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The following changes have been made to DAT/EM products between Release 6.6 and Release 6.7. Please review these revisions made to the software and update your software to implement changes.

As always, DAT/EM welcomes comments and suggestions from you, our clients, so please don't hesitate to contact our support department at support@datem.com, or by calling in or faxing us with your requests.

Contents

Operating Systems

Release 6.7 is supported on Windows XP Professional and Windows 7 Ultimate or Professional operating systems. Testing no longer occurs for Windows 2000 or Windows Vista. If you have a question, please contact Support.

CAD Versions

Release 6.7 has interfaces to the following 32-bit and 64-bit CAD versions:
- **AutoCAD**: Autodesk 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, and 2013 products. DAT/EM software will install for multiple AutoCAD products of different year numbers on the same computer; however, it will not install for multiple same-year versions together. For example, it will not install for both 2012 and Map3D 2012. Please note that files may be copied manually to activate more same-year versions (contact DAT/EM Support for instructions).
  BE ADVISED: Version 6.6 and higher no longer support AutoCAD 2000-2002 versions. If you use these old versions, please upgrade to AutoCAD 2004 or higher. AutoCAD version 2007 or higher is needed in order to use the new MAPEDITOR.

- **ArcGIS**: ArcMap 9.1, 9.2, 9.3 (service pack 1), 9.3.1(service pack 2), 10.0 (service pack 4), and 10.1 (service pack 1). Version 6.7 is the first version to support ArcGIS 10.1.

- **MicroStation**: MicroStation V8 and V8 2004 Edition, XM, V8i Select Series 1, 2, and 3 and Bentley Map Select Series 1, 2, and 3 are approved. Select Series 2 or 3 is recommended over Series 1.
  Note for Select Series 1-to-2, 1-3, or 2-4 upgrades: If you upgrade to MicroStation or Bentley Map from Select Series 1 to Select Series 2 or 3, you must reinstall any DAT/EM software after installing the Series upgrade.

Hardware Locks/Dongles

Please install Microsoft Updates and Service Packs for your operating system before applying lock reset programs. Network licensing should have the same Sentinel driver version on both the server and the local computers running the software.

Software Installation

The following has changed for DAT/EM software installation:

1. If using a network lock, either the IP address or the computer name of the network lock server may be entered. Previously, only the IP address could be used.

2. A new set of C redistribution files is provided. Please answer "Yes" to install them as setup starts.

Video Drivers

Please note the slight change to our video driver installation/update recommendations:

- DO NOT install the driver on media packaged with a video card. It will be too old. (This is the same.)

- 1st: Get the latest driver for your video card and operating system from www.nVidia.com. (This is different!)

- 2nd: If the driver on www.nvidia.com does not work, go to www.datem.com to download the driver there if it is different from nVidia's currently offered driver.

- If you need to change (update or back out) a video driver, please follow the instructions at www.datem.com **Support** > **Downloads** > **Manuals** > **Installation Instructions**>"StereoLCDInstallationInstructions.pdf". This shows how to replace drivers and verify that the new drivers have been installed properly.

- On existing workstations, check your video driver periodically. The easiest schedule is to check it before installing each DAT/EM software update, which happens about three times per year. If it is older than the one currently posted on www.nvidia.com, and especially if it is older than the one currently posted on www.datem.com, please update it.

Newly posted nVidia drivers have become more reliable with the type of stereo used by DAT/EM products. Further notes:

- DAT/EM posts drivers here: www.datem.com > **Support** > **Drivers** > **Stereo-Viewing Systems**.

- When checking your installed video driver version, remember that the actual version consists of the last five digits with the decimal point moved two spaces to the right. For example, 6.14.12.7642 is really version 276.42.

- To check the installed video driver version on Windows 7, right click anywhere on a blank area of the desktop. Select **Screen Resolution** > **Advanced Settings** > **Adapter** tab > **Properties** > **Driver** tab > **Driver Version**.

- To check the installed video driver version on Windows XP, right click anywhere on a blank area of the desktop. Select **Properties** > **Settings** tab > **Advanced** > **Adapter** tab > **Properties** > **Driver** tab > **Driver Version**.

- For video settings, see www.datem.com **Support** > **Downloads** > **Manuals** > **Installation Instructions**. Most users will want either "PlanarInstallationInstructions.pdf" for Planar monitors or "StereoLCDInstallationInstructions.pdf" for LCD stereo monitors.

DAT/EM Keypad Advantage *New!*

DAT/EM Keypad Advantage is a new DAT/EM Keypad product. The user supplies a Bluetooth® USB dongle and any tablet device running Android® OS version 4.0 or higher. A tablet computer is the most practical size, but a smaller device such as an Android cellular telephone may be used. Download the application for free from the Google Play® Store. Download installation instructions from http://www.datem.com Installation Instructions.

Note that DAT/EM has tested Samsung brand tablets and telephones. Other brands should work, but have not been tested.

DAT/EM Keypad Controller

The following change has been made to the DAT/EM Keypad Controller software:

1. On some Windows XP workstations, the color table picker for the key's background color in the Edit Key dialog would not display. The only way to select a different color was with the keyboard arrow keys. This has been fixed.

Summit Evolution

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

2. Button Manager has the following changes:

   - There are new **Type=Plotter**, **Action=Lock X Toggle** and **Action=Lock Y Toggle** options In Button Manager. The previously existing **Lock XY Toggle** option is still available. These enable you to set a digitizer button to lock the X direction or Y direction separately or lock both X and Y directions at the same time.

   - The **Type=Plotter**, **Action=Zoom In** and **Action=Zoom Out** buttons were being disabled when **Summit>Tools>Options>Input Devices>Allow Zoom with Clutch** was not checked. Now **Zoom In** and **Zoom Out** buttons are independent of the clutch zoom setting.
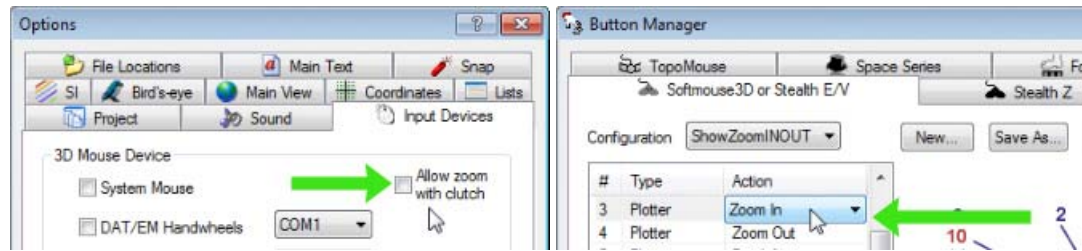
"Allow zoom with clutch" no longer affects Plotter Zoom In and Zoom Out buttons

3. **Summit>Tools>Options>Main View>Tile>512x512** is a new setting in Options. Previously, all tiling was 256x256 and could not be set by the user. 512x512 uses fewer tiles, so should make tiles load faster with OpenGL for most – if not all – modern video cards on modern computers. The 512x512 setting is especially important to use for JPEG2000 imagery (discussed in item 21.c on page 17). The 512x512 setting applies only to a single viewport; when two or more viewports are open, they will revert automatically to 256x256 tiling.

   - When version 6.7 is installed, 512x512 will be turned on by default for Windows 7 and 256x256 will be on by default for Windows XP. This is a general rule only; you may try the other setting.

   - If you have Windows 7 installed on an old computer, if you have an old video card (~10 years old), or if for any other reason you notice slow tiling and slow model loading, set 256x256 to see if it improves.

   - If you have a high-end computer with Windows XP and a new video card model, you may try 512x512 to see if tiling is faster. Many computers running Windows XP are capable of handling the 512x512 tile size.
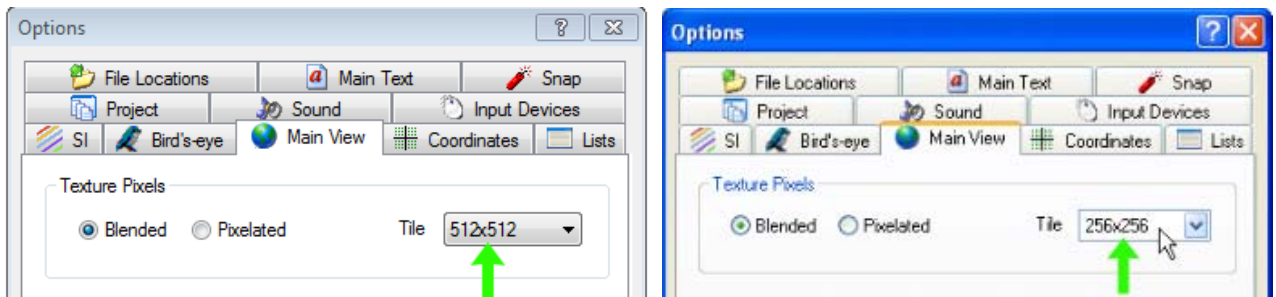
*New Tile=512x512 and 256x256 settings*

4. In the **Image Adjustments** dialog, you can now key in a minus sign, such as with "-5" to correctly replace the current setting for the following fields: **Brightness**, **Contrast**, **Saturation**, **Sharpen**, **Red**, **Green**, and **Blue**. Previously, the "0" or other current setting would not be removed, resulting in an unrecognized "0-5" setting instead of the desired "-5", for example.

5. The **Project Histogram** dialog now allows images to be checked on or off, and can process either all images or only checked images into histogram diagram files. Previously, it only processed all images.

6. The new-as-of-v6.6 Cursor Ground Grid graphics now draw behind other superimposition components such as the cursor design and the elevation text.

7. Control Transfer between two Summit Evolution instances using "Method 1" in pixel movement mode had problems: a) it might not display points that had been measured in the previously open image, and b) it might not display residuals in a second and subsequent image. These issues have been fixed.

8. DAT/EM Drawing Objects tools have the following changes:

    - The **Load Point file onto Layer** tool was ignoring Lidar filters. This has been fixed.

    - **Save Objects to File** on the **Drawing File** toolbar can now save individually selected layers. Previously, all of the drawing objects would save at the same time into the same file.

9. If a Group from the Project window **Groups** tab is open in a viewport when Project Viewer or Image Viewer's **Move Summit by Pick** is used, and the picked point is outside of any group model, the picked model will be opened and the group canceled.

10. Summit Evolution's **File**>**Export**>**Export Model Bounds**>**Send to CAD** had problems writing the model name text and sometimes the boundary polylines in the AutoCAD file. It now writes them correctly.

11. The Tie Points process for all applicable project type has the following changes:

    - It does not allow the same image to be opened for both right and left images in a tie points viewport.

    - Long file names can now be completely viewed in the Tie Points View Ports dialog's **Models** list.

12. The CAD command and layer text was positioned too high with multiple viewports on. Now the text has been moved down so that it is no longer displayed under the viewport title bar.

Text display with respect to the viewport title bar before the fix (left) and now (right)

13. Coordinate system transformation settings have the following fixes and changes:

    - If a project such as RPC had a default input coordinate system of WGS 84 and Ellipsoid height, and only a vertical transformation was applied, it would not immediately transform the Z values. It would transform them the second time the project was opened or if the WGS 84 settings were also reselected along with the vertical reference setting. This has been fixed to apply the vertical reference immediately after it is set.

    - The "EPSG Code" or "GC Code" is now displayed in the coordinate system listing in Project Edit and Coordinate Transformation dialogs. This is to help distinguish coordinate systems that have the same "System" name in the Blue Marble database. For example, several different WGS 84 selections were all listed as simply "WGS 84"; now they will also show the code, for example, "WGS 84 (EPSG:4326)", which corresponds to the Geodetic > World > WGS 84 / WGS 84 / WGS 1984 / Degree / EPSG Code=4326 setting in the Blue Marble Select Coordinate System from Datasource dialog:
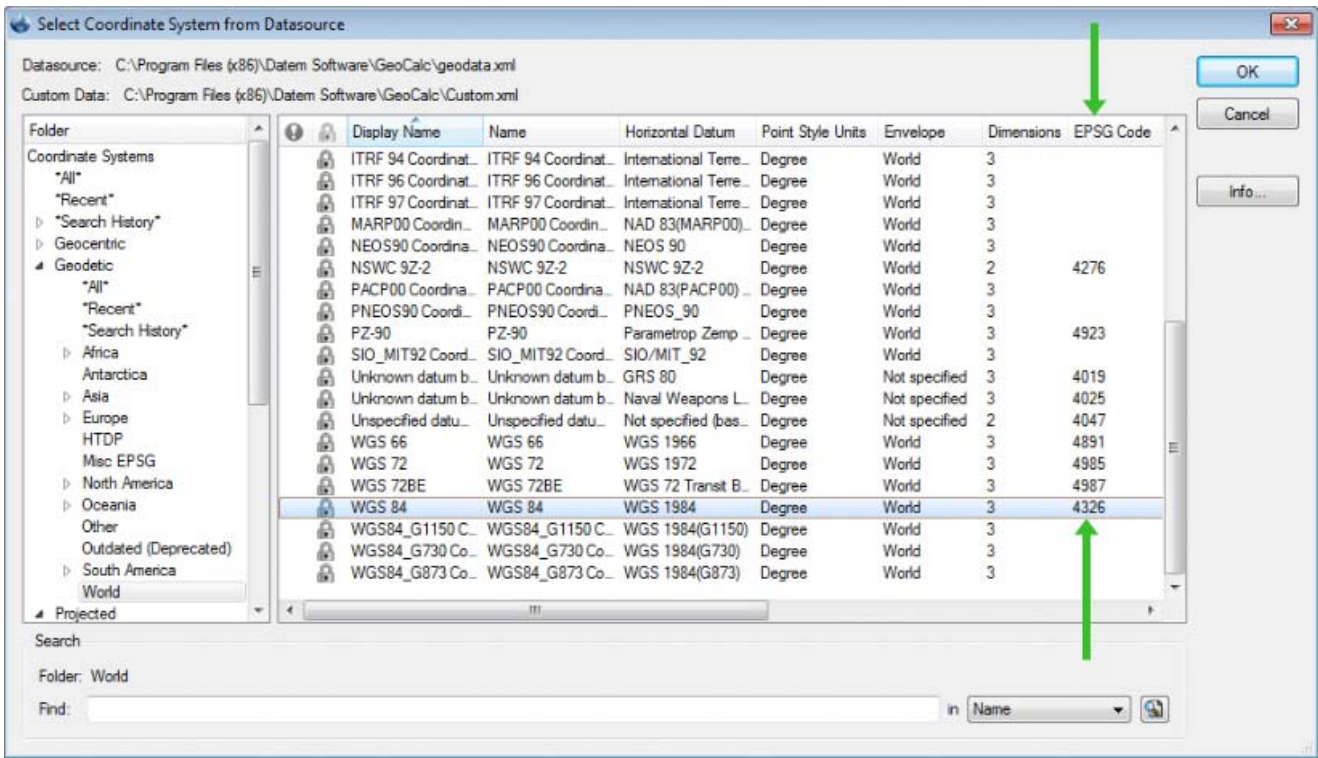
14. There are two modifications that mostly affect the ability to delete models from the Project window:

    a. The Delete Models dialog has a new "Close model if currently open" checkbox. If it is on, the model closes and is deleted at the same time; if off, the model definition is deleted, but the two images stay open if they were already open.

    b. The right click menu on the Project window's Models tab has a new "Delete this model" option and the options have been rearranged. This allows you to delete the single model directly under the cursor arrow pointer without activating the Delete Models dialog.
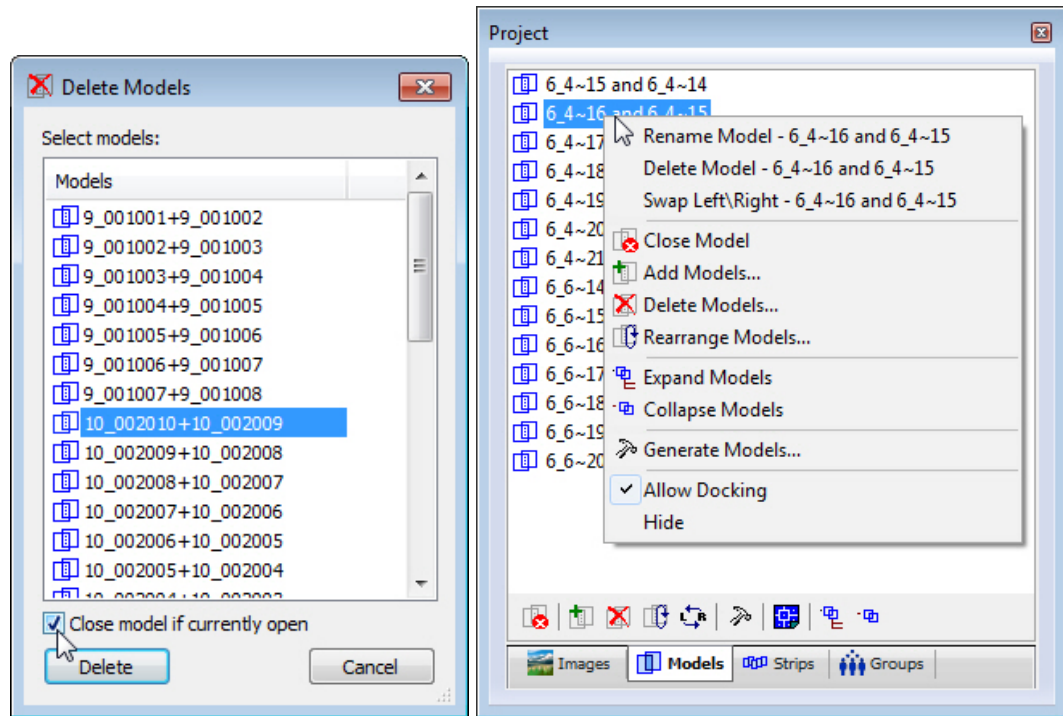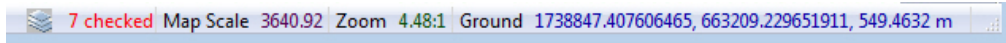
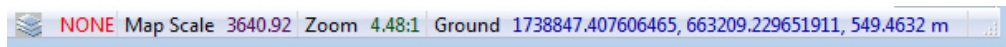*New "Close model if currently open" and new right click menu for Models tab*

