

# TOOL DESIGNER

## 2021 Release Summary

### Overview

Version 2021 is major release that includes enhancements as well as customer requested software modifications and corrections. The emphasis of this release is enhancements to the drafting and detailing capabilities of ExpertCAD. This release summary briefly describes all the software changes for this release.

### Platform Support

The table below lists the certified and supported operating systems for 2021. The full regimen of quality assurance testing has been performed on these platforms and any problems or defects with AMT software related to the operating system will be repaired:

Operating System	32-bit	64-bit	Minimum Revision Level
Windows 10	✓	✓	All
Windows 7 <sup>1</sup>	✓	✓	Service Pack 1 or later
Windows Server 2019	N.A.	✓	All
Windows Server 2016	N.A.	✓	All
Windows Server 2012	N.A.	✓	R1 & R2

#### Notes:

<sup>1</sup>This will be the last release for the Windows 7 operating system. This popular operating system is no longer supported by Microsoft. AMT Software cannot guarantee that future releases will install and run without incident on Windows 7. Quality assurance testing will no longer performed on future releases for Windows 7 compatibility. AMT Software recommends that you upgrade to one of the supported operating system in the chart above.

The software will likely install and run on Windows 8, 8.1 and Windows Server 2008 however these operating systems are not formally supported. AMT does not execute the quality assurance regimen for these operating systems and will not correct any installation or software defects associated with them.

Applications are compiled to use the native x86 microprocessor instruction set - microprocessors from Intel and AMD. Laptops and computers with an ARM microprocessor (e.g. Microsoft Surface Pro X) are not supported.

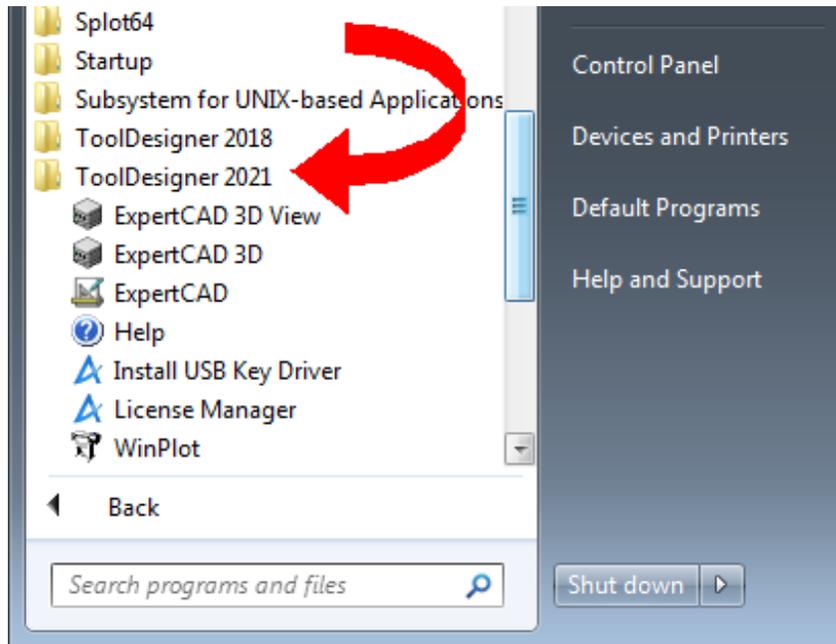
The software will not run on operating systems older than Windows 7 (e.g. Windows XP).

## ***Installation & Compatibility***

### Installation

This release is installed as though it is a new application. It is not necessary to remove any older version from your computer. The 2021 installation program will ***not*** overwrite any application programs or common data files from previous installation(s).

A separate program group is created and shown in the Windows start menu:



This Windows 7 computer start menu illustrates how the 2021 release is installed without affecting the previous 2018 release. Older versions can be installed side-by-side with newer versions.

During installation, a log file is generated in the user's temp directory. For example, if you are logged in as Administrator the file:

```
C:\Users\Administrator\AppData\Local\Temp\ToolDesigner_FinishInstallLog.txt
```

is created to record the finishing steps unique to installing AMT software. If you encounter any problems with installation, please forward this file along with a description of the nature of the problem to:

<mailto:support@amt-software.com?subject=Installation Problems - Log Attached>

### File Format Compatibility

The binary file format for ExpertCAD and ExpertCAD 3D has ***not*** changed since the 2018 release. New files created in 2021 can be read by the previous version (2018) of ExpertCAD and ExpertCAD 3D.

## ***Updated Licensing***

Applications for ToolDesigner 2021 require updated license codes to run. The license update will allow you to run the 2021 release and all previous releases.

### ***USB Key Licensing***

If you are using the USB key form of licensing, *make sure your USB key is plugged into a USB port of the computer you are installing the software on and is properly functioning.* Use the License Manager application from your previous release to make sure the key is discovered and is working properly.

