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V6.70+ Improvements Available Now

You can now try these improvements made after the official **V6.70** CDs were produced by downloading appropriate modules (which means, patches) from microimages.com. Remember if you download any of the specific patches noted below, you also need to download the companion needed.zip file for the date of your latest patch. If you have fast Internet access to microimages.com, you can readily download an entire current version. If you have slow access, downloading a whole version is simply going to take a lot more time and patience.

As usual, if you have purchased **V6.70**, you can download and add patches to it (or download a complete current version) right up to the date that development of **V6.80** ceases. This means that you get almost all the new features of the next version and test them as they become available if you become familiar with the download procedures.

Much Faster JPEG2000 Displays. (download TNTdisp, TNTatlas, ...)

All **TNT** products can now directly display large JP2 image layers much faster. This results from an optimization of the buffering scheme used during the decompression of the JP2 files. It is unfortunate that this was not implemented in **V6.70** of the **TNT** products on the CDs. Frankly, it was not clear at that time that such a significant improvement could be made by optimizing this reading operation.

With these modifications, the direct display or other use of the linked JP2 file (see **TNTsim3D** below) is comparable in speed to the use of a tiled and pyramided raster object. This is particularly significant as now a **TNTatlas** can directly benefit from the reduction in size of images using linked JP2 files. Comparisons of the improvement in displaying a color image are as follows.

Test computer is a Pentium 3 of 650 MHz running W2000.

JP2 test raster is an image of 18648 by 35283 pixels.

10:1 compression (from ~1 GB to 100 MB)

		[from hard drive]	[from 10X CD]
Using V6.70	Full View	241 seconds	244 sec.
	1X Zoom	36 sec.	40 sec.
Now V6.70+	Full View	4 sec.	4 sec.
	1X Zoom	3 sec.	3 sec.

100:1 compression (from ~1 GB to 10 MB)

		[from hard drive]	[from 10X CD]
Using V6.70	Full View	43 seconds	43 sec.
	1X Zoom	17 sec.	17 sec.
Now V6.70+	Full View	4 sec.	4 sec.
	1X Zoom	2 sec.	2 sec.

Note from these numbers that when the compression ratio is high, the slower read rate of a CD, compared to that of a hard drive, is effectively negated. For the 100:1 case only 1/100 of the time is expended in reading from a CD and the few seconds needed to display the layer are primarily for the computation of the decompression. Thus, if you have a 2.5 GHz processor to do the decompression (not the 650 MHz processor used in these tests), using JP2 files directly from CD or DVD can be very efficient.

Consider the very significant result this can have on your future publication of **TNTatlases**. Assume you are writing the **TNTAtlas** onto a 4.7 Gb DVD-R drive, which is about 7 times the capacity of the CD-Rs you have been using. Assume that you find 100:1 compression is acceptable for the image layers in the atlas. Assume that you have not been using any compression in the in the images in the raster objects on your CD based atlases. Under these most optimistic new conditions you could place 700 times more image pixels into an atlas, and yet it may be even faster to use from the DVD (depends on your **TNTAtlas** users' hardware).

Now the **TNTAtlas** you could give away on \$2 media represents the equivalent of .5 terabytes of uncompressed images. A couple of years ago none of us even thought in terms of terabytes! This seems like a really large performance jump, but with 1-meter satellite images and 4 to 6 megabyte individual digital camera snapshots, it will not take long to use up this new capability. And those of you who have been making Landscape Files already realize that they produce even bigger storage requirements if you do not want to quickly "fly off the edge of your landscape."

Try JPEG2000 in TNTsim3D. (download Rastanly)

Linked JP2 (JPEG2000) compressed texture layers can now be used in **TNTsim3D 6.7**. Using JP2 linked files does not effect your frame rate but does slow down the rate at which detail is filled into the view(s) from front to back (which means, from near to far). However, the result is acceptable if you are running on a fast (>1 GHz) processor as it is directly controlled by the decompression computation. However, the potential gains are huge as you can reduce the size of your textures in your Landscape Files by a factor of 10:1 to 100:1, thus permitting the creation and distribution of much larger landscapes.

You do not have to upgrade **TNTsim3D 6.7** from the version on the CD to use this change. You will need the latest version of the Landscape Builder that now has an option to create a linked, JP2 texture layer(s) from the raster object(s) you select. You may already have big Landscape Files with uncompressed textures to use in experimenting with JP2 compression. The Landscape Builder also has an optional capability to build a new Landscape File with JP2 textures from those you created in **V6.60** or **V6.70**.

Tutorial: Using TNTsim3D for Windows.

The expanded **TNT** tutorial entitled [Using TNTsim3D for Windows](#) is now current with **V6.70**. It can be downloaded in PDF form from the **TNTsim3D** download page at microimages.com.

TNTsim3D for Windows. (download TNTsim)

Miscellaneous minor alterations have been made in this process. The scroll wheel on the mouse can be used to change the altitude. You can select how the latitude and longitude are displayed throughout the process (for example, in Readout panels) from the many different formats supported in the other **TNT** products. Look direction and altitude are displayed in the lower right corner of the pilot (main) view.

The View-Center gadget is now the default in the map view and has been improved (for example, the cursor shape changes when you are near the nadir “X” end and could drag it). Most of the effort on **TNTsim3D** at this time is going into the overlay of point symbols.

Soon, perhaps by the time you read this MEMO, you can download a new **TNTsim3D** that will display tables of point symbols as overlays of billboards on stalks. Their styles in the vector object from which the points were extracted will determine their billboard appearance. Other attributes can be used to control their additional appearance and that of the associated stalks. Check the [TNTsim3D download page](#) for the latest situation and for some illustrations and guidelines for using this feature.

