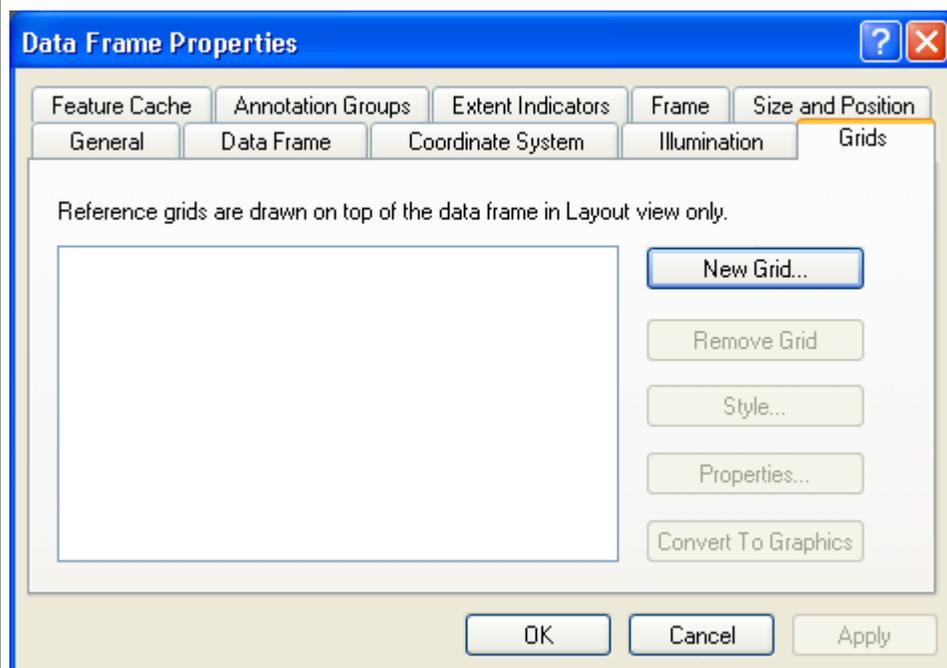


Set Grid/Graticule

There are four options, each slightly different:

- Create new map graticule
- Create new UTM grid
- Modify graticule
- Modify UTM grid

Create New Map Graticule



1. Pick View, Data Frame Properties on the menu, or Right click on the  Layers icon in the map's table of contents and pick "Properties".
2. Pick the Grids tab.
3. Pick New Grid button

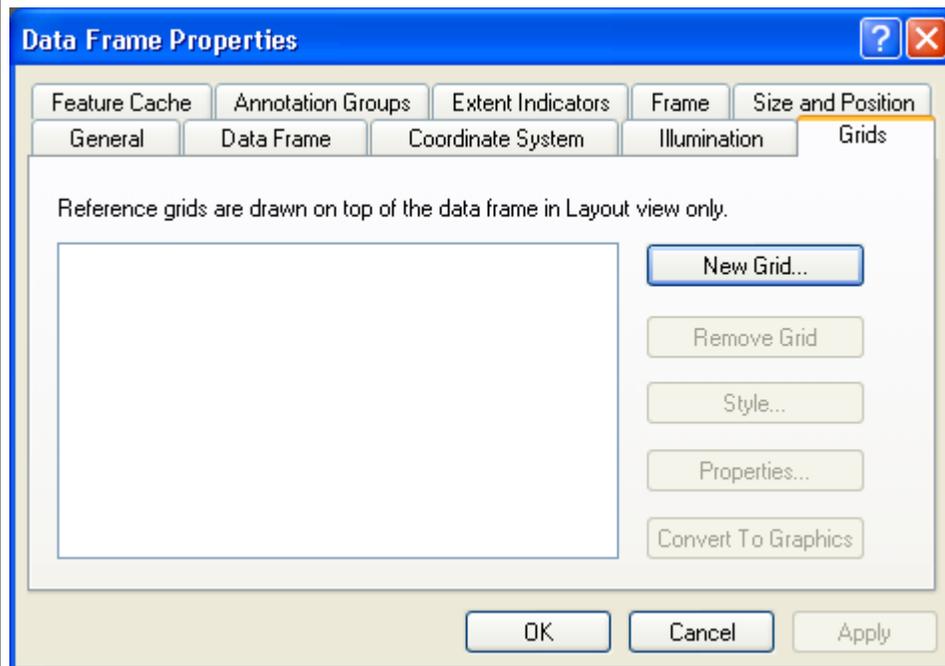


4. Pick Graticule for lat/long, or measured grid for UTM. You can put both on the same map.



5. Set the spacing You will have to adjust the interval depending on the scale of the map, and should use the same spacing in x and y. The style button lets you pick the line width and color. Other changes on this and the following steps in the wizard allow you more control if you want to experiment, but you should be able to accept the defaults.

