Districting for ArcGIS
Introduction

About the Districting for ArcGIS Add-on

The Districting for ArcGIS add-on allows you to create defined groupings of geographic data, such as census tracts, ZIP Codes, and precincts, by creating a districting plan. The Districting for ArcGIS add-on has a simple user interface for fast configuration of geographic representation and analysis of configuration alternatives. Once you have the base data established, such as counties or ZIP Codes, you can group the units simply by selecting them in ArcMap. The Districting for ArcGIS add-on can help you analyze population densities, housing breakdowns, income and race statistics, and other data.

Local, state, and federal governments must periodically redraw political boundaries to account for shifts in population. GIS gives government a better way to handle redistricting. Using GIS transforms the redistricting process from an arduous and lengthy manual operation into a convenient process where you can easily create and consider alternative scenarios to find the best available solution. The Districting for ArcGIS add-on is also useful for defining police beats; sales territories; voting, school, and fire districts; and numerous other boundaries.

Overview of the Districting for ArcGIS Add-on

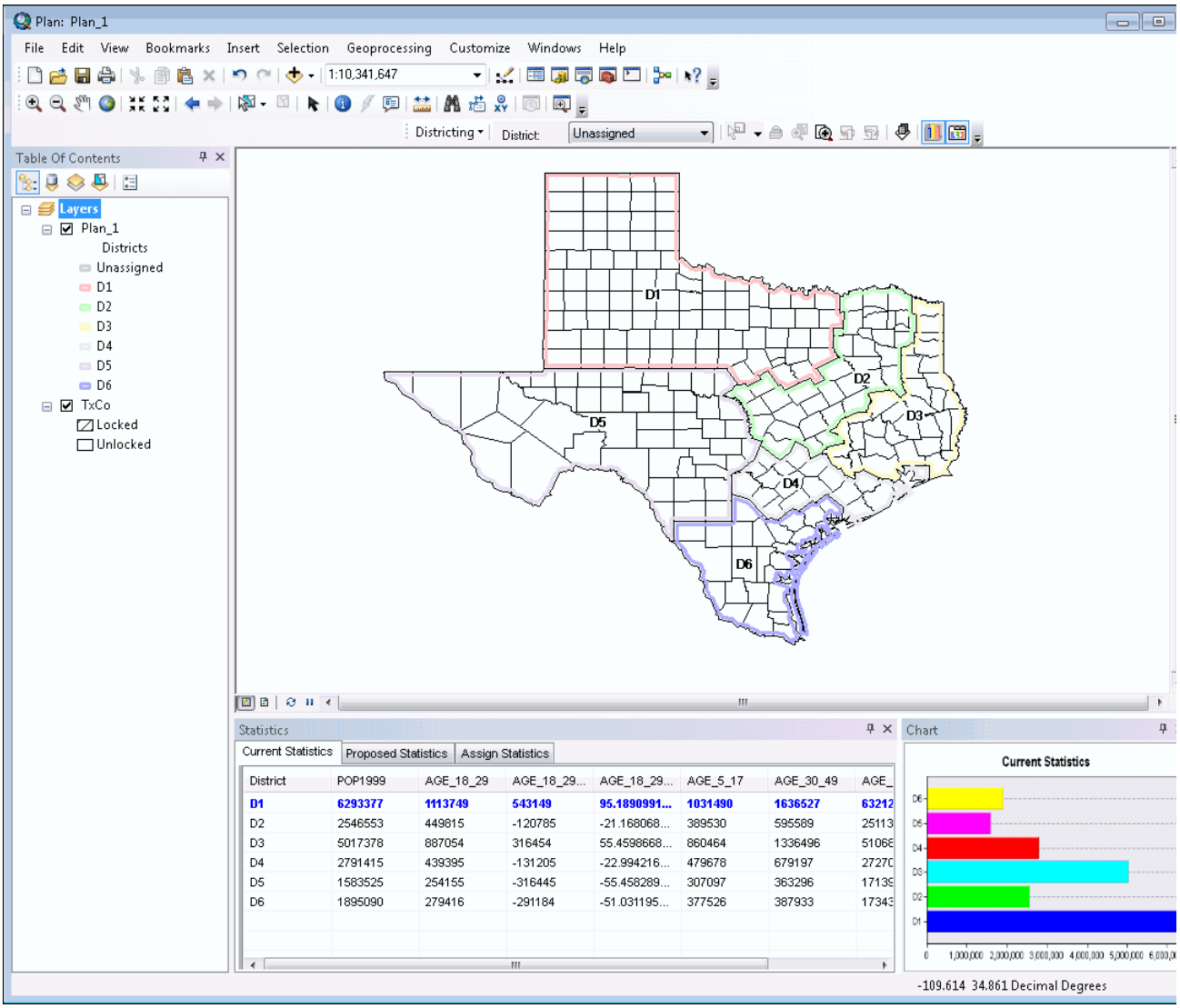
The Districting for ArcGIS add-on is built on top of ESRI's Desktop technology and uses both ArcCatalog and ArcMap. ArcCatalog is a convenient way to organize and preview districting plans. ArcMap contains an easy-to-use interface for viewing and editing districting plans. To use the Districting for ArcGIS add-on, you need, at a minimum, an ArcView level license.

The basis for creating districting plans is source geography and source attributes. Source geography is geographic data (census area, block, etc.) used for assigning units into districts. Source attributes are the attributes associated with the source geography such as total population, population by race or ethnicity, and so forth. The source geography and source attributes can be stored in separate files or contained within the same file.

Plans are stored within a plan workspace. A plan workspace can have multiple plans. A plan workspace is a personal geodatabase. A folder named _dxm stores the map document (.mxd) and the .xml. For each plan workspace, a folder named _dxm is created to store the map document (Mxd) and plan property XML (Xml) files for the plans in that plan workspace. Plans can be created using a simple wizard, the Districting Wizard.

Districting for ArcGIS add-on supports data in personal geodatabase format, file geodatabase, SDE database, shapefile format, and coverage format.

During the districting or redistricting process, statistics are updated for each selection of source geography units. You can assign the selected units immediately to the district or preview the statistics before making the assignment to the district.

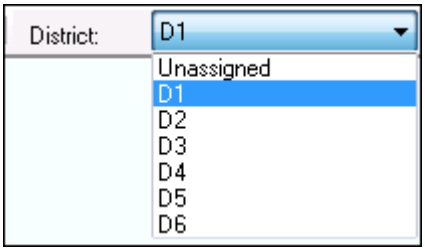


Overview of the Districting Toolbar

Once the Districting for ArcGIS add-on is installed, you will need to turn on the add-on.

- To turn on the Districting for ArcGIS add-on, go to the ArcMap Tools menu, then click Extensions.
- In the Extensions dialog box, check the box next to Districting, and click Close.
- To display the Districting toolbar, click View -> Toolbars and choose Districting.

Below is a brief description for each tool on the Districting toolbar.



District selection drop-down menu. See Assigning Districts for details.

Default selection tool for selecting source geography units. See Selecting Units.

Lock button for locking/unlocking source geography units. See Locking and Unlocking Units.

Zoom to selected source geography units.

Zoom to unassigned source geography units.

Undo the last district assignment.

Redo the last district assignment.

Switch to the layout view with plan statistics and chart.

Open/Close Chart window. See District Statistics.

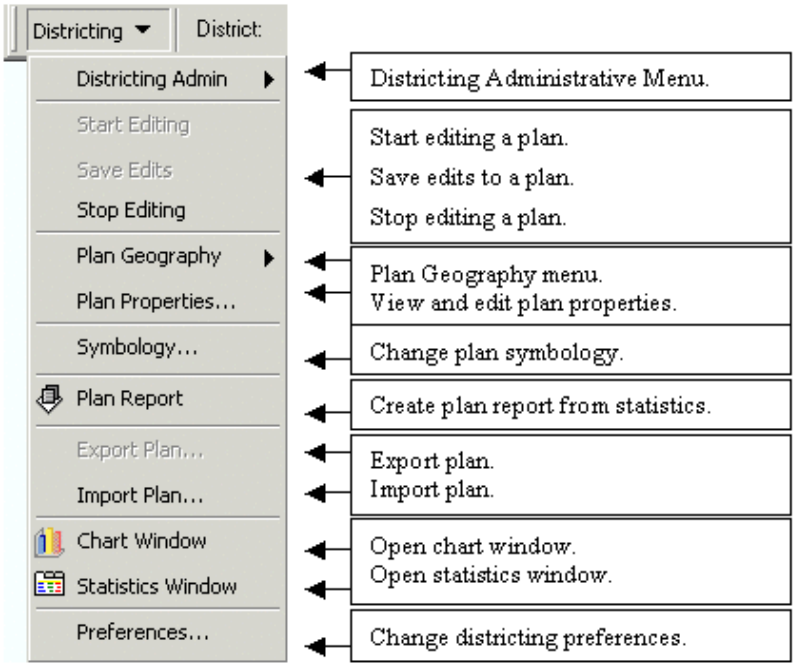
Open/Close Statistics window. See District Statistics.

Overview of Districting Menus

Related topics

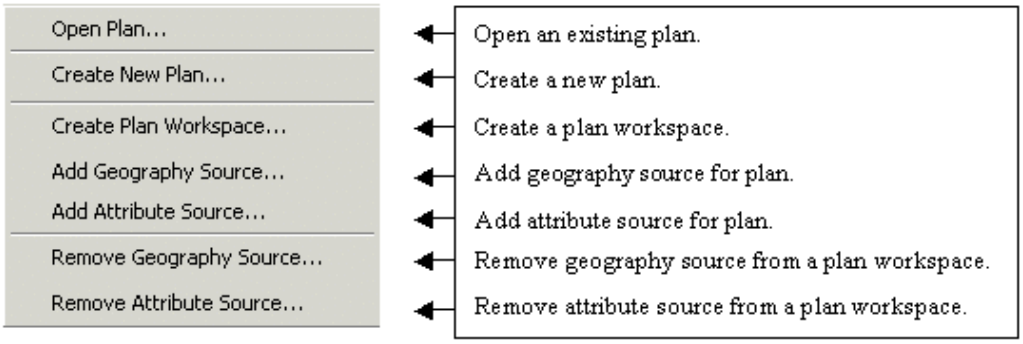
Districting Pulldown Menu

The Districting pulldown menu, located on the Districting toolbar, is described below.



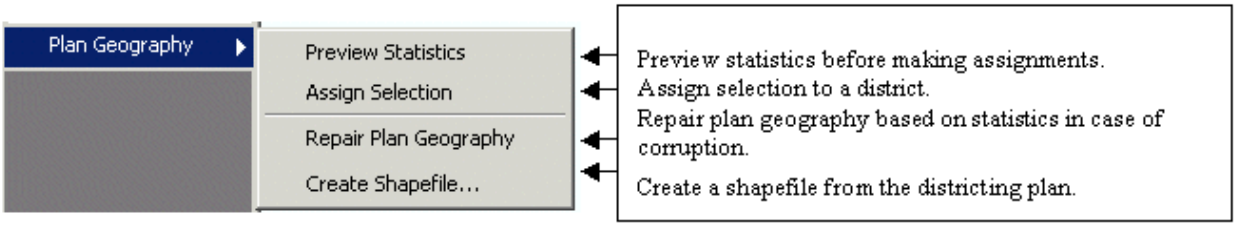
Districting Administrative Menu

The Districting Administrative Menu is located from the Districting Menu, under Districting Admin.



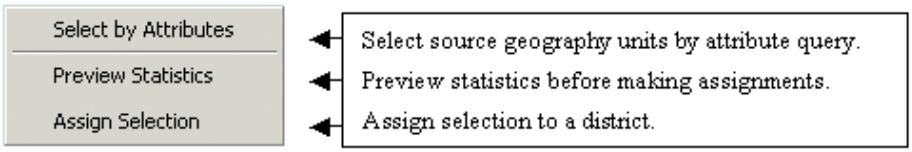
Plan Geography Menu

The Plan Geography Menu is located from the Districting Menu, under Plan Geography.



Districting Context Menu

To display the context menu, right click in the data view. A plan must be open in order to view the Districting context menu.



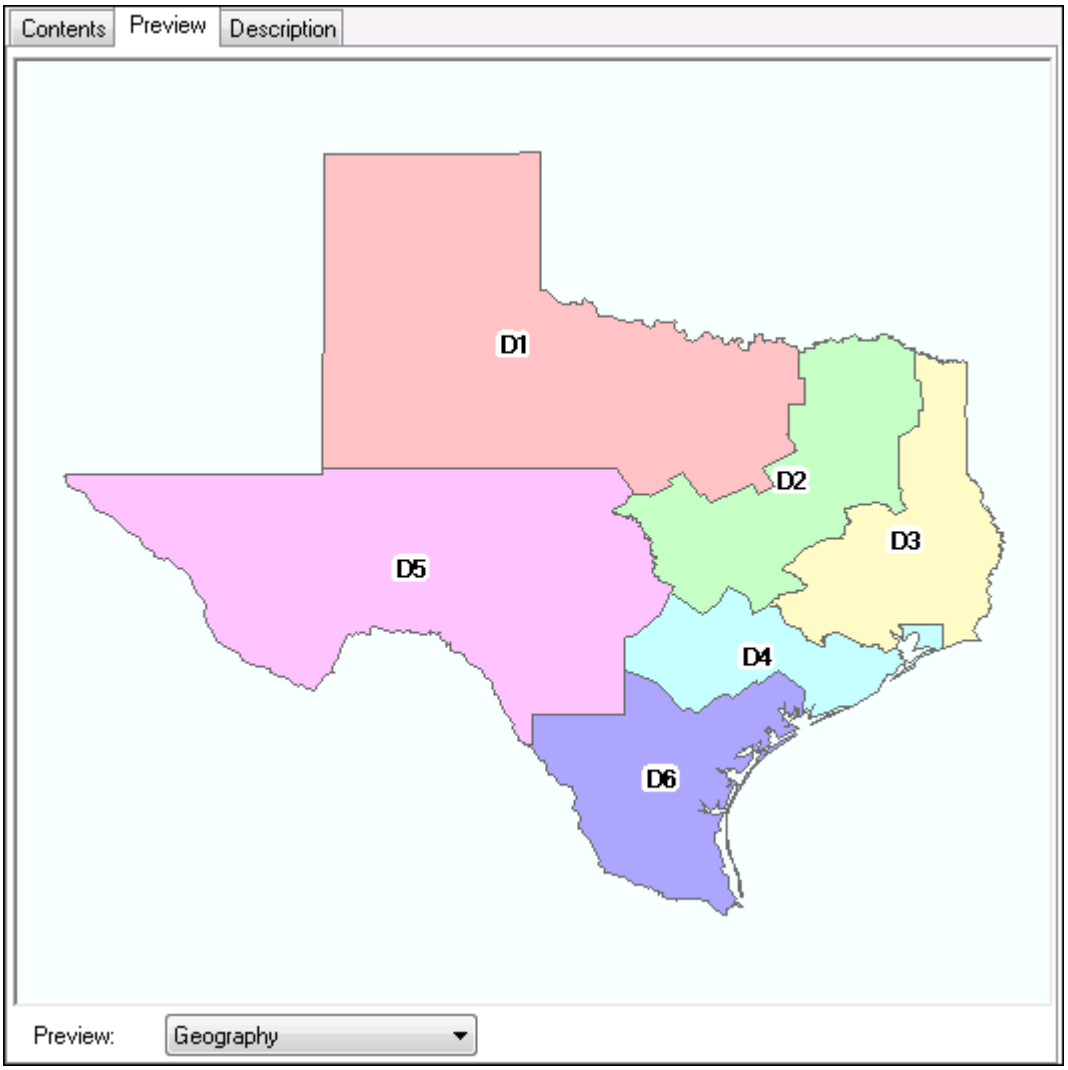
Overview of Plans in ArcCatalog

From ArcCatalog, the plan workspace is depicted with the icon, and plans with the icon in the catalog tree.

- You can view all plans that exist within the plan workspace by expanding the plan workspace icon.
- By right-clicking on the plan workspace, you can create a new plan (within that plan workspace) or delete the plan workspace.
- By right-clicking a plan, you can open, export, or delete a plan.

Preview Plan

You can view the districts by clicking on a plan within a plan workspace, then clicking the Preview tab.



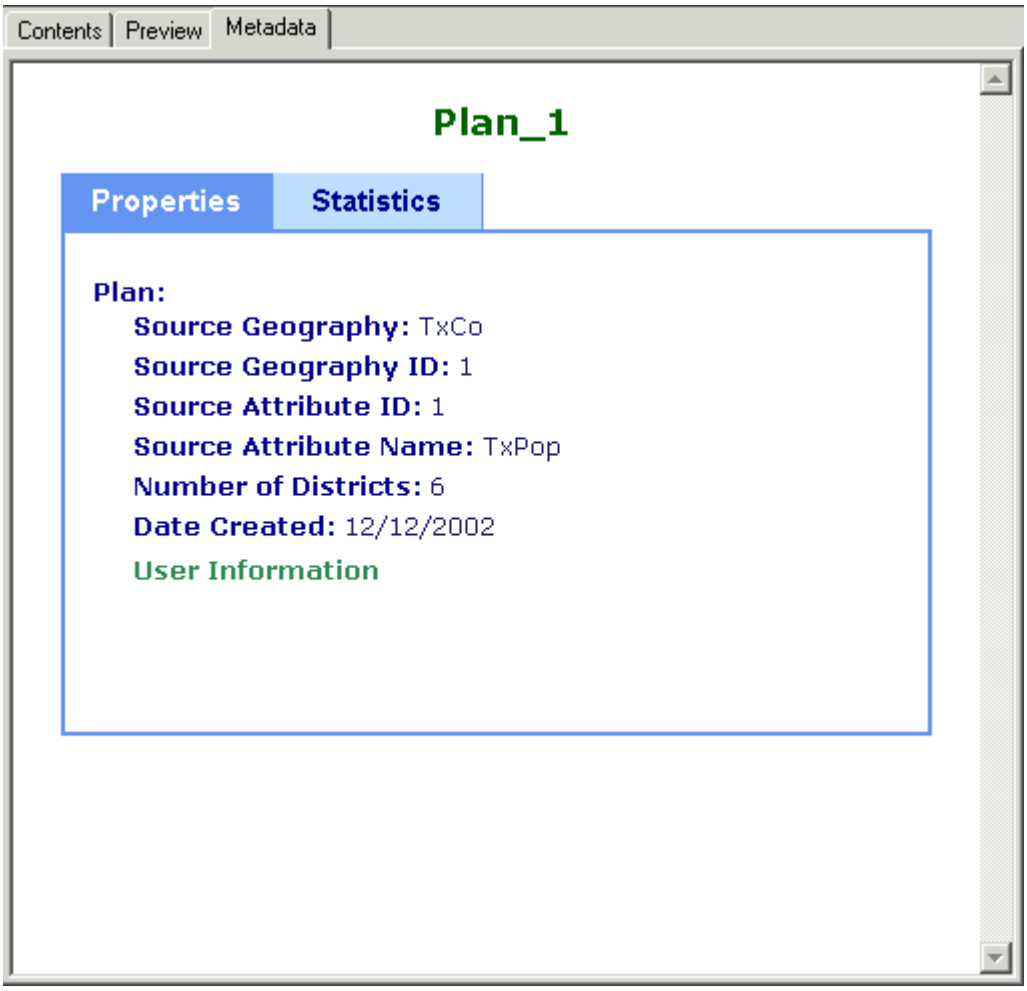
Plan Metadata

To view metadata properties of a plan:

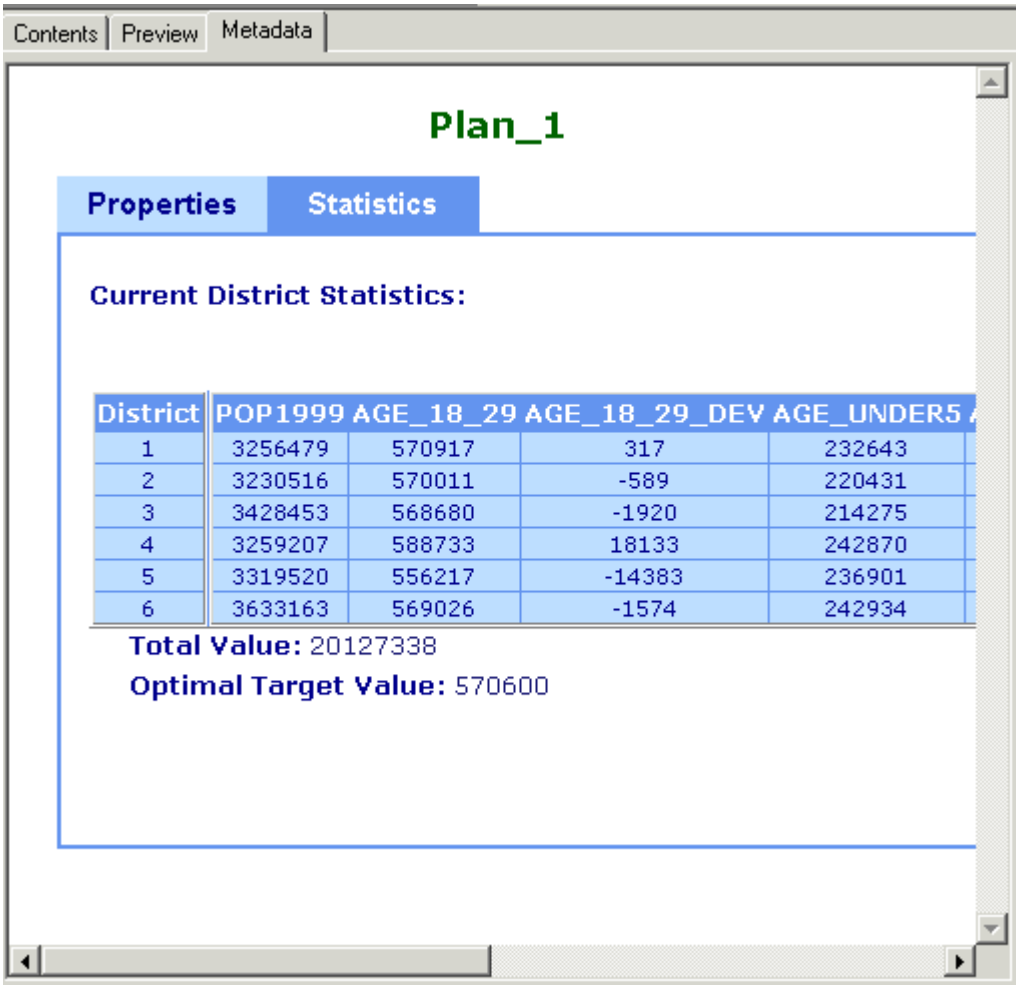
1. Click the Customize > ArcCatalog Options menu item.
2. On the Metadata Options page, choose Districting from the Metadata Style options and click OK.

