Version 8.2 Release Notes

November 28, 2023

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The following changes have been made to DAT/EM products for release version 8.2. If you have questions about version 8.2 or requests for new development, contact DAT/EM Support at support@datem.com.

Contents

Operating Systems and Microsoft Updates

DAT/EM software no longer supports 32-bit operating systems. Any reference to an OS in the remainder of this document refers to the 64-bit version of that OS only.

DAT/EM Release version 8.2 is supported on the following operating system:

- Windows 11 Professional and Enterprise.
- Windows 10 Professional and Enterprise.

Notes:

- DAT/EM generally recommends installing all Windows updates; however, if you are not sure whether your stereo settings will still work after a major update, please contact DAT/EM Support for information.
- DAT/EM software does not work with Windows Home Edition or LTSC (Long-Term Servicing Channel), formerly known as LTSB (Long-Term Servicing Branch).

DAT/EM Software Installation

1. DAT/EM Setup no longer asks about obsolete Polytel keypad hardware. It now only asks, "**Would you like to launch DAT/EM Keypad on Startup? (Yes/No)**." The DAT/EM Keypad application is always, as it was before, but will be added to the Windows startup applications only if you choose **Yes**. (April 4, 2023)
2. There is a new Prerequisites file called "Datem_PreReqs_blt_11_29_2022.exe" (from 29 November 2022). It contains the same Sentinel version 7.7.1 as the previous prerequisites and version 8.1 Setup installations, but it has new Microsoft C++ redistribution packages and Visual Studio 2022 added. If needed to install alone on a network lock server, download: https://datemsystems.com/down/Datem_PreReqs_blt_11_29_2022.exe (no password required). (November 29, 2022)
3. Installation for 64-bit MicroStation with Summit Lite Edition will no longer place the unlicensed DTM .ma application and try to load it. (October 20, 2023)

Hardware Locks/Dongles

Install Microsoft Updates before applying lock reset programs. Network licensing should have the same Sentinel driver version on both the lock server and the local workstations running the software.

1. The Thales Sentinel driver version 7.7.1 is provided with DAT/EM version 8.2. This is the same version that was supplied with v.8.1, and an update from the one provided in v.8.0. (2022)

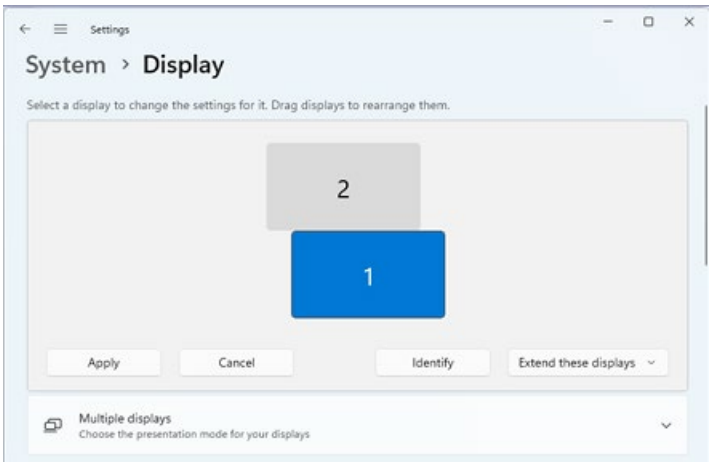
   Sentinel Driver on Network Lock Servers: If you have a network lock on a network server, DAT/EM strongly advises you to install Sentinel 7.7.1 on the network lock server to match the version on the DAT/EM workstations. DAT/EM provides a convenient prerequisites setup file that installs the required Microsoft C++ redistribution files and the Sentinel 7.7.1 driver:
   - Download it from www.datem.com > Support > Downloads > Prerequisites > "DAT/EM Prerequisites … Sentinel 7.7.1 …"
   - Answer "Yes" to Sentinel's firewall question.
   - Reboot the server after installation.

   Please do not skip the update for the network lock server. The newer Sentinel driver works better, and the best communication can be expected when the Sentinel versions match.

DAT/EM Virtual Reality (VR)

The following changes have been made DAT/EM Virtual Reality (VR):

1. The cursor in VR will now be positioned correctly for all Windows Display Settings configurations of the physical monitors. Previously, the cursor in VR could be offset from its proper position when the midpoints of multiple physical monitors were offset vertically or horizontally from each other. (July 26, 2023)



The VR cursor will now be positioned correctly when multiple physical monitors are vertically or horizontally offset in Windows Display Settings

2. We have confirmation from users that DAT/EM VR works with the Meta Quest 3 headset. (October 18, 2023)

DAT/EM Administration Tool

The following changes have been made to the DAT/EM Administration Tool:

1. The DAT/EM Administration Tool will show the result of running CAD Enabler on ArcGIS Pro. (March 13, 2023)

2. In the CAD Enabler tool, when registering the extension for ArcGIS Pro, if the ArcGIS Pro installation folder is not found listed in the HK Local Machine registry key, it will then look in HK Current User. This is to accommodate the difference between ArcGIS Pro installations for all users or only for a single user login. (March 13, 2023)

3. The **Check for Updates** tool can now download the next version's development betas. DAT/EM Support will send the download credentials on request for supported licenses. (March 13, 2023)

4. The Sentinel tool has an added button: **Reset prereqs installed state**. This clears DATEM's registry key that prevents the same version of the Prerequisites Setup file (Microsoft C++ redistribution files and Sentinel driver) from attempting to install the same versions again. Use this together with **Reset Sentinel installed state** after either Prerequisites or DAT/EM Setup were canceled or otherwise failed to complete their installation process. (September 13, 2023)

Point, Image, and Vector File Formats (Affecting Multiple DAT/EM Applications)

DAT/EM applications read a variety of file formats that contain points, images, and vectors. The code is shared among several DAT/EM applications, so when one can read a certain format, others can, too. The following changes have been made to the list of supported formats:

1. DAT/EM Image Creator can now read and write COG "Cloud Optimized GeoTiff" format. COG is a special GeoTiff. When writing COG, Image Creator will use *.tif for the file name extension; however, when DAT/EM applications read COG, then extension may be either .tif or .cog. The GDAL library is used to create the COG using all the GDAL defaults, including LZW compression, so the user will not be offered a compression option or scale. There is only one user option that affects the output: **Write as BigTiff** on or off. (November 4. 2022)

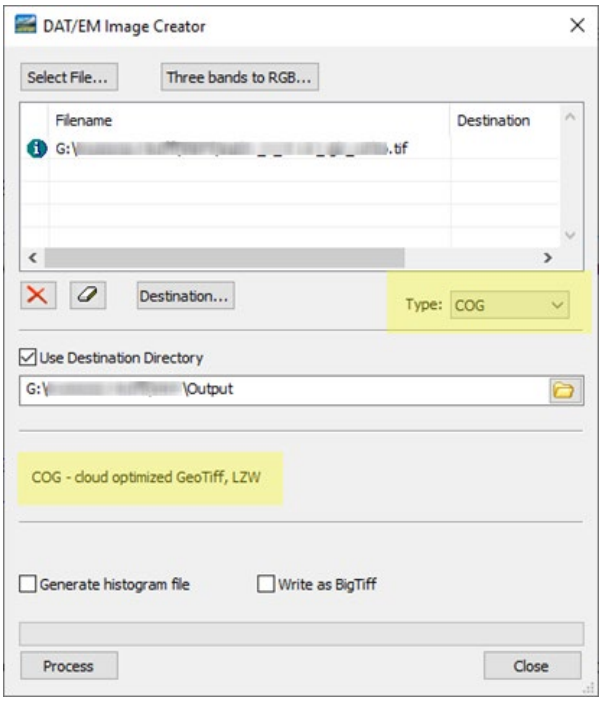


Image Creator can now output COG

To see if a .TIF file is really COG or not, use "Image Information" in any DAT/EM applications that offer it, such as Summit Evolution, DAT/EM Image Viewer, and Image Creator.

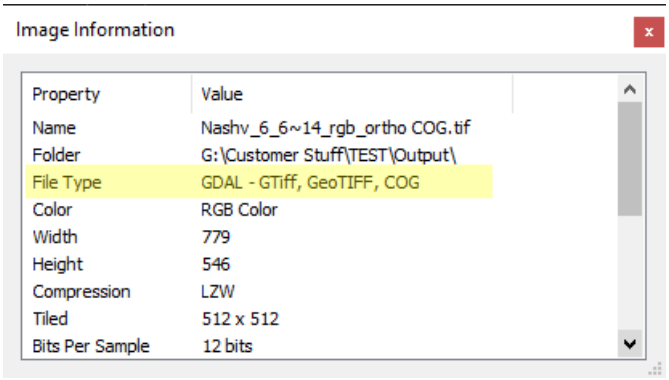
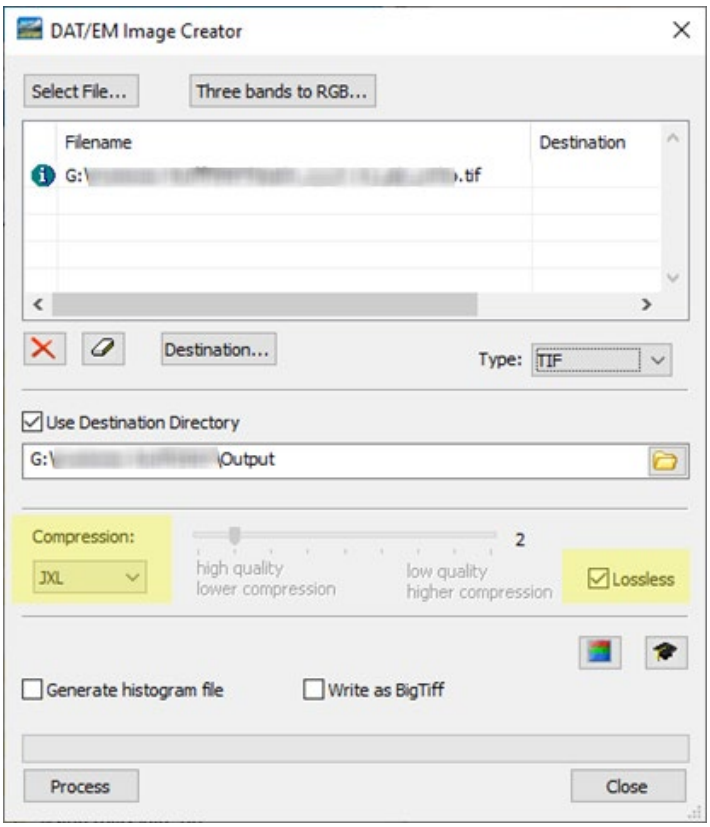


*Image Information showing **COG** in the **File Type** display*

The concern with cloud-based imagery has always been whether it can be fast enough to draw image tiles. A beta tester tried Summit referencing images in COG format from Google Drive and reported it worked, "…as normal." We will not be performing rigorous speed tests for COG format, because speed is highly dependent on Internet service and other factors. If you try COG format from a cloud source, let us know how you found the performance.

2. DAT/EM applications now *read and write* JPEG XL (JXL) image format and compression. JPEG XL is a newer format released by the Joint Photographic Experts Group. JPEG XL supports both lossy and lossless compression options. Like JPG before it, "JXL" can be either the name of the file format (.jxl) or the compression standard used inside another file format, such as a .tif. (November 4, 2022)

    - DAT/EM uses the GDAL library to read and write JXL images and compression.
    - DAT/EM applications that open and display imagery, such as Summit Evolution and DAT/EM Image Viewer, will *read* JXL automatically when it is found in the file and/or compression.
    - DAT/EM Image Creator can now *both read and write* JXL and JXL compression. DAT/EM Image Creator has a new **JXL** compression option and a **Lossless** checkbox for **Type** = **TIF**, **SMTI**, and **New TIF & PYR** output. When **Lossless** is unchecked, the user can set the amount of lossy compression using the slider; when **Lossless** is checked on, the lossless JXL compression type is used and the slider is not available.



*New **JXL** compression and **Lossless** compression option in Image Creator*

Note: If you intend to output JXL imagery or compression for use by a third-party application, first be sure the application supports JXL.

DAT/EM Keypad

There are no changes to the DAT/EM Keypad products.

Coordinate Transformations and Elevation Database

There are no changes to the elevation database installation file built in 2015 found here: http://datemsystems.com/down/SetupElevationModels%20blt%2003%2015%202015.exe. If you already installed that file with previous DAT/EM versions, you do not need to reinstall it. Any changes have been added to the DAT/EM setup installation, so that you do not need a new, separate Elevation Database file.

There are newer files and changes, but they are all included in the main DAT/EM software installation:

1. The Blue Marble libraries licensed and included in DAT/EM software are updated to match the Blue Marble versions available as of April 2023. (April 2023)

DAT/EM Stereo Viewer

There are no specific changes to the DAT/EM Stereo Viewer for v.8.2; however, the image file format changes listed above may apply to it.

Summit Evolution

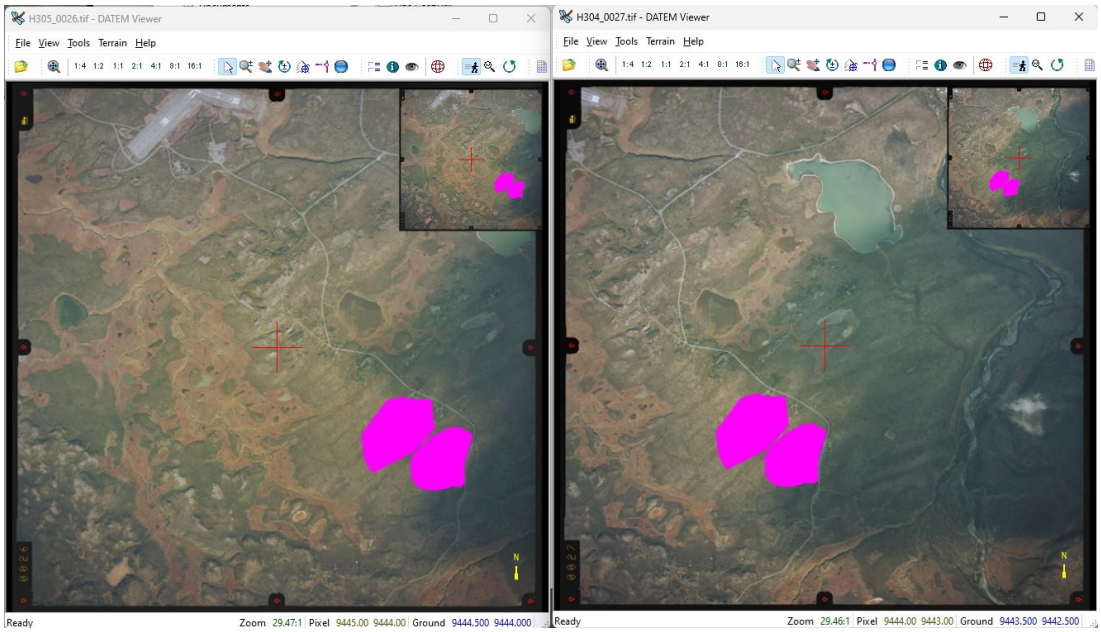
The following changes have been made to Summit Evolution (Summit) and the applications that are provided with it.

General Summit Evolution Subjects

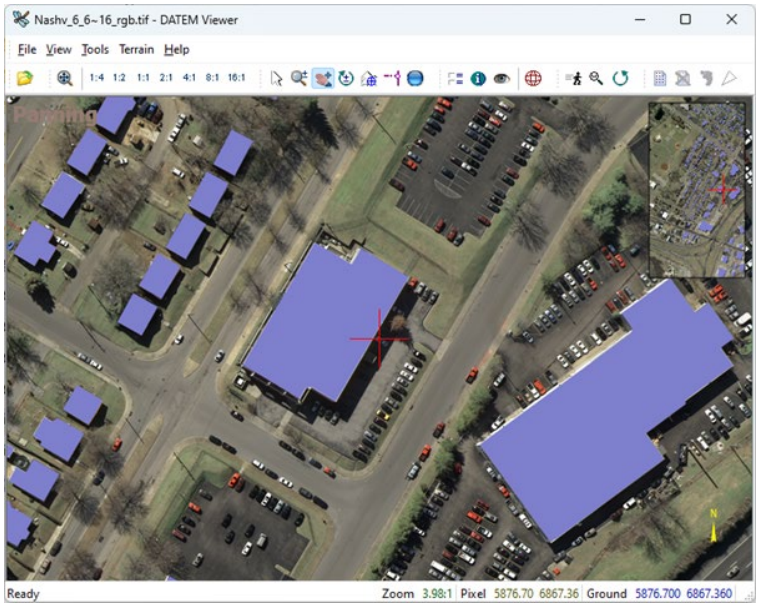
1. **Markout Exclusion Areas** is a new tool in Summit Evolution Professional Edition. It inputs an existing Summit project referencing original raw images and a CAD/GIS file containing 3D polygons to define markout (also known as “mask”) areas. It generates a new set of partially marked-out raw images and a new Summit project that references the new images. (April 5, 2023)

   Marking out (or masking) has typically been done to orthophotos in later processing stages; with **Markout Exclusion Areas**, it can be done to raw imagery, so that the result is still a stereo raw imagery project. This enables individuals who have lower security clearances to view and digitize in stereo in the remaining, unmarked parts of the stereo models.

*Example 1, a.) 3D **Markout Exclusion Area** polygons drawn around sites in the original stereo raw image models (shown rotated to the stereo model’s kappa and zoomed in)*



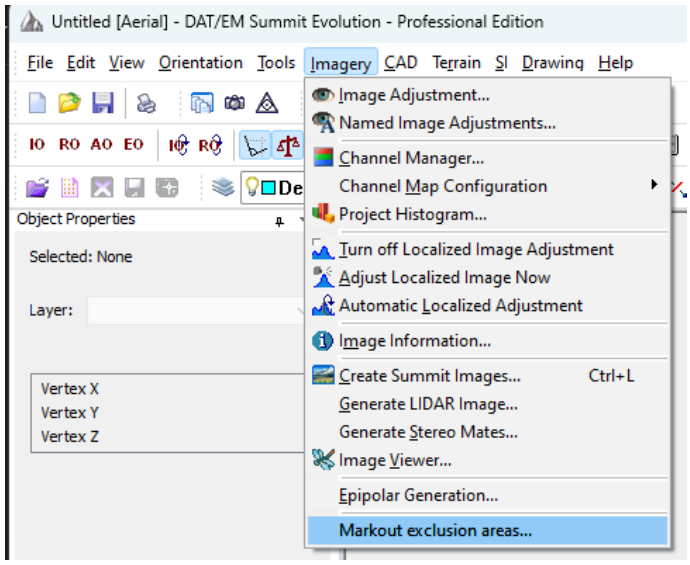
Example 1, b.) Resulting marked-out left and right images shown separately in DAT/EM Viewer windows. These two images make a stereo model in the resulting marked-out Summit project.



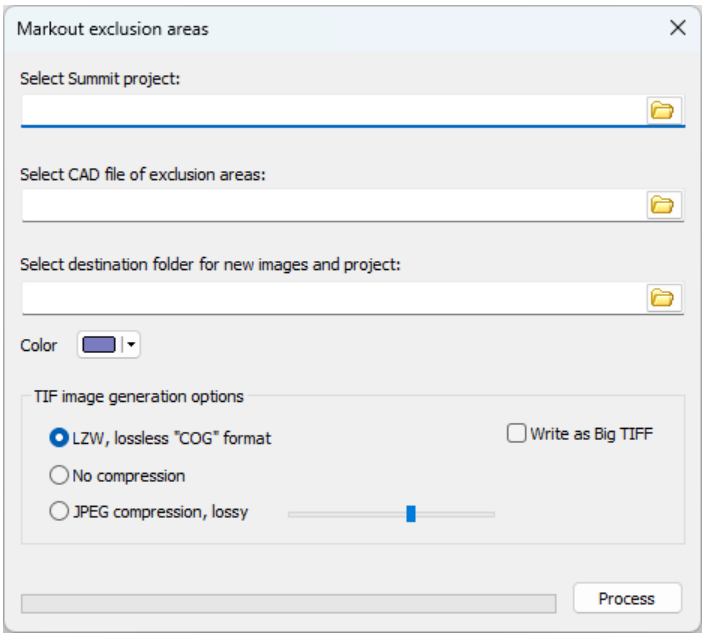
*Example 2: 3D **Markout Exclusion Area** results based on building polygons*
(This shows a regenerated raw image that is part of a stereo pair. It is not an orthophoto.)

