

**B****EXERCISE**

PIT STOP 1 TRADE AREA CREATION



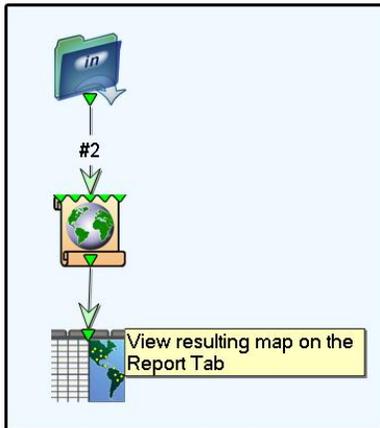
3 minutes to complete:

The objective of this exercise is to design a module that builds non overlapping trade areas for each of your stores. You have a unique customer data base with a Store_ID for each record. Each record has already been geocoded with the point location named CustomerPoint.

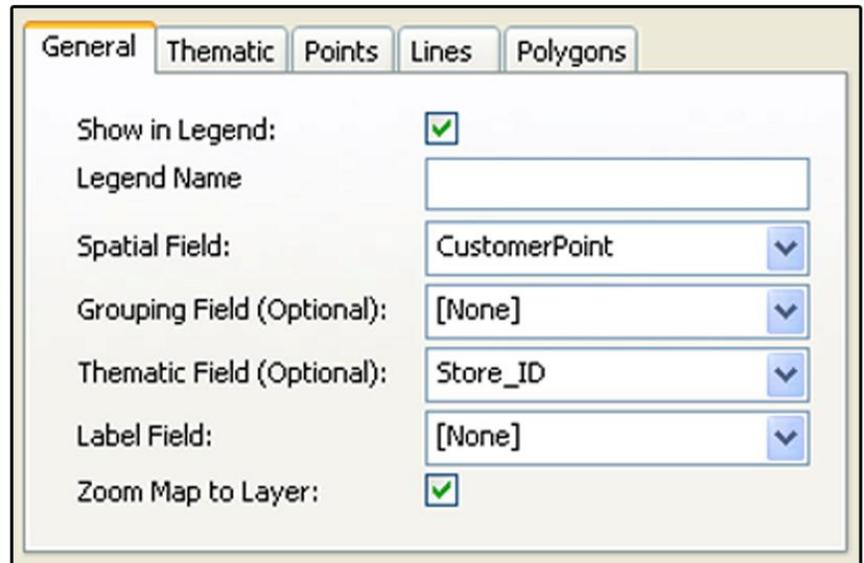
1. Create a visual display to conceptualize the problem.
2. Using the customer database provided display a map of the distribution of customers color coded by the store associated with each customer.
3. Use the Browse to view the resulting map.

TRADE AREA CREATION

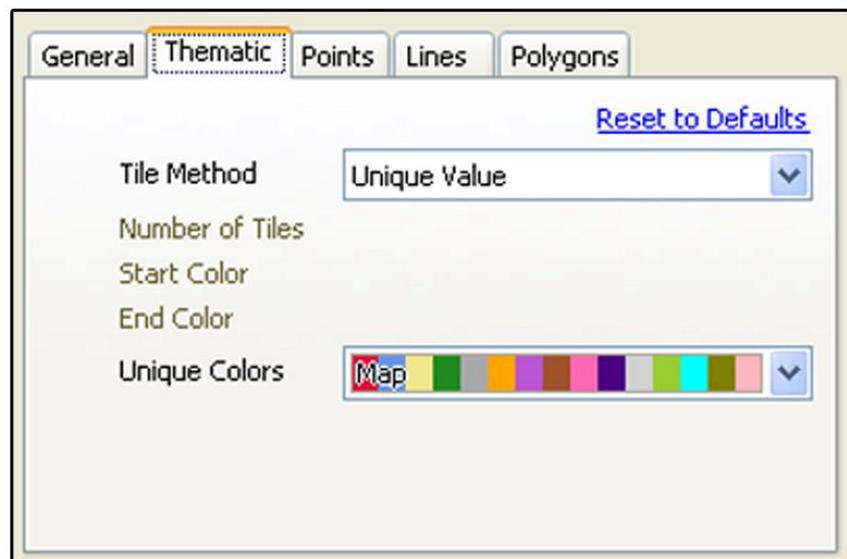
Pit Stop 1 Solution:



