ARES™ for AutoCAD Users

Designed to ease your transition
to ARES Commander Edition 2013

Second Edition

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ARES SYSTEM REQUIREMENTS

Any current model of Macintosh computer runs ARES for OS X.

As a minimum, Graebert suggests that your Linux or Windows computer have the hardware and software specified below.

Operating system	Debian- or Red Hat-based Linux
	Windows XP SP2, Vista, or 7
CPU	Intel Pentium 4 CPU, 2GHz or faster
Free disk space	300MB
RAM	1GB RAM
Graphics board	Super VGA (1024x768) with 16-bit color
Input	Mouse

For better performance, Graebert recommends that your computer have stronger hardware:

CPU	Intel Core 2 Duo or AMD Athlon X2 Dual-Core CPU
Free disk space	400MB
RAM	2 - 3GB
Graphics board	3D Graphics accelerator card 22 inch display
Input	Wheel mouse

Chapter 1

ARES for AutoCAD Users

In This Chapter

- Reviewing the history of Graebert
- Looking at the advantages of ARES
- Understanding the ARES Editions
- Reviewing system requirements

This book is designed to help you make the transition from AutoCAD® to ARES. In it, you will learn about the pros and the cons of using ARES in place of AutoCAD. You'll read about the advantages of switching to another — yet very similar — CAD package, and about some of the pitfalls to watch out for.

The chapters in this book discuss topics such as file compatibility with AutoCAD, the ARES user interface, and customizing ARES. The book also includes appendices that exhaustively cross-reference commands, system variables, keystrokes and button actions between the two CAD systems, as well as the jargon used by each one.

ARES for AutoCAD Users is meant for several types of CAD user:

- AutoCAD users considering switching to ARES
- Firms adding licenses of ARES to complement their AutoCAD shop
- Companies working with clients who use the other CAD package

Or perhaps you are simply wondering about the differences between the market leader, AutoCAD, and the affordable alternative, ARES. This book is for you!

The History of Graebert

Based in Berlin, Graebert Enterprises began selling CAD systems in 1983, and was the very first distributor of AutoCAD in Germany. Graebert in 1993 separated from Autodesk to begin a new phase in which the company was restructured into two firms, Graebert Enterprises and Graebert GmbH. The later firm became the software development arm.

By 1994, Graebert GmbH developed a new CAD engine, the FelixCAD Graphic Developer's Engine. It would serve as the core for CAD application software licensed by OEMs (original equipment manufacturers). Graebert also sold it as a retail product, first under the name of FelixCAD and then later rebranded as PowerCAD.

Graebert GmbH recognized by 1999 the need for CAD on mobile devices, and so developed PowerCAD CE, the first professional and fully functional 2D and 3D CAD system to run on Windows CE. This mobile CAD system became popular with surveyors, architects, engineers, kitchen planners, and so on — anyone who required mobile CAD solutions. Today, Graebert's CAD software is the only one to run on Windows CE and desktop Windows at the same time.

FROM FELIX TO ARES

Graebert GmbH decided in 2005 that it was time to replace the Felix CAD kernel in order to employ the latest programming technologies. And so the ARES project began, programming another CAD system from scratch. After five years of development and feedback from beta testers, ARES Commander Edition were released in February 2010 for Windows. Versions for Linux and Mac OS X followed quickly, because Graebert GmbH had made sure its new software was written to be independent of the operating system.

A few months after, Graebert struck a huge deal with Dassault Systemes of France, the world's largest CAD software company: Dassault would market ARES under the name of DraftSight, and give it away for free. Since then, three million copies have been downloaded and the two companies have agreed to cooperate by adding features to each other's programs. The deal was followed by several more, such as Canada's Corel adopting ARES under the name of CorelCAD and Italy's progeCAD adopting the Mac version under the name of iCADMac.

Today, Graebert's line of CAD software consists of the following editions:

- **ARES Commander Edition** does day-to-day 2D design work, and 3D modeling
- **ARES OEM** is a CAD engine for stand-alone applications

In addition, Graebert GmbH offers a third-party developer program and hosts app-style stores for downloading and running third-party applications on ARES, CorelCAD, and others.

ABOUT THE ARES NAME

The name is pronounced like "air-ies," and is based on the Greek god of unpredictable warfare. In Roman myths he was known as "Mars."

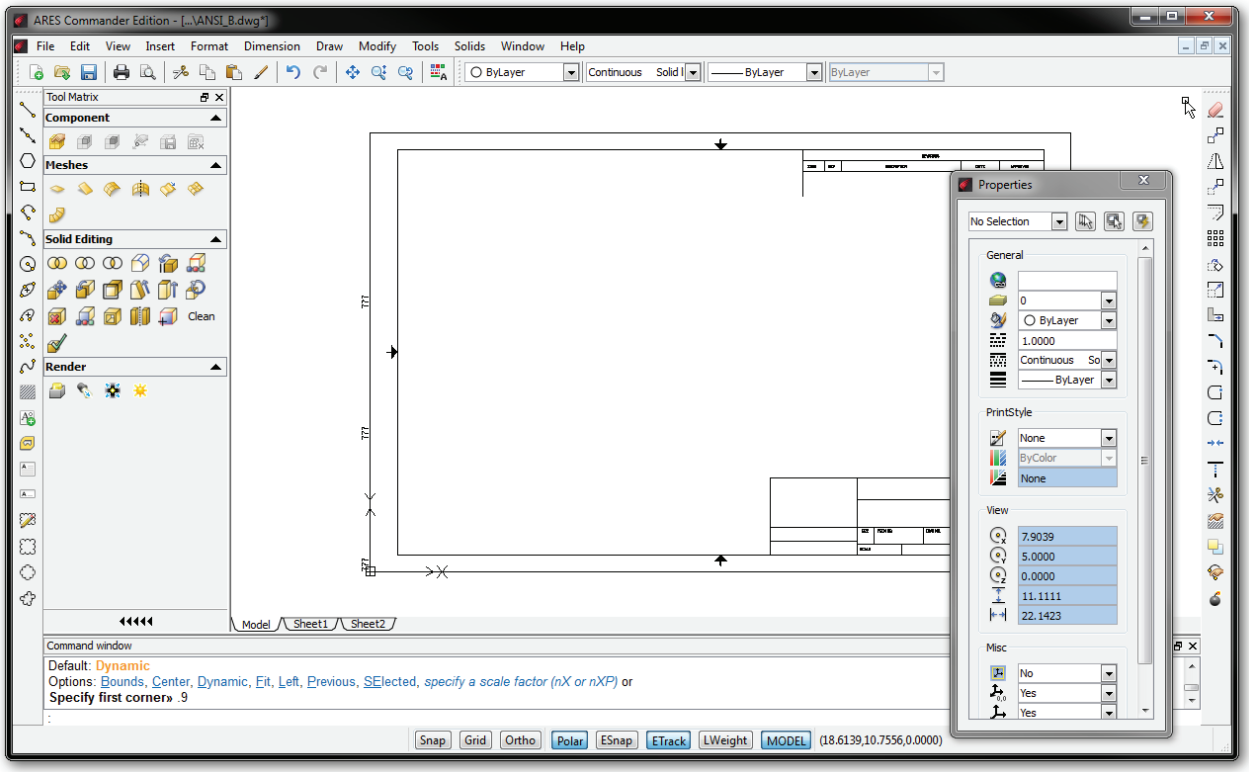
The flame logo used by the ARES software is inspired by the chariot of Ares, which was drawn by fire-breathing stallions.

The Advantages of ARES

ARES isn't just a lower cost version of AutoCAD; it has advantages over more expensive CAD programs. The advantages include a nearly-identical user interface, additional commands and system variables, support for operating systems other than Windows — along with a much lower price tag.

NEAR-IDENTICAL USER INTERFACE

When you launch ARES Command Edition for the first time, you will notice that it looks very much like AutoCAD with the classic workspace — complete with command prompt. If you do not care for the Microsoft-designed ribbon interface added by Autodesk to more recent versions of AutoCAD, then you will love ARES for sticking to toolbars and menus. Chapter 2 describes the user interface of ARES in greater detail.



ARES uses the same names for many AutoCAD commands and system variables, either directly or through aliases. Even many of the keystroke shortcuts and mouse clicks are identical. The commands that are missing from ARES are most likely ones you weren't using in AutoCAD, such as those for database linkages and sheet set management. The appendices to this book compare command and system variable names, keystrokes, and mouse buttons.

ARES is available in English and 13 other languages. Normally, it uses the same language as the operating system; to switch to another language, just enter the Language command, specify the language, and then restart the program.

MULTIPLE OPERATING SYSTEMS

Most CAD programs today are tied to the Windows operating system, but Graebert wrote ARES code to make it independent of all operating systems. This means that ARES today runs natively on Linux, Mac OS X, and Windows — with support for further operating systems already in the planning stages, such as Android and the iOS.

Autodesk supports fewer releases of Windows than does Graebert, and does not support Linux at all.

Both CAD programs operate on Windows, while ARES also runs on additional operating systems:

AutoCAD	ARES
Apple	*Available in 64-bit version*
Mac OS X	Mac OS X
Linux	*Available in 32-bit version*
...	Suse, Mageia, and Fedora
...	Ubuntu and Debian
...	Other distributions
Microsoft	*Available in 32- or 64-bit versions*
Windows XP SP2	Windows XP
...	Windows Vista
Windows 7	Windows 7
...	Windows 8

ARES is available in 32- and 64-bit versions for Windows, and in 64 bits for Mac OS X. AutoCAD for Windows requires Internet Explorer installed; ARES does not.

LOWER PURCHASE AND MAINTENANCE PRICES

ARES Commander Edition with annual maintenance is many times cheaper than AutoCAD. To put it another way, you can outfit five workstations with ARES Commander Edition for the same price as just one with AutoCAD.

The list prices current at time of writing are as follows:

Item	AutoCAD [1]	AutoCAD LT [1]	ARES Commander Edition [2]
License [3]	$4,195	$1,200	$795
Maintenance	$450/year	$195/year	$200/year

1 USA pricing only; usually higher in other countries.
2 US$ prices; different in Euros.
3 Single-use license; lower pricing available for multi-seat purchases, networked versions, leased copies, and upgrades; taxes may be extra.

See www.graebert.com/en/cad/ares for all the details of ARES products and their pricing.

SIMILAR APIs

Graebert makes it easy for third-party developers to adapt their AutoCAD add-ons to ARES Commander Edition. For this reason, ARES supports almost the same APIs as does AutoCAD.

AutoCAD API*	ARES Equivalent	Notes
AutoLISP	LISP	AutoLISP code runs as-is in ARES
Diesel	Diesel	Diesel code runs as-is in ARES
DCL	DCL	DCL code runs as-is in ARES
VBA	...	VBA is considered obsolete by Autodesk
ADS	FDT	ADS is considered obsolete by Autodesk; fully supported in ARES through FDT
ARX	DRX	ARX code requires porting to ARES;DRX contains ARES extensions
COM	COM	AutoCAD COM code runs as-is in ARES
.Net	DWGdirect.NET	AutoCAD .Net code partially supported by ARES
VSTA	VSTA	VSTA code runs as-is in ARES

*) API is short for "application programming interface," the software link between CAD software and programming languages/compilers.

The Macintosh and Linux versions of ARES Commander Edition support smaller sets of APIs, because the two operating systems cannot run Microsoft-specific interfaces, such as ActiveX, COM, and VSTA.

See Chapter 4 for more information about the Graebert developer program.

Graebert is a member of the Open Design Alliance, and uses its Teigha libraries to read and write DWG files.

Feature Comparisons

ARES matches AutoCAD in many areas feature-for-feature. ARES, however, cannot completely mimic AutoCAD. Nor should it, if it wishes to remain a lithe drafting program, as the 8x difference in download sizes makes clear:

	64-bit AutoCAD 2013	64-bit ARES 2013
Download Size	1.2GB	0.14GB

This section highlights some of the differences between the two.

WHAT'S MISSING FROM ARES

Here is a list of the things that I found ARES lacks:

Animations (walk and fly)	Annotation scaling	AutoPublish
CAD standards	Constraints	Database links
Drawing layouts	Dynamic blocks *	Geographic positioning
Materials for rendering	Mesh modeling *	Multiline attributes
Multline leaders *	Quick properties	Quick view thumbnails
Sections *	Sheetsets	Surface modeling *

* When ARES finds these objects in DWG files, it displays them correctly; it can edit some of these objects, but does not create them. See chapter 3 for details.

Dimensional and geometric constraints are due to be added to a future release of ARES.

WHAT'S MISSING FROM AUTOCAD

While ARES may be cheaper and lighter than AutoCAD, it offers features missing from the larger, more expensive CAD system, as well as commands more convenient to use than in AutoCAD. For example, ARES exports drawings in the popular SVG and EMF formats; AutoCAD does not.

Here is a list of functions that ARES does more easily than AutoCAD; in some cases, AutoCAD does not do the function at all. (Those shown in red are new to ARES Commander Edition 2013.)

- BlockAttributeOutput extracts attributes without needing a template file.
- ObliqueDimension, RotateDimensionText, MoveDimensionText, ResetDimensionText, FlipArrows, and ReplaceDimensionText adjust dimensions.
- EditTolerance edits tolerances (see example following).
- ExplodeX explodes ellipses and splines into polylines, which is useful for exporting drawings to software that cannot handle ellipses or splines, such as for CNC maching. AutoCAD cannot convert ellipses to polylines, but the PEdit command can convert splines into polylines.
- Flip mirrors entities without copying them.
- NoteOptions toggles options for using old or new Note (MText) and SimpleNote (Text) interfaces.
- ReplaceOpen and ReplaceNew replace the current drawing with a new one, by closing it while opening the other one.

- SaveAll saves all open drawings at once.
- SimplePolygon draws polygons quickly by skipping the inside/outside question.
- QuickPrint prints quickly by skipping the dialog box.

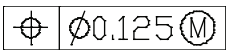
And here are the functions that AutoCAD doesn't do at all:

- EnterPoint specifies points through an extensive dialog box.
- ExportEMF and ExportSVG export drawings in EMF and SVG formats.
- Trapezoid draws trapezoids.
- VoiceNote inserts audio notes.
- Options dialog box consolidated all options and all styles.
- Options toolbar.

Easy Tolerance Editing

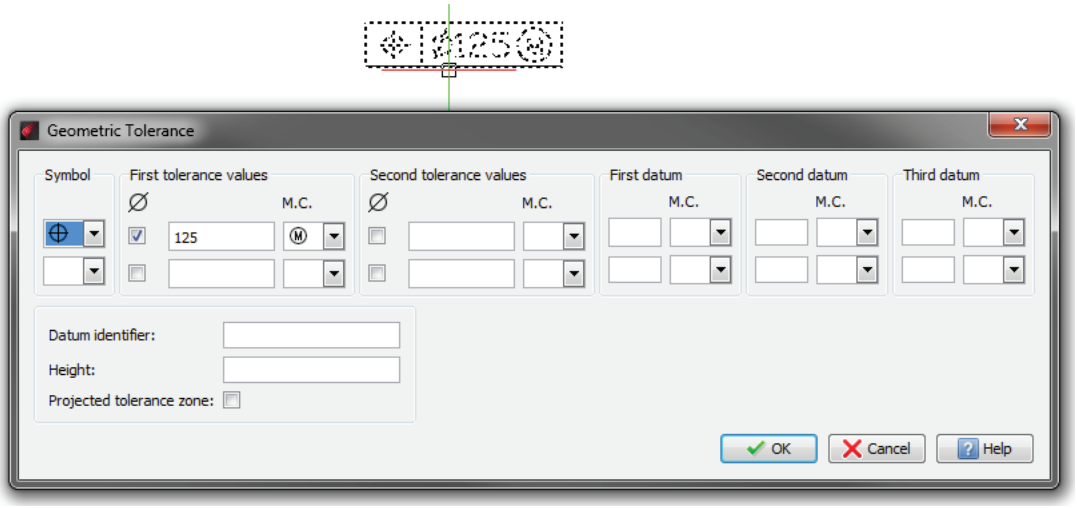
AutoCAD's comprehensiveness can make some of its commands hard to use. For example, to edit a geometric tolerance, you go through the following steps in AutoCAD:

1. Double-click the tolerance. Notice the Properties palette. In the Text section, the Text Override field displays a rather incomprehensible line of text codes: {\Fgdt;j}%%v{\Fgdt;n}125{\Fgdt;m}%%v%%v%%v%%v.
2. Click the ··· button, which displays the Geometric Tolerance dialog box.
3. Change the values.
4. Click **OK**.
5. Press ESC to unselect the tolerance.



In ARES, the procedure is quicker:

1. Double-click the tolerance entity. Notice the Geometric Tolerance dialog box.
2. Change the values.
3. Click **OK**. (There is no need to press ESC to unselect the tolerance.)