Note: An image that has either no orientation or no polygon coverage will simply be copied. To prevent copies from being made by mistake, DAT/EM recommends you reserve time to do quality control checks at various stages: In the original Summit project, in the polygon distribution, for polygon integrity (such as to find unclosed polylines in AutoCAD format), and in the final marked-out project. There are some hints below for various checks.

To use the new tool, select **Summit Professional** > **Imagery** > **Markout exclusion areas**.



*New **Markout exclusion areas** option on the Imagery menu*



*New **Markout Exclusion Areas** tool dialog*

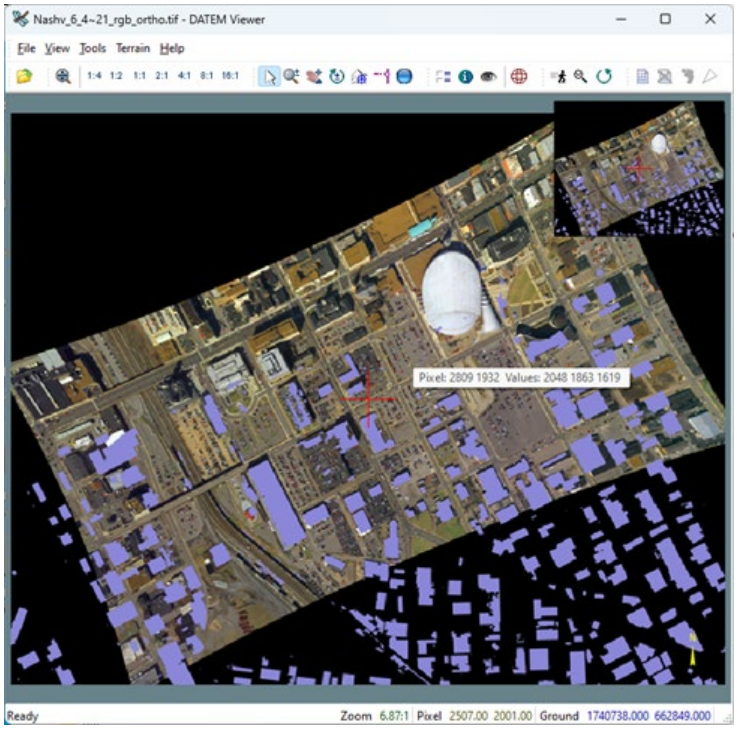
Make settings in the dialog and process the marked-out imagery:

- **Select Summit project**: Browse for any Summit .smtxml project.

  Note: The project must be complete. The paths to referenced images and camera(s) must be current. The project's models must have full orientation and be able to show "Ground" coordinates in the lower right corner of Summit's display when each model is open.

  Note: Any Summit project type will work to generate the marked-out images; however, projects with images that contain embedded orientation information, such PCI/CATALYST PIX imagery and satellite images with embedded RPC information, will not write the embedded information into the marked-out images. For ADS40-format projects, it will make a new marked-out image set that may be substituted for the original images, but it will not make copies of the SUP, ODF, ODF.ADJ, or CAM files.

Note: Technically, even a Summit "Orthophoto Feature Collection" project will work, but the tool was not especially designed for rewriting orthophotos. It will still retain the geographic information and the marked-out image will still be an orthophoto; however, the marked area applies to the whole image. The results may look strange in a rotated orthophoto that has background color and for polygon input over the background color area. Example:



*Example result of the **Markout Exclusion Areas** tool on a rotated orthophoto that has exclusion polygons in the background color area. It was not especially designed to run on orthophotos. It was designed to work best with raw images in a Summit stereo project.*

- **Select CAD file of exclusion areas**: A CAD file that has the 3D exclusion closed polyline/shape/polygon areas. Formats accepted: DWG, DGN, DXF, and SHP. The term for a polygon varies depending on the source CAD/GIS, but we will refer to them all as "polygons" in these instructions.

  Note: If the polygons are only 2D (x,y), then you will need to make them 3D (x,y,z) with a elevation source (DTM/DEM file) and one of DAT/EM's ELEVATE commands or a third-party drape function. Having elevation in the polygons is essential.

  Note: The CAD file should only include the polygons to be used for marking out. The interior of all polygons on all layers/levels will be processed as markout areas. For simplicity, the tool does not offer layer selection.

  Note: You may optionally use the original Summit project and DAT/EM Capture for CAD/GIS or Summit's built-in DAT/EM Drawing Tools to draw the polygons in 3D.

  Note: Optionally use DAT/EM MapEditor for AutoCAD or MicroStation to ensure all the polygons are closed polylines or are shapes.

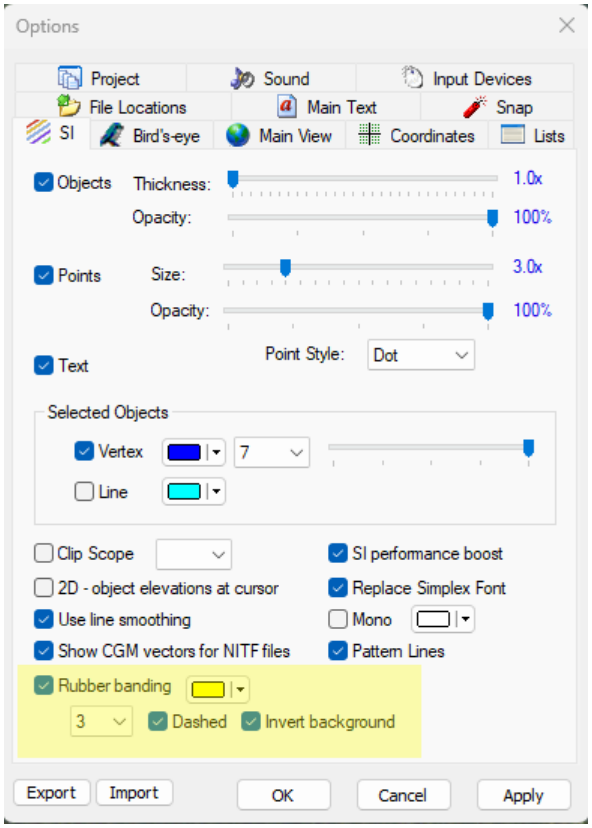
  Note: Optionally perform a Quality Control (QC) check of the polygons and/or the final, marked-out images by opening the CAD/GIS file in AutoCAD, MicroStation, or ArcGIS (whichever one is provided with your Summit Professional). Use the XYZOUT or VISIT tool to generate a Visit file of the starting point of each polygon in the file. Use this Visit file in VISIT later to check the input polygons or look at the marked-out areas in the new project. If you have questions about these tools, please ask DAT/EM Support. As an alternative, use an (x,y,z) list of the polygon locations and Summit's Point Collector tool to visit the locations in Summit (without CAD/GIS).

- **Select destination folder for new images**: The marked-out images and new Summit project will be written to this folder. The Summit project is almost a copy of the original, except it references the newly generated, marked-out images.
- **Color**: Select the markout color, which will fill in the polygon areas in the output images. The default is pure black. We suggest you use a color that is not likely to be found in nature or in human construction – such as magenta, pure white, or pure black -- so it will not be the same color as any pixel colors remaining in unmarked areas.
- **TIF image generation options**: Choose specific COG or TIF format options. Notes:
    - If you turn on Jpeg compression for 4- or more-band imagery, the output will be 3-band imagery. The JPEG compression standard does not support more than 3 bands. If you want to retain 4 or more bands in a TIF, do not turn on JPEG compression.
    - COG has lossless compression and can be used for any number of bands. With COG, all images will be 3-band or greater. Gray single-band images will become color.
    - Check on **Write as Big Tiff** for TIF output if the output images are likely to exceed ~4.2GB. You can use the original image size as a guide for the BigTiff setting, but keep in mind that if the input image is greatly compressed and the output image is not compressed, the output image could be larger than the input image. If you are not sure, try one model as a test.
    - If the output image has more than 3 bands, the markout color in 4th and higher bands will be set to **0** in those bands. Only the first 3 (RGB) bands can be set to the color you selected in **Color**. If you need to use or set higher bands to a color other than **0**, contact DAT/EM Support for information on rewriting the image with DAT/EM Image Creator.
- Select **Process**. The algorithm will convert Ground to Pixel for each polygon using the stereo model. If any polygon is on the image, it will regenerate the image using the pixel version of the polygons to mark out the image. If no polygons are found on the image (or the image is missing orientation!), then it will only be copied.

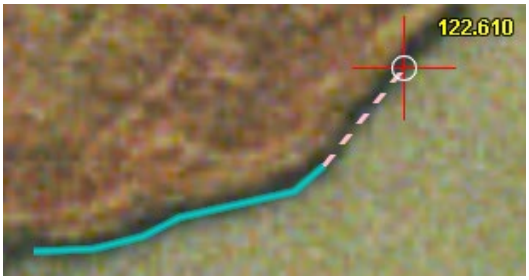
  Note: A QC check is suggested to make sure the imagery has been properly marked out. Open the new project in Summit Professional. Visit the polygon locations using an automatic move tool such as Summit's Point Collector or Capture's VISIT.

2. Superimposition (SI) rubber band color and appearance have more custom settings: (December 13, 2022)

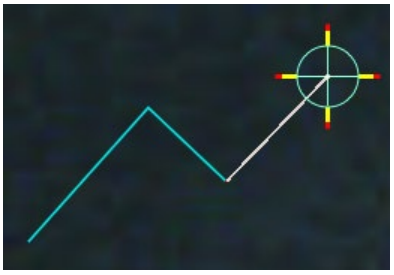
    a. **Summit** > **Tools** > **Options** > **SI** tab > **Rubber banding width**, **Dashed**, and **Invert background** options are new. These are various methods to help you to better see the rubber band against a variety of background colors and textures.

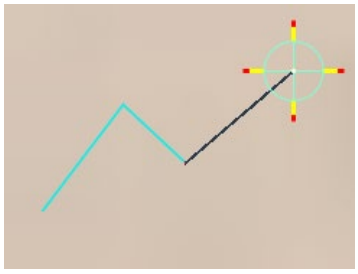


New settings added for the superimposition rubber band



*Example of the rubber band set to a single color (pink), width of **3**, and **Dashed***





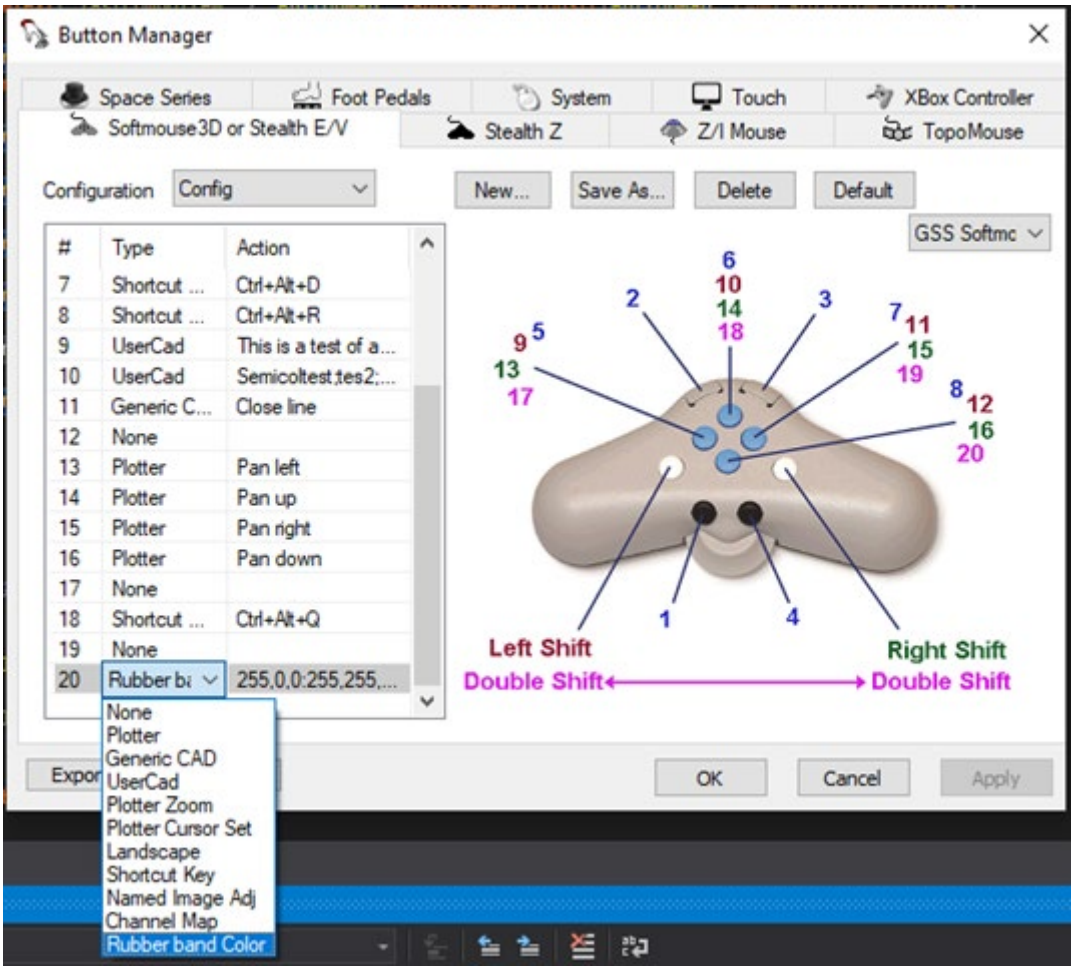
*Example of the rubber band set to **Invert background***

The inverted rubber band has multiple contrasting colors over multiple background colors

b. Button Manager has a new **Rubber band Color** type. This lets you use a button to scroll through a list of custom rubber band colors. Every time you press the button, the next-listed rubber band color will be applied, even during active drawing. The syntax for the Button Manager **Action** color list is:

R1,G1,B1:R2,G2,B2:R3,G3,B3:…Rn,Gn,Bn

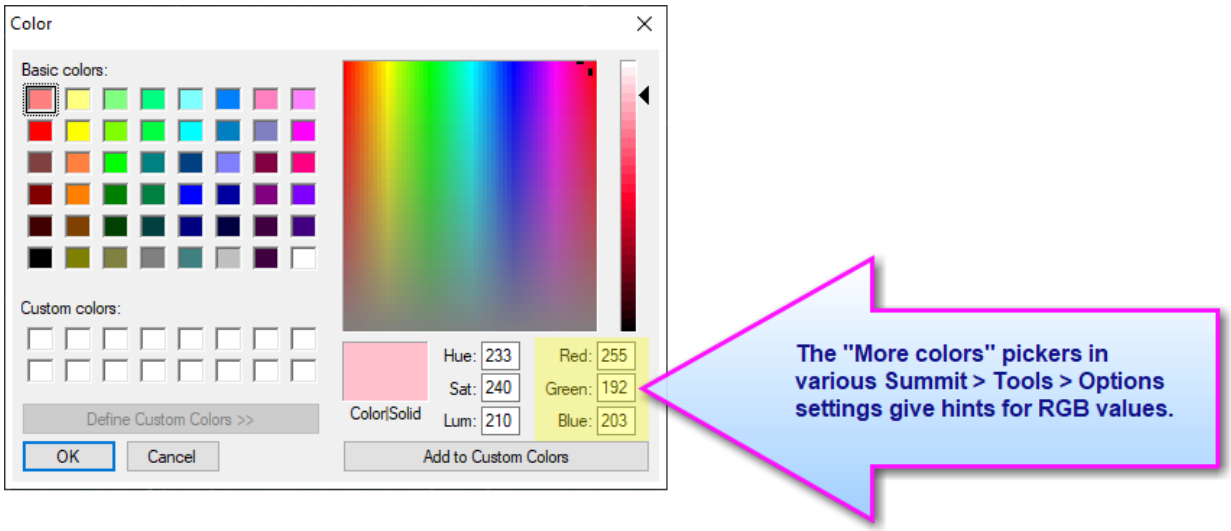
…where "n" is the number of colors in your list. These are 8-bit values, so the values go from 0 to 255. A comma **,** character separates the color values. A colon **:** character separates the color sets.



*New **Rubber band Color** type in Button Manager*

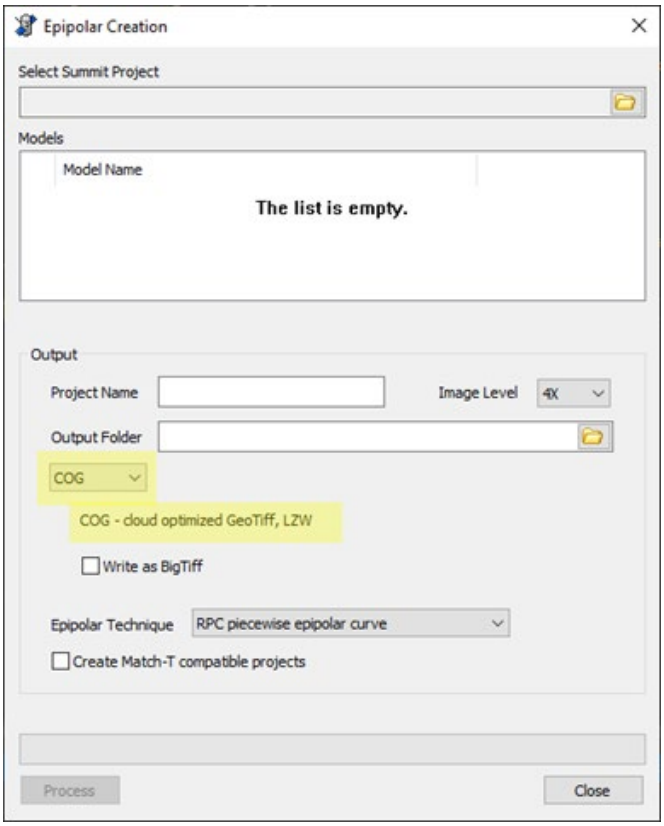
To use:

- ✓ Determine the 8-bit RGB values of the rubber band colors you wish to set. If desired, use the Rubber banding color picker in **Summit** > **Tools** > **Options** > **SI** tab > **Rubber banding** color picker > **More Colors** button – or any color picker in any dialog, or an Internet search such as "Yellow RGB values" -- to find the RGB values of colors you like.



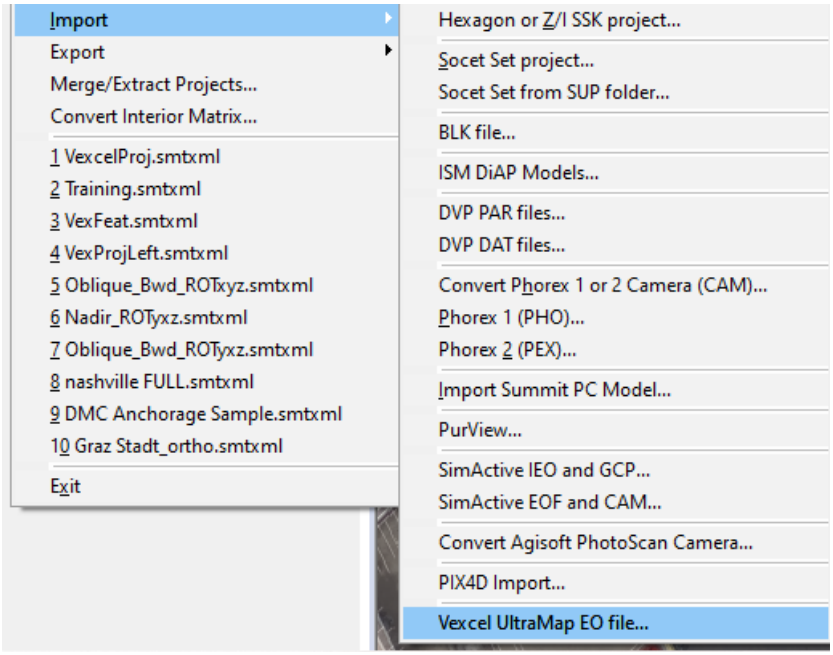
- ✓ For example, if you like red, yellow, black, and pink, these colors are:
  - red=255,0,0
  - yellow=255,255,0
  - black=0,0,0
  - pink=233,240,210
- ✓ Start **Summit** > **Tools** > **Button Manager** and set a button to **Type**=**Rubber band Color**.
- ✓ Set **Action**=**255,0,0:255,255,0:0,0,0:233,240,210**
- ✓ During drawing, use this button whenever you would like to set the next-listed rubber band color. For example, you could use it when the image colors change from dark to light, so that you set a better-contrasting rubber band color.