1. Connect the Reporting Map tool to the Input tool.



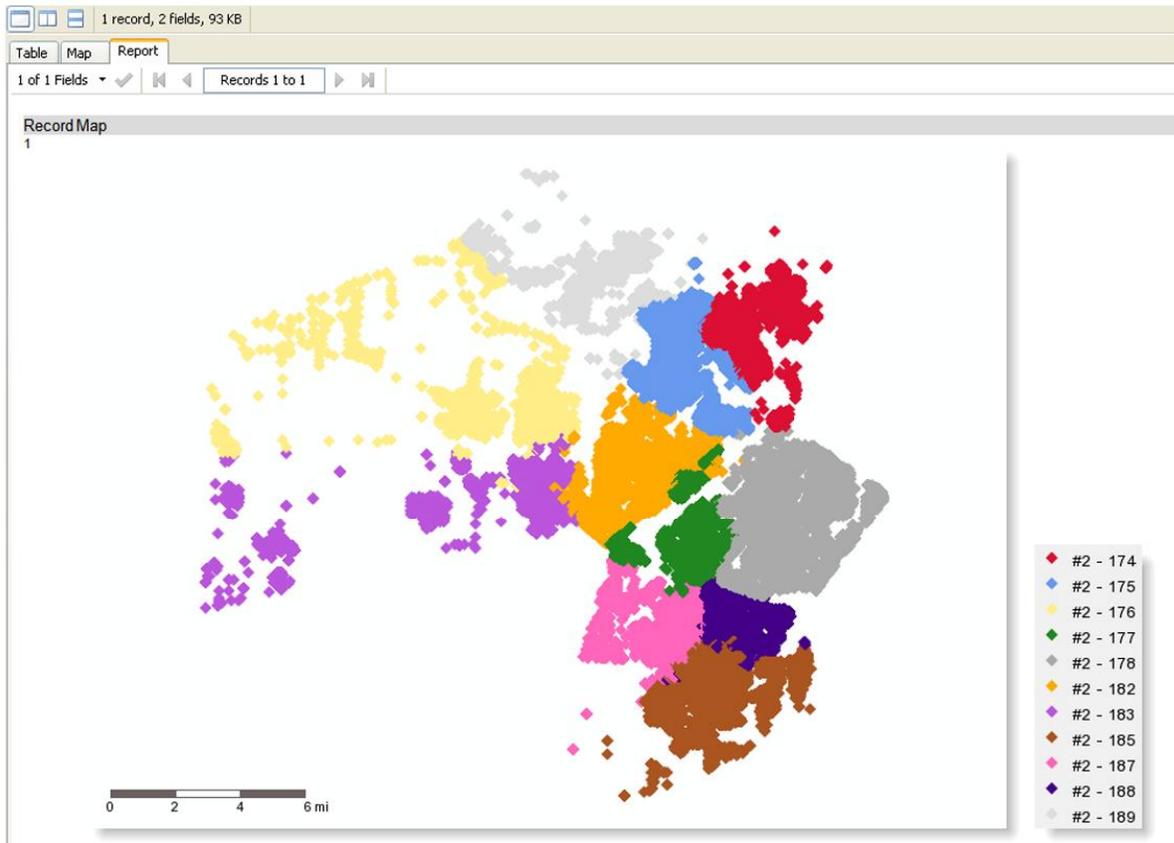
- a. Set the Thematic Field to **Store_ID**.
- b. Under the Thematic Tab, set Tile Method to **Unique Value**.



TRADE AREA CREATION

Pit Stop 1 Solution Continued:

2. Connect a Browse tool.
Run the module and look at the Report output tab.





B

EXERCISE

PIT STOP 2 TRADE AREA CREATION



7 minutes to complete:

As the map from Pit Stop One demonstrated, there are some stores that have customers who are located a ways from the store's majority of customers. We want to make sure the Trade Areas are built with majority customer distribution in mind.