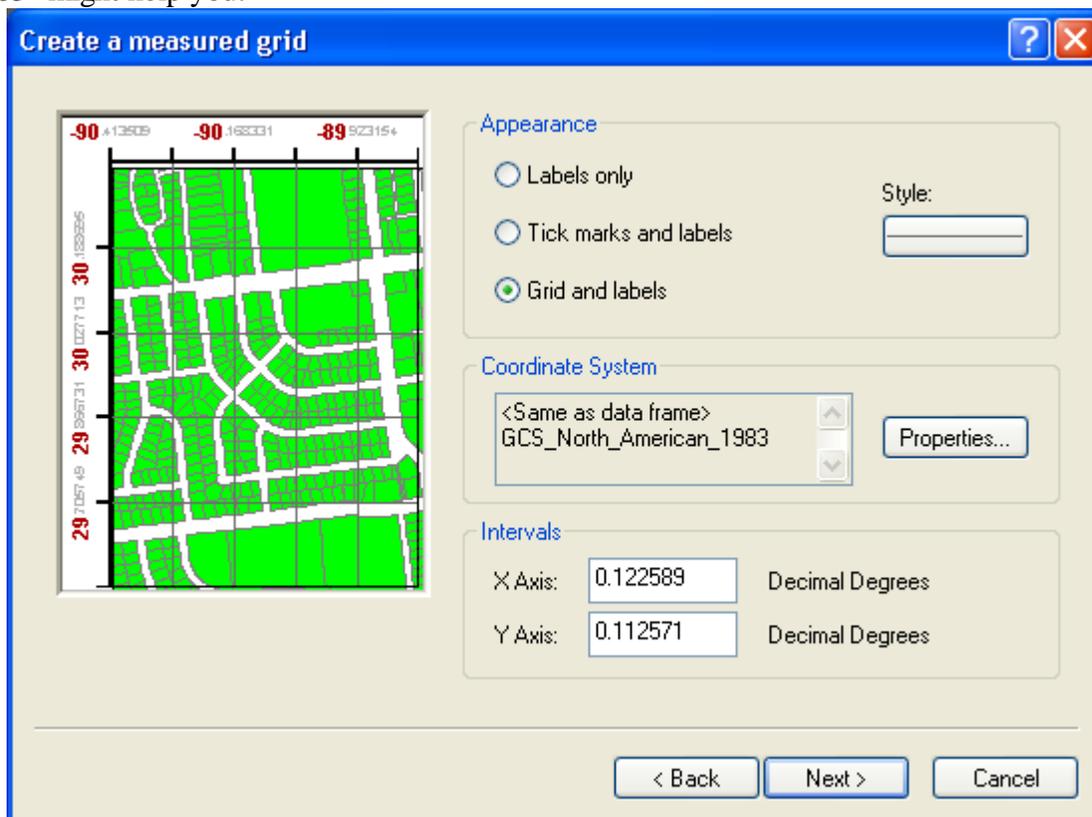
Create Map UTM Grid



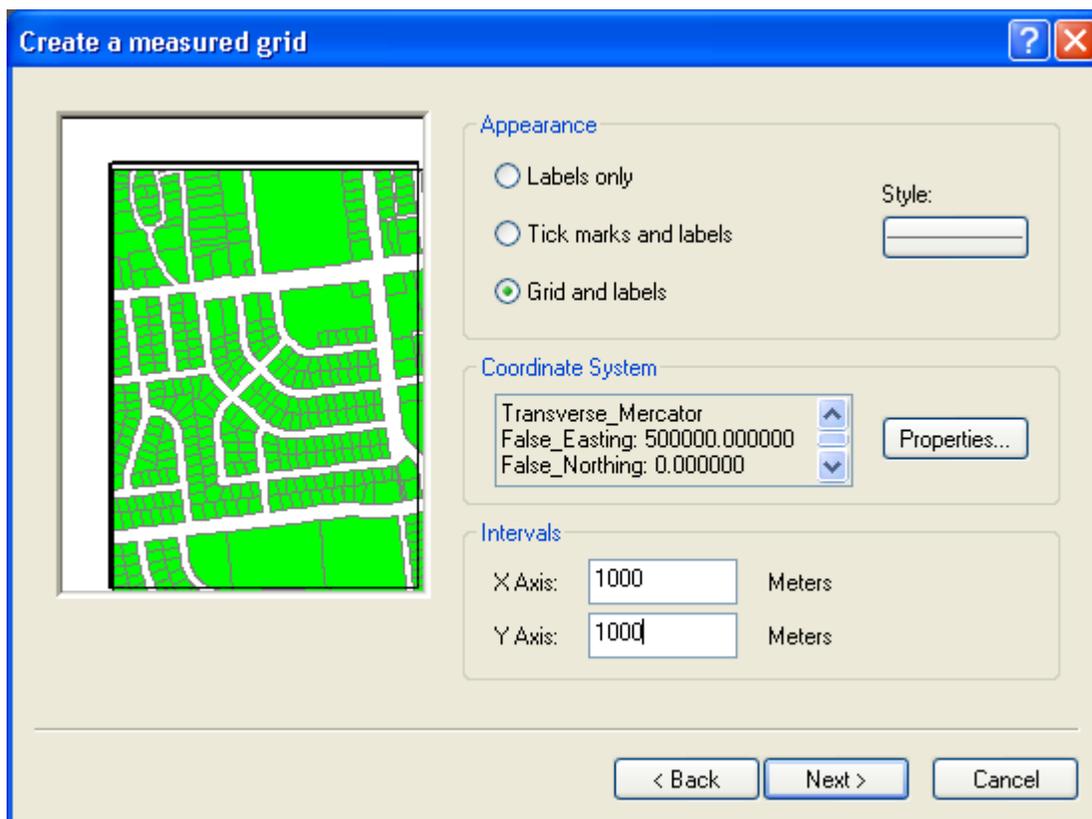
1. Pick View, Data Frame Properties on the menu, or Right click on the  Layers icon in the map's table of contents and pick "Properties".
2. Pick the Grids tab.
3. Pick New Grid button (or highlight an existing one and pick properties to modify an existing grid).