3. Click on a plan in the catalog tree.
4. Click on the Metadata tab.

- You can view the metadata properties by clicking the Properties tab.



- You can view the metadata statistics (district statistics) by clicking the Statistics tab.


Contents
Preview
Metadata
Plan_1
Properties
Statistics
Current District Statistics:
District POP1999 AGE_18_29 AGE_18_29_DEV AGE_UNDER5
1 3256479 570917 317 232643
2 3230516 570011 -589 220431
3 3428453 568680 -1920 214275
4 3259207 588733 18133 242870
5 3319520 556217 -14383 236901
6 3633163 569026 -1574 242934
Total Value: 20127338
Optimal Target Value: 570600

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Address: ESRI 380 New York Street Redlands, California 92373-8100

Telephone: 909-793-2853

E-mail: districting@esri.com

Please announce that you are contacting them regarding the "Districting for ArcGIS."

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Related topics

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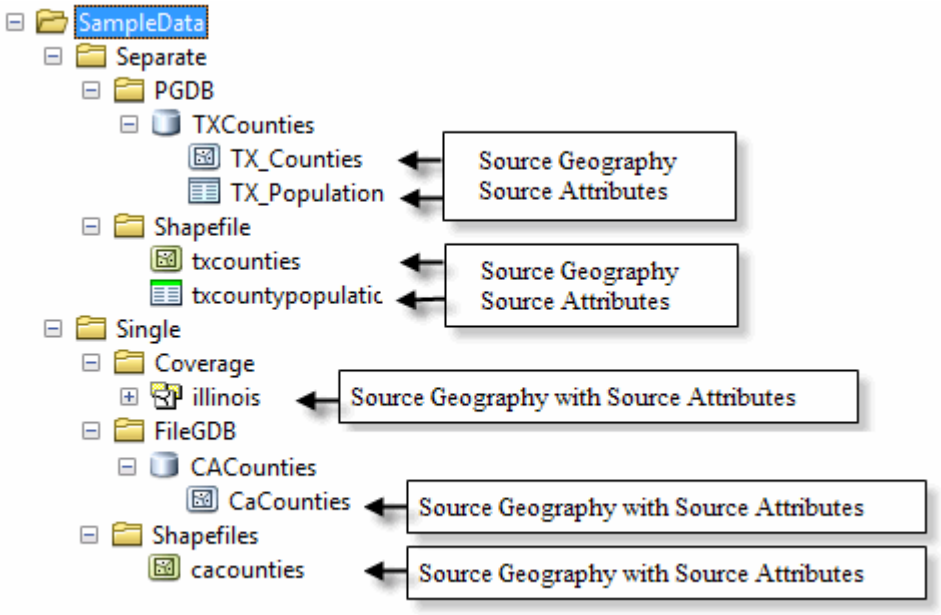
Sample Data Overview

Related topics

Once you install the Districting for ArcGIS add-on, sample data is provided under "Install Location"\SampleData. The sample data includes Texas counties, California counties, and Illinois counties.



Separate Source Data

"Separate" indicates that the source geography and source attributes are in two different files. When creating a plan, you are prompted for a common attribute between the two files.

The data that is provided is county data for the State of Texas with statistics in a separate table.

Texas Source Attributes

Attributes
- OBJECTID
- CNTY_FIPS
- POP1999
- MALES
- FEMALES
- WHITE
- BLACK
- AMERI_ES
- ASIAN_PI
- OTHER
- HISPANIC
- AGE_UNDER5
- AGE_5_17
- AGE_18_29
- AGE_30_49
- AGE_50_64
- AGE_65_UP
- NEVERMARRY
- MARRIED
- SEPARATED
- WIDOWED
- DIVORCED

Texas Source Geography

For the personal geodatabase sample data: "Install Location"\SampleData\separate\PGDB\txcounties.mdb

- Source geography: TX_Counties
- Source attributes: TX_Population

For the shapefile sample data: "Install Location"\SampleData\separate\Shapefile

- Source geography: txcounties.shp
- Source attributes: txcountypopulation.dbf

The common attribute between the source geography and source attribute files is CNTY_FIPS.

Single Source Data

"Single" indicates that the source geography and source attributes are in the same file. The data that is provided is county data for the States of California and Illinois with statistics.

For the shapefile sample data: "Install Location"\SampleData\single\Shapefiles

- Source geography and attributes: cacounties.shp
- The source attributes for the California data is the same as the Texas source attributes.

California Source Geography

For the file geodatabase sample data: "Install Location"\SampleData\single\FileGDB

- Source geography and attributes: CACounties
- The source attributes for the California data is the same as the Texas source attributes.

For the coverage sample data: "Install Location"\SampleData\single\coverage

- Source geography and attributes: Illinois

Illinois Source Attributes

Attributes
- FID
- Shape
- AREA
- PERIMETER
- ILLINOIS#
- ILLINOIS-ID
- ATTRI-ID
- RINGS_OK
- RINGS_NOK
- NAME
- CNTY_FIPS
- POP1999
- MALES
- FEMALES
- WHITE
- BLACK
- AMERI_ES
- ASIAN_PI
- OTHER
- HISPANIC

Illinois Source Geography

Tutorial: Create Plan Using the Districting Wizard

Related topics

In this tutorial you will create a new plan workspace and a new plan using the Districting Wizard.

1. To turn on the Districting for ArcGIS add-on, go to the Customize menu, then click Extensions. In the Extensions dialog box, check the box next to Districting, and click Close. To display the Districting toolbar, from the ArcMap View menu, go to customize then click on Toolbars, then check Districting.
2. From the Districting menu, point to Districting Admin, then click Create New Plan.
3. Set Plan Workspace and Plan Name.

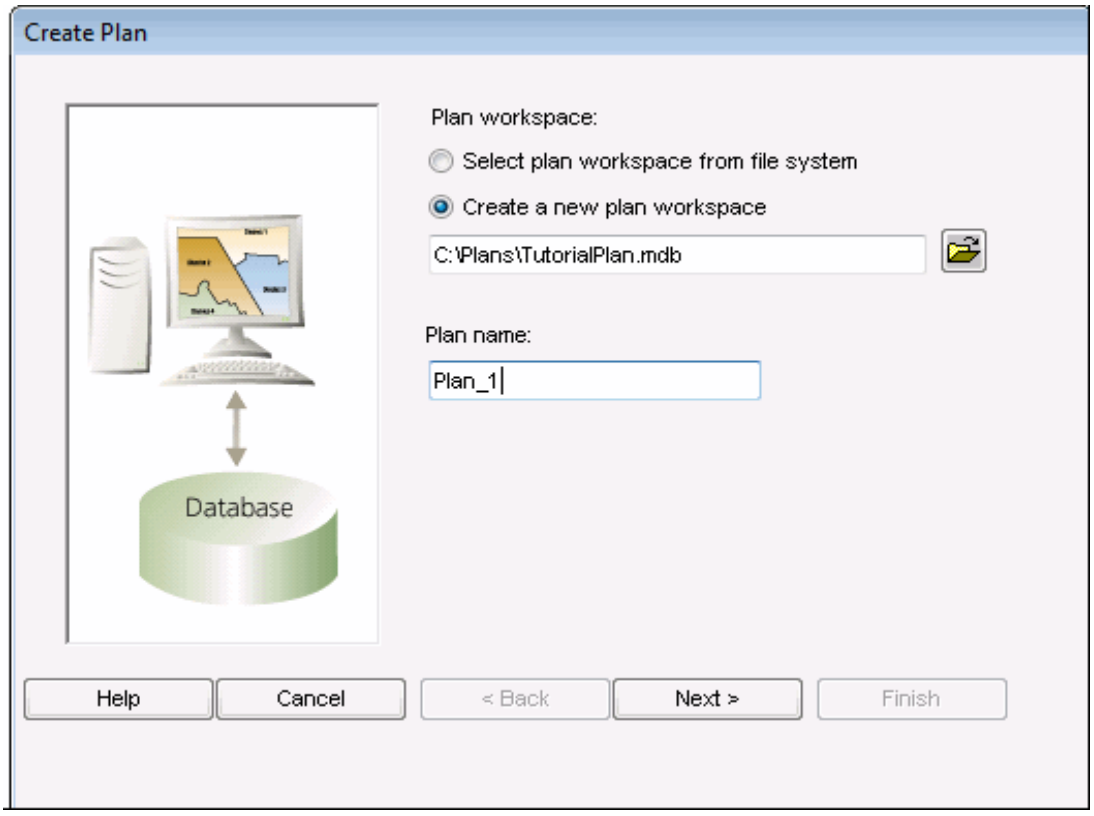
    a. Select Create a new plan workspace.

    b. Browse to desired folder you want to create your plan.

    c. Enter TutorialPlan as the plan workspace name and click Save.

    d. Enter Plan_1 for the plan name.

    e. Click Next to continue the Districting Wizard.

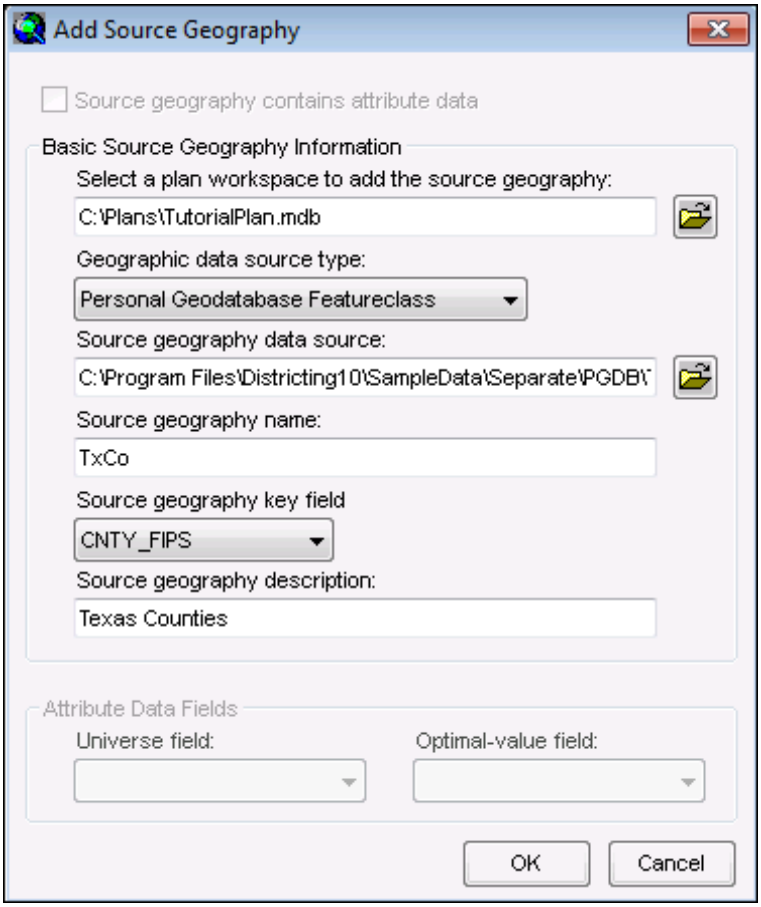


4. Set Source Geography and Source Attributes.

    a. Under Source Geography, click Add New.

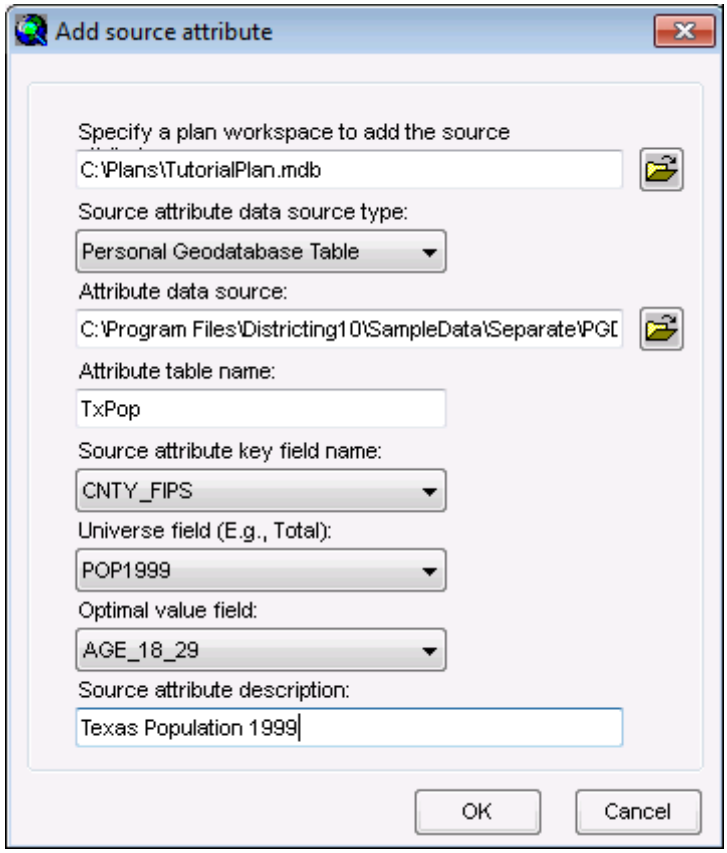
- Select Personal Geodatabase feature class for the Geographic data source type.
- From the Add Source Geography menu, click the browse button for Source Geography data source. Browse to "Install Location"\SampleData\Separate\PGDB. Click the Tx_Counties feature class (within the TxCounties.mdb personal geodatabase). Click Add.

- Type "TxCo" as the source geography name.
- Click the source geography key field name drop-down arrow and select CNTY_FIPS.
- Type "Texas Counties" as the source geography description.
- Click OK.

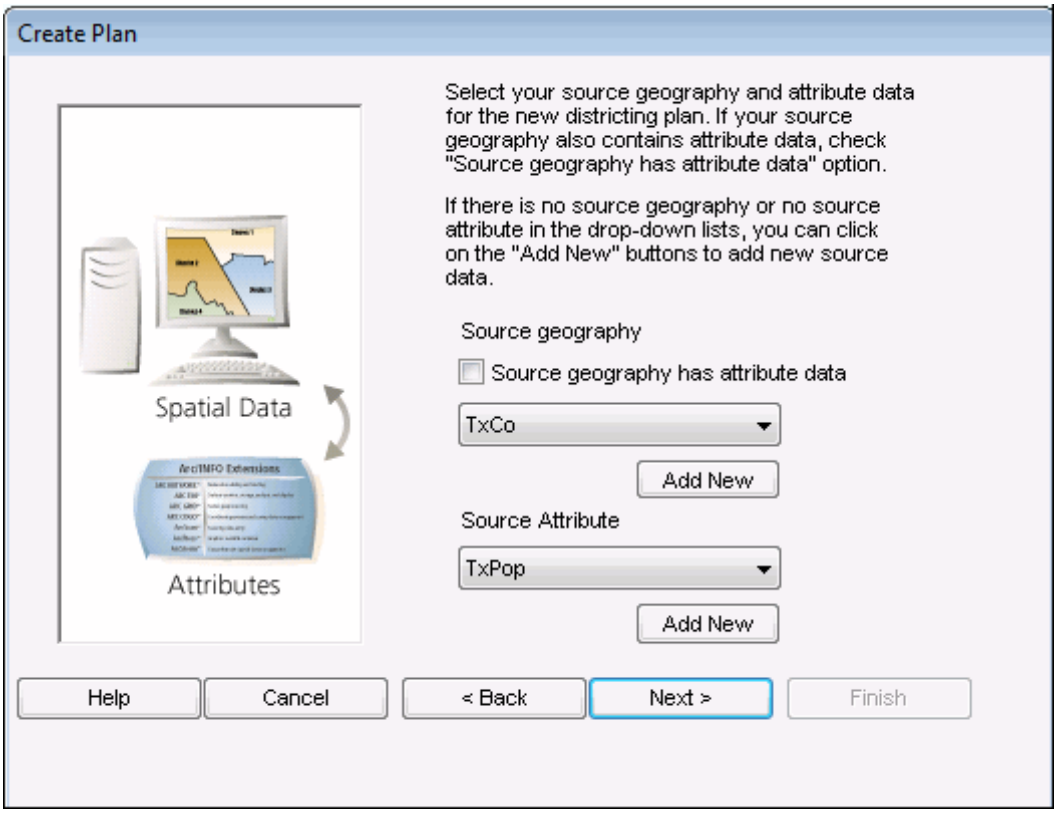


b. Under Source Attribute, click Add New.

- From the Add source attribute menu, click the browse button for Attribute data source. Browse to "Install Location"\SampleData\Separate\PGDB. Click the TX_Population table (within the TxCounties.mdb personal geodatabase). Click Add.
- Type "TxPop" as the attribute table name.
- Click the source attribute key field name drop-down arrow and select CNTY_FIPS.
- Click the Universe field drop-down arrow and select POP1999.
- Click the Optimal value field drop-down arrow and select AGE_18_29.
- Type "Texas Population 1999" as the source attribute description.
- Click OK.



c. Click Next to continue the Districting Wizard.

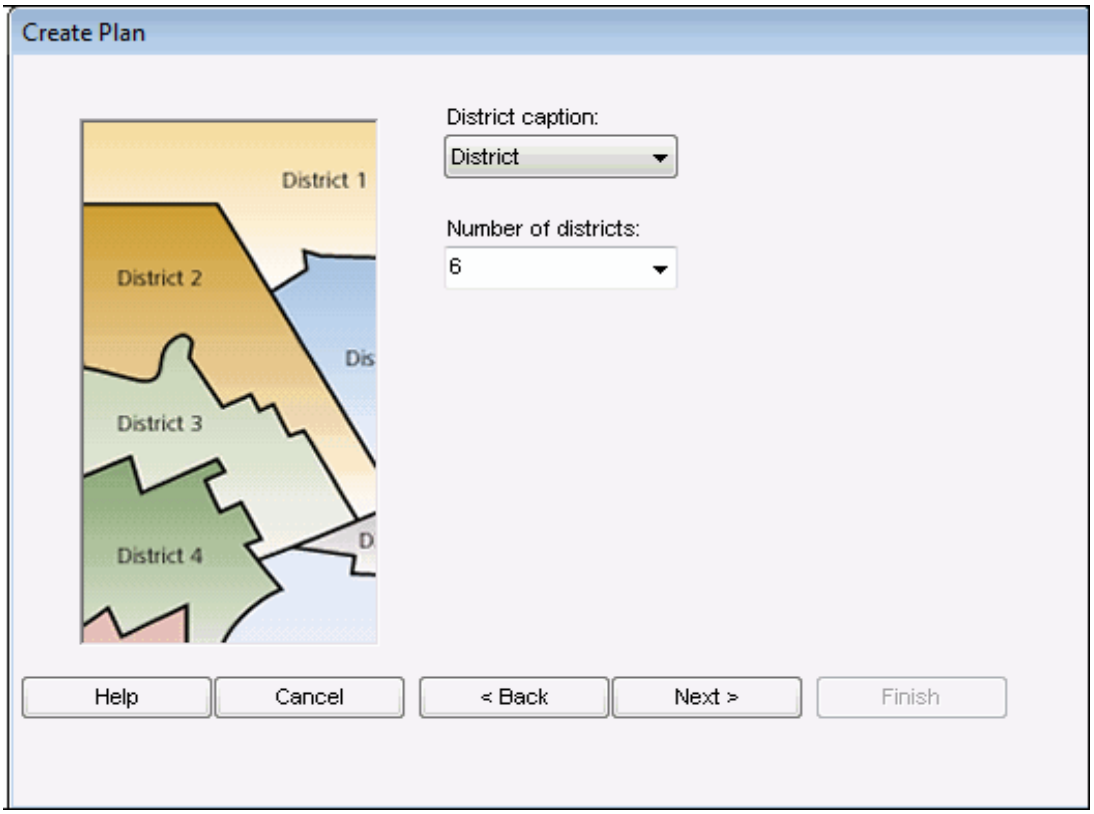


5. Set District caption and Number of districts

a. Click the District caption drop-down arrow and select District.

b. Click the Number of districts drop-down arrow and select 6.