15. The status bar now shows "NONE" or "__ Checked" whenever **SI** > **Layer Manager** has a setting other than **All Layers**. For example,
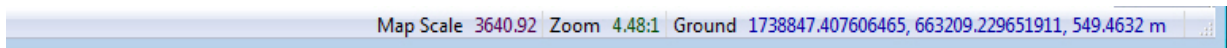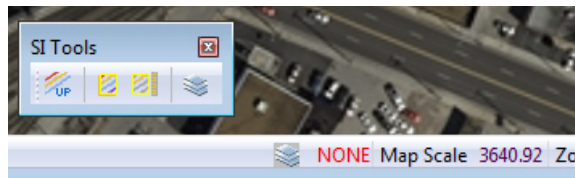
Nothing appears when "All Layers" are set in the SI Layer Manager

"__ checked" appears when certain layers are checked on in the SI Layer Manager

*"NONE" appears when no layers are on for display in the SI Layer Manager*

*The icon to the left of "NONE" or "checked" activates the SI Layer Manager;
it is the same as the icon on the **SI Tools** toolbar.*

16. Aerial projects have the following changes:

c. In the Project Edit dialog, the "Automatically select best stereo view" **North**, **South**, **East**, and **West** settings have changed. There are now four choices for the preferred north-on-screen direction:

a) **Up or Right** – Models from east-west flight strips will open north up on screen. Models from north-south flight strips will open with north to the right on screen.

b) **Up or Left**– Models from east-west flight strips will open north up on screen. Models from north-south flight strips will open with north to the left on screen.

c) **Down or Right**– Models from east-west flight strips will open north down on screen. Models from north-south flight strips will open with north to the right on screen.

d) **Down or Left**– Models from east-west flight strips will open north down on screen. Models from north-south flight strips will open with north to the left on screen.

Flight directions that are not exactly east-west or north-south will open as close to the set screen directions as possible. Sometimes the preferred screen direction will be overridden by a few degrees in order to keep the next automatically opened model from "flipping" almost 180 degrees.

Any time you don't like the display direction of the model, you may use the "Flip 180" icon on the **Image View** toolbar for a single viewport or from the viewport title bar when multiple viewports are open:
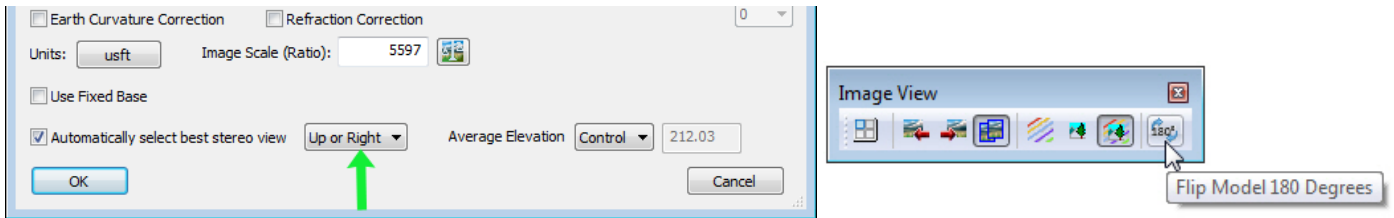
*Flip 180 buttons on individual viewports*

d. In the Camera Editor, when entering **Distortion>Radial and Decentering** values, it would not take the "e" character for scientific notation. This is fixed. For example, it is possible to enter -4.8e-005

e. **Bathymetric Correction** is a new tool on the **Orientation** menu for aerial projects. This correction is used when measuring underwater features. Underwater features need to be adjusted due to the refraction of light when passing into and out of the water medium. The correction is applied project wide. The correction only happens when the ground Z is under the user-supplied **Water Level** in the **Bathymetric Correction** dialog. The water level can be keyed in or measured using the **Water Leve>Measure** button.

The **Refraction Index** can be modified by the user. The default is **1.333**, which is the refraction index of clear water at 20ºC. Temperature, salinity, and turbidity levels can change the index.

There are two kinds of displays to indicate that Bathymetric Correction is enabled:

- In the main view: When Summit's cursor Z is under the water level and **Display in view** is on, the correction is displayed as text in the view. When above the water level, this display disappears. The incidence angles show how the correction changes as the angles change.

- In the Summit status bar: When the correction is on, "Bathymetric Z" appears in the Summit status bar. This remains displayed, even when the Bathymetric Correction dialog is turned off and even when the cursor is above the water level.
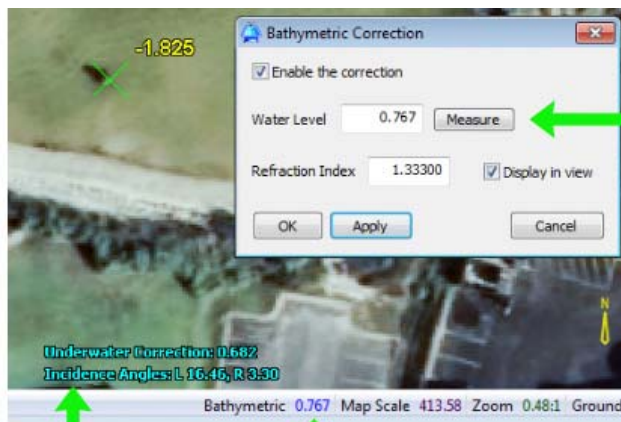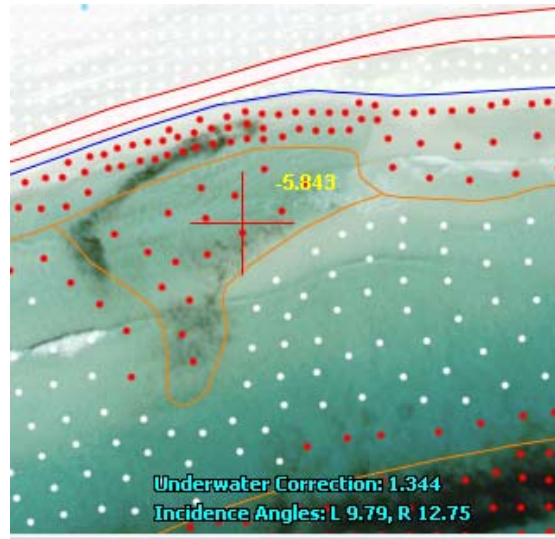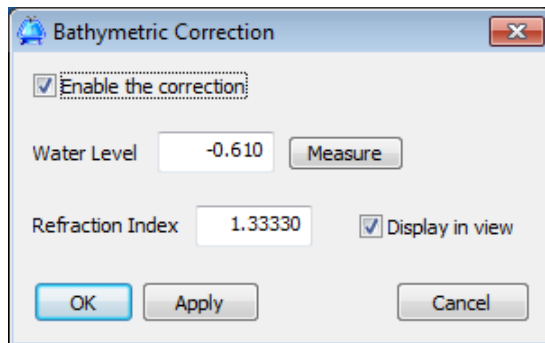
Bathymetric Correction settings and heads up display in the main Summit view

17. <u>ADS40/80 projects</u> have the following changes:

    f. It is now possible to position the bird's-eye view at the upper edge of the view.

    g. There were some image view rotation issues that have been fixed.

    h. If a histogram **.histohfa** file existed for an open ADS40/80 image and **Histogram Equalization** was checked on in the Image Adjustments dialog, the image preview in the Image Adjustments dialog could turn white. This has been fixed.

18. <u>Satellite RPC projects</u> have the following changes and additions:

    a. TIL (tile definition) files that have missing tiles inside can now be read properly.

    b. TIL files that "don't tell the truth" can now be used to make a proper project. DAT/EM received satellite imagery with TILs where the images tiles not only overlapped, but the TIL files indicated that the overlap was 1000 pixels when it was really only 200 pixels. Summit now corrects for these problems.

        > Our experience so far tells us that TIL files frequently contain mistakes, but that (so far!) we can find ways to work around the mistakes. If you have a problem setting up a project with TILs, contact DAT/EM Support.

    c. When TIL files are used and SMTI files are found in the same folder as the original image files called by the TIL, the SMTI file will be used. This means you can have Image Creator make SMTI files, and you do not need to move the original TIF/JPG2000/NTF files from the folder. Given Windows 7's problems moving some large TIF files, this could save you time and avoid Windows crashes.

    d. NTF satellite imagery files previously had a 2GB file size limit. Larger files may now be used. This applies to Image Creator, Summit Evolution, and any other DAT/EM application that reads and displays images. DAT/EM recommends using Image Creator to input large NTF files and output SMTI with compression on and set to 85%. Our samples have shown that some large NTF files are stored as 16 bit, but are really only 11 bits of useful information and have many black pixels; therefore, compression will greatly reduce the file sizes. In one example, compression at 85% reduced a 7.9<u>G</u>B NTF file to a 2.2<u>M</u>B SMTI file without noticeable loss of resolution. If SMTIs are in the same folder as the NTFs, the SMTIs will be used.

    e. There is a new **Add Multiple** button in the RPC project type. **Add Multiple** asks for a folder. It searches that folder and all its sub folders looking for all possible images, associated RPC files (RPC, RPB, or XML format), and existing TIL files. It adds the files to the project. It generates TIL files if needed.

        Add Multiple may be used for any brand of RPC imagery. It is particularly useful for imagery that stores image and file sets in a folder tree and/or uses split imagery with TIL files. For example, **Add Multiple** is recommended for GeoEye imagery, which is split into smaller image tiles and supplied with TIL files. **Add Multiple** is required for Astrium$^©$ Pléiades imagery that is split into multiple image tiles, because **Add Multiple** can create the TIL file that shows how to fit the images back together.

        The following notes are for Astrium$^©$ Pléiades images in particular:

        In version 6.6, DAT/EM introduced the ability to add Pléiades imagery to the RPC project type; however, it could only use individual Pléiades images with individual matching RPCs. Pléiades satellite imagery is often split into multiple image tiles that share a common RPC (XML format) file. These tiles are supplied without a TIL (tile definition) file. **Add Multiple** automatically detects split Pléiades files and creates a TIL file to show how the multiple images fit together. Once this is done, the TIL file itself is treated as if it were a special kind of image that references other images in the correct order. The following are recommendations for purchasing Pléiades imagery, creating a project, and avoiding problems:
        - Order the Pléiades Level 1A stereo or tristereo imagery in either TIF or JPG2000 format. JPG2000 may be preferable due to Windows 7 large TIF problems.
        - For TIF files, process the images with the Image Creator set to **SMTI**. If the original TIFs and SMTIs are in the same folder with the TIL, the SMTI will be used.
        (Continued on next page.)

- **Note:** If you choose instead to use "**New TIF and PYR**" output, be very careful. Microsoft Windows 7 has known problems dealing with large TIF files. If the "New TIF" is placed in the same folder with the original TIF, Windows may fail to rename the new file "_new" to differentiate it from the original file, and the original file may disappear. Windows 7 can also lock up when copying or moving Pleiades TIF files; this is not DAT/EM's problem, but rather Microsoft's. DAT/EM strongly suggests you choose **SMTI** output instead of **New TIF & PYR**.
- Pléiades JPG2000 files may be opened as they are, but be aware that JPG2000 is slower to load and tile than TIF. DAT/EM strongly recommends processing JPG2000 with the Image Creator set to **SMTI** and write the files in the original folder. If SMTI files are present, they will be used.
- Create the project with Summit's RPC satellite project type. Use the **Add Multiple** button for split tiles that use a common RPC file and need a TIL to be created. **Add Multiple** will also handle the case of a single file with a single matching RPC, so it is never necessary to use the simple **Add** button for Pléiades. **Add Multiple** can also handle folder structures where some sub folders contain split images and other folders contain single images.

f. All RPC projects – including imported satellite RPC from BLK format – have greatly improved tie points and control points bundle adjustment capabilities. This affects satellite projects with multiple adjoining models. The same tie or control point may be measured in multiple models, and the bundle adjustment will be calculated accordingly. Please note that while this is greatly improved, it has some limitations for larger multiple-model projects. The following is basic information on what it does well and what it doesn't:

> ➢ Given ground control points (GCP) measurements in every model, we can perform a bundle on a large number of photos. Triple and more overlap points are considered. The bundle adjustment works great. After calculating the adjustment parameters, there is no problem generating and outputting refined RPCs.

> ➢ Do not expect perfect results if there are no GCPs or some models do not have GCPs. The bundle adjustment may not work as well on tie points only. Tie points are measurements that may or may not have good ground values, because we know the original RPC can be far off from actual ground coordinates (when not yet corrected with ground control point measurements). Two or more RPCs can be used to perform a 3D reconstruction to find ground coordinates for the tie points. This works great; however, bridging the tie points is still a weakness. It is not a complete bridging, because it does not weight the GCPs, and the solution can be less than perfect. For smaller satellite projects, the above methods will work fine for projects that originate in Summit. It should not be applied to larger projects that originate in Summit. However, we can import BLK projects that are larger, because in the BLK, all ground values are known, even for tie points.

> ➢ If you are planning a very large satellite RPC project, please discuss it with DAT/EM Support before you begin. Let us know how many models, the imagery source, and the availability of GCPs. We can help you evaluate the project.

g. Control transfer is now allowed for RPC projects. Sources for the control readings are the same as for other projects' Control Transfer: An orthophoto plus a points file, a 3D vector file, or a second Summit instance with an oriented project of the same geographic area. The procedure is the same as for Control Transfer for aerial projects. Please note that the destination coordinate system of the RPC project must match the coordinate system of the control points coming in from the outside source.

h. The **Auto Next** button is now on by default in the RPC Tie Points dialog.

h. Summit can now import BLK that are satellite RPC projects. It imports the original RPC data and any tie and ground control measurements. Use **File>Import>BLK**.
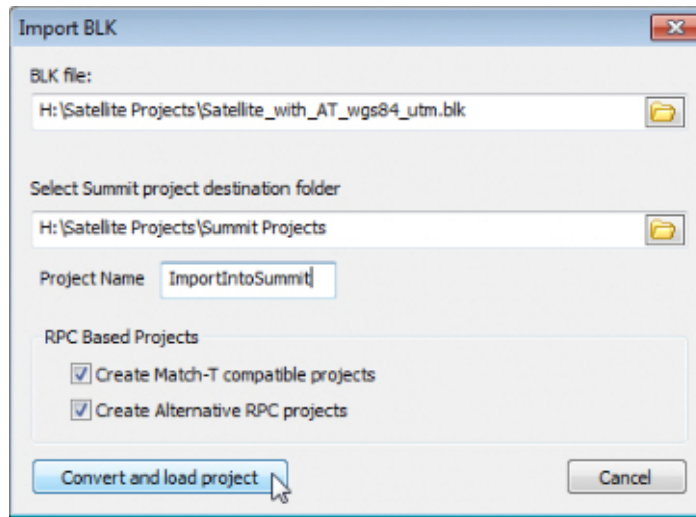
- If the coordinate system is set to UTM in the BLK, the same UTM coordinate system will also be set in the Summit projects. For any other coordinate system, the user must set the proper coordinate transformation in the Project Edit dialog (**Edit>Project**) after the import is complete.

- The Summit project's destination coordinate system *must match* the coordinate system of the control points that were used to create the original BLK. Any other coordinate transformation is not allowed and will not produce good ground coordinates.

- If the images are not epipolarized, first import the BLK and set the correct output coordinate system. Then run **Summit>Imagery>Satellite epipolar** to make a project that has improved stereo viewing. (Note: If you plan to run **Satellite epipolar**, uncheck **Create Match-T compatible projects** in the Import BLK dialog; the projects will be made from the epipolarized images later.)

- The satellite bundle adjustment mentioned in 18.d. on page 9 also applies to imported satellite BLK projects. If there are tie points and ground control point readings in the BLK, the import process performs a bundle adjustment.