3. **Summit** > **Imagery** > **Epipolar Generation** has a new option to output **.COG** format.

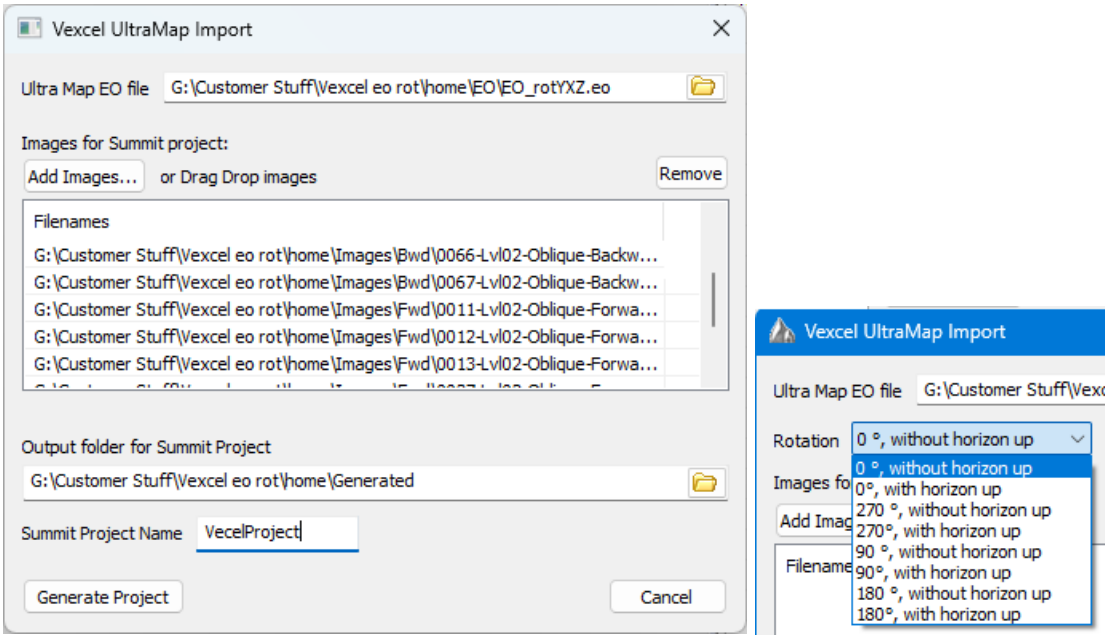


*New option to output **COG** format from the Epipolar Creation dialog*

4. There is a new import tool for Vexcel UltraMap .eo Exterior Orientation (EO) files. To use, select **Summit** > **File** > **Import** > **Vexcel UltraMap EO file**. (October 5 and November 6, 2023)



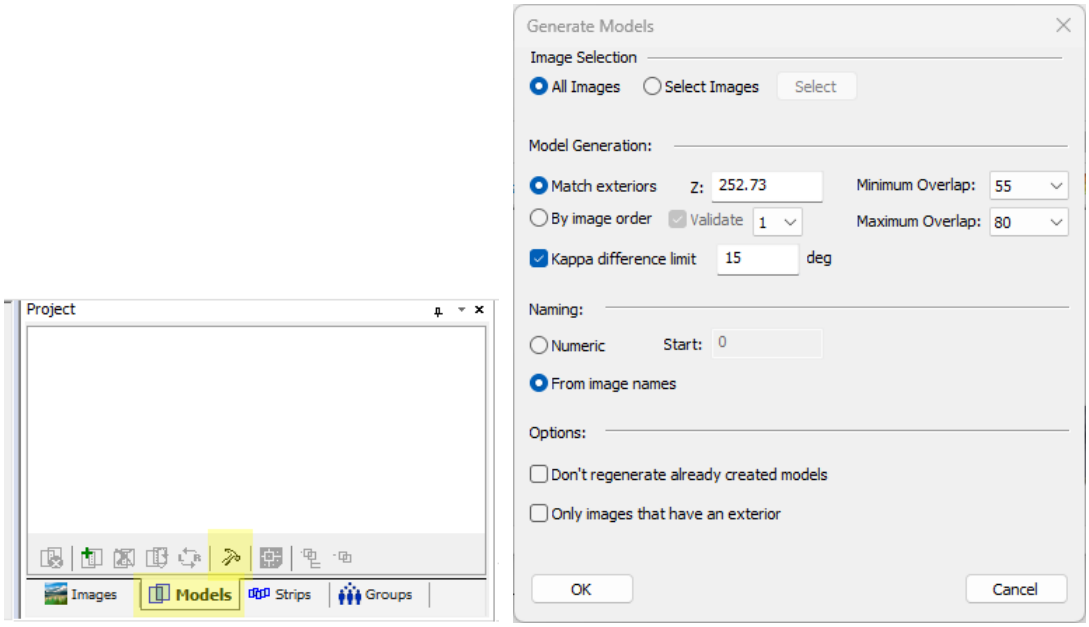
*New **Summit** > **File** > **Import** > **Vexcel UltraMap EO file** option*



Vexcel UltraMap Import *dialog (left) with addition of* ***Rotation*** *angles (right)* (November 6, 2023)

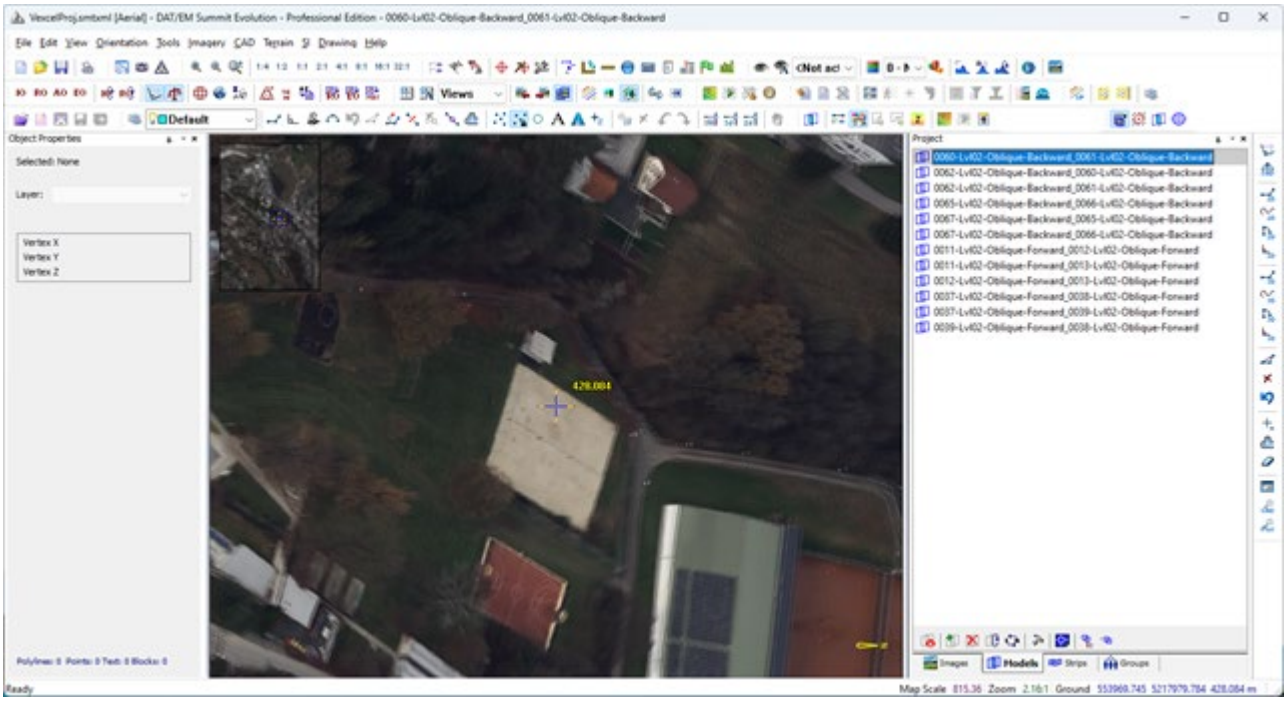
- ✓ First, select the .eo file. Either use **Add Images** to browse or drag and drop the images into the dialog. Add only the images you want, for example, this could be the Nadir images, or Left and Right images, or even all the images from all the camera directions.
- ✓ Next choose a **Rotation** (November 6, 2023). The user must know the rotation angle and horizon up setting used in UltraMap; this information does not exist in the .eo file, so DAT/EM cannot set it automatically.
- ✓ The images will be matched automatically to the respective camera and exterior orientation information in the .eo file. The exterior angles are converted from YXZ to XYZ Euler angles. The matching is done by using the image names to find the corresponding exterior values and camera information in the .eo file.
- ✓ Select an output folder and a name for the new Summit .smtxml project.
- ✓ Select **Generate Project**. It will make a Summit project and all the camera files. There will be multiple camera files, which match each of the camera files for each of the camera heads listed in the .eo file.

Once the resulting project is open in Summit, select the **Project** window > **Models** tab > **Generate Models**. Set model generation criteria that will work well for the flight layout, for example:



Generate models for the imported .eo project

The resulting project will look something like this:



Example of imported Vexcel .eo project with models generated

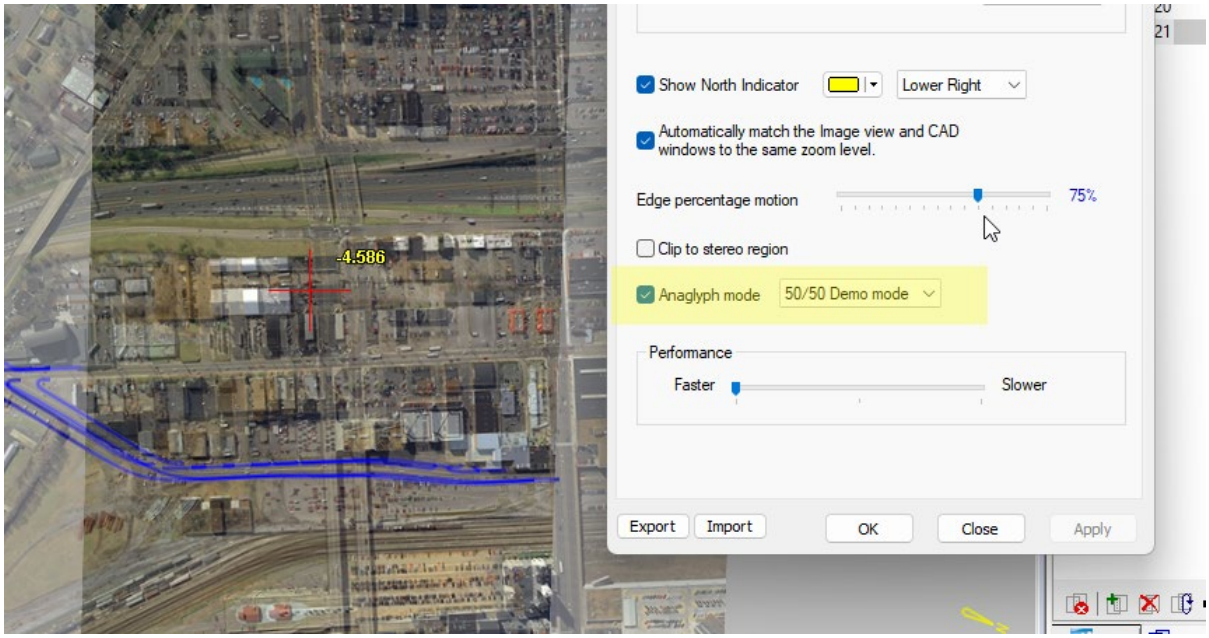
(Optional) If you would like to work with the different camera head images in separate Groups, typically also with multiple viewports, use the **Project** window > **Groups** tab to generate groups. Make a separate Group for each of the images from each of the camera heads. Then use **Summit** > **View** > **Multiple Viewports** to set the number of viewports to the number of Groups you made. Drag a model from each Group on the **Groups** tab into each viewport. Models will only automatically change within the open Group in the viewport if a model from a Group is open in the viewport. For example, if you drag a Forward Group-tab model into a viewport, that viewport will only change models to other Forward models.

5. The **Summit** > **Orientation** > **Tie Points** > **Quick Points** > **Label using image names** option will now replace any spaces in the image names with an underscore **_** character. Previously, there were two problems with this option when the project images contained spaces, 1) Only the part of the image name up to and including the first space was added to the point name, and 2) **Tie Points Bundle Adjustment** would not run if the point names contained any spaces. (December 15, 2022)

6. The **Summit** > **Help** > **Release Information** option has been replaced by **Help** > **DAT/EM Administration Tool**. The Administration Tool shows more detailed release information than the stand-alone Release Information application. (November 9, 2022)

7. **50/50 Demo Mode** is a new option in **Summit** > **Tools** > **Options** > **Main View** > **Anaglyph mode**. It is designed to demonstrate that there are two naturally colored images when showing Summit without a stereo display. It is not a true anaglyph mode and there are no special glasses for it; indeed, there is no way to see stereo in **50/50 Demo Mode**. It might be used to show the concept of stereo during an Internet webinar, for example. (June 5, 2023)

   Note: This mode can also be used for screen captures, but for advanced screen capture options, see the special stereo-, project-, and model-specific options in **Summit** > **File** > **Print**.



***50/50 Demo mode** can demonstrate that there are two naturally colored images in a non-stereo display*

8. Summit could sometimes send only two vertices of a triangle to the video card. Most video cards would ignore or correct this and would not have a problem, but it had the potential of causing a crash in some video cards. Three vertices are now sent to the video card for all triangles. (October 5,2023)

Terrain Project Tools (except Point Cloud)

9. Terrain Projects and Terrain Project-related subjects (except Point Cloud) have the following changes. Note: Point Cloud application items are in the next section of this document.

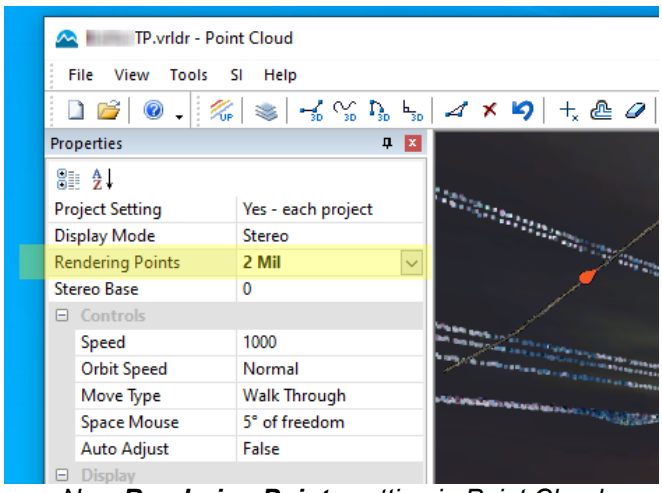
   a. The Terrain Project creation tool has an additional launch option, Windows **Start** > **Datem Software** > **Create Terrain Project**. (November 21,2022)

   b. The display of surrounding points would not work if **Terrain** > **Terrain Project Options** > **Clip Radius** was checked on. This is fixed. (November 3, 2023)

Point Cloud Application

10. Point Cloud has the following changes:

    a. Point Cloud now allows you to set how many points will render. It was previously hard coded to 500,000. The default is now 1 million and can go up to 5 million. New, recommended video cards may be able to easily handle 5 million. Please let DAT/EM Support know if performance degrades, and if so, which setting is used and which video card model it is. (December 12, 2022)



*New **Rendering Points** setting in Point Cloud*

Superimposition

11. Superimposition (SI) has the following changes:

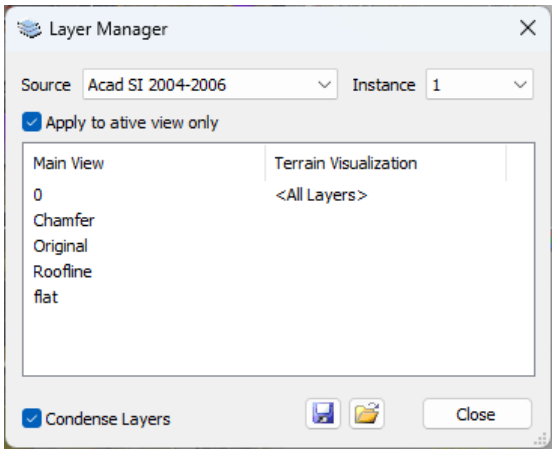
    Additional CAD/GIS-specific SI changes may appear the Capture sections.

    a. See the SI rubber band enhancements listed above.

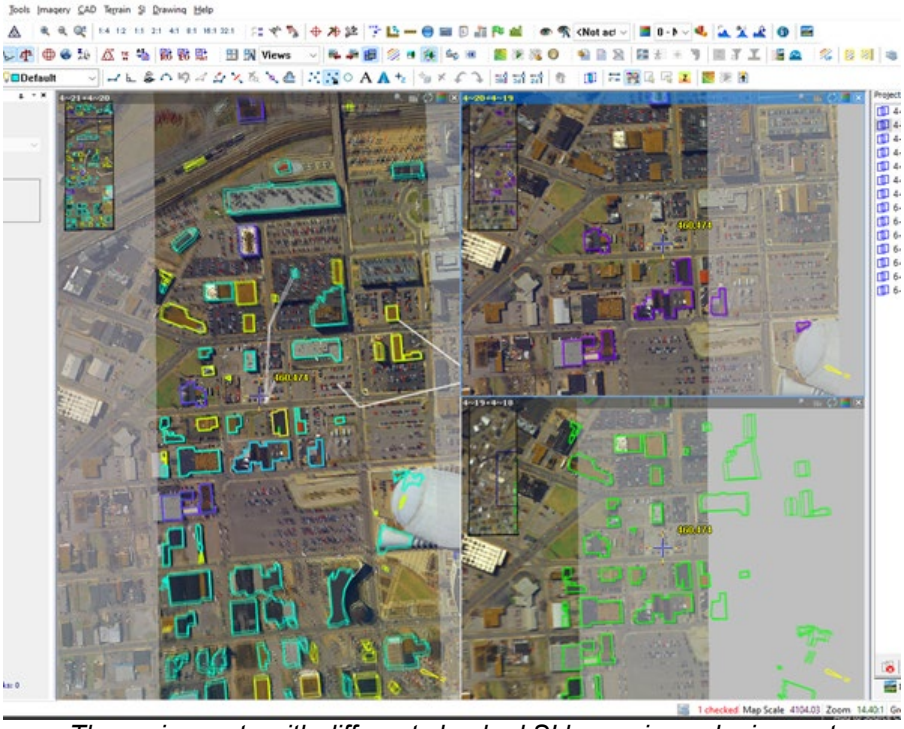
    b. **Summit** > **SI** > **Layer Manager** has a new option to **Apply to active view only**. The active view (viewport) is the viewport that currently has the blue title bar. When the setting is on, any settings made in the SI Layer Manager apply to that viewport only. (August 1, 2023)

    This setting only works when **Summit** > **View** > **Viewports** > **SI objects in all viewports** is on.