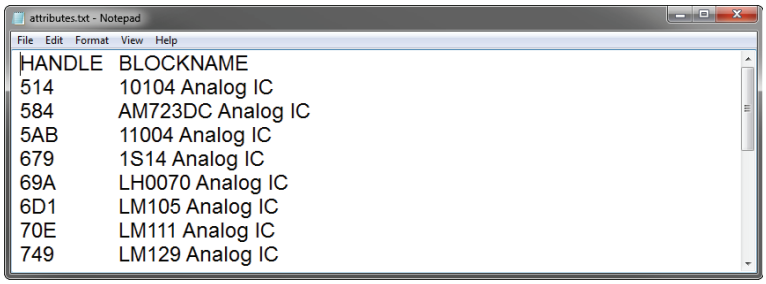


Template-free Attribute Extraction

The BlockAttributeOutput command extracts attributes without needing a template, something I wish AutoCAD would allow.

```
: blockattributeoutput
Specify entities» all
23 found, 19 total
Specify entities» (Press Enter to continue)
```

ARES displays the Output File dialog box. Enter a file name, and then click Save. The attribute data is stored in a TXT text file, like this:



The data can be read into a spreadsheet or database program.

(All of AutoCAD's attribute extraction commands require that you first create a template file that determines which attributes are extracted and in what format.)

Dimension Adjustments

A collection of dimension editing commands adjust the look of extension lines and dimension text. In AutoCAD, some of these commands are undocumented, and so users don't know they exist.

- FlipArrow reverses the direction of arrowheads; in AutoCAD, use the undocumented AiDimArrowFlip command.
- MoveDimensionText moves dimension text; in AutoCAD, use undocumented AiDimTextMove.
- ObliqueDimension slants the extension lines; in AutoCAD, use DimEdit > Oblique.
- ReplaceDimensionText replaces dimension text with user-defined wording; in AutoCAD, double-click dimension text, and then edit.
- ResetDimensionText returns dimension text to its default position; in AutoCAD, use undocumented Ai_Dim_TextHome.
- RotateDimensionText rotates dimension text; in AutoCAD, use DimTEdit > Rotate.

Export Drawings as EMF, SVG

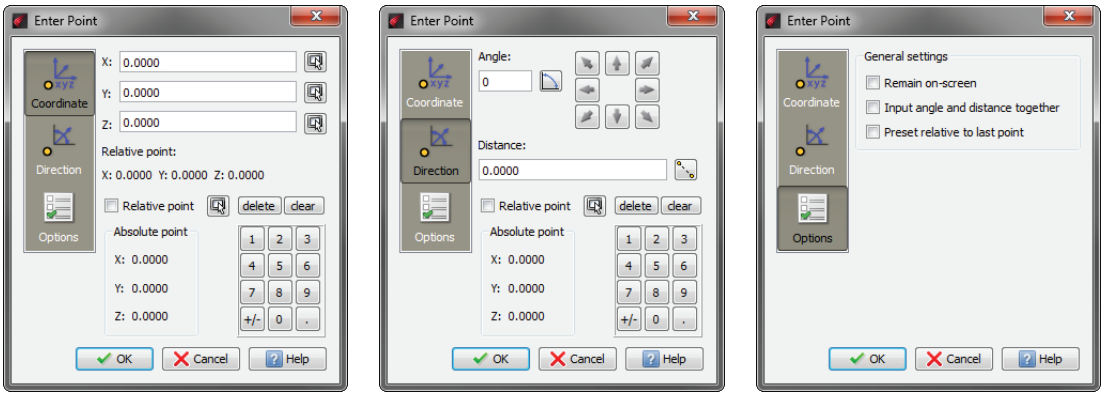
The ExportEMF and ExportSVG commands export drawings in two vector formats, EMF and SVG:

- EMF — enhanced meta file, the Windows standard for mixed vector-raster images.
- SVG — scalable vector graphics, the Web standard for vector images.

AutoCAD supports only the 15-year-old WMF format, which has long been superseded by EMF, and does not support SVG at all.

Point Specification

The EnterPoint command displays a powerful dialog box that specifies points in many ways.



In AutoCAD, the Point command uses regular coordinate specification methods. (ARES also has this Point command.)

Mirror Without Copy

The Flip command mirrors selected objects without keeping the original copy.

```
: flip
Specify entities» (Choose one or more entities.)
Specify entities» (Press Enter to continue.)
Specify start point of mirror line» (Pick a point.)
Specify end point of mirror line» (Pick another point.)
```

In AutoCAD, the Mirror command requires you to answer an extra prompt over whether or not you want to keep the original. (ARES also has this Mirror command.)

Opening and Replacing Drawings

The ReplaceOpen and ReplaceNew commands replace the current drawing with a new one. In effect, these command close the current drawing, and then display a dialog box for opening another drawing. If necessary, you are prompted to save the drawing being closed.

In AutoCAD, you have to use the Close command along with the Open or New commands. (ARES also has these commands.)

Save All Drawings at Once

The SaveAll command saves all open drawings.

In AutoCAD, you have to press **CTRL+TAB** to access each drawing, and then repeatedly entering the QSave command. (ARES also has this command.)

Simple Polygons

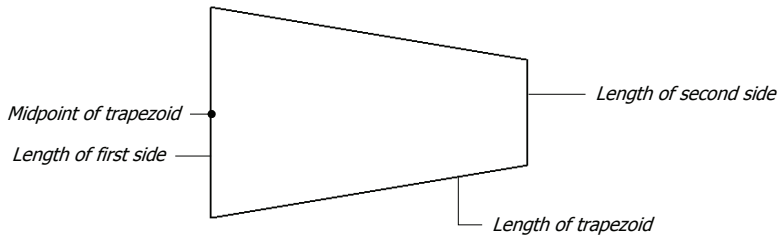
The SimplePolygon command sizes polylines by the length of their edges only:

```
: simplepolygon
Default: 4
Number of sides» (Enter an integer.)
First corner of side» (Pick a point.)
Distance or second corner of side» (Pick another point.)
```

In AutoCAD, the Polygon command makes you decide whether to draw polygons by the edge, inscribed, or circumscribed methods. (ARES also has this command.)

Trapezoids

The Trapezoid command draws trapezoid shapes, as illustrated below:




```
: trapezoid
Default: (0.0000,0.0000,0.0000)
Specify midpoint of first side» (Pick a point.)
Default: 0
Specify angle of trapezoid» (Enter an angle.)
Specify length of trapezoid» (Enter a length.)
Specify length of first side» (Enter a width.)
Specify length of second side» (Enter another width.)
```

AutoCAD does not have a Trapezoid command.

Verifying Dimensions

The VerifyDimensions command in ARES checks all dimensions in the current drawing. It updates the dimension text when discrepancies found to the measured value. The text is not, however, updated when the text was deliberately edited by the user to override measured dimensions.

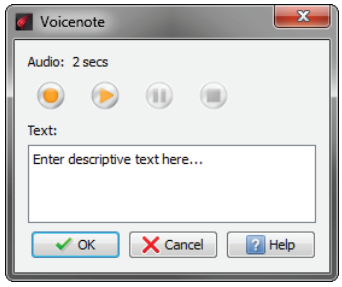
AutoCAD does not have such a command.

Audio Notes

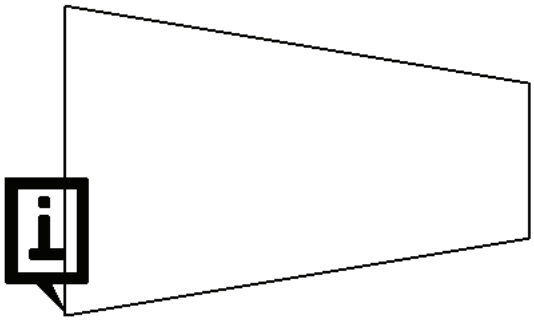
The VoiceNote command insert audio notes into drawings:

```
: voicenote
Specify location for VoiceNote or select a VoiceNote symbol for play recording:
(Pick a point.)
```

After you pick a point in the drawing, ARES displays this dialog box. Click to start recording, and then click to stop. If you wish, enter text to go along with the voice note.



When you click OK, ARES inserts this symbol in the drawing to identify the voice note:



AutoCAD does not have a VoiceNote command, but can insert OLE objects with the InsertObj command. (ARES also has this command.)

Quick Printing

The QuickPrint command prints the drawing without prompting you for options; the Print command is not displayed.

AutoCAD does not have a quick print command.

Options Toolbar

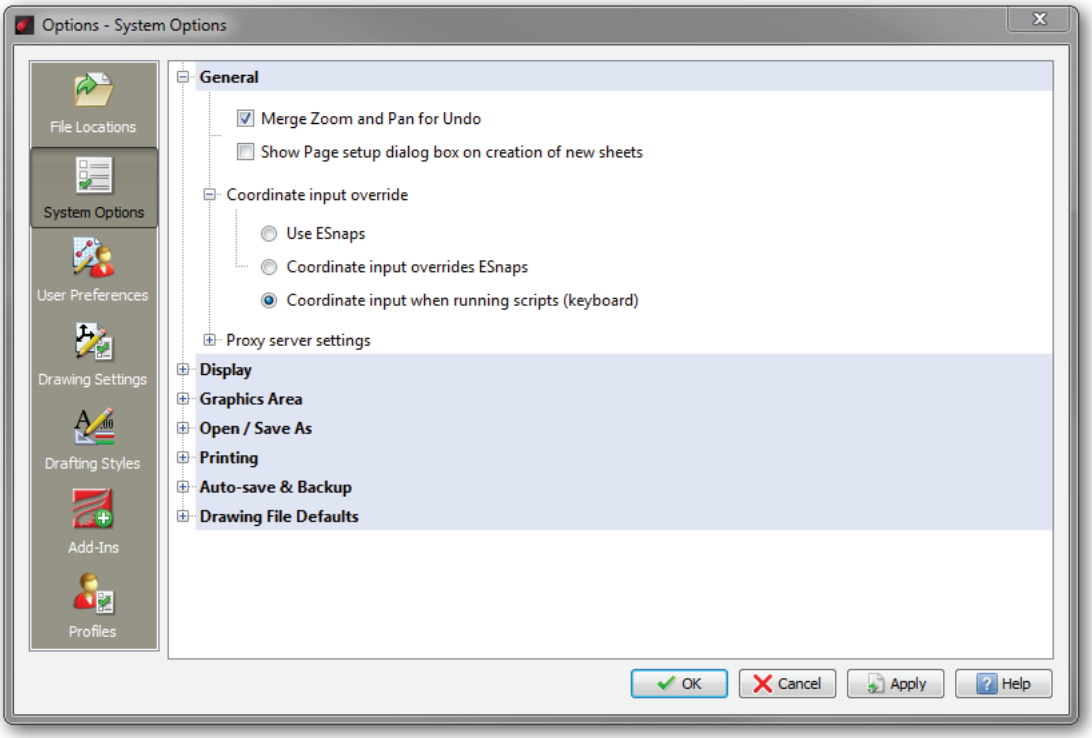
The Options toolbar displays context sensitive options you can select when executing a command. It displays only those options that are available at the current prompt.

For example, when you start the Text command, the toolbar shows Justify and textSTYle, the initial option names. To display or hide the Options toolbar, right-click the menu bar or a docked toolbar and then choose Options Toolbar.

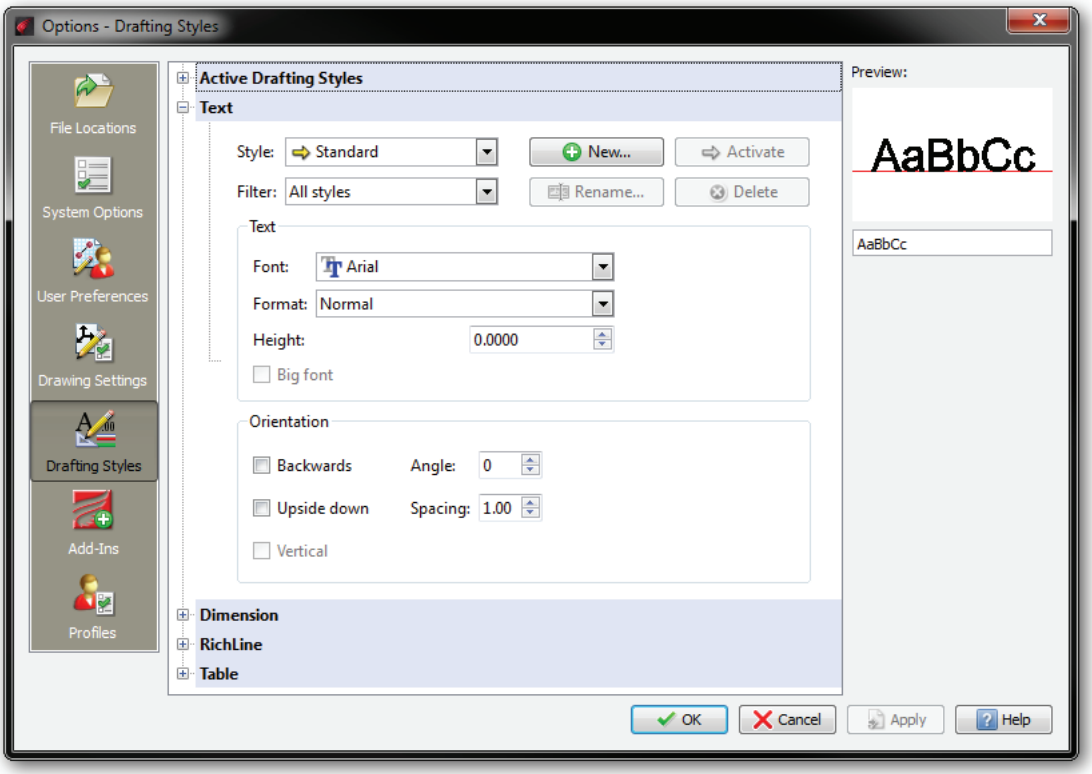
AutoCAD does not have the Options toolbar; the closest equivalents are the side screen menu and dynamic input.

Consolidated Options Dialog Box

The Options command consolidates all ARES options into a single dialog box; see figure below.



The dialog box even includes styles, such as text and dimension styles. Instead of using tabs, this dialog box uses sections .



ARES offers shortcut commands that directly access specific sections of the Options dialog box:

Shortcut Command	Action
DdPType	Opens the Points style subsection
DimStyle	Opens the Dimension style subsection
DraftingStyles	Opens the Drafting Styles section (in AutoCAD, the DSettings command)
DrawingSettings	Opens the Drawing Settings section
FileLocations	Opens the File Locations section
LineWeight	Opens the Line Weight subsection
Profiles	Opens the Profiles section
RichlineStyle (MlStyle)	Opens the Richline (mline) style subsection
Style	Opens the Text subsection
SystemOptions	Opens the System Options section
TableStyle	Opens the Table style subsection
UcsMan	Opens the Coordinates subsection
Units	Opens the Units subsection
UserPreferences	Opens the User Preferences section

In contrast, AutoCAD uses multiple dialog boxes to specify settings, such as Options, Drafting Settings, Style, Dimension Style Manager, and so on.

Accessible VSTA Macros

Microsoft created VBA (Visual Basic for Applications) as a way of creating custom functions on Windows applications, like Word, ARES, and AutoCAD. During Windows Vista, Microsoft dropped support for VBA in favor of VSTA, Visual Studio Tools for Applications.

ARES offers this pair of commands for running VSTA macros:

- **Vsta** records, edits, and runs VSTA macros at the command prompt
- **VstaManager** also records, edits, and runs VSTA macros but in a dialog box

In addition, the VSTA Manager toolbar provides controls for recording and running macros written in VSTA.

AutoCAD does not provide user access to VSTA.

(For several years, Autodesk created uncertainty among AutoCAD users in announcing that support for VBA would be pulled from a future release of the software; VBA itself was turned into a separate download from AutoCAD. With AutoCAD 2013, Autodesk reinstated VBA.)

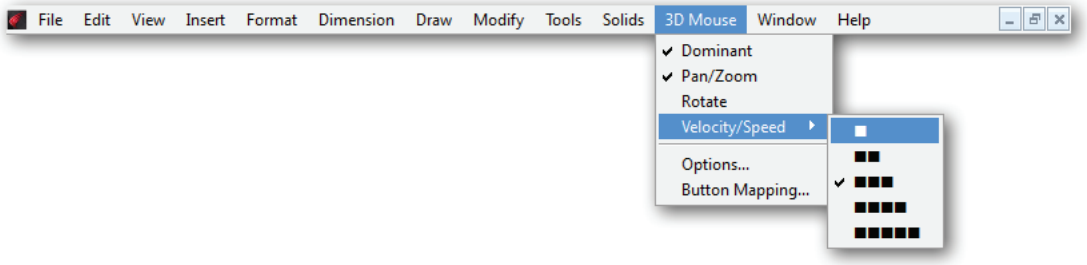
Support for 3D Mice

While AutoCAD supports 3D mice and allows customization of mouse buttons, it does not customize the buttons of 3D mice. ARES does, through the following commands:

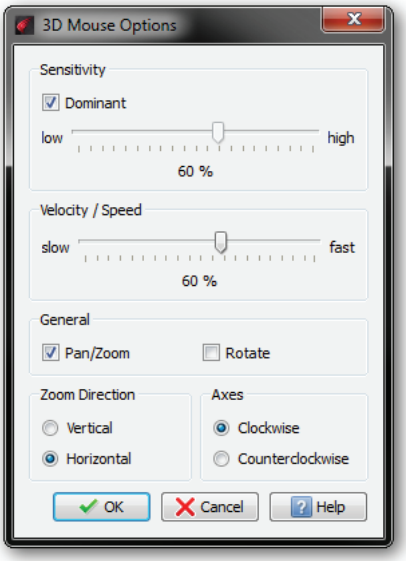
- **3DMouseButtons** assigns commands to the buttons of 3D mice
- **-3DMouseOptions** sets options for 3D mice at the command line
- **3DMouseOptions** sets options for 3D mice in a dialog box

Note These commands operate only when a 3D mouse is connected to the computer, and ARES is restarted.