- **RPC Based Projects** checkboxes: **Create Match-T compatible projects** and **Create Alternative RPC projects** operate as described in item 18.i. on page 12 below.

i. There are three new ways to create Inpho Match-T compatible RPC projects and other alternative RPC projects based on an original Summit RPC project file:

1) **File>Export>RPC create alternative projects** is a new export tool

2) **Imagery>Satellite Epipolar** has a new **Create Match-T compatible projects** setting

3) **File>Import>BLK** for satellite projects has two alternative Match-T projects settings. See more about importing BLK files above in item 18.h on page 11 above.

These options create more versions of the Summit RPC project that store their RPC information in an external **_rpc.txt** file. By contrast, the original Summit RPC project stores its RPC information inside the Summit **.smtxml** file.

The settings are as follows:

o **Create Match-T compatible projects**: Use this setting only if you intend to use the project in Trimble Inpho Match-T software and the imagery is already epipolarized or in the process of being epipolarized. This setting makes RPC projects where the RPC parameters are stored in separate files. One or two new folders will be made as follows:

▪ **…\Comp_MatchT** folder: This folder contains generated RPC files in WGS84 latitude-longitude units with a coordinate system conversion set in the project.

▪ **…\Comp_MatchT_sys** folder: This folder is only made if there is a coordinate system (other than WGS84 latitude-longitude) set in the original RPC project. This folder also contains generated external RPC files, but the coordinate system is built into the RPC. No coordinate system conversion is set in the "MatchT_sys" project, since it is already in the destination coordinate system. For this type of project, you should never apply a coordinate conversion or use it to attempt further ground control point or tie point adjustments. If Match-T uses this project, then the resulting DTM will already be in the destination coordinate system.

o **Create Alternative RPC projects**: The second check box is for making alternate RPC projects from an existing RPC project. The resulting projects will have "**_alt.smtxml**" and "**_altSys.smtxml**" names. The RPCs are stored internally in the files. The RPC are regenerated to incorporate all adjustments. All tie points and control measurements are removed. They are not needed, since the RPCs are already adjusted. The "**_alt.smtxml**" stores RPC in WGS84 latitude-longitude units. The "**_altSys.smtxml**" stores RPCs that are made in the final destination coordinate system. These are very similar to the Match-T projects described above with the exception that the RPC values are stored internally (hence can't be used by Match-T).

> **Q:** Why make alternative RPC projects?
>
> **A:** The projects will open much faster, because no bundle adjustment of tie or ground points needs to be done (it's built in!). Another big advantage to the **_altSys.smtxml** project is that superimposition (SI) will be extremely fast. This is because the RPC is already in the final coordinate system, so no Blue Marble coordinate conversion needs to be applied to incoming SI vectors. This is most likely the fastest project you could have, perhaps even faster than Aerial projects.
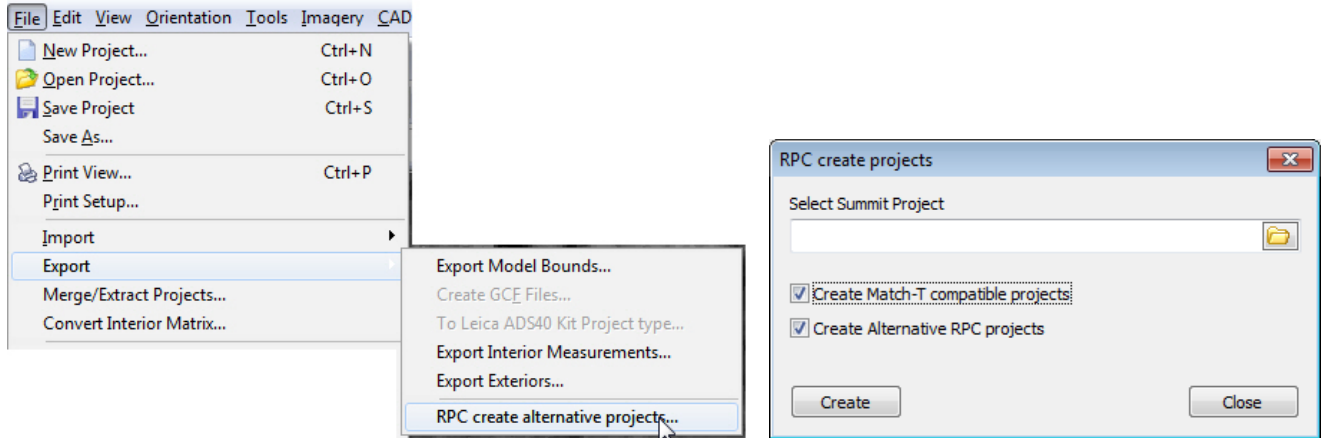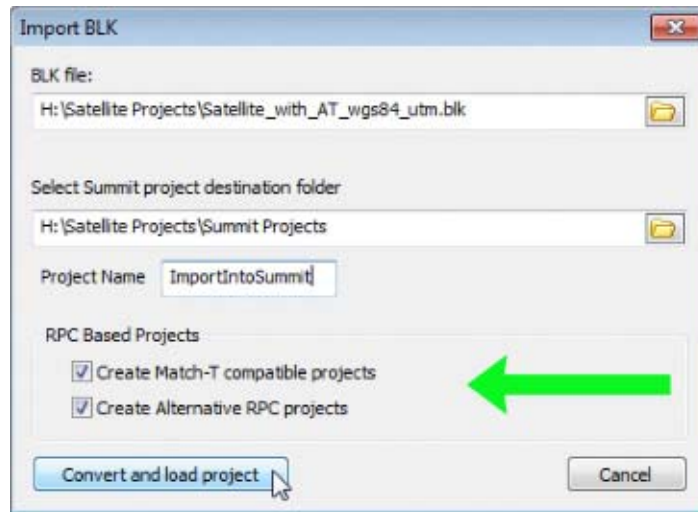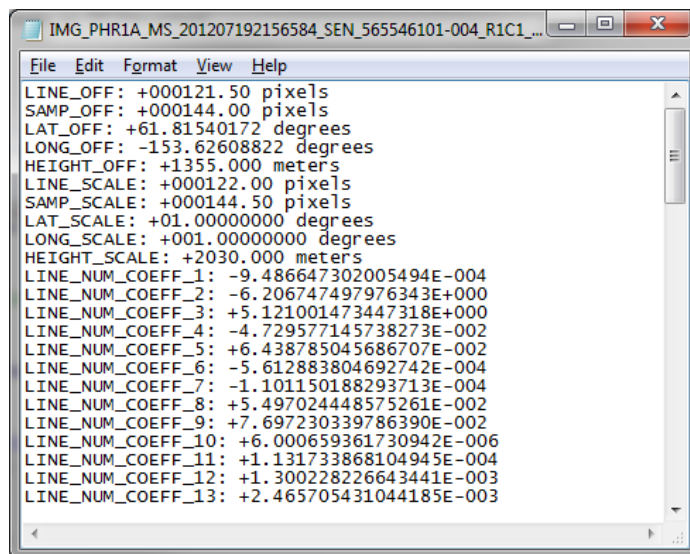
*New **File>Export to alternative RPC projects** tool*
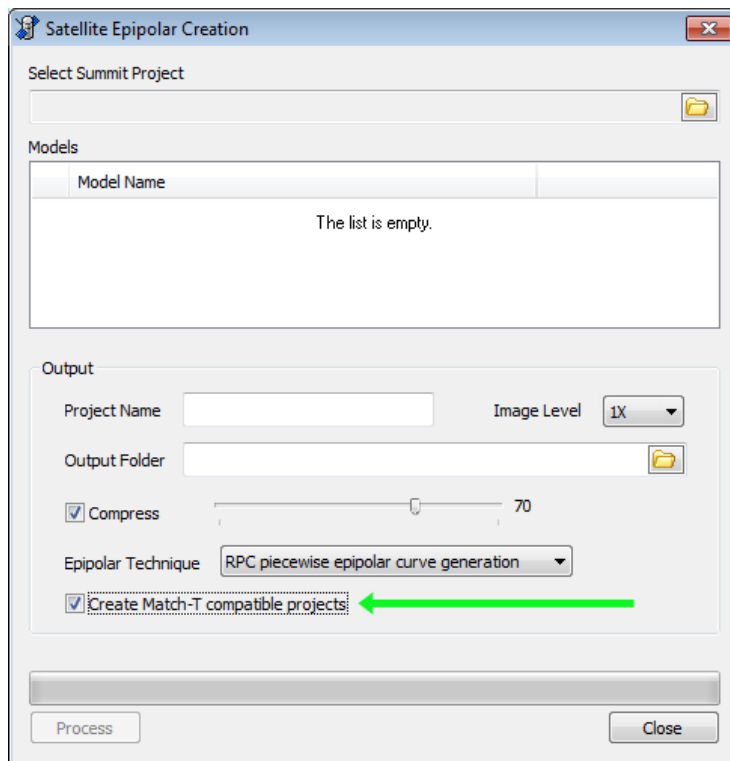
***Imagery>Satellite Epipolar** has a new **Create Match-T compatible projects** setting*

File>Import>BLK has *RPC Based projects* settings (see also item 18.h above)

*Example of the external IKONOS-format _**rpc.txt** file that is created*

19. <u>Superimposition</u> has the following changes:

   i.   In Capture for ArcGIS, Summit's 3D Vector Split Window and multiple viewport **Show 3D SI in viewport** displays previously showed TIN-like lines on polygons. This has been fixed to show the polygon only.

   j.   A problem was fixed so that superimposition draws correctly when the user is actively drawing an object at the time the next model automatically loads.

   k.   Superimposition now updates automatically when a new Summit project or new CAD/GIS file is opened. This especially helps to synchronize the Summit SI Layer Manager.

20. Contour Creator has the following changes:

    a. A fix was made to DAT/EM Capture for MicroStation that enables Contour Creator to correctly write and erase/rewrite contours directly into an active MicroStation file.

    b. There is a new **Division** tab that lets you select whether or not to break up the input data for contour processing. If it is broken into parts, it lets you select the maximum number of data points in the areas.

        Contour Creator has always broken up the data in past versions; the default values now on the **Division** tab are the values used in past versions. Use the **Default** button to reset these values when necessary.

        Contour Creator breaks up the areas for two reasons: For faster processing and to avoid running out of memory. The contours are calculated in the areas and then joined together at the end. Sometimes when there is a gap in the input data or unusual input data, the join does not work and the contours are left disconnected. If this happens, you may wish to change the **Division** settings. Sometimes changing the settings shifts the breaking grid and helps avoid a problem area where contours remained disconnected.

        DAT/EM recommends you keep the setting on and at the default values unless you have a problem with contours remaining disconnected.

        Turn **Division** off only if the computer has enough memory to generate the whole project at once. It is possible for the user to make settings that will run the computer out of memory and crash Windows!

        The **Output division areas [to CAD]** grid is used for checking purposes. You may look at the contour joins at the grid lines and make sure they are joined correctly.
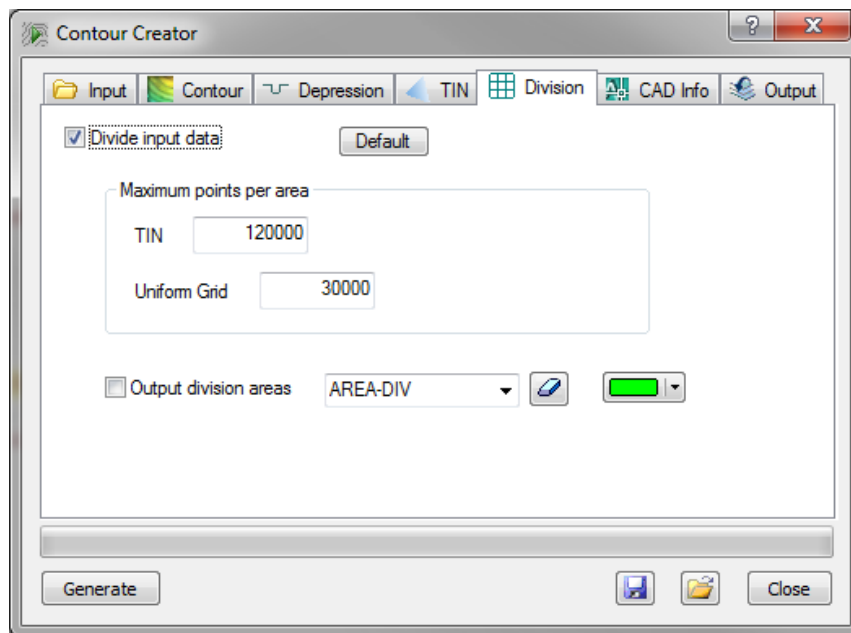
*New **Division** tab*
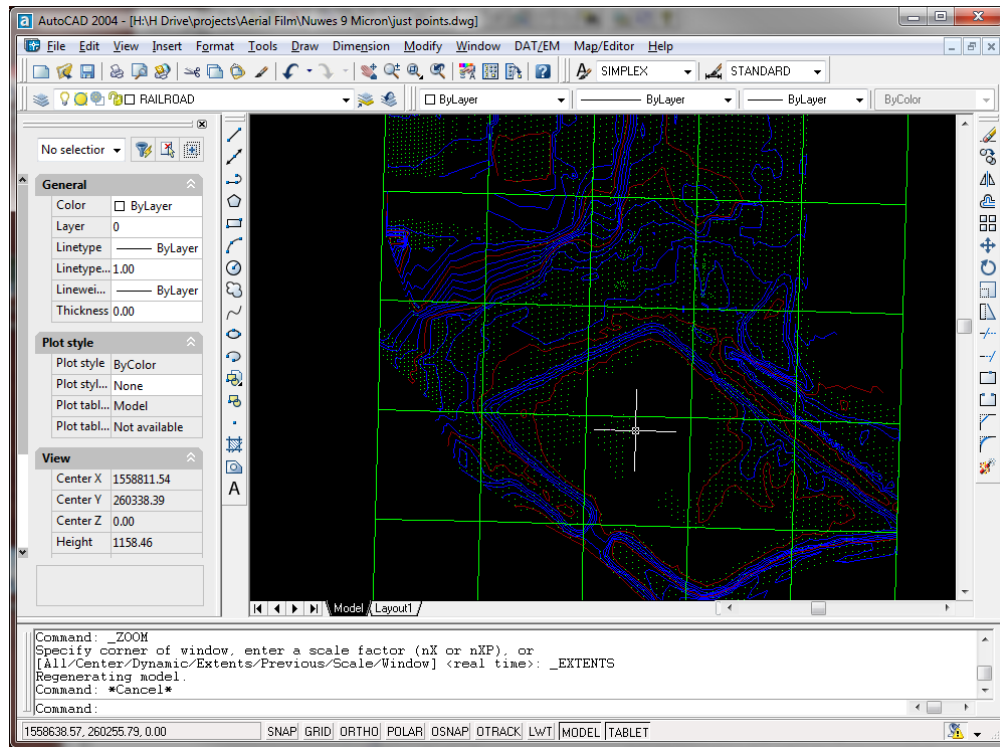
For example, here division lines are written directly to the AutoCAD green AREA-DIV layer

21. Image Creator has the following changes:

a. NTF satellite imagery files previously had a 2GB file size limit. Larger files may now be used. This applies to Image Creator, Summit Evolution, and any other DAT/EM application that reads and displays images. DAT/EM recommends using Image Creator to input large NTF files and output SMTI with compression on and set to 85%. Our samples have shown that some large NTF files are stored as 16 bit, but are really only 11 bits of useful information and have many black pixels; therefore, compression will greatly reduce the file sizes. In one example, compression at 85% reduced a 7.9GB NTF file to a 244MB SMTI file without noticeable loss of resolution. If SMTI files are in the same folder as the NTF files, the SMTI will be used.