When you install the 2021 release, the installation program will automatically update software licenses encoded in your USB key to allow you to run the new release.

An installation log file named:

`<Product>_FinishInstallLog.txt`

is created in your %TEMP% folder. For example, after installation of ToolDesigner, the file ToolDesigner\_FinishInstallLog.txt is created:

`C:\Users\<login>\AppData\Local\Temp\ToolDesigner_FinishInstallLog.txt`

This file will have complete information regarding the installation and updating of the license(s).

### ***Floating Licenses***

If you are using the floating license software you will need to *contact AMT Customer service to request an updated license file.* Upon request, customer service will e-mail you a new license file as an e-mail attachment along with instructions for setting up your license server to be compatible with the 2021 release.

To request an updated license file or if you have any questions or problems with updating your licenses, please call or e-mail AMT Customer Service. Tel: **800-280-0240** or **248-458-0359**  
<mailto:support@amt-software.com>

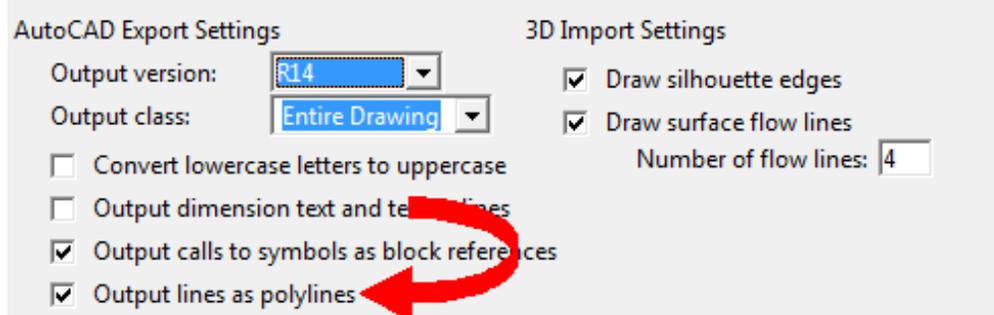
### ***Parallel Port Dongles***

Parallel port dongles are no longer supported. If you use this form of license enforcement, contact AMT Customer Service to upgrade to a USB key at no cost.

## AutoCAD Translation

### Exploding Polylines

An option has been added to the Tools/Options/Import Export dialog to enable or disable the output of ExpertCAD lines as polylines:



By default, most line entities in ExpertCAD will map directly to an AutoCAD polyline entity. A polyline entity is an ordered collection of line segments and arcs. If this option is disabled, lines that would have been output as a polyline entity are output as separate line and arc entities. Certain CAD programs have exhibited issues converting AutoCAD polylines thus necessitating the need to add this switch as an option.

### Unicode Character Support

Certain Unicode characters in AutoCAD text notes (\U+xxxx) were not being properly translated to ExpertCAD format. Specifically the arrow characters were reported missing:

<pre>Left arrow: ← Up arrow: ↑ Right arrow: → Down arrow: ↓</pre>	<b>AutoCAD literal text:</b> Left arrow: \U+2190 Up arrow: \U+2191 Right arrow: \U+2192 Down arrow: \U+2193
<pre>Left arrow: ← Up arrow: ↑ Right arrow: → Down arrow: ↓</pre>	<b>Result in ExpertCAD</b>

Additional Unicode character support:

- \U+23e4 - straightness (long dash) - Alt +23E4
- \U+23e5 - flatness GDT symbol - Alt +23E5
- \U+232d - cylindricity GDT symbol - Alt +232D
- \U+2312 - profile of a line (semi-circle) GDT symbol
- \U+2313 - position of a surface GDT symbol
- \U+27c2 - perpendicularity GDT symbol
- \U+2225 - parallel GDT symbol - not a precise match to ours as theirs is vertical
- \U+2316 - true position GDT symbol
- \U+25ce - concentricity GDT symbol - bullseye symbol is from Unicode is close
- \U+232f - symmetry GDT symbol
- \U+2330 - total runout GDT symbol
- \U+00c4 - LATIN CAPITAL LETTER A WITH DIAERESIS - A-umlaut
- \U+2423 - open box (square bracket on it's side)
- \U+22a4 - down tack ('T' shape)

