulled from the Alt PIN Field
- **Tax Roll/Link Table:** Involves the elements in the standard relationship noted above, except for the fact that the Tax Roll and the Link Table are one in the same (as this table contains both the join field, the respective PINs associated with the join field, and the related tax information). This is not as common as the other two relationship types, but does exist.

\*\*If you need assistance when determining which fields to select for a given tool parameter, referring to Figure 3 could be a helpful way of understanding the relationship between specific fields and the function they serve.

### 1) Standard:



### 2) Alternate PIN Field:



### 3) Tax Roll/Link Table:

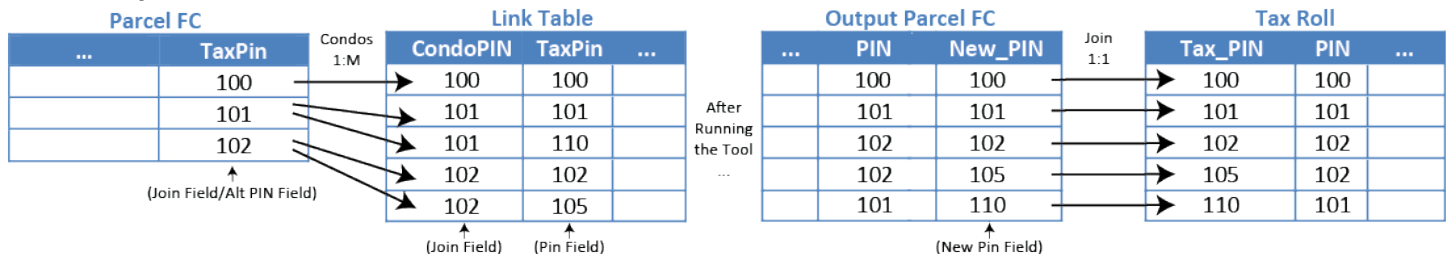


Figure 3. Parcel-Link Table Relationships

## Note On Using Condo Stack Tool To Properly Stack Non-Multipart Features Containing the Same PIN

It is not uncommon for a parcel layer to contain several instances where a single parcel is split by ROW, hydro, or other features. In many cases this one parcel is represented in GIS as two separate features containing the same PIN.

- When attempting to stack non-multipart features that contain the same PIN, such as the features demonstrated in Figure 4, **it is appropriate to merge the features or dissolve the feature class on PIN \*before\* running the tool.**
- Taking this action will ensure that the PIN only exists once in the feature class.
- If the features are left unmerged, the first instance of the PIN will be the one that is stacked.

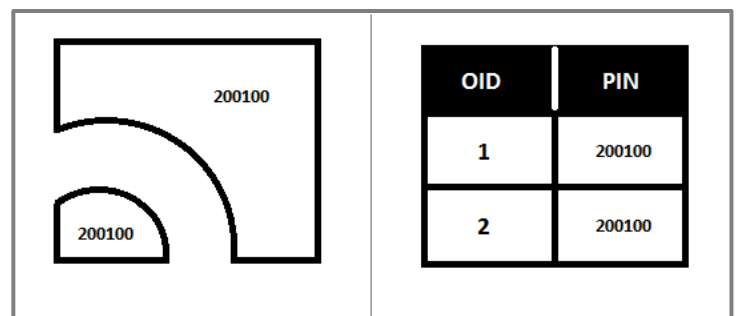


Figure 4

# ① Install the Tool

## 1.1 Download and install

Download the zipped package with the Condo Stack Tool, an ArcPy script tool, from [www.sco.wisc.edu/parcels/tools](http://www.sco.wisc.edu/parcels/tools).

Unzip to the directory of your choice. Then open ArcCatalog and navigate to the new directory. You should see toolboxes, labeled with their respective ArcGIS version compatibility. Choose the toolbox that fits your ArcGIS install. If you do not see any toolboxes, hit **F5** to refresh the directory.

The tool should be ready to run.

# ② Configure the Tool

## 2.1 Understanding the fields

Again, the **Condo Stack Tool** was designed for counties that do not represent their condos in a stacked format. Since there are many other ways to model condos, it is important to first understand how the tool's fields align with the data being used.