4. Pick measured grid for UTM. You could change the grid name; something like "UTM zone 15N NAD83" might help you.

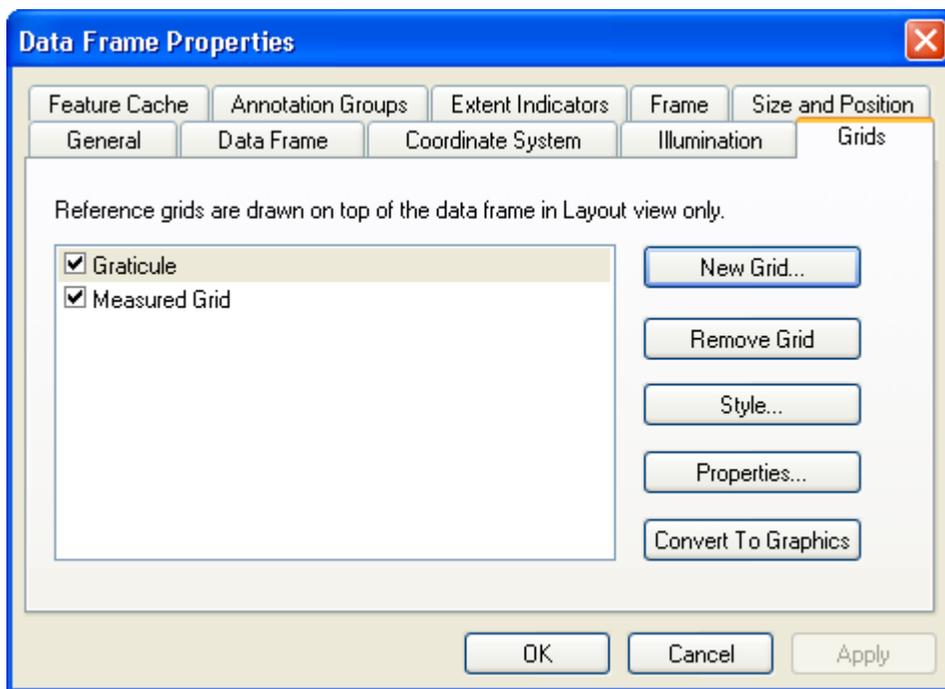


5. Note that this says we will get an GCS grid, because we have a GCS map. Since we want UTM, we need to modify the "Properties". "projected coordinate system" to get UTM, then UTM, then the datum like NAD83, and finally the UTM zone.

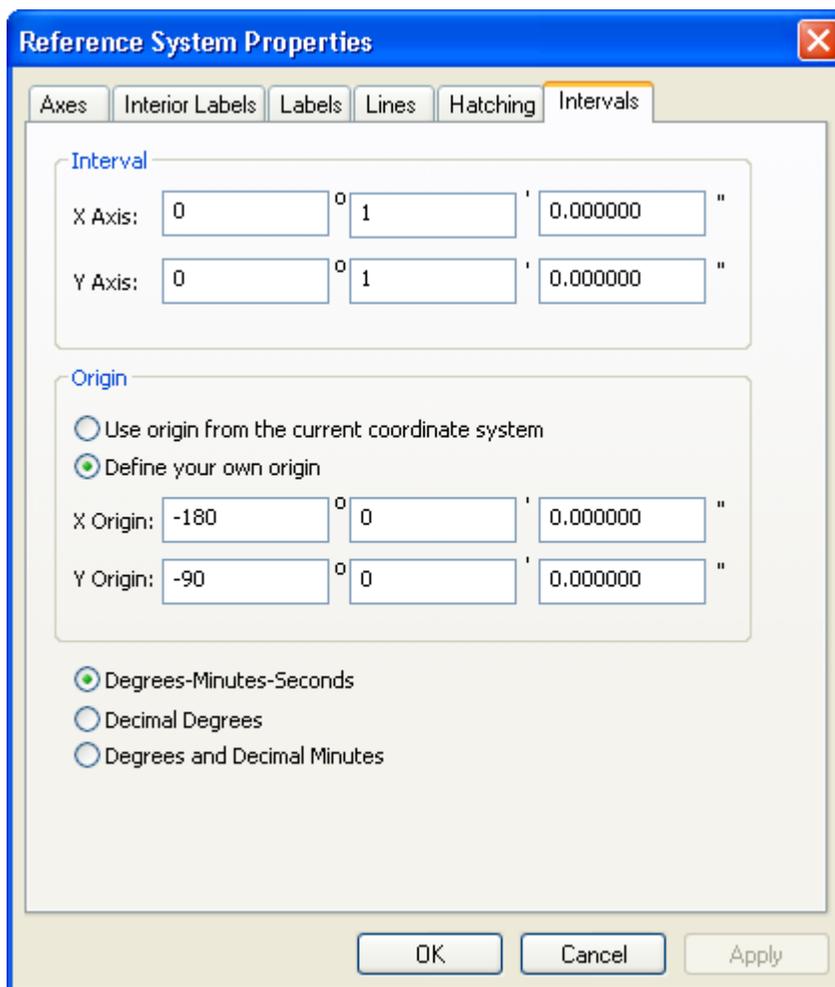


6. Set the spacing intervals. You will have to adjust the interval depending on the scale of the map, and should use the same spacing in x and y. The style button lets you pick the line width and color. Other changes on this and the following steps in the wizard allow you more control if you want to experiment, but you should be able to accept the defaults. Note that the coordinate system does not tell you UTM, but does indicate Transverse Mercator, and if you scroll down, you will be the zone's central meridian and the scale factor of 0.9996.
7. Accept all the other defaults.