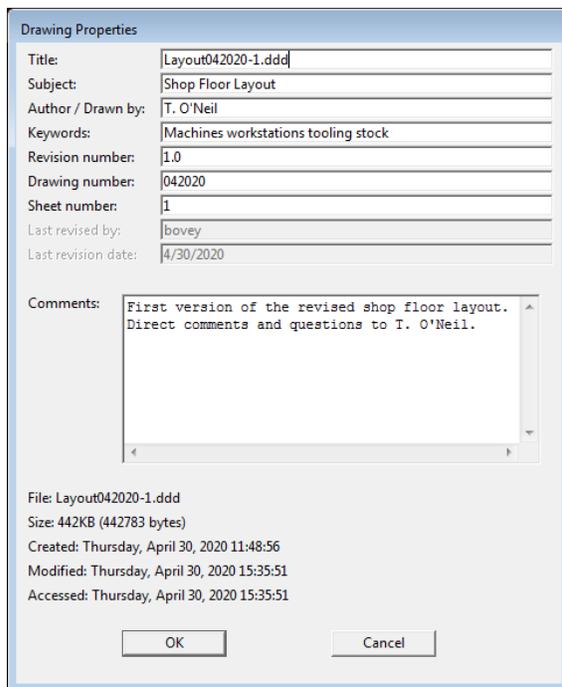
## WYSISYG Color Management

When writing an AutoCAD file, the exact RGB values for the colors used to create or edit the ExpertCAD file will be conveyed to the AutoCAD file. Previous releases relied on a fixed color table containing the RGB values associated with the color index for every ExpertCAD entity. The fixed table would not necessarily correlate to the actual RGB of the colors used to create the drawing.

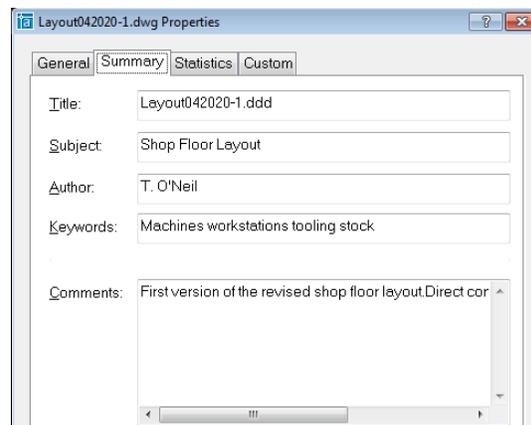
When importing AutoCAD files, the content of a user's ExpertCAD-Colors.cfg will be used to populate the color table. The closest RGB match to an AutoCAD entity will be used as the color index value for the ExpertCAD entity output.

## Drawing Properties

The File/Properties dialog in ExpertCAD has been revised to improve compatibility with the AutoCAD File/Drawing Properties. Properties set in ExpertCAD will be exported to AutoCAD format. Similarly properties set in AutoCAD will be retained when imported into ExpertCAD.



**Drawing Properties in ExpertCAD**



**Properties in AutoCAD**

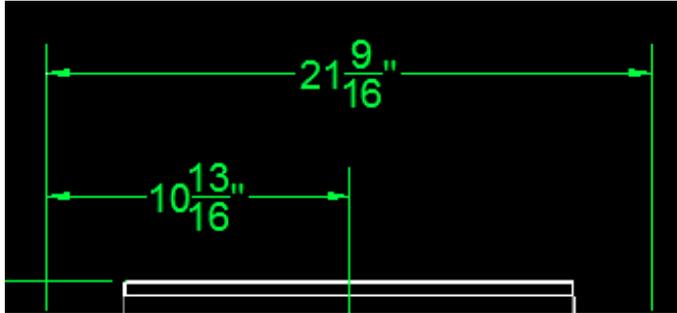
AutoCAD Custom Properties can be imported and exported. The file:

C:\ProgramData\AMT Software\ExpertCAD\AutoCAD\PropertiesMap.txt  
allows you to associate AutoCAD properties with ExpertCAD text buffers.

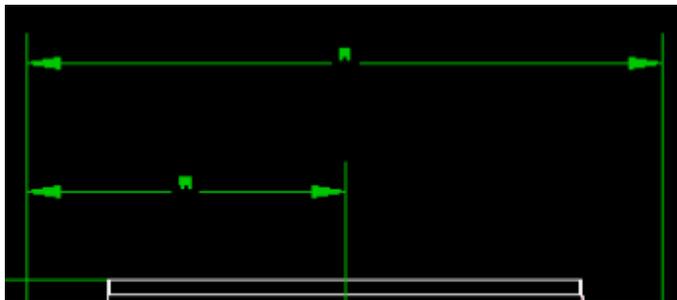
Importing AutoCAD Fractional Dimensions

AutoCAD drawings containing dimensions in a fractional format were not translating properly when imported into ExpertCAD.