Another option for large NTF files is to convert them to JPEG2000 (described in 21.c below). DAT/EM tested a 7.9GB NTF and converted it to a 55MB JP2. The resulting load and tile time in Summit was acceptable, although somewhat slower than the TIF/SMTI format. Please note that the compression for the TIF/SMTI uses the old JPG compression standard, while the compression for the JP2 uses the new JPEG2000 compression standard. The TIF/SMTI has more resolution loss and higher file sizes, but is faster to load and tile in Summit. The JP2 has less resolution loss and smaller file sizes, but is slower to load and tile in Summit. In the end, it is up to the user to decide which to use.

b. CR2 (Canon Raw Image) is a new image format that is recognized by Image Creator, Summit Evolution, and all other DAT/EM software that reads images. Since the RAW formats are somewhat like digital negatives, DAT/EM chose conversion parameters that make the image look "reasonable" and give fairly close results to those seen in Adobe® Photoshop®'s conversion method.

c. Image Creator has a new setting to output JPEG2000 format. DAT/EM's intention is to offer JPEG2000 for creating orthophotos and mosaics, especially if the imagery is true 16-bit (with all 16 bits used) or has more than three bands. DAT/EM does not recommend that everyone change to using JPEG2000 for every project. It is a really great format for some tasks, but it is not as fast as TIF for viewing purposes.
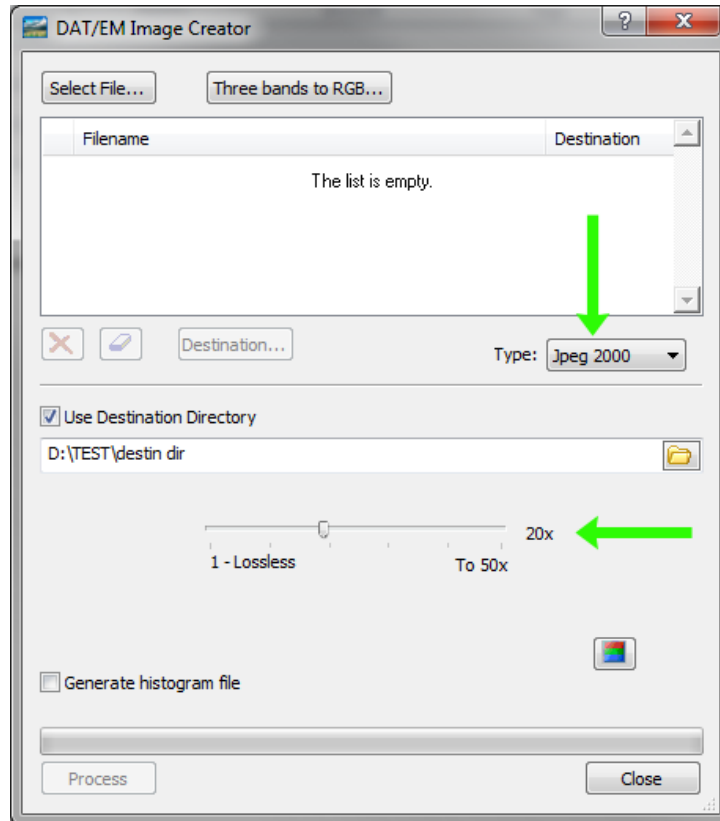
New Jpeg 2000 setting in Image Creator

> **JPEG2000 "pros" (good):** Can compress any number of bands (the old JPEG compression standard only supported up to 3 bands); Has full 16-bit support (the old JPEG compression standard supported only exactly 8 or exactly 12 bits. Some imagery, although appearing to be 12 or 16 bit, does not use all the bits. Satellite imagery sometimes uses 11 of the 16 bits, which causes problems with the old JPEG standard.). Better quality lossless compression (the old JPEG compression standard was quite lossy); Stores resolution levels similar to zoom levels; Processes images larger than 4GB (the old JPEG compression standard had a 4GB limit).

> **JPEG2000 "cons" (bad):** Slower than TIF in Summit.

DAT/EM offers the following general recommendations:

> Use JPEG2000 for imagery that is 4- or more-band and needs compression.

> Use JPEG2000 if generating orthophotos and mosaics from 4- or more-band imagery.

> Use JPEG2000 if generating orthophotos or mosaics with compression on and at least one resulting file is expected to be greater than 4GB.

> If the imagery is 3-band or not being used to make orthophotos, use TIF or SMTI.

> In the 3-band case where compression is on and each output file is expected to be less than 4GB, use TIF or SMTI.

Iif the output is TIF, SMTI, or New TIF+PYR and compression is checked on, the older JPEG compression standard is used. The newer JPEG2000 compression standard is simply not part of the TIF specifications and should not be applied to TIF.

d.   This function was available in version 6.6, but was left out of the 6.6 Product Notes. There is a new checkbox, **Generate histogram file**. When on, a **.histohfa** file is created at the same time as the image and/or image zoom levels. The **.histohfa** file contains a complete histogram analysis of the image. If it exists, it is used by **Imagery**>**Project Histogram** and the **Imagery**>**Image Adjustments**>**Histogram Equalization** setting. If it does not exist, the **Histogram Equalization** setting uses a smaller, less accurate sampling for the adjustment. Note that the same **.histohfa** files can be generated from the by **Imagery**>**Project Histogram** dialog.

22. Point Translator has the following changes:

a.   When the output was set to "ASCII XYZ" with the extension "XYZ", the coordinates would not be written to the file. This has been fixed.

b.   Tab delimited ASCII files can now be used as input.

23. Image Viewer: When Summit has an aerial project open and Image Viewer has an orthophoto open in the same geographic area with the same coordinate system, Image Viewer will track smoothly with Summit and show ground coordinates. *Note:* Any coordinate system conversion settings in either application are independent of each other, so that they may be transformed separately (this is not a change).

24. Generate Lidar Images: Both pixel scale radio buttons could be on at the same time, so that the user could not enter a custom pixel scale setting. This has been fixed.

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

a.   The mosaic process has been fixed to properly create a 4-band mosaic from 4-band orthophotos.

b.   Create Mosaic now automatically adjusts the cache size based on the input orthophotos. This prevents crashes with large images. Important notes:

> ➢   Please be aware there is still a 4GB limit on the size of the output mosaic TIF file.

> ➢   If the 4GB limit is exceeded, the output image will look "jumbled", with blocks of the image mixed up and appearing in the wrong areas.

> ➢   Always use the calculator button at the lower right of the Create Mosaic dialog before generating the mosaic. If the expected image size is near or higher than 4GB, beware!

> ➢   For up to 3-band images, use image compression or to make multiple smaller-area mosaics to preserve system resources.

> ➢   Remember that the JPEG image compression standard supports only up to 3 bands. The **Use JPEG compression** setting will be ignored if the input orthophotos have 4 bands.

c.   The vector file loading process now loads vector files many times faster.

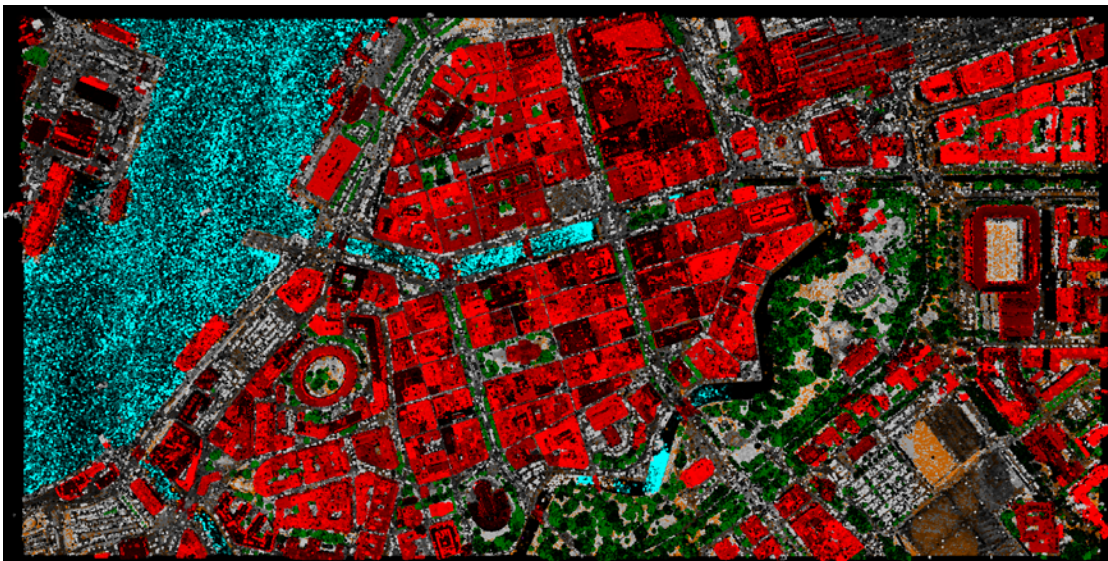## Landscape

The following changes were made to LANDSCAPE:

1. Building classification is a new tool to classify building roof tops and outside walls. Recommended settings:

    *   Point spacing >= 1 point per m^2 (the denser, the better)

    *   If a project contains overlying files, use the DAT/EM Point Translator to tile the file into multiple separate files so that no files overlap.
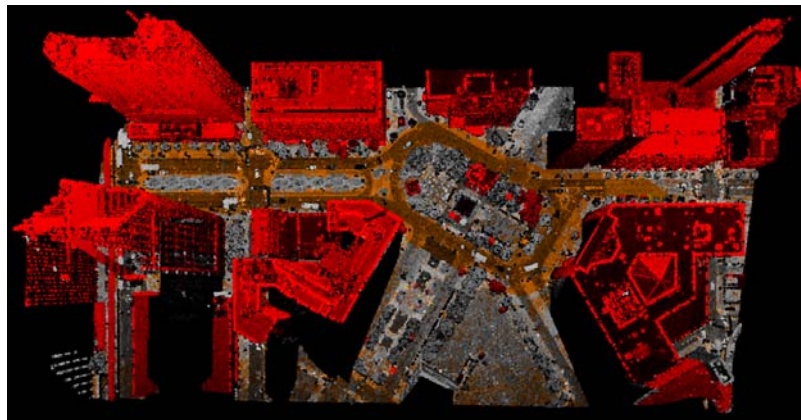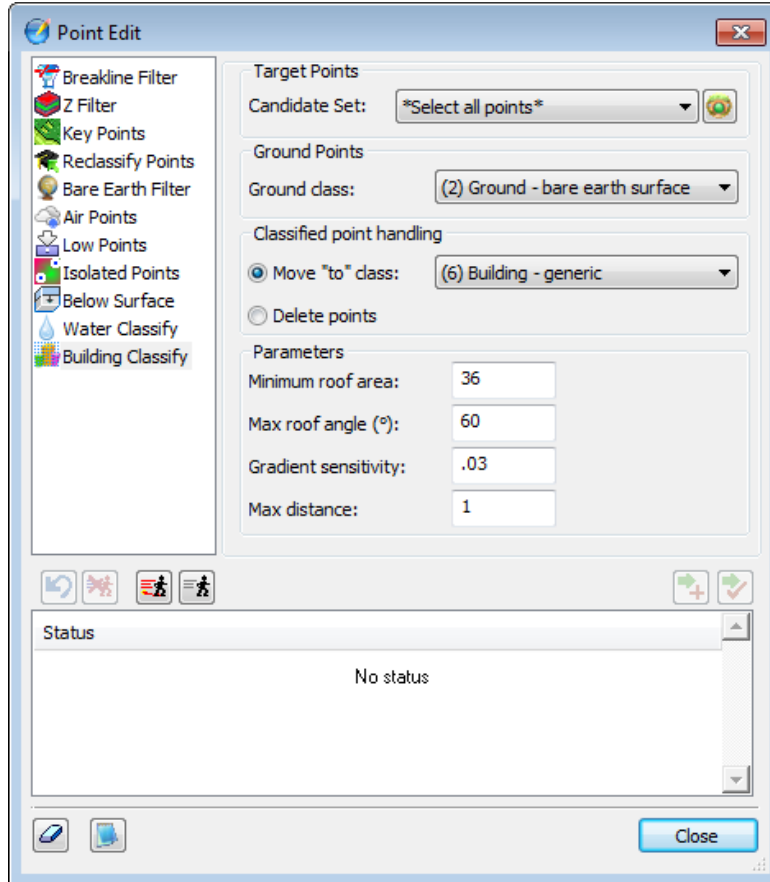
Zoomed in view of a Building Classification area
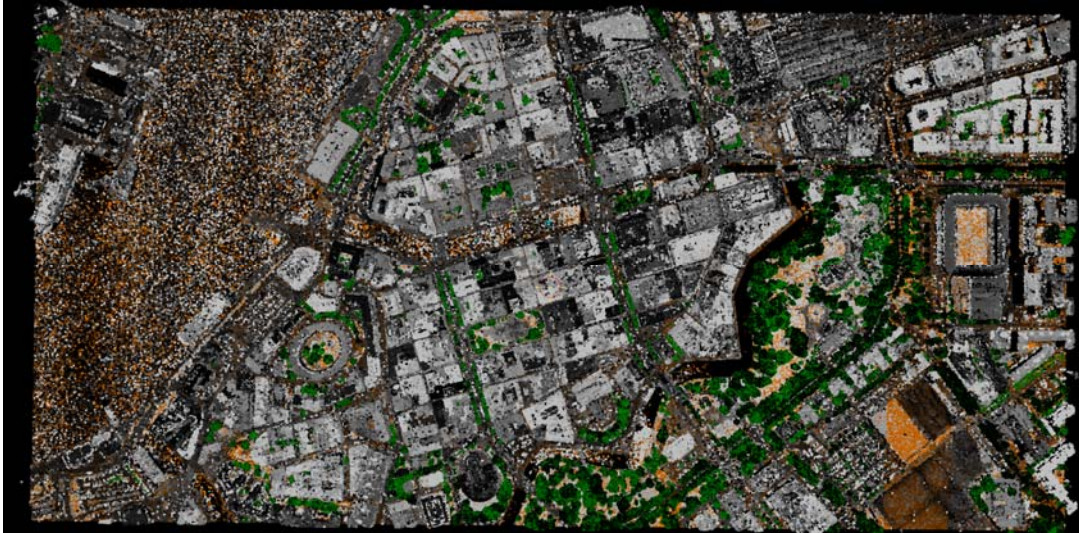
Points in Landscape before Building Classification

*Points in Landscape after both Building Classification and Water Classification*

DAT/EM Capture for ArcGIS

The following changes were made to DAT/EM Capture for ArcGIS:

Compatible with 32-bit versions of ArcGIS 9.1, 9.2, 9.3.1, 10.0, and 10.1 (each with the latest service packs installed)

1. There is a new automatic method to enable and disable DAT/EM Capture. This is useful when using a network hardware lock and when DAT/EM software is installed on more computers than there are DAT/EM Capture licenses. A user who wants to use ArcMap, but does not want to use Summit and DAT/EM Capture can easily unregister the Capture dll before launching ArcMap. Select **Windows Start** > **All Programs** > **Datem Software** > **Utilities** > **Capture Enable** or **Capture Disable**. A dialog will appear; select **Register** or **Unregister**. Wait as the dll is registered or unregistered. Please note that this also enables/disables DAT/EM Capture for MicroStation and AutoCAD if they are also installed on the computer.

2. The DAT/EM cursor on the ArcMap side is now configurable. There is a new **Cursor** tab on the **DAT/EM Capture Options** dialog:
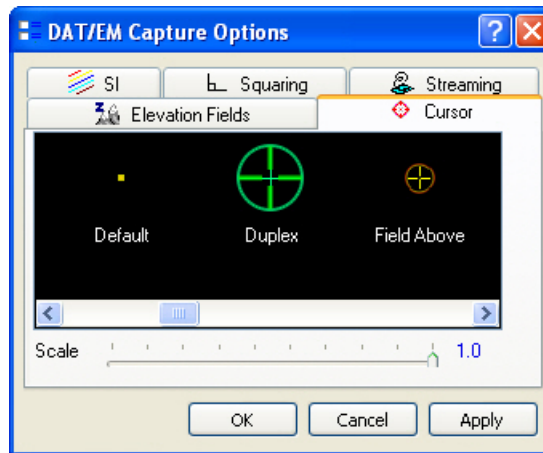
   The cursor appears in ArcMap only when **Use DAT/EM Cursor** is on (highlighted) on the DAT/EM Capture Tools toolbar. By default, the same cursor that Summit is currently using is set, but they may both be set to different cursor designs. It offers the same **.cursor** files that Summit Evolution uses. Use Summit's **Tools>Cursor Editor** to create and modify cursor designs. Please note that the cursor's opacity setting cannot be rendered in the ArcMap view; therefore all vectors and shading will be 100% opaque. If there is semi-opaque fill in a cursor that you like in Summit, you may want to copy it to another name and edit the ArcMap version to turn off **Filled**. Cursor files are found in **…\Program Files (x86)\Datem Software\Cursors** (Windows 7) or **…\Program Files\Datem Software\Cursors** (Windows XP).

3. The DAT/EM Capture **Options** (ArcMap side) > **SI** tab > **SI Fill Polygons** setting is now being saved properly.

4. The arc drawing tool now functions properly in geographic (latitude-longitude) coordinates.

5. Shift Vertex XY, XYZ, and Z tools now work properly with polylines.

   ➢ This tool now ignores second picks that snap back to the original object. You may snap to anything *except* the original object.

   ➢ The **Shift using Stereoplotter>Vertical** setting was shifting in (x,y,z). It has been fixed to shift in (z) only.

6. Modify Feature with the Summit cursor on and using the Point-to-Point drawing tool could not snap to the same object two times in a row. This has been fixed.

7. Summit's CAD Toolbar **Close** option was not working for ArcGIS. Now it properly calls the DAT/EM **Close Polyline** tool.

8. Summit's SI Layer Manager was not operating correctly with ArcGIS geodatabases. It only worked with shapefiles. This has been fixed to work with both.

9. **SI Drape** is a new tool that applies a Z value from a DTM/DEM file to 2D data layers so they can be superimposed in 3D in Summit Evolution. This does not affect the 2D source data on the ArcMap side. It may be used to avoid having to use the "2D SI" setting in Summit. This tool does not affect data layers that are already 3D.