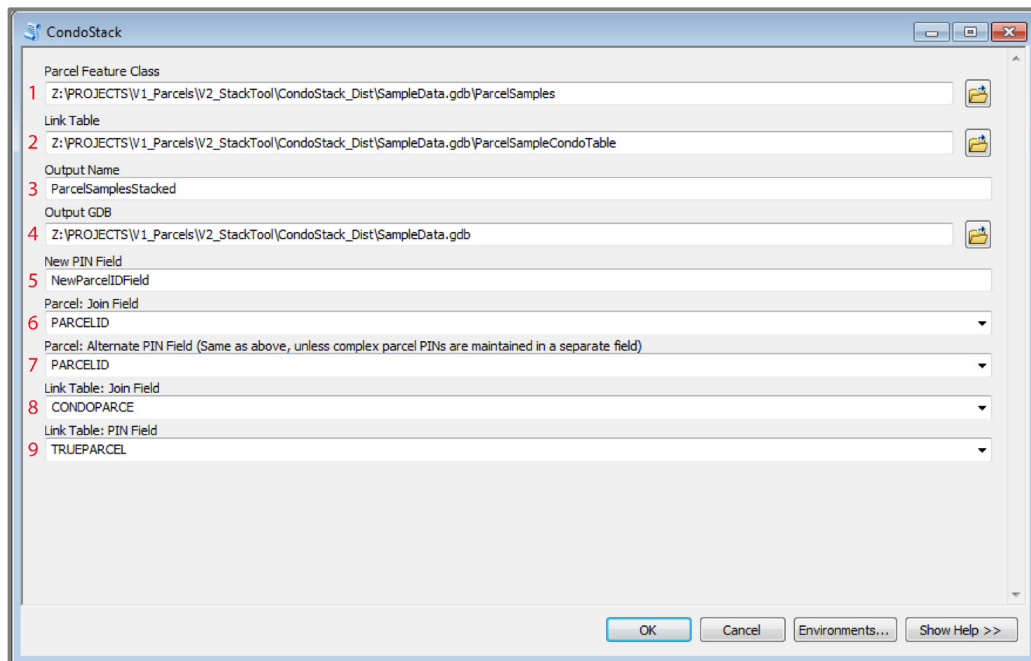


Figure 5. The Condo Stack Tool Interface

- 1 Parcel Feature Class:** Parcels to be stacked are included in the parcel feature class. The tool is capable of taking a subset feature class (e.g. only a feature class of condos subset from the county's parcel feature class) or a mixed feature class containing condos and that will not be stacked (i.e. a county feature class). The tool output will contain stacked parcels as well as any non-stacked parcels provided.
- 2 Link Table:** The link contains information required for stacking. In this table should be a field with pins that link a record to the parcel feature class (these values are duplicated for condos) and a field containing tax keys (these values should be unique and not duplicated). The link table is often a separate reference table constructed for condos and/or other complex parcels. However, it is also possible for the tax roll to contain a field for the parcel pins. The Condo Stack Tool relies on the information in the link table to perform the duplication.
- 3 Output Name:** Choose a name for the output feature class that will be created containing the stacked parcel geometries.
- 4 Output GDB:** Name of the output file geodatabase the new feature class will be created in.
- 5 New PIN Field:** Name of the new PIN field that will be created in the new feature class.

- 6 **Parcel: Join Field:** The joining field from the parcel feature class.
- 7 **Parcel: Alternate PIN Field:** Same as the above field ("Parcel: Join Field"), unless complex PINs are maintained in a separate field. If so, identify that field here.
- 8 **Link Table: Join Field:** The joining field from the link table.
- 9 **Link Table: PIN Field:** The field that contains the unique tax keys or PINs for the newly created stacked parcels.

## ③ Run

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### 3.1 Execute the tool

Once all of the parameters have been correctly identified, proceed with running the tool.

## ④ Check the Newly Created Feature Class

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### 4.1 Check to ensure that new stacked parcels have been created

After the tool has completed, the easiest way to check on the success of the tool is to compare the total feature count from the original feature class to the total feature count from the newly created feature class. This new feature count should be larger than the original. How much larger depends on the number of additional stacked parcels that were added to the new feature class. If you have a rough idea of the number of condos in your county, you would expect the parcel count to have increased by roughly that many features.

## Troubleshooting for Condo Stack Tool

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### My tool does not show-up in the directory I have unpacked to.

If the tool does not appear in the directory you have unpacked it to, first try refreshing the directory in ArcCatalog (Right click directory » Refresh...). If the problem continues, it may be because you are using a legacy version of ArcGIS (ArcGIS 9.0 – ArcGIS 10.1). Tools supporting ArcGIS legacy versions are available at [www.sco.wisc.edu/parcels/tools](http://www.sco.wisc.edu/parcels/tools).

### I get an error when attempting to run the tool.

If running the tool results in an error, first ensure that the tool runs correctly on the test data provided in the zipped package.

- If the tool runs successfully over the test data, then ensure that tool parameters are appropriately populated for your dataset. If problems persist, contact David Vogel at [djvogel2@wisc.edu](mailto:djvogel2@wisc.edu) for further assistance.
- If the tool does not run successfully over the test data, try to interpret the error message in finding a solution and submit the error message (via screen capture or cut and paste) to David Vogel at [djvogel2@wisc.edu](mailto:djvogel2@wisc.edu).

### Who can I contact for help?

David Vogel, State Cartographer's Office, 608-890-3793, [djvogel2@wisc.edu](mailto:djvogel2@wisc.edu)