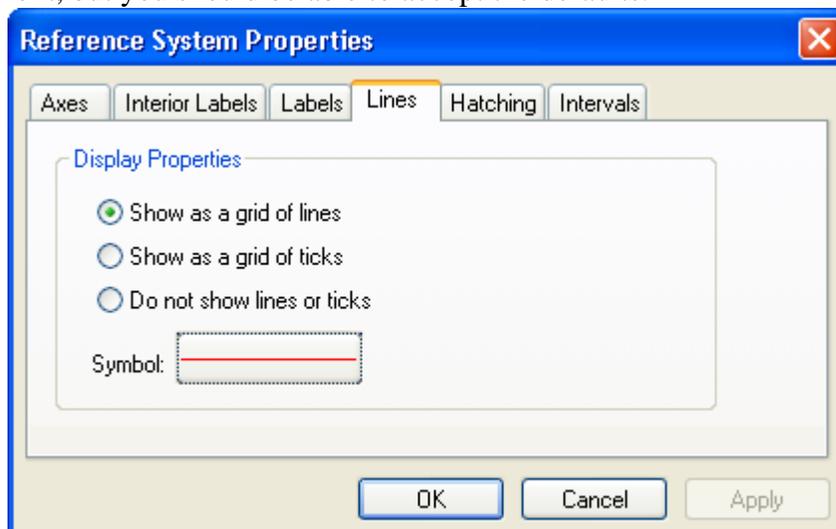
Modify Map Graticule



1. Pick View, Data Frame Properties on the menu, or Right click on the  Layers icon in the map's table of contents and pick "Properties".
2. Pick the Grids tab.
3. Highlight an existing graticule.
4. Pick the intervals tab.

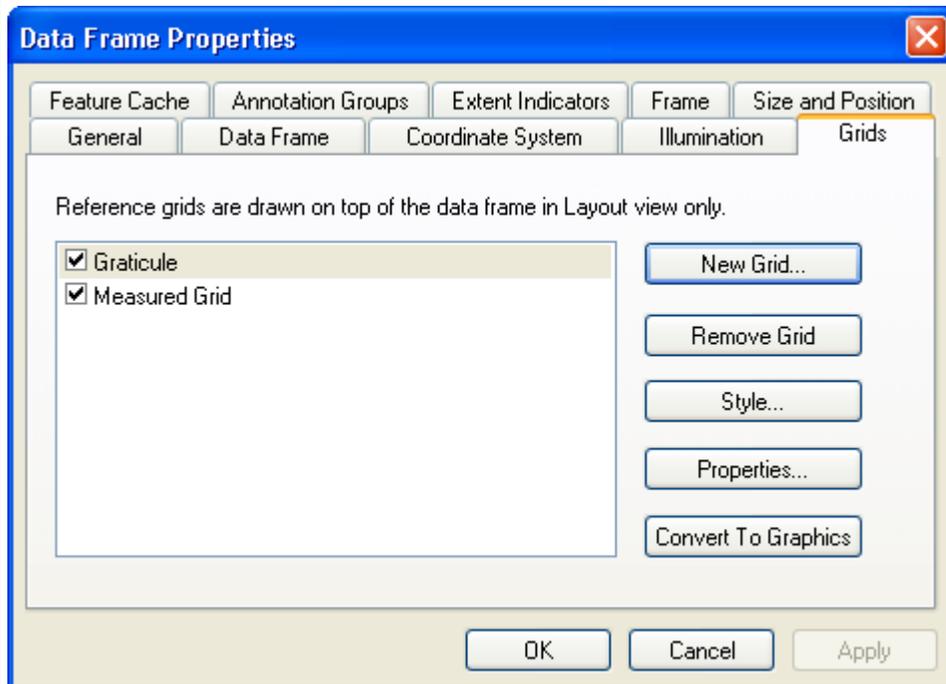


5. Set the spacing You will have to adjust the interval depending on the scale of the map, and should use the same spacing in x and y. The style button lets you pick the line width and color. Other changes on this and the following steps in the wizard allow you more control if you want to experiment, but you should be able to accept the defaults.

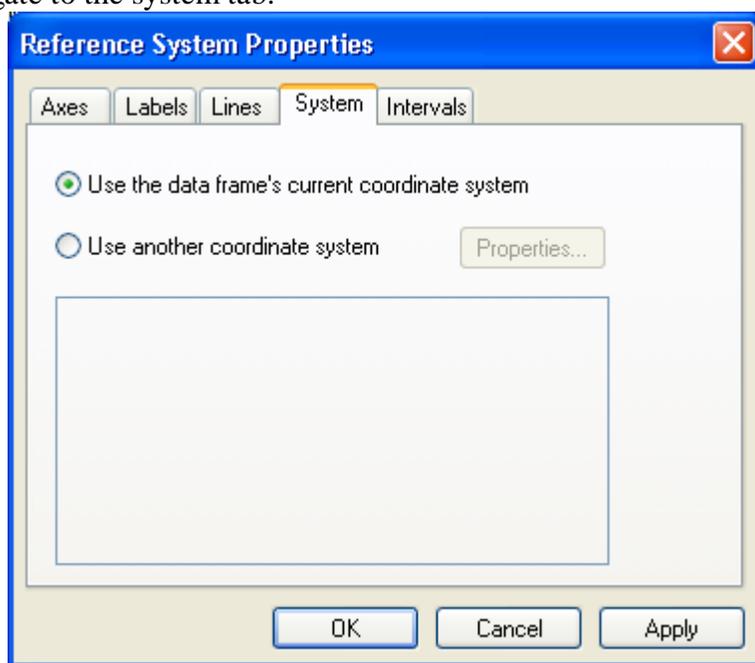


6. Navigate to the Lines tab, where you can set the Symbol button for the color and line width. Other changes on this and the other tabs allow you more control if you want to experiment.
7.  You must be in Layout view to see the graticule or grid (select on the lower left corner of the main display frame).