    This setting is useful when multiple years of imagery are in multiple viewports and the CAD/GIS file contains multiple year-named layers. For example, imagine a “Summit Solution File” that has imagery from three different years. The images are separated into Groups by year and one year is open in each of three viewports. Open the CAD/GIS file that contains all the years’ layers. Set **Summit** > **View** > **Viewports** > **SI objects in all viewports** on. Start **Summit** > **View** > **Layer Manager** and check on the **Apply to active view only** setting. Click on a viewport to give it focus indicated by a blue title bar. Click directly on the SI Layer Manager’s **Main View** layer list. Check on the specific layers for the focus viewport. When finished, the settings will be applied in the focus viewport only. Repeat for the remaining viewports.



*New **Apply to active view only** setting in the SI Layer Manager*



Three viewports with different checked SI layers in each viewport

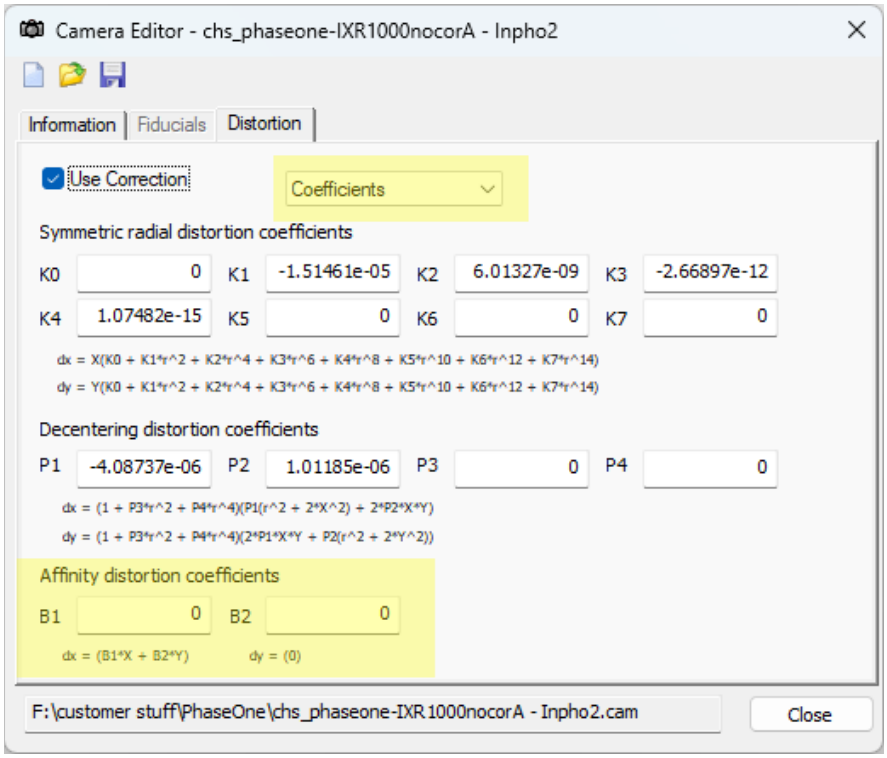
Note: These per-viewport settings are temporary. They are not saved in the registry per viewport. Only the most recent SI Layer Manager settings will be active in all viewports when Summit is closed and reopened. If you restart Summit and want the same per-viewport settings, set them again.

When **Apply to active view only** is off, any settings in the SI Layer Manager apply to all viewports.

Aerial Projects (traditional, UAS, and imported)

12. Aerial projects (traditional and UAS) have the following changes:

    a. The Camera Editor for aerial cameras has renamed the **12 parameter** distortion method to **Coefficients**. With the addition of B1 and B2, it now has 14 parameters. This matches the method used by PhaseOne and Trimble's Inpho Photogrammetry Suite software. The dialog now looks like this:



"12 parameter" is now "Coefficients" with 14 parameters, adding B1 and B2

The name inside the Summit camera file has not changed. It is still stored as **DISTORTION_12PARAM:** (with 14 or 12 values following in the file).

This change is only partially backwards compatible to earlier versions of Summit. Older Summit versions will still read the distortion type as the old "12 parameter", but they will only use the first 12 values, as if B1 and B2 are 0. Newer Summit versions will always write out all 14 values and will read 12 or 14 parameters; if 12 values are in the file, then B1 and B2 will be set to 0. (March 29, 2022)

    b. **Summit** > **File** > **Import** > **Hexagon or Z/I SSK** can now detect an additional image rotation of 180 degrees in the imported file set. The angle will be set for the images without rotating the imported point measurements. By contrast, if the user set 180 degrees for the images in the Project Edit dialog after import, the images and the point measurements would be rotated. (November 20, 2023)

Satellite RPC and Epipolar Generation for All Compatible Projects

13. Satellite RPC projects / Epipolar Generation for all compatible projects have the following changes:

    a. **Summit** > **Imagery** > **Epipolar Generation** previously required that the input project have a coordinate system conversion set to the final projected coordinate system. It would then output a Summit "EpipolarGen" type project that did not allow you to set any further coordinate conversion. If you wanted a different coordinate system than you had originally set, you would have had to reset the output coordinate system in the input project and re-run the epipolarization process. For RPC input projects, this meant that **Summit** > **Orientation** > **Coordinate Conversion** would be set to convert WGS84 to a projected output

system and coordinate conversion was checked on *before* running **Summit** > **Imagery** > **Epipolar Generation**. This is changed so that: (February 10, 2023)

- **Summit** > **Orientation** > **Epipolar Generation** can be run with an input project that either does or does not have a coordinate conversion set.
- **Summit** > **Orientation** > **Coordinate Conversion** can now be (optionally) set in the output EpipolarGen project that is made by **Summit** > **Orientation** > **Epipolar Generation**.

The changes affect the two existing methods in **Summit** > **Imagery** > **Epipolar Generation**, which are:

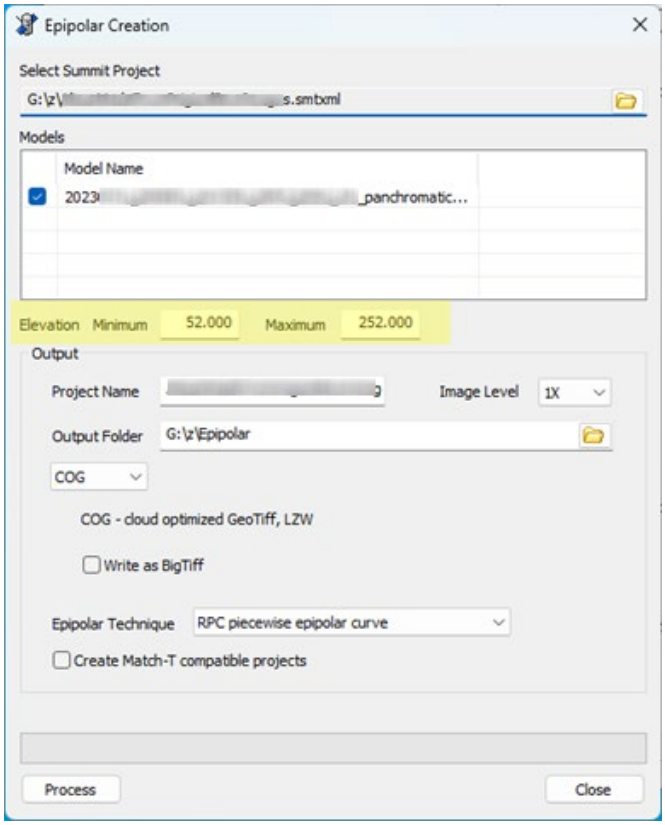
- "**RPC piecewise epipolar curve**", which only works on RPC orientations. It results in a new project with a newly calculated RPC for the new epipolar imagery.
- "**Piecewise epipolar curve, object space**", which is the more generic method. It can work with many orientations, including RPC and typical aerial projects. It outputs two new projects: 1) An **EpipolarGen** project, which works by using the original orientation (whether it is RPC, aerial, or something else) and contains polynomial information to go from the original pixel to an epipolar pixel, something like this: Ground -> original image pixels -> Epipolar image pixels. 2) An **RPC project**, which has "_rpc.smtxml" appended to the filename. Note! DAT/EM software engineers do not recommend using this second option, or if you do, check it very carefully. In theory, most models could be regenerated using RPC, but this is a possible point of failure, since the RPC is recalculated.

Example 1: You could choose "**Piecewise epipolar curve, object space**" for a satellite RPC project that does not have a coordinate conversion set. This will result in an EpipolarGen project that will be in WGS84 (default RPC coordinates). In the resulting EpipolarGen project, you can now change the coordinate system, for example, into UTM.

Example 2: You can now have multiple calls to coordinate system changes. For example, let's say you first set the original WGS84 RPC project to output UTM coordinates, then run epipolar generation. In the output EpipolarGen project, you set a coordinate conversion from UTM to U.S. State Plane coordinates. This would now be allowed and would work, whereas previously, you would have had to reset the input WGS84 RPC project to U.S. State Plane and re-run the time-consuming epipolarization process.

b. There is a fix for reading some (not all) of the RPC files provided with Airbus Pleiades NEO sensor projects. This was not obvious in the project used for the original development, but was noticeable in some newer projects. (October 24, 2023)

c. The Epipolar Creation dialog has new **Minimum** and **Maximum Elevation** entries. Previously, these values were automatically detected based on the RPCs and the elevation from the control file, but they were not displayed and could not be modified. DAT/EM received an RPC project where the detection could not work for the specific RPC files. To help the process calculate the correct values in most projects, add a control file to the project, even if it has only one "fake" Z control with an estimated average elevation for the project. The defaults when the dialog starts will be the automatically detected values; if they are wrong, enter the correct values.



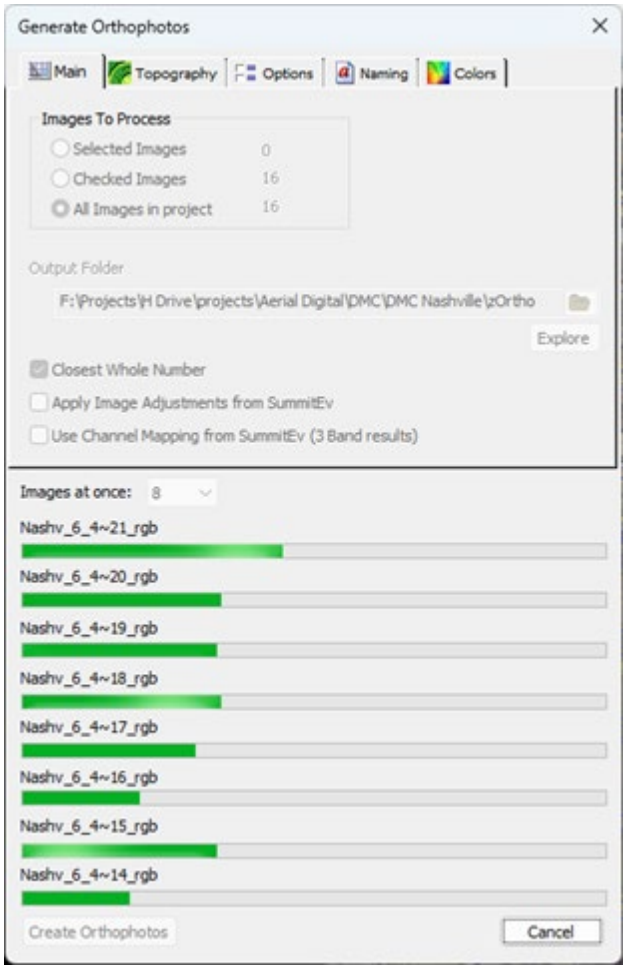
New Minimum and Maximum Elevation entries in Epipolar Creation

Project Viewer / Ortho+Mosaic

14. Project Viewer / Ortho+Mosaic has the following changes:

    a. In Ortho+Mosaic > Image Manager Window > right click menu > **Open image in viewer**, the path is updated to launch the newer 64-bit DAT/EM Image Viewer. (November 10, 2022)

    b. The **Images at once** setting for the number of images (threads) that can be processed simultaneously has increased from 4 to 8. Setting higher numbers may or may not be useful, depending on the Input/Output (I/O) speed of the hardware. In DAT/EM's testing, 8 threads were only 5% faster than 4 threads. Each thread after about 3 or 4 may give increasingly diminishing returns if there is an I/O bottleneck. There are more threads being processed, but they are not working as hard, because they must wait more for I/O access to be allocated to them. The result is not a big gain in speed (or CPU usage), but at the same time, it is not harmful, so you may try it to test the speed on your own hardware. At a certain point (probably not much past 8) using more threads will become slower due to context switching between threads and more excessive wait states. Based on these concepts and tests, we will not consider adding more than 8, even for 16-core processors (as of 2023). (June 19, 2023)



Ortho+Mosaic Images at once (threads) has increased from a maximum of 4 to a maximum of 8

LandScape

Landscape has the following changes:

1. The **LandScape** > **Help** > **Release Information** option has been replaced by **Help** > **DAT/EM Administration Tool**. The Administration Tool shows more detailed release information than the former stand-alone Release Information application. (November 9, 2022)

DAT/EM Capture for ArcGIS – 64-bit ArcGIS Pro

DAT/EM Capture for 64-bit ArcGIS Pro is compatible with versions:

- ***ArcGIS Pro versions 3.1.x that were released up to 15 November 2023.***
    - ***Do not use ArcGIS Pro version 3.2.0 or 3.2.1. In 3.2.0, Esri made an initial attempt to implement a 3D input device, which takes control of the system mouse and cannot be turned off. DAT/EM reported this issue to Esri. Esri did not yet issue a fix as of 3.2.1. DAT/EM will continue to review future versions.***
    - ***For any newer versions, contact support@datem.com to ask whether the version is compatible or to request access to DAT/EM v.8.3 beta for supported licenses.***
    - ***If both ArcMap and ArcGIS Pro are installed on the computer, Capture extensions will be installed for both. The ArcGIS Pro extension is installed, but not registered automatically. Use the DAT/EM Administration Tool > CAD Enabler to activate the extension on demand. DAT/EM recommends to only have one extension registered – for ArcMap or ArcGIS Pro – at one time, to prevent taking two licenses if they run at the same time and to be sure which application should take input from Summit.***

DAT/EM Capture for ArcGIS Pro has the following changes:

1. Due to technical differences between ArcGIS Pro version 2.x and 3.0 and again between 3.0 and 3.1, Capture for ArcGIS Pro is now only supported for ArcGIS Pro 3.1.x (with "x" as released by Esri within the two weeks before the DAT/EM Setup file was compiled). The extension name is called **CaptureArcPro3.esriAddinX**: (August 17 and 23, 2023)
    a. ArcGIS Pro 2.x is no longer supported for v.8.2 betas dated after 23 August 2023
    b. ArcGIS Pro 3.0 is no longer supported for v.8.2 betas dated after 17 August 2023.
    c. DAT/EM will not support Esri ArcGIS Pro v.3.2.0 or 3.2.1 due to incompatible ArcGIS Pro behavior that DAT/EM reported to Esri. We will wait for a future ArcGIS Pro release to have this fixed so that we may continue development.

    For any higher versions as Esri releases them, please contact DAT/EM Support to ask about compatibility.
2. The DAT/EM extension for ArcGIS Pro is now digitally signed. (October 23, 2023)
3. ArcGIS Pro uses the COM API, which did not support individual layer indexing until recently. Now that it does, Capture for ArcGIS will show individual layer names in **Summit** > **SI** > **Layer Manager**. Users can now turn off layers in Summit's superimposition while those layers are still on for display in ArcGIS Pro. (November 2022)
4. There is a new DAT/EM Systems setting to toggle superimposition shading inside polygons. (November 2022)
5. ArcGIS Pro identifies an underlying map as a layer, but it does not name the layer. This caused trouble in Summit's superimposition (SI) "SI Layer Manager," which queries the ArcGIS Pro for layers with their layer names. It could cause various issues in SI, such as (but not limited to) missing SI vectors and blank layer names in the SI Layer Manager. A workaround for the missing name is implemented. (February 22, 2023)
6. There was an error that prevented polygons from being created correctly. This is fixed. (February 28, 2023)
7. ArcGIS Pro draws overlays based on a grid defined across the map window. Previously, DAT/EM was only refreshing that grid when a superimposition (SI) Update was performed. The method is changed to refresh the grid any time the map window is reshaped. (March 8, 2023)
8. ArcGIS Pro could crash if it only had 2D layers and superimposition (SI) was refreshed. This was related to the timing of refreshing the SI Layer table for 3D and 2D layers, which did not work when all the layers were 2D. This is fixed. (April 3, 2023)
9. The sketch tools will now draw in superimposition using the correct color instead of black. (August 24, 2023)
10. The sketch tools will now draw in superimposition using the correct line weight. (October 24, 2023)

11. The DAT/EM-driven cursor in the ArcGIS Pro view has the following changes:

    a. The cursor location in the ArcGIS Pro view could be offset from the correct Summit location. There were multiple problems. The following are changes/workarounds:

    - The cursor could be offset following an ArcGIS Pro window shape change and/or after adding a docking window, which also changes the window shape. Since ArcGIS Pro drew its data objects in the correct location, but drew its cursor offset from its own data, it appeared that the cursor between Summit and ArcGIS Pro were offset from each other. DAT/EM now forces ArcGIS Pro to update its view. (March 8, 2023)

    - There could be a cursor offset in ArcGIS Pro due to a monitor having a Windows display scale setting other than 100%. At the time of this development with ArcGIS Pro 3.1.1 and older, there is a bug in Esri ArcGIS Pro's "WorldToClient" function that only partially takes the scale of the primary monitor into account. DAT/EM has added a workaround so that the cursor positions will match no matter how the monitors' scales are set. (May 31, 2023)

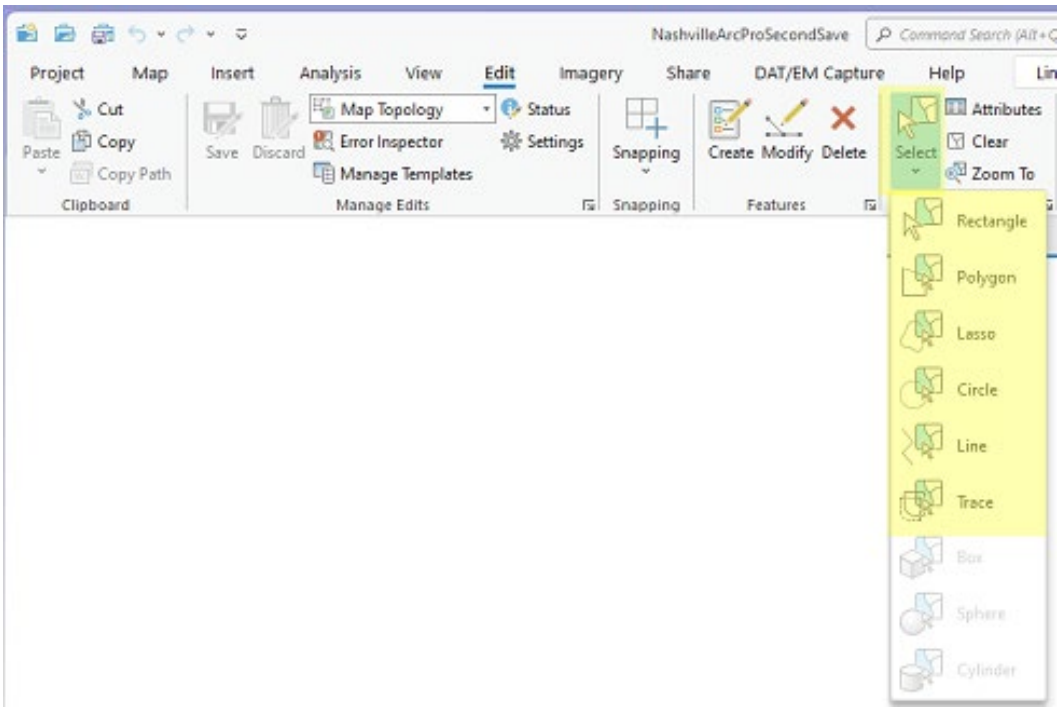
    Note: There could be more cases where the ArcGIS Pro view needs to be refreshed or sized differently; if you notice an offset between Summit and ArcGIS Pro using version 8.2 or an 8.2 beta dated after 1 June 2023, please contact DAT/EM Support.

    b. The cursor mark is increased size and color contrast.

    c. The Summit cursor may now be used for object selection and clearing a selection when the ArcGIS Pro “Select” tools (highlighted below) are active in the following ways:

        1. Use the Summit’s Pick button to select the object under the cursor.
        2. To clear the current selection, use the Summit “Cancel/Reset/Finish” button to pick on the same location twice.