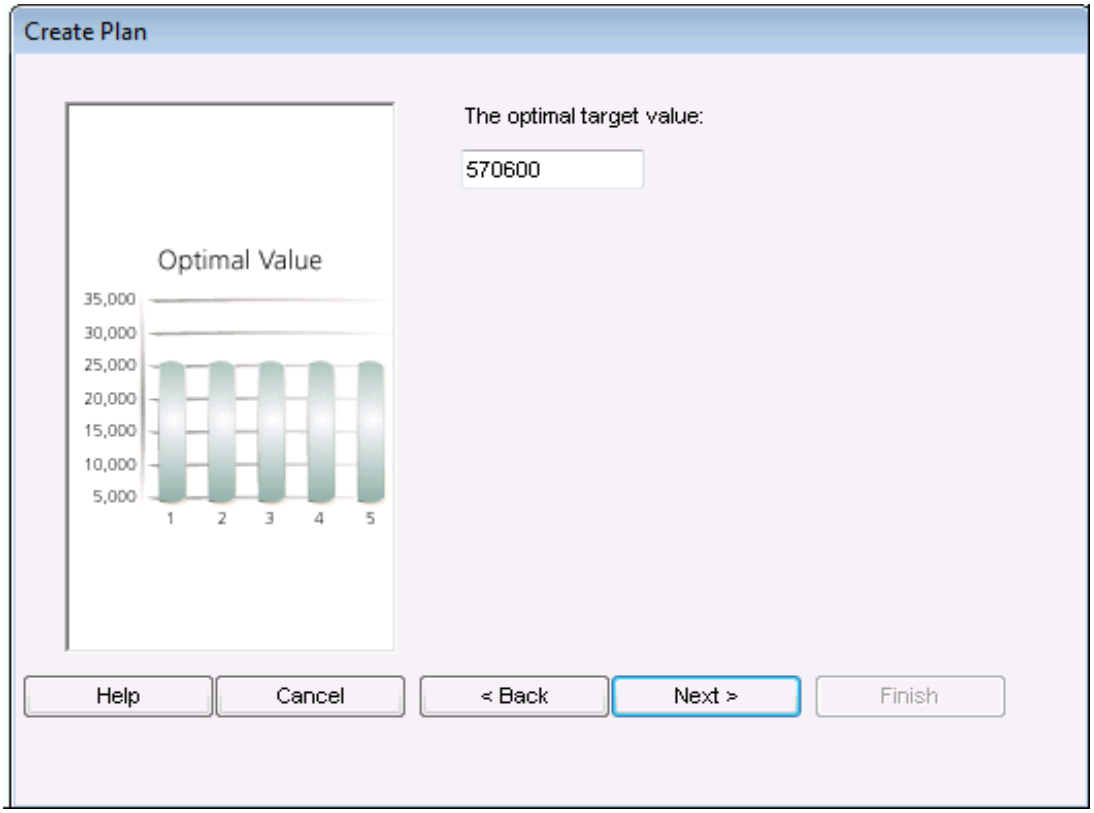
c. Click Next to continue the Districting Wizard.



6. Set optimal target value

a. The optimal target value is calculated to be 570597. Type "570600" to simplify.

b. Click Next to continue the Districting Wizard.

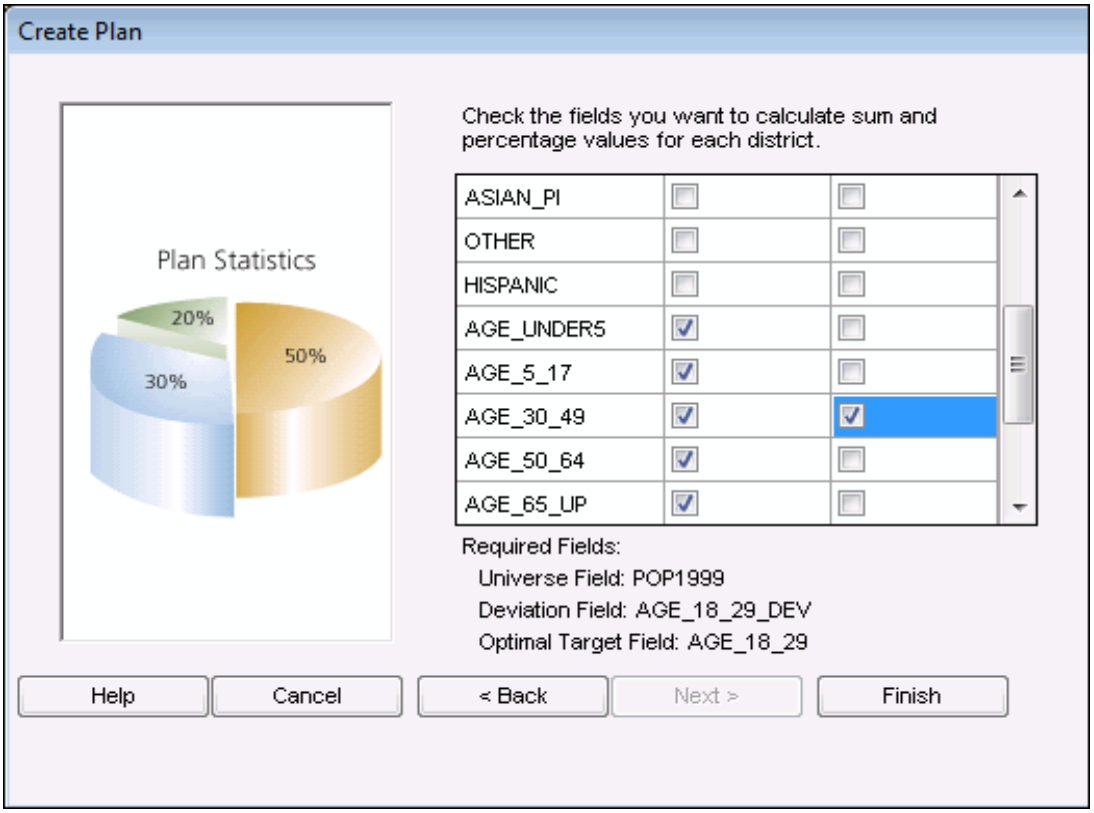


7. Check fields for statistics table

a. Under Sum, check AGE_UNDER5, AGE_5_17, AGE_30_49, AGE_50_64, AGE_65_UP.

b. Under Percent, check AGE_30_49.

c. Click Finish to complete the Districting Wizard.



You have now created a plan and are ready for assigning source geography units to districts.

Tutorial: Assign Source Geography Units to Districts

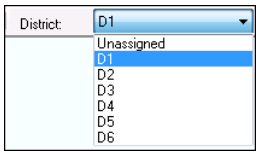
Related topics

In this tutorial, you will start editing a plan, assign source geography units to districts using the various selection tools, use the chart and statistics window to track statistics, and save edits.

1. From the Districting menu, click Start Editing.

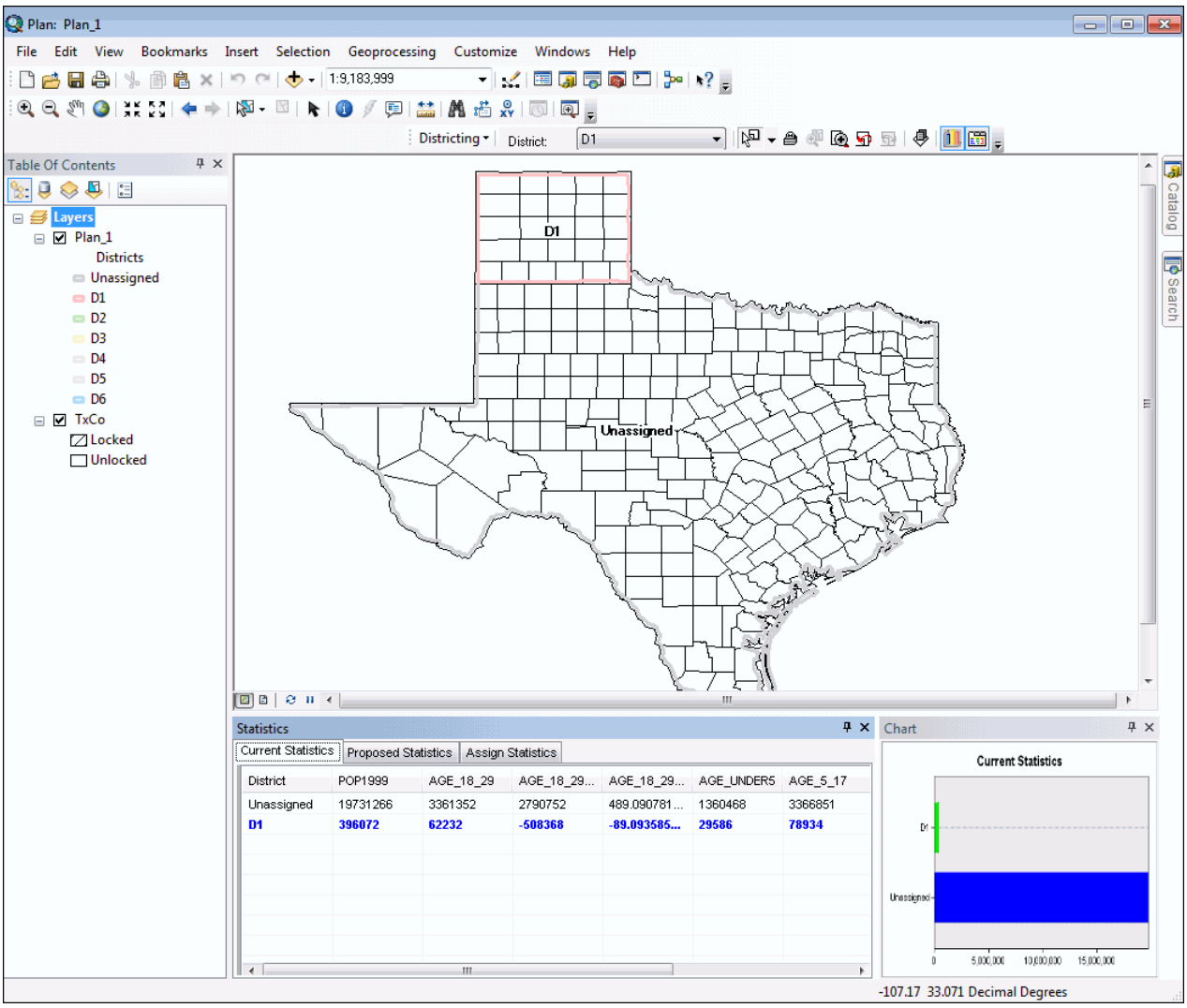
2. From the Districting toolbar, click the Statistics Window button and the Chart Window button. Rearrange the windows as you would like them to appear.

3. Click the Districting drop-down arrow and click D1 (District 1).



4. From the Districting toolbar, use the default selection tool to select source geography units in the data view by clicking and dragging a box around them. The selected units will be highlighted. In the Statistics Window, the Proposed Statistics are updated for D1 based on the current selection.

5. Right-click in the data view to display the context menu, and click Assign Selection. The selected units will be assigned to District 1 and display District 1's symbology (pink outline). The Current Statistics tab in the statistics window is updated to reflect the assignment, and the chart window is updated for District 1.



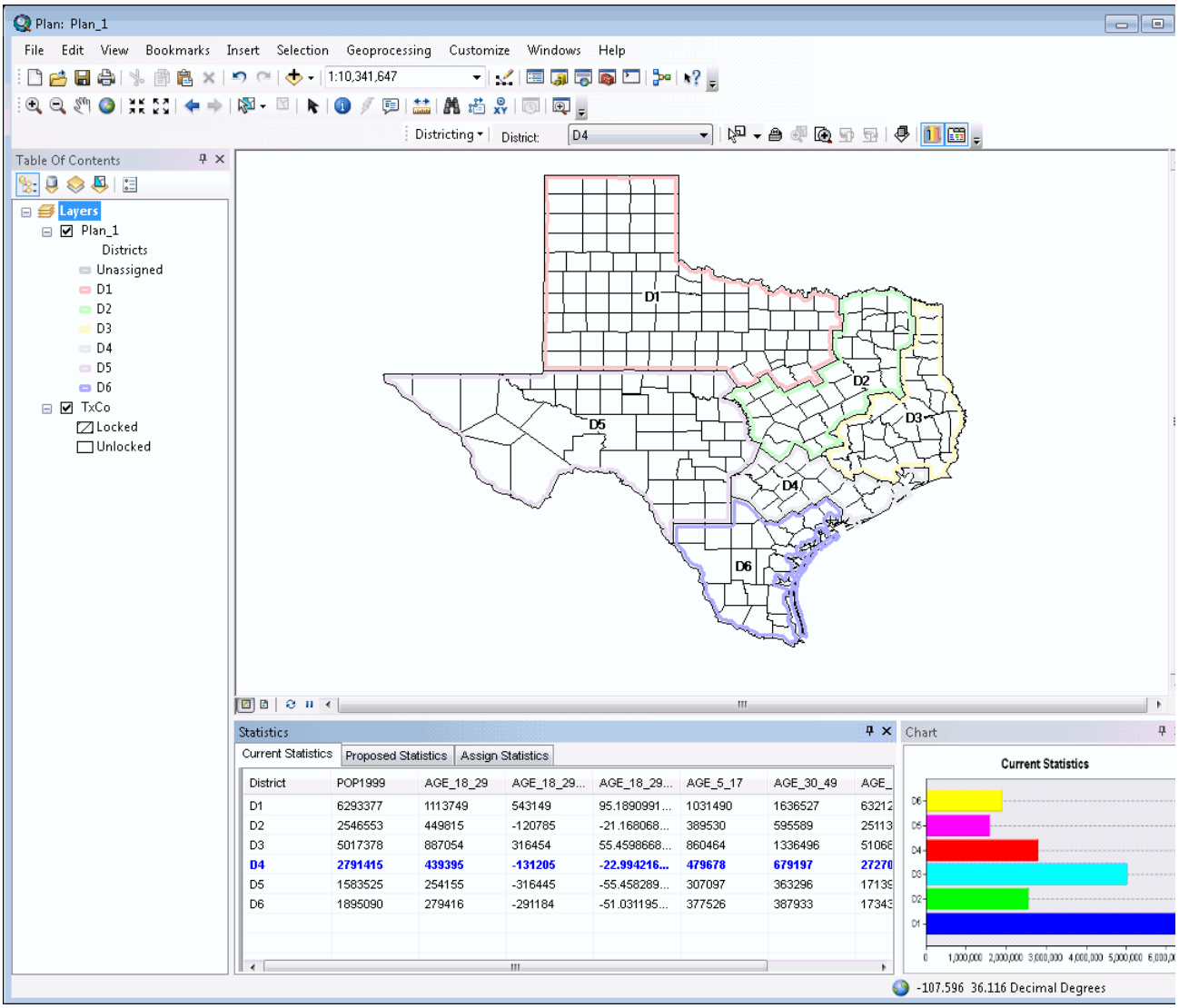
6. From the Districting Toolbar, change the selection tool to Select by Line by clicking on the drop down arrow.

7. Using the Select by Line tool, left-click in a source geography unit and draw line through multiple units. Double-click to end the line. The selected units will be highlighted. Right-click in the data view to assign the selection.

8. Continue making assignments to D1 until the optimal target value 570600 for AGE_18_29 is met (or close) viewing the Current Statistics and Proposed Statistics in the Statistics Window. Use the deviation column in the Statistics Window to help determine if you are over or under the optimal target value.

9. Repeat the select and assignment process for Districts 2 through 6. Try using the different selection options (select by polygon, select by circle, select by attributes).

10. Click the Zoom to Unassigned button to verify that all units have been assigned to a District. When you are done, your data view will look similar to the graphic below.



11. From the Districting pulldown menu, click Save Edits.

Tutorial: Lock Source Geography Units

Related topics

In this tutorial, you will lock source geography units so the units can not be reassigned to a different district.

1. Click the Lock button and click a source geography unit in the data view.

2. The symbology of the unit is changed to a diagonal hatched line.

3. Change the District drop list to a different district.

4. Try to reassign the locked source geography unit to the different district using the default selection tool. Notice that you cannot reassign the unit to the district.

Tutorial: Change Plan Properties

Related topics

In this tutorial, you will add comments to the plan, and change the attributes displayed in the Statistics Window.

1. From the Districting pulldown menu, click Plan Properties.
2. On the General tab, enter a comment in the Comment box and click Apply.
3. On the Statistics tab, change the fields to view in the Statistics Window by checking/unchecking them. Click OK.
4. The Statistics Window is updated to reflect what was checked/unchecked.

Tutorial: Change District Symbology

Related topics

In this tutorial, you will change the district symbology from multicolor drop line to multicolor fill.

1. From the Districting pulldown menu, click Symbology.
2. Change the symbology to multicolor fill.
3. Click OK.
4. The district symbology is updated to multicolor fill.

Tutorial: Create a Report from the Plan

Related topics

In this tutorial, you will create a report from the plan based on the Current Statistics (in the Statistics Window).

1. From the Districting pulldown menu, click Plan Report.
2. Click the Save button.
3. Navigate to a desired location to store your plan report.
4. Optionally you can create a folder named "Plan_Reports".
5. Select the Plan_Reports folder.
6. Type "TutorialReport" as the file name.
7. Click Save.
8. Click Close on the Plan Report dialog.

Tutorial: Create a Shapefile from the Plan

Related topics

In this tutorial, you will create a shapefile from the plan.

1. From the Districting pulldown menu, click Save Edits, then Stop Editing.
2. From the Districting pulldown menu, click Plan Geography and click Create Shapefile.
3. Navigate to a desired location to create the shapefile.
4. Optionally you can create a folder named "Plan_Shapefiles".
5. Click the Plan_Shapefiles folder.
6. Type "TutorialShapefile" as the file name.
7. Click Save.
8. Click Yes to add the shapefile to the map when prompted. The shapefile is added to the map with the source plan symbology.

Tutorial: Export the Plan

Related topics

In this tutorial, you will export the plan to a text file.

1. From the Districting pulldown menu, click Save Edits and click Stop Editing.
2. From the Districting pulldown menu, click Export Plan.
3. Navigate to a desired folder to export the plan.
4. Optionally you can create a folder named "Plan_Exports".
5. Click the Plan_Exports folder.
6. Type "TutorialExport" as the file name.
7. Click Save.

Creating Districting Plans

Related topics

collapse all

About Creating Districting Plans

Districting plans can be created through a variety of ways using the Districting for ArcGIS add-on. Plans are created within a plan workspace. You can have more than one plan within a plan workspace. Plans can be created using the Districting Wizard, the Create New Plan form, or from ArcCatalog.

The inputs to creating a plan are specifying a plan workspace, entering a plan name, specifying source geography and source attributes, specifying the number of districts, specifying the optimal value field and the optimal value, and specifying the statistics to track. The source geography and source attributes can be stored in separate files, related via a common attribute between the two files. The source geography and source attributes can also be contained within the same file.

How to Create Districting Plans

Using the Districting Wizard

1. From the Districting menu, point to Districting Admin and click Create New Plan.
2. Set Plan workspace and Plan name.

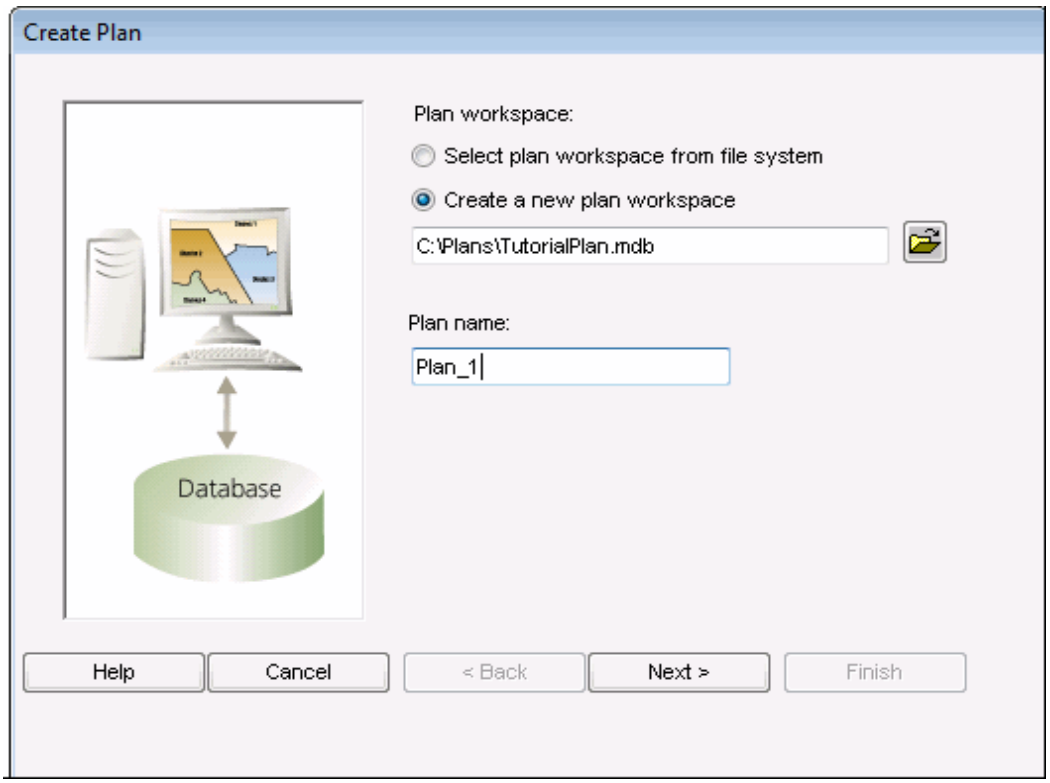
    a. Click Create a new plan workspace.

    b. Browse to a folder location you want to create your plan.

    c. Enter the Plan workspace name and click Save.

    d. Enter the Plan name.

    e. Click Next to continue the Districting Wizard.