To launch the tool from a button or the DAT/EM Keypad, use:

CallCommand CaptureArcInfo.SIDraper

To use the tool, select **Drape 2D SI Objects using a DTM** from the **DAT/EM Capture Tools** toolbar.
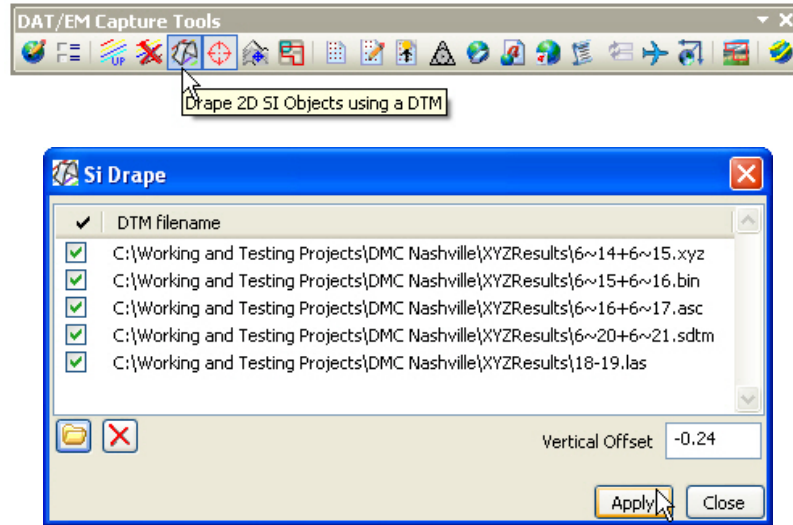
Browse for one or more point files to add to the list. Check on any files you wish to apply now. The list is saved between runs. Be aware that the list is not project dependent; please change the list if you change the project.

The **Vertical Offset** is added to the Z value if it finds one.

If the 2D object is outside of the DTM area, it won't apply either a Z value or the offset. In this case, the object will be set to the current stereoplotter elevation. This will make the vector appear in the current view, but of course it will follow the stereoplotter Z and seem to move up and down along with the stereoplotter. If you see this behavior, check that the DTM area overlaps the geographic area of interest and is in expressed in the same coordinate system used by the Summit project.

Point thinning will always be used. The points-in-use number is capped at 1,000,000 (one million) points.

As always, binary DTM file formats will be faster. If the DTM file is not in the correct coordinate system or is not in a binary format, use the DAT/EM Point Translator to change the file.

Note that the Z values applied to the vectors will only be as good as the accuracy of the DTM/DEM file. If desired, verify the DTM file extents and accuracy using Summit's **SI>SI Lidar** tool.

The initial superimposition update will take longer with **SI Drape** on.

10. **Extend Line** is a new editing tool that extends the end of a polyline to snap to another object (line, point, or polygon). To use:

   ➢ Turn on classic snapping for both the line to extend from and the object to extend to. These may be on the same or different layers.

   ➢ Select the **Modify** task on the DAT/EM Capture Drawing Tools toolbar.

   ➢ Select either **2D** or **3D** snapping from the DAT/EM Capture Drawing Tools toolbar. **Extend line…** adds a new vertex. With 2D snap, the new vertex will snap in (x,y) only and keep the elevation of the extend-from line's original endpoint vertex. 3D snap will snap the new vertex in (x,y,z) to the extend-to object. For example, set 2D snap to extend a driveway to a building roof, but use 3D snap to extend a driveway to a road.

   ➢ Select the **Extend…** tool on the DAT/EM Capture Editing Tools toolbar or use a button or keypad key that includes the keyword **ExtendLineEnd**.. Snap to the end of the line to extend and snap to the destination object.
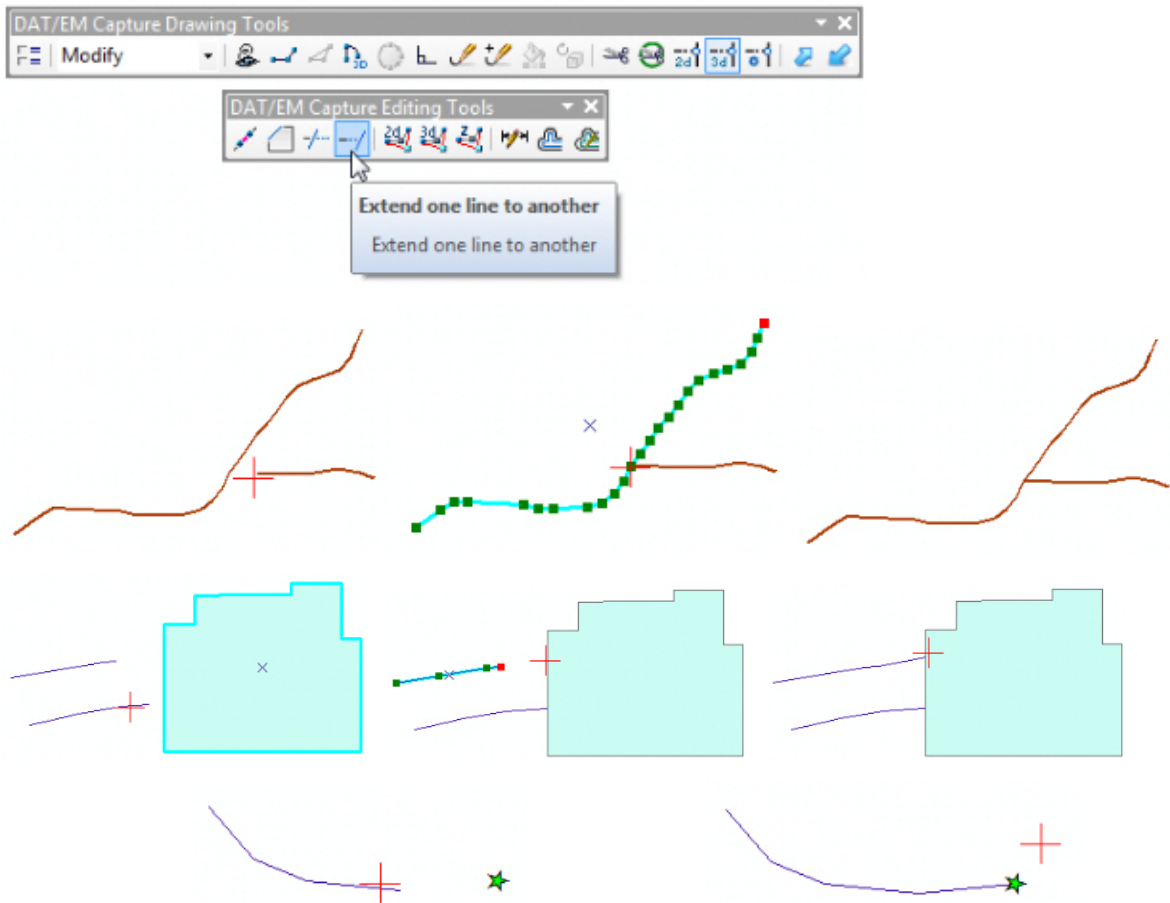
*Results of **Extend…** to a polyline, polygon, and point*

11. **Clip Line** is a new editing tool that clips off (trims) the end of a line back to its intersection with another polyline or polygon. To use:

   ➢ Turn on classic snapping for both the line to clip and the intersected object. These may be on the same or different layers.

   ➢ Select the **Modify** task on the DAT/EM Capture Drawing Tools toolbar.

   ➢ Select either **2D** or **3D** snapping from the DAT/EM Capture Drawing Tools toolbar. 2D snap will clip the line to the (x,y) of the intersection with the extend-to object; it sets the new endpoint z to the original z of

the clipped line. 3D snap will snap the intersection with the (x,y,z) of the clipped-to object. For example, use 2D snap to clip a driveway to a building roof, but use 3D snap to clip a driveway to a road.

➢ Select the **Clip one line…** tool on the DAT/EM Capture Editing Tools toolbar or use a button or keypad key that includes the keyword **ClipLineEnd**.

➢ For the first pick, snap anywhere along object to clip.

➢ For the second pick, snap anywhere along the intersecting line or polygon.

The shorter overlapping end of the first-picked line will be trimmed back to its intersection with the second-picked line or polygon.
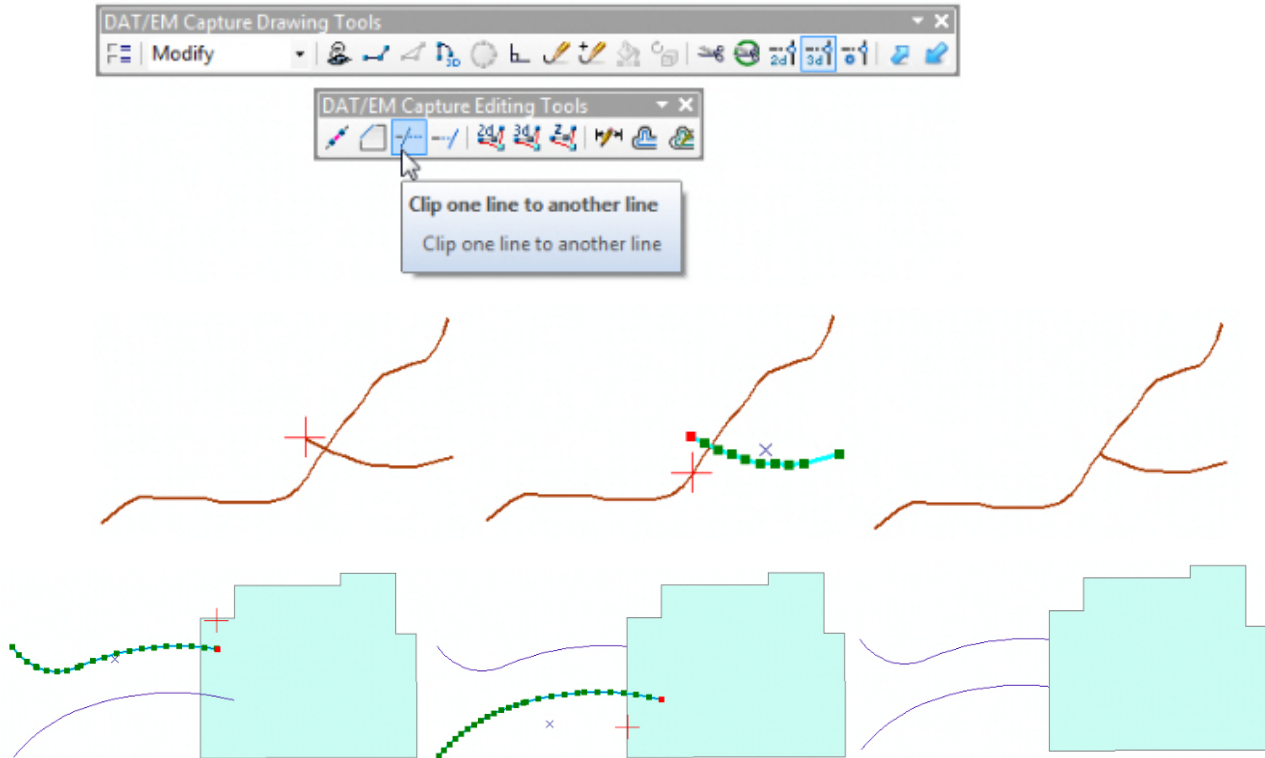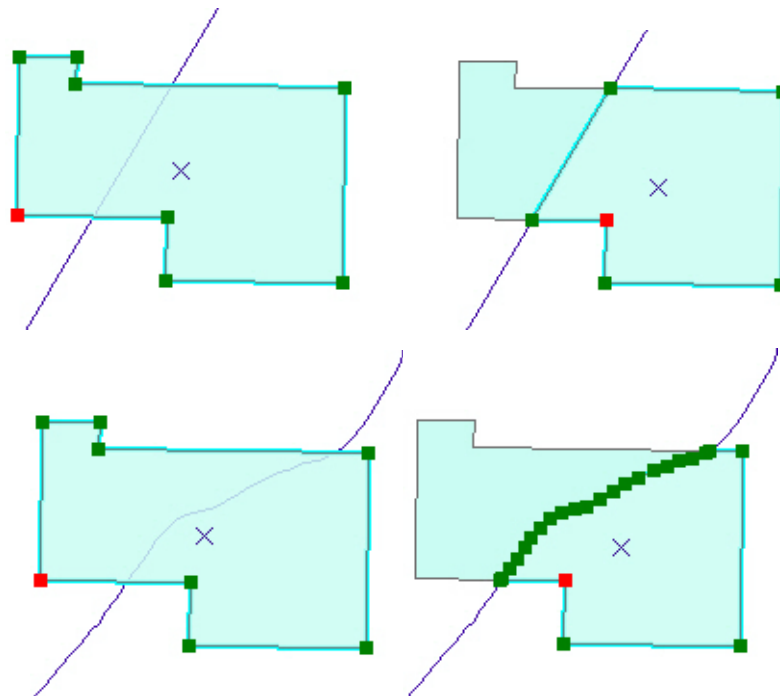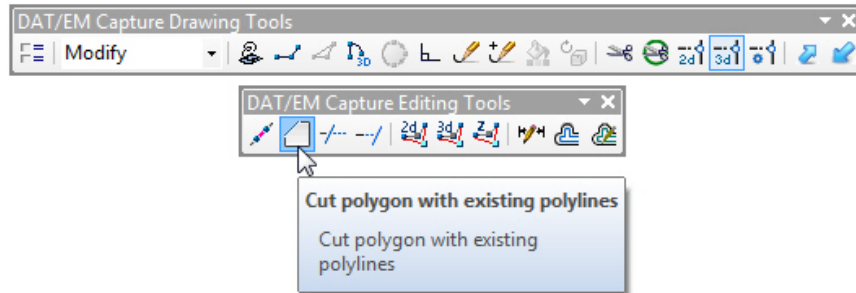

*Results of the new **Clip Line…** tool*

12. **Cut Polygon with Existing polyline** is a new editing tool. As the name indicates, it cuts a polygon along an existing polyline. To use:

> ➢ Prepare a polygon and a polyline that crosses the polygon.

> ➢ Select the **Modify** task on the DAT/EM Capture Drawing Tools toolbar.

> ➢ Select either **2D** or **3D** snapping from the DAT/EM Capture Drawing Tools toolbar. If 2D snap is set, the elevation of the original polygon is used; if 3D snap is set, the elevation of the polyline is used for the new vertices on the polygon. (Classic Snapping Environment settings are not necessary.)

> ➢ Select the **Cut polygon with existing polyline…** tool on the DAT/EM Capture Editing Tools toolbar or use a button or keypad key that includes the keyword **CutWithExisting**.

> ➢ For the first pick, pick on or very near the polygon.

> ➢ For the second pick, pick on or very near the polyline.

*Results of the new **Cut polygon with existing polyline** tool*

(objects selected for demonstration purposes)

13. **DAT/EM Capture Auto Complete** is a new tool that works in ArcGIS 10.0 and higher. It is similar to ArcMap's own Auto Complete, except DAT/EM has made it better for mapping purposes. The differences between the versions is outlined in the following table:

ArcMap Auto Complete	DAT/EM Auto Complete
Drawing must start inside one of the polygons with which it will share an edge.	Drawing can start anywhere.
The sketch must cross out of and back into at least one polygon. If it does not, the sketch disappears when finished.	A sketch that does not cross or enclose any other polygons simply becomes a polygon with no shared edges. There is one rule, however: The sketch must come close to some polygon somewhere. ArcMap will not complete the sketch unless a polygon is "selected" (even if it is not involved in the operation!), so DAT/EM must search a radius and find some polygon – any polygon! – to hand over to ArcMap. This is not a DAT/EM limitation, but rather ArcMap's. If the sketch does not complete due to being too far away from any other objects, please use Create New Feature instead of DAT/EM Auto Complete. There is usually no need to change tools to draw one auto complete polygon and one non-shared-edge polygon nearby.
The layer of the new polygon must match the layer of the polygon(s) with which it shares edges.	The new polygon may be on any polygon layer. It shares edges with polygons on any layer(s). For example, set the "Parking Lot" layer and draw a parking lot that shares edges with several buildings and sheds.
Intersections with crossed polygons are always snapped in 3D.	Intersections with crossed polygons can be snapped in 2D or 3D. For example, 2D snap mode makes it possible to draw a parking lot at ground elevation around a building rooftop, or draw a taller building roof adjoining a lower building roof. 3D snap mode would be used if the adjoining buildings were at the same elevation.
The new polygon is always one exterior ring. It can cover other polygons.	The new polygon has one exterior ring and may have any number of interior rings. Polygons that are completely inside the sketch will be cut out as interior rings. Layers that are currently off will not be used to cut out interior rings. Examples: A parking lot that has a building completely inside it will share the building edge as an interior ring. The outside of a grassland polygon can be drawn and share interior ring edges with lakes located inside the polygon.