    Note: The system mouse will still select objects in the ArcGIS Pro view as described by Esri for the active selection tool. (September 21, 2023)



When these ArcGIS Pro select tools are active, the Summit cursor’s Pick button selects the object at the cursor, and the double Cancel//Finish button clears the selection

12. ARC drawing is done with ArcGIS Pro's arc sketch tool in combination with DAT/EM Capture Settings' Stroking tab settings to simulate arcs with a series of small segments. The Stroking settings will now be applied correctly to create nicer looking simulated arcs. (November 9, 2023)

13. CLIP SEGMENT is a new tool in Capture for ArcGIS Pro. It removes a series of vertices from a polyline or polygon (referred to as the "target object"). If the target object is a closed loop, then the longest part of the target object is kept. The first picked point selects both the object to be edited and inserts a vertex that becomes the first point in the part to remove. The second picked point is inserted into the target object and all vertices between are removed. To clip off the shorter end of a line, pick the second point beyond the end of the line. The tool automatically overrides the snap settings if they are not already on. The tool remains active until another tool is selected. (August 23, 2023)

Clip Segment 1) Select the first break point on a line or polygon.

Clip Segment 2) On the same line or polygon, select the end of part to remove. To remove the part at the end of a line-geometry object, pick beyond the end of the line on the end to remove.

Clip Segment 3) The section is removed and the tool waits for the next clip selections or for another tool to start.

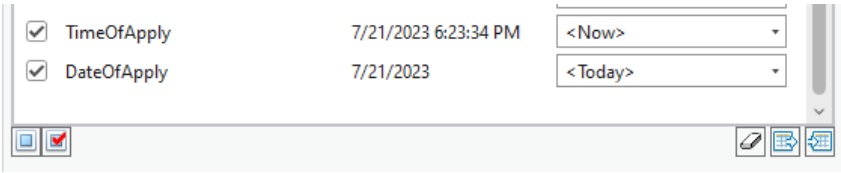
14. The ArcGIS Pro-side **DAT/EM Capture Settings** > **Streaming** setting for the Stream digitizing mode now default to **Streaming Requires Both XY and Angle** on. (October 3, 2023)

15. FIELD UPDATE is a new tool in Capture for ArcGIS Pro 3.x. The non-case-sensitive keyword to use on the DAT/EM Keypad and UserCad Button Manager buttons is: (June 30 and September 20, 2023)

FieldUpdate

It is very similar to Field Update in Capture for 32-bit ArcGIS ArcMap, with a few key differences. We will discuss these differences here:

- The biggest difference is that ArcGIS Pro supports multiple objects of the same layer at once. When measuring the field values, the Layer, Object Identifier (OID) of the current object, and Field name are displayed in the prompt on both the Summit and ArcGIS Pro sides.
- Field Update has new automatic date and time stamp field options, <Now> and <Today>, which fetch the date and/or time stamp at the time the **Apply** button is used. (Previous versions in 32-bit ArcMap did not have these options.)



*New automatic fields **<Now>** and **<Today>***

- **Export** and **Import** use slightly different file formats than the 32-bit Capture for ArcMap version. The **File Version** is now **2**, and the class identifier is the layer name rather than the layer's COM ID. This is a little more flexible than the old method, since you may want to carry values over to projects with different, but similar layers. ArcGIS Pro's Field Update will put up an error if they try to load a Version 1 file.

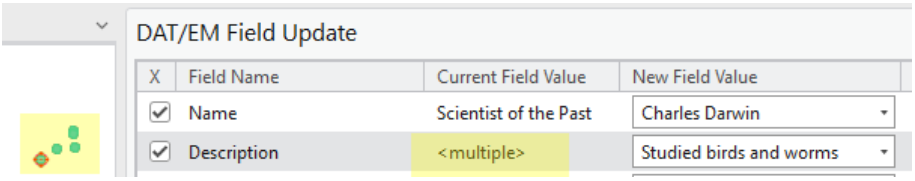

```
# Field Update Values
# Written: Monday, June 26, 2023 3:54 PM
File Version: 2


#Format description
# '#' indicates a comment
# ClassName: (layer name) begins a new layer
# Field: (field name); values separated by ;'s


ClassName: 3dPolygons
Field: Name; Nikki; Fred; Frank; Ralph; buy; gabe; 2E; boge;
Field: DateCreate; "8/28/1963"; "8/29/1963"; "8/30/1963 13:00";
```

To use Field Update:

- ✓ Select one or more objects. If multiple objects are on different layers, the field list will only show the field list for the first object found in the selection. (If objects on different layers have different fields you want to edit, select them by unique layer later.) If multiple objects are selected and they share the same field value when selected, the value will appear in Current Field Value column; if they are different, it will display **<multiple>**.



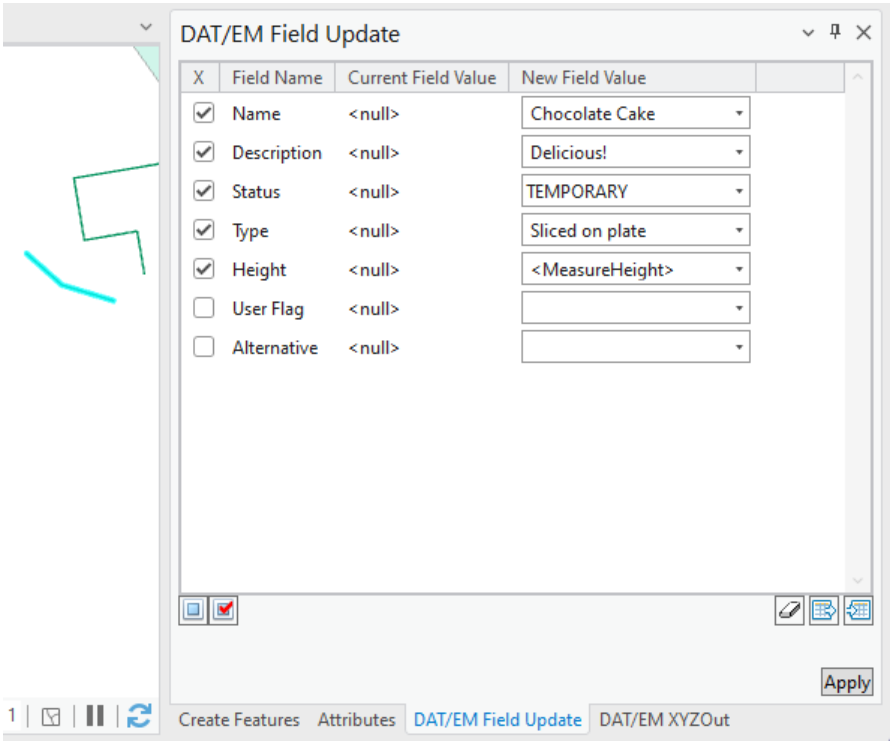
***<multiple>** indicates multiple selected objects initially have different field values*

✓ Select or enter new field values in the **New Field Value** column.

- The entered field's checkbox will select automatically when its **New Field Value** is changed*.

  * Important! Use the **<Enter>** or **<Tab>** keyboard key when finished with the **New Field Value** entry. If the cursor is still at the end of the keyed-in text or if you click into a different field, the box will not be checked automatically and the entry will not be applied.

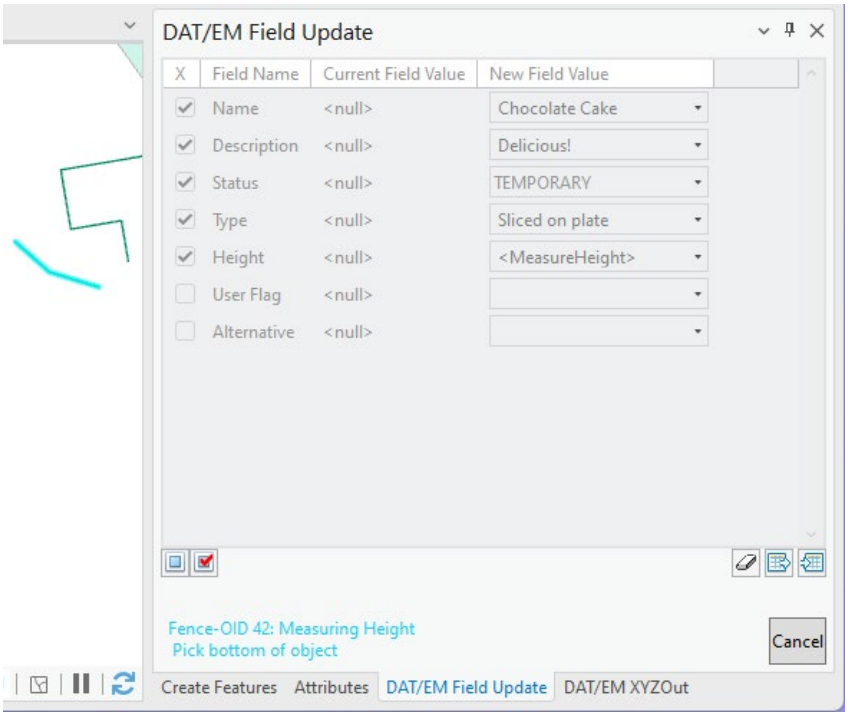
  Fields that have a series of allowed values will offer those values in the field's pull-down meu to the right of the field entry. If a field is longer than the display, hover the system mouse over the **Current Field Value** display and a tool tip will display the full content. For compatible field types, automatic or measurement-style fields will be offered, such as **<MeasureHeight>**, which will prompt for a measurement for each selected object after **Apply**.



***Field Update** taking entries in **the New Field Value** column (before **Apply**)*

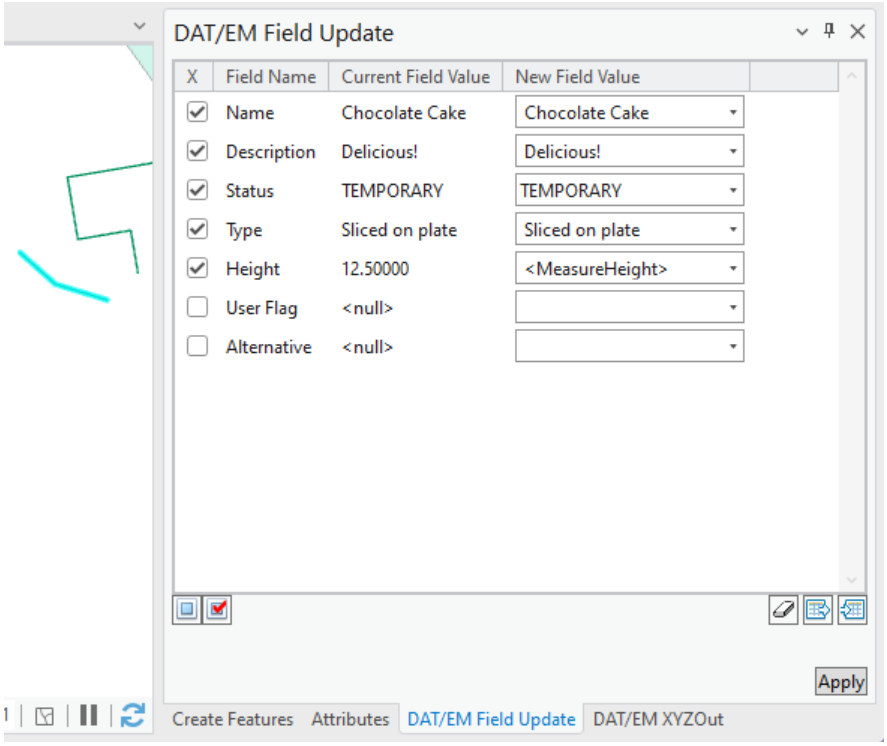
✓ Select **Apply** on the dialog or use a Keypad or Button Manager button set to the **Apply** keyword.

✓ If any field settings require a measurement, a prompt will appear in the lower area of the dialog; follow the prompts to measure the value. Summit will move to each object that requires measurement. If multiple objects were selected, each will require a separate measurement for each checked measurement-type field.



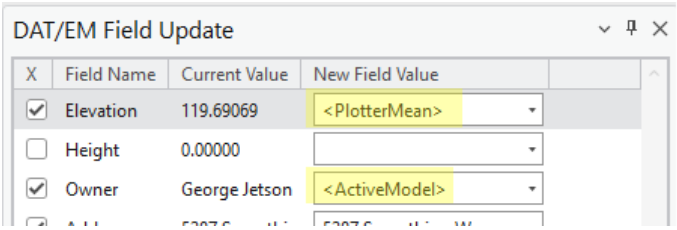
*Example of the **<MeasureHeight>** field prompt after **Apply***

The **New Field Values** will now appear in the **Current Field Value** column. Unchecked fields remain unchanged. The values that were applied remain in the **New Field Value** column and will be available later in the pull-down menu of previously used values (if applicable).



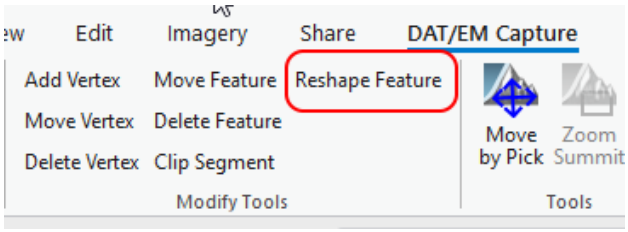
The Current Field Value now shows the fields were applied.

As of 20 September 2023, Field Update supports two new automatic fields: **<ActiveModel>** for string fields and **<PlotterMean>** for double fields (these were previously available in Field Update in Capture for 32-bit ArcMap):



New automatic fields <PlotterMean> and <ActiveModel>

16. RESHAPE FEATURE (DAT/EM version) is a new tool modeled after ArcGIS Pro's Reshape tool, except that it uses the Summit cursor for input and can work with the DAT/EM square, arc, and streaming modes. (October 4-5, 2023)



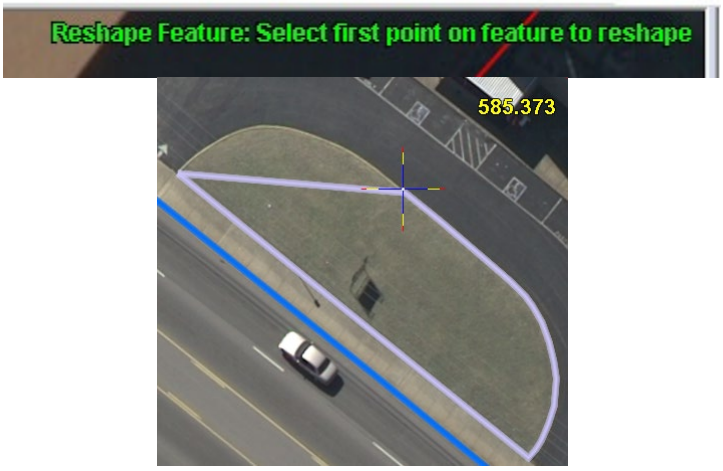
The first Summit Button Manager **Plotter**/**Pick** button selects the feature being edited and, in the case of multiple parts on the feature, which part is being edited (such as an interior or exterior ring of the same feature). It is also the first point in the reshape.

It over-rides the active snap settings for the first point, but uses the active snap settings for all other points. A **Generic CAD**/**Undo** button will undo the last pick. A **Generic CAD**/**Cancel** button completes the edit.

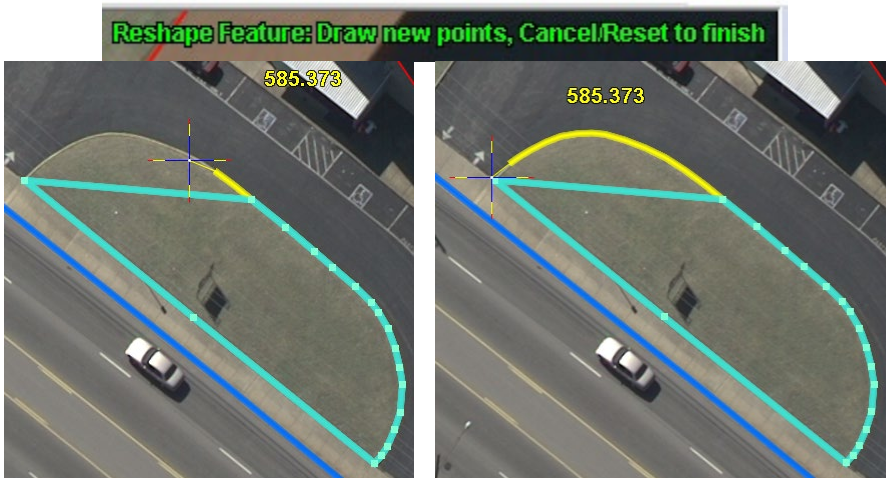
The non-case-sensitive keyword to use with the DAT/EM Keypad and Button Manager buttons is:

datem_reshapefeature

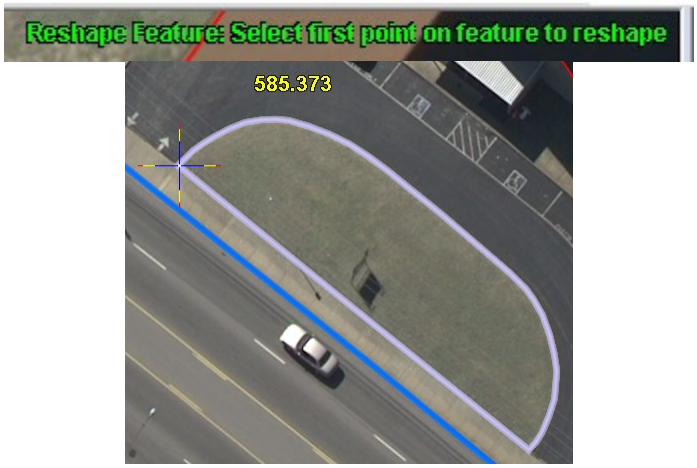
Reshape Feature draws the temporary lines in Summit's superimposition only. It does not draw them in ArcGIS Pro's view.



Reshape Feature 1) Pick the first point on the feature where the reshape will begin

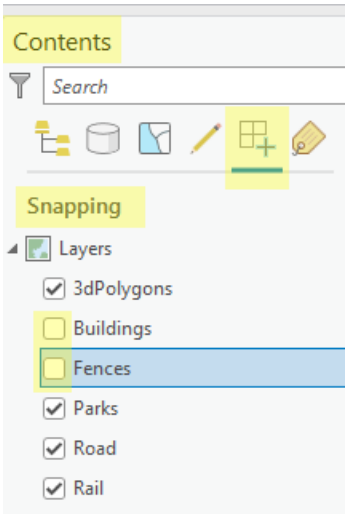


Reshape Feature 2) Draw the new edge



Reshape Feature 3) Finish using the Cancel/Reset/Finish button
The tool remains active until another tool is started.