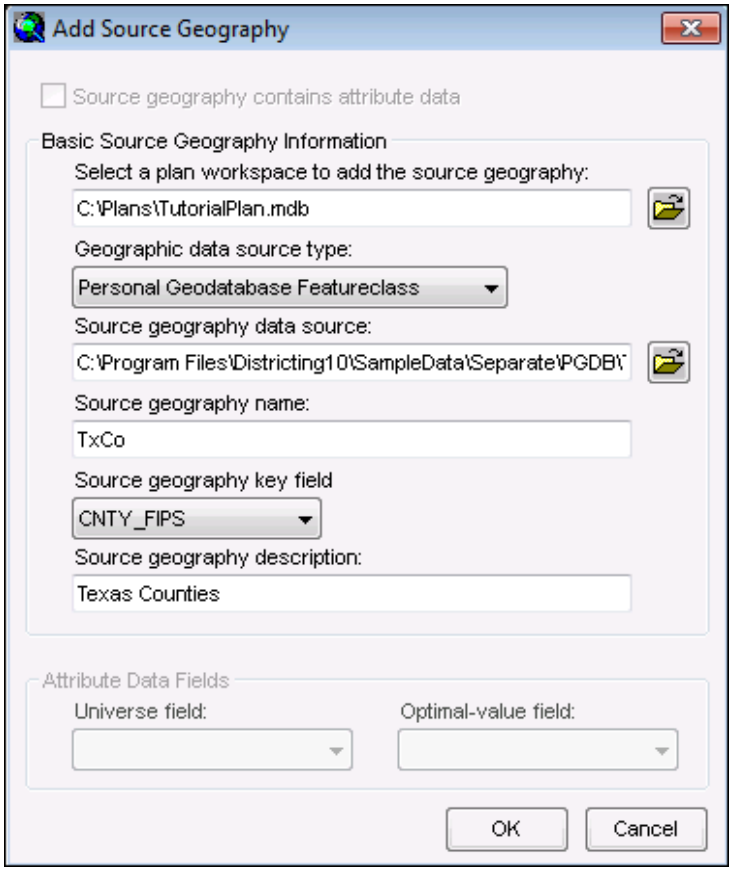


3. Set Source Geography and Source Attributes.

    a. Under Source Geography, click Add New.

b. From the Add Source Geography dialog box.

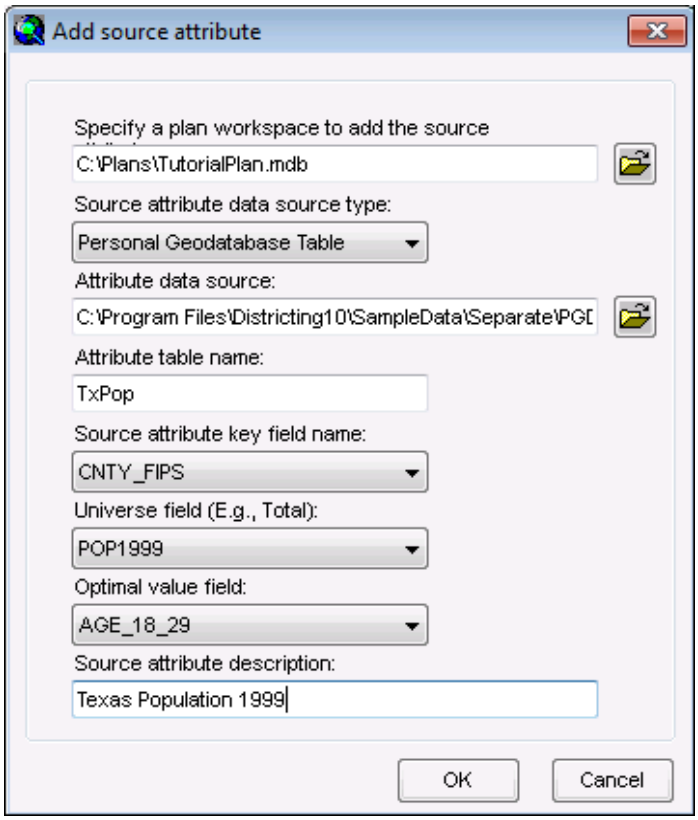
- Click the geographic data source type drop-down arrow and select the geographic source type.
- Click the browse button and browse to the source geography file. Click Add.
- Enter the source geography name.
- Select the key field name (which will relate to the source attribute file) from the drop-down arrow. In order for a field in the Source Geography dataset to appear in the key field drop down list, it must contain unique (non-duplicate) values and must be of either integer or string type (a field of double type will be excluded).
- Enter a source geography description.
- Click OK.



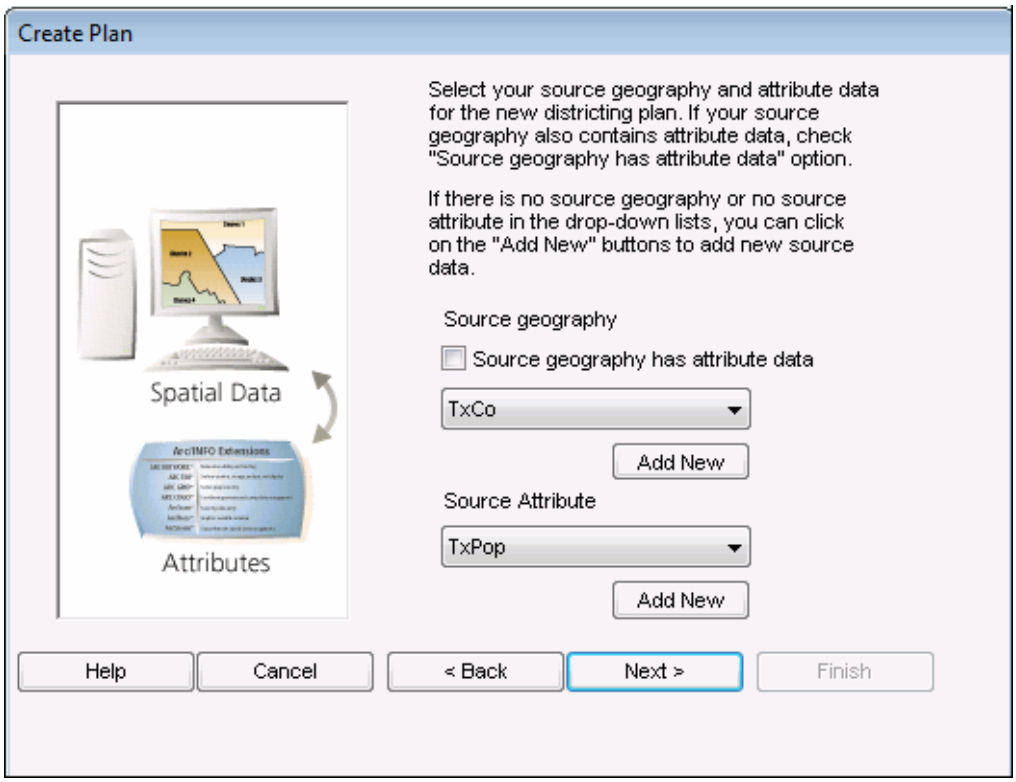
c. Under Source Attribute, click Add New.

d. From the Add Source Attribute dialog box:

- Click the source attribute data source type drop-down arrow and select the attribute source type.
- Click the browse button and browse to the source attribute file. Click Add.
- Enter the attribute table name.
- Click the source attribute key field name (related to source geography) drop-down arrow and select the key field name. The values of the key field must be unique. If the values are not unique, the field will not display in the drop-down list.
- Click the universe field drop-down arrow and select the universe field.
- Click the optimal value field drop-down arrow and select the optimal value.
- Enter the source attribute description.
- Click OK.



e. Click Next to continue the Districting Wizard.

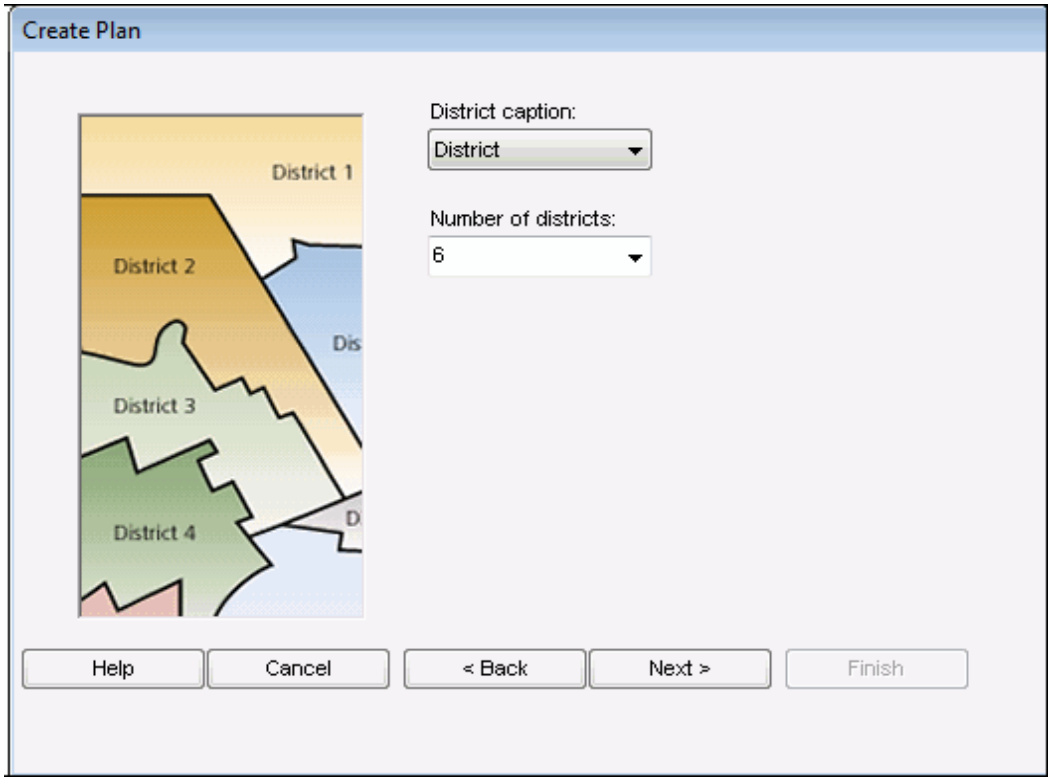


4. Set District caption and Number of districts.

a. Click the District caption drop-down arrow and select the district caption.

b. Click the Number of districts drop-down arrow and select the number of districts.

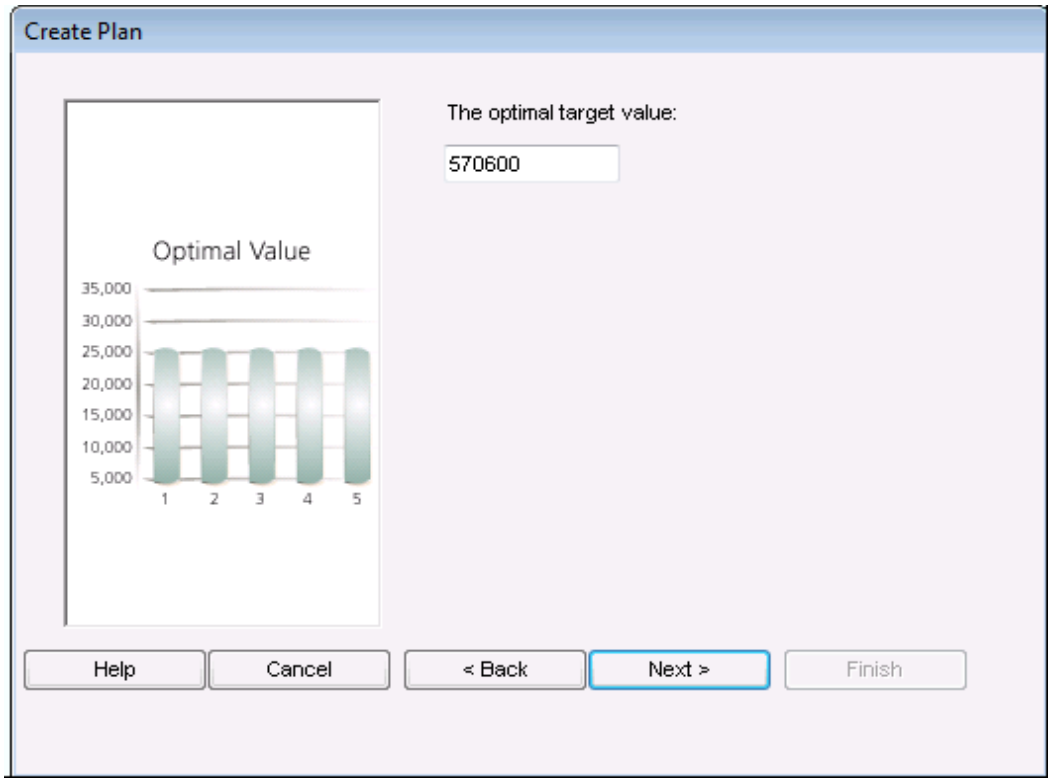
c. Click Next to continue the Districting Wizard.



5. Set Optimal target value.

a. The optimal target value is automatically calculated. You can adjust for rounding purposes.

b. Click Next to continue the Districting Wizard.

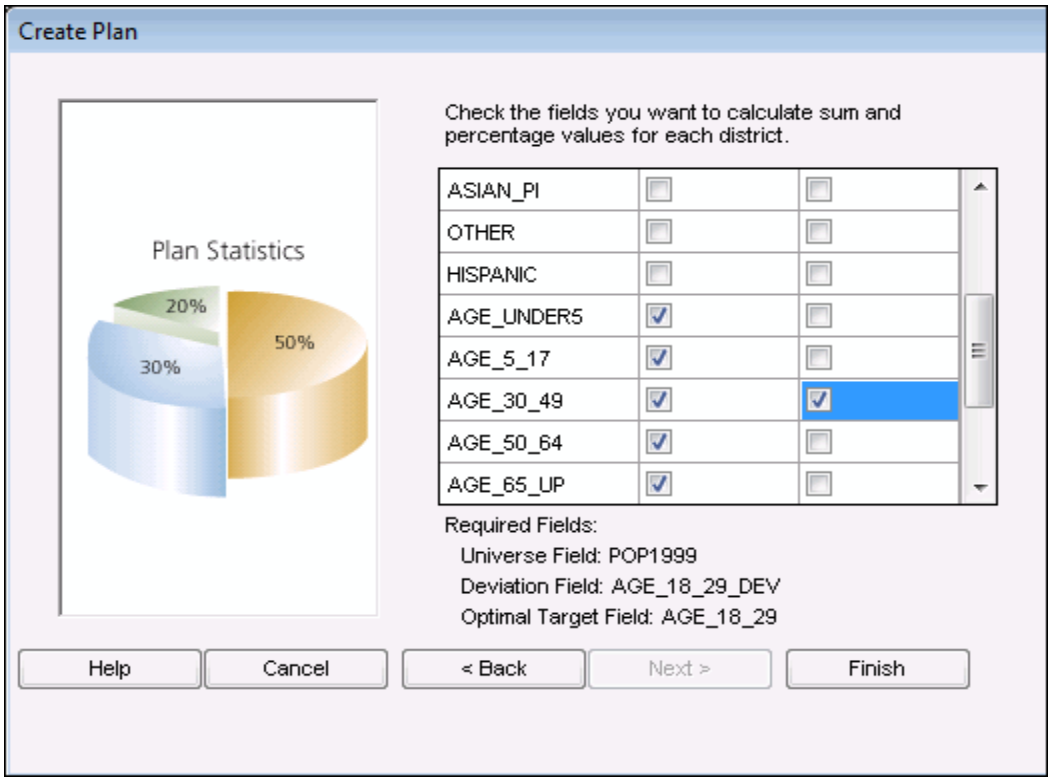


6. Check fields for statistics table.

a. Under Sum, check fields from the source attribute file that you want to track by district.

b. Under Percent, check fields from the source attribute file that you want to track as a percent of the universe field by district.

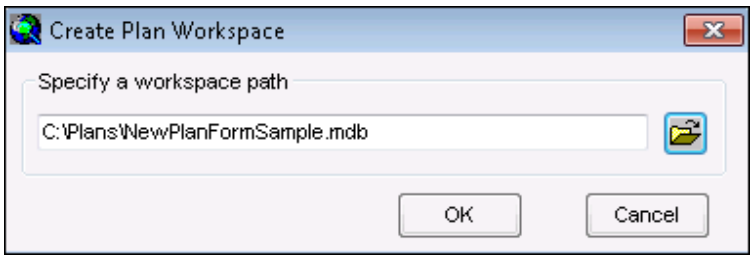
c. Click Finish to complete the Districting Wizard.



Using the Create New Plan Form

To use the Create New Plan form, the Preference must have the Districting Wizard check box unchecked.

1. From the Districting pulldown menu, click Districting Admin, then click Create Plan Workspace.
2. Click the browse button and browse to where you want to store the plan. Enter a plan workspace name and click OK.



3. From the Districting pulldown menu, click Districting Admin, then click Add Geography Source.
4. From the Add Source Geography dialog box:

    a. Browse to the plan workspace created in step 2.

    b. Click the geographic data source type drop-down arrow and select the geographic source type.

    c. Click the browse button and browse to the geographic source file. Click Add.

    d. Enter the source geography name.

    e. Select the source geography key field name (related to source attribute file) from the drop-down arrow.

    f. Enter a source geography description.

    g. Click OK.

5. From the Districting pulldown menu, click Districting Admin, then click Add Attribute Source.
6. From the Add Source Attribute dialog box:

    a. Browse to the plan workspace created in step 2.

    b. Click the attribute data source type drop-down arrow and select the attribute source type.

    c. Click the browse button and browse to the source file. Click Add.

    d. Enter the attribute table name.

    e. Click the source attribute key field name drop-down arrow and select the key field name (related to source geography).

    f. Click the universe field drop-down arrow and select the universe field.

    g. Click the optimal value field drop-down arrow and select the optimal value field.

    h. Enter the source attribute description.

    i. Click OK.

7. From the Districting pulldown menu, click Districting Admin, then click Create New Plan.
8. Enter the Create New Plan dialog box inputs.

    a. Browse to the Plan Workspace (created in step 2).

    b. Enter a Plan Name

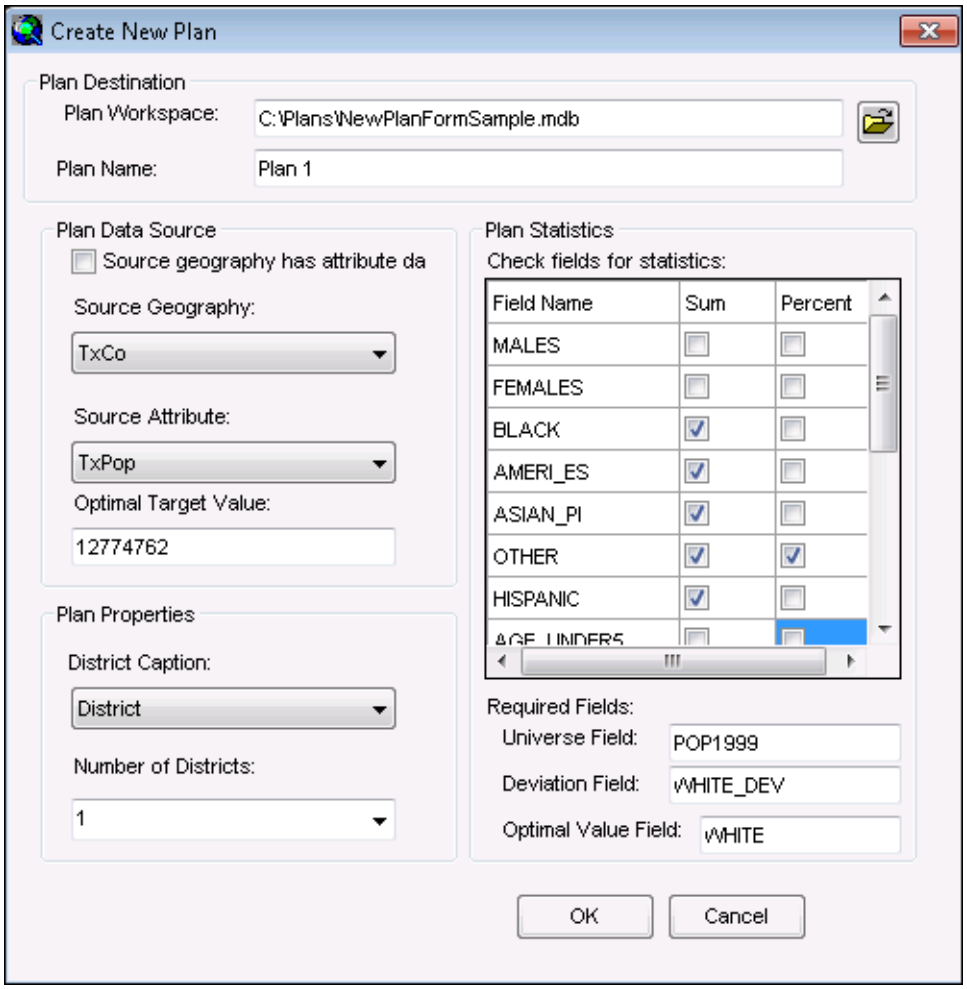
c. Under Plan Data Source, the Source Geography and Source Attributes should already be populated. The Optimal Target Value is automatically calculated; adjust if necessary.

d. Under Plan Properties:

- Select a District Caption from the drop-down arrow.
- Select the Number of Districts from the drop-down arrow.

d. Under Plan Statistics, check the source attributes to track by value and by percent for each district.