In addition to these commands, the 3D Mouse item on the menu bar provides quick access to changing the use of the mouse, such as its speed. This menu appears automatically when a 3D mouse is plugged into the computer.



3DMouseOptions. While you can optimize a 3D mouse through the setup software included with the mouse, ARES allows you to customize it within the CAD program itself. The dialog box shown below illustrates the options available.



The -3dMouseOptions command presents the same options at the command prompt, and so is useful for scripts and macros.

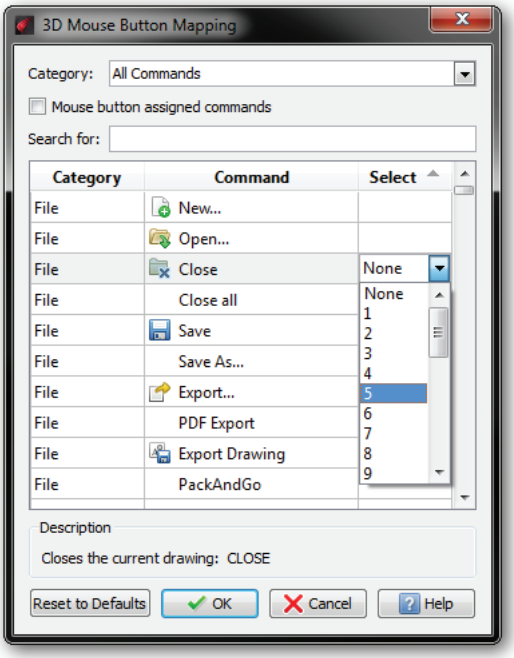
```
Confirm: Dominant
Specify Dominant, Sensitivity, Velocity, Panzoom, Rotate, Zoomdirection or Axes»
```

3DMouseButtons. Some 3D mice come with buttons meant to be assigned commands. For instance, the Space Pilot Pro from 3dconnexion has five physical buttons that can be assigned 30 commands.

Customizable buttons are located in the lower left of the photograph, and are numbered 1 through 5.

ARES allows you to assign any command to ten buttons. To do so, follow these steps:

1. Enter the **3dMouseButtons** command. Notice the dialog box.
2. Under **Command**, click on a command name to select it, such as "Close."
3. In the **Select** column, click the droplist, and then choose a button number, such as "5."



4. When done, click **OK**.
5. When you press the 3D mouse button #5, ARES executes the Close command.

ARES Editions

ARES is available from Graebert in two editions: ARES Commander Edition and ARES OEM. The OEM version is meant for third-party developers. You can view a complete comparison table here: new.graebert.com/templates/haase/pdf/ares_and%20ares_ce_features_eng.pdf (PDF file).

The software is also available from other vendors.

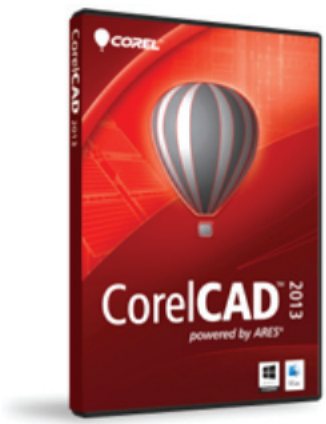
DRAFTSIGHT FROM DASSAULT SYSTEMES

Graebert has a successful history of licensing rebranded versions of their software, particularly to companies involved in selling hardware and software to surveyors. The two largest clients are Dassault Systemes, who distribute it as DraftSight, and Corel, who call it CorelCAD.

Dassault Systemes is best known for its very expensive Catia software used to design aircraft and automobiles, and its mid-priced SolidWorks software used in 3D mechanical design. It licensed ARES, and then renamed it DraftSight. The software has been downloaded over three million times.

DraftSight looks just like ARES and has many of the same features, including the ability to run on Linux, OS X, and Windows. The software can be downloaded free from www.draftsight.com. You will need to register the software and then reactivate it every 12 months.

Missing from the free version are the programming APIs (LISP, DCL, and so on), which are available by purchasing an enterprise license subscription. The enterprise license includes telephone support and network licensing. You can get more information by emailing enterprise@draftsight.com with your email address.



CORELCAD FROM COREL

Corel is famous for its CorelDraw vector drawing software. It licenses ARES as CorelCAD for Windows and Mac. This version of the ARES software is designed to interact with CorelDraw and CorelDesigner.

Visit www.corel.com/corelcad for more information.

ARES is Not IntelliCAD

Some readers may be unfamiliar with the heritage of ARES, and so assume that it is based on IntelliCAD. It is not, and never was. If it has any heritage, it is of PowerCAD and FelixCAD, earlier CAD packages written by Graebert.

ARES is the result of a five-year effort by Graebert to write a new generation of CAD software program from scratch. Some of the primary objectives were to create the fastest DWG editor, to write it using the latest programming language, and to make it independent of the Windows operating system.

Graebert is a member of Open Design Alliance, and so benefits from the organization's toolkits, such as reading and writing DWG files, ACIS libraries, and geometric/dimensional constraints.

System Requirements

A further advantage to ARES is that it has milder hardware and operating system requirements than does AutoCAD. This is significant for two reasons:

- ARES can run on older computers; it is not necessary to employ high-end hardware nor to install the special display drivers required for AutoCAD.
- ARES has more RAM and CPU speed headroom on newer computers than does AutoCAD.

As noted earlier, ARES runs on just about any version of Linux or Windows, and recent releases of Mac OS X. AutoCAD runs only on certain releases of Windows, the most recent releases of Mac OS X, but not at all on Linux.

RECOMMENDED HARDWARE

Autodesk recommends that your computer's CPU run at a minimum of 3GHz, and that it support SSE2* technology, as do most of today's CPUs. AutoCAD will not run on older CPUs that lack SSE2.

Between the two systems, the specs compare as follows:

	AutoCAD	ARES Minimum	ARES Recommended
CPU	3GHz w/SSE*	2GHz	Core 2 Duo or X2 Dual-Core
RAM	2GB	1GB	2-3GB
Install Space	1.3GB	0.3GB	0.4GB
Graphics Board	1280x1024	1024x768	1024x768
	128KB RAM		3D accelerated
	Direct3D		

*) SSE2 is short for "streaming SIMD (single instruction, multiple data) extension 2. It allows CPUs to assist with certain math functions and vector transformations of the sort used by CAD applications.

30-DAY TRIAL SOFTWARE

Just as you can try out AutoCAD free for 30 days, you can install and run ARES for 30 days at no charge from new.graebert.com/index.php?option=com_content&view=article&id=63&Itemid=78%E2%8C%A9=en. When you register and activate the trial version, all functions are available for 30 days, including printing and saving.

In summary, ARES operates a lot like AutoCAD — yet is more economical. In the following chapters, we delve deeper into the themes sketched out by this chapter.

NEW IN ARES 2013: COMMANDS

New commands added to ARES Commander Edition since the first edition of the book include the following ones. (The name of the nearest equivalent AutoCAD command is shown in *italicized* text.) See Chapters 2, 3, and 4 for what's new in the areas of user interface, DWG support, customization, and programming.

- **ActionRecord**, **ActionStop**, and **-ActionManager** (*ActRecord, ActStop, and ActManager*) record, stop, and edit macros.
- **AttachDGN** (*DgnAttach*) and **AttachPDF** (*PdfAttach*) attach MicroStation DGN design and PDF files to the current drawing as underlays.
- **ClipDGN** (*DgnClip*) and **ClipPDF** (*PdfClip*) clip DGN and PDF underlays.
- **ClipImage** (*ImageClip*) clips raster image underlays.
- **Cloud** (*RevCloud*) draws revision clouds in rectangular, elliptical, and freehand shapes.
- **DetachDGN** (*ExternalReferences*) and **DetachPDF** detach DGN and PDF files from the drawing.
- **DetachDrawing** (*ExternalReferences*) detaches referenced DWG files from the drawing.
- **EditIpAttributeBlock** (*AttIpEdit*) edits the values of multiline attributes.
- **ESnap** (*OSnap*) is improved.
- **ExplodeText** (*TxtExp*, an AutoCAD Express tool) converts outlines of text as polylines, useful for CAM tool path generation.
- **ExplodeX** (*PEdit*, for splines only) explodes ellipses and splines into polylines, useful when exporting drawings to software that cannot handle ellipses or splines.
- **Extend** (*Extend*) has improved performance in large drawings.
- **FilletEdges** (*FilletEdge*) fillets the eddges of 3D solids.
- **FlipArrows** (*AiDimFlipArrows*) flips dimension arrows back and forth.
- **InsertBlockN** (*MInsert*) inserts multiple copies of a block or reference in a pattern (array) of rows and columns.
- **LayersDGN** (*DgnLayer* or *ULayer*) and **LayersPDF** (*PdfLayer*) toggles layer visibility of DGN and PDF underlays.
- **Layout** (*Layout*) allows dimensions to be applied to model space entities in layout space, and model space entities to be snapped from layout space.
- **Loft** (*Loft*) generates a 3D solids loft between 2D entities.
- **MakeFlatSnapShot** (*FlattenShot*) generates 2D representations of 3D solid objects.
- **Note** (*MText*) and SimpleNote (*Text*) now support Hebrew, Thai, and Arabic letters, and a new in-place text editor replaces the old annotation dialog boxes, allowing text to be entered and formatted directly in the drawing.
- **NoteOptions** toggles options for using old or new Note and SimpleNote interfaces.
- **PackAndGo** (*eTransmit*) combines the current drawing and its support files, such as references, images, fonts, and print styles, into a package.

...continued on the next page.

Continued from the previous page...

- **Paste@SourcePosition** (*PasteOrig*) pastes entities from Clipboard into the drawing, using the coordinates of the source drawing.
- **PasteSelected** (*PasteSpec*) pastes entities from Clipboard after selecting from the available formats.
- **SelectAll** (*Ai_SelAll, an undocumented command in AutoCAD*) selects all non-frozen entities, and places them into the current selection set.
- **SmartDimension** (*QDim*) dimensions lines and polyline segments, arcs, circles, and rings (donuts) automatically.
- **Trim** (*Trim*) has improved performance in large drawings.
- **UpdateBlockAttributes** (*AttSync*) updates blocks with new attribute data.
- **Viewport** (*Viewport*) now aligns viewports easily by selecting the geometry inside a viewport.

NEW IN PRINTING AND PLOTTING

- **Print** (*Plot*) now plots models without hidden lines, uses Open GL prints objects in shaded viewports, and supports TTF printing to create much smaller files with text made of TrueType fonts.
- Redesigned Print dialog box places paper orientation and offset measurements in the main dialog box
- Better handling of custom plotter and printer driver settings.
- **Preview** (*Preview*) preview performance enhanced for OS X.

NEW IN USER INTERFACE ELEMENTS

See Chapter 2, "Comparing User Interfaces."

NEW IN DRAWING ELEMENTS

See Chapter 3, "Drawing File Compatibility."

NEW IN CUSTOMIZATION AND PROGRAMMING

See Chapter 4, "Customizing and Programming."

Chapter 2

Comparing User Interfaces

IN THIS CHAPTER

- Understanding user interface variations
- Revealing hidden UI elements
- Examining command names, keystrokes, mouse buttons, and the status bar
- Looking through the Options dialog box

ARES looks like AutoCAD 2008, as well as more recent releases when the AutoCAD workspace is set to "AutoCAD Classic." Both CAD systems are illustrated on the following spread. In this chapter, the similarities and differences are summarized.

The primary difference between the two is that ARES does not sport the Microsoft-designed ribbon, which dominates AutoCAD's user interface since release 2009. ARES continues to use the dropdown menus and toolbars preferred by many users, and has introduced other user interface enhancements not found in AutoCAD, such as the Tool Matrix. In some cases, Autodesk copied parts of UI elements from ARES, such as the color-coded command prompt.

The traditional user interface gives Graebert two advantages. Firstly, having no ribbon makes it easier to port ARES to other operating systems, specifically Linux and OS X, with more platforms promised for the future. Secondly, many users find the ribbon's mixture of large and small, stacked and linear buttons and labels confusing, and so preferring the logical consistency of text-oriented menus and icon-oriented toolbars.

You can fully customize the user interface of ARES, as described in Chapter 4.

SUMMARY OF USER INTERFACE ELEMENTS

ARES and AutoCAD have similar user interface elements, although some are unique to each package. The following table summarizes the similarities and differences. Elements discussed in this chapter are shown in **boldface**.

UI ELEMENTS

AutoCAD 2013	ARES 2013
Customizable user interface	Customizable user interface
Menu bar (turned off in default workspace)	Menu bar (turned on by default)
Toolbars (turned off in default workspace)	Toolbars (turned on by default)
Tooltips	Tooltips
Scroll bars	Scroll bars
Layout tabs	Layout tabs
Workspaces	UI Profiles
Ribbon	...
Rollover tooltips	...
QuickView for layouts and drawings	...

ON THE DRAWING SCREEN

AutoCAD 2013	ARES 2013
Customizable UI colors	Customizable UI colors
Tri-color cursor	Tri-color cursor
Aperture and pick box cursors	Aperture and pickbox cursors
Grips	Grips
Selection highlighting and previews	Selection highlighting and previews'
Selection modes: 13	Selection modes: 18
Subentity selection	Subentity selection
AutoSnap and Autotrack markers	AutoSnap and Autotrack markers
UCS icon	CS icon
Steering wheels / Navigation cube	...

INFORMATION CENTERS

AutoCAD 2013	ARES 2013
Properties palette	Properties palette
Tool palettes	**Tool Matrix palette**
Status bar	**Status bar**
...	Report bugs
Sheetset manager	...
DesignCenter	...
InfoCenter	...
Quick Access toolbar	...
Quick Properties palettes	...

Summary of user interface elements, continued...

COMMAND BAR AND MOUSE

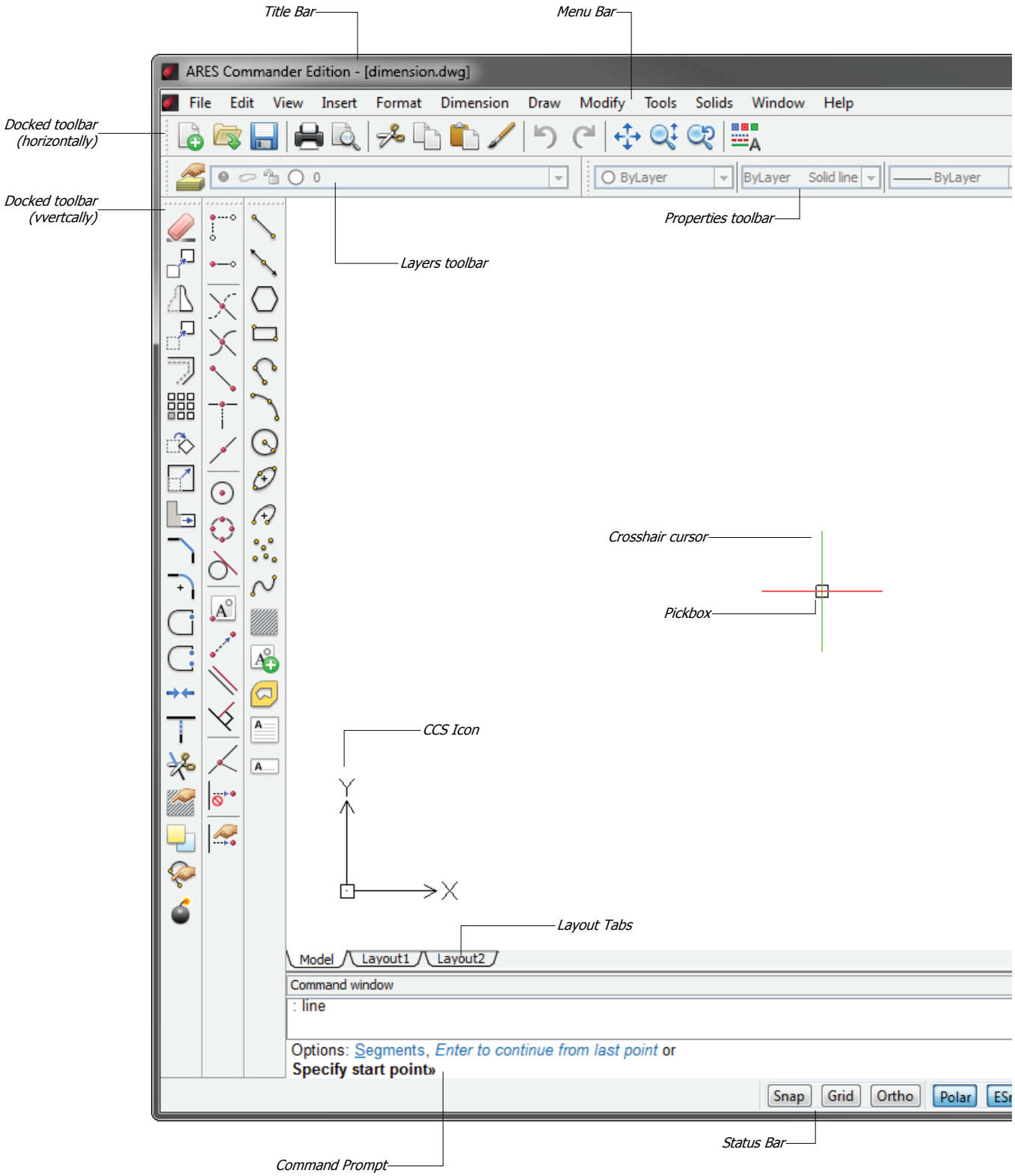
AutoCAD 2013	ARES 2013
...	**Customizable command prompt**
Keyboard input	Keyboard input
Keyboard shortcuts	**Keyboard shortcuts**
Keyboard overrides	Keyboard overrides
Command aliases	**Command alises**
Double-click actions	Double-click actions
Mouse buttons and wheel	Mouse buttons and wheel
3D mouse support	3D mouse support
Shortcut (right-click) menus	Shortcut (right-click) menus
Dynamic input	**Options toolbar**
Color-coded defaults	**Color-coded prompts and defaults**
Command history	Command history
Autocomplete	...