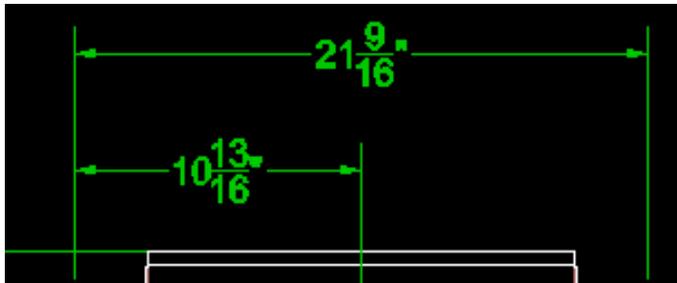
Example:



AutoCAD



ExpertCAD 2018



ExpertCAD 2021

Distorted Text Notes

Converting text notes that use a TrueType font from AutoCAD to ExpertCAD would incorrectly compute the aspect ratio to use if the text contained multiple consecutive space characters. This has been corrected:

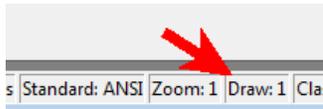
<0.236 ±0.004  
<0.236 ±0.004

This text note has 6 leading space characters. The text in blue from previous releases incorrectly computes the aspect ratio causing the text to be "stretched". The text in green translated by this new release properly computes the aspect ratio.

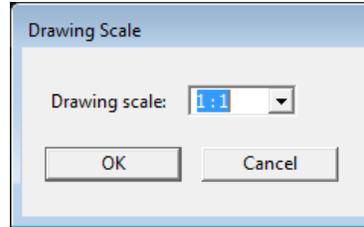
## ExpertCAD

### Changing the Drawing Scale

Clicking on the drawing scale in the status bar will now permit you to change the drawing scale for the current drawing.



Click on Draw:



Dialog posted to modify the current drawing scale.

Previous versions did not permit the drawing scale to be modified using the status bar.

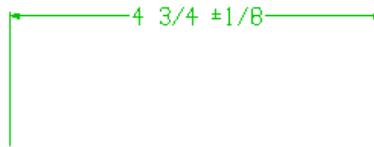
### Tolerances for Ft & Inch Dimensions

Dimensions using FT & INCH format have been modified to allow a tolerance to be specified so that the tolerance is expressed as a fraction instead of a decimal value:

Enter upper limit: .125

Enter lower limit: -.125

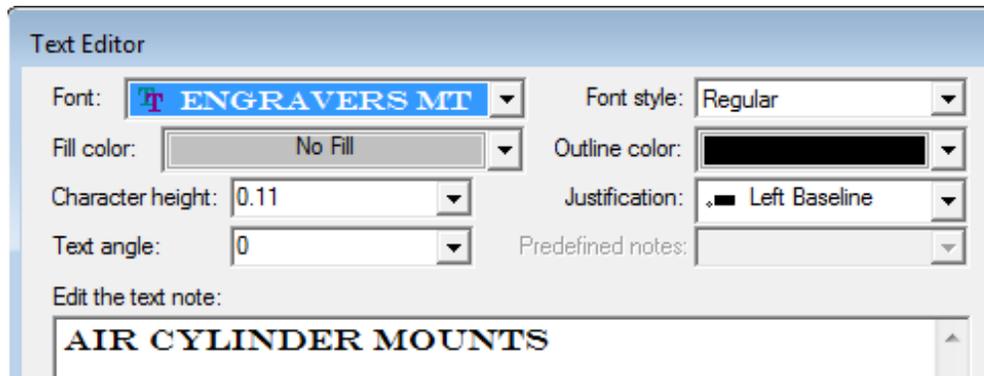
Bilateral +/- tolerance...



Results – tolerance expressed as a fraction.

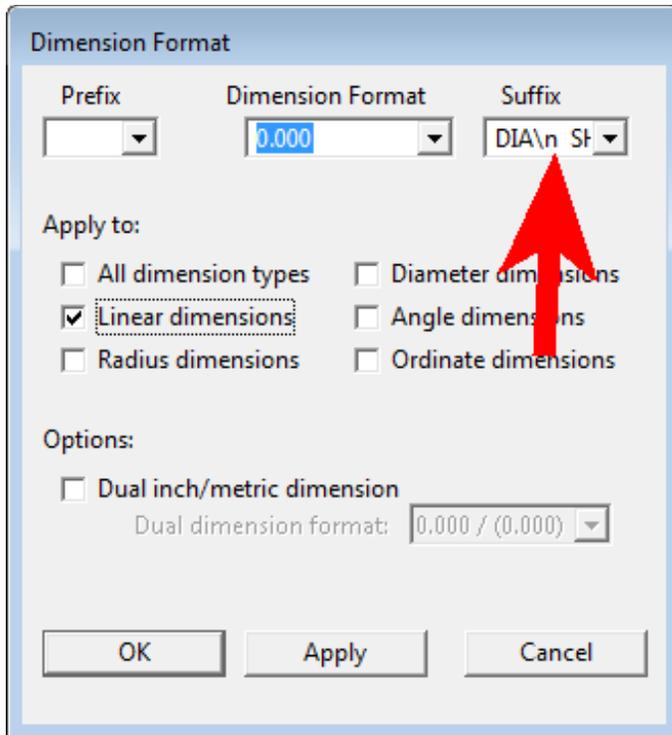
### Edit Text Dialog

When creating or editing text notes, the TrueType or OpenType font used for the text note is also used in the edit control in the dialog. If a native ExpertCAD font is chosen, the font Courier New is used instead.