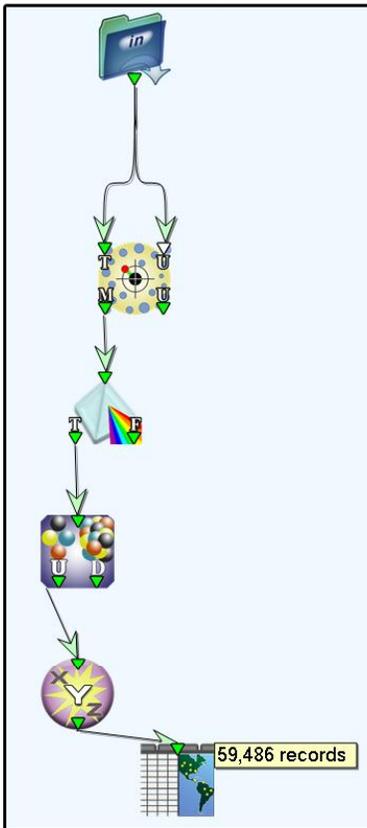
Before building the trade areas, make sure to eliminate customers from the trade area boundary that are not really part of the total cluster around each store.

1. For each CustomerPoint, find the closest CustomerPoint to it.
2. Only include customers that are no more than 0.4 miles from each other.
3. Only include customers that are closest to other customers that patronize the same store.
4. Ensure there are no duplicate customer records.
5. Browse the results. Browser should reveal 59,486 records

TRADE AREA CREATION

Pit Stop 2 Solution:

1. Connect a Find Nearest tool configured with Target and Universe inputs both from the initial input file: (SampleCustomerGrandPrix.yxdb).



The screenshot shows the configuration for the Find Nearest tool. Under 'Targets (Left Input)', the Spatial Object Field is set to 'CustomerPoint'. Under 'Universe', 'Use Records from Right Input' is selected, and the Spatial Object Field is also 'CustomerPoint'. The 'How many nearest points to find?' is set to 1. The 'Maximum Distance' is 0.4 Miles, and the 'Data Set' is 'TeleAtlas_Q308'. The 'Ignore 0 Distance Matches' checkbox is checked.

- a. How many points to find: **1**
- b. Maximum Distance **0.4 miles.**
- c. Check Ignore 0 distance matches.

2. Connect a Filter Tool to the Matched output stream. Filter tool expression:

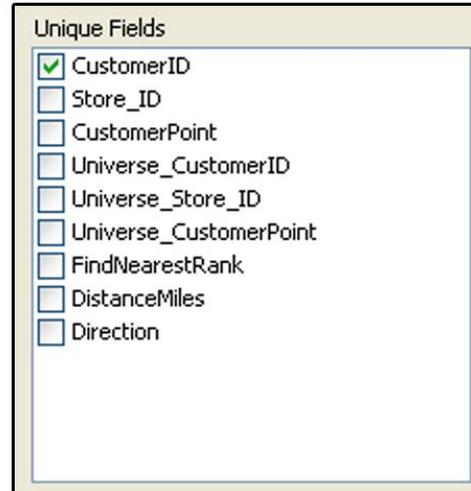
The screenshot shows the configuration for the Filter tool. The 'Expression' field contains the text: `[Store_ID] == [Universe_Store_ID]`.

[Store_ID] == [Universe_Store_ID]

TRADE AREA CREATION

Pit Stop 2 Solution Continued:

3. Connect a Unique tool to the True output. Unique field is **CustomerID**



Select Tool: You only need the 4 following fields:

CustomerID
Store_ID
CustomerPoint
DistanceMiles

Options	Field	Type	Size	Re
<input checked="" type="checkbox"/>	CustomerID	Int32	4	
<input checked="" type="checkbox"/>	Store_ID	Int32	4	
<input checked="" type="checkbox"/>	CustomerPoint	SpatialObj	536870911	
<input type="checkbox"/>	Universe_CustomerID	Int32	4	
<input type="checkbox"/>	Universe_Store_ID	Int32	4	
<input type="checkbox"/>	Universe_CustomerP...	SpatialObj	536870911	
<input type="checkbox"/>	FindNearestRank	Int16	2	
<input checked="" type="checkbox"/>	DistanceMiles	Double	8	
<input type="checkbox"/>	Direction	String	2	
<input type="checkbox"/>	*Unknown	Unknown	N/A	

