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OSD WORKFLOW

Title	InRoads DTM to ORD Terrain
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Overview

This document provides guidance on converting an InRoads .DTM directly into an OSD Terrain or Survey Field Book to create a Terrain.

Overview:

Power InRoads will no longer be available when ODOT switches to Windows 11 and the previous workflow of converting the features of an InRoads DTM to a text file to import into an OSD Survey Field Book will no longer work. There are two methods that can be used for using a V8i generated basemap and DTM in an OSD file.

- The V8i basemap *usually* contained an empty "Default" model. The graphics for the basemaps/DTM's were usually divided into different named models. Depending on the project, there might be different models for the following - existing topography, bridge deck, 2D mapping, point numbers, and triangles/contours.
- Each V8i DTM should be imported into the default model in its own OSD DGN file. For example:
  - Existing topography .dtm >> S_K#####_TERR_e_pub_01.dgn
  - Bridge Deck .dtm >> S_K#####_TERR_e_pub_02.dgn
  - Bridge Soffit .dtm >> S_K#####_TERR_e_pub_03.dgn

Required:

- MicroStation V8i .dgn basemap and corresponding InRoads .dtm

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A. METHOD 1 – Use V8i .dgn Basemap for Graphics and Import .dtm Data Into an OSD Terrain

- This is the easiest way to reuse the V8i data; however, there will be no survey field book data and the connection between the original data used to create the terrain and the basemap graphics is broken.
- Edits directly to the converted V8i DTM terrain data should be avoided. If you need to make edits, use Method 2.

➢ Steps:

1. Create a new pub TERR file

NOTE: You can create a working file for the new TERR file, but you will need to create the pub TERR file prior to referencing into the Container File (CF).

2. In the Default model of the OSD file import the V8i DTM data into an OSD Terrain using **From File** (Survey workflow > Terrain tab > From File)

    a. Select the V8i DTM to import

    b. Set the Terrain Feature Definition, Source File Units, and Import Options (Import Terrain Only)

    c. Select **Import** > the terrain will be created from the DTM triangles, and the terrain feature definition will be applied.

3. QC and confirm the DTM to terrain conversion

    a. Reference the V8i basemap graphics file and visually check the triangles. The Highlight function in the reference dialog works well for this step.

NOTE: I have discovered that some triangles in the OSD terrain will have the line swapped differently than the V8i DTM. You will have to investigate if this creates a problem. The Edit Model > Swap Line tool can be used to swap triangle lines.

    b. Preform a confidence points analysis on the converted OSD terrain using the original confidence points. The new confidence point report should be nearly identical to the original from the V8i work but could show small differences due to small changes in the triangulation.

4. Repeat the steps above to create additional OSD terrains in new DGN files as needed, one OSD terrain DGN per V8i DTM.

5. Reference the PUB files to the CF and set one of the terrains to Active.

6. Reference the V8i basemap graphics to the CF.

    a. To prevent duplicate displays of terrain data, turn off the triangles, contours, and exterior boundary in the level display for the referenced V8i basemap graphics.

B. METHOD 2 – Convert the V8i .dgn Basemap Graphics Into Graphical Survey Field Book Elements and Create a Terrain From the OSD Survey Field Book Data

- This method will require more effort/time than Method 1 due to the need to assign the proper element template to the graphical elements.
- The survey data will reside in the field book and edits can be made if needed to the data.
- Adding or appending new overlapping data will be easier to manage in the DGN using the survey field book.

➢ Steps

1. Create a new pub TERR file
    a. NOTE: You can create a working file for the new TERR file, but you will need to create the pub TERR file prior to referencing into the Container File (CF).
2. In the Default model of the new TERR file, reference the V8i basemap graphics DGN.
    a. If the V8i basemap graphics DGN has multiple models, ensure you are referencing the correct model.
    b. If the V8i basemap graphics DGN has multiple models that contain different DTM datasets, you will need to create a new TERR file for each DTM. There should only be **one** terrain dataset per OSD file
    c. Turn off the levels for graphics that you do not want in your survey field book (narratives, vicinity maps, triangles, contours).
3. In the References dialog box, right click on the V8i basemap file and select **Merge Into Master.**
    a. Follow the prompts to select the view > click OK on the Alert dialog box.
        i. All visible graphics in the referenced file will be copied into the TERR file and the reference will be detached.
        ii. Some features, such as striping will have an incorrect line style display. These will be fixed in later steps.
4. Assign the correct element template to each feature.
    a. Turn off all levels, except one.
    b. Select the isolated features and confirm the tags from the V8i graphics using the Properties tool > Associated Elements.
    c. If there are features that are not the same as others, deselect the features that are different. For example – White Stripe vs. Yellow Skip on the striping level.
    d. With the unique features selected, go to the ODOT Survey workflow > find the feature from the various tabs and dropdowns > select the feature. This will assign the correct element template to the selected features.
    e. Repeat these steps for the remaining graphical features level by level.
        i. Some features such as striping, barrier, pipes, sign faces/posts, utilities, and fencing will be on one level but have different properties. These features can be isolated further by using the element selector tools and selecting by line style or

color. You can also use the element properties to get more details about the feature.

5. After the features have been assigned the correct element template, you will need to import the graphical features into the survey field book.
    a. Create a survey field book and name it to reflect the original data.
    b. Import features from current graphics.
        i. Turn off any level with features that you do not want to import into the field book (narratives, vicinity maps, triangles, contours).
        ii. Right click on the field book name > Import > Features from Current Graphics.
    c. Using the Survey Details dialog, verify and QC the imported features. Modify features as needed.
6. Using the Survey Details dialog, set the Terrain Model Attribute to Determine by Feature Definition for all imported features.
7. Create a terrain from the survey field book data using the normal steps in OSD.
8. QC and confirm the graphics to terrain conversion
    a. Reference the V8i basemap graphics file and visually check the triangles. The Highlight function in the reference dialog works well for this step.

        NOTE: I have discovered that some triangles in the OSD terrain will have the line swapped differently than the V8i data. You will have to investigate if this creates a problem. The Edit Model > Swap Line tool can be used to swap triangle lines.
    b. Perform a confidence points analysis in the converted OSD terrain using the original confidence points. The new confidence point report should be nearly identical to the original from the V8i work but could show small differences due to small changes in the triangulation.
9. Repeat the steps above to create additional OSD terrains in new DGN files as needed, one OSD terrain DGN per V8i DTM.
10. Reference the PUB files to the CF and set one of the terrains to Active.