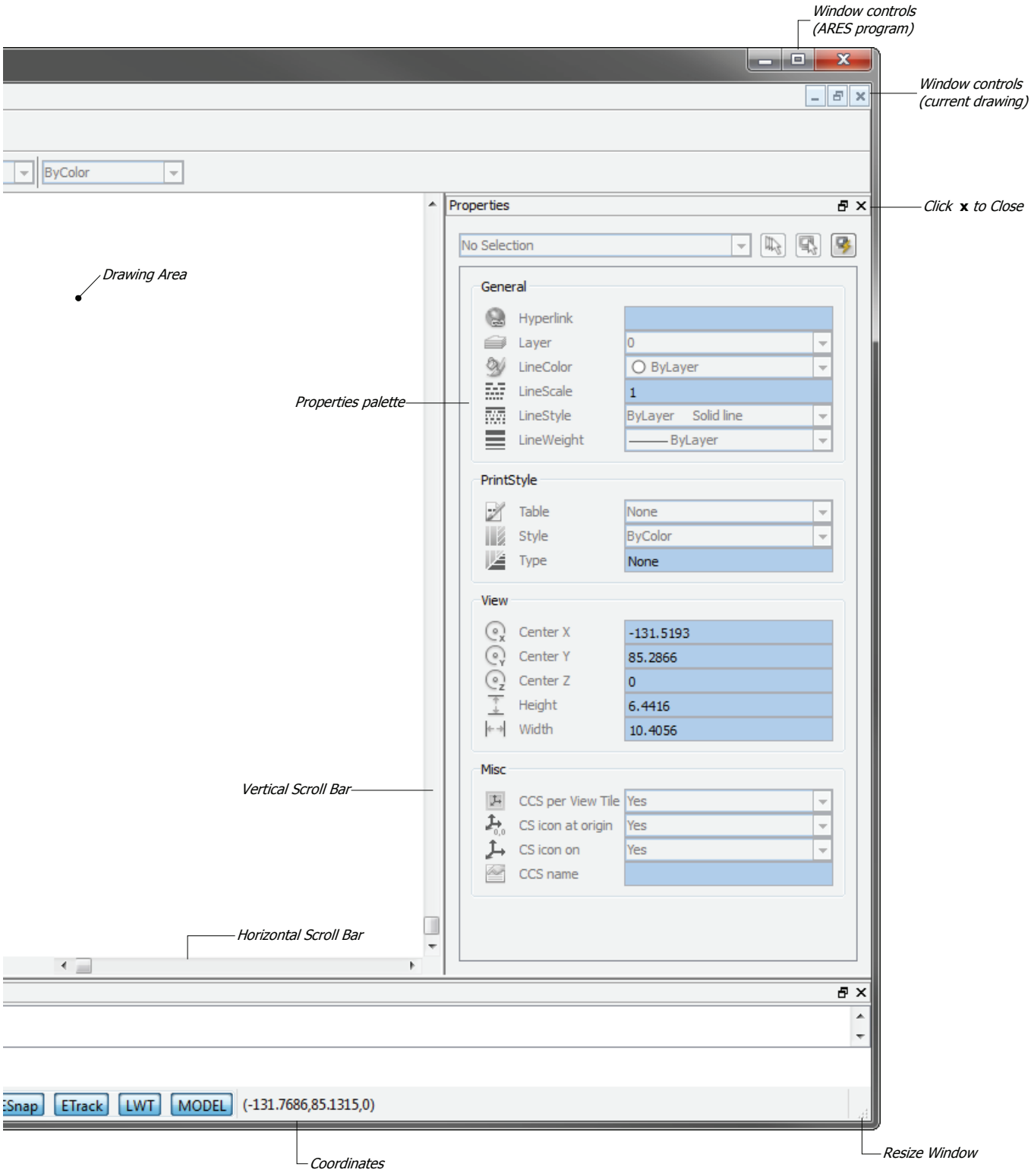
NEW IN ARES 2013: UI

New user interface elements added to ARES since the first edition of the book include the following items:

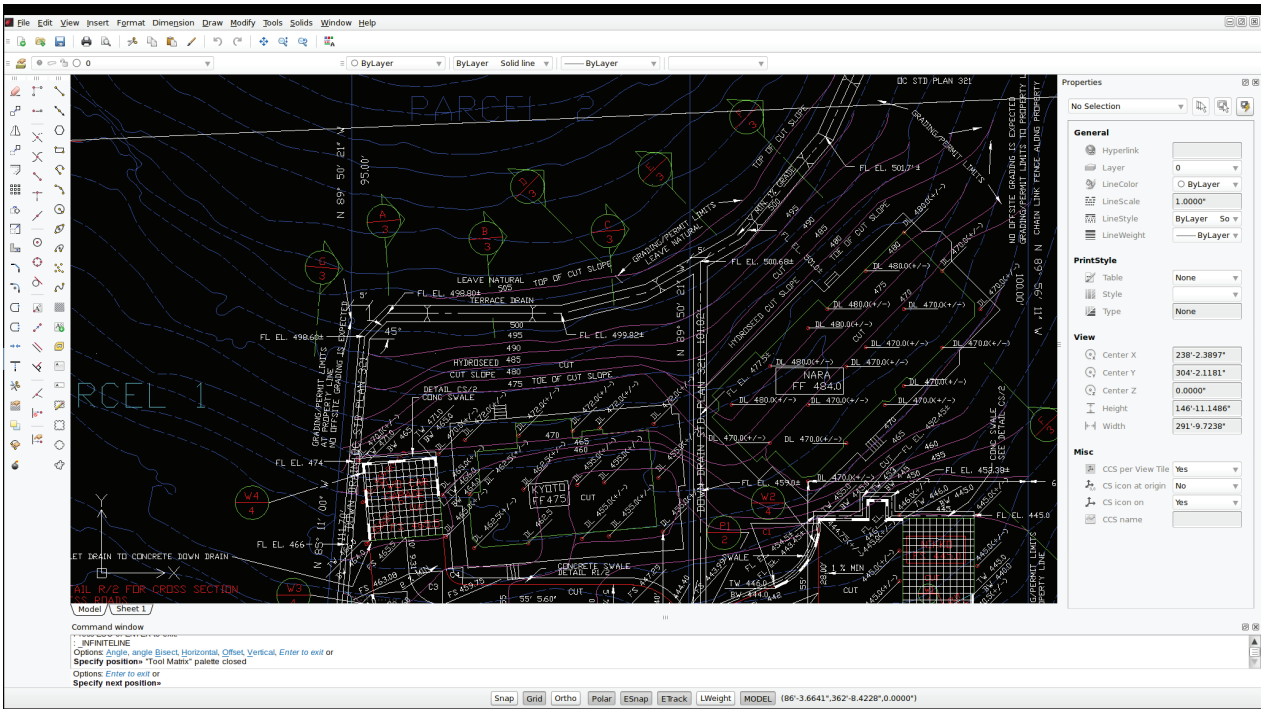
- 3D mouse navigation
- Flyouts in toolbars
- Tool Matrix palette
- Update notifications of new ARES releases
- OS X Lion support for full-screen windows
- Windows 8 support
- 64-bit support for Windows

ARES User Interface for Windows

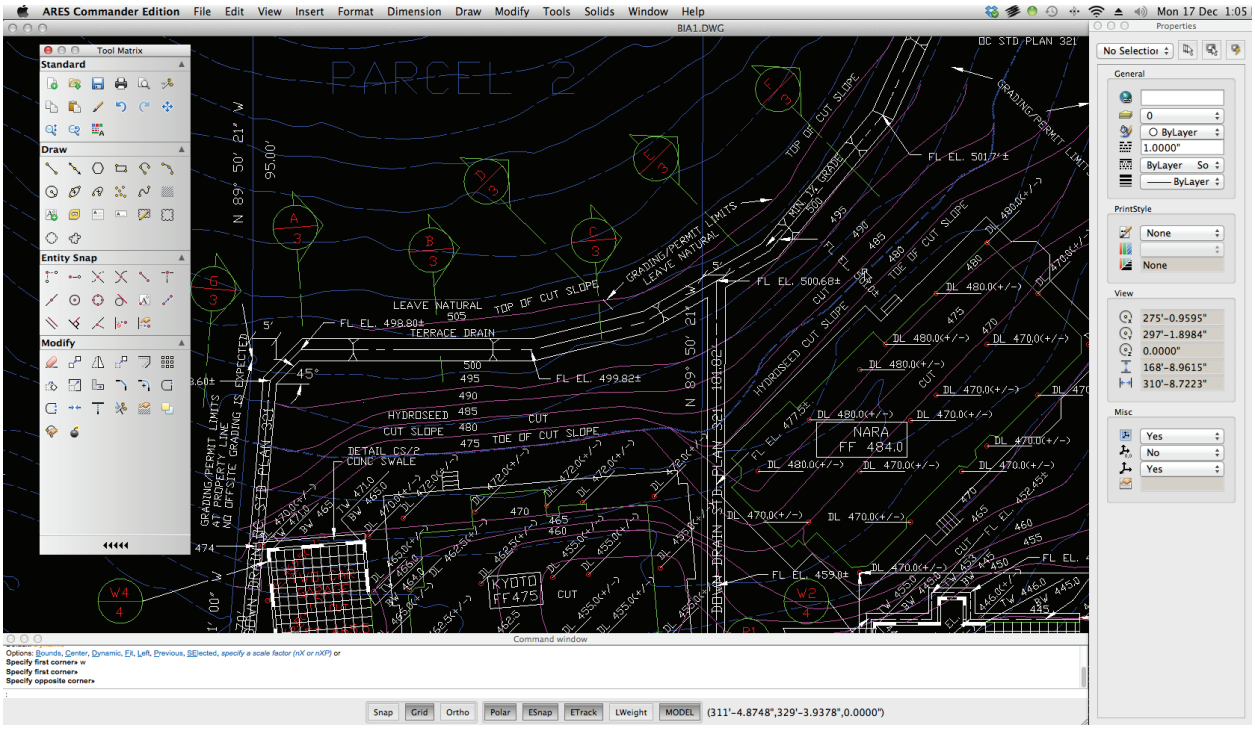



Window controls
(ARES program)
Window controls
(current drawing)
Click x to Close
Drawing Area
Properties palette
Vertical Scroll Bar
Horizontal Scroll Bar
Coordinates
Resize Window
ByColor
Properties
No Selection
General
Hyperlink
Layer
0
LineColor
ByLayer
LineScale
1
LineStyle
ByLayer Solid line
LineWeight
ByLayer
PrintStyle
Table
None
Style
ByColor
Type
None
View
Center X
-131.5193
Center Y
85.2866
Center Z
0
Height
6.4416
Width
10.4056
Misc
CCS per View Tile
Yes
CS icon at origin
Yes
CS icon on
Yes
CCS name
Snap
ETrack
LWT
MODEL
(-131.7686,85.1315,0)

ARES running on Linux



ARES running on Mac OS ~~X~~

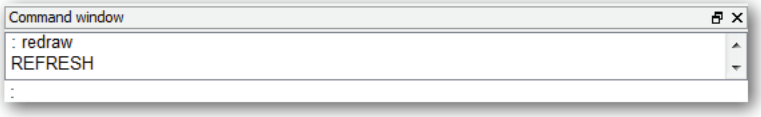


Differences in User Interface Between ARES and AutoCAD

The user interfaces of AutoCAD and ARES are very similar, yet both have some aspects that are different or are unique. These UI elements include items such as the prompt menu, the command prompt, and status bar. Let's take a look at the few areas in which ARES differs from AutoCAD.

ARES' ':' VS AUTOCAD'S 'ENTER A COMMAND:' PROMPTS

ARES uses ':' as the command prompt to indicate it is ready for you to enter a command. By contrast, AutoCAD first used 'Command:' but more recently changed to 'Enter a command:'.

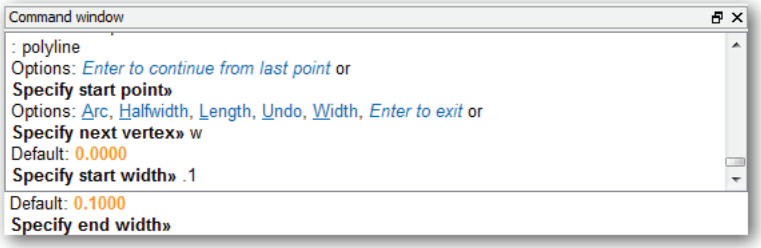


Other aspects of the Command window are identical in both CAD systems. For instance, you press the spacebar to repeat the last command in ARES, press the up cursor button to review earlier command entries, and press Backspace or cursor keys to edit the command name.

ARES does not, however, offer AutoCAD's command hinting, in which you can enter the first part of a command name, and AutoCAD previews the names of all other command and system variable names matching the same letters.

COLORS OF THE COMMAND TEXT

ARES uses colors to help you distinguish between different kinds of text in the command bar. The figure below shows some examples:



Blue text indicates options, as in AutoCAD. You can enter the entire name, or just the option's abbreviation, as indicated by the underlining. For instance, for the Width option, you can enter either **width** or just plain **w**.

Blue italicized text indicates the option that ARES would execute when you press **ENTER** without entering an option, such as *Enter to continue from last point.*

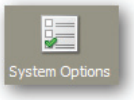
Amber text displays the current default value, such as 0.000. The default is either the system's default, or else the value you entered most recently (0.1000 in the example above).

Where ARES is special is that it lets you change the wording of the command prompt. This is done through the **CmdLnTxt** system variable, or through the Options command, as described next.

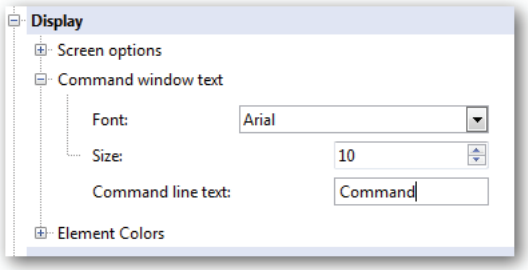
Tutorial: Changing the Command Prompt

To change the wording of the command prompt in ARES, follow these steps:

1. In ARES, enter the **Options** command, and then choose the **System Options** button.

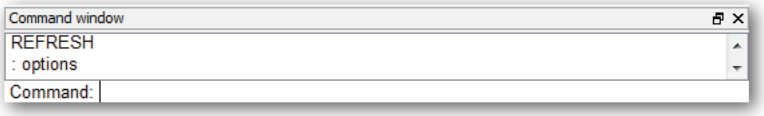


2. Open the **Display** node, and then open the **Command Window Text** node.
3. In the **Command Line Text field**, enter something like 'Command'. (Leave out the colon, which is added by ARES automatically.)



4. Click **OK** to close the dialog box.

In the command bar, notice that the prompt wording has changed from ':' to 'Command:'.



COMPARING COMMAND NAMES AND ALIASES

The command names used by ARES are ones that are identical to AutoCAD's, plus a few unique ones.

For instance, both CAD packages use the same name for the **Circle** command, but **RichLine** is the ARES equivalent to AutoCAD's **MLine** command. When an ARES command name differs, we provide it in brackets following the AutoCAD version, such as *Mline (a.k.a. RichLine)*.

Good news! Just because some of ARES' command names may look strange to you, it doesn't mean you have to learn them. Through the use of aliases, pretty much all unique names are matched with AutoCAD equivalents.