9. Click OK.



Using an Existing Plan Workspace

You can create a new plan in an existing plan workspace:

If you are using the Districting Wizard, click Select plan workspace from the file system from the first wizard panel. Browse to the existing plan workspace. Then proceed as described under Using the Districting Wizard section.

If you are using the Create New Plan form, browse to the existing plan workspace (that already has geography and attribute source set).

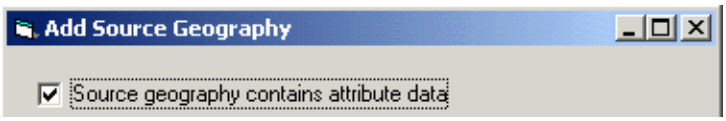
*Note: Because you are creating a plan within an existing plan workspace, the new plan assumes the source geography and attributes that currently exist in the plan workspace.

Using a Single Source for Source Geography and Source Attributes

You can create a plan where the geography and attribute source are within the same file:

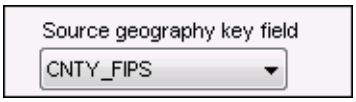
If you are using the Districting Wizard

1. Check the check box on the Create Plan dialog box.

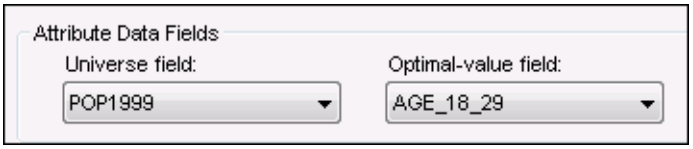


2. Select a key field.

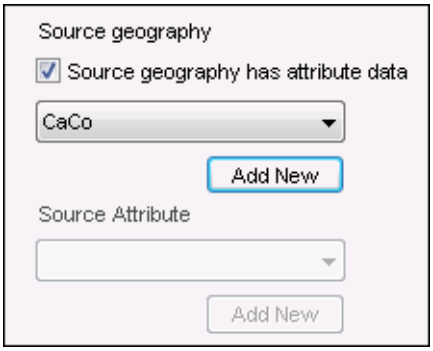
*Note: Select a Unique ID field in Source geography to tie in with Plan geography feature class. The selected Unique ID field will be used to summarize statistics even though source geography also contains attributes.



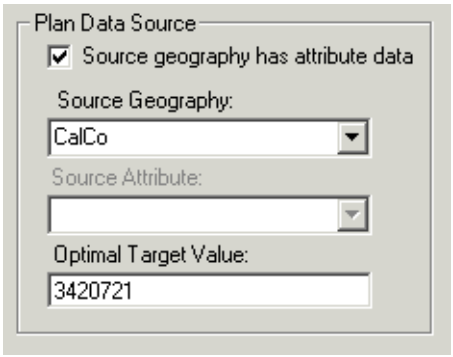
3. The attribute data fields on the Add Source Geography dialog box will be enabled. Click the Universe and the Optimal-value field drop-down arrows and select the universe and optimal value fields.



4. From the Districting Wizard panel, check the check box. The Source Attribute will become disabled.



If you are using the Create New Plan form, check the check box. The Source Attribute will become disabled.



From ArcCatalog

From ArcCatalog, you can create plans in an existing plan workspace:

1. Right-click a plan workspace, and click Create New Plan.

2. The Districting Wizard will be launched. Follow the steps under Using the Districting Wizard.

*Note: Because you are creating a plan within an existing plan workspace, the new plan assumes the source geography and attributes that currently exist in the plan workspace. If you want to use a different geography and attribute source, add a different geography and/or attribute source using the wizard.

*Note: You can also create plans from the ArcCatalog window in ArcMap.

Opening Plans

Related topics

collapse all

About Opening Plans

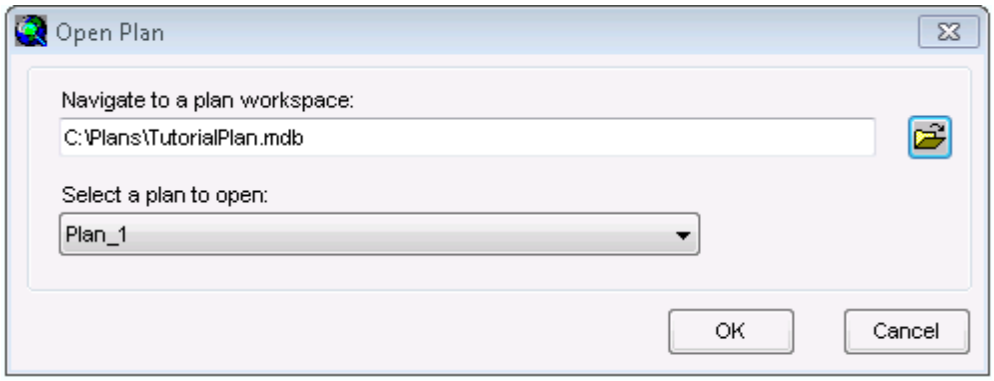
From the Districting pulldown menu, you can open an existing plan for viewing or editing.

How to Open a Plan

From ArcMap

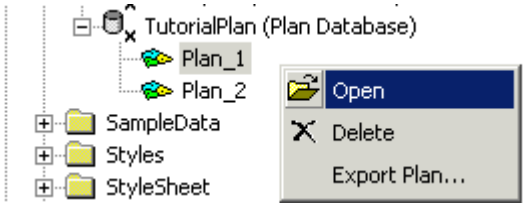
To open a plan from ArcMap

1. From the Districting menu, click Districting Admin, then click Open Plan.
2. Navigate to the plan workspace by clicking the browse button.
3. If the plan workspace has more than one plan, select the plan to open.
4. Click OK.



From ArcCatalog

To open a plan from ArcCatalog, right-click a plan and click Open.



*Note: You can open plans through the ArcCatalog Window in ArcMap.

Start, Save, and Stop Editing Plans

Related topics

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About Start, Save, and Stop Editing Plans

In order to assign or reassign source geography units to a district, the plan must be editable. Once you are editing the plan (making district assignments), you can save your edits (assignments) at any time. When you are done making district assignments, you can stop editing the plan.

How to Start, Save and Stop Editing a Plan

To Start Editing a Plan

To start editing a plan from the Districting pulldown menu, click Start Editing.

To Save Edits to Plan

To save edits to a plan from the Districting pulldown menu, click Save Edits.

To Stop Editing a Plan

To stop editing a plan

1. From the Districting pulldown menu, click Stop Editing.
2. If you made assignment changes, you will be prompted to save edits.

    a. If you click Yes, your changes will be saved.

    b. If you click No, your changes will be reverted back to the last time you had saved.

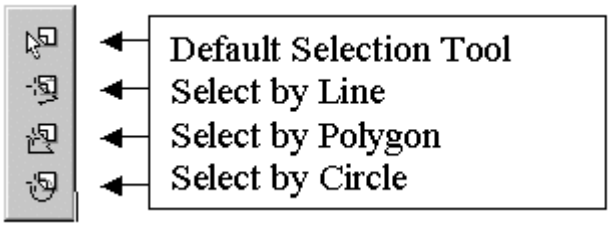
Selecting Units

Related topics

collapse all

About Selecting Units

In the districting process, source geography units are selected so they can be assigned to a district. On the Districting toolbar, the Selection Tool menu contains four tools and five methods for selecting source geography units: by clicking or by drawing a rectangle, polygon, line, or circle. The Districting for ArcGIS add-on also allows you to select geographic units using queries.



How to Select Units

Using the Default Selection Tool

The Default Selection Tool has two methods for selecting source geography units.

Select by Clicking in Area

1. Select the Default Selection Tool from the Selection Tool menu.
2. Click the source geography unit you want to select. The unit is highlighted and selected.

Select by Drawing a Rectangle

1. Click the Default Selection Tool from the Selection Tool menu.
2. Click in one of the units you want to select.
3. Click and drag the mouse pointer across the screen to draw a rectangle.
4. Release the mouse button to finish. All units that are within and intersect the boundary of the rectangle are highlighted and selected.

Tip: You can hold down the Shift button on the keyboard and use the select tool again to add more units to the current selection.

Using Select by Line

The Select by Line tool allows you to select units by drawing a line through the units.

1. Click the Select by Line tool from the Selection Tool menu.
2. Click the unit you want to select.
3. Draw a line that goes through all the units you wish to select; click where you wish to change directions.
4. Double-click to finish drawing the line. All units that intersect the line you defined are highlighted and selected.

Using Select by Polygon

The Select by Polygon tool allows you to select units by drawing a polygon.

1. Click the Select by Polygon tool from the Selection Tool menu.
2. Click the unit you want to select.
3. Draw the boundary of the polygon; click where you want to change directions.
4. Double-click to finish drawing the polygon. All units that are within and intersect the boundary of the polygon are highlighted and selected.

Using Select by Circle

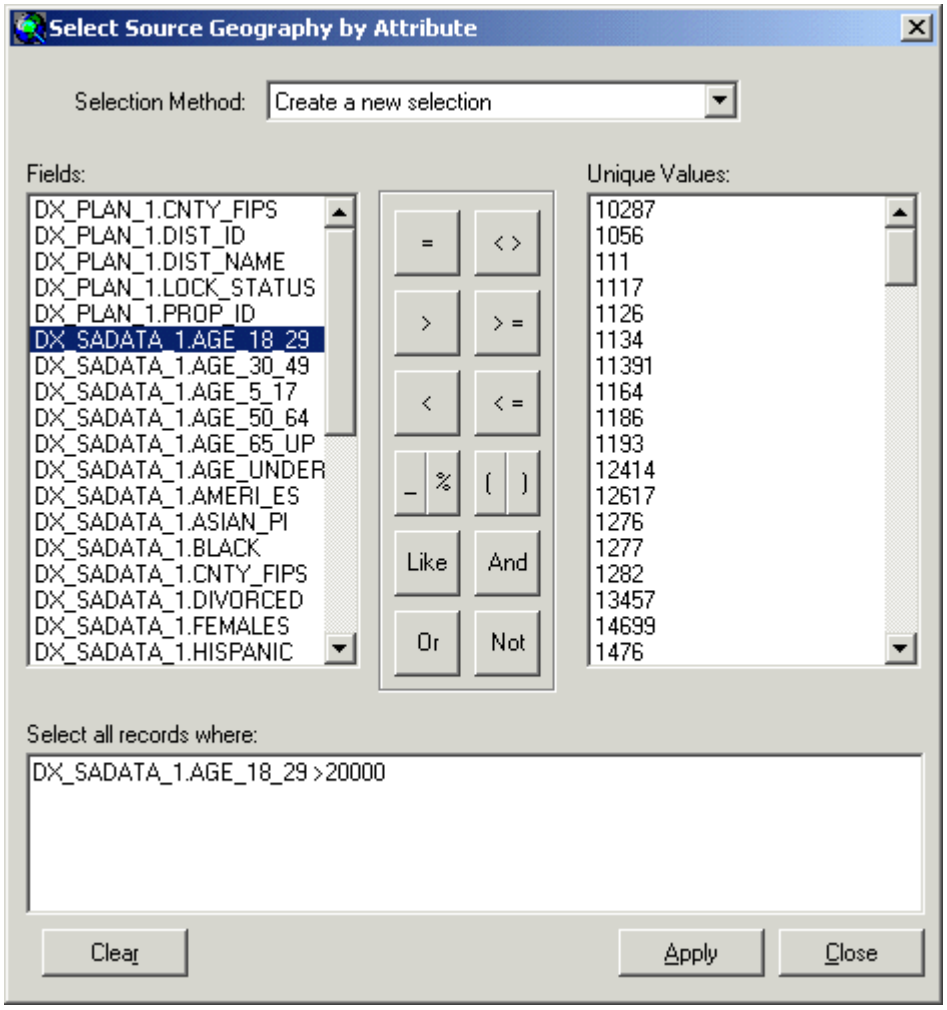
The Select by Circle tool allows you to select units by drawing a circle.

1. Click the Select by Circle tool from the Selection Tool menu.
2. Click the unit where you want the center of the circle to start.
3. Click and drag the mouse pointer away from the center of the circle until you encompass the units you want to select.
4. Double-click to finish drawing the circle. All units within and intersecting the boundary of the circle are highlighted and selected.

Using Select by Attribute Query

Instead of interactively selecting source geography units, you can select source geography units by querying the source geography and source attribute data.

1. Right click in the Data View to display the context menu.
2. Click Select by Attributes. The Select Source Geography by Attribute dialog is displayed.
3. Build a selection query using the available fields and operators.
4. Click Apply.
5. Source geography units that met the selection criteria are highlighted and selected.


Select Source Geography by Attribute
Selection Method:
Create a new selection
Fields:
DX_PLAN_1.CNTY_FIPS
DX_PLAN_1.DIST_ID
DX_PLAN_1.DIST_NAME
DX_PLAN_1.LOCK_STATUS
DX_PLAN_1.PROP_ID
DX_SADATA_1.AGE_18_29
DX_SADATA_1.AGE_30_49
DX_SADATA_1.AGE_5_17
DX_SADATA_1.AGE_50_64
DX_SADATA_1.AGE_65_UP
DX_SADATA_1.AGE_UNDER
DX_SADATA_1.AMERI_ES
DX_SADATA_1.ASIAN_PI
DX_SADATA_1.BLACK
DX_SADATA_1.CNTY_FIPS
DX_SADATA_1.DIVORCED
DX_SADATA_1.FEMALES
DX_SADATA_1.HISPANIC
=
< >
>
> =
<
< =
_
%
( )
Like
And
Or
Not
Unique Values:
10287
1056
111
1117
1126
1134
11391
1164
1186
1193
12414
12617
1276
1277
1282
13457
14699
1476
Select all records where:
DX_SADATA_1.AGE_18_29 >20000
Clear
Apply
Close

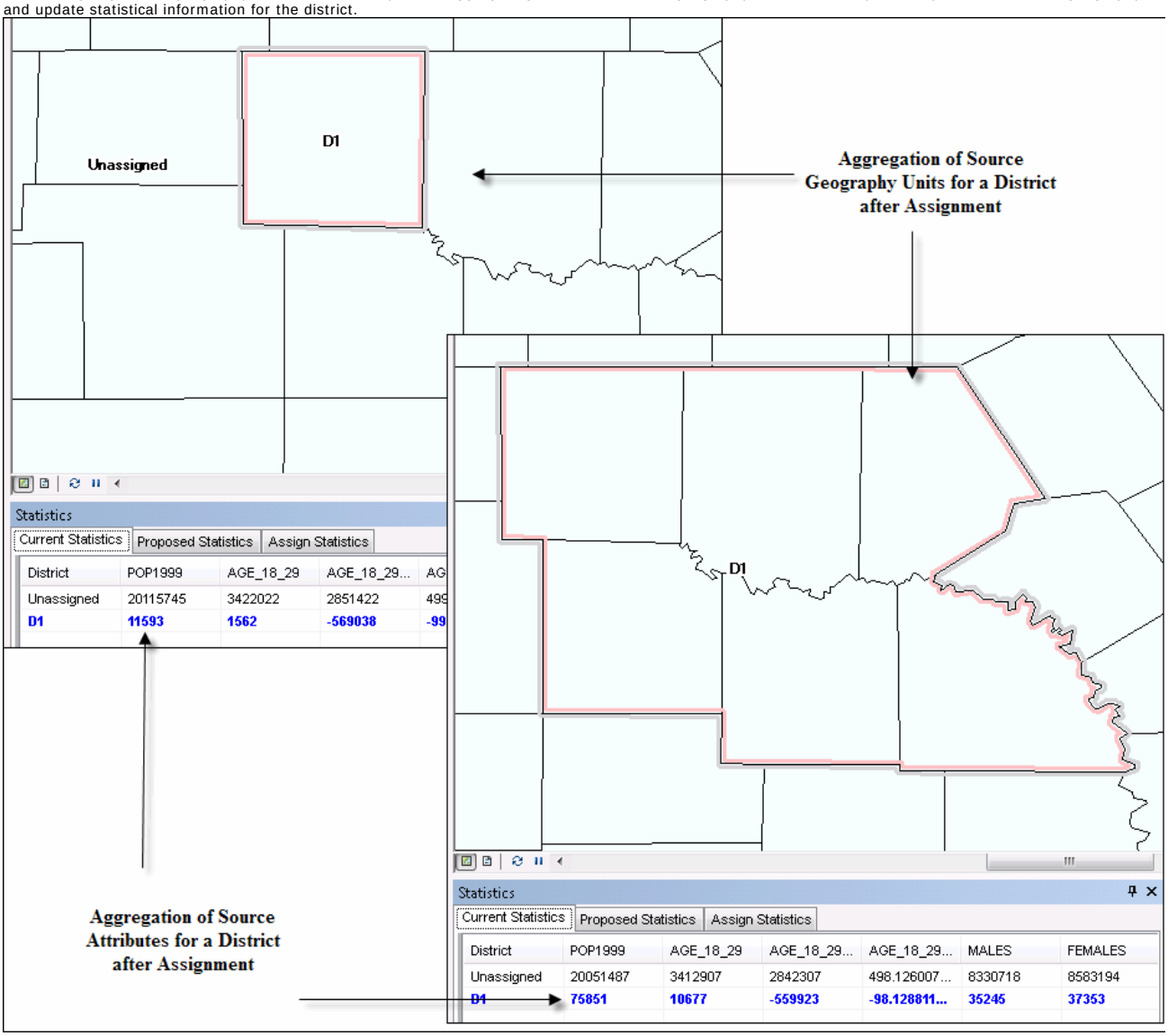
Assigning Units to Districts

Related topics

collapse all

About Assigning Units to Districts

When assigning source geography units to a district, you are aggregating the selected units' geography and attributes (statistics) to create district geography and update statistical information for the district.

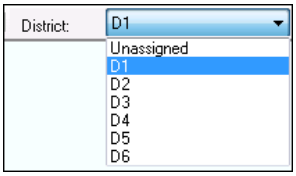


How to Assign Units to Districts

To assign source geography units to a district

1. From the Districting pulldown menu, click Start Editing.

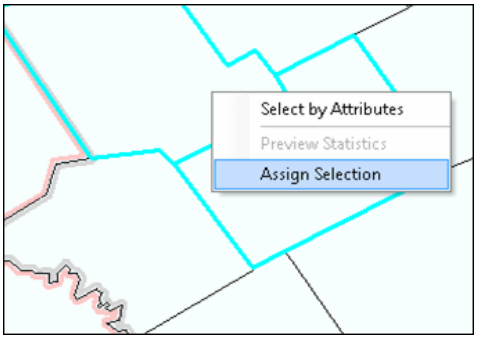
2. Click the District drop-down arrow and select a district.



3. Click a selection tool from the Selection Tool menu.

4. Select the source geography units to assign to the selected district. Once the units are selected, they will be highlighted light blue. In the Statistics Table, the Proposed Statistics tab is updated to reflect what the statistics will be if the assignment is made.