Improved “Print To” Adobe PDF.

(download TNTdisp)

The [MicroImages MEMO: Release of V6.70 TNT products](#), pages 92 to 95 discusses the issues of Font Management in PDF and similar products. During a conversion to PDF, you can now choose to embed or link fonts as discussed in more detail in that section. Now your **TNT** layouts converted to PDF files can use TrueType fonts rather than the special **TNT** polygon fonts used previously. This will improve the appearance of small text (less than 12 points) and very large text. This also means that the text in these PDF files can be searched, selected, copied, and so on. Variable raster transparency in a layout is duplicated in the PDF file. Text along a curved baseline in a **TNT** layout follows the curved baseline in the PDF file. Circles and arcs as geometric shapes in a **TNT** layout will now become equivalent geometric shapes in the PDF file. In **V6.70** and earlier they were converted to polygons and did not scale up well to large sizes. The sheer angle for italic fonts is also being converted. Features still not available are conversion of line hatch patterns and faux bolding for text. Faux bolding is a new text feature in **TNTmips 6.7** where a standard font can be rendered with a specified amount of bolding. PDF files have no provision for storing this setting.

Improved “Print To” Adobe Illustrator.

(download TNTdisp)

The *.ai format of Adobe Illustrator has many similarities to PDF file format. As a result, new similar improvements have been made in the conversion of **TNT** layouts to AI files. Text management is now handled as outlined above and in the MEMO for PDF files. Circle and arcs are preserved as geometric shapes. Text along a curved baseline in a **TNT** layout follows the curved baseline in the AI file. Variable raster transparency and nulls are converted. Empty layers are no longer created (for example, if you create a text block and then do not put anything in it). Note, PDF files you create in the Adobe Acrobat Distiller can have things like empty text layers created in some other language (for example, Japanese) that will then hang Acrobat Reader in English if that font is not installed, even though everything in populated text blocks is in English. Bit map fill patterns are converted to polylines but are now scaled to 300 dpi. Features still not available are conversion of line hatch patterns and faux bolding for text, which is not a feature in the AI format.

Mac OS 10.2 (Jaguar).

The Jaguar version of the Mac OS X has now been released 1 month after **V6.70** was finalized. To use your **TNT** products with 10.2, alias Jaguar, you must patch them, obtain a new **V6.7.1** CD from MicroImages, or download a complete large **V6.7.1** installation from microimages.com. While this adjustment is identified as **V6.7.1**, the TNT products are exactly the same as on the **V6.70** CD. Only an updated OroborOSX window manager, now compatible with Mac 10.2, has been substituted on this CD. You can make only this substitution if you wish to manipulate things yourself. To do so, obtain OroborOSX version 0.8 beta 2 (9 August 02) from <http://oroborosx.sourceforge.net> and install it. You will need to find and uninstall any earlier versions of this Aqua window manager. You will also find this same version at ftp://ftp.microimages.com/pub/tntlite/mac10/oroborosx_8b2.tar.gz.

Mac OS X. (download TNTdisp)

You are not presented with the printer manufacturers’ set up window in **V6.70** and must make these changes manually at the printer. This has been revised so that you are presented with the specific

printer's "Page Setup" window.

Linux. (download complete new version)

If you are using a variant of Linux that supports 64-bit file addressing (for example, RedHat 7.3) you can now create Project Files and other **TNT** files greater than 2 Gb.

TINs and Breaklines. (download Convobj)

Several improvements have been made to the internal procedures that build and rebuild TIN objects. These changes ensure that Delaunay triangles are preserved for unusual input data structures (for example, many points very close together in a line). In turn, this also ensures that breaklines inserted into the TIN are properly preserved in this and subsequent processing.

Huge Polygons. (download Vectanly)

The transfer of attributes has been very slow if the process encountered individual polygons each with several million vertices. This feature has been redesigned so that it now is practical to use in such a case and takes a fraction of the previous time (which means, minutes instead of hours).

Transferring Line Attributes to Polygons. (download Vectanly)

A Split At Border operation has been added for use when transferring attributes from lines to polygons. The standard line attribute table that is attached to the polygons by the operation is modified so the length reported is only the length of each line that falls within that polygon. For example, you make a grid cell vector object and transfer attributes from lines to polygons using the Split At Border operation to have the length of the roads in each grid polygon attached to that polygon.

Unusual Shapefiles. (download TNTdisp)

Import will now handle shapefiles consisting only of millions of points (for example, 10 million).

Importing Coverages. (download TNTdisp)

The interface for selecting coverages has been improved. You can now select a directory and the import process will show all, and only, the coverage directories in it, allow you to select one or more, and automatically use the appropriate files within each. The vector objects created will be named the same as the coverage directory. These revisions avoid the confusion some have with regard to which and how many files to select from a coverage directory and with regard to the name assigned to the vector object that might have corresponded with the specific file selected instead of the coverage's name.

Spatial Data Editor. (download SDedit)

You can switch to a new tool and information about the current tool will be retained so that its use is simply suspended. You can directly switch between tools and find each exactly as you left it as if it has been suspended. For example, you can draw a line, switch to drawing a polygon, draw part of a polygon, switch back to resume drawing more of the line, and so on.

By default the extent of a vector, CAD, or TIN object is reset when saved if you have made an edit alteration to reduce its extent (for example, you remove a stray outlying point element). The save action will also cause a redraw using these new extents. Optionally you can shut this off so that when saved the extent is not changed and there is no automatic redraw.

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