4. Connect a Browse tool. Browser should reveal 59,486 records.



B

EXERCISE

PIT STOP 3 TRADE AREA CREATION

3 minutes to complete:



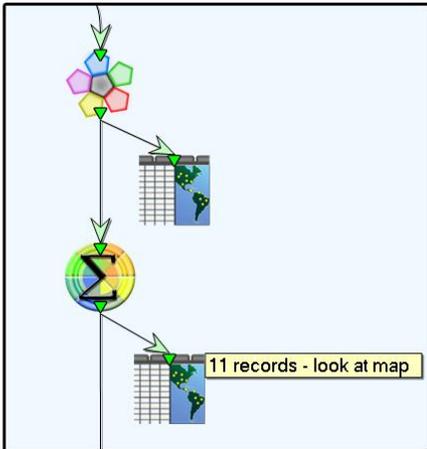
Now that we eliminated the CustomerPoints that were too far away from the store, we can start building our trade area polygons.

Create a physical, 0.75 mile, non-overlapping radius polygon around each customer.

1. Combine the resulting polygons into a single region per store.
2. Browse the results. Browser should reveal 11 records, one per store.

TRADE AREA CREATION

Pit Stop 3 Solution:



1. From the Select tool upstream, connect and configure a Trade Area Tool:

- a. SpatialObject Field of Point Source: **CustomerPoint**
- b. Specific Value: **.75**
- c. Units: **Radius (Miles)**
- d. Check Eliminate Overlap

SpatialObject Field of Point Source
CustomerPoint Include in Output

Radius, Doughnuts or Drivetime

Specific Value:
.75

From Field:
CustomerID

Units

Radius (Miles)

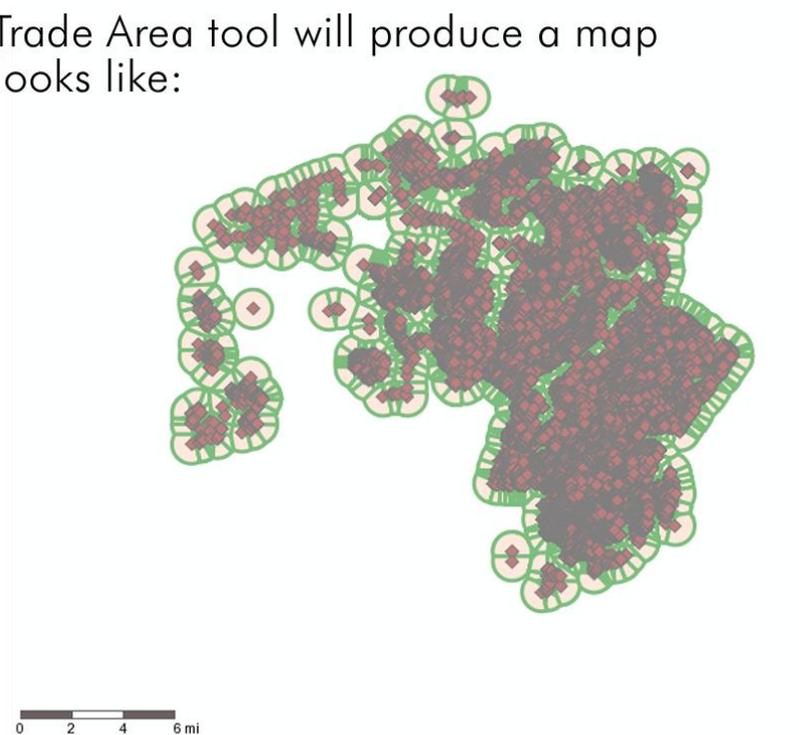
Radius (Kilometers)

Drivetime Minutes (requires Guzzler)

Data Set: TIGER 2003

Eliminate Overlap (not available for DriveTime)

The Trade Area tool will produce a map that looks like:



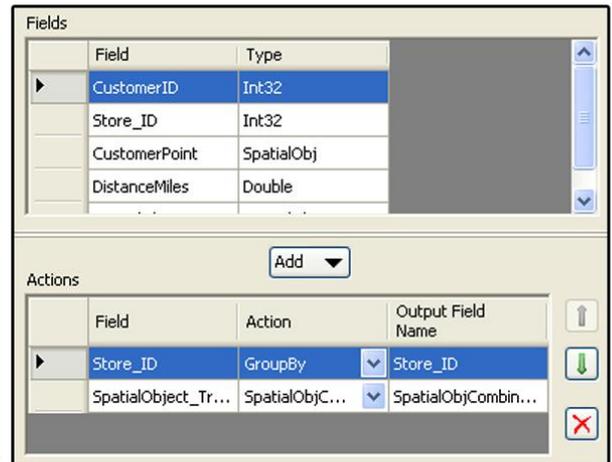
TRADE AREA CREATION

Pit Stop 3 Solution Continued:

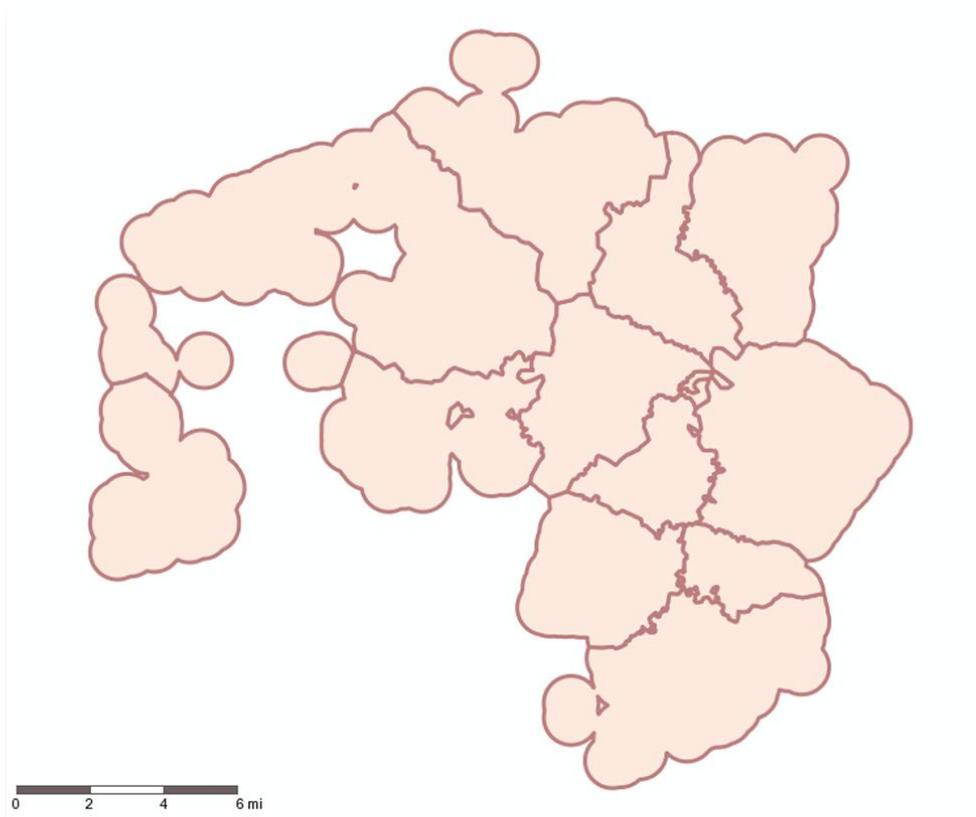
2. Summarize Tool:

a. Fields: Select **Store_ID**,
then click
Add --> Group By

b. Fields: Select
SpatialObject_TradeArea,
then click
Add --> SpatialObjCombine.



3. Browse tool: 11 records, one per store - look at map.



**B****EXERCISE**

PIT STOP 4 TRADE AREA CREATION

7 minutes to complete:



From here on out, we will be cleaning up the store trade areas.