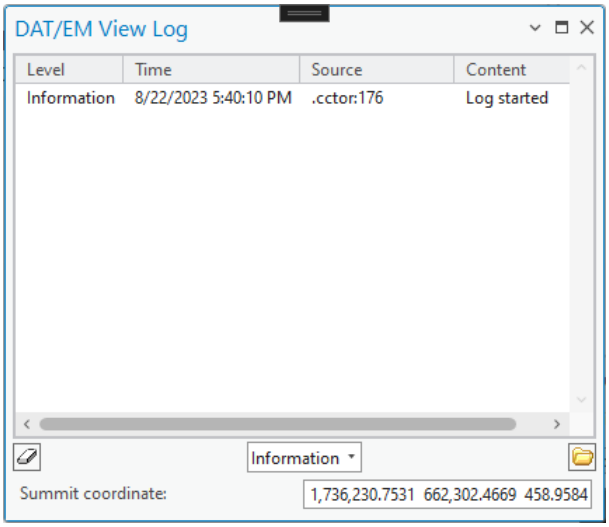
17. Snapping will now ignore objects on unchecked layers in **ArcGIS Pro Contents** > **List by Snapping**. (November 9, 2023)



*Snapping will now ignore objects on unchecked layers in **Contents** > **List by Snapping***

18. UNDO selected on Summit's CAD Commands toolbar, a Button Manager button, or from ArcGIS Pro will now work properly to undo the last whole tool result or the last vertex in an active sketch. (November 9, 2023)

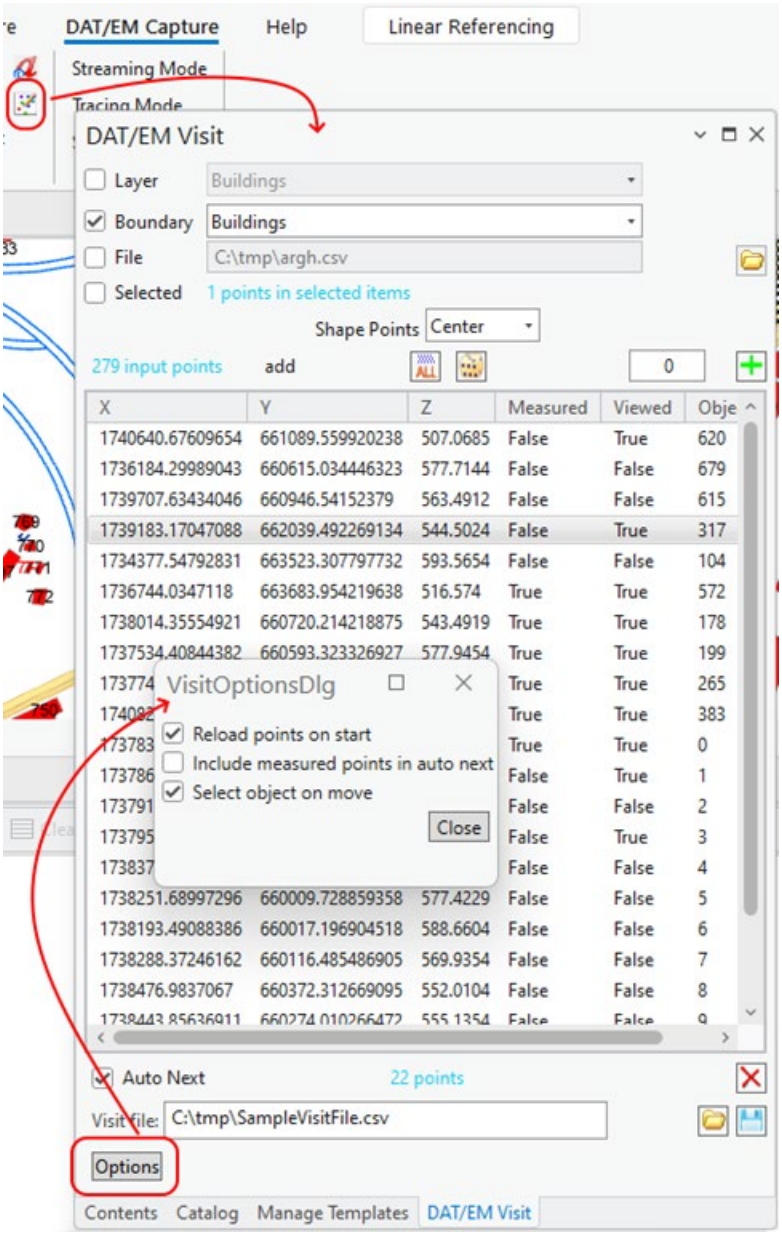
19. VIEW LOG is a new tool to display and write operational and error messages. DAT/EM may ask you to use this tool to help diagnose problems. The menu in the lower center lets you choose what type of information to view. The erase button to the left clears the list. The folder button to the right opens the log file location. Summit's last coordinate appears in the lower right.



New DAT/EM View Log tool to display operational and error messages

20. VISIT is a new tool in Capture for ArcGIS Pro 3.x. Users familiar with VISIT in Capture for 32-bit ArcMap will recognize it as the two ArcMap VISIT dialogs combined into one dialog and offering nearly the same functionality. The only difference is there is no import wizard for ASCII files in the **File** input option; it inputs .csv files in x, y, z format. (Contact DAT/EM Support if you want us to add an import wizard.) (March 31, 2023)

    VISIT allows you to build a list of coordinates based on objects on a layer, inside a boundary or boundaries, in a .csv x,y,z file, or in an active selection. All the points or a random sampling of the points may be added to the list. Click on a line in the list to move to the location. Edit, measure, or view at the location.



New VISIT tool dialog in Capture for ArcGIS Pro

DAT/EM Capture for ArcGIS – 32-bit ArcMap

This version is compatible with ArcGIS 10.0 (service pack 4), 10.1 (service pack 1), 10.2.x through 10.9.x.

This version may be compatible with ArcGIS 9.1, 9.2, 9.3 (service pack 1), 9.3.1(service pack 2). BE ADVISED: Testing no longer occurs for DAT/EM Capture with ArcGIS 9.x. It still installs for it and no code has been removed, so you may use 9.x as long as it continues to work for you. Any issues will not be corrected. ArcGIS 9.x support may be dropped completely in a future release. Please continue to make plans to upgrade any remaining ArcGIS 9.x version to 10.x.

DAT/EM Capture for 32-bit ArcGIS ArcMap has the following changes:

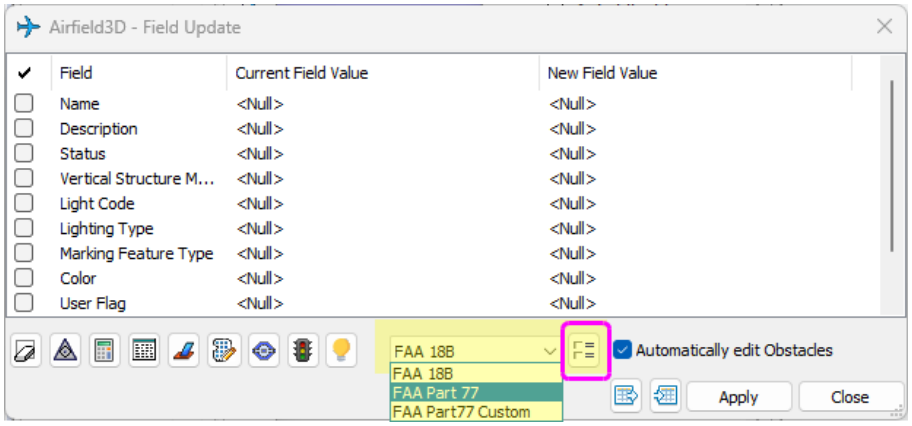
Capture for ArcGIS (ArcMap) Items

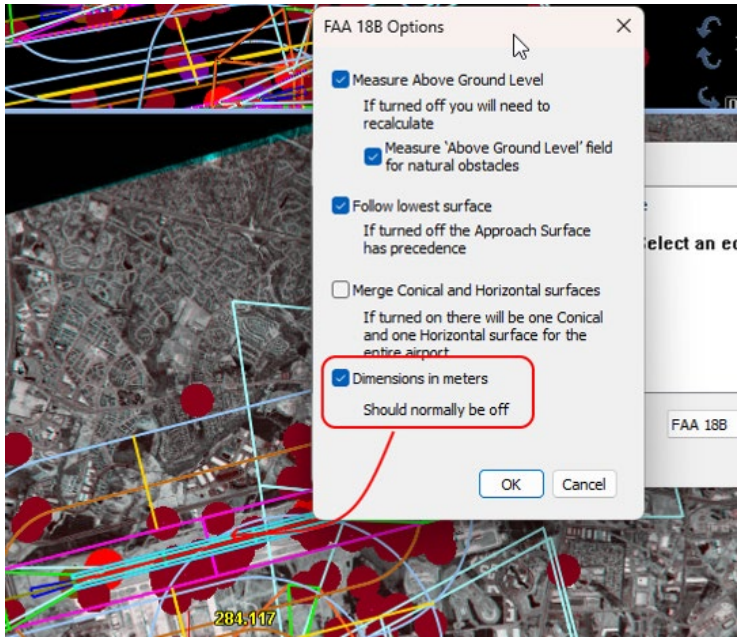
1. In the ArcMap-side DAT/EM Systems Options > **Elevation Fields** settings, it will now successfully save the ELEVATION field's checkbox status between ArcMap sessions and ELEVATION can now be deleted from the list. (February 21, 2023)
2. Field Update (and Airfield3D, which is a version of Field Update) have two new automatic field setting options: (June 30, 2023)
    a. **<Now>** adds a date and time stamp to a date-type field upon Field Update **Apply**. For example, *6/30/2023 13:15*. (Note that .shp shapefiles only store dates, not times, so should use **<Today>** instead.)
    b. **<Today>** adds a date stamp to a date-type field upon Field Update **Apply**. For example, *6/30/2023*. (This may be used for either a .shp shapefile or database layer that has a date-type field.)
3. Visit has the following changes:
    a. Visit's browse button in **Select Points** > **File** was inactive. It now correctly opens a browse dialog. (May 17, 2023)
    b. Visit's load on start code was not checking to make sure the last layer was a feature layer and/or existed before attempting to scan it for points. This is fixed. (September 11, 2023)

Airfield3D (ArcMap) Items

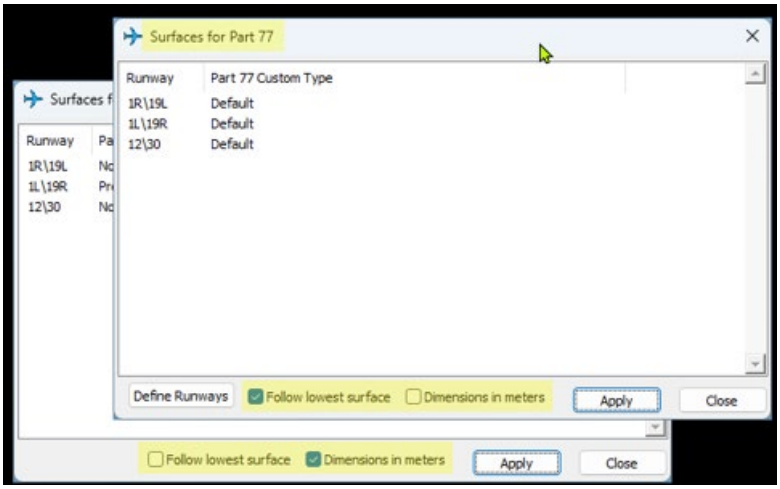
4. Airfield3D has the following changes:
    a. Airfield3D could cause a crash in ArcMap and/or Summit while accessing data. This is fixed. (December 15, 2022)
    b. The automatic **<Now>** and **<Today>** fields described in the ArcMap Field Update section above also appear in Airfield3D dialog, which is a version of Field Update. (June 30, 2023)
    c. If the "Runway End Designator" on the "Runway Ends" feature is not populated, a message will appear. (September 14, 2023)
    d. **Dimensions in meters** is a new option in the FAA 18B, Part 77, and Part 77 Custom options dialogs. When on, the setting scales the surfaces to meters units. When off, units are in U.S. Foot units as called for in the FAA specifications. Additionally, **Follow lowest surface**, which was previously only on the 18b settings, is now also on the Part 77 and Part 77 Custom settings options dialogs. When on, where there is

a conflict of multiple surfaces being in the same (x,y) location, the lowest surface will be used. When off, the highest surface will be used. (March 6 and November 17, 2023)





*New **Dimensions in meters** setting in the 18b options*



***Follow lowest surface** and **Dimensions in meters** settings in the Part 77/Part 77 Custom options*

DAT/EM Capture and MapEditor for AutoCAD

DAT/EM Capture and MapEditor for AutoCAD are compatible with the following AutoCAD versions:

- ***32-bit AutoCAD 2004-2008 versions with the latest service packs, provided you can get them to install on your 64-bit operating system (OS).*** DAT/EM no longer tests on 32-bit OS, so these must be running on 64-bit OS. DAT/EM is not responsible for helping to install a 32-bit version of AutoCAD on a 64-bit OS and cannot guarantee that this will succeed.
- ***64-bit AutoCAD 2009-2024 versions with the latest service packs. Exception: 64-bit AutoCAD 2008 is not supported.***

When referring to a year/version number in the lists above, it includes AutoCAD, Civil3D, and Map3D. It does not include AutoCAD LT, which is a 2D product, and therefore will never work with a 3D cursor.

Reminders: Install all available AutoCAD service packs and updates before installing DAT/EM software. Run each version of AutoCAD to make sure its license is active. Do this for each installed AutoCAD version.

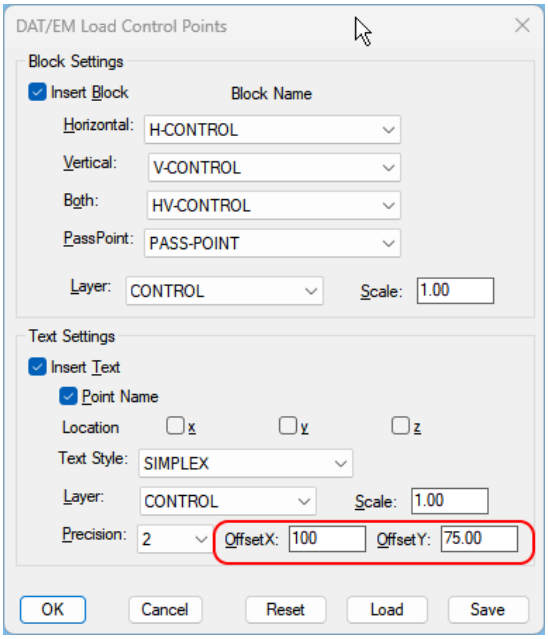
DAT/EM software will install for multiple AutoCAD products of different year numbers on the same computer; however, it will only install for one of any multiple same-year versions. For example, it will install for AutoCAD 2015, 2016, 2017 Civil3D, and Map3D 2018, because they are all different year versions; however, it will not install for both AutoCAD 2017 and AutoCAD Civil3D 2017 at the same time, because they are both the same year. In the case of multiple same-year versions, only one of them will receive the DAT/EM files at installation. To activate DAT/EM Capture in all of them, the AutoCAD \datem folder and the DAT/EM wintab driver file may be copied from the one that received the files to the other same-year versions. Contact DAT/EM Support for instructions.

Autodesk Infrastructure Design Suite installs three same-year AutoCAD versions (AutoCAD, Map3D, and Civil3D). Using the rules outlined above, you must run each version and register/"accept" each one before installing DAT/EM software *even for versions you will not use DAT/EM Capture*. DAT/EM software will install completely for only one of them, and we do not know which one until after installation. The files may be copied manually to the others. Contact DAT/EM Support for instructions.

DAT/EM Capture and MapEditor for AutoCAD have the following changes:

1. Version 8.2 is the first version to install and work with AutoCAD 2024. (April 11, 2023)
2. INS (block insertion) has the following changes: (November 7, 2022)
    a. INS previously showed a double or "ghost" block in superimposition until an SI Update would clear it. This is fixed.
    b. INS now shows a representative block with dynamic graphics in superimposition during block angle and/or scale measurement. The actual block design is not available to display before it is placed, so the representative block is used as the only possible option. The representative block is approximately a size of 1.0 ground unit with center-center justification, which is the recommended size and justification for defining blocks to be placed with INS. The purpose of this change is to help select the size and/or angle of the block. The actual block design will be shown in superimposition only after the block is inserted into the drawing.

3. LC (Load Control) and LCF (Load Control from File) have new **Offset X** and **Offset Y** text position settings. The offsets are the distance from the center of the control block. Enter either positive or negative values in ground units. (November 7, 2022)



New LC and LCF Offset X and Offset Y settings to customize the text position

4. The Selection Sets Editor could crash if you clicked on a list column title with the intention of sorting the list. This is fixed. (July 13, 2023)

5. SETUP's map scale setting was not saving to the registry. This is fixed. (October 25, 2023)

DAT/EM Capture and MapEditor for MicroStation (64-bit versions)

This section applies to Capture and MapEditor for 64-bit MicroStation CONNECT Editions (CONNECT). DAT/EM software installs for the following CONNECT versions:

- ***MicroStation 2023***
- ***MicroStation CONNECT Edition Updates 14-17.*** Do not use MicroStation CONNECT older than Release 14. "Update" numbers vary for the other products listed below.
- ***OpenRoads Designer (ORD) CONNECT Edition***
- ***OpenCities Map Advanced CONNECT Edition***
- ***OpenCities Map Ultimate CONNECT Edition***

Certain earlier CONNECT versions may work with DAT/EM software, but are no longer supported. For higher versions and update numbers released after the DAT/EM release or software build date, contact DAT/EM Support for information.

DAT/EM Capture and MapEditor for 64-bit MicroStation versions have the following changes:

1. Version 8.2 is the first version to install for MicroStation 2023. (July 18, 2023)

   Note: MicroStation 2023 and any previous CONNECT product can be on the computer at the same time. CONNECT does not automatically uninstall when 2023 is installed. DAT/EM software will install for all supported 32- and 64-bit MicroStation versions it finds on the computer at the time DAT/EM Setup runs.

2. More commands that were previously available only for 32-bit MicroStation have been added for 64-bit:

Added Commands for 64-bit MicroStation	Description
CHCELL	Replace cells with elevation text.
CLIPCELL, CLIPCELL LAST	To delete point elements (such as DTM mass points) from the area covered by cells.
DATEM PROFILE	Moves Summit automatically along an element as the user digitizes elevation points.
DEPRESSION	Find depression contours
DTMDISTRIBUTOR	Redistribute or combine DTM input (also known as DSM, DEM, point cloud, or points objects, depending on source) into a reconfigured file.
ROADCLIP, ROADCLIP SETTINGS (this represents two spelling options for the same command set; they were both retained in 64-bit for backwards compatibility with custom menus, Keypad overlays, etc.)	Road clipping. To separate the portion of a road or sidewalk that intersects a driveway, then either delete it or change its attributes.
RDCLIP, RDCLIP SETTINGS	Same as / redirects to ROADCLIP commands.
RR DOUBLE, RR SINGLE, RR SETTINGS, RR SPACING, RR WIDTH, RR TIELEN	Draw railroad tracks
SCALLOP, SCALLOP SIDE LEFT, SCALLOP SIDE RIGHT, SCALLOP SIDE PICK, SCALLOP REVERSE	Tree line scalloping (does not place a MicroStation pattern; it changes the line to a series of connected arc elements in a complex element.)
WCLIP	Wall clip. Clip and extend an elevation contour to a wall it intersects.