For example, to draw multilines, just enter 'mline' and ARES knows what you mean:

```
: mline
RICHLINE
Active settings: Justification = Top, Scale = 1, Style = Standard
Options: Justification, Scale, STyle or
Specify start point» (Enter a point, or type an option.)
```

You can customize command aliases in ARES, as well as import *.pgp* (alias customization) files from AutoCAD and other CAD systems. This is done in the User Preferences section of the Options dialog box. See chapter 4 for how to customize aliases in ARES.

RICHER COMMAND OPTIONS

Some ARES commands contain more prompts than do those of AutoCAD. For some reason, AutoCAD keeps some documented options hidden from the user.

For instance, take the Circle command. AutoCAD's initial prompt is

```
Options: 3Point, 2Point, Ttr, TTT, Enter to exit or Specify center point:
```

while ARES' is...

```
Specify center point for circle or [3P/2P/Ttr (tan tan radius)]
```

It may not be immediately apparent, but AutoCAD misses two options for drawing circles. Above, I boldfaced the two missing ones.

The following table compares the initial prompts displayed by the Circle command in both CAD systems:

AutoCAD Circle Options	ARES Circle Options	Notes
Specify center point for circle	Specify center point	Default option
3P	3Point	Three points on circumference
2P	2Point	Two points on circumference
Ttr	Ttr	Tangent, tangent, radius
...	TTT	Tangent, tangent, tangent
...	*Enter to exit*	Exits the command (default action indicated by italics)

Knowing all command options makes your drafting more efficient.

ABOUT SHORTCUT KEYSTROKES

ARES mimics many of AutoCAD's shortcut and override keystrokes. For example, you can press **DEL** to erase selected entities, or **CTRL+0** for the clean screen version of ARES that maximizes the window, and hides unnecessary UI elements.

ARES also supports temporary overrides, in which you hold down the Shift key or a Shift-key combination to temporarily override a drafting mode, such as ortho mode or center esnap. The complete list of AutoCAD and ARES keystroke shortcuts is presented in Appendix D.

You customize the meaning of shortcut and override keystrokes ion ARES through the **Keyboard** section of the Customize dialog box.

Comparing Graphics UI Elements

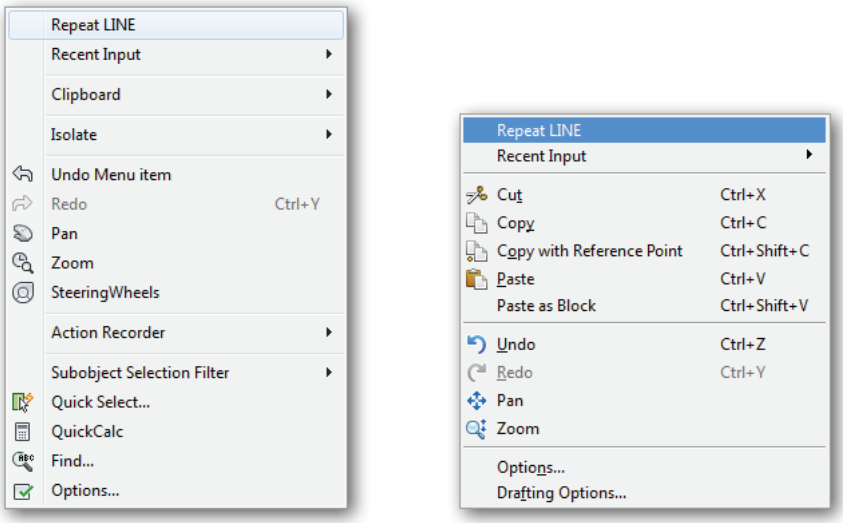
Here we look at the differences and similarities in ARES and AutoCAD that affect the status bar, mouse usage, options toolbar, and tool matrix.

ABOUT MOUSE BUTTONS

Buttons on the mouse operate the same way in ARES as they do in AutoCAD:

Mouse Button	Action in AutoCAD and ARES
Left	Pick entities (objects)
Double-click left	Edits entity (object)
Right	Display context-sensitive shortcut menu
Shift+right	Display entity (object) snap shortcut menu
Roll roller wheel	Zoom in and out in real time
Press roller wheel	Pan around in real time

Illustrated below is a comparison of one of the shortcut menus displayed by AutoCAD and ARES when the right mouse button is held down:



Left: *Right-click menu in AutoCAD*
Right: *Same shortcut menu in ARES*

Like AutoCAD, ARES supports double-clicking to edit entities (objects). For instance, double-clicking text brings up the text editor and double-clicking a circle brings up the Properties palette.

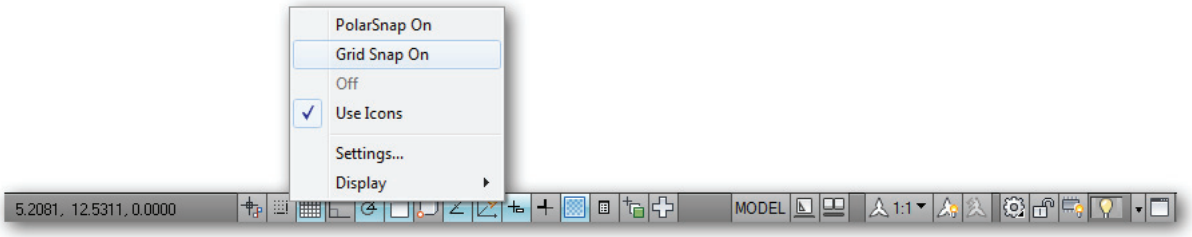
Both CAD systems support the use of 3D mice from 3Dconnexion.

As in AutoCAD, mouse buttons can be customized by ARES. You can change the function of the right button and of double-click actions, as well as the content of shortcut menus. See the **Mouse Actions** section of the Customize dialog box.

All of the actions of mouse buttons in AutoCAD and ARES are documented in Appendix D.

ABOUT THE STATUS BAR

The status bar in ARES is simpler than that of AutoCAD's, as illustrated below. While AutoCAD's provides more information, I would argue that it is harder to read.



Above: *Status bar in AutoCAD*
Below: *Status bar in ARES*

You can right-click ARES' status bar buttons to access options specific to each one. Left to right, the functions of buttons in ARES are as follows:

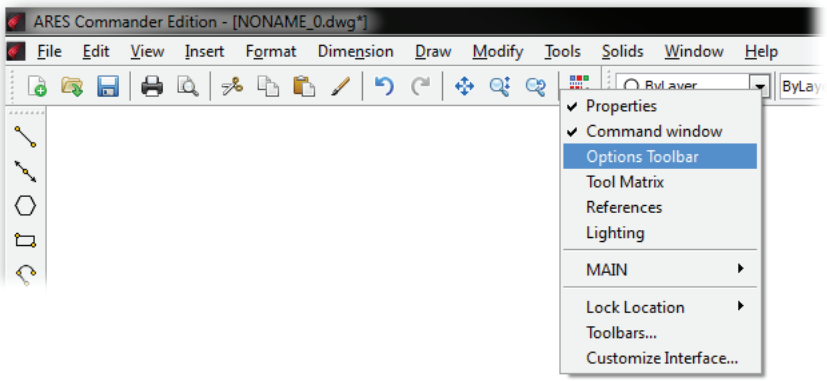
ARES Status Bar Button	AutoCAD Equivalent	Notes
Snap	Snap	Toggles cursor snap mode on and off
Grid	Grid	Toggles grid display
Ortho	Ortho	Toggles orthographic cursor mode
Polar	Polar	Toggles polar cursor mode
ESnap	OSnap	Toggles all entity (object) snaps
ETrack	OTrack	Toggles entity (object) tracking mode
LWeight	LWT	Toggles lineweight display
Model	Model	Toggles between model and paper space

You cannot customize the status bar in ARES, although you can post messages by using the ModeMacro system variable with statements written in DIESEL macro language.

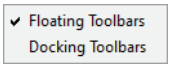
REVEALING UI ELEMENTS HIDDEN IN ARES

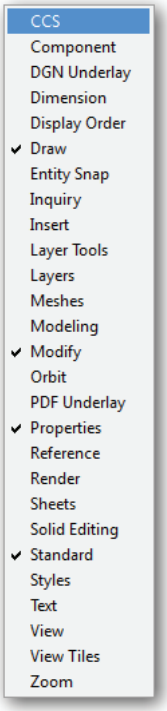
ARES "hides" some user interface elements, because not all users need them. Here is how to reveal them:

1. Right-click the menu bar or any toolbar. Notice the shortcut menu:

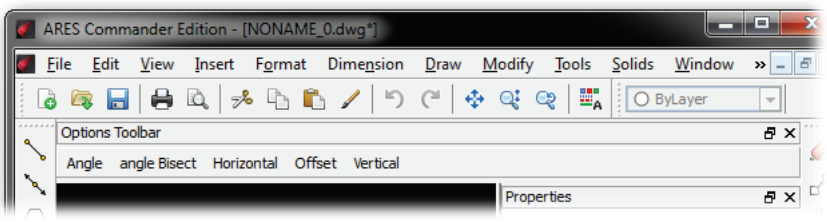


2. Select an item from the shortcut menu. Check marks indicate items that are displayed.

Shortcut Menu	Meaning
Properties	Toggles the Properties palette (the Properties command).
Command window	Toggles the Command window (CommandWindow).
Options Toolbar	Toggles the Options toolbar.
Tool Matrix	Toggles the Tool Matrix palette (ToolMatrix).
References	Toggles the References palette (References).
Lighting	Toggles the Lighting palette (LightList).
MAIN	Displays submenu of toolbar names. See figure at right.
Lock Location	Displays submenu for locking floating and/or docked toolbars (via the LockUI system variable):  • **Floating Toolbars** locks floating toolbars in place. • **Docking Toolbars** locks docked toolbars in place.
Toolbars	Displays the Specify Toolbars dialog box (Toolbars).
Customize	Displays the Customize dialog box (Customize).



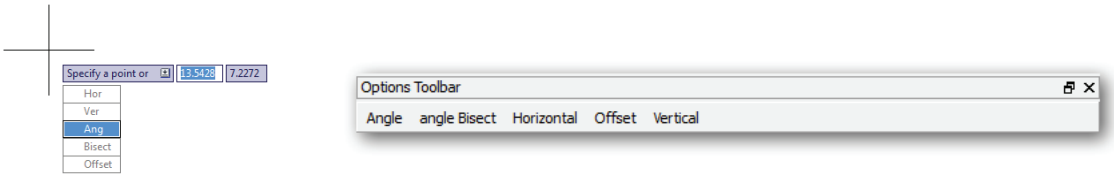
For instance, selecting the **Options Toolbar** option causes the Options toolbar to appear. It's located just below the other toolbars.



AUTOCAD'S DYNAMIC INPUT VS ARES' OPTIONS TOOLBAR

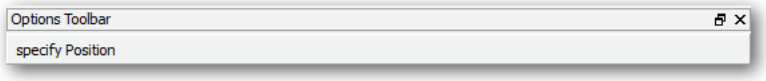
One special user interface element in ARES is the Options toolbar. It lists the names of options during commands. This is the closest ARES comes to mimicking AutoCAD's dynamic input, which also lists options, but in a list that you need to click to view.

To show you how it works, I've illustrated below the first prompt for the XLine command (a.k.a. InfiniteLine in ARES).



Left: *AutoCAD's dynamic prompt shows options in a droplist*
Right: *Options toolbar in ARES lists all options*

As the prompts change, so does the content of this toolbar:



The Options toolbar is turned off by default. To turn it on, follow the steps on the facing page.

When it comes to command options, ARES gives you options: you can either enter them in the command bar, or else use the mouse to choose them from the Options toolbar.

ARES' TOOL MATRIX VS AUTOCAD'S TOOLS PALETTE

The Tool Matrix is a replacement for toolbars in ARES. In some ways, it is combines the functions of AutoCAD's ribbon and Tools palette, because it can hold any and all toolbars. The ARES Tool Matrix is illustrated on the next page.

If there is an analogy, it might be to the Dashboard, which had a brief two-release appearance in AutoCAD. Since the Dashboard was removed, AutoCAD has had nothing similar to the Tool Matrix.

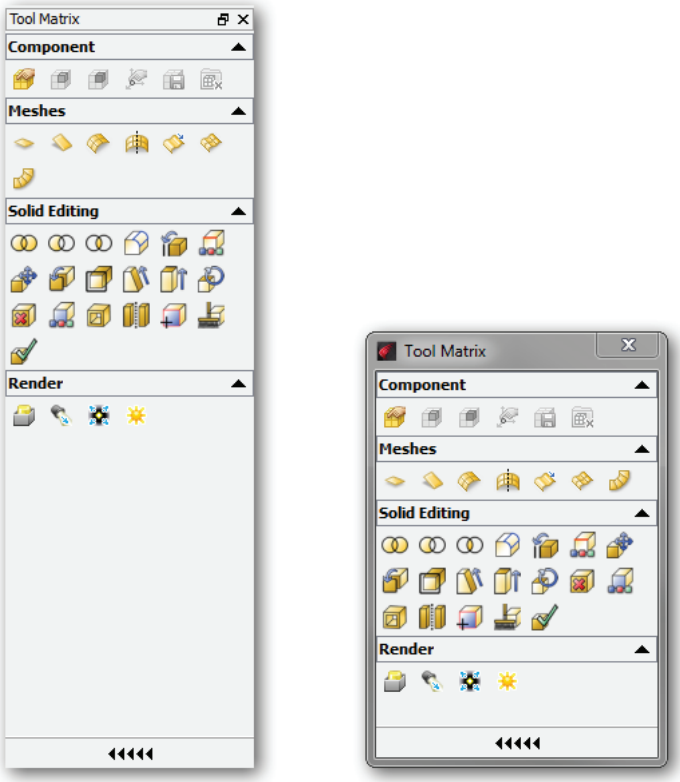
Because the Tool Matrix is a palette, it can float on the desktop like the Properties palette — even on a second screen. The palette has the following controls:

- To make the palette float, click the button.
- To dock it again, drag it against one of the sides of the drawing area.
- To minimize sections of the palette, click the arrow buttons.
- To narrow the entire palette, click the button.
- To open the palette again, click the button.

Initially, the Tool Matrix is empty. But customizing it is easy. To add a toolbar to the palette, simply drag a toolbar into the matrix. To remove the toolbar, just drag it out of the matrix.

You can customize buttons, icons, and macros of the Tool Matrix by customizing the related toolbars.

To access the customization facility in ARES, right-click anywhere on the palette, and then choose **Customize Interface** from the shortcut menu.



Left: *Tool Matrix docked in ARES*
Right: *The way the Tool Matrix looks when floating*

To close the matrix, click the close button; to open it again, enter the **ToolMatrix** command.

The Options Dialog Box in AutoCAD and ARES

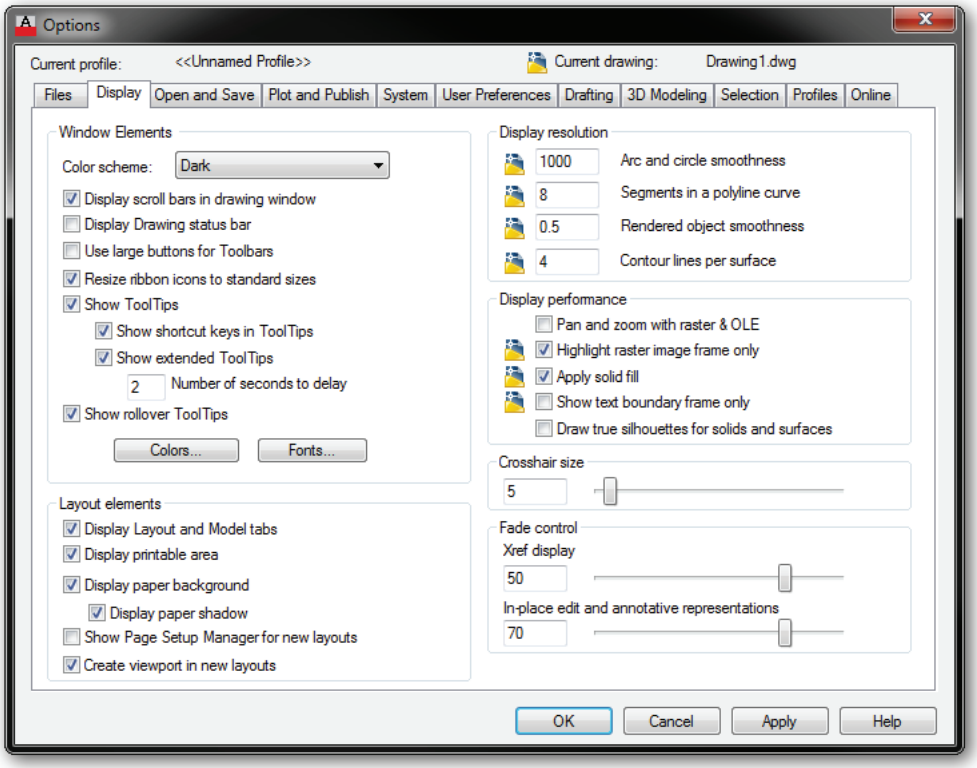
In both CAD systems, the Options dialog box is one of the most important, because it sets and changes the values of many system variables that control the two CAD systems. In the case of ARES, the Options dialog box is much more comprehensive than AutoCAD's.