The Keyword for the Keypad or button programming: **AutoCompleteTask**

To use **DAT/EM Capture Auto Complete**:

- Select a polygon target layer from the ArcMap Create Features window.

- Set 2D or 3D snap. (Note that snaps will be either all 2D or all 3D, and are determined by the snap mode at the time the sketch is *finished.* It is not necessary to pick snap points; cross the snap points instead.)

- Turn off (uncheck in the TOC) any polygon layers that you do not want to be used as interior ring edges. This applies only to polygons that lie at the edge or inside the area where you will draw the new polygon.

- Select the DAT/EM Auto Complete tool from the task list on the **DAT/EM Capture Drawing Tools** toolbar or use a button or keypad key that includes the keyword, **AutoCompleteTask**.
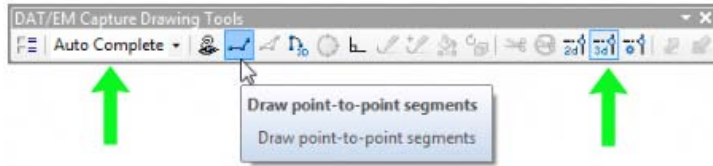
- Start the sketch. The first vertex can be either inside or outside other polygons. It should be somewhat near a polygon.

- Draw and finish the sketch. Completely enclose polygons to become interior ring shared edges. To share an edge with an existing polygon, cross the sketch into and out of the polygon at the location where the shared edge starts and ends. Cross any number of polygons. Note that a sketch near another polygon, but that neither crosses nor encloses any other polygon becomes a new exterior-ring-only polygon.

- Finish the sketch.
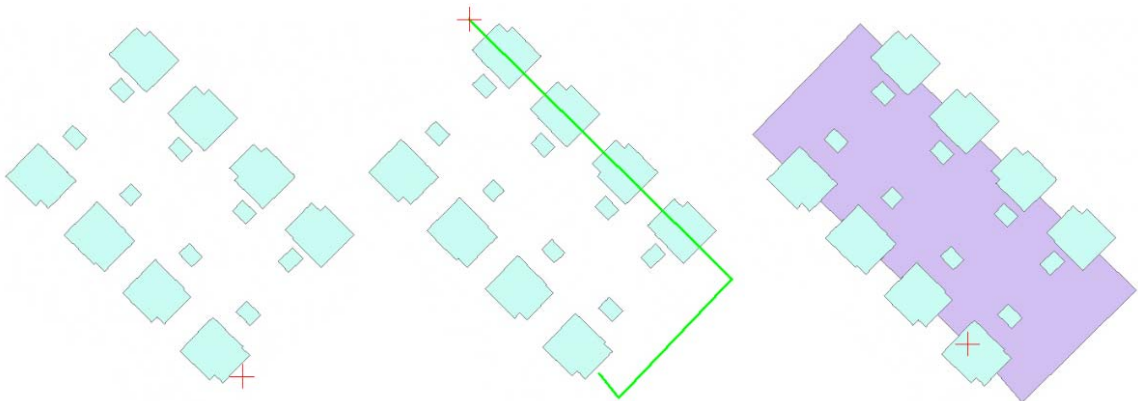
Begin to draw near a polygon. Cross polygons to share edges; enclose polygons to make interior rings. Finish the sketch to auto complete the polygon and cut interior rings, if needed. This example shows one exterior ring and eight interior rings created.
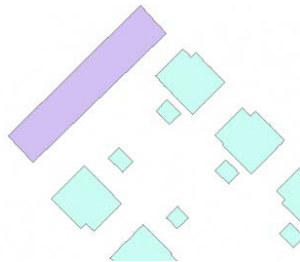
A sketch near another polygon, but that neither crosses nor encloses any other polygon becomes a new exterior-ring-only polygon.

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14. <u>Airfield3D</u> has the following updates:

   ➢ The Ellipsoid Height field setting specifications are not clear in the 18B document. A customer interviewed an FAA employee and learned that, "…all of the vertically measured items should be at the NAVD88 elevation and all calculations in the attribute fields are based on vertical differences in NAVD88 elevations. The Ellipsoid height attribute is the ground measurement of the object in ellipsoid height units." Changes have been made to Airfield3D to accommodate this interpretation. An **Ellipsoid Offset** field is now located at the lower right of the Airfield3D dialog. If the Ellipsoid Offset setting has a non-zero value, the offset will be added to the elevation. Please keep in mind that in the continental United States, the ellipsoid height is always lower than NAVD88, so the entry will most often be a negative number. If the **Ellipsoid Offset** field is left blank or set to zero, no offset will be applied. The **Ellipsoid Height** height will be saved for the next use of the dialog.
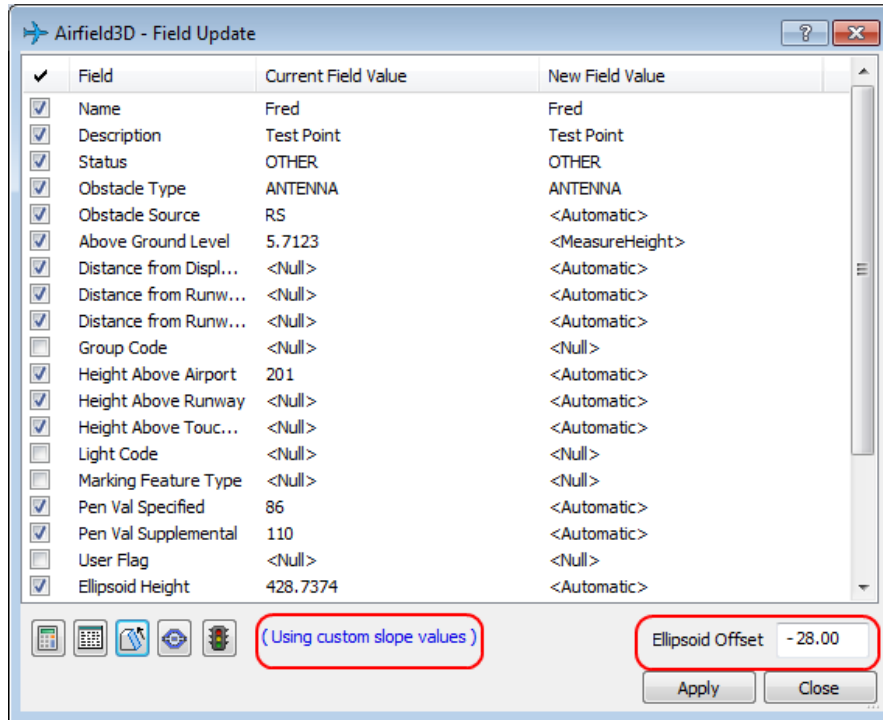
   ➢ If a custom slope is active, its setting is now shown in the main display to remind the user.

   ➢ Upon starting Arifield3D, no cursor was visible. The user had to select a cursor each time. This has been fixed. (This may have been a problem in early betas of v.6.7 only.)

   ➢ The OIS Surface Condition is no longer incorrectly automatically populated. "Supplementary" or "Primary" can now be selected by the user.

DAT/EM Capture and MapEditor for AutoCAD

Changes apply to:

> *32-bit AutoCAD 2004-2013 versions with the latest service packs.*

> *64-bit AutoCAD 2008-2013 versions with the latest service packs.*

> BE ADVISED: As of version 6.6, Capture no longer supports AutoCAD 2000-2002 versions. If you use these old AutoCAD versions, please upgrade to AutoCAD 2004 or higher before installing DAT/EM version 6.7.
>
> DAT/EM software will install for multiple AutoCAD products of different year numbers on the same computer; however, it will not install for multiple same-year versions together. For example, it will install for AutoCAD 2011 and AutoCAD Map3D 2012 together, but it will not install for both AutoCAD 2012 and AutoCAD Map3D 2012. Please note that files may be copied manually to activate more same-year versions (contact DAT/EM Support for instructions).
>
> Autodesk Infrastructure Design Suite installs three same-year AutoCAD versions (AutoCAD, Map3D, and Civil3D). You must run each version and register/"accept" each one before installing DAT/EM software *whether or not you intend to run every version with DAT/EM Capture active.* DAT/EM software will install completely for only one of them. After that, the user can manually copy the AutoCAD \datem folder and the wintab driver file into the other two versions of AutoCAD. Contact DAT/EM Support for instructions.
>
> Reminder: Install all available AutoCAD service packs and updates before installing DAT/EM software.
>
> Reminder: After every new AutoCAD installation, you must run AutoCAD at least one time to activate its license *before* installing DAT/EM software. This applies to every version of AutoCAD on the computer *whether or not you intend to use every version with DAT/EM Capture active.*

The following changes were made to DAT/EM Capture and MapEditor for AutoCAD:

1. There is a new automatic method to enable and disable DAT/EM Capture. This is useful when using a network hardware lock and when DAT/EM software is installed on more computers than there are DAT/EM Capture licenses. A user who wants to use AutoCAD, but does not want to use Summit and DAT/EM Capture can easily disable Capture before launching AutoCAD. Select **Windows Start** > **All Programs** > **Datem Software** > **Utilities** > **Capture Enable** or **Capture Disable**. Please note that this also enables/disables DAT/EM Capture for MicroStation and ArcGIS if they are also installed on the computer.

2. EDITLINE has the following helpful changes:

   a. If it receives "editline" while the EDITLINE prompt is already displayed, it simply returns to the prompt again. Previously, it would user the "e" to start the "end" option, and the user might not realize that option had started.

   b. An incomplete "Editline End" will now return the polyline to its original state. This happens when the user activates "Editline End", selects the breaking point, but hits Escape or Cancel instead of completing the edit.

3. Summit Evolution's **File**>**Export**>**Export Model Bounds**>**Send to CAD** had problems writing the model name text and sometimes the boundary polylines in the AutoCAD file. It now writes them correctly.

4. There is a new **Advanced OSnaps** tool. The keyin is ADVOSNAPS. It allows you to set an exact list of layers to use for object snapping.

   When **Activate OSnap layer filter** is OFF, AutoCAD's default snapping is used. Every layer is used for snapping.

   When **Activate OSnap layer filter** is ON, DAT/EM's advanced snapping takes effect. Snapping is by specific layers.

   - When **Include** is ON, the checked layers will be used for snapping. Unchecked layers will be ignored.

   - When **Exclude** is ON, the checked layers will be excluded from snapping, while the unchecked layers will be used for snapping. Use this setting when all but just a few layers will be used for snapping.
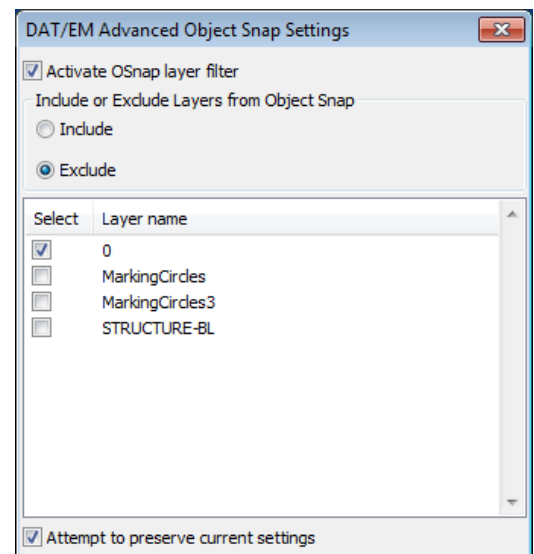
When **Attempt to preserve current settings ("preserve")** is ON, it will retain all settings as best as possible when a new drawing is loaded. In the case that a new drawing has exactly the same layers, the dialog layer list (and settings) will be identical to the previous drawing. If a newly loaded drawing only has some of the layers as the previous drawing, the intersecting layers will have the same setting as the previous, but the new layers that were introduced will default to checked on. When **preserve** is off, everything will be reset and **Activate OSnap layer filter** will be disabled when a new drawing is loaded. The dialog setting will be saved to the registry when the dialog is manually closed. If the dialog is shut down by AutoCAD when the AutoCAD application is quit, the settings will not be saved to the registry.

ADVOSNAPS is located in the **Measure<version>.arx** application. This makes it available for DAT/EM Capture in all editions of Summit and stand-alone MapEditor installations.

ADVOSNAPS has been added to DAT/EM's installed toolbars and menus. For example, it is on the MapEditor toolbar and ribbon menu:
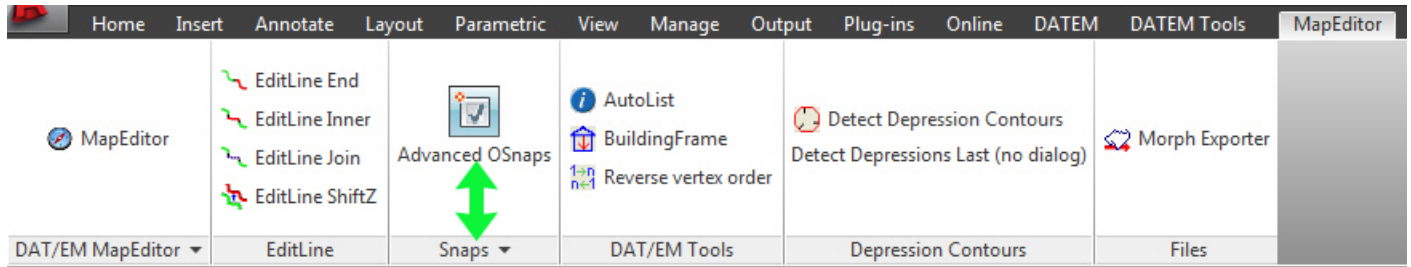
5. MapEditor for AutoCAD has the following changes:

   a. Volume Calculation has a new setting to convert the output units. For example, if the ground units are feet, volumes could be output in cubic yards instead of cubic feet.

   b. **XYZIn** and **XYZOut** have been updated to input/output multiline text.

   c. **Clip Objects** could give an error and fail to clip everything required. It could miss the last vertex of a closed polyline and clip as if there were a closing segment between the 2nd-to-last vertex and the 1st vertex. These issues have been fixed.

   d. **Clip Around Text** had trouble clipping all objects, especially if the extents of two text objects overlapped each other. This has been fixed.

   e. **Clip Around Text** has a new clipping buffer setting that allows you to clip an area larger than the exact text extents.

f.   **Clip** has a new option to move the clipped segments to a different layer. Our MicroStation MapEditor users will recognize this as the equivalent of "Change Attributes Interior". Choose one of the options:

- **Move clipped object(s) to layer** to move the clipped objects to a single named layer. This option is most useful if all the clipped objects originate on the same layer.

- **Move clipped to prefixed layer** to move the clipped objects to the layer name prefixed by the text in the field. This option is most useful if multiple layers will be clipped, because it keeps the clipped objects on separate layers from each other.

- **Delete clipped objects** to erase the clipped objects (original functionality).
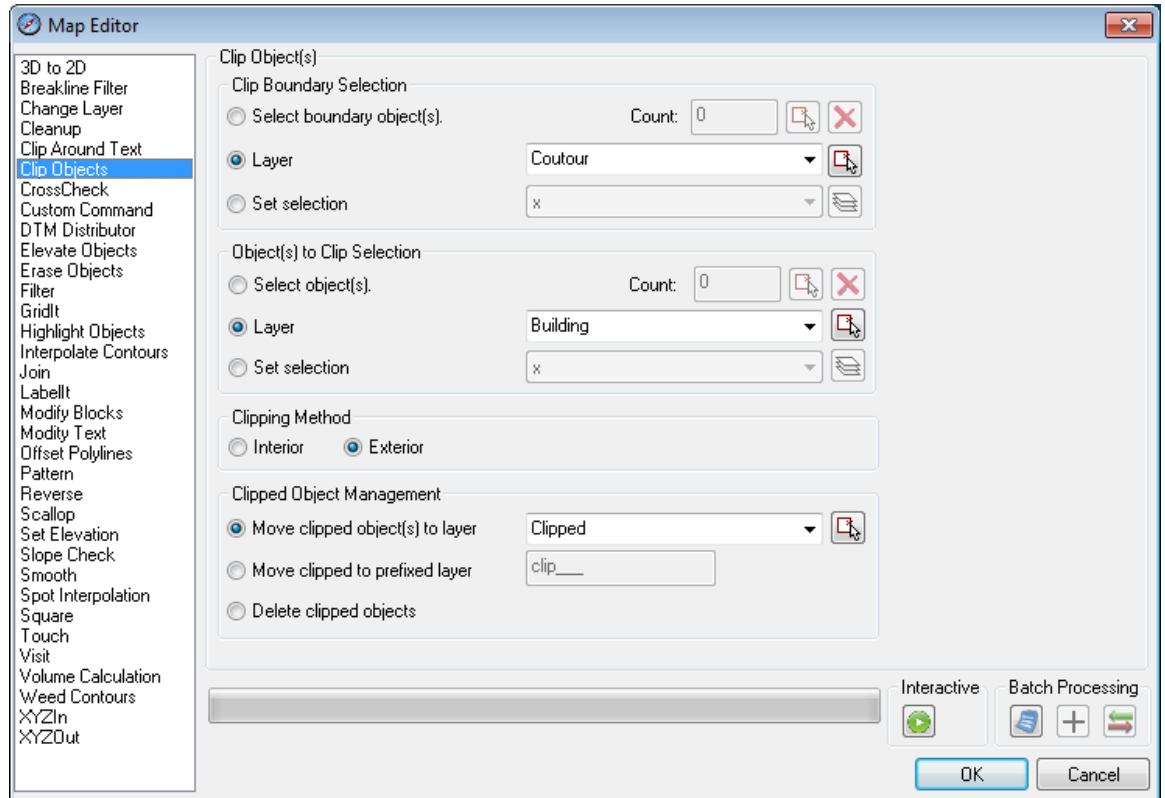
DAT/EM Capture and MapEditor for MicroStation

Changes apply to Capture for MicroStation V8/2004 Edition, MicroStation XM, and MicroStation V8i Series 1, 2, or 3 on 32-bit and 64-bit operating systems. Note:

- *MicroStation V8 and V8 2004 Edition: Version should be 08.05.00.34 or higher.*

- *MicroStation XM and V8i Series 1: XM version should be 08.09.04.88 or higher.*

- *MicroStation V8i, V8i-based Bentley Map and Map Enterprise Select Series 1, 2, and 3: Select Series 2 or 3 is recommended over Series 1.*

  If you upgrade from Select Series 1 to 2 or 3, you must reinstall DAT/EM software after installing the Series upgrade.

