


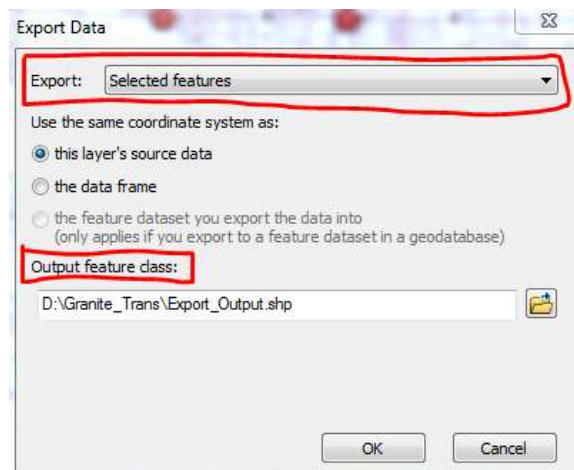
Creating a Network Dataset from AGRC Road Centerline Data in ArcMap

*** Requires Network Analyst Extension ***

- Download and unzip Roads Centerline Data (Geodatabase) from [AGRC](#)
- Add Data to ArcMap


*** One way to speed up the Network Dataset creation is to only use the roads that you need.

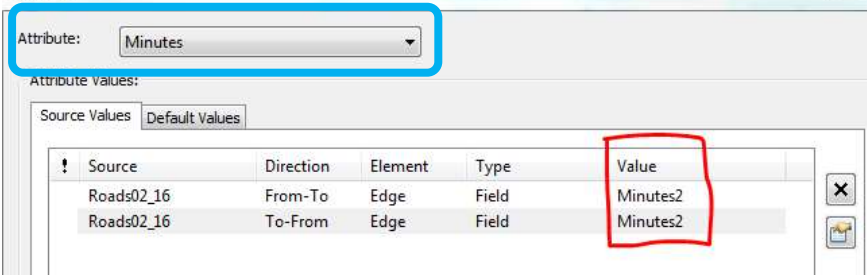
This can be done by selecting the features in the layer. Click on the selection tab at the top  and click Select by Polygon. Draw the area you want to select and then right click on the Roads layer in the Table of Contents pane. Scroll down to Data ► Export Data...



Make sure the top of the Export Data says Selected Features and then save the Output as a Feature Class with a unique name in the database you started with. Add it to the map and remove the original Roads layer. ***

- Open the attribute table and create a Minutes field with Type: Float
- Start an Edit Session with your Road layer
- Right Click on Minutes Field – Select Field Calculator
 - Create an expression that looks like this: $[\text{Shape_Length}] / 5280 * 60 / [\text{SPEED}]$
*** $[\text{Shape_Length}]$ and $[\text{SPEED}]$ are fields within the Roads layer. ***
 - Save the expression so you can use it again when needed
- Calculating will take a few minutes or longer depending on the speed of your machine. Save your edits when completed and end the edit session.
- Create a feature dataset in ArcCatalog (in ArcMap or in ArcCatalog) by navigating your folder connections to where the database is saved (or your own).
 - Right click and scroll to New ► Feature Dataset. Give it a name and click Next

- Choose your coordinate system – the roads layer uses NAD 1983 UTM Zone 12N. If this is selected click Next, Click Next on the Z coordinates screen, and then click Finish on this final screen accepting the defaults.
- Right click on the feature dataset you created and scroll to Import ► Feature Class (single).
- Navigate to your road layer (the original or the one you trimmed) by clicking  on the Input Features field.
- In the Output Feature Class field write a name for your road layer. Ignore everything else and click OK.
- Create a network dataset (requires the Network Analyst extension to be turned on) by right clicking on the feature dataset you just created, clicking New, and then clicking on Network Dataset. A new dialogue box will open for the Network Dataset:
 - Accept Default Name or create your own and Press Next
 - The roads layer should appear in this screen and should have a checkmark, Press Next
 - Yes should be selected on this screen, press Next
 - Connectivity, nothing needs to be done here, click Next
 - The Elevation fields should be blank on this screen – leave them that way, click Next
 - Create a Minutes attribute on this screen by clicking Add:
 - Type Minutes in the name, **press tab**, and it will set the units to minutes.
 - Press OK, then click on the Evaluators... button
 - In the Evaluators screen it should have already selected Minutes in the attribute field at the top.
 - Make sure the value area has your Minutes field (red box) selected.