In addition, the ARES Options dialog box integrates named objects that AutoCAD segregates, such as for dimension, text, and point styles. For instance, when you want to create a text style with the Style command, AutoCAD displays the Text Style dialog box; doing the same in ARES displays the Options dialog box's Text section. The dialog box also appears when you enter similar commands, such as DdPType (for point styles) and LWeight (for setting line weights).

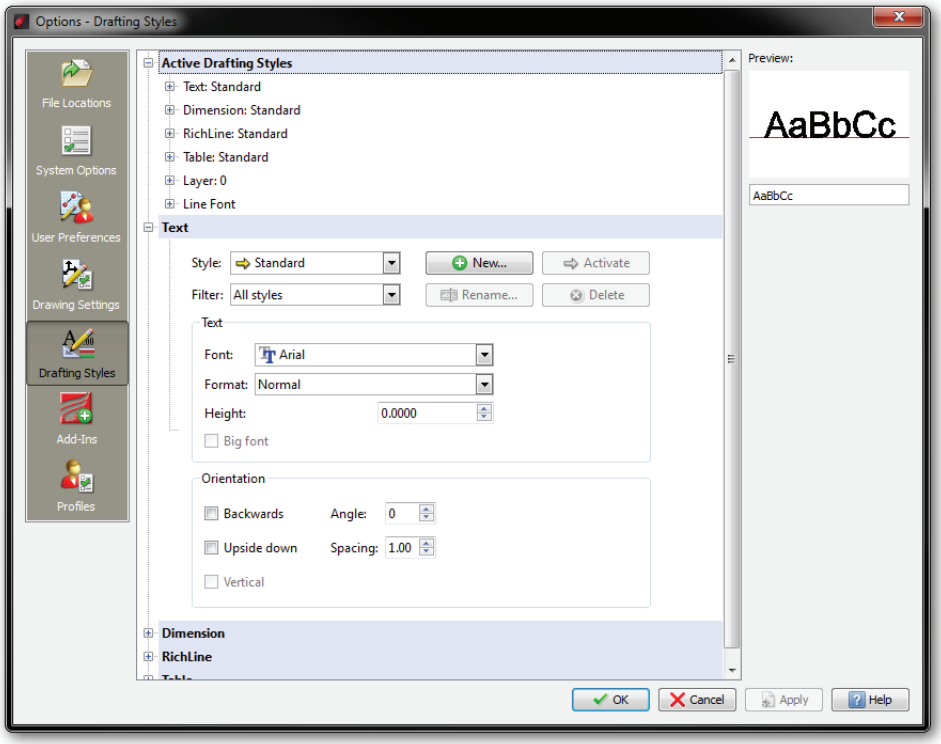
Autodesk segregates options by outfitting AutoCAD's dialog box with ten tabs, 16 droplists, and 31 auxiliary dialog boxes; in contrast, Graebert places options into seven sections, each with a tree-like interface, as illustrated below.

You access the Options dialog box through the **Options** command or from the menu: **Tools | Options**.

(In the Macintosh OS X version, the command name is the same, but the menu pick is **ARES Commander Edition | Preferences.**)



Above: *AutoCAD's Options dialog box*
Below: *ARES combines options, text styles, and lots more in a single dialog box*



TIP As an alternative to the Options dialog box, use the SetVariable command or the SetVar alias. When you enter the name of a system variable at the command prompt, ARES operates as you expect it to.

```
Command: setvariable
Options: ? or Variable name» pdmode
Default: 0
Enter new value for PDMODE» (Enter a number, and then press ENTER.)
```

This chapter highlighted the few differences between the user interfaces of ARES and AutoCAD. The next chapter examines how both programs display and edit entities in drawing files.

Chapter 3

Drawing File Compatibility

In This Chapter

- Understanding DWG compatibility
- Looking at problem entities
- Reviewing DWG object support

ARES reads and writes drawing files that are compatible with DWG and DXF files created by AutoCAD 2013 and earlier. (The first release of ARES Command Edition 2013 read DWG 2013 and wrote DWG 2012 files; an update will add DWG 2013 write capability.)

While AutoCAD reads and writes drawing files back to DWG Release 14, ARES goes back further, all the way to Release 12. (AutoCAD can export to Release 12 format only by translating drawings to DXF format.)

Most entities are correctly read, created, edited, and written by ARES, however some differences exist. This chapter summarizes how well ARES reads entities created by AutoCAD 2013.

DWG Compatibility

ARES displays all entities in drawings created by AutoCAD 2010.

HOW ENTITIES ARE TESTED

To test ARES' compatibility with AutoCAD entities, I employed the following procedure:

1. Each entity was drawn in AutoCAD 2013, and then saved as a DWG file.
2. The DWG files were opened in ARES, and then entities were examined for the following characteristics:
   - **Translation** — did the AutoCAD entity appear in ARES?
   - **Visual accuracy** — does the entity look the same in ARES as in AutoCAD?
   - **Editability** — can ARES edit the entity?
   - **Constructability** — does ARES have a command for creating the AutoCAD entity?
4. Screen grabs were made to record the look of entity for this chapter.
5. Limitations were recorded, if any.

The results of this testing are presented on the following pages, in which entities are segregated into the following categories:

- 2D entities
- Text entities
- Geometric and dimensional constraints
- Model documentation
- Dimension entities
- Complex 2D entities
- 3D entities
- Properties
  - Entities
  - Layers
- Styles
  - Dimension styles
  - MText/Note and Text/SimpleText styles
  - Multiline/Richline styles
  - QLeader/SmartLeader styles
  - Plot/Print styles
  - Table styles

NEW IN ARES 2013: DWG

Enhancements to reading and writing DWG files in ARES Command Edition 2013 include the following:

- Read DWG 2013 files; support for writing DWG 2013 files is planned for a future release.
- Writes drawings files in DWG 2012 and earlier formats.
- Implements the newest Teigha library from Open Design Alliance
- Underlays and clips PDF and DGN files
- Adds new cloud entity for drawing revision clouds

ENTITY LEGEND

The tables on the following pages sport a legend for each entity. The legend indicates the level of compatibility with AutoCAD:

- READ — ARES reads the entity and displays it correctly.
- CREATE — ARES creates the entity.
- EDIT — ARES edits the entity.

When ARES reads and displays the AutoCAD entities, but cannot edit them, then the legend looks like this:

- READ-ONLY — ARES reads the entity and displays it correctly, but cannot edit or create it.

Sometimes ARES edits entities in only a limited fashion. For example, ARES can move or change the basic properties of the imported entity. In this case, the entities are tagged with this legend:

- EDIT BASIC AND PROPERTIES — ARES has limited means for editing the entity, such as moving, copying, and changing properties.

Any entity that ARES can read, create, and/or edit, it can also write.

Summary of Problem Entities

Here is a summary of problem entities:

Broken Dimensions — ARES displays broken dimensions, but cannot create or edit them.

Dimensional Constraints — ARES displays and edits dimension constraints as associative dimensions; it cannot create dimensional constraints.

Dynamic Blocks — ARES displays and edits dynamic blocks as regular blocks; it cannot create them.

Fields — ARES treats fields as mtext; the text and its properties can be edited as text, but not as field data.

Geographic Location — ARES does not display, create, or edit geographic location markers.

Geometric Constraints — ARES does not display or create geometric constraints.

Inspection Dimensions — ARES displays inspection dimensions, but cannot edit or create them.

Lights — ARES displays, creates, and edits all of AutoCAD's light objects, except for Web lights.

Live Sections — ARES displays section planes, but objects are not sectioned; section planes cannot be edited, except for moving, erasing, and modifying basic properties (color, linetype, and so on).

Model Documentation — ARES displays only the bounding boxes of viewports created by AutoCAD's model documentation function.

Proxies — ARES displays proxy objects, but cannot edit them, except for their basic properties (color, linetype, and so on). ARES does not support Autodesk's object enablers, but does support DRX object enablers from the Open Design Alliance, such as for AutoCAD Architecture.

Swept Solids — ARES does not display swept solids.

Subdivision Surfaces (3D mesh objects) — ARES displays and edits 3D mesh objects created by AutoCAD, but cannot create them.

Underlays — ARES does not display PDF underlays imported from AutoCAD, although it can attach PDF files.

Viewports — ARES cannot invert clipped viewports.

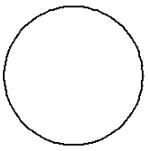
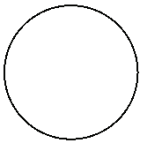
DWG Object Support

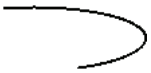
To read, view, edit, and write DWG files, ARES uses the DWGdirect library from Open Design Alliance. As the ODA adds support for new entities, Graebert is able to add them to ARES.

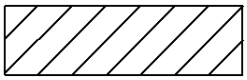
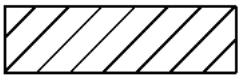
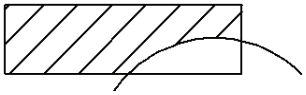
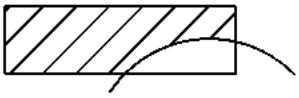
2D ENTITY SUPPORT

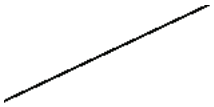
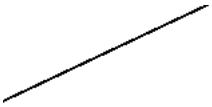
ARES Commander Edition accurately displays all 2D entities created in AutoCAD 2013:

Arcs	AutoCAD	ARES
		• READ • CREATE • EDIT
Arc		

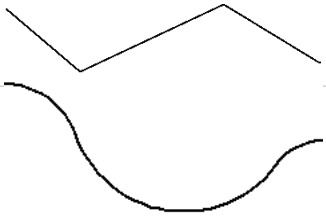
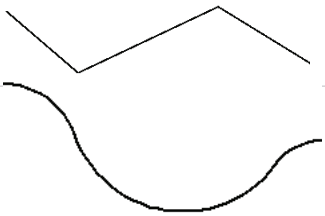
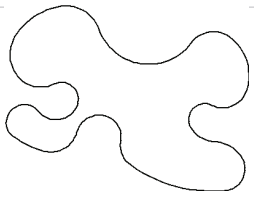
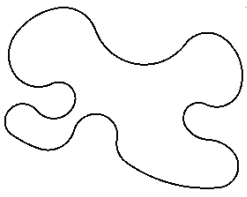
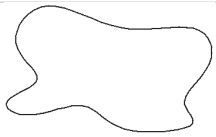
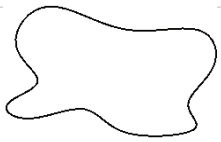
Circles	AutoCAD	ARES
		• READ • CREATE • EDIT
Circle		

Ellipses	AutoCAD	ARES
		• READ • CREATE • EDIT
Ellipse		
Elliptical arc		

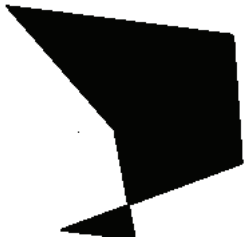
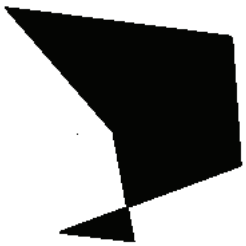
Hatches	AutoCAD	ARES
		• READ • CREATE • EDIT
Patterned		
Solid filled		
Gradient filled		
Islands		
Text detection		

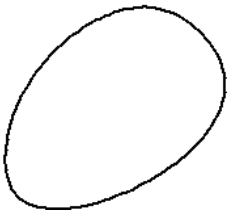
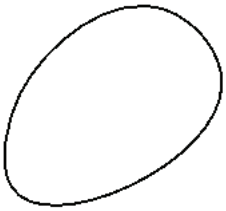
Lines	AutoCAD	ARES
		• READ • CREATE • EDIT
Line		

Points	AutoCAD	ARES
		• READ • CREATE • EDIT
PdMode 0		
PdMode 98		

Polylines	AutoCAD	ARES
		• READ • CREATE • EDIT
Segments		
Arcs		
Variable width		
Fit-curved		
Splined		

Rays	AutoCAD	ARES
		• READ • CREATE • EDIT
Rays		

Solids (2D)	AutoCAD	ARES
		• READ • CREATE • EDIT
3- and 4-sided		

Splines	AutoCAD	ARES
		• READ • CREATE • EDIT
Closed		
Open		

Traces	AutoCAD	ARES
		• READ • CREATE • EDIT
Tracewid 50		

Xlines	AutoCAD	ARES
		• READ • CREATE • EDIT
Xlines		

TEXT ENTITY SUPPORT

ARES Commander Edition accurately displays all of the text entities created by AutoCAD 2013:

Attribute Definitions	**AutoCAD**	**ARES**
		• READ • CREATE • EDIT
Text	TAG	TAG

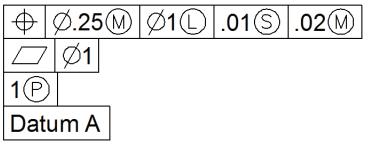
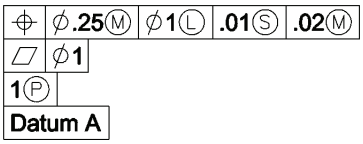
Attribute References	**AutoCAD**	**ARES**
ARES displays and edits multiline attributes, but cannot create them		
		• READ • CREATE • EDIT
Attribute reference	Default	Default
Multiline attributes	Multiple lines of attribute text	Multiple lines of attribute text

MText	**AutoCAD**	**ARES Note**
See MText/Note styles later in this chapter		
		• READ • CREATE • EDIT
Multiline text	AutoCAD creates multiline text *with* *varying* $\frac{1}{2}$ properties	AutoCAD creates multiline text *with* *varying* $\frac{1}{2}$ properties

Field Text	**AutoCAD**	**ARES**
ARES displays and creates field text, but it cannot edit it		
		• READ • CREATE
Field text	Thursday, December 6, 2012	Thursday, December 6, 2012

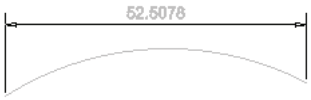
Tables	**AutoCAD**	**ARES**
See Table styles later in this chapter		
		• READ • CREATE • EDIT
Table	Table Header Column A / Column B / Column C Cell A3 / Cell B3 / Cell C3	Table Header Column A / Column B / Column C Cell A3 / Cell B3 / Cell C3

Text	**AutoCAD**	**ARES SimpleNote**
See Text/SimpleNote styles later in this chapter		
		• READ • CREATE • EDIT
Text	text	text

Tolerances	AutoCAD	ARES
AutoCAD does not fully edit tolerance objects		
		• READ • CREATE • EDIT
Tolerance		

GEOMETRIC AND DIMENSIONAL CONSTRAINTS

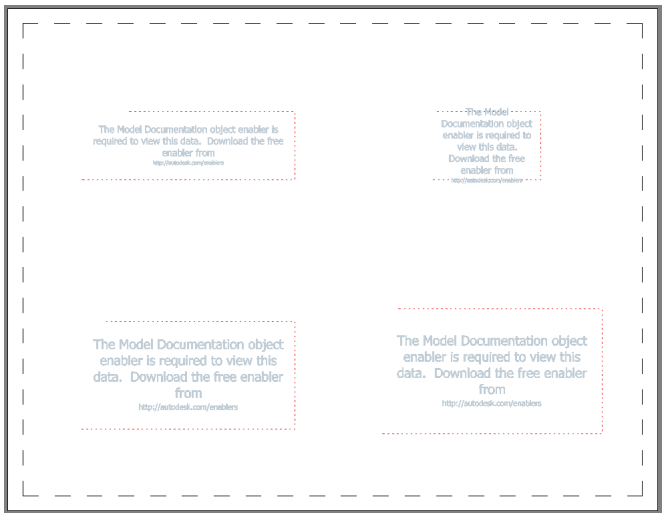
ARES Commander Edition displays and edits dimensional constraints imported from AutoCAD as associative dimensions, but cannot create them. ARES does not support geometric constraints.

Dimensional Constraints	AutoCAD	ARES
		• READ • EDIT AS ASSOCIATIVE DIMENSIONS
DimConstraint		

Geometric Constraints	AutoCAD	ARES
GeoConstraint		...

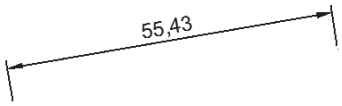
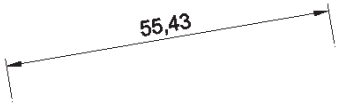
MODEL DOCUMENTATION

ARES displays only the bounding boxes of model documentation viewports created by AutoCAD's ViewBase command. Each reports the object enabler is missing, which is not supported by ARES.



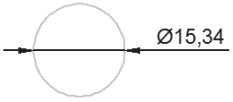
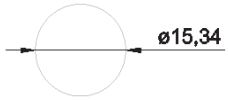
DIMENSION ENTITY SUPPORT

ARES Commander Edition supports all of AutoCAD's dimension entities, except for the dimensional constraint.