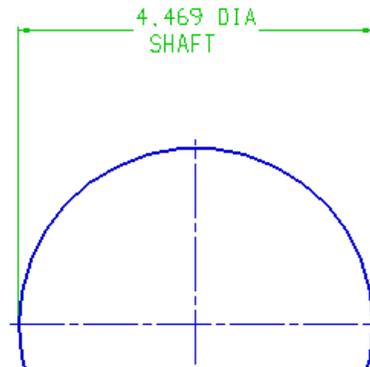


### Multiple Lines for Dimension Suffix

A newline escape sequence can be used to create a multiple line suffix for dimensions. Enter the escape sequence '\n' in the Dimension Format dialog where a newline is to be inserted for the suffix. Example:



Entering "DIA\n SH" for the suffix.



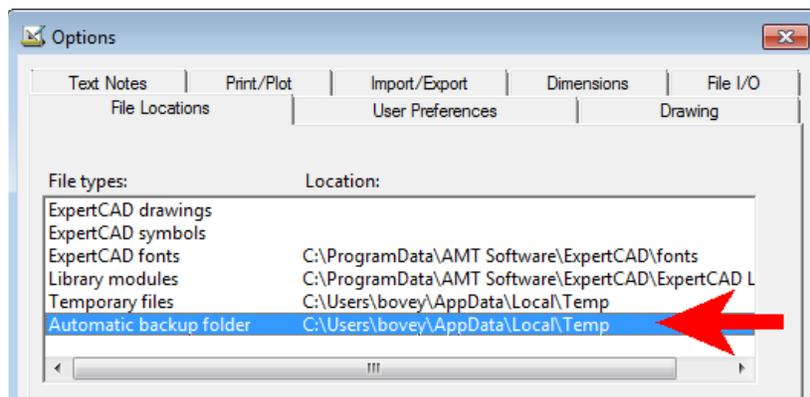
Results

### Automatic Drawing Backup Feature

The automatic backup feature has been modified to save the backup of your current drawing to a specific folder. In previous versions a file name was specified. This was deficient because:

- The specified file was always emptied when a new session was started.
- When running multiple sessions, each session would use the same file name so you could not be assured that the backup of any session was current.

The revised implementation allows you to specify a folder where a backup of the drawing will be created. Specify the folder in the Tools/Options/File Locations dialog:



After 'n' number of changes, the file will be written to the backup folder. The name of the backup file is '#<file>' where <file> is the name of the drawing currently being edited. When you exit normally (File/Exit or click the 'X' in the window frame), all backup files created in the backup folder during that session will be deleted.

### Importing Color Data from IGES Files

Color information in IGES format is stored as RGB values. When importing IGES into ExpertCAD, these RGB values are mapped to the closest ExpertCAD default color.

### Making Text Current

When a text note on a drawing is made current, the text settings (font, character height, angle, color, layer, ...) are all set to be the same as the text note that was found. This behavior is not new or changed. The command 'findtextinclass' which only makes current a text note in a designated class did behave in the same way. This has been repaired so that the characteristics of the note that is found is propagated to the current text settings.

### Illegible Text Notes

Certain older drawing files may contain text notes that are 'upside down'. When read into newer versions of ExpertCAD, these notes would automatically be corrected to display according proper drafting convention.



A text note in an older version of ExpertCAD displays 'incorrectly'.



When read into a newer version of ExpertCAD, the text is 'corrected' to conform to drafting convention.

In the 2021 release, when a note that is oriented in such a way that does not conform to convention, then it is marked as 'not legible'. This means that ExpertCAD should **not** 'correct' the note to display according to drafting convention. Therefore the note will appear the same way as it was created originally.

### Editing Multi-Line Text Notes

The text editor feature has been revised to handle text notes with multiple blank lines correctly. After editing the text in notepad, saving the file and exiting notepad, all carriage returns were removed:

Before:

1. MULTIPLE BLANK LINES...  
  
2. THERE ARE 2 BLANK LINES ABOVE.

After:

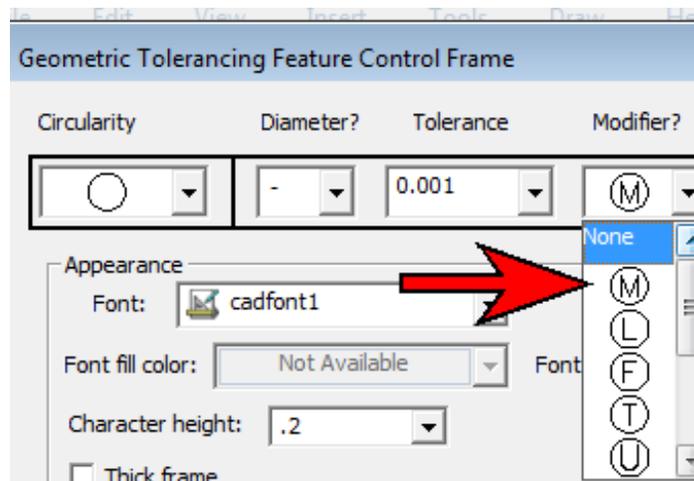
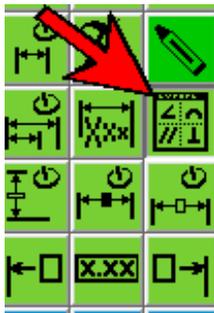
1. MULTIPLE BLANK LINES...2. THERE ARE 2 BLANK LINES ABOVE.

This issue has been corrected in 2021. Carriage returns are always retained.



### Missing Geometric Tolerance Modifier

The maximum material condition tolerance modifier symbol was inadvertently omitted as a choice from the menu in the geometric tolerancing feature control frame dialog. This modifier has been added as a choice:

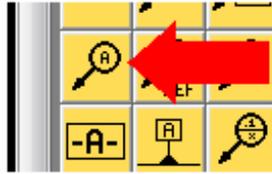


### Iterating Over Entities

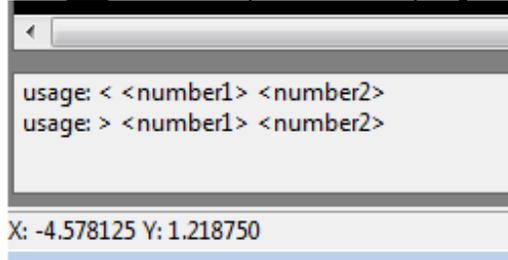
The 'foreachobject' command has been improved to support the 'continue' and 'break' loop commands inside of the loop just like 'while' and 'for' loops handle these keywords. The Esc key (interrupt) is also supported inside of the loop to abandon processing. Previous versions ignored break and continue and interrupts.

### Creating Balloon Notes

Creating a balloon note will emit an error if the user does **not** have an ExpertCAD-Setup.cfg file:



Choose balloon note icon...



an incorrect error is issued in the message area.

The ExpertCAD-Setup.cfg defined the default for balloon note size. Without this default set, an error would be emitted. This has been corrected so a proper default is enforced regardless of the presence of an ExpertCAD-Setup.cfg file or if ExpertCAD is started with the /SAFE command line option.

### OpenType Font Format Support

OpenType fonts such as Myriad Pro are now supported when creating annotation for a drawing. Previous releases only allowed the native ExpertCAD font format and TrueType fonts. In addition to native fonts and TrueType fonts, OpenType fonts will also be displayed for selection in all annotation dialogs that allow a font to be chosen.

### Retaining Bitmap Settings

Saving a drawing would cause bitmap settings for DPI and color output to revert to 96 DPI and color output regardless of what was previously set. This has been corrected to retain whatever settings for bitmaps had been previously set.

### /SAFE Mode

The command line option /SAFE starts ExpertCAD in a "safe mode" such that no external configuration files will be read in a program start. The file for configuring the quick pop-up menu in ExpertCAD – ExpertCAD-QuickMenu.cfg – was ignoring the safe mode switch. This has been corrected so the quick menu configuration file is ignored in safe mode.

## **ExpertCAD 3D**

### Importing and Exporting Points

ExpertCAD 3D supports several line styles to support 3D points:

*	63
◻	36
◻	35
◊	34
◻	33
×	32
+	31

When exporting data to other software formats, these line styles are converted to points that the receiving software application recognizes. For example, ExpertCAD does not support style 32 through 36 as a point line style. Upon export to ExpertCAD format, all style 32 through 36 line styles are output as style 31 point lines. Similarly output to Prospector or IGES format will reformat to point lines recognized by the receiving system.