1. Remove any holes created by the previous spatial combine.
2. Remove any non-hole polygons that have an area smaller than 1 square mile.
3. Recombine the remaining polygons by the Store ID.
4. Browse the results. Browser should reveal 11 records, one per store. Map should display no holes in the resulting trade areas.

TRADE AREA CREATION

Pit Stop 4 Solution:

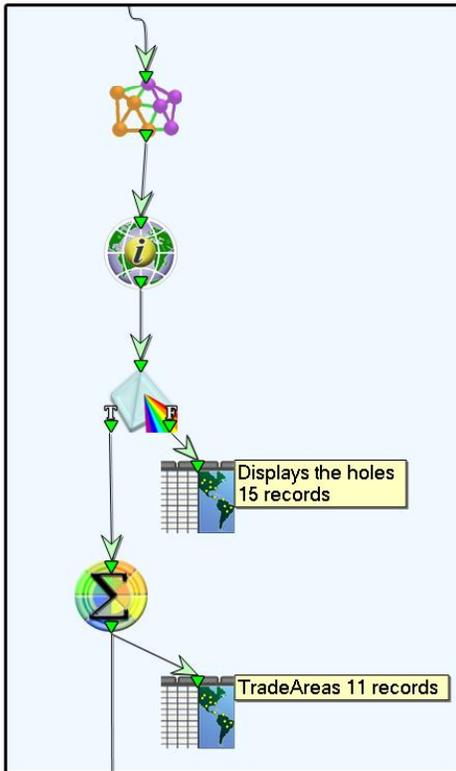
1. From the Summarize tool upstream, connect and configure a PolySplit tool:

a. Spatial Field:



SpatialObjCombine_SpatialObj_TradeArea

b. Split to **Regions**



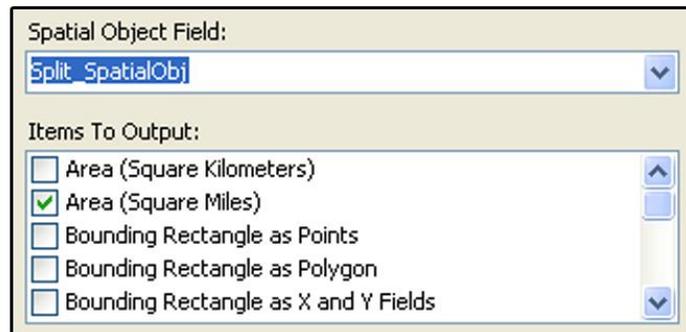
2. Spatial Info tool:

a. Spatial Field:

Split_SpatialObj

b. Items to output:

Area in Square Miles.

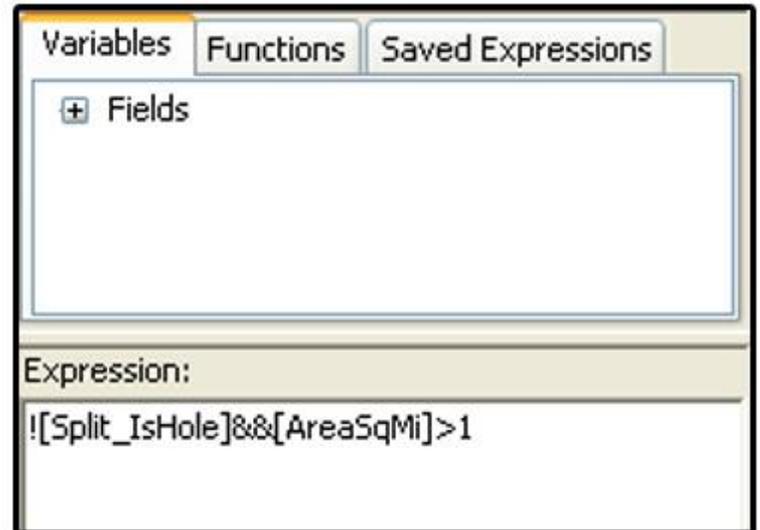
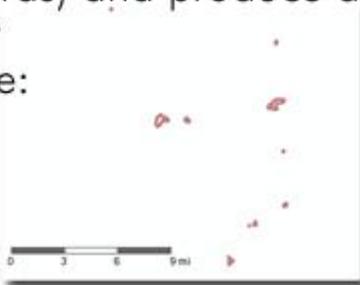