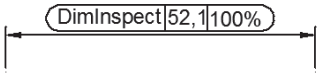
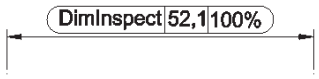
Aligned	**AutoCAD**	**ARES**
		• READ • CREATE • EDIT
Aligned		

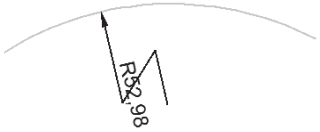
Angular	**AutoCAD**	**ARES**
		• READ • CREATE • EDIT
Angular		

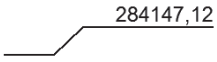
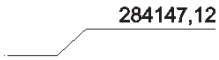
Arc Length	**AutoCAD**	**ARES**
		• READ • CREATE • EDIT
Arc length		

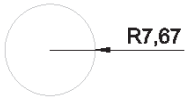
Diameter	**AutoCAD**	**ARES**
		• READ • CREATE • EDIT
Diameter		

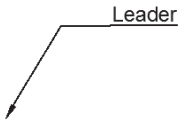
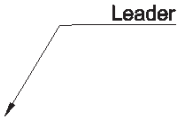
DimBreak	**AutoCAD**	**ARES**
ARES displays broken dimensions, but cannot create or edit the broken lines		
		• READ-ONLY
Break		

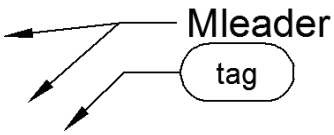
DimInspect	**AutoCAD**	**ARES**
ARES displays inspection dimensions, but cannot create or edit the inspection text and formatting		
		• READ-ONLY
» » Inspect		

DimJogged	**AutoCAD**	**ARES**
		• READ • CREATE • EDIT
Jogged		

Ordinate	AutoCAD	ARES
		• READ • CREATE • EDIT
X ordinate		
Y ordinate		

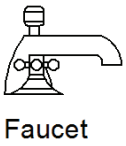
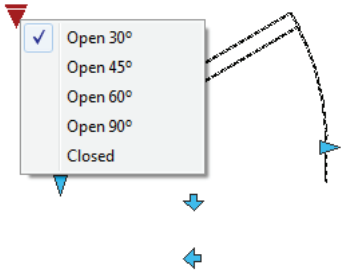
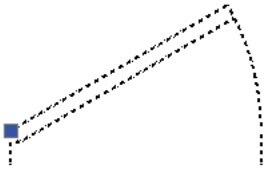
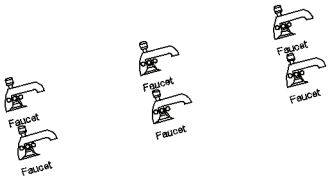
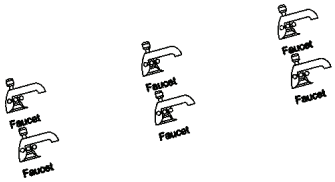
Radial	AutoCAD	ARES
		• READ • CREATE • EDIT
Radial		

Leaders	AutoCAD	ARES
		• READ • CREATE • EDIT
Leader		

Multileaders	AutoCAD	ARES
ARES displays multiline leaders, but cannot create or edit the multiline aspects; it can perform basic editing on them, and change their properties.		
		• READ • • BASIC EDITING
MLeader		

COMPLEX 2D ENTITIES SUPPORTED

ARES Commander Edition supports most of AutoCAD 2013's complex 2D entities.

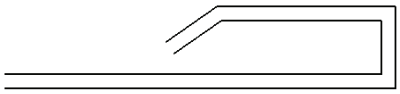
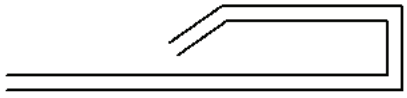
Block References	**AutoCAD**	**ARES**
ARES treats dynamic blocks as regular blocks. It does not have a Block Editor environment, but includes the RefEdit command		
		• READ • CREATE • EDIT
Inserted	 Faucet	 Faucet
Dynamic block		
MInsert		
Mirrored		
Unequally Scaled	 Faucet	 Faucet

Geographic	**AutoCAD**	**ARES**
ARES does not display, create, or edit geographic location markers		
Location		...

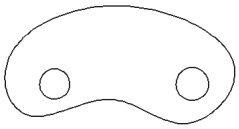
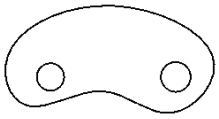
Images	AutoCAD	ARES
ARES cannot invert clipped boundaries of images		
		• READ • CREATE • EDIT
Image		
Clipped image		
Wipeout		

Lights	AutoCAD	ARES
ARES displays, edits, and creates almost all of AutoCAD's light objects; it displays and edits Web lights, but cannot create them		
		• READ • CREATE (EXCEPT WEB) • EDIT
Light		

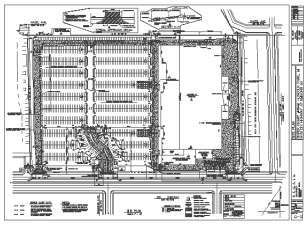
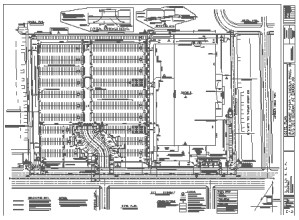
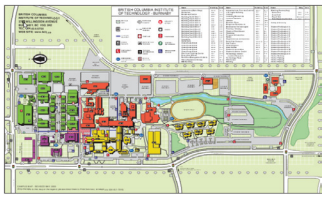
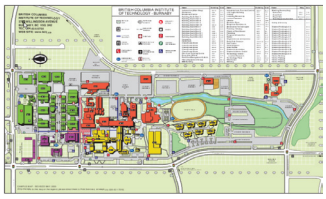
Left to right: *point, spot, and web lights*

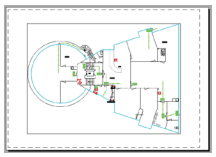
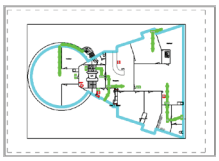
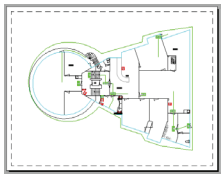
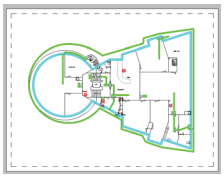
MLines	AutoCAD	ARES Smartlines
		• READ • CREATE • EDIT
Multiline		

OleFrames	AutoCAD	ARES
		• READ • CREATE • EDIT
OleFrame		

Regions	AutoCAD	ARES
		• READ • CREATE • EDIT
Region		

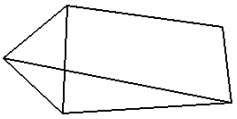
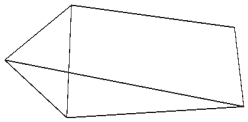
Shapes	AutoCAD	ARES
		• READ • CREATE • EDIT
Shape		

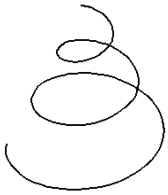
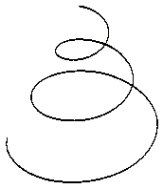
Underlays	AutoCAD	ARES
While AutoCAD cannot import DWF files for editing, ARES can		
ARES can attach DWF files, but does not display them when attached to drawings imported from AutoCAD		
DGN		
DWF		...
PDF		

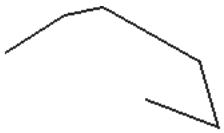
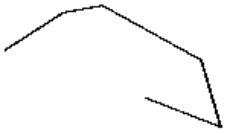
Viewports	AutoCAD	ARES
		• READ • CREATE • EDIT
Viewport		
Clipped viewport		

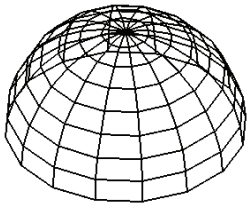
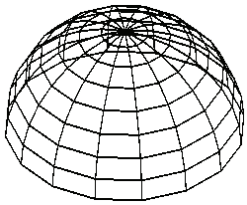
3D ENTITY SUPPORT

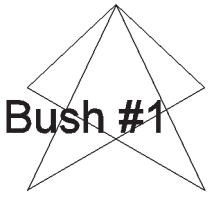
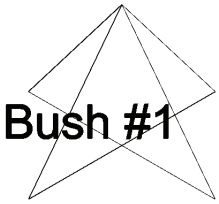
ARES Commander Edition supports the following 3D entities created in AutoCAD 2013:

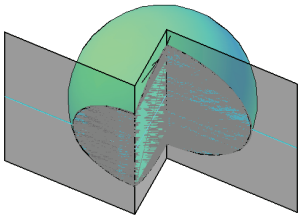
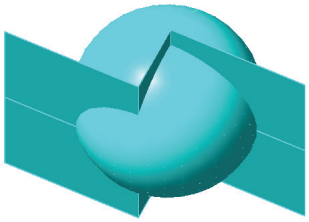
3D Faces	AutoCAD	ARES
		• READ • CREATE • EDIT
3D face		

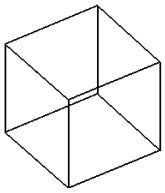
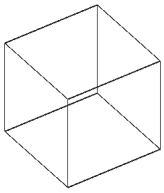
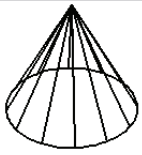
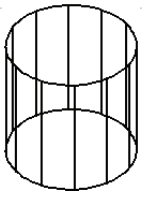
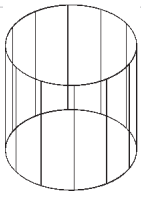
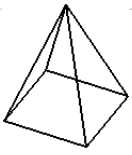
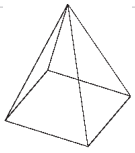
Helices	AutoCAD	ARES
ARES displays and edits helices, but cannot create them		
		• READ • EDIT
Helix		

3D Polylines	AutoCAD	ARES
		• READ • CREATE • EDIT
3D polyline		

Polyface Meshes	AutoCAD	ARES
		• READ • CREATE • EDIT
Mesh		

Proxy Objects	**AutoCAD**	**ARES**
ARES displays proxy objects, but edits only their basic properties.		
ARES does not support object enablers:		
		• READ • EDIT PROPERTIES
Proxy		

Sections	**AutoCAD**	**ARES**
ARES displays section planes, but objects are not sectioned; section planes can be edited only with basic operations		
		• READ • EDIT PROPERTIES
Live Section		

3D Solids	**AutoCAD**	**ARES**
ARES does not display swept solids		
		• READ • CREATE • EDIT
Box		
Cone		
Cylinder		
Pyramid		

Sphere

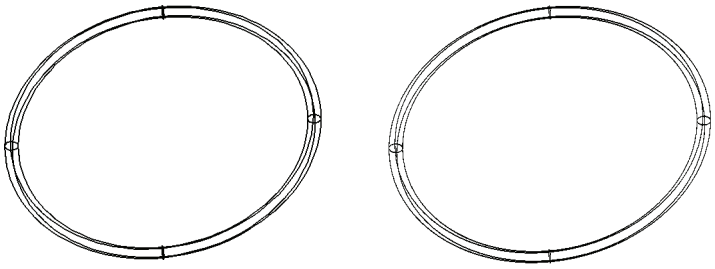
Torus

Wedge

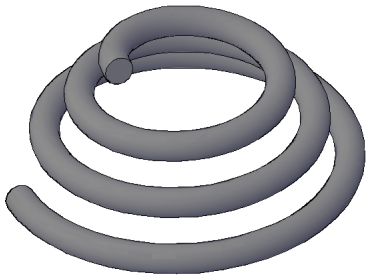
Body

Extruded solid

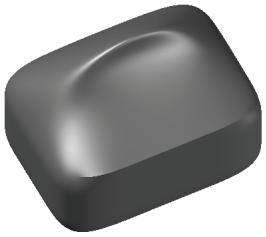
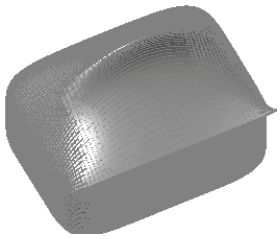
Revolved solid

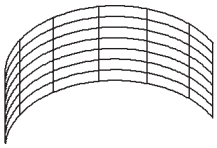
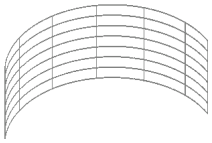
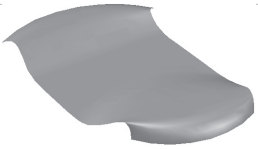
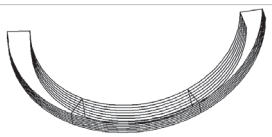
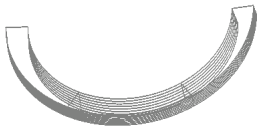
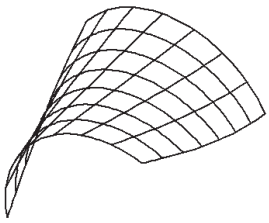
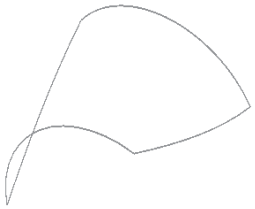


Sweep



...

Subdivisions	AutoCAD	ARES
ARES displays 3D mesh objects and edits them with basic operations, but cannot create them		
		• READ • EDIT PROPERTIES
3D mesh		

Surfaces	AutoCAD	ARES
		• READ • CREATE • EDIT
» » » Extruded surface		
Lofted surface		
Revolved surface		
Swept surface		

Properties

ARES Commander Edition 2013 supports most of AutoCAD's properties .

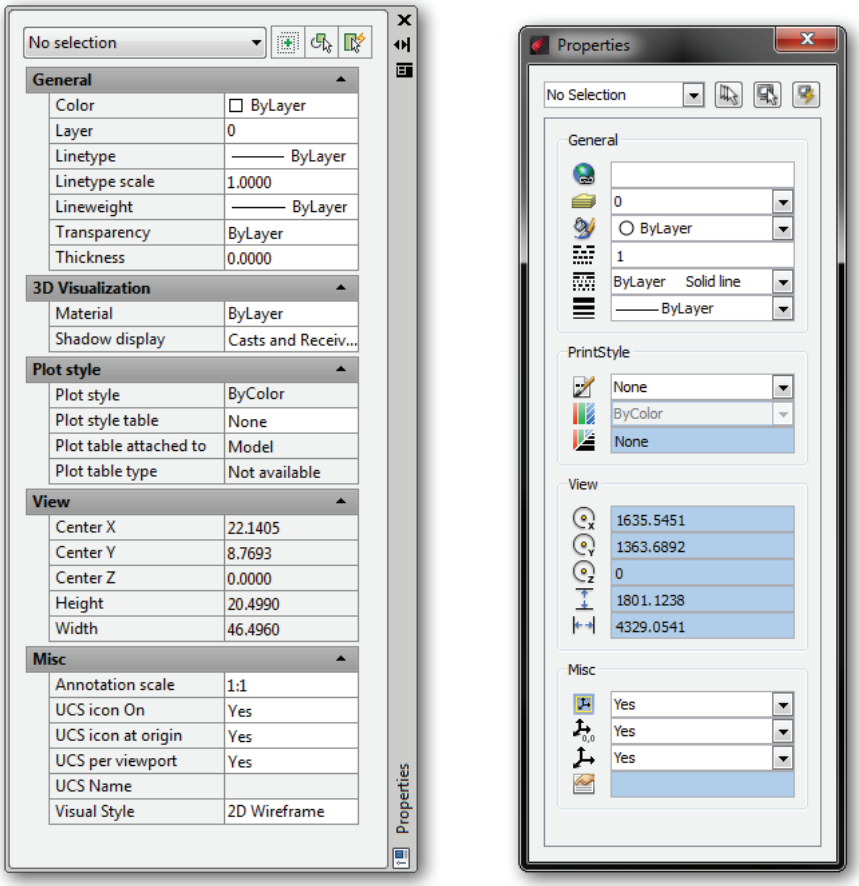
BASIC PROPERTIES FOR ENTITIES

ARES and AutoCAD support many of the same properties for entities, such as colors, layers, linetypes, linetype scales, and lineweights. Where they differ is the amount of information displayed by the Properties palette when no entities are selected, as listed in the following table:

AutoCAD Property	ARES Property	Notes
General	***General***	
Color	Line Color	ARES supports ACI colors and True Colors, but not color books
Layer	Layer	ARES support all layer names, but not all properties
Linetype	LineStyle	ARES supports all AutoCAD linetypes, provided .lin file is present
Linetype scale	LineScale	
Lineweight	Lineweight	ARES supports all of AutoCAD's lineweights
Transparency	...	ARES does not support transparency of entities
Hyperlink	Hyperlink	
Thickness	Thickness	
3D Visualization	...	
Material	...	ARES does not assign materials to entities
Shadow display	...	ARES does not support shadows cast by entities
Plot Style	***PrintStyle***	
Plot Style	Style	
Plot Style Table	Table	ARES supports AutoCAD plot styles, provided .stb file is present
Plot Table Attached To	...	ARES does attach print styles during Print command
Plot Table Type	Type	
View	***View***	
Center X	Center X	
Center Y	Center Y	
Center X	Center Z	
Height	Height	
Width	Width	
Misc	***Misc***	
Annotation Scale	...	ARES does not support annotation scales
USC Icon On	CS Icon On	CS is short for "coordinate system."
UCS Icon at Origin	CS Icon at Origin	
UCS per Viewport	CCS per View Tile	CCS is short for "custom coordinate system."
UCS Name	CCS Name	
Visual Style	...	ARES does not support visual styles

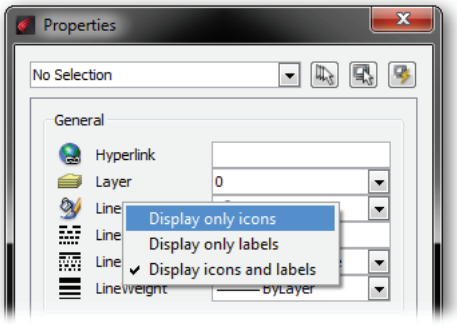
(*) Although not listed in the Properties palette, ARES also supports elevation for entities.