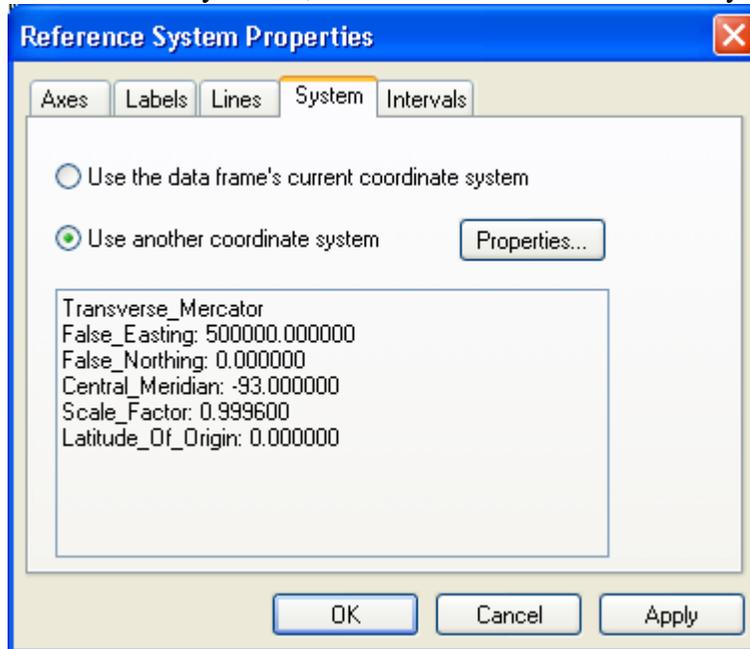
Modify Map UTM Grid



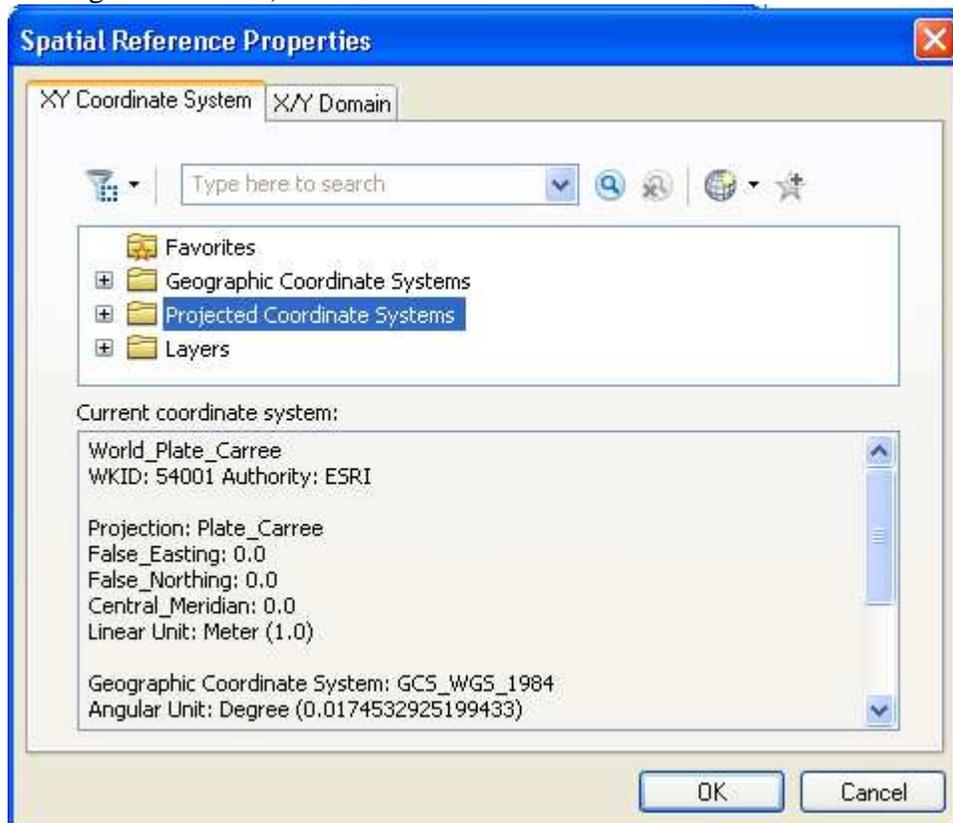
1. Pick View, Data Frame Properties on the menu, or Right click on the  Layers icon in the map's table of contents and pick "Properties".
2. Pick the Grids tab.
3. Highlight an existing grid and pick properties to modify. Pick the properties button.
4. Navigate to the system tab.