The following changes were made to DAT/EM Capture and MapEditor for MicroStation:

1.   There is a new automatic method to enable and disable DAT/EM Capture. This is useful when using a network hardware lock and when DAT/EM software is installed on more computers than there are DAT/EM Capture licenses. A user who wants to use MicroStation, but does not want to use Summit and DAT/EM Capture can easily disable Capture before launching MicroStation. Select **Windows Start** > **All Programs** > **Datem Software** > **Utilities** > **Capture Enable** or **Capture Disable**. Please note that this also enables/disables DAT/EM Capture for AutoCAD and ArcGIS if they are also installed on the computer.

2. MapEditor has two new parameter file commands: **Select Set (Setname)** and **Select Set (unselect)**. **Select Set (Setname)** is used to select all objects in an existing selection set. **Select Set (unselect)** clears the active selection. These commands are meant to "wrap around" a **Generic Keyin** in a parameter file; first select the objects, run the keyin, and finally clear the selection.

Find the new commands in the Parameter File Editor's Command list:
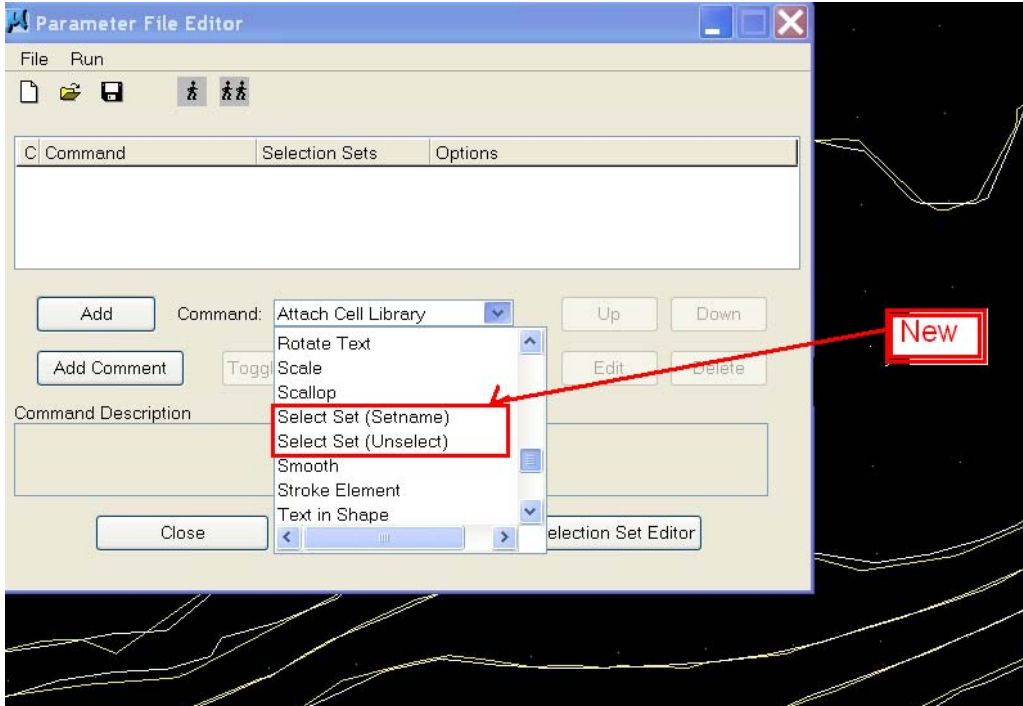

Choose **Select Set (Setname)**. Specify an existing selection set.

Immediately after the **Select Set (Setname)** line, add the **Generic Keyin** line.

Immediately after the **Generic Keyin** line, add **Selection Set (Unselect)**. This command does not have a dialog. This command ensures that the objects will not be further edited by subsequent commands. THIS IS VERY IMPORTANT! Failure to clear the selection could lead to other commands operating on the selected objects!

Example: Select objects, use the MicroStation **drop complex** command on the objects, and finish by clearing the selection:
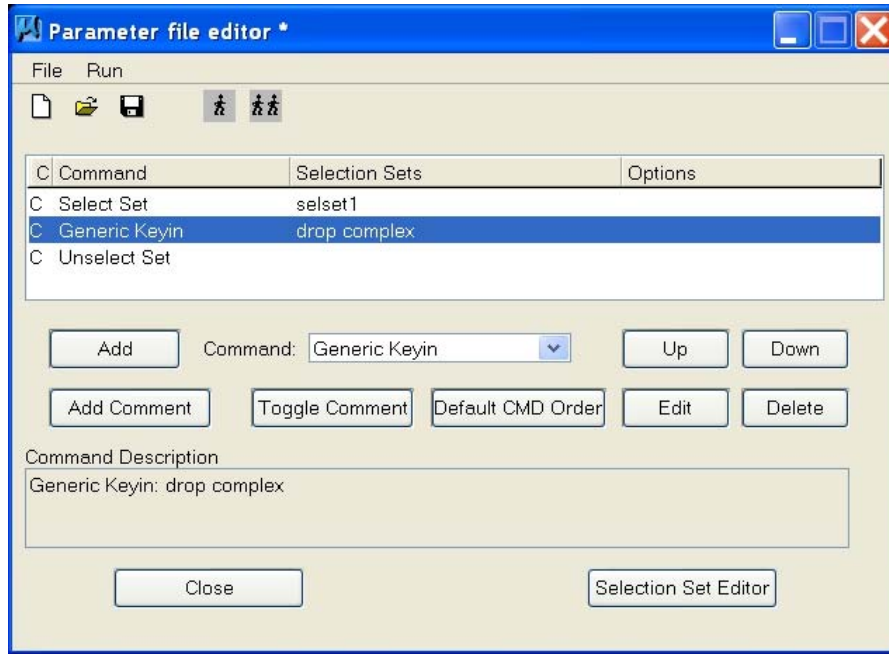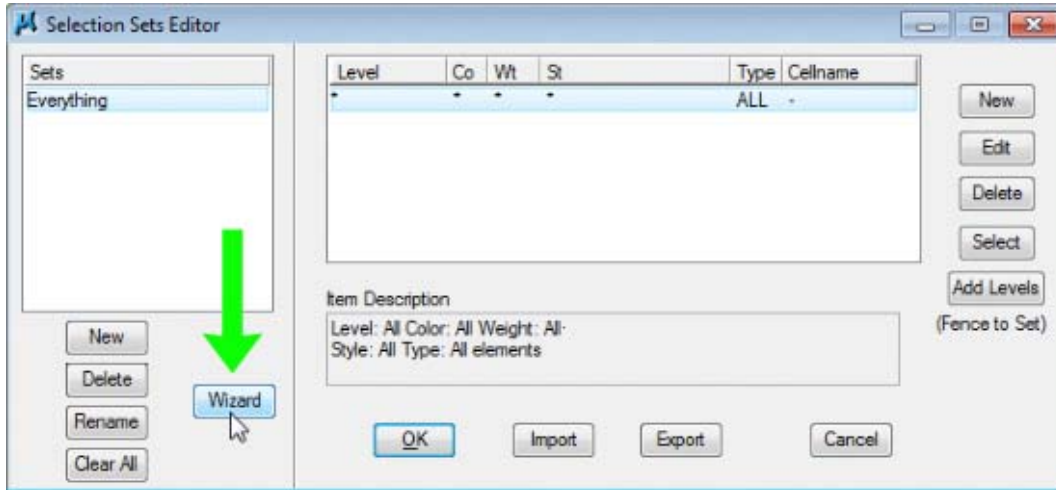
3. **MESCALLOP** has a new setting. When the setting is off, the arcs are collected together into a complex chain. When the setting is on, individual arc elements are placed.
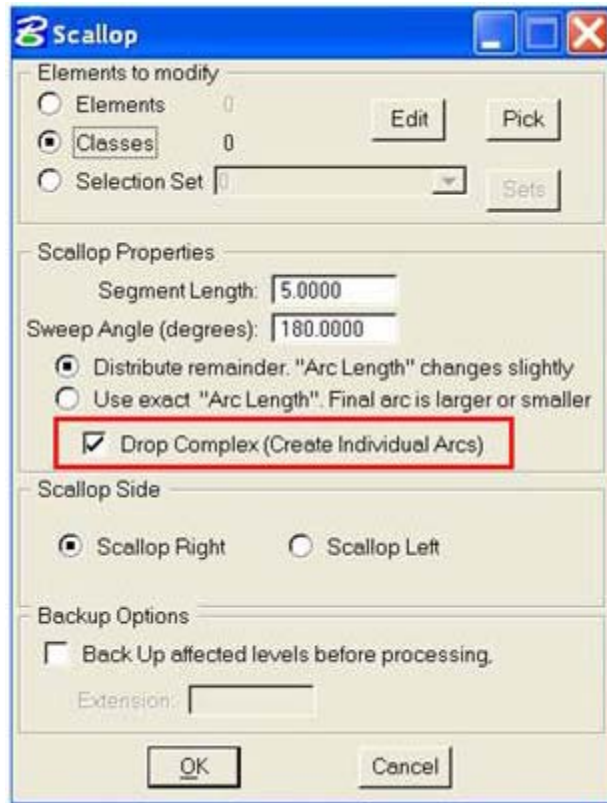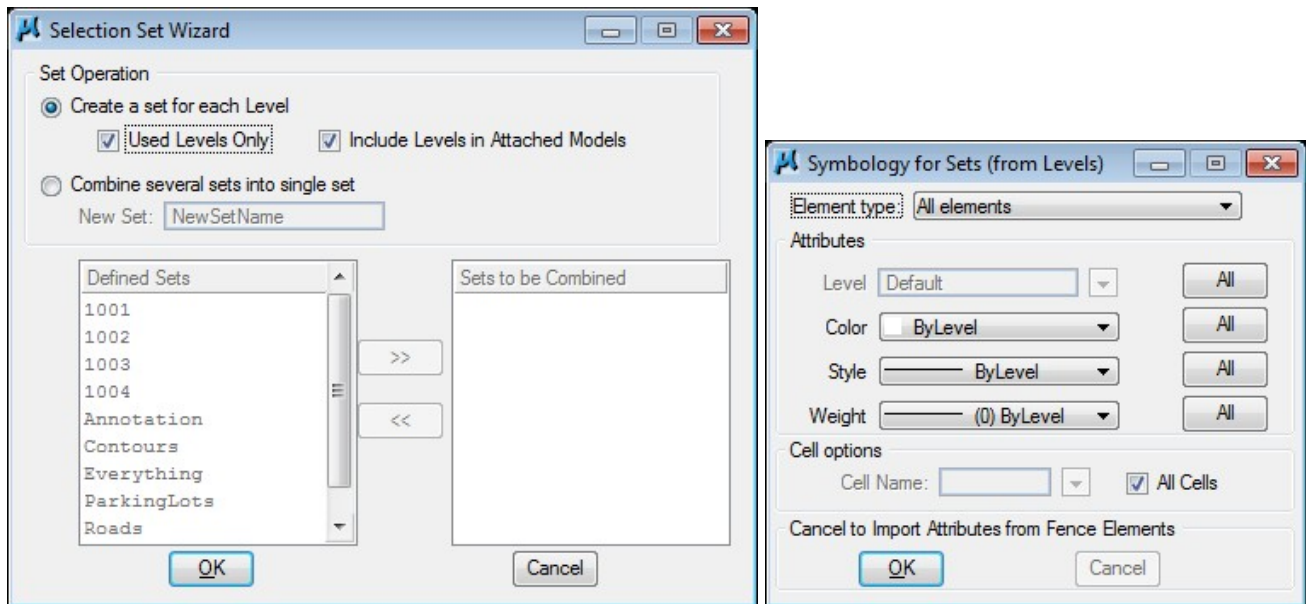

*New **Drop Complex** setting in **MEScallop***

4. The Selection Set Editor has a new **Wizard** button. This launches a wizard that has two functions:

*New Selection Set Editor **Wizard** button*

New Selection Set Editor Wizard and symbology choices for the new sets

Make settings in the Wizard as follows:

a. **Create a set for each Level:** This option creates a set for every level. Each created set will be named according to the originating level name. By default, all elements will be included and the symbology for the set will be "ByLevel". However, this may be configured any way the users wishes including wildcard ("*") symbology:

b. **Used Levels Only** ON**:** Creates a set for every level that has at least one object on the level.

c. **Used Levels Only** OFF**:** Creates a set for every level, whether or not the levels are empty.

d. **Include Levels in Attached Models** ON: Creates levels for the master file and all reference files.

e. **Include Levels in Attached Models** OFF: Creates levels for the master file only.

f. **Combine several sets into single set:** This option combines two or more previously existing selections sets into a new set. Give the set a name, select the sets to include, and select **OK**.
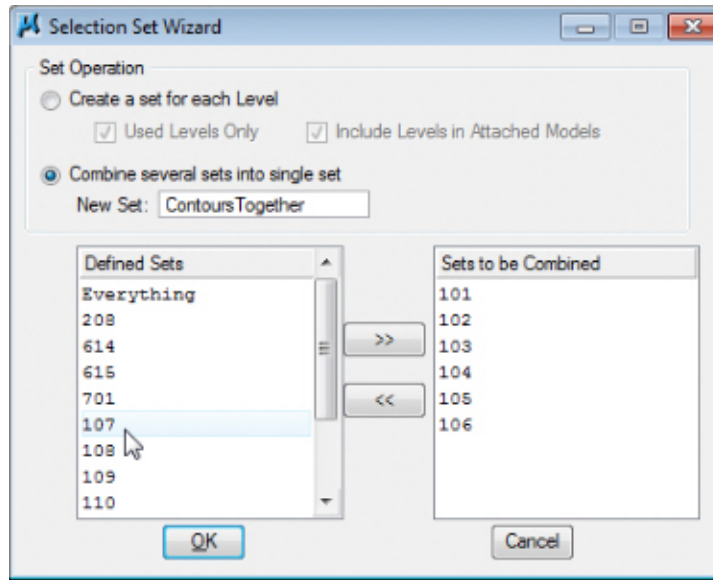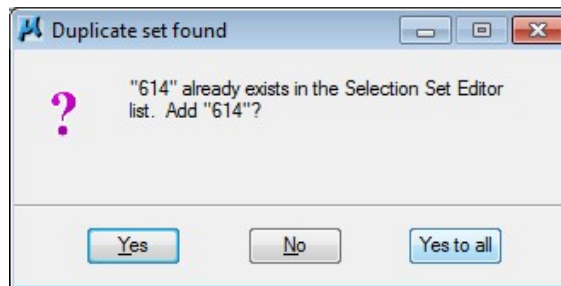

Either double click a level or select it and press the >> button to build a list of levels to combine
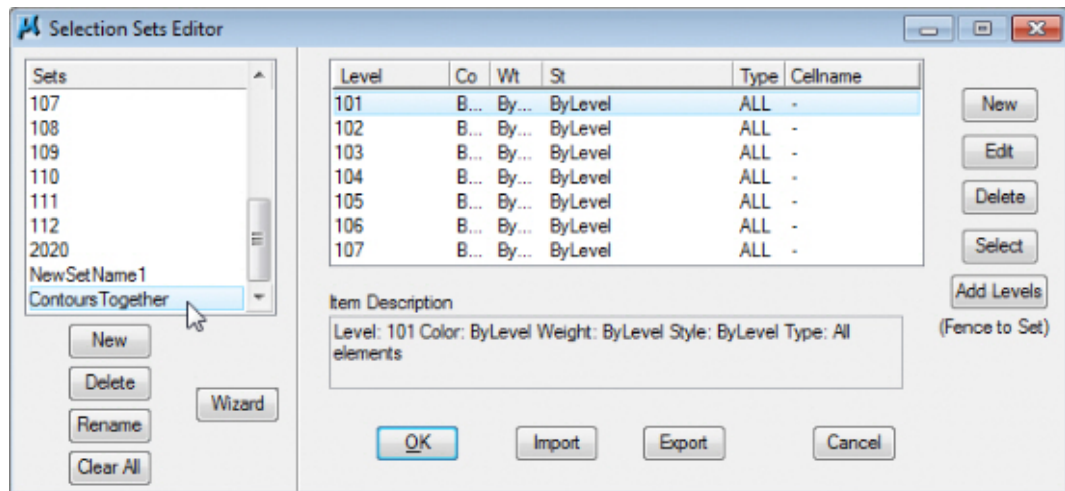

The combined set now appears in the Sets list and can be further edited, if desired.