### Exporting to Prospector

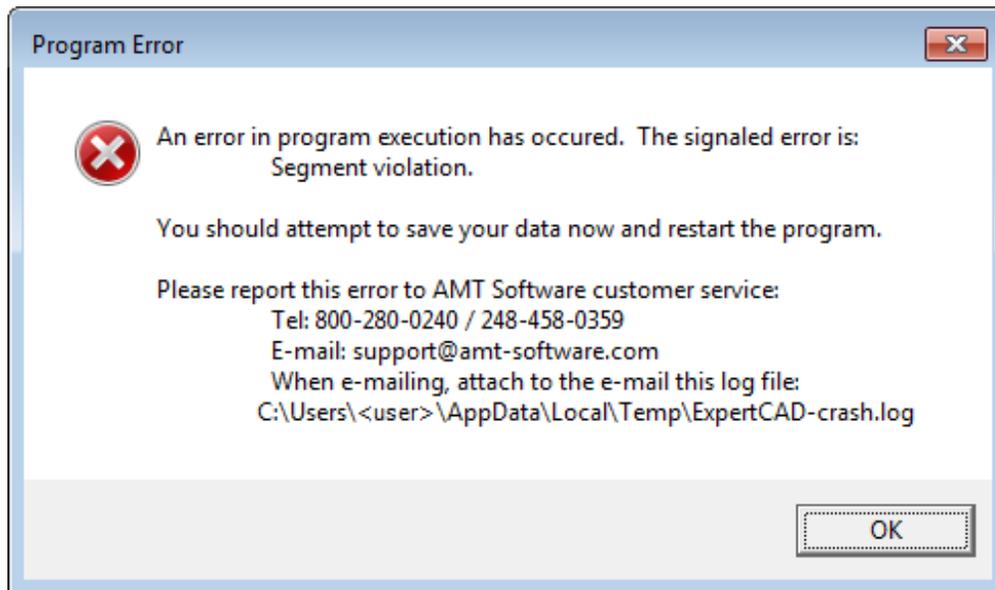
The File/Send To menu options for creating and updating Prospector projects in both ExpertCAD 3D and ExpertCAD are only enabled for 64-bit edition of the software. Prospector is only available as a 64-bit edition so therefore it is not possible to interface with Prospector using 32-bit software.

## ***ScriptLink Macro Language***

ScriptLink is the underlying technology that implements the user interface for the major AMT applications – ExpertCAD, ExpertCAM and ExpertCAD 3D. Therefore these changes affect all the applications that use this technology.

### Exception Handling

All ScriptLink-based AMT applications (ExpertCAD, ExpertCAD View, ExpertCAM, ExpertCAD 3D) intercept program exceptions. A program exception arises because of a bug in the software such as trying to access a memory address that does not exist. If an exception is not handled by the application then the operating system will handle it and terminate the process causing you to lose all work you have done. Fortunately exceptions are captured by ScriptLink to avoid a program crash and termination. A dialog will be posted should an exception is raised:



**Example Exception Dialog in ExpertCAD**

When you click OK, the application will continue to run (i.e. the program will *not* be terminated). You should try to save your work then exit the application, start a new session and pick up where you left off. A log file with information about the program exception is published to the user's %TEMP% folder. Please report the problem to AMT Software and be sure to include this log file as an attachment. The log file is invaluable to support technicians to understand what the cause of the problem was and advise you of possible work-around(s).

### Recording Last Command(s)

The text buffer LAST\_COMMAND records the last actual command executed by the last icon, cursor stroke, menu pick, etc. A new text buffer LAST\_COMMANDS has been added to record the last 25 commands. The text buffer LAST\_COMMANDS\_COUNT can be set to record more or less than 25 commands. If you wish to record the last commands to a file, set the text buffer COMMAND\_HISTORY\_FILE to the name of a file to record the last commands. Use of these text buffers can be useful in debugging a sequence of events that caused an issue with the software.

### Windows Messaging

The internal event queue to process messages from the Windows operating system has been expanded to accommodate any number of messages. Previous versions would permit only 256 messages to be queued. The previous limitation could cause Windows messages to be ignored.

The message area has been modified to allow an unlimited number of characters to be published. Previous versions would allow only 32K characters to be output. Exceeding the former 32K limit would cause the message area to be unresponsive to input or output.

The '.fmt' command has been revised to publish the least number of characters necessary to represent the number(s) to be formatted to a specified degree of accuracy. Previous versions would only eliminate unnecessary trailing zeros from the output. This revision omits all trailing zeros and leading zeros for values < 1.0. Any input with value that does not have a fractional value will be output as an integer (i.e. no decimal point). Example – format numbers to 3 places of accuracy:

```
.fmt 3 3.14159265359 1.0 -1.0 .0000000123 888.0 1234 0.123 0.0 -0.0 1234.567891  
3.142 1 -1 0 888 1234 .123 0 0 -1234.568
```

The commonly used macros .postdir and .unpostdir have been deprecated for all AMT applications for Windows. The commands pcgetfile and pcsavefile replaced these macros when prompting for file names.

The commonly used macro 'Yes' has been modified to remove the extraneous code that is no longer necessary because the 'yes' primitive command posts a modal dialog instead of prompting in the message area. This prevents the possibility of the application disabling the keystroke short commands and/or leaving a temporary popup menu posted.