TRADE AREA CREATION

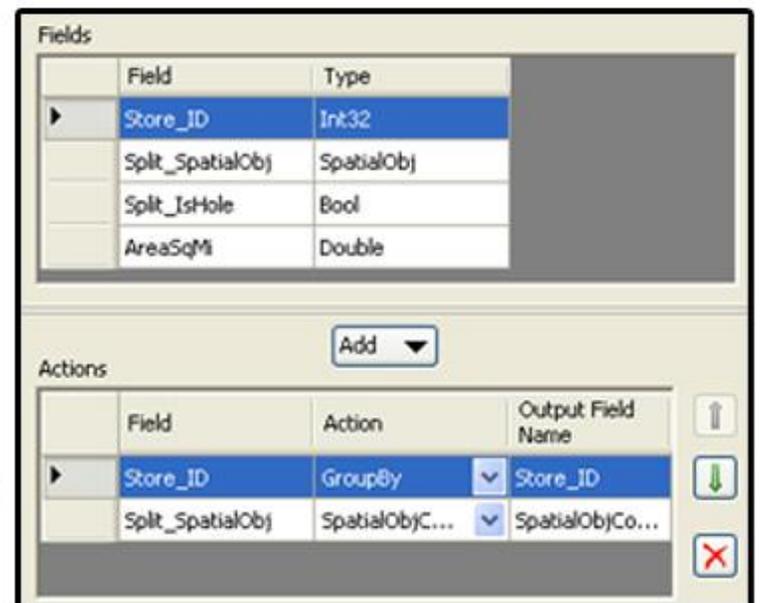
Pit Stop 4 Solution Continued:

3. Filter tool Expression:
![Split_IsHole]&&[AreaSqMi]>1

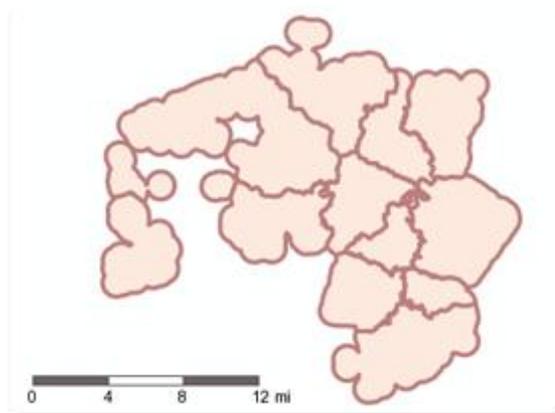
The **True** output will contain the objects we want. The **False** output will contain the holes (15 records) and produce a map that looks like:



4. Connect the True output from the Filter tool to a Summarize tool:
- Fields: Select **Store_ID** then **Add --> Group by**
 - Fields: Select **Store_ID** then **Add --> Combine Spatial Object**



5. Browse tool should reveal 11 records, one for each store. The map should look like:





B

EXERCISE

PIT STOP 5 TRADE AREA CREATION

5 minutes to complete

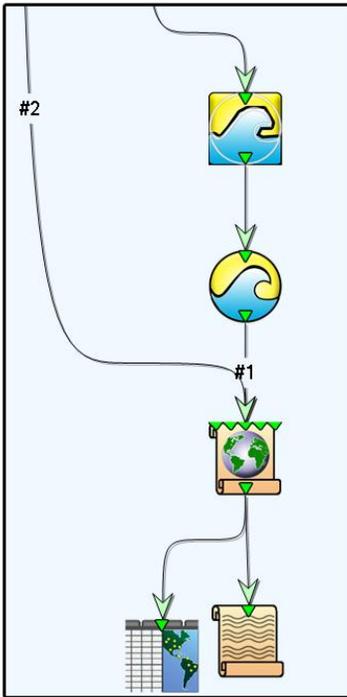


Notice that the resulting store boundaries have a resemblance of the radii used to create them. Make these store trade areas look more aesthetically pleasing and create a final map, including a legend of the stores and the customers that patronize each store.