If a set name already exists, the Wizard will ask the user what to do:

*Dialog appears for duplicate set names*

5. CHANGE ATTRIBUTES EXTERIOR has the following changes and fixes:

    a. It was fixed to handle points correctly. Previously, points could cause a crash.

    b. It was fixed to properly handle elements that are completely outside the boundary element's minimum and maximum range. Previously, it ignored these elements.

    c. It has speed and performance enhancements.

6. SUMMIT_MODELS_AREA is a new command to produce a list of models and open them in Summit's multiple viewports. First open the desired number of viewports in a Summit project that has ground coordinates. Then on the MicroStation side, start the SUMMIT_MODELS AREA command. Draw the boundary using the system mouse in the MicroStation view: Add vertices using the left mouse button and right click to finish. A list of models intersected by the boundary appears. Drag and drop models from the list into the viewports.
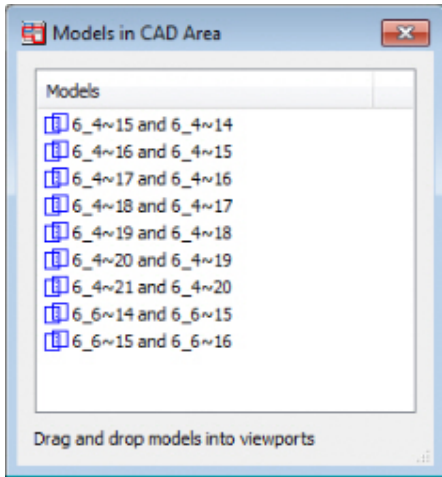
List of models made by SUMMIT_MODELS_AREA

7. DTM PROFILE was fixed for selection and projection problems.

8. BKTRACK STREAM's rubber band in Summit's superimposition was fixed to extend from the last-added vertex instead of the first vertex.

9. DTMEDIT has a reorganized dialog and has added a cell name list. This enables the command to visit cells and/or points specifically. It also solves previous problems with cells, were no matter what the settings, it would either visit every cell in the whole file or no objects at all.
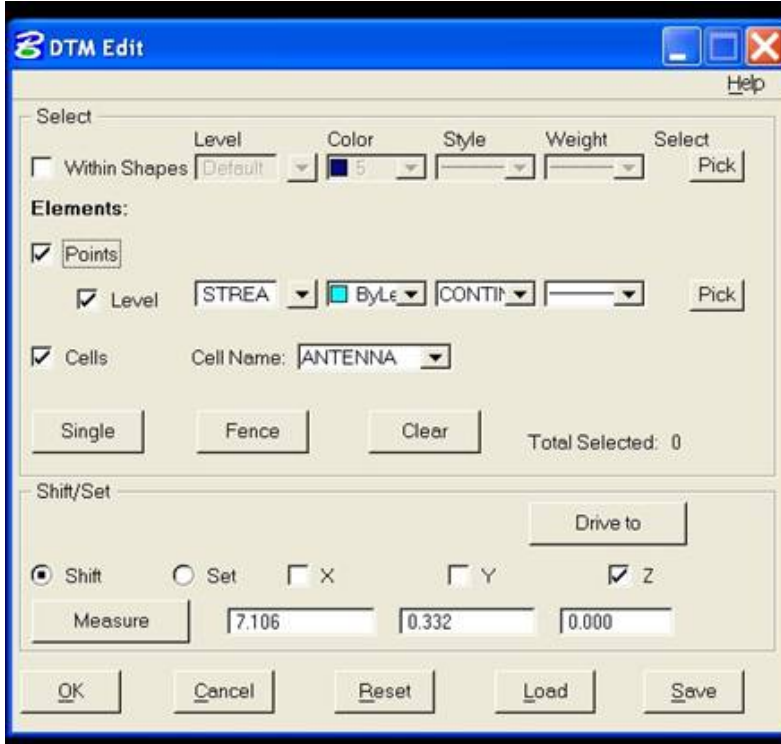
New version of the DTMEDIT dialog

10. MEVOLUME has the following changes and fixes:

    a. If the folder specified for the report file did not exist, neither the folder nor the report file would be created. The folder and file are now created properly.

    b. New options and output results:

        ➢ Write a report file and/or write the results into the design file.

        ➢ The name of the design file units (based on the master units setting) are written into the report.

        ➢ Volumes in cubic master units are written into the report file. To change the units – for example from cubic feet to cubic yards – temporarily change the design file's master units (MicroStation>Settings>Design File>Working Units).

> ➢ On MEVOLUME>Text Placement Options>**Show Counter** option, a beginning value for the counter may now be specified:
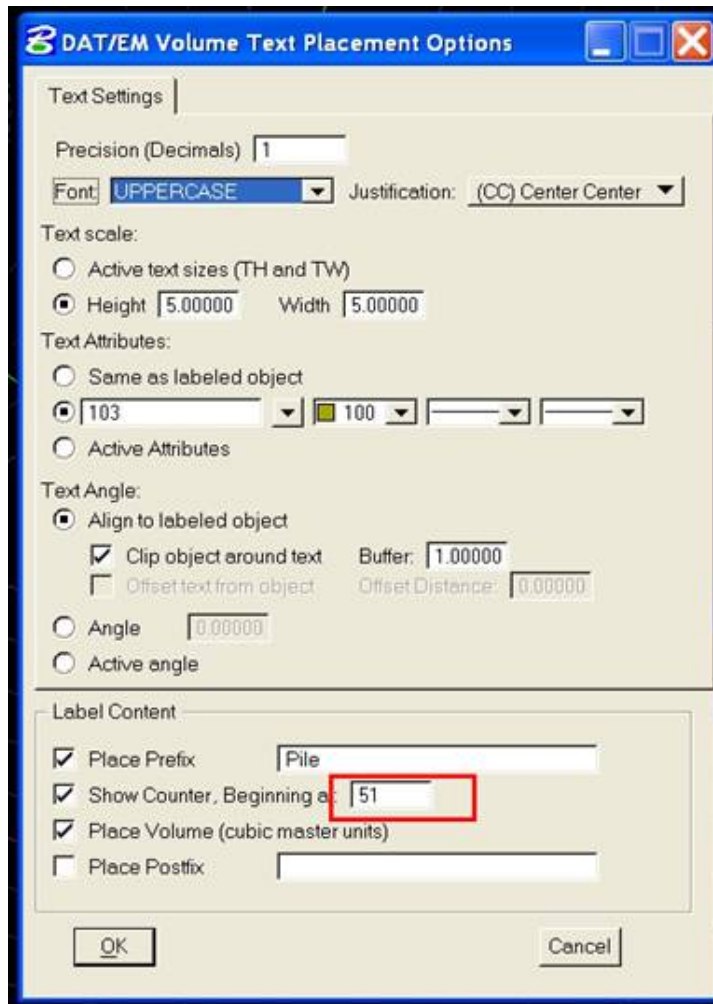
New setting for MEVOLUME's initial count number

11. The superimposition **Auto update on design load** setting now works correctly. Previously, it would only update if the SI clipping flag was set on.

12. CROSSCHECK's add vertex option would change a complex shape header to the active level and attributes, while leaving the component elements at their original level and attributes. This has been fixed so that the header keeps its original level, color, weight, and line code.

13. ZLABEL has the following fixes and changes:

   a. Added the ability to offset the text element with the "Upright to Guider" alignment on. The offset is in the positive direction of the guider's segment at the crossing.

   b. The **Zlabel Guiders** > **Change Settings** dialog would appear in back of its parent dialog. It now appears in front.

   c. Text and cell placement text descriptions are now synchronized correctly with the current settings.

   d. The text element's own Z value is now matched correctly to the elevation of the element being labeled with guider crossings.

   e. There was an overlap in some of the keywords used in TEXT SETTINGS and CELL SETTINGS for ZLABEL parfile/import/export settings. To address the issue, some of the CELL SETTINGS keywords were renamed to prevent overlap. Customers using ZLABEL to place both text and cells will need to modify their existing parameter/import/export files. This will not affect files that only place text.

f. There are new text and cell placement options that now appear near the lower edge of the dialog:

- **Place Cell** and **Place Elevation Text**: These options were present previously on the individual tabs. They have been moved so that they are always visible, no matter which tab is active.

- **Place Prefix**: When checked, the prefix is added to the beginning of the text string. For example, if the prefix is "*Elevation"*, and the Z value is 125, the character string will be "*Elevation 125*".

- **Append Master Unit Label**: When checked, the current MicroStation master unit label will be added to the character string. For example, if this is checked with meters as the master unit and the elevation is 125, "*125m*" will be placed. Also, adding to the example for **Place Prefix** above, if both the prefix and the master unit are on, "*Elevation 125m*" would be placed.
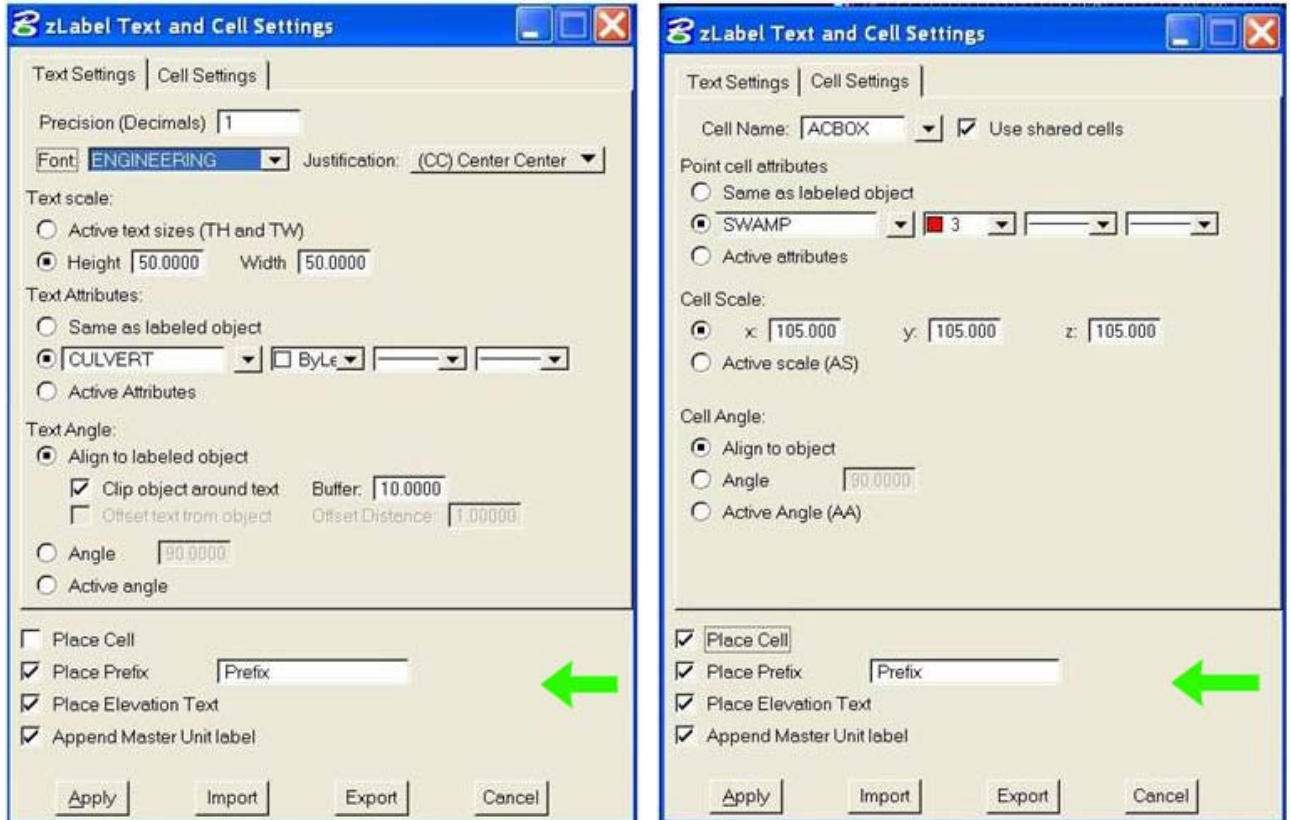
New ZLABEL text and cell placement settings

14. MECLIP has the following fixes and changes:

a. It has been fixed for a case where it did not clip one object in the main file per boundary element in a reference file. The object in the main file might have the same file position "name" as the boundary element in the reference file. The object with a matching name was being ignored.

b. A slight change was made to how selection set definitions are used by CLIP INTERIOR. Elements are checked against the boundary set and skipped if they fall in the boundary set. If the boundary set was defined as "All Elements", all cells would be skipped, because they fall in the boundary set. Now, only closed elements are checked to see if they are in the boundary set.

15. The intersection sort algorithm has been fixed to handle closed BSPLINEs correctly. Previously, it would treat the element's end point as a start point. Affected commands are: CROSSCHECK, ROAD CLIP, LABELIT, and BREAK ELEMENT.

16. In previous versions, DAT/EM Contour Creator could trigger a MicroStation crash when writing contours directly into MicroStation V8i Select Series 2 and 3. This problem was in DAT/EM Capture for MicroStation, not Contour Creator. This has been fixed.

17. For Select Series 3 compatibility, the following command interfaces were significantly changed to operate in a non-modal capacity: MVUSER, BREAKLINE FILTER, DEPRESSION, Selection Set Editor, DTM INSERT, DTM CALCULATE, DTM SETTINGS, DTM SAMPLE, DTM FENCE, CHANGE ATTRIBUTES INTERIOR, MEXPORT, and DTM PROFILE.

18. The following commands needed minor changes to address Select Series 3 lockup/pick failure problems: LD CP, MVUSER, BUILDINGFRAME, SCALLOP, ZLABEL, CHANGE ATTRIBUTES, DTMDISTRIBUTER, BMARK, TOUCH, ELEVATE, VOLUME, class editor, CLIP CELL, ROADCLIP, CROSSCHECK, CLEARLEVEL, DELETE, EDBOX, EXPORT, GRIDIT, JOINIT, MAPSTRING, CHCELL, ROAD, SPOTX, STROKE, ZCHECK, CLIP, CLIPTEXT, CLOSELSTRING, CURVETOLSTRING, DELETE, DELETE66, EDBOX, MEXPORT, FILTER, FIXCOMPLEXHEADER, HATCH, INTERP, MEJOIN, LSTRINGTOCURVE, MECROSSCHECK, MEMOVE, MEPATTERN, PATTERN INTERIOR, MEPSQR, REPLACE CELL, REPLACE OBJECT, ROTATE, ROTATE TEXT, RUN MULTIPLE, SCALE, SMOOTH, STROKE, TEXT IN SHAPE, TOUCH BATCH, WEED, CHANGE CELL, CHANGE TEXT, CHANGE TEXT ELEVATION, CHANGE2D, and CHANGEWCC.

19. The following commands were corrected to avoid memory corruption reading long registry entries: SCOP, LABELIT, GRIDIT, CHECKATTRIBUTES, CLOSELSTRING, CHECKATTRIBUTES, ATTACH REFERENCE, DTM SAMPLE, ZTEXTCELL, ZLABEL, ZCHECK, XYZIN, EDITPOINT, DTM POINT, DTM LOAD, BMARK, XSECT IMPORT, SPOTX, and MEASURE HEIGHT.

20. Error checking was added for SRV, ADF, and CEAL, which are internally used commands (not user commands).

21. LD CP DLG was fixed to avoid an initialization crash on finding an empty registry.

22. MESTROKEELEMENT and STROKEELEMENT were applying a small length to points (zero-length line strings) if they happened to be included in the input selection set. These commands now ignore points.

23. The 3DOFFSET MARKOFF command was missing. A command dispatch table error was fixed to reactivate it.

24. The selection set scanner and class editor have added error checking (for example, for deleted elements) and for fetching of outermost parent element.

25. Prior to 6.7, DATEM PROFILE was turning off undo processing. Cell names might have been incorrectly resolved due to a termination problem.

26. The cell library utility was not correctly scaling placed cells. The fixes affect DTM PROFILE and XSECT Cell placement (Mode).

27. Legacy keyins were removed: 2DPSQR and 3DPSQR. These commands did not do anything except show up in the keyin browser.

28. In CHANGE ATTRIBUTES, the new attributes symbology was being reset to defaults (even when picking an element). This has been fixed.