3. The MapEditor Parameter File Editor has the following changes:

   a. The Parameter File Editor could crash when returning from editing the second of two Change Attributes Interior lines in a parameter file. This is fixed. (November 29, 2022)

   b. The message confirming the parameter file is saved no longer contains unintended characters. (July 20, 2022)

   c. CHANGEATTRIBUTES in a parameter file in 64-bit platforms used new fields that caused an error when 32-bit MicroStation platforms read the parameter file. Both versions have been fixed to accept entries created by the other platform. (Ma 2, 2023)

   d. A problem might have occurred after editing multiple TOUCH entries in a parameter file. This is fixed. (April 27, 2023)

   e. CHANGEATTRIBUTES INTERIOR within the Parameter File Editor could have a dialog lockup issue. This has been corrected by disabling direct calls to the Selection Sets Editor from the parameter file version of the Change Attributes Interior dialog. (As an alternative, launch the Selection Sets Editor from the button offered directly on the Parameter File Editor dialog.) (November 29, 2022)

   f. There was an error on editing the second of two CHANGEATTRIBUTES INTERIOR lines in a parameter file using the Parameter File Editor. This is fixed. (November 29, 2022)

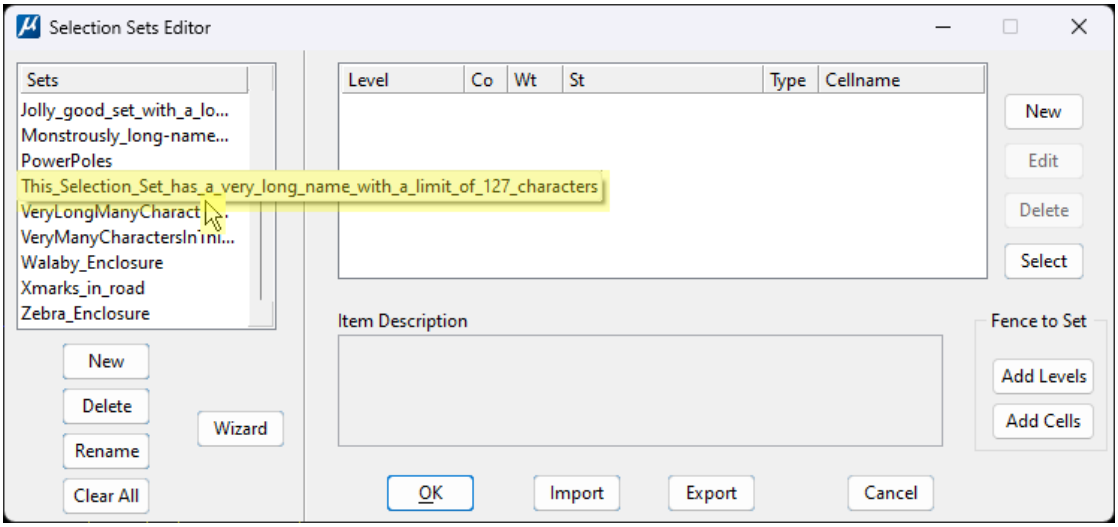
   g. Extraneous “Sets” buttons have been removed from the Add/Edit tool dialogs for Clip and Check Attributes. (September 18, 2023)

   h. ZCHECK can now be run from a parameter file in 64-bit MicroStation. This is a rather unusual command to run from a parameter file, so please be aware: (November 29, 2023 and April 6, 2023)

      - ZCHECK does not perform any actions on the design; it only displays an interactive dialog. Since it pauses the parameter file operation and waits for the interactive ZCHECK dialog, it is different from the way most MapEditor commands work. The user must proceed through the ZCHECK dialog before the parameter file can continue.

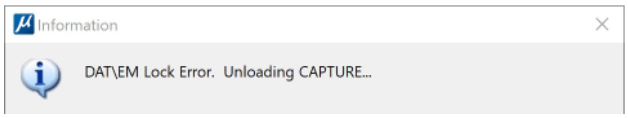
- ZCHECK was allowed in 32-bit MapEditor parameter files, but was never actually designed as a batch command. It is a fully interactive command for viewing elevation differences at intersections. Therefore, ZCHECK was not initially implemented for parameter files in 64-bit MicroStation.
- The user should be aware that if there is more than one ZCHECK entry in a parameter file, subsequent ZCHECK dialog contents will overwrite earlier ones.
- DAT/EM suggests using CROSSCHECK as an alternative to ZCHECK in a parameter file for finding intersections with elevation differences.

4. The Class Definition dialog had a “Sets” button that should have been a “New” button. This is fixed. (July 18, 2023)
5. “Classes” and “Selection Set” selection filters now support custom line styles. (October 3, 2023)
6. The Selection Sets Editor has the following changes: (July 18, 2023)
   a. The **Wizard** button now dispatches a modal dialog. Once launched, it must be closed again before the original Selection Sets Editor dialog will reactivate. This prevents the user from being able to close the Selection Sets Editor while the Wizard is still running.
   b. For long set names, the full name displays as a tooltip when the system mouse hovers over it.



New tooltip shows long set names (the tooltip display is new, the 127-character limit is not new)

7. When a DAT/EM application for 64-bit MicroStation cannot find a DAT/EM license or it detects another type of failure, it now shows the name of the application that is unloading. This may help in troubleshooting. Previously, only one generic “Lock Error” message would be displayed. (December 6, 2022)

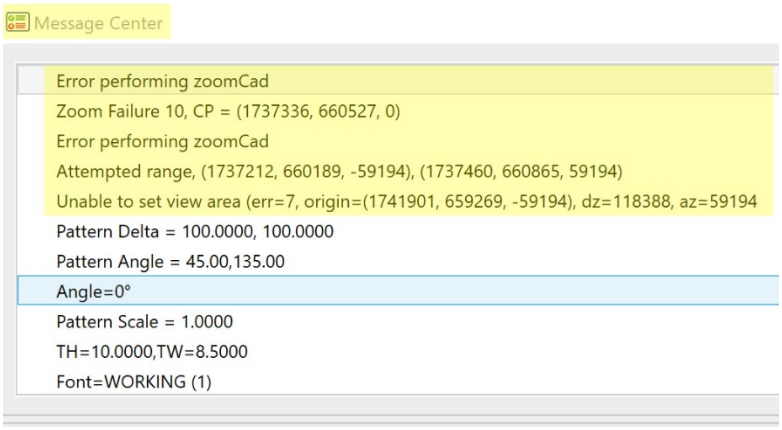


Example of a message showing which application is unloading when it does not find a license

These messages indicate a fatal error has occurred; MicroStation will always close after these messages.

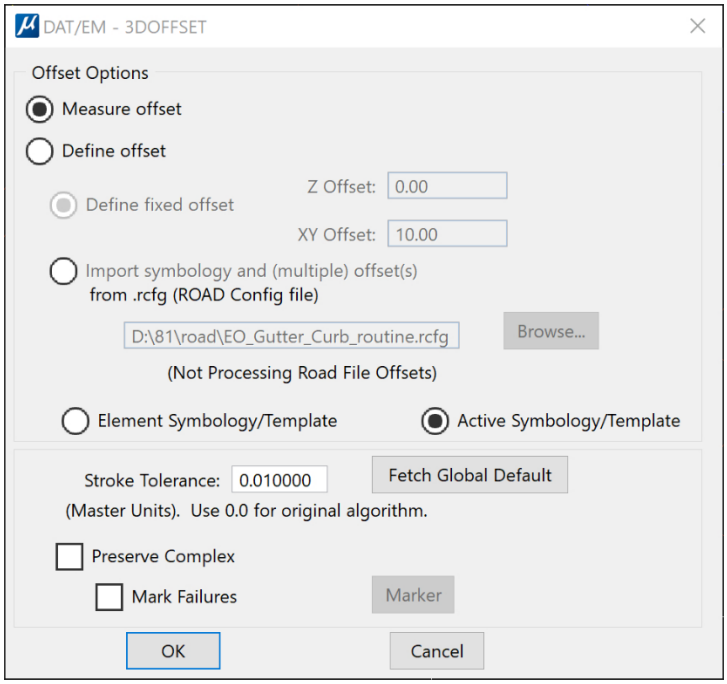
8. MicroStation superimposition (SI) has the following changes:
   a. Superimposition will now display some cells that contained a nested shared cell in their definition. Note that DAT/EM recommends using cells made up of simple elements such as lines, line strings, arcs, etc., rather than nesting different cell types. (March 8, 2023)
   b. Superimposition has added error handling for incorrectly formed elements, such as incorrectly formed bspline curves. (September 28, 2023)

9. View independent text was missing the Summit model's kappa angle adjustment. This is fixed. (March 20, 2023)
10. When you cancel a tentative point using a <reset> or Cancel button, the tentative mark and/or text will clear from both superimposition and the MicroStation view. (August 22, 2023)
11. Diagnostic messages will now appear in the MicroStation Message Center if zoom synchronization between Summit and MicroStation fails. These diagnostics were added to try to find the source of a "zoomCad" function failure after a third-party application loaded points into the MicroStation CONNECT environment. These messages may help determine whether the third-party application caused MicroStation to lose track of its object extents. If these messages appear, right click in the Message Center, save the messages, and send the file to DAT/EM Support. (May 17, 2023)



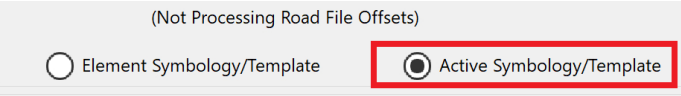
Diagnostics messages in MicroStation Message Center. Right click for export options.

12. 3DOFFSET has the following changes:
    a. 3DOFFSET's **Define Offset XY offset** option set to **XY=0.00** now results in the proper zero-(x,y) offset instead of applying the cursor pick offset. (September 1, 2023)
    b. 3DOFFSET will now force created elements to be snappable as they are drawn. (September 13, 2023)
    c. 3DOFFSET now supports element templates as follows. (September 25, 2023)



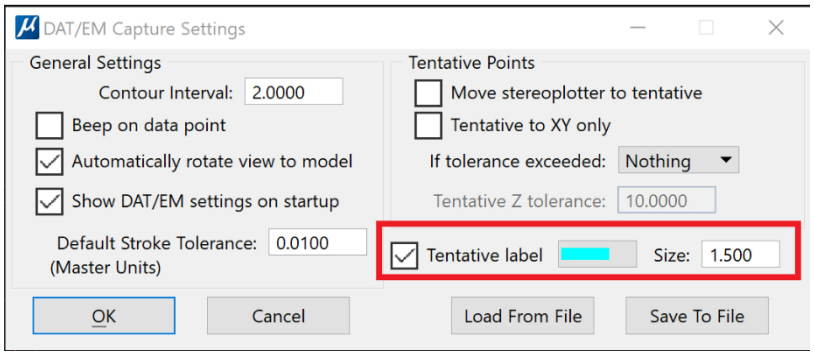
If new element symbology is defined by the original element (being offset), any element template association will also be added.

If symbology is defined by active settings, any active element template will be also associated with the new element.



13. ANNOTATE CELLNAME <cell name> now correctly handles leading and trailing blank spaces in the cell name. For example, the key-ins, **ANNOTATE CELLNAME <*space*>TREE** and **ANNOTATE CELLNAME TREE<space>** will both work in version 8.2. (December 1, 2022)
14. CHANGEATTRIBUTES has the following improvements:
    a. CHANGEATTRIBUTES running interactively could result in the wrong "Change to" setting when switching between different "Change to" options. This is fixed. (March 7, 2023)
    b. CHANGEATTRIBUTES will process shared cells (type 35) and regular cells (type 2), but only for purposes of attaching an active element template. Note: In the case of regular cells, the template reference is only attached to the parent element following the convention set by MicroStation's PLACE CELL. The structure allows for different element templates to be attached to the different cell components. CHANGE ATTRIBUTES originally was developed in 32-bit MicroStation to change symbology for linework and to skip cell elements; since 64-bit MicroStation now allows templates to be attached to elements, it now makes sense to process cells for this purpose. (September 28, 2023)
    c. CHANGEATTRIBUTES will now correctly operate on B-spline curve elements. Previously, it could corrupt the B-spline, which further caused a crash in superimposition. Superimposition error handling for incorrectly formed elements was also added as part of this fix. (September 28, 2023)
15. "Change Attributes Interior" (MECHANGEINTERIOR) has the following changes:
    a. Change Attributes Interior has improved parameter initialization in all 32-bit and 64-bit versions. (April 28, 2023)
    b. Change Attributes Interior was sensitive to the current MicroStation Preferences setting for **Optimized Fence Clipping**. If the setting was checked on, fence operations such as finding objects inside or outside a boundary would not behave as expected. This command now sets the option off before processing. (October 16, 2023)
    c. Change Attributes Interior in both **Interior** and **Exterior** mode has improved error handling and code modernization. (November 2-13, 2023)
16. "Change Cell **Last**" ME**L**CHANGECELL configuration was not initialized until the dialog had been raised. If ME**L**CHANGECELL was run before MECHANGECELL had been used, it attempted to run on uninitialized settings and caused a crash. This is fixed (May 22, 2023)
17. "Change Text" MECHANGETEXT has a fix to prevent a crash on changing the size of the text. (June 19, 2023)
18. "Clip" (MECLIP) has the following changes:
    a. Clip is now able to create and perform backups onto the specified backup level. Boundaries defined in attached reference files are now supported. (December 1, 2022)
    b. Clip using the **Clip under Text** setting will now better center the clip. Options to clip objects under text and perform exterior mode clipping are now more robust. (September 27, 2023)
    c. Clip's **Exterior** mode has enhancements. (November 13, 2023)

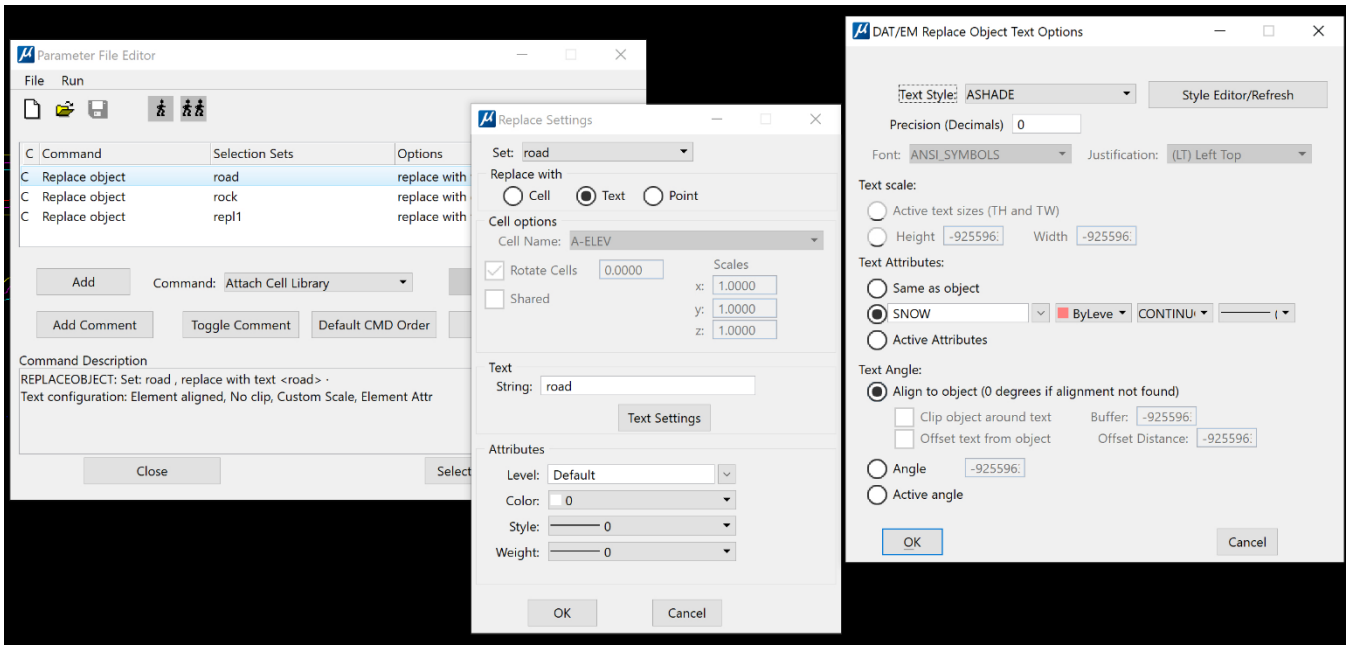
19. CPLINE now supports copying reference elements to the master design file. (April 10, 2023)
20. CROSSCHECK has fixes for the following:
    a. CROSSCHECK had a problem when there were multiple CROSSCHECK entries in the same parameter file. Upon saving the file, all CROSSCHECKs would be assigned the selection set of the last CROSSCHECK entry. (April 17, 2023)
    b. CROSSCHECK's parser had an error in the 'Z Editing' parameter file read. (May 16, 2023)
    c. CROSSCHECK had an overflow problem. (May 16, 2023)
    d. CROSSCHECK now has the option to place circles at intersections (writing them to the design or dispatching VISIT, depending on marker settings). The marker options previously had the element marker setting, but it was not previously implemented for CROSSCHECK. It has been added to all 32- and 64-bit platforms. (July 20, 2023)
    e. The ellipse elements are placed at the "DATEMCROSSING" level.
21. DATDRAW has the following changes:
    a. DATDRAW commands will now force created elements to be snappable at final element creation. Previously, it set the snappable property earlier in the command, and it had the potential of losing the property before finishing. This is a potential fix for an unsnappable element created at a beta tester's site. Since the problem could not be reproduced at the beta tester's site or at DAT/EM, the source of the problem could not be proven. This was determined to be a low-risk, preventative change.
    b. DATDRAW STREAM's drawing-in-progress rubber band was staying anchored to the first vertex, although drawing proceeded normally. The rubber band now correctly extends from the most recent vertex. (November 17, 2022)
22. DATEM SETTINGS has a new capability and setting to toggle tentative point marking in the MicroStation view (rather than the superimposition view, which already had a tentative point mark). The setting is in the MicroStation-side **DATEM SETTINGS** > **Tentative label**, **color**, and **Size** options:



New label to mark tentative points in the MicroStation view

23. DTMDISTRIBUTOR (previously available in the 32-bit version and now newly added to the 64-bit version) has increased the number of formats it can read and write. The list of formats is now standardized with other DAT/EM points-file-reading options. These changes apply to 64-bit only; they will not be added to the 32-bit versions. (February 9, 2023)
24. DTMEDIT now displays the total number of points being edited, already visited, and remaining. (November 17, 2022)
25. EZ has a refined snap tolerance calculation, a fix to handle view motion, and direct superimposition element handling. (April 20, 2023)
26. EZEDIT's Whole Element > Set Elevation command no longer loses the Z settings portion of the dialog after a second consecutive edit. (September 1, 2023)

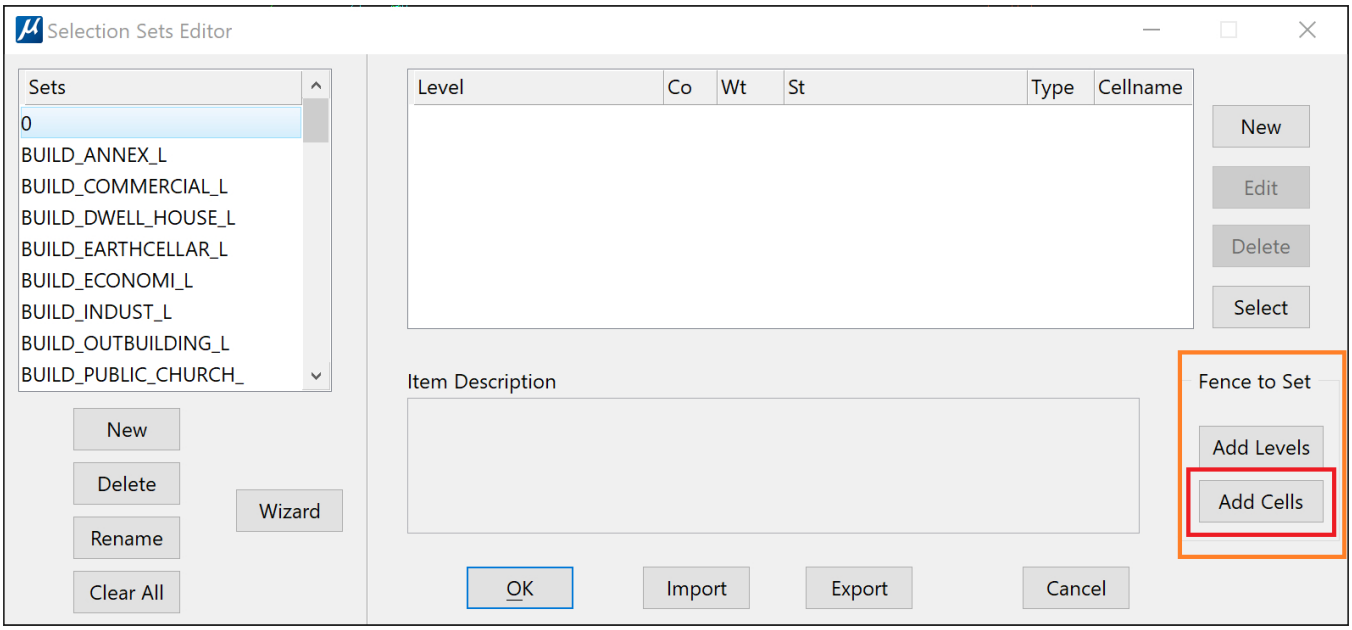
27. FACESHIFT commands have the following changes:
    a. FACESHIFT POLYGON: There is a fix for a crash when the first polygon point was followed by a reset, which the user might do while attempting to cancel the command. (February 7, 2023)
    b. FACESHIFT POLYGON: The transient drawing element showing the polygon being placed might disappear on subsequent runs. This was caused by use of a Bentley-deprecated global transient variable reference. (June 29, 2023)
    c. FACESHIFT (surface) calculations lacked error handling and recovery. Now, if a surface cannot be calculated from an element, the active FACESHIFT command will be restarted. (June 29, 2023)
    d. FACESHIFT's TIN failover algorithm (based on creating a surface based on TINs) previously would be applied only when all boresite operations failed. Now it will also be applied when boresite calculations succeed, but a subsequent range check fails. A range check was added to the failover algorithm to ensure against out of bounds results. (June 29, 2023)
28. FILTER (MEFILTER) now preserves unsaved dialog setting changes when bringing up the Selection Sets Editor or Class Editor. (October 3, 2023)
29. MEMOVE preserves unsaved settings when temporarily closing the dialog (for example, to pick elements or bring up the Class or Selection Sets Editor dialogs). (June 9, 2023)
30. MEXPORT had a problem reading a * level wildcard from the legacy 32-bit EXP format. This is fixed so that * in the level field will be used as a level wildcard meaning all levels. Note: DAT/EM continues to encourage use of the new EXP2 format introduced in v.8.1. (July 5, 2023)
31. Pattern Interior's (MEPATTERNINTERIOR) has performance and robustness enhancements. (November 13, 2023)
32. REPLACE OBJECT (MEREPLACEOBJECT) has added text style options to **Text** > **Text Settings**. If you want to use a text style, set **Text Style** to the style name. To use individual text attributes, leave **Text Style** set to **Style (none)**.