5. In the ArcMap Display Window, right-click the data view and click Assign Selection from the context menu.



6. The district's geography and statistics are updated for the additional units.

District Statistics

Related topics

collapse all

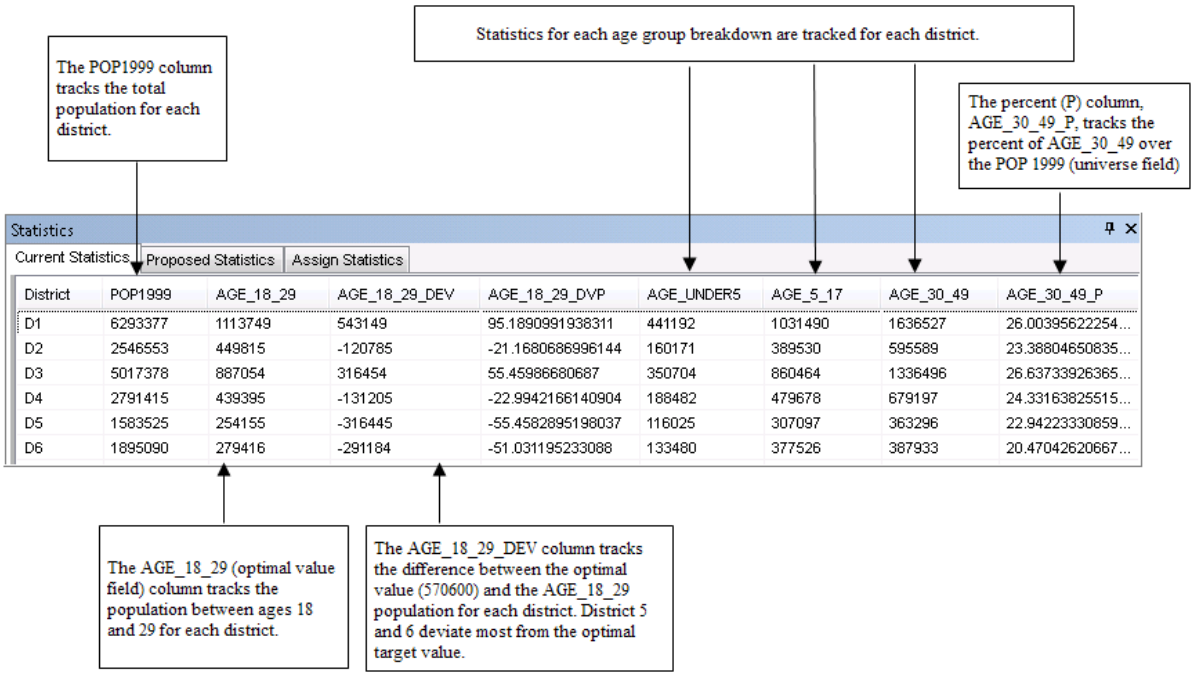
About District Statistics

Plan statistics for each district are stored with the plan. The Districting for ArcGIS add-on allows you to view the plan's statistics through the Statistics and Chart Windows. These windows are dockable; they can be docked at the top, bottom, left, and right areas of the ArcMap interface. Alternatively, the windows can float unattached on the desktop. When you dock a window, the user interface is resized to accommodate the size and position of the window.

Statistics Window

During the plan creation process, the Districting for ArcGIS add-on allows you to select a universe field (by which percentages are calculated in the Statistics Window) and an optimal value field to track statistics based on the optimal value as district assignments are made. A deviation column in the statistics window allows you to track the deviation from the optimal target value for the select optimal target field. As selections and assignments are made, the statistics are aggregated.

In the example below, POP1999 is the universe field and AGE_18_29 is the optimal value field. (The optimal target value was set to 570600).



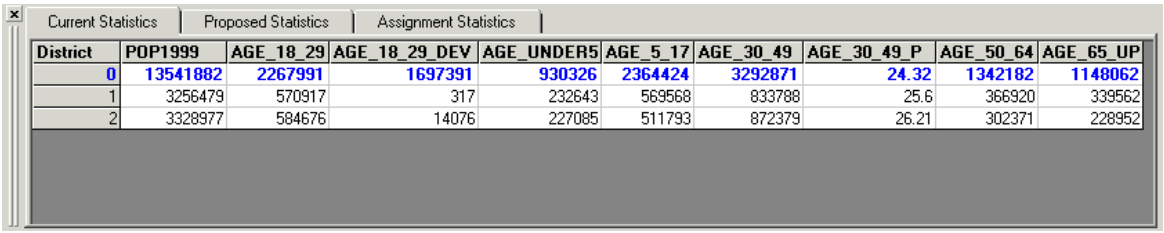
District	POP1999	AGE_18_29	AGE_18_29_DEV	AGE_18_29_DVP	AGE_UNDER5	AGE_5_17	AGE_30_49	AGE_30_49_P
D1	6293377	1113749	543149	95.1890991938311	441192	1031490	1636527	26.00395622254...
D2	2546553	449815	-120785	-21.1680686996144	160171	389530	595589	23.38804650835...
D3	5017378	887054	316454	55.45986680687	350704	860464	1336496	26.63733926365...
D4	2791415	439395	-131205	-22.9942166140904	188482	479678	679197	24.33163825515...
D5	1583525	254155	-316445	-55.4582895198037	116025	307097	363296	22.94223330859...
D6	1895090	279416	-291184	-51.031195233088	133480	377526	387933	20.47042620667...

The statistics displayed in the statistics window and the optimal target value can be modified in Plan Properties. The universe field and the optimal target value field, set during plan creation, cannot be changed.

The Statistics Window contains three tabs to view different types of statistics for districts: current, proposed, and assignment.

Current Statistics

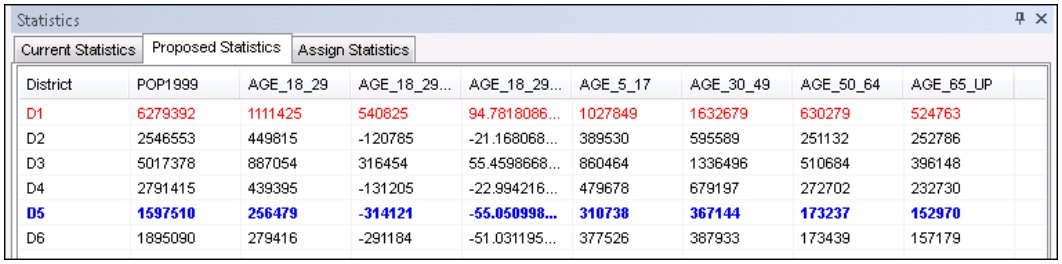
The Current Statistics tab on the Statistics Window displays the statistics as they are currently assigned to districts. The statistics are updated when source geography units are assigned to a district.



District	POP1999	AGE_18_29	AGE_18_29_DEV	AGE_UNDER5	AGE_5_17	AGE_30_49	AGE_30_49_P	AGE_50_64	AGE_65_UP
0	13541882	2267991	1697391	930326	2364424	3292871	24.32	1342182	1148062
1	3256479	570917	317	232643	569568	833788	25.6	366920	339562
2	3328977	584676	14076	227085	511793	872379	26.21	302371	228952

Proposed Statistics

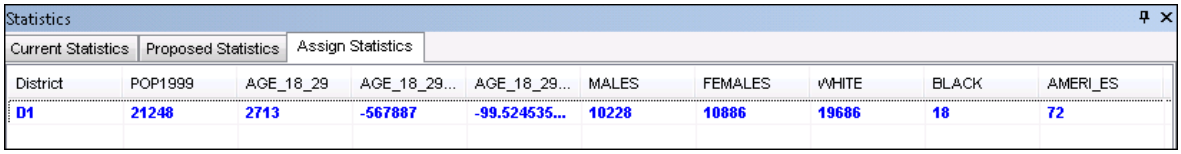
The Proposed Statistics tab on the Statistics Window shows what the statistics will become if the selected source geography units are assigned to the selected district. This allows you to approve or reject the assignment before it takes place. Districts that will gain population are shown in blue; Districts that will lose population are shown in red.



District	POP1999	AGE_18_29	AGE_18_29...	AGE_18_29...	AGE_5_17	AGE_30_49	AGE_50_64	AGE_65_UP
D1	6279392	1111425	540825	94.7818086...	1027849	1632679	630279	524763
D2	2546553	449815	-120785	-21.168068...	389530	595589	251132	252786
D3	5017378	887054	316454	55.4598668...	860464	1336496	510684	396148
D4	2791415	439395	-131205	-22.994216...	479678	679197	272702	232730
D5	**1597510**	**256479**	**-314121**	**-55.050998...**	**310738**	**367144**	**173237**	**152970**
D6	1895090	279416	-291184	-51.031195...	377526	387933	173439	157179

Assignment Statistics

The Assignment Statistics tab shows the statistics for the selected source geography units for the selected district. The statistics show only what will be added to the district. The Assignment Statistics tab allows you to research different selections to help find the target statistics. The Assignment Statistics tab is updated when the statistics are previewed or the district is changed.

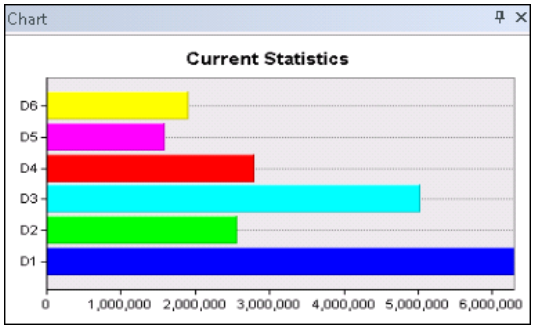


District	POP1999	AGE_18_29	AGE_18_29...	AGE_18_29...	MALES	FEMALES	WHITE	BLACK	AMERI_ES
D1	**21248**	**2713**	**-567887**	**-99.524535...**	**10228**	**10886**	**19686**	**18**	**72**

Chart Window

The Chart Window helps you visualize the statistics displayed in the Statistics Window. The Chart Window will display the statistics for the selected tab in the Statistics Window.

Double click on the chart window to expose the chart properties dialog. This allows you change the type of chart used for displaying your district assignments.



How to View District Statistics

View Statistics Window

To view the Statistics Window on the Districting toolbar, click the Statistics Window button .

View Chart Window

To view the Chart Window on the Districting toolbar, click the Chart Window button .

Dock Windows

To dock either the Statistics Window or Chart Window

1. Click the double lines on the left side of the window and drag it to the top, bottom, or side where you want to dock the window. The outline of the window you are dragging may change shape to show you how it will look when docked.

2. Once you have docked a window, you can adjust its size.

Tip: To prevent a window from docking, hold down the Ctrl key while dragging it.

Change Properties

The Districting for ArcGIS add-on provides different options for updating and viewing statistics in the Statistics Window. If you assign a selection using the Assign button, you can display changes in the proposed statistics immediately after your selection, or you can use the Preview button to view changes in the proposed statistics. If you select to assign units to districts immediately after selection, the statistics are updated immediately. The preview statistics option is disabled, and you cannot preview proposed statistics before you assign.

Change Fields Displayed in Statistics Window

Changing fields displayed in the Statistics Window can be done through Plan Properties.

Plan Properties

Related topics

collapse all

About Plan Properties

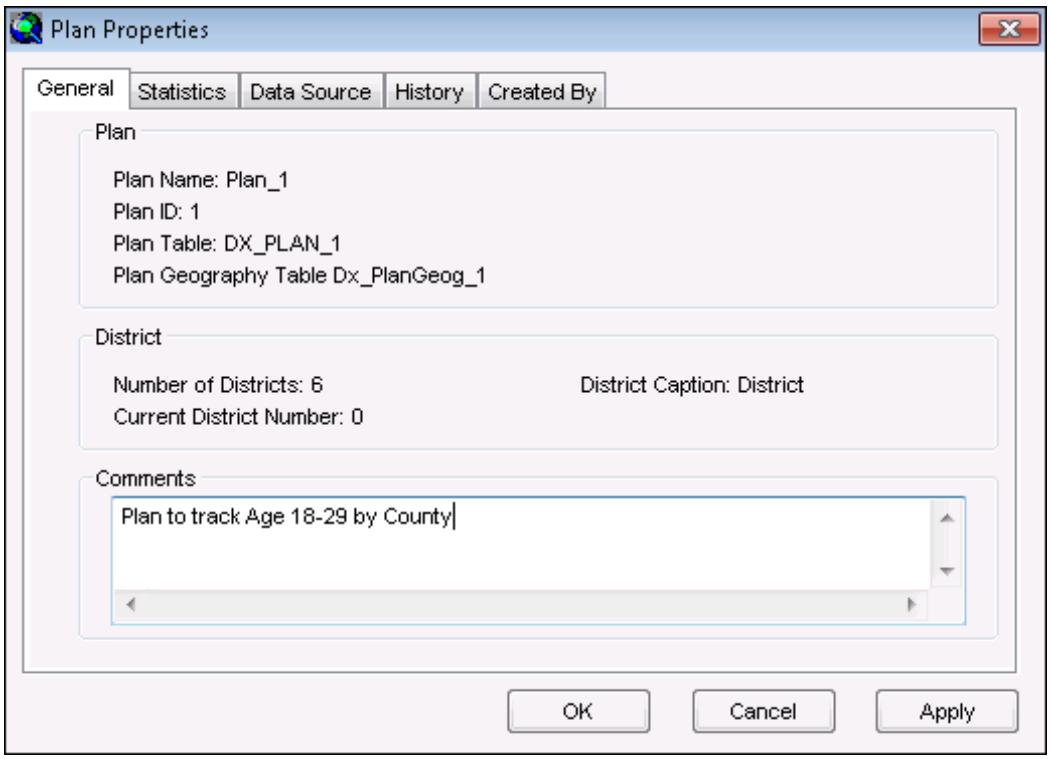
Plan Properties store metadata about the plan. Plan Properties include plan name, district caption, universal field, optimal value field, optimal value, statistics columns, plan workspace name, source geography name, source attribute name, history, and creation information.

Through Plan Properties, you can change certain properties once the plan has been created.

How to View and Modify Plan Properties

View and Modify General Properties

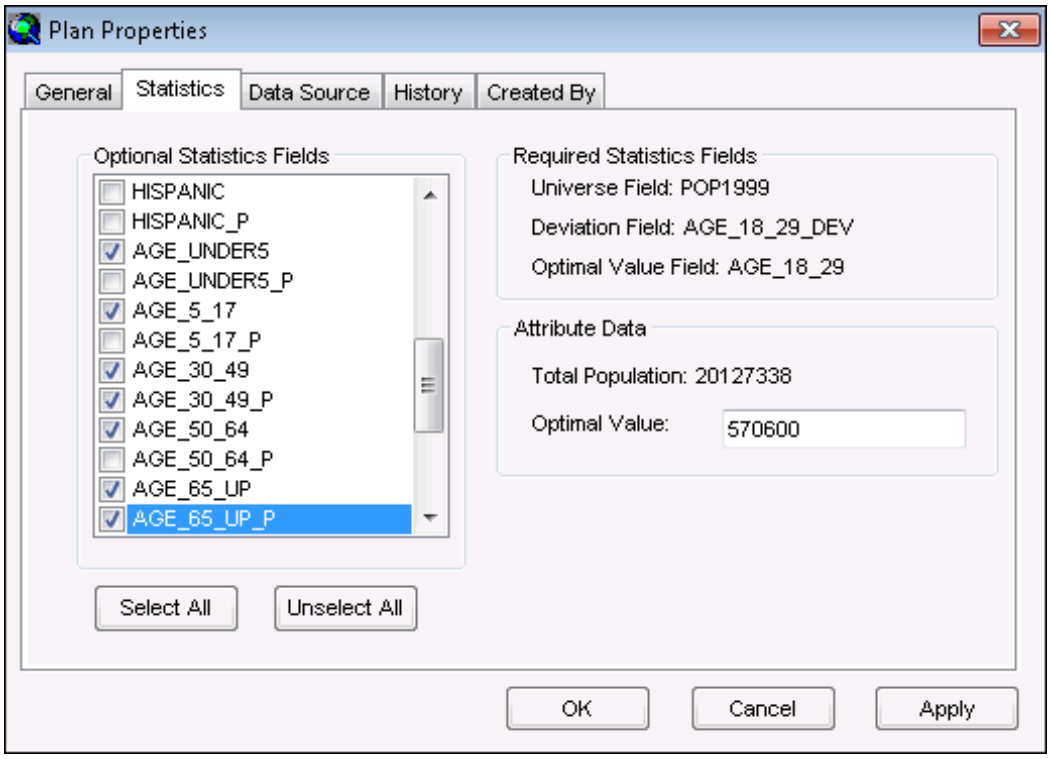
1. From the Districting pulldown menu, click Plan Properties.
2. To view, click the General tab.
3. To modify, enter Comments and click Apply.



View and Modify Statistical Properties

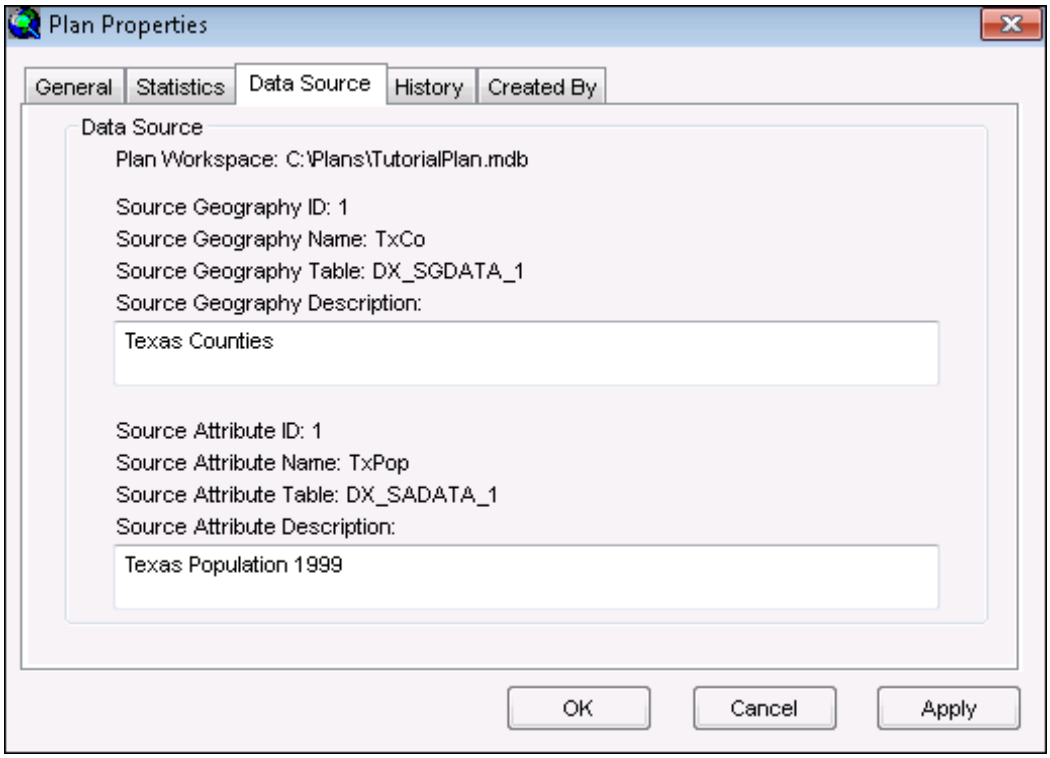
1. From the Districting pulldown menu, click Plan Properties.
2. To view, click the Statistics tab.
3. To modify fields that are displayed and tracked in the Statistics Window, check or uncheck desired fields and click Apply.
4. To modify optimal target valued (based on the optimal target value field), enter the desired value and click Apply.

Changes will be reflected when the next assignment is made.



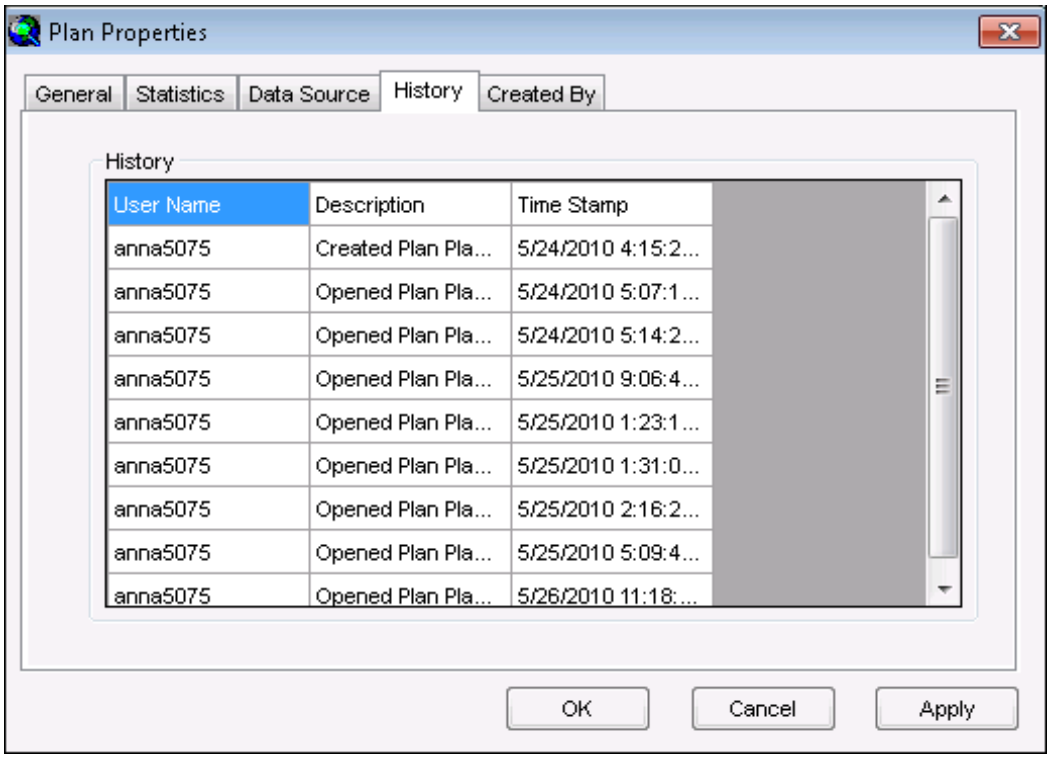
View Data Source Properties

1. From the Districting pulldown menu, click Plan Properties.
2. To view, click the Data Source tab.



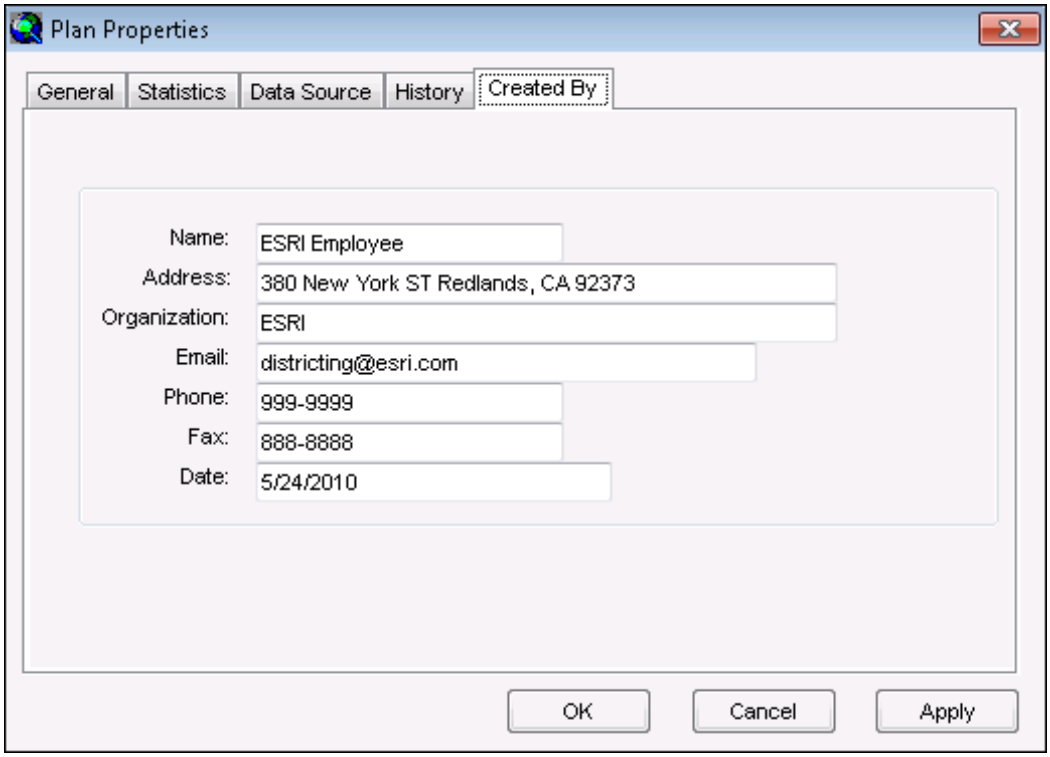
View Plan History

1. From the Districting pulldown menu, click Plan Properties.
2. To view plan history, click the History tab.



View and Modify Creation Properties

1. From the Districting pulldown menu, click Plan Properties.
2. To view, click the Created By tab.
3. To modify, enter Created By and User information, then click Apply.


