

16_13 Global Origin and Working Units Warning Messages

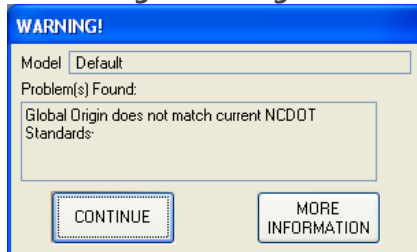
Question:

Why am I getting the non-standard Global Origin and Working Units warning messages with MS_Start and do I need to do anything about them?

Answer:

These warnings are mostly due to the V7 to V8 DGN file conversion and/or not using the NCDOT Design File Generator (seed file) to create the DGN files.

Global Origin Warning



Background:

There were four design planes for the State of North Carolina in MicroStation V7 DGN files with four different global origins. Since V8 DGN files are 2 million times larger, we only need one design plane (design cube for 3D) for the entire State and it has a new global origin location (Global Origin is offset -1803984.5480, -659551.9387 from the design plane center). When converting from V7 to V8, the GO does not match.

Risk: LOW

Referencing files with different global origins can lead to some potential problems if not done correctly. By using reference file attachment method "Coincident-World", all global origins are re-aligned in the reference files and the active file so their coordinates appeared correct.

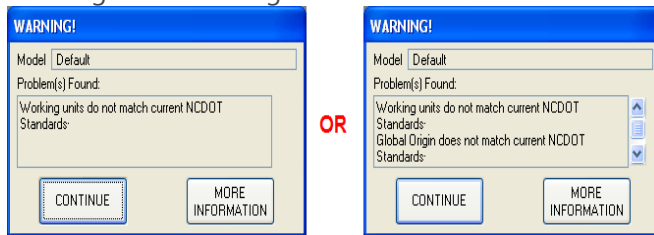
The only problem we have found so far has been with corridor modeling. When importing graphics such as the existing EOP lines in reference files, even though Coincident World is used, they sometime will not import correctly because of the global origin differences. The workaround is to go into the actual 2D file (instead of referencing) and store the graphics there. In SS3, importing of graphics is no longer required, but the referencing with different global origins will still persist. It has not yet been determined this will be a problem or not for us in SS3.

Recommendation: **Do Nothing!**

As mentioned earlier, use reference file attachment method "Coincident -World" will minimized, if not eliminate, potential global origin differences problems. It would actually do more harm than good to manually fix the global origin because of these two reasons:

1. Moving the global origin will affect all DGN files referenced to it. Re-attach and re-clip of these DGN files are required.
2. Moving the global origin will not move the MicroStation elements (stay in the same place)! All elements must be moved with the same northing and easting distances as the GO shift to be coordinately correct!

Working Units Warning



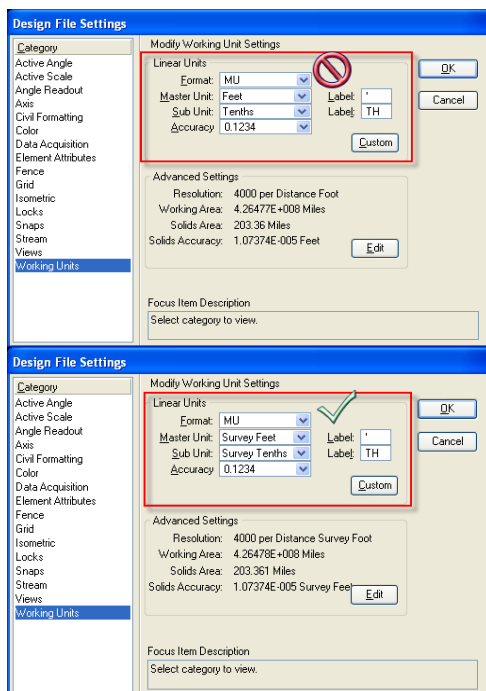
Background:

MicroStation native unit is a Meter. For English DGN files, (International) Foot or Survey Foot is available. The conversion difference between is small, but rather significant.