*New **Text** > **Text Settings** > **Replace Object Text Options** text style options*

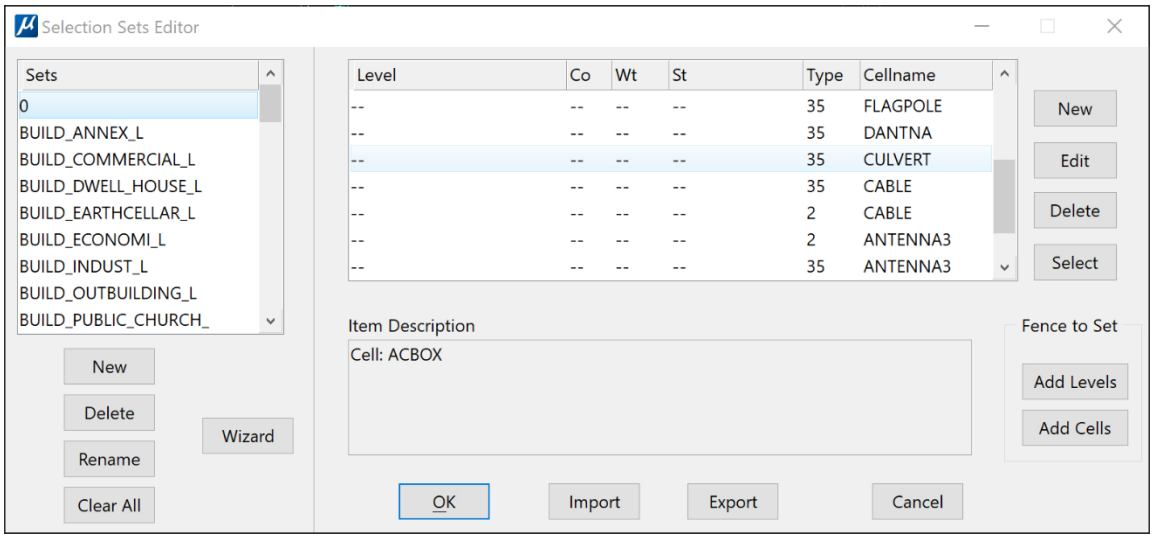
Notes on backward compatibility: Previous versions of REPLACE OBJECT only offered height, width, font, and angle setting. These are mapped into **Style (None)** and fixed **Height** and **Width** settings. It attempts to map the previous font number into a defined font (now represented as a name). Fixed attributes are configured now in the Replace Object Text Options dialog instead of the Replace Settings dialog (where they are disabled when changing elements to Text).

33. SCALLOP (MESCALLOP) commands were added to the 64-bit key-in list with the same starting functionality they used to have in 32-bit. New SCALLOP changes for 64-bit only are: (February 20, 2023)
    a. It now allows scallop (and reverse/flip) of simple arcs. Previously, arcs could not be scalloped or flipped.
    b. The "Flip side of existing scallops" setting is now preserved across consecutive runs of the interactive Scallop command. Previously, it was reset each time SCALLOP was run.
34. SELECTIONSET Selection Sets Editor has a new option to add cells found in fence contents.



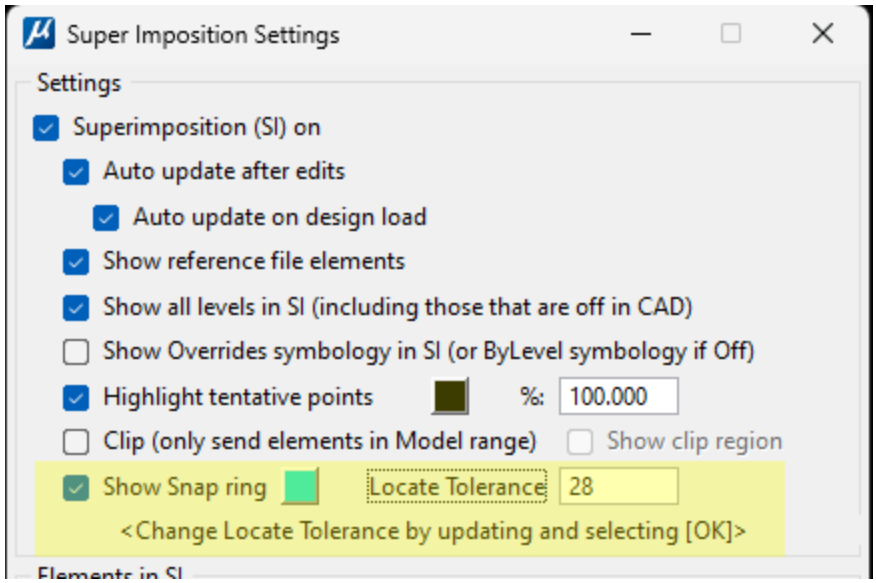
When **[Add Cells]** is pushed, cells located in the active design relative an active fence are added to the select Selection Set. This follows the precedent (**[Add Levels]**) that only elements in the active design are considered when populating the set. Note that reference elements are not processed in selection sets unless the calling application uses an extended interface. For that reason, references are not considered in this generic interface.

[Add Cells] distinguishes between Cell Types. Entries are identified by Cell Type as well as by Cell name. For example, a cell called ABCBOX can have two entries: One for shared cells and one for regular cells if both types are located within the Fence. Alternately, new entries could be tagged “All Cells” and identification restricted to Cell Name.



35. SI SETTINGS has the following changes:

    a. SI SETTINGS has a new **Show snap ring**, snap ring **color**, and **Locate Tolerance** settings. Their purpose is to show the current snapping radius in approximate ground units in superimposition (SI). With the snap ring on, it will be easier to position the cursor to exclude objects you do not want to snap to, and to know when to change the Locate Tolerance to a better value.



New snap ring and Locate Tolerance settings in SI SETTINGS

Key-ins to control the SI SETTINGS values without showing the dialog are:

SI SNAPRING <ON/OFF>

SI LOCATETOL <value>

The minimum **Locate Tolerance** is **1** and is entered in positive integer values. This is a MicroStation restriction; Locate Tolerance is a MicroStation variable and is defined as a positive integer.

> Hint: If you already have MicroStation's **SET LOCATE <value>** key-ins on your DAT/EM Keypad Controller overlay or in any custom toolbars, change these to **SI LOCATETOL <value>**. This still sets MicroStation's variable, but in a way that DAT/EM can detect the change and update the snap ring size.

Always use SI SETTINGS or the key-ins above to set or change the Locate Tolerance. If you use MicroStation's **SET LOCATE <value>** key-in or the **Locate Tolerance** field in MicroStation's Preferences dialog, DAT/EM will not be able to detect that the value has changed, and the snap ring in superimposition will not update.

The snapping radius for both AccuSnap and Tentative point snap is regulated by the Bentley MicroStation **Locate Tolerance** variable, which MicroStation defines in *display pixel units*, not *ground units*. Since it is in pixel units, its ground unit distance is dependent on the zoom level in View 1. The more View 1 zooms out, the larger the snapping radius becomes in ground units. Each display pixel represents a greater and greater ground distance as it zooms out. The dependence on View 1 display pixel units makes it difficult for DAT/EM users to know which objects are inside the snapping radius, especially when the snapping distance changes with every zoom change. It will still change, but with the snap ring on, you can now see the current approximate snap radius in SI.

The SI snap ring can only be drawn at an approximate size. This is due to the MicroStation Locate Tolerance being in view pixel units, and due to precision loss when attempting to convert the pixel size into ground units. To do this, we need to know the exact view size, which is not given precisely. DAT/EM

also suspects that MicroStation misreports the view size when is a non-zero kappa value view rotation active. The estimate will be closer if MicroStation is maximized on the CAD/Desktop monitor.

Since the snap ring is approximate, it will never be the exact limit of the snapping/no snapping distance. It will give you an idea how big the current snap radius is, within a range near the snap ring. You will have to accept it as the estimate that it is.

The best advantage of the snap ring is if MicroStation zooms far out, you will know that the snap radius has become too big. You will see that there are far too many objects inside the circle, and you will know why it is snapping to objects far away from the cursor center.

b. SI SETTINGS **Show cells as points** checked on was not working. The cell graphics would disappear, but no visible points would replace them in superimposition. This is fixed. (October 19, 2023)

36. SLOPEHATCHLAST now uses a single pick on the first element and a single pick on the second element. This makes the prompts match up with the necessary selection picks. Previously it worked if you double picked, and the prompts did not match the actions needed. (February 27, 2023)
37. STROKEELEMENT and MESTROKEELEMENT now preserve template links found on the input elements. Hint: If the older versions of these commands removed the template links in the past, you can reinstate the template links using CHANGEATTRIBUTES or CHANGEATTRIBUTESLAST in version 8.1 or 8.2 beta or higher. (March 24, 2023)
38. TOUCH BATCH has been modified to avoid creating tiny segments, which sometimes caused failures during the intersect calculation. (May 11, 2023)
39. TWOSHOT has the following changes:
    a. TWOSHOT and TWOSHOT ANGLE will now show the correct angle in superimposition for all types of cells. (September 14, 2023)
    b. TWOSHOT ANGLE has improved dynamic graphics for superimposition. (April 5, 2023)
    c. TWOSHOT was not functioning correctly due to MicroStation SDK (Software Development Kit) changes. This has been addressed. (April 5, 2023)
40. VISIT has the following changes:
    a. VISIT and VISIT ELEMENT now have the correct counts in their “Entry” and “Visited” displays. (November 7, 2022)
    b. VISIT has a fix for crashing when it moved to the last record in the loaded Visit file. (May 16, 2023)
    c. VISIT’s fence processing mode is now processing correctly. (October 3, 2023)
41. XYZIN has the following changes: (November 9, 2022)
    a. The code now accepts levels with or without quotation marks around them (“level” or level) in the input file. (November 9, 2022)
    b. XYZIN was originally written to expect a data type field in the input file for multipoint elements, such as shapes and line strings. If a data type was not specified, the data was interpreted as a point element. It previously only accepted point, cell, and text elements when a data type was not specified. It has been expanded to extrapolate a data type in cases where only a single multi-point data type is selected in the dialog. In a test input file that had no type field, but had an element number field, only the **Shapes** option was checked in the dialog. In this case, it previously placed nothing, but now it places the correct number of shape elements. (November 9, 2022)
    c. There was an incorrect level on strings from a nearby two-point string. Before the fix, the level specified for a two-vertex STRING might be applied incorrectly to multipoint elements defined near it in the XYZ file. (September 22, 2023)
    d. There was an incorrect level applied to strings during "Inside Boundaries" filtering. (September 22, 2023)
    e. Added error handling improvements. (September 22, 2023)

42. ZCHECK can now be run from a parameter file in 64-bit MicroStation. This is a rather unusual command to run from a parameter file, so please be aware: (April 6, 2023)
    - ZCHECK does not perform any actions on the design; it only displays an interactive dialog. Since it pauses the parameter file operation and waits for the interactive ZCHECK dialog, it is different from the way most MapEditor commands work. The user must proceed through the ZCHECK dialog before the parameter file can continue.
    - ZCHECK was allowed in 32-bit MapEditor parameter files, but was never actually designed as a batch command. It is a fully interactive command for viewing elevation differences at intersections. Therefore, ZCHECK was not initially implemented for parameter files in 64-bit MicroStation.
    - The user should be aware that if there is more than one ZCHECK entry in a parameter file, subsequent ZCHECK dialog contents will overwrite earlier ones.
    - Note: DAT/EM suggests using CROSSCHECK as an alternative to ZCHECK in a parameter file for finding intersections with elevation differences.
    - Note: If requested, block, pause, and reports functions could be added to ZCHECK's parameter file options. Please let us know at support@datem.com if you would like these enhancements.
43. ZLABEL TEXT SETTINGS' individual level, attributes, and other settings are now saved properly when the dialog closes. (October 13 and 23, 2023)

DAT/EM Capture and MapEditor for MicroStation (32-bit versions)

Changes apply to Capture and MapEditor for MicroStation for 32-bit MicroStation versions.

DAT/EM has stopped new development for Capture and MapEditor for 32-bit MicroStation versions. Changes here include bug fixes and modifications for the purpose of backwards compatibility with new development for 64-bit MicroStation.

* **32-bit MicroStation users be advised!** DAT/EM v.8.2 still supports installation for several older 32-bit MicroStation versions. DAT/EM will continue to install for 32-bit MicroStation versions as long as Bentley continues to provide developer licensing for them. When Bentley stops this licensing, DAT/EM will remove 32-bit MicroStation support in betas and the subsequent DAT/EM release.

DAT/EM software installs for the following 32-bit MicroStation versions.

- ***MicroStation V8i SelectSeries 10 and V8i SelectSeries 10-based products.*** SelectSeries 10 is the only version that both Bentley and DAT/EM support for Windows 10. The product names are V8i, Bentley Map, Map Enterprise, PowerView, Map PowerView, Power GeoPak, and PowerCivil.
- ***MicroStation V8, V8 2004 Edition (version should 08.05.00.34 or higher), XM (version 08.09.04.88 or higher), MicroStation V8i and V8i-based products in SelectSeries numbers 3 and 4 (SelectSeries 1 and 2 not recommended).*** None of these versions are supported by Bentley under Windows 10 or 11. DAT/EM will install for them if they are present and licensed on the computer. The product names are V8i, Bentley Map, Map Enterprise, PowerView, Map PowerView, Power GeoPak, and PowerCivil, except Power GeoPak Select Series 3 is not supported.

  If you upgrade to a higher SelectSeries number, you must reinstall DAT/EM software after installing the SelectSeries upgrade.

  DAT/EM will install for all supported 32- and 64-bit versions of MicroStation that are present on the computer and licensed at the time of the DAT/EM installation.

DAT/EM Capture and MapEditor for 32-bit MicroStation versions have the following changes:

1. CHANGEATTRIBUTES in a parameter file in 64-bit platforms used new fields that caused an error when 32-bit MicroStation platforms read the parameter file. Both versions have been fixed to accept entries created by the other platform. (May 2, 2023)
2. "Change Attributes Interior" (MECHANGEINTERIOR) has the following changes:
    a. Change Attributes Interior for 32-bit platforms has improved parameter initialization. (April 28, 2023)
    b. Change Attributes Interior code has been upgraded. (November 21, 2023)

3. CLIP's **Exterior** mode has enhancements. (November 21, 2023)
4. CROSSCHECK for 32-bit platforms has the following changes: (July 20, 2023)
    a. CROSSCHECK launches VISIT successfully if element intersections matching criteria are found.
    b. CROSSCHECK now has the option to place circles at intersections (writing them to the design or dispatching VISIT, depending on marker settings). The ellipse elements are placed at the DATEMCROSSING level. The marker options previously had the element marker setting, but it was not previously implemented for CROSSCHECK. It has been added to all 32 and 64-bit platforms.
5. Pattern Interior's (MEPATTERNINTERIOR) has been upgraded. (November 21, 2023)
6. A problem could occur after editing multiple TOUCH entries in a parameter file. This is fixed. (April 27, 2023)

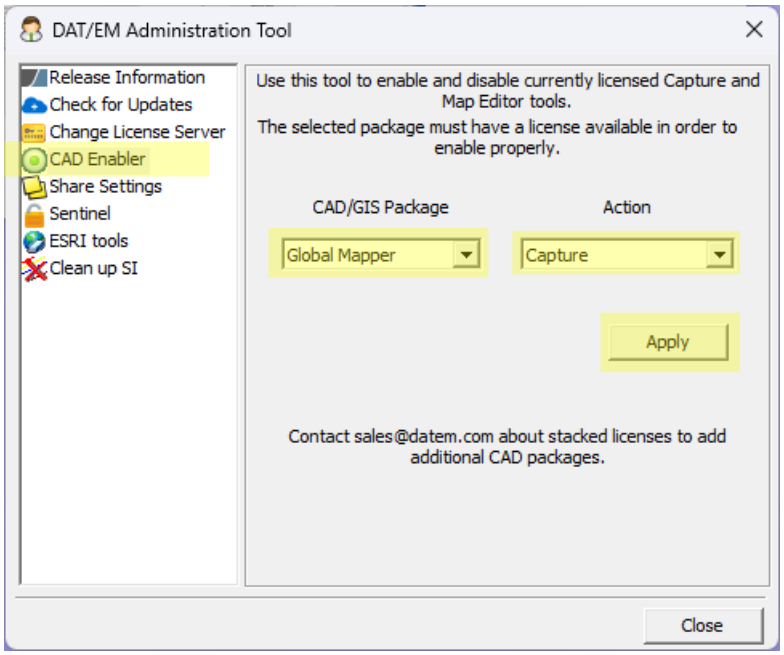
DAT/EM Capture for Blue Marble Global Mapper

Changes apply to Capture for Global Mapper. The following Global Mapper versions are supported:

- ***24.x*** and **25.x**, released before the time of the DAT/EM v.8.2 build date.

To start using DAT/EM Capture for Global Mapper, contact DAT/EM or your DAT/EM reseller for a quote for a Stacked Capture for Global Mapper. This product is added on to the primary Capture for AutoCAD, MicroStation, or ArcGIS.

DAT/EM Software installs the Global Mapper Extension, but leaves it unregistered in Global Mapper by default. To use the extension, close Global Mapper, select **Windows Start** > **Datem Software** group > right click on **DAT/EM Administration Tool** > **More** > **Run as Administrator**. Set **CAD/GIS Package=Global Mapper, Action=Capture**, **Apply**. Or, to disable at any time, set it to **Action=Disable, Apply**.



To register/enable or unregister/disable, use the DAT/EM Administration Tool's CAD Enabler

Alternatively, toggle the extension from the **Global Mapper** > **Help** menu > **License Manager**. Note that it is correct to be called "DAT/EM Capture for Global Mapper V24+" for both Global Mapper 24.x and 25.x.

1. Version 8.2 Capture for Global Mapper is the first version to work with Global Mapper versions 24.x and 25.x. The extension for any older versions of Global Mapper is no longer installed. (2023)

-End-