1. Use two of our spatial tools, with their default settings, to quickly generalize and smooth these boundaries.
2. Create a final map in HTML format. Map should include store trade areas and the customers that patronize each store.

TRADE AREA CREATION

Pit Stop 5 Solution:



1. From the Summarize tool upstream, connect a Generalize tool, keep the default settings.

Spatial Field

SpatialObjCombine_Split_SpatialObj Include in Output

Threshold: 0.6

Units: Miles

Preserve Consistency for Entire Layer

2. Connect a Smooth tool, keep the default settings.

Spatial Field

SpatialObjCombine_Split_SpatialObj_Gener Include in Output

Smooth: Very Smooth

Maximum Radius: 1

Units: Miles

Post-generalize to 1 % of Maximum Radius

Preserve Consistency for Entire Layer

3. Connect a Map Reporting tool.
Connection #1 consists of the Trade Areas.

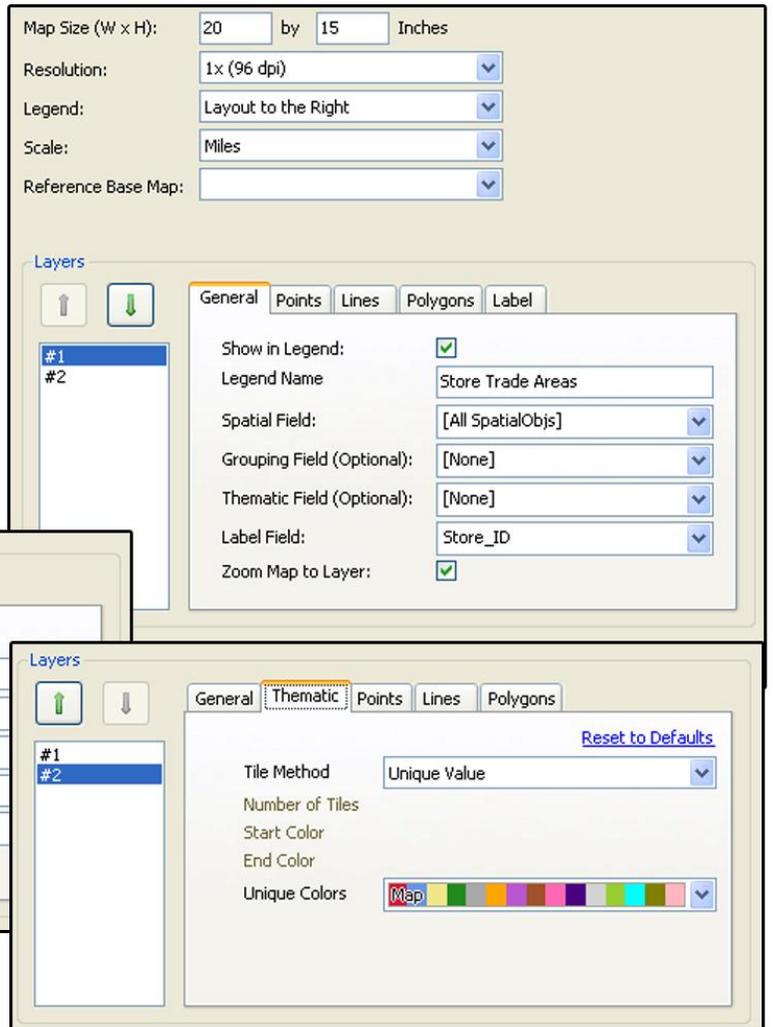
4. Also connect the output from the Select tool from Pit Stop 2 into the Map Reporting tool.
Connection #2 consists of the CustomerPoints.

TRADE AREA CREATION

Pit Stop 5 Solution Continued:

5. Configure the Map Reporting tool.

- a. Include a Legend.
- b. Layer#1:
Legend Name:
Store Trade Areas
Label Field: **Store_ID**
- c. Layer#2:
Thematic Field:
Store_ID



- d. Layer#2:
Thematic Tab:
Tile Method: **Unique Value.**

6. Render Tool:

- a. Output Type: Temporary HTML