Plan Properties
General
Statistics
Data Source
History
Created By
Name:
ESRI Employee
Address:
380 New York ST Redlands, CA 92373
Organization:
ESRI
Email:
districting@esri.com
Phone:
999-9999
Fax:
888-8888
Date:
5/24/2010
OK
Cancel
Apply

Publishing a Plan to ArcGIS Online

collapse all

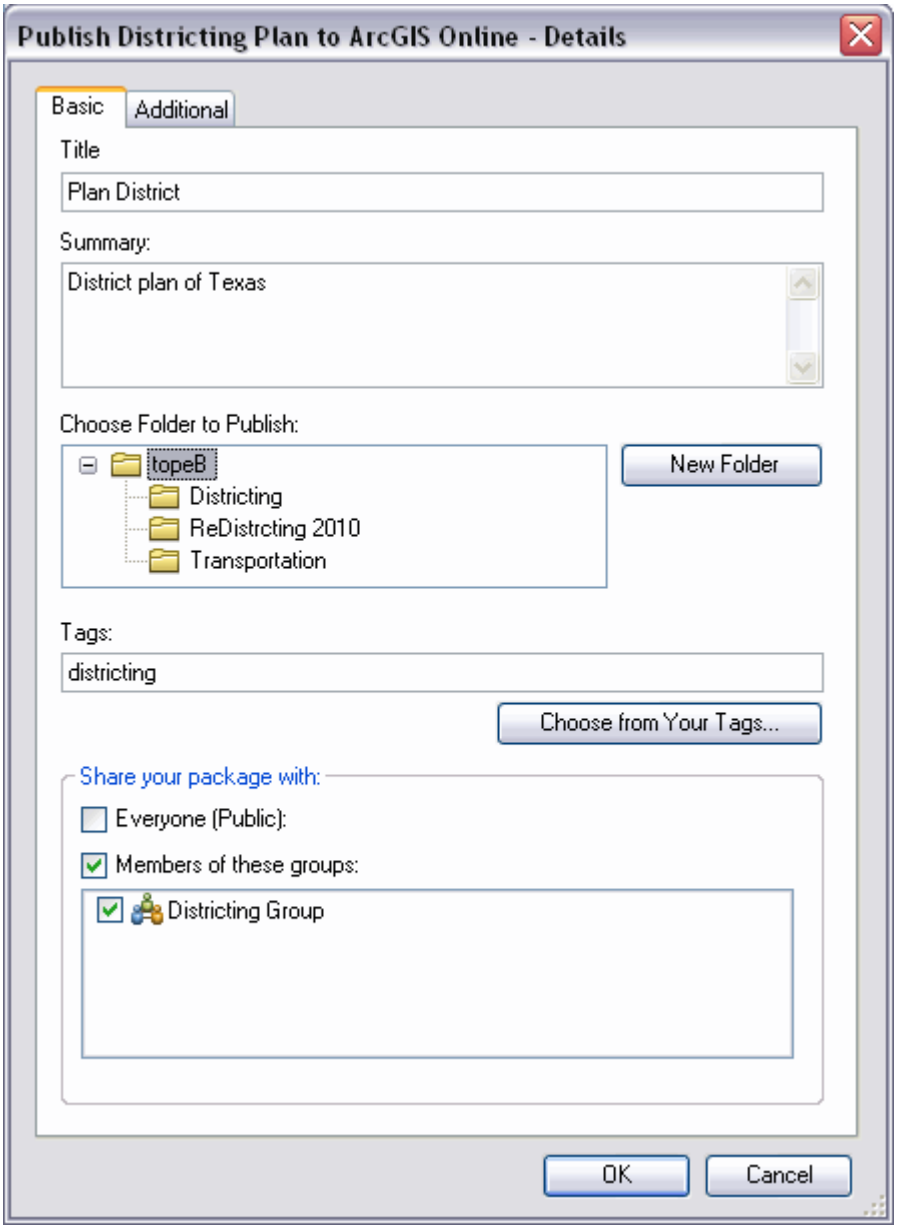
About Publishing a Plan to ArcGIS Online

The Districting for ArcGIS add-on allows you to publish a plan as a layer package to ArcGIS Online. The published layer package will have the same symbology as the plan. This plan is available to you and other members of the ArcGIS Onlne Community. You must have a valid ArcGIS Online Account to use this functionality.

How to Publish a Plan to ArcGIS Online

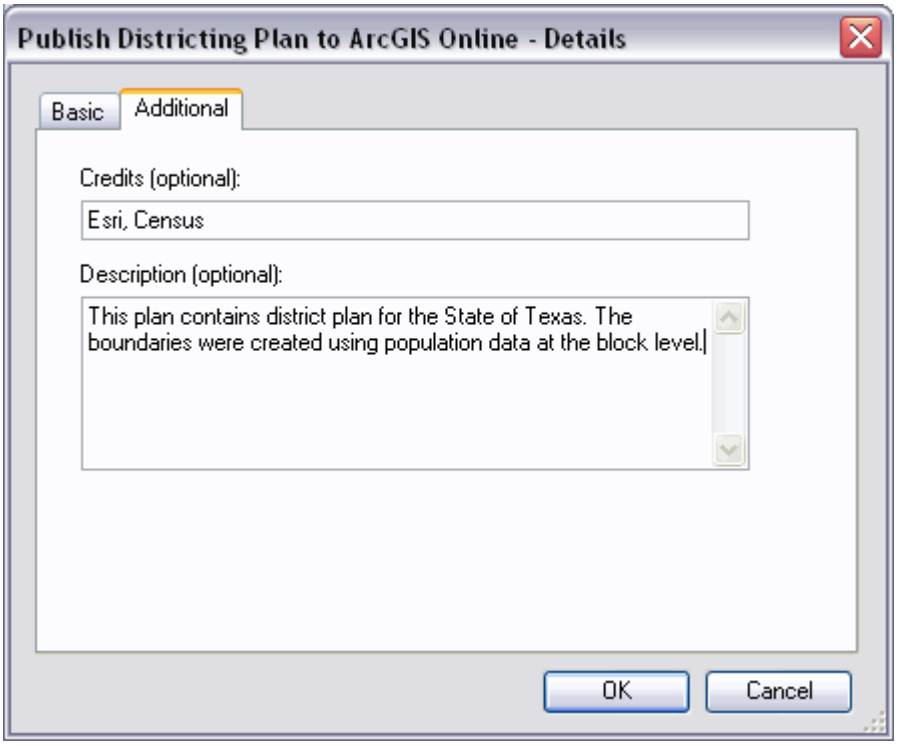
To publish a plan

1. From the Districting pulldown menu, click Publish Plan.
2. Login to ArcGIS Online using a valid Global Account
3. By default the layer package title is the name of the plan layer. You can change this by entering a new name in the title section.
4. Enter a summary. This is a summary of the contents of the layer package.
5. Enter Tags or choose from existing tags by clicking the Choose from your Tags button.



6. Share your layer package with everyone (public) or with a specifc group that you belong to.
7. Click the Additional tab for more options.

    a. Enter Credits. This could be data sources or other resources used during plan creation.
    b. Enter a description. This is a detailed description of the contents of the layer package.



8. Click OK to publish Plan to ArcGIS Online.

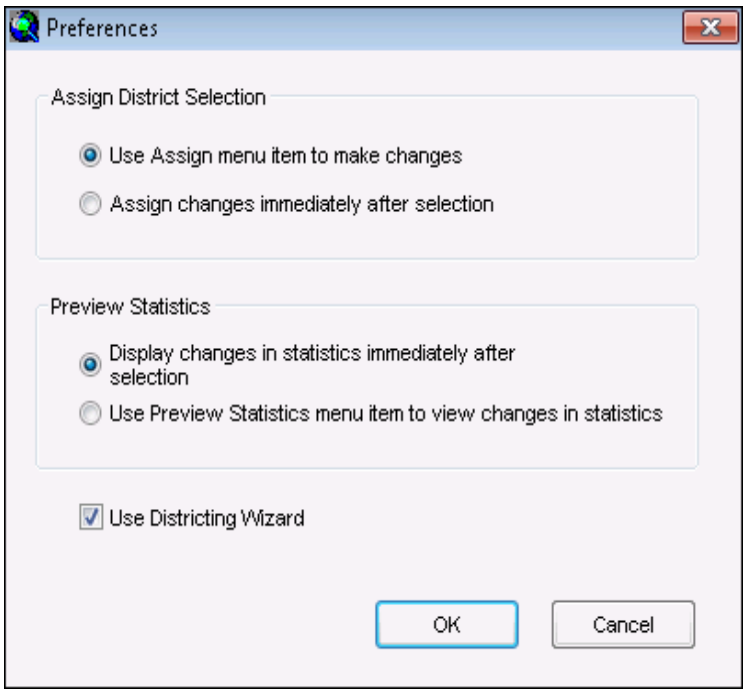
Preferences

Related topics

collapse all

About Preferences

The Districting for ArcGIS add-on provides options for assigning district selections, previewing statistics, and creating plans. These options are found on the Preferences form. By default, the preferences are set to Use assign button to make changes and Display changes in statistics immediately after selection and the Use Districting Wizard check box is checked.



How to Change Preferences

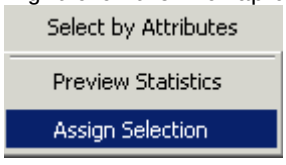
Assign District Selection

To assign source geography units to a district, you can either click Assign Selection to make changes or assign changes immediately after the selection is made.

Using Assign Menu Item to Make Changes

1. From the Districting pulldown menu, click Preferences.
2. Select Use assign menu item to make changes on the Preferences form.
3. Click OK.
4. Once source geography units are selected, you must do one of the following:

- Right-click the ArcMap data view to bring up the context menu, and click Assign Selection.



- From the Districting pulldown menu, under Plan Geography, click Assign Selection.

Using Assign Changes Immediately After Selection

1. From the Districting pulldown menu, click Preferences.

2. Click Assign changes immediately after selection on the Preferences form. The Preview Statistics preferences will be disabled.

3. Click OK.

4. Once source geography units are selected, they will be assigned to the district immediately.

Preview Statistics

You can preview statistics on the Proposed Statistics tab prior to making an assignment by displaying changes immediately in the Statistics Window or by clicking Preview Statistics.

Displaying Changes in Statistics Immediately After Selection

1. From the Districting pulldown menu, click Preferences.

2. Click Display changes in statistics immediately after selection on the Preferences form. Click OK.

3. Once source geography units are selected, the Statistics Window will display the proposed statistics for the selected features.

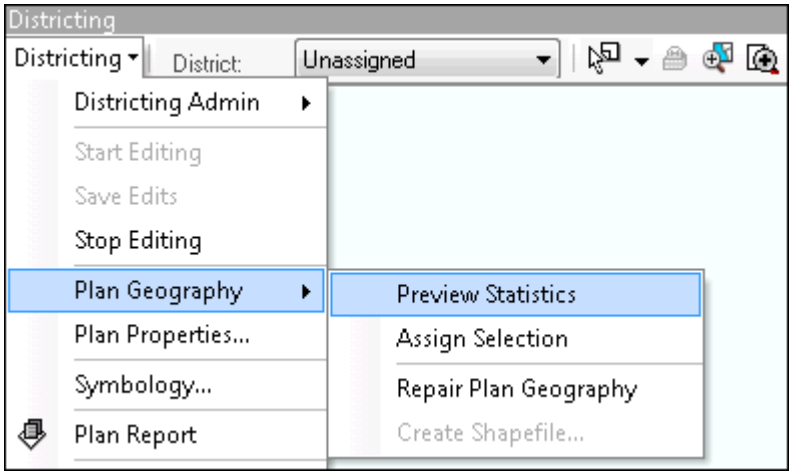
Using Preview Statistics menu item to View Changes in Statistics

1. From the Districting pulldown menu, click Preferences.

2. Click Use Preview Statistics menu item to view changes in statistics on the Preferences form. Click OK.

3. Once source geography units are selected, you must do one of the following:

- Right-click the ArcMap data view to bring up the context menu, and click Preview Statistics.
- From the Districting pulldown menu, under Plan Geography, click Preview Statistics.



Districting Wizard

To create a plan, you can use the Districting Wizard or the Create New Plan form. On the Preferences form

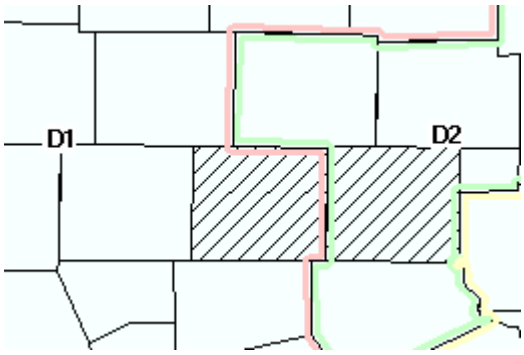
- If the Districting Wizard check box is checked, when creating a new plan from the Districting pulldown menu (under Districting Admin -> Create New Plan), the Districting Wizard will be launched.
- If the Districting Wizard check box is unchecked, when creating a new plan, the Create New Plan form will be displayed.

Locking and Unlocking Units

collapse all

About Locking and Unlocking Units

The Districting for ArcGIS add-on allows you to lock (and unlock) source geography units. When a source geography unit is locked, it cannot be reassigned to a district. When a unit is locked, the symbology is a diagonal hatch (by default).



How to Lock and Unlock Units

Locking Units

To lock a source geography unit

1. Click the Lock button on the Districting toolbar.
2. Click a source geography unit in the ArcMap data view.
3. The symbology will reflect that the unit is locked.

Tip: To lock more than one unit at a time, hold down Shift while clicking on a source geography unit.

Unlocking Units

To unlock a source geography unit

1. Click the Lock button on the Districting toolbar.
2. Click a source geography unit that is locked in the ArcMap data view.
3. The symbology will reflect that the unit is unlocked. The unit can now be reassigned.

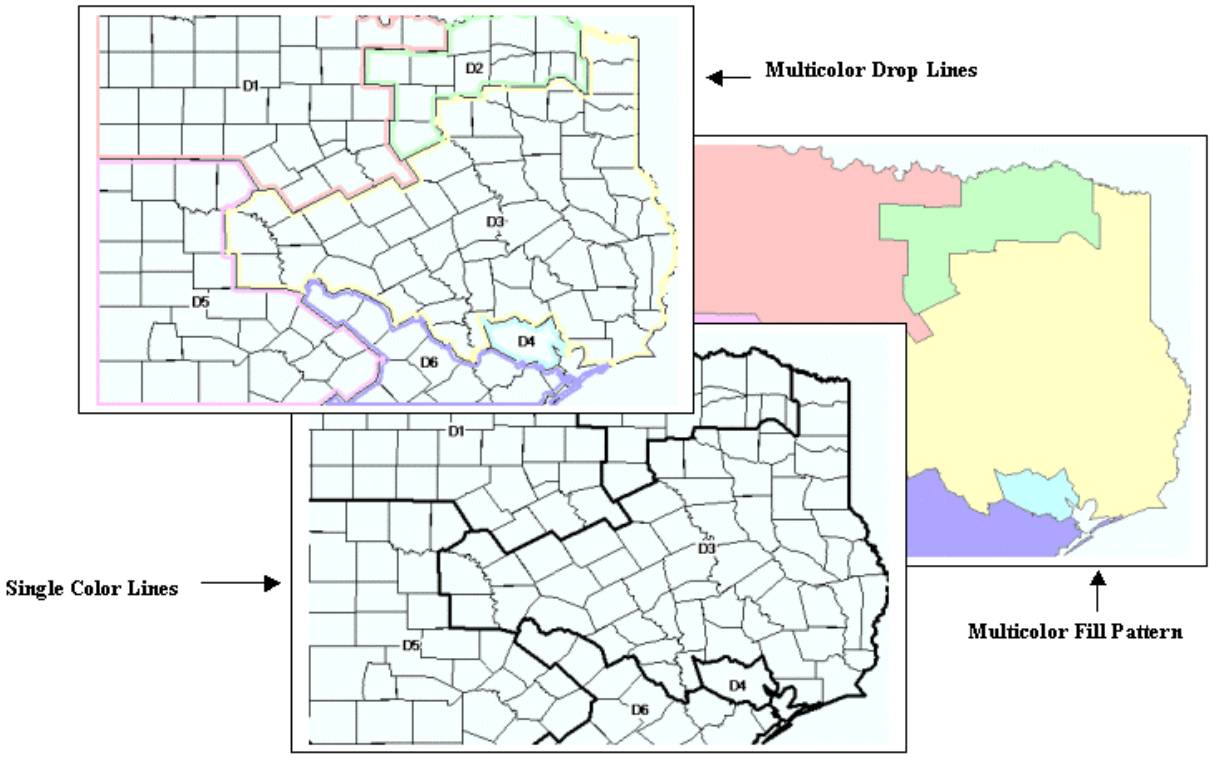
Tip: To unlock more than one unit at a time, hold down Shift while clicking on a source geography unit that is locked.

Symbology

collapse all

About Symbology

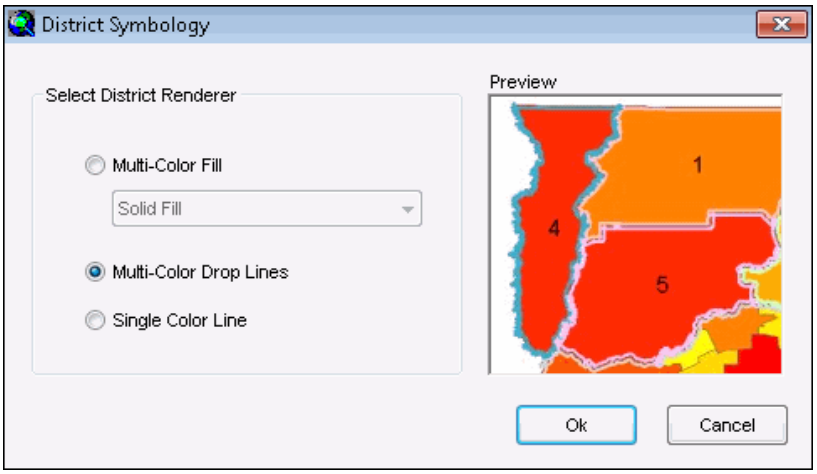
Districts can be symbolized as a multicolor fill pattern, multicolor drop lines, or a single color line. The default setting is as multicolor drop lines. The district symbology colors will repeat if there are more than 12 districts in the plan.



How to Change Symbology

From the Districting Menu

From the Districting pulldown menu, click Symbology. The District Symbology dialog box is displayed.



Multi-Color Fill

1. Click Multicolor Fill.
2. Click the drop-down list and select a fill pattern. The Preview window on the right-hand side will be updated.
3. Click OK.
4. The plan will be updated for the new symbology.