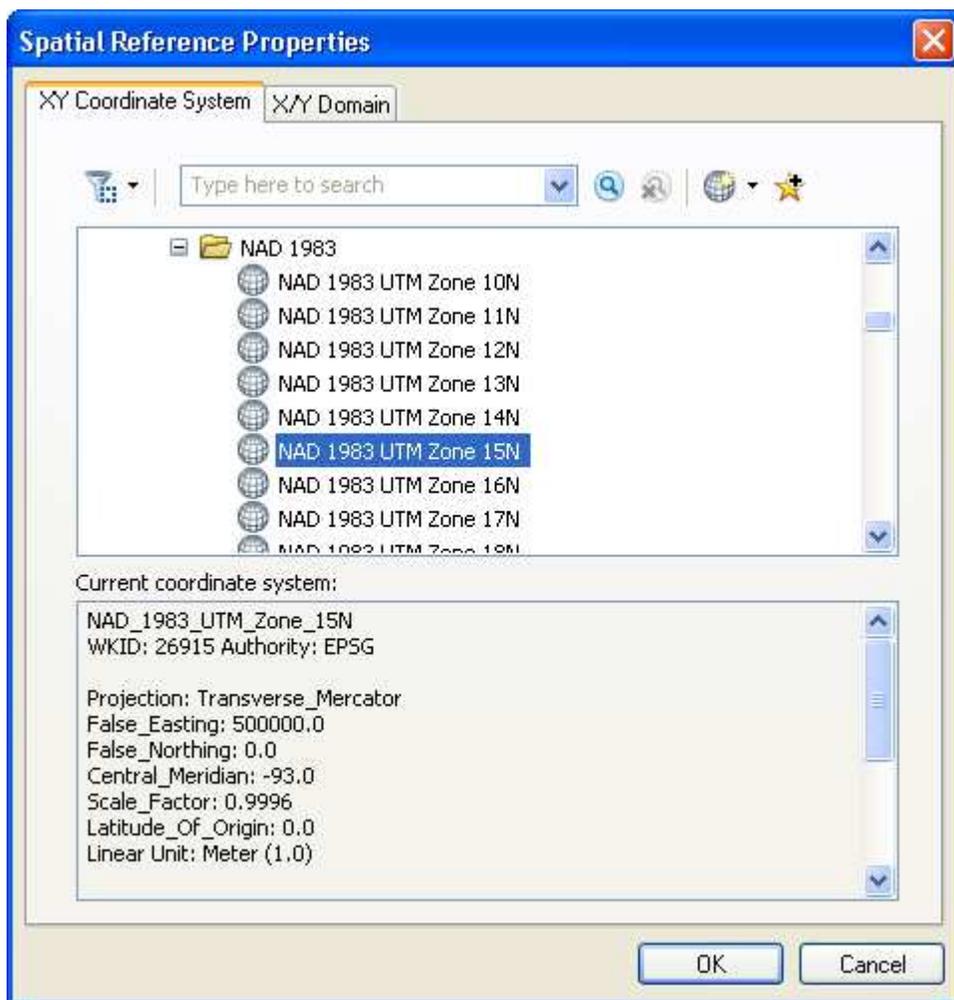
5. If your projection system matches that of the map, Arc will say that. If you want to verify what the data frame's current system is, select "use another coordinate system"



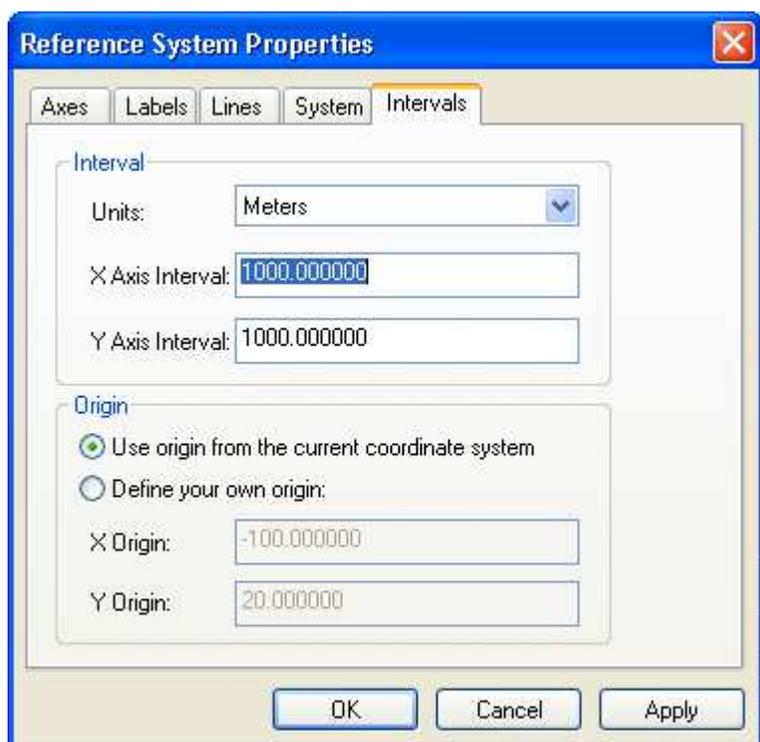
6. The bottom portion of the form will display the details of the projection. It will not indicate that the projection is UTM, but you can tell that from the central meridian and the scale factor of 0.9996. If you pick Properties, you will be taken to the correct UTM zone selection (same as the image in the Select UTM grid directions).



7. ○
8. The current coordinate system at the bottom is not what you want, so highlight "projected coordinate system" to get UTM.