1 international foot = 0.3048000 m

1 survey foot = 1200/3937 m = 0.3048006 m

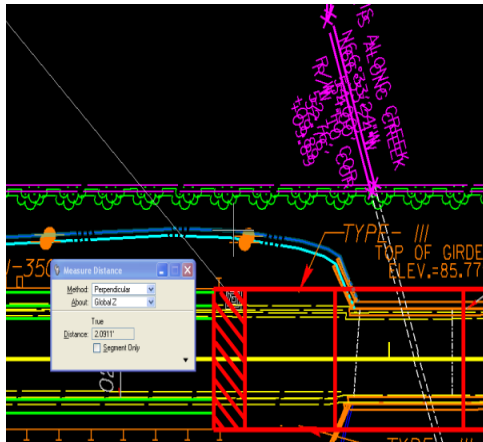
Again, during the V7 to V8 DGN file conversion, MicroStation defaults to (International) Foot for English project files because it is first in the "units.def" file as defined in the NCDOT workspace.



Of course, surveys are commonly done in "Survey Foot" instead. Since May of 2010 the (International) Foot unit definition has been removed from our units.def file. All newly converted files will take on the Survey Foot definition.

Risk: **HIGH**

Although not as apparent in the active file, the difference is significant when referencing International Foot files, even with "Coincident-World" set. A shift of 2' to 6' in the referenced TOPO files has been documented in some cases.



Imagined if the wrong working unit files are passed along to other Units and being used as references. The proposal will most likely have to be re-designed! Fixing this issue is applicable from base mapping all the way to the final plans.

Recommendation: **Immediate Action Required!**

There isn't a step-by-step set of instructions on fixing the wrong working units file(s) and the ramifications have yet to be determined. Consult your CADD Support to go over the issue in detail.

EXCEPTIONS (important)!

Below is a list of DGN file types that do not require fixing for GO and/or WU differences (ignore the warning messages). These file types do not have to be coordinately correct for referencing.

1. TSH
2. TYP
3. SUM
4. XSC
5. XPL
6. Possible others...

Also the non-standard working unit can be ignored if the master unit is in "Survey Foot", but the resolution is set to "1000 per Distance Survey Foot" instead of the standard "4000 per Distance Survey Foot". This is quite common for older V7 TOPO file from L&S and Photogrammetry. Roadway was always 4000/MU.

Design File Settings

Category:
Active Angle
Active Scale
Angle Readout
Axis
Civil Formatting
Color
Data Acquisition
Element Attributes
Fence
Grid
Isometric
Locks
Snaps
Stream
Views
Working Units

Modify Working Unit Settings

Linear Units
Format: MU
Master Unit: Survey Feet
Sub Unit: Survey Tenths
Accuracy: 0.1234
Label: ' ' th
Custom
OK
Cancel

Advanced Settings
Resolution: 1000 per Distance Survey Foot
Working Area: 1.70591E+009 Miles
Solids Area: 813.442 Miles
Solids Accuracy: 4.29497E-005 Survey Feet
Edit

Focus Item Description
Select category to view.

Design File Settings

Category:
Active Angle
Active Scale
Angle Readout
Axis
Civil Formatting
Color
Data Acquisition
Element Attributes
Fence
Grid
Isometric
Locks
Snaps
Stream
Views
Working Units

Modify Working Unit Settings

Linear Units
Format: MU
Master Unit: Survey Feet
Sub Unit: Survey Tenths
Accuracy: 0.1234
Label: ' ' TH
Custom
OK
Cancel

Advanced Settings
Resolution: 4000 per Distance Survey Foot
Working Area: 4.26478E+008 Miles
Solids Area: 203.361 Miles
Solids Accuracy: 1.07374E-005 Survey Feet
Edit

Focus Item Description
Select category to view.

With the new method of Corridor Modeling in SS3 and the new Civil Geometry tools, it is especially very important to make note of the global origin and working units warning messages.