Multicolor Drop Line

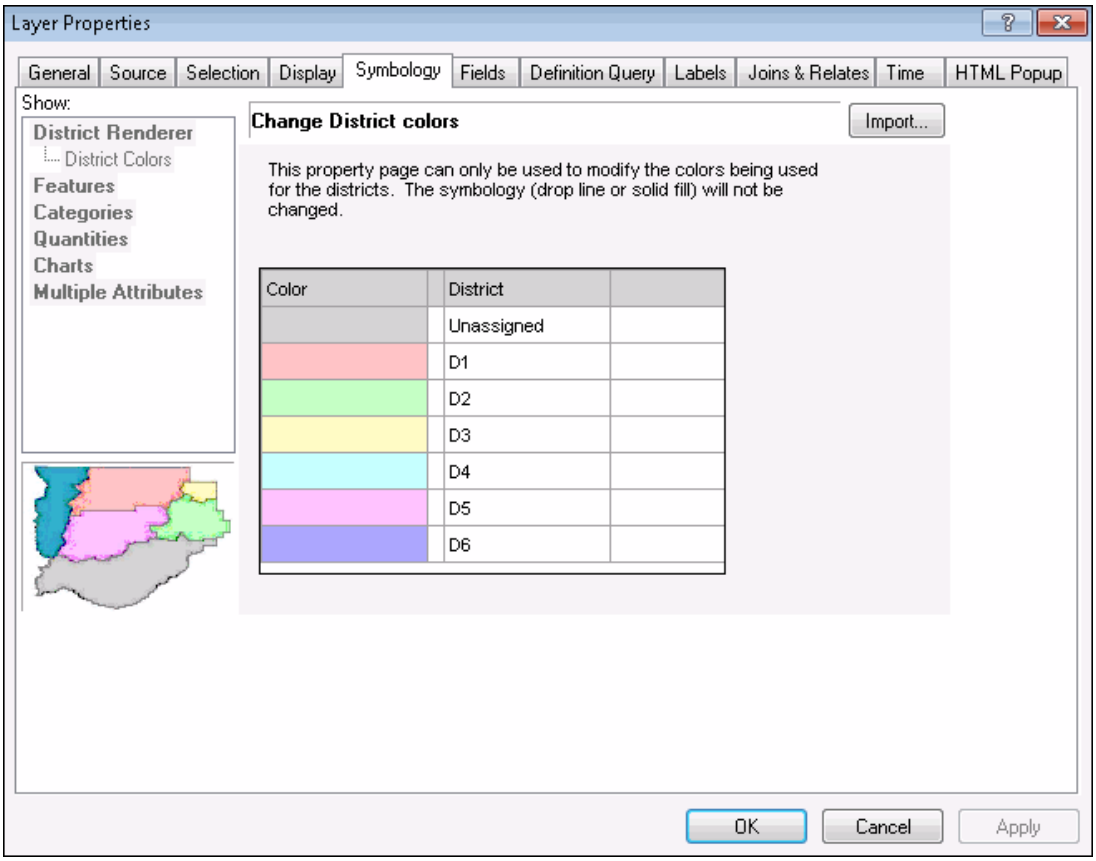
1. Click Multicolor Drop Lines. The Preview window on the right-hand side will be updated.
2. Click OK.
3. The plan will be updated for the new symbology.

Single Color Line

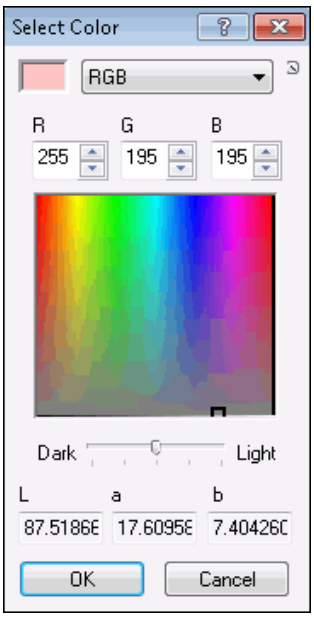
1. Click Single Color Line. The Preview window on the right-hand side will be updated.
2. Click OK.
3. The plan will be updated for the new symbology.

From Layer Properties

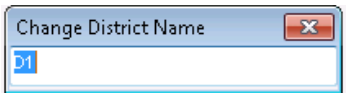
1. In the Table of Contents, right click on the plan and choose Properties.
2. From Layer Properties, click the Symbology tab.



3. To change the color, double click on a color. Select a color from the palette, and click OK.



4. To change the district label name, double click on the district label. Type a new name in the Change District Name text box, and hit Enter from the keyboard.



5. Click OK on the Symbology tab.

Tip: To change district label symbology, from Layer Properties, click the Labels tab.

Creating Reports

collapse all

About Creating Reports

Using the Districting for ArcGIS add-on, you can create a report from the Statistics Window and save the information to a text file.

District	Pop1999	Age_18_29	Age_under5	Age_5_17	Age_30_49	Age_50_64	Age_65_up
1	3256479	570917	232643	569568	833788	366920	339562
2	3230516	570011	220431	493704	848452	289083	212557
3	3428453	568680	214275	568987	792816	381922	389974
4	3259207	588733	242870	562139	918871	307364	198222
5	3319520	556217	236901	610278	776635	342001	299439
6	3633163	569026	242934	641109	828476	324183	276822

How to Create Reports

To create a report

1. From the Districting pulldown menu, click Plan Report.
2. A plan report based on the statistics table is displayed. Click Save.
3. Navigate to where you want to save the report and enter a report name.
4. Click Save.
5. Click Close to dismiss the Plan Report dialog.

Preparing a Plan Output

collapse all

About Preparing a Plan Output

The Districting for ArcGIS add-on allows you to create a map output that comprises of the Map, Statistics and Chart in the layout view of your Plan MXD. You can add a title, north arrow and other surround elements to create a comprehensive map output.

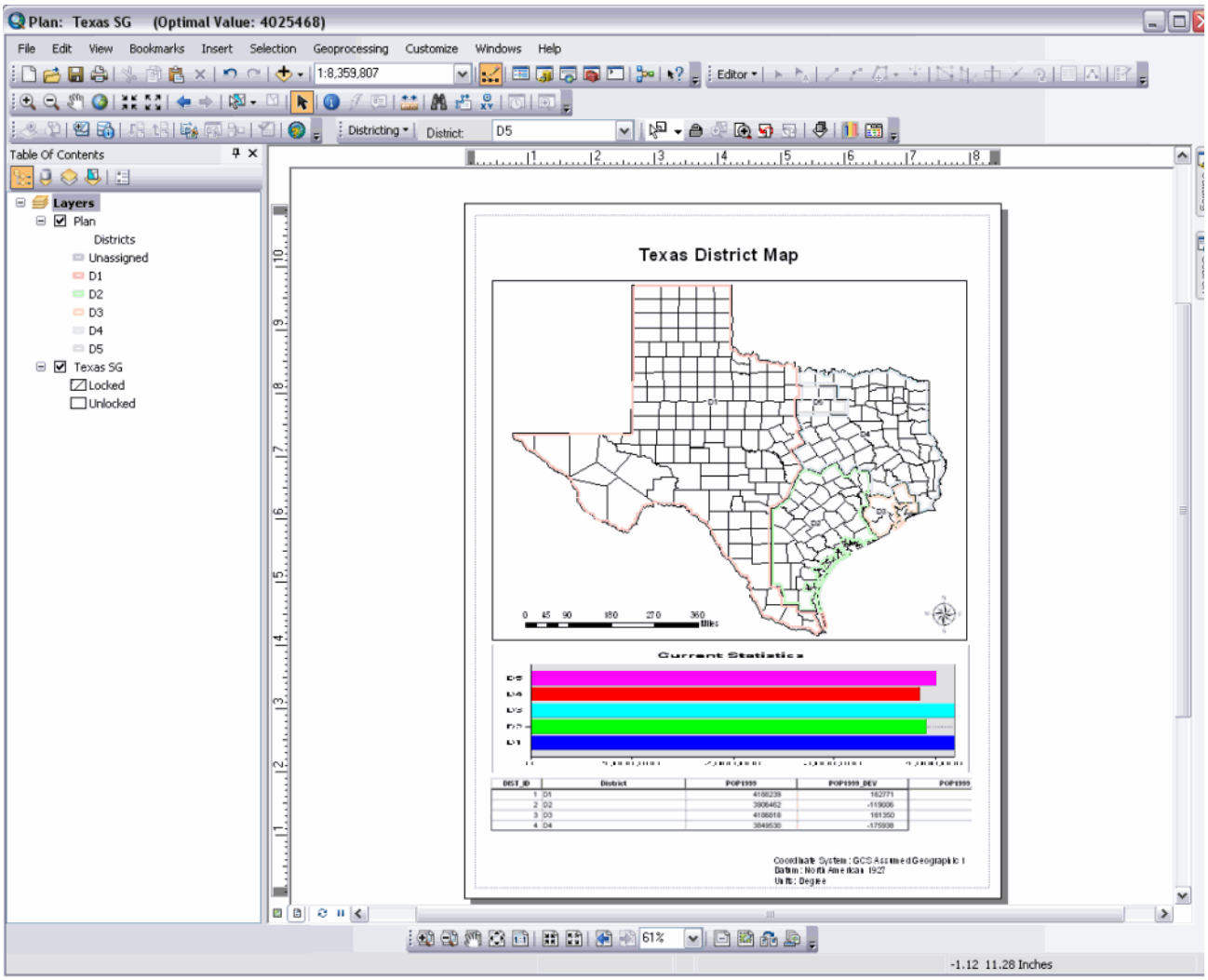
You can use the ArcMap printing tools to either print out a hard copy map or generate a PDF, Image output of the map to share digitally.

How to Prepare a plan output

1. Open up a plan in ArcMap.

2. Once the plan is opened, click the Plan Layout button on the districting toolbar to toggle to layout view.

Use the ArcMap layout tools to re-arrange the contents of the page. You can add more elements for better orienation and presentation.

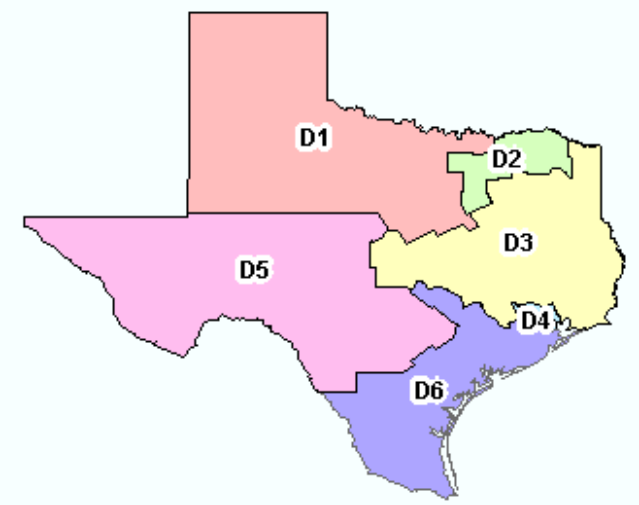


Creating a Plan Shapefile

collapse all

About Creating a Plan Shapefile

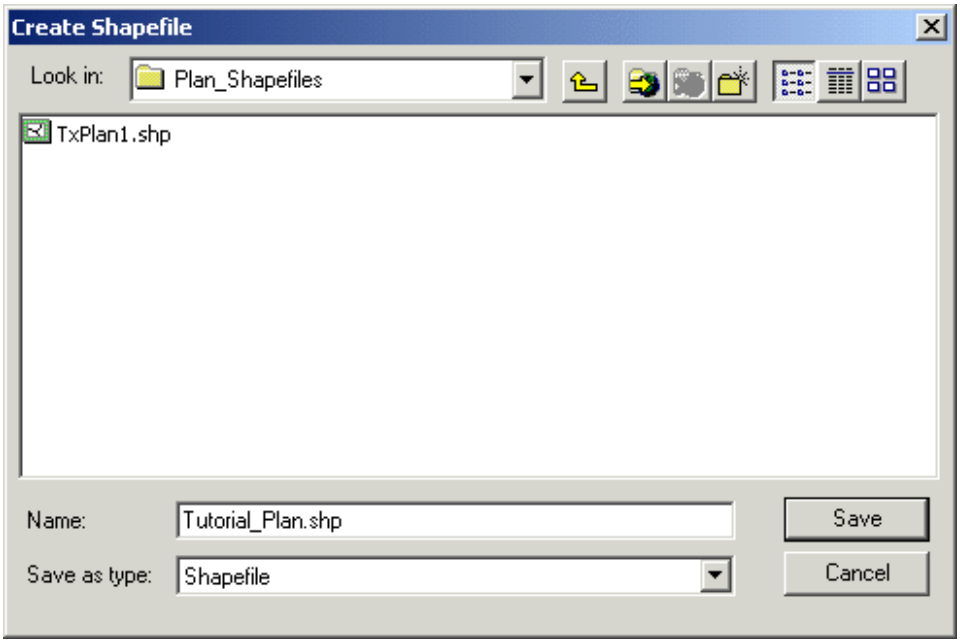
The Districting for ArcGIS add-on allows you to save your districting plan as a shapefile. The shapefile will be composed of source geography units dissolved by like district assignments. T he attributes displayed in the statistics window will be attributes available on the shapefile.



How to Create A Plan Shapefile

To create a plan shapefile

1. From the Districting pulldown menu, click Save Edits, then Stop Editing.
2. From the Districting pulldown menu, click Plan Geography, then Create Shapefile.
3. Navigate to the location where you want to save the shapefile, and enter a shapefile name.
4. Click Save.



Exporting and Importing Plans

collapse all

About Exporting and Importing Plans

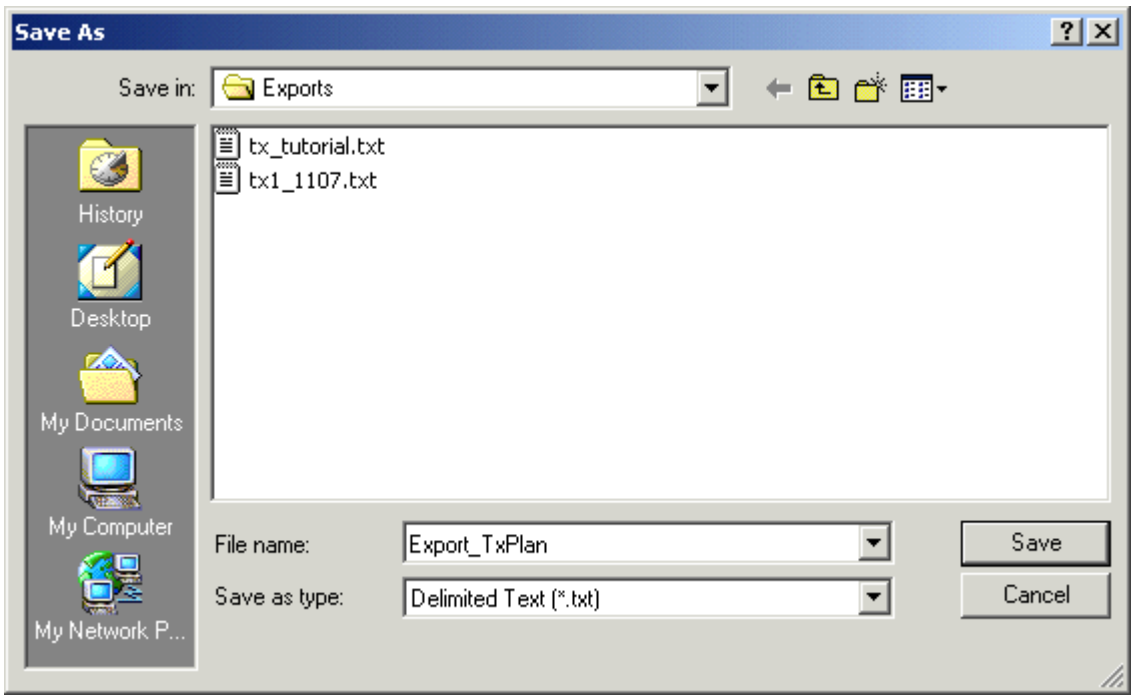
The Districting for ArcGIS add-on provides the ability to export a plan into a comma separated ASCII file. An exported plan can serve as a backup copy of the plan or allow you to share your plans. You can import a previously exported plan to a current plan with the same geographic and attribute sources. The current plan should have the same number of districts or more than the plan you are importing. The import process assigns the source geography units according to what was recorded in the text file when it was exported.

How to Export and Import Plans

Exporting a Plan From ArcMap

To export a plan from ArcMap

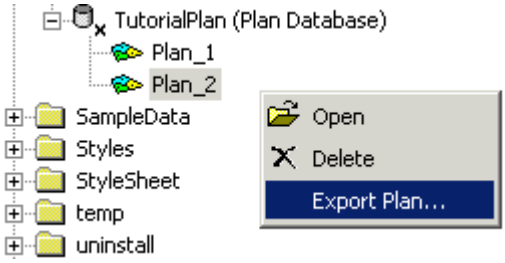
1. From the Districting pulldown menu, click Stop Editing.
2. From the Districting pulldown menu, click Export Plan.
3. Browse to where you would like to save the exported file and enter a file name.
4. Click Save.



Exporting a Plan From ArcCatalog

To export a plan from ArcCatalog

1. Right-click the plan and click Export Plan.



2. Browse to where you would like to save the exported file and enter a file name.
3. Click Save.

Importing a Plan

To import a plan

1. From the Districting pulldown menu, click Start Editing.
2. From the Districting pulldown menu, click Import Plan.
3. Browse to the location of the text file and click it.
4. Click Open.

Importing a Plan From ArcView GIS Districting Extension 3.1b

Though the import/export format for plans created in 8.x is slight different from plans created in 3.x, you can import plans that were exported from the ArcView GIS Districting Extension 3.1b. The current plan should use the same source geography and the same or greater number of districts than the plan you are importing. In 3.x export format, the fist number is the number of polygons in the source geogrpahy. In 8.x export format, the first number is the number of districts in the plan. When you import a file generated by 3.x, you will receive a message saying that the number of districts in the import file is greater than the number of districts in the current plan. Click OK and the import will proceed.

Repair Plan Geography

Related topics

collapse all

About Repair Plan Geography

In the event that your plan geography and statistics become corrupt (out of sync from one another) during the assignment process, Repair Plan Geography allows you to update the district plan geography based on the statistics. You cannot repair the statistics based on the district plan geography.

How to Repair Plan Geography

To repair plan geography from the Districting pulldown menu, click Plan Geography, then click Repair Plan Geography. The plan geography will be updated based on the information in the Statistics Window.

Deleting Plans

collapse all

About Deleting Plans

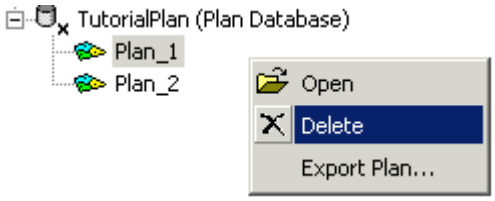
A plan workspace or a plan within a plan workspace can be deleted through ArcCatalog.

How to Delete Plans

Deleting a Plan from a Plan Workspace

To delete a plan,

1. Navigate to the Plan Workspace.
2. Open the Plan Workspace.
3. Right-click on the plan and click Delete.



Deleting a Plan Workspace

To delete a plan workspace

1. Navigate to the Plan Workspace.
2. Right-click on the plan workspace and click Delete.

Removing Geography and Attribute Source

Related topics

collapse all

About Removing Geography and Attribute Source

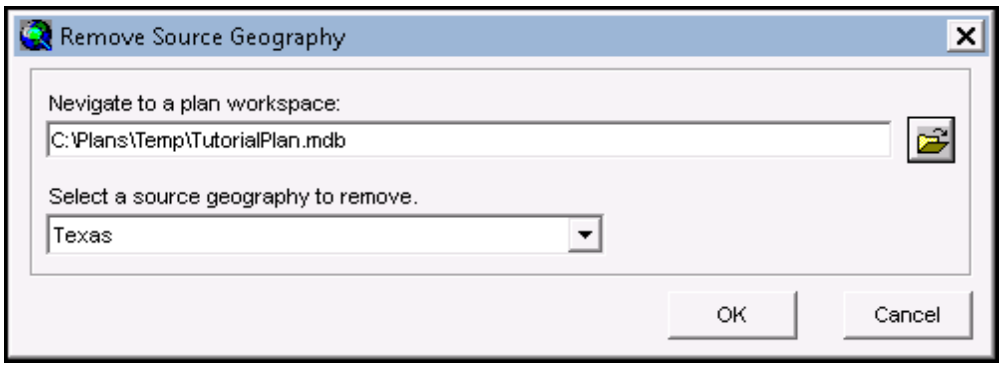
Geography and attribute source can be removed from a plan workspace if the geography and/or attribute source are not part of an existing plan.

How to Remove Geography and Attribute Source

Remove Geography Source

To remove a geography source from a plan workspace

1. From the Districting pulldown menu, click Districting Admin, then click Remove Geography Source.
2. Browse to the plan workspace.
3. Click the Select a source geography to remove drop-down arrow and select a source geography to remove.
4. Click OK.



Remove Attribute Source

To remove an attribute source from a plan workspace

1. From the Districting pulldown menu, click Districting Admin, then click Remove Attribute Source.
2. Browse to the plan workspace.
3. Click the Select a source attribute to remove drop-down arrow and select a source attribute to remove.
4. Click OK.