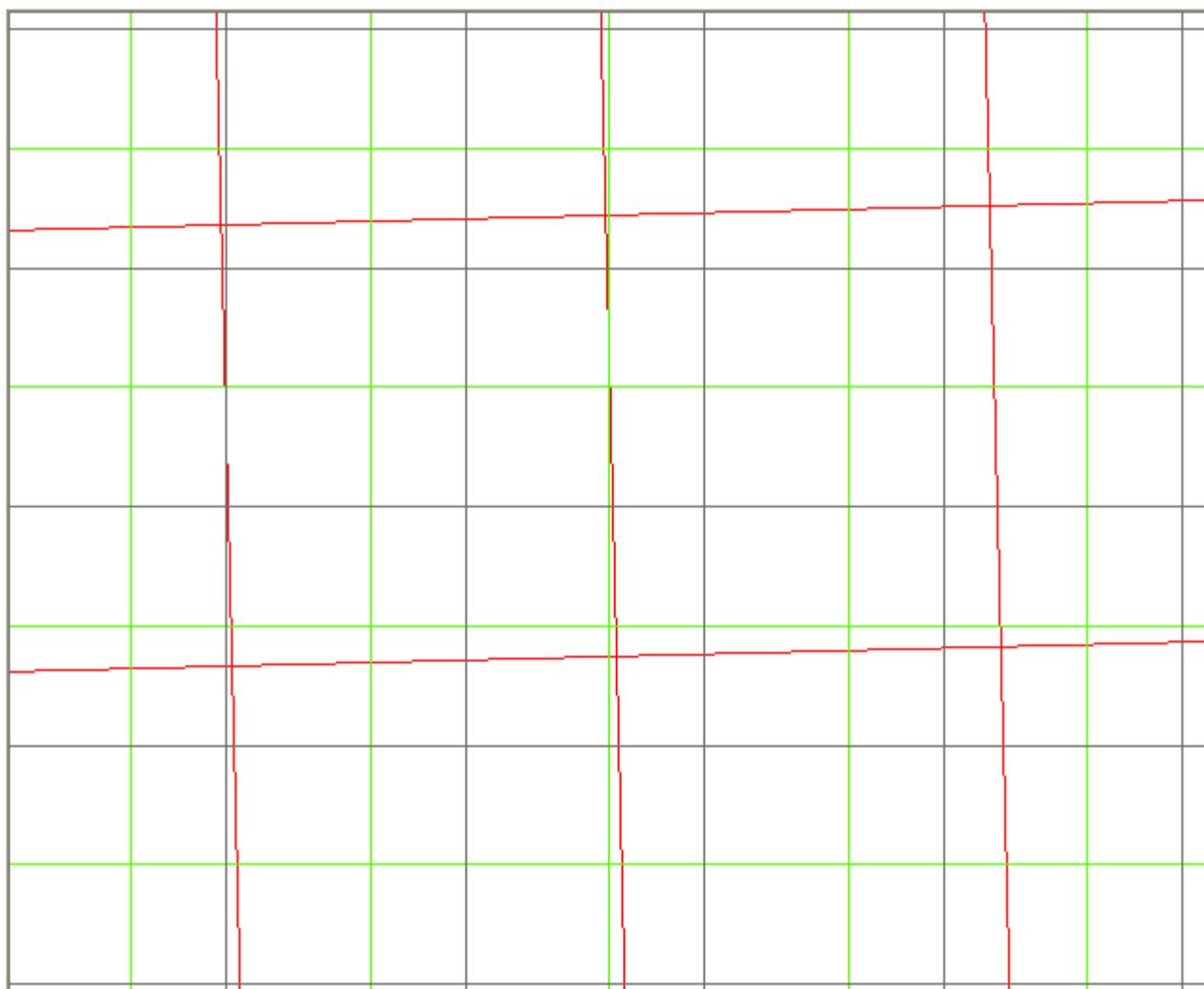
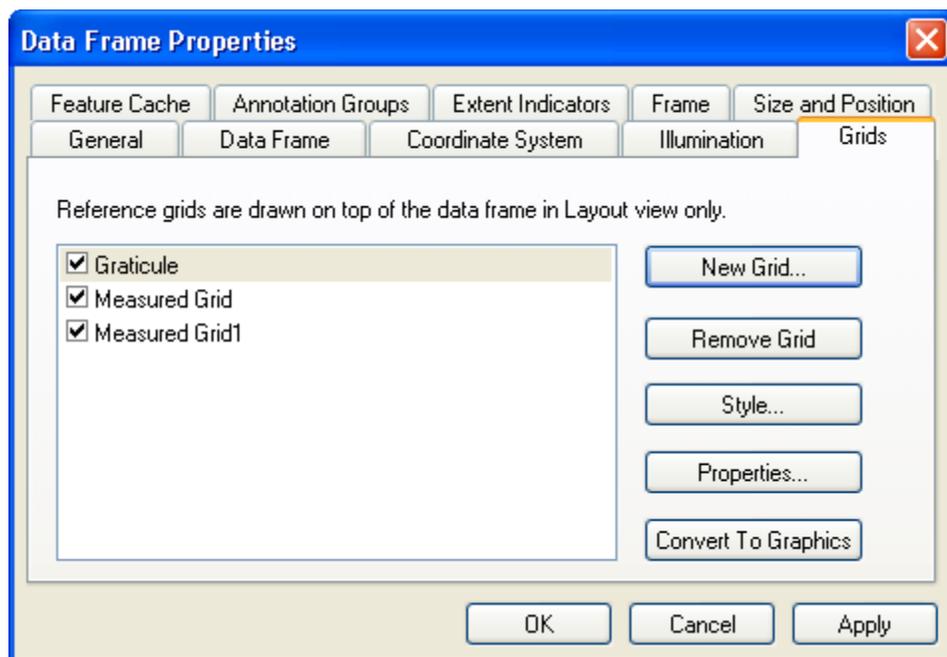


9. Pick either NAD83 or WGS84, and then the correct zone. This is the same process you use when you set the projection for the map, or assign it for a data set, although the exact controls differ slightly. The values used in this projection are listed in the bottom part of the window. Click OK when done.