Attribute: Minutes

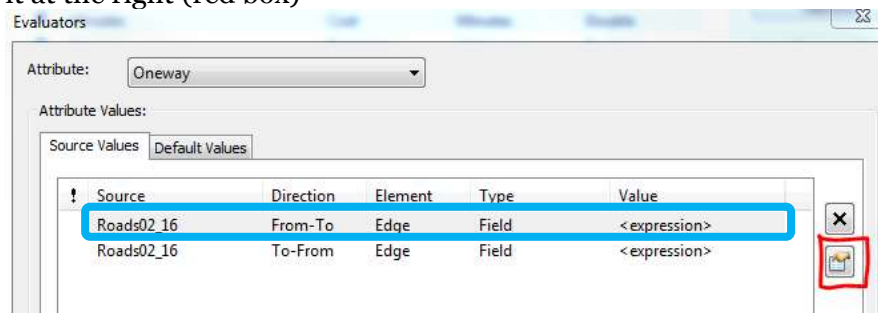
Attribute Values:

Source Values Default Values

Source	Direction	Element	Type	Value
Roads02_16	From-To	Edge	Field	Minutes2
Roads02_16	To-From	Edge	Field	Minutes2

- Click the Attribute chevron (blue box) at the top and change it to Oneway.

- Click on the first Roads From-To (blue box) and click the button with a finger on it at the right (red box)



- Use the code below in the Pre-Logic Script Code box:

```
restricted = False
If [ONEWAY] = "2" Then
    restricted = True
End If
```

- In the Value box type:

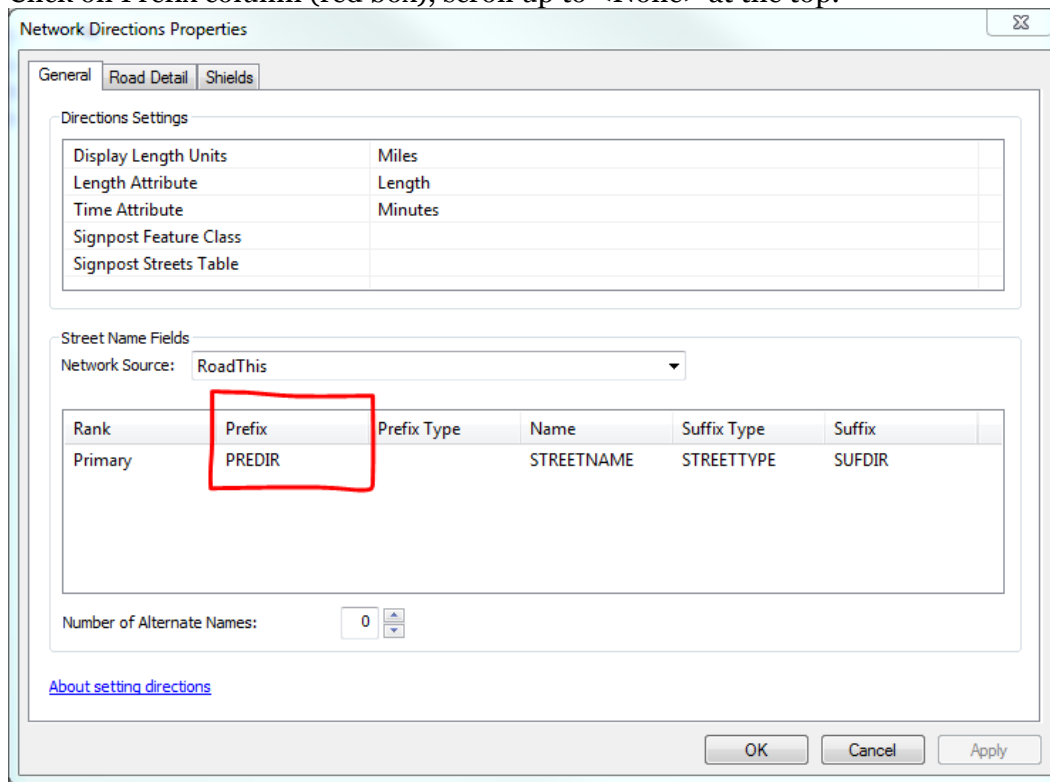
restricted

- Click OK.
- Click on the second Roads To-From and click the button with a finger on it at the right
- Repeat code from above but change code line: If [ONEWAY] = "**1**" Then
- Don't forget the Value box = restricted
- Click Ok, Click Apply, Click Next

- Click Next on this screen

- Select Yes for driving directions being created in this dataset, and click on Directions button

- Click on Prefix column (red box), scroll up to <None> at the top.



- Click Apply, and then OK, then Next
- Ignore this screen, click Next
- Click Finish
- You will then be prompted to build the dataset, click Yes
- You will then be prompted to add all feature classes to your map, click Yes
- You now have a fully functioning Network Dataset layer from which you can use all the Network Analyst tools. Have fun!

*** I usually turn off the Junctions and Edges layers when routing in ArcMap, but they come in handy when there are errors because you can see where the lines connect. ***

*** When making edits to roads (splitting, editing vertices, etc.) do not forget to recalculate the Minutes column in the attribute table with the field calculator and Speed Expression ***

*** Don't forget to send [AGRC](#) your fixes. They will make this product better for everyone! ***