## Resolved Software Requests

When you report a problem or request an enhancement, our customer service representative will input your request into our software lifecycle management system and give you an ID number. Listed in the table below are the ID number and a synopsis of each record from our system that has been discharged for this release.

Record ID	Customer	Synopsis
SRX00335	Daman Products	Add an option to ExpertCAD to prohibit lines from being output as polylines when writing DXF or DWG output.
SRX00388	Hidden Analytical Ltd	The automatic backup feature empties the backup file when a 2 <sup>nd</sup> session of ExpertCAD is started.
SRX00361	Bernal	Add the ability to enter multiple lines for a post dimension descriptor.
SRX00415	AMT	Propagate the data from the Drawing Properties dialog to AutoCAD files.
SRX00416	AMT	When reading AutoCAD data files, populate the Drawing properties dialog with the information from the DWG/DXF file.
SRX00430	AMT	In the licensing log file, include the reason the software thinks that the computer is not configured for floating licenses.
SRX00431	AMT	Do not register the \License folder with the Windows installer.
SRX00434	AMT	When using the /SAFE command line option, the file ExpertCAD-QuickMenu.cfg is reported as being source in at program start.
SRX00435	AMT	Add a way for ScriptLink to record the last 'n' number of commands.
SRX00437	Scania CV AB	The maximum material boundary symbol is missing in the Modifier menu for the GD&T feature control frame dialog.
SRX00438	Daman Products	Add an option to ExpertCAD to prohibit lines from being output as polylines when writing DXF or DWG output.
SRX00439	AMT	The 'Yes' macro in the file stdmacs needs to be rewritten because there is no longer a prompt in the message area.
SRX00440	AMT	Disable the macros .postdir and .unpostdir. They are not supported for the Windows version of ExpertCAD and should not be called.
SRX00441	AMT	Ignore irrelevant key down events (ctrl, shift, alt) when redrawing the screen.
SRX00445	Daman Products	Add support for missing Unicode symbol characters when converting AutoCAD to ExpertCAD.
SRX00447	AMT	Creating a balloon note emits an error if there is no ExpertCAD-Setup.cfg file.
SRX00449	Daman Products	Text notes with invalid rotational information are not being handled properly.
SRX00450	AMT	Add support for 'break' and 'continue' inside of a foreachobject loop.
SRX00451	AMT	The findtextinclass command should work the same as findtext with regards to text settings.
SRX00452	AMT	Allow for the message area to receive more than 30K characters.
SRX00453	AMT	The event queue for ScriptLink applications can overflow causing Windows messages to be ignored.
SRX00454	AMT	Remove unused / obsolete macro file(s) from the installation of ToolDesigner.
SRX00455	K&S Tool, Die & Mfg Corp	A backup of the previous saved version of an AutoCAD file (the '#<file>') is always created regardless of the setting in Options – File I/O.
SRX00457	AMT	Importing ExpertCAD 2D files into ExpertCAD 3D that use line style 32-36 is causing display problems and perhaps other issues because they are not point lines.
SRX00458	AMT	Generation of mold drawings is not handling line styles 32-36 properly.
SRX00459	AMT	File / Export / ExpertCAD in ExpertCAD 3D does not properly convert point lines style 32-36.
SRX00461	Mettler-Toledo	For FT & IN dimension formats, express a dimension tolerance as a fraction instead of a decimal number.
SRX00462	Kaman Aerospace Corporation	ExpertCAM does not allow a remote display.
SRX00464	INL - Battelle Energy Alliance, LLC	Clicking on Draw: XXX in the status bar does not work properly. An error is published instead of allowing you to change the drawing scale.
SRX00465	Thumb Tool & Engineering	Modify the .fmt ScriptLink command to output the minimal form of a floating point number.
SRX00466	AMT	Add support for the Windows Server 2019 operating system.
SRX00468	AMT	Remove support for parallel port license dongles.
SRX00469	AMT	Revise support for handling program exception (signal handling) for all ScriptLink-based applications.

SRX00470	Bernal	Add the ability to enter multiple lines for a post dimension descriptor.
SRX00472	Daman	Allow the use of OpenType fonts for annotation on a drawing.
SRX00474	AMT	Text size is incorrect when exporting a drawing in HTML format.
SRX00475	AMT	Exporting text from ExpertCAD 3D to 2D (ExpertCAD format) is not retaining the proper color for the text note(s).
SRX00476	INL - Battelle Energy Alliance, LLC	Editing this text note removes the newlines in the original note.
SRX00478	Empire Comfort	AutoCAD fractional dimensions do not translate properly.
SRX00487	AMT	Disable the menu items for creating or updating Prospector projects if running the 32-bit version.
SRX00488	Philadelphia Mixing Solutions	Exporting TIFF format is not working properly if a file is saved during the CAD session.
SRX00490	Daman	The aspect ratio for the text in this AutoCAD file is not being computed properly.