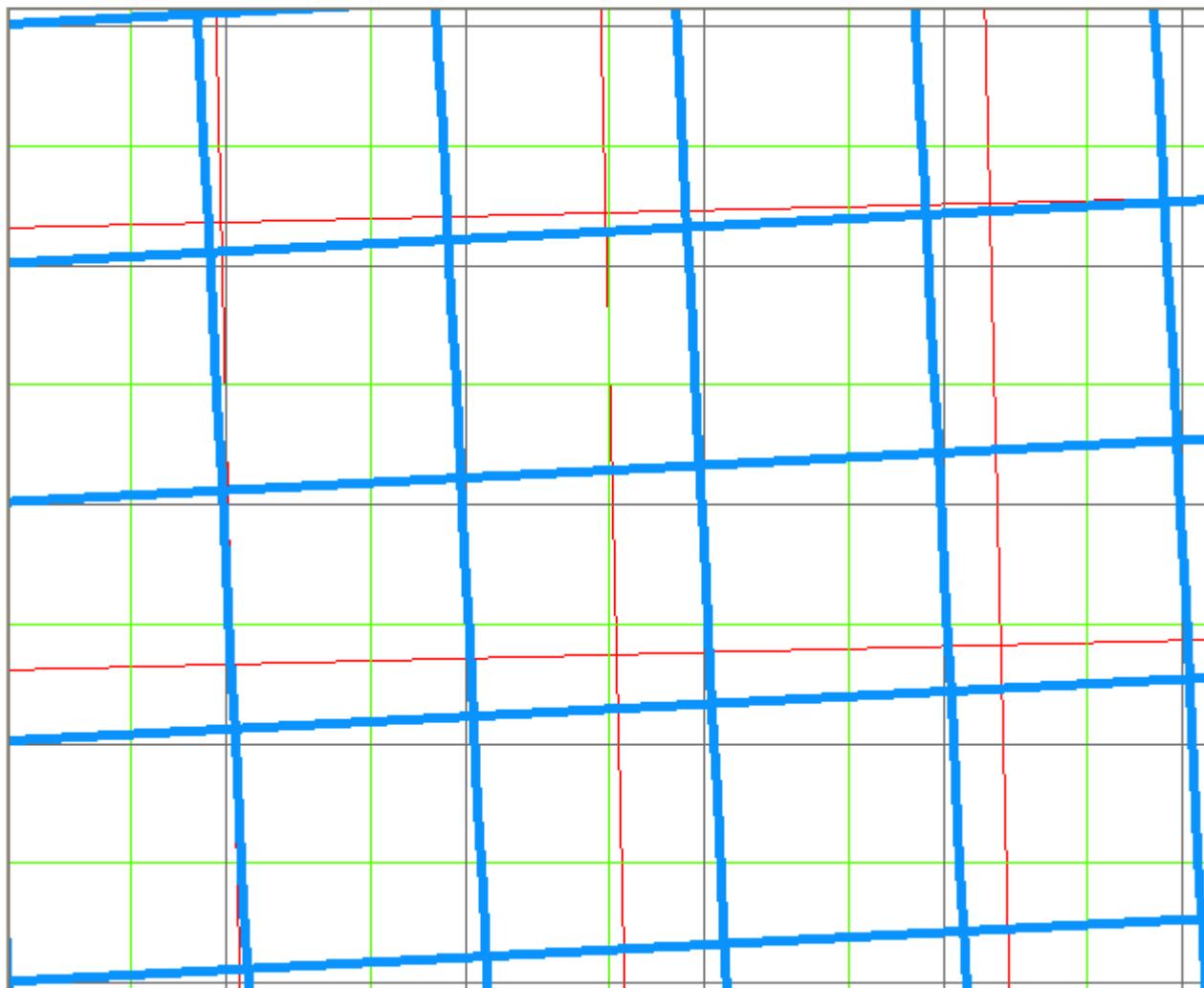


10. The key variable is probably the grid spacing. You should set the spacing to be the same in both the horizontal and vertical directions. Standards for maps are 10 km for 1:250K scales and 1 km for 1:25K or 1:50K, but you might have to vary these. If you are using a UTM projection you can use the origin from the current coordinate system; if you have another, you can set the origin at 0,0 since you want your grid lines to be on even intervals.
11. You should be able to accept all the other defaults. If you want to change any other parameters, the most important would probably be the line color and width.
12.  You must be in Layout view to see the graticule or grid (select on the lower left corner of the main display frame).

ArcMap will let you add additional grids.



The map above has a graticule in red, and two UTM grids in green and black for NAD27 and NAD83, showing the datum shift in this area to be about 200 m (there is no scalebar, but the UTM grids are both 1 km). Because the UTM grids are parallel to the map edges, this must be a UTM map projection. Since we are not near the center of the UTM zone, the red graticule is rotated with respect to the UTM grid.



We can add a third grid, in blue, for the adjacent UTM zone (16N). This will be rotated with respect to the UTM zone 15N coordinates of the map, but because we are almost on the UTM zone boundary, we will probably have to deal with coordinates in both zones and a map with both grids could be useful. We should probably remove the NAD27 grid, since this might be starting to get too complicated. We can either delete that grid, or just uncheck it for display but leave it in case questions arise about the datum shift.

Conic Projections

If you have a conic projection on your map, either the Albers or the Lambert, you must be careful that you do not get its grid. The conic grids are used for plotting, but are not generally shown on maps. If you have a conic map, and the grid is parallel to the map edges, you almost certainly have the conic grid unless you are in the center of the country. Otherwise there will be a definite rotation visible between the conic grid and the graticule, and between the conic and UTM grids. Only the UTM grid is commonly plotted on maps.