The content of the Properties palettes change, depending on their state — no entities selected, one entity select, two or more selected. Here is what they look like in AutoCAD and ARES when no entities are selected.



***Left**: AutoCAD's Properties palette.*
***Right**: ARES' Properties bar.*

The Properties palette in ARES has three display modes. Right-click the palette to choose:

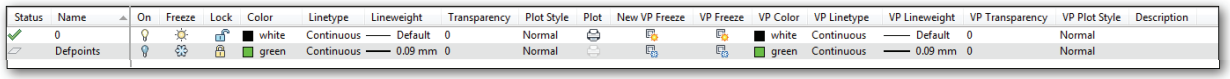


- Icons only, to save screen space
- Text only
- Icons with text

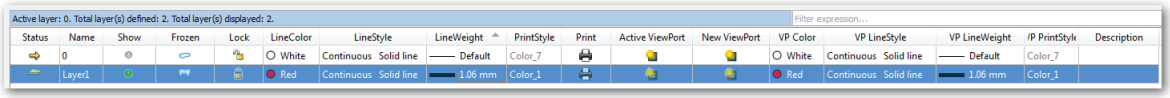
LAYER PROPERTIES

ARES supports all of the basic properties of AutoCAD's layering system. Both support an unlimited number of layers with names of up to 255 characters long and using special characters.

The figures below illustrate the differences between the layer properties in both CAD system:



Above: *Layer properties in AutoCAD (paper space).*
Below: *Layer properties in ARES (paper space).*



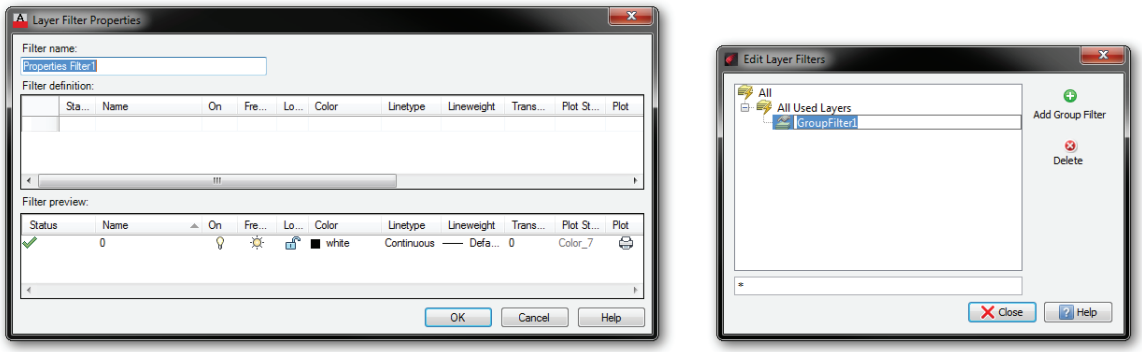
The differences in layer properties are listed concisely by the following table:

AutoCAD Layer Property Name	ARES Layer Property Name	Notes
Status	Current	ARES supports only two status states: current or not.
Name	Name	ARES supports all AutoCAD layer names
On	Show	
Freeze	Frozen	
Lock	Lock	
Color	LineColor	ARES support all AutoCAD colors, except ColorBooks
Linetype	LineStyle	ARES reads AutoCAD's .lin files
Lineweight	LineWeight	ARES supports all AutoCAD lineweights
Transparency	...	ARES does not support per-layer transparency
Plot Style	PrintStyle	ARES reads AutoCAD's .ctb and .stb plot styles files
Plot	Print	
New VP Freeze	...	
Layout Layer Properties		
....	Active ViewPort	
VP Freeze	New ViewPort	
VP Color	VP Color	
VP Linetype	VP LineStyle	
VP Lineweight	VP LineWeight	
VP Transparency	...	
VP Plot Style	VP PrintStyle	
Description	Description	

Like AutoCAD, ARES has a set of commands separate from Layer for manipulating layers. These include commands for changing the visibility of layers in DGN and PDF attachments, hiding and showing the layer attached to a selected entity, as well as freezing/thawing, locking-unlocking, and isolating-restoring layers.

Layer Filters and Layer States

ARES fully supports layer filters; in the Layers Manager dialog box, click Edit Filters. See figure below.



Left: *Layer filter dialog box in AutoCAD*
Right: *Layer filter in ARES*

Layer states are supported by ARES in a limited way. It cannot create named layer states as does AutoCAD, but it can go back to previous layer states with the UndoLayer (a.k.a. LayerP) command.

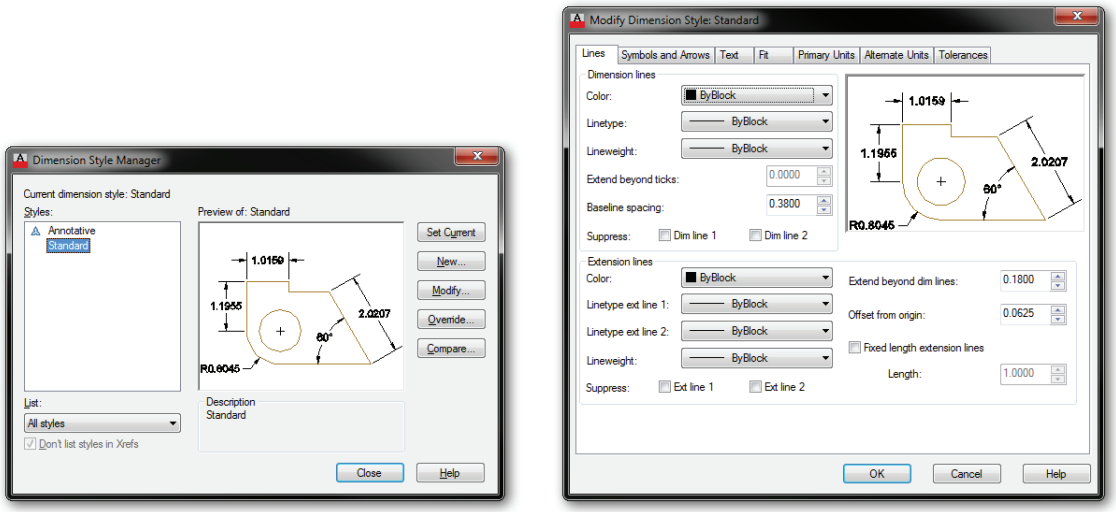
Styles

ARES supports many of the styles found AutoCAD, as summarized by the following table:

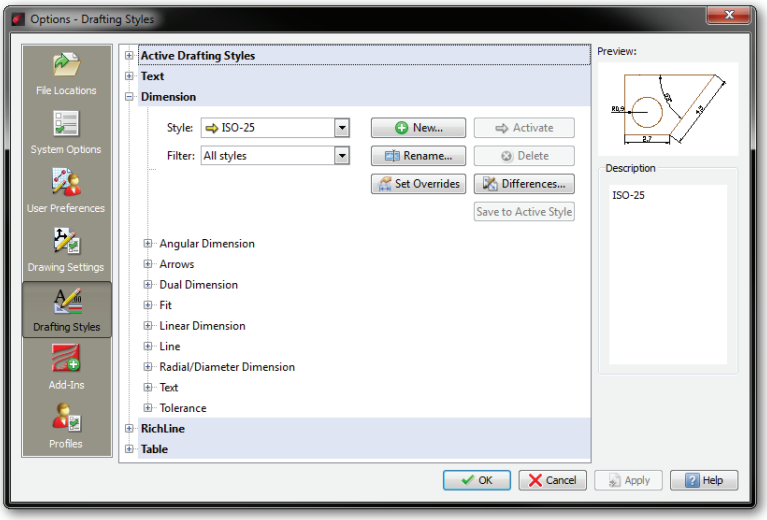
AutoCAD Style	Equivalent ARES Style	Notes
Detail view styles	...	ARES does not support AutoCAD-style drawing views
Dimension styles	Dimension styles	ARES does not support annotations in dimstyles
QLeader	SmartLeader	
Multiline styles	Rich line styles	ARES does not edit intersections
Multileader styles	...	ARES displays multileaders, but not create or edit styles
Plot styles	Print styles	
Section view styles	...	ARES does not support drawing views
Table styles	Table styles	ARES supports most properties in table styles
Text styles	Text styles	ARES supports most properties in mtext styles
Visual styles		ARES does not support visual styles

DIMENSION STYLES

ARES supports all of AutoCAD's dimension styles and variables, with the exception of annotative scaling.



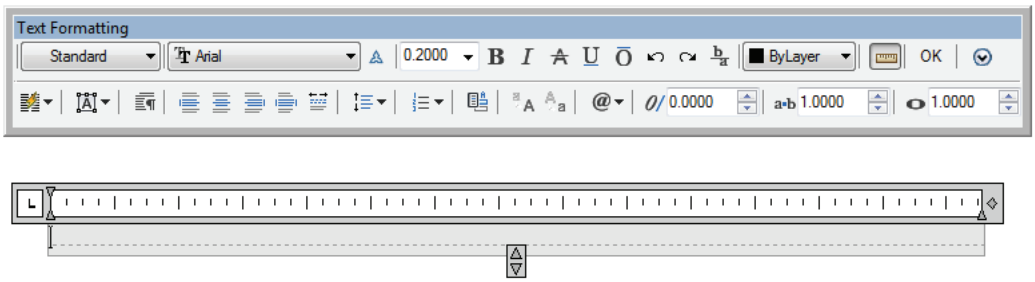
Above: *AutoCAD's Dimension Style Manager dialog boxes are accessed with the DimStyle command.*
Below: *ARES' Options dialog box for dimension styles is accessed with the DimensionStyle command.*



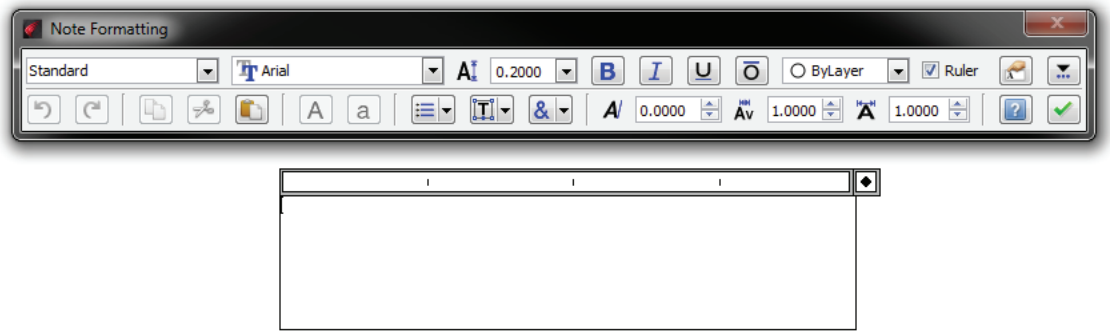
MTEXT/NOTE AND TEXT/SIMPLENOTE STYLES

ARES' Note command supports many of AutoCAD's mtext properties, as listed in the table below.

AutoCAD Mtext Proprieties	Equivalent Property in ARES	Notes
Top row		
Style	Text Style	
Font	Font	
Annotative	...	ARES does not support annotative scaling
Height	Text Height	
Boldface	Bold	
Italicized	Italic	
Underline	Underline	
Overline	Overline	
Undo	Undo	
Redo	Redo	
Fractions	...	ARES does not create stacked fractions
Color	LineColor	
Ruler Toggle	Ruler	
Bottom row		
...	Copy	
...	Cut	
...	Paste	
Dynamic Columns	...	
Static Columns	...	
Column Properties	...	
Text Justification	Alignment	
Paragraph Properties	...	
Paragraph Justification	...	
Line Spacing	...	
Bullets	Bullets	
Field Text	Insert Field	
Case Conversion	Upper Case, Lower Case	
Special Characters	Insert Symbol	
Obliquing Angle	Oblique Angle	
Tracking	Tracking Factor	
Width Factor	Width Factor	
Additional options		
Import Text	...	
Find and Replace	Find and Replace	
AutoCAPS	AutoCAPS	
Character Set	Character Set	
Combine Paragraphs	...	
Remove Formatting	...	
Background Mask	Background Mask	
Editor Settings	Editor Settings	



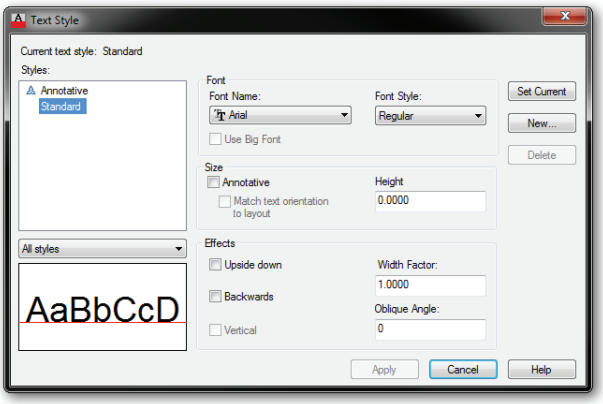
Above: *AutoCAD's mtext editor in a toolbar, accessed through the MText command.*
Below: *ARES' mtext editor in a dialog box, accessed through the Note command.*



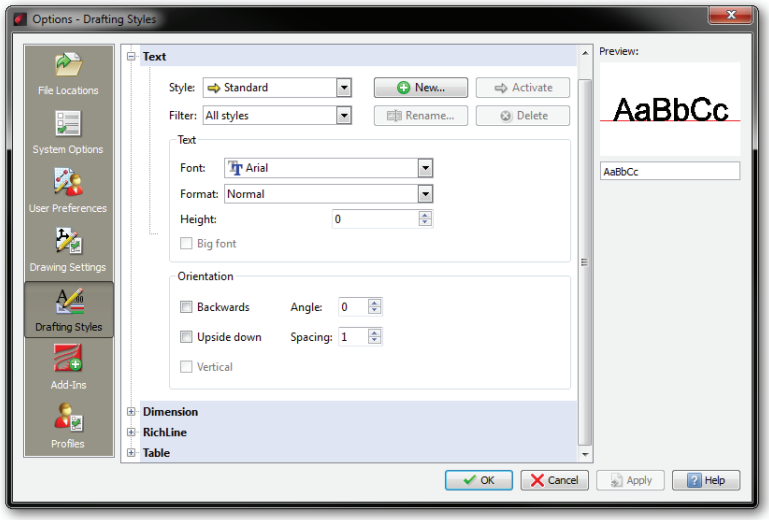
Text/SimpleNote Styles

ARES supports most of AutoCAD's text style options, as detailed in the table below:

AutoCAD Text Proprieties	Equivalent Property in ARES	Notes
Font options		
Font Name	Font	ARES reads TTF and SHX fonts
Font Style	Format	
Use Big Font	Big Font	
Size options		
Annotative	...	ARES does not support annotative scaling
Match Text Orientation to Layout	...	ARES cannot set text orientation in layouts
Height	Height	
Effects options		
Upside Down	Upside Down	
Backwards	Backwards	
Vertical	Vertical	
Width Factor	Spacing	
Oblique Angle	Angle	

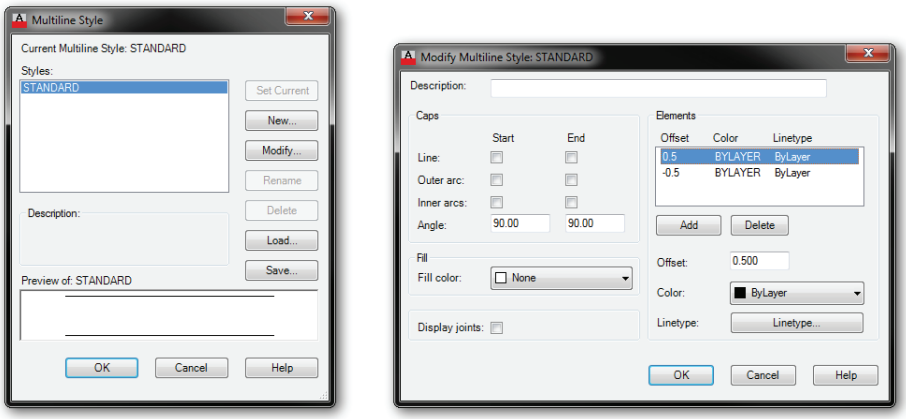


Above: *AutoCAD's Style dialog box accessed by the Style command.*
Below: *ARES' Options dialog box for text styles accessed by the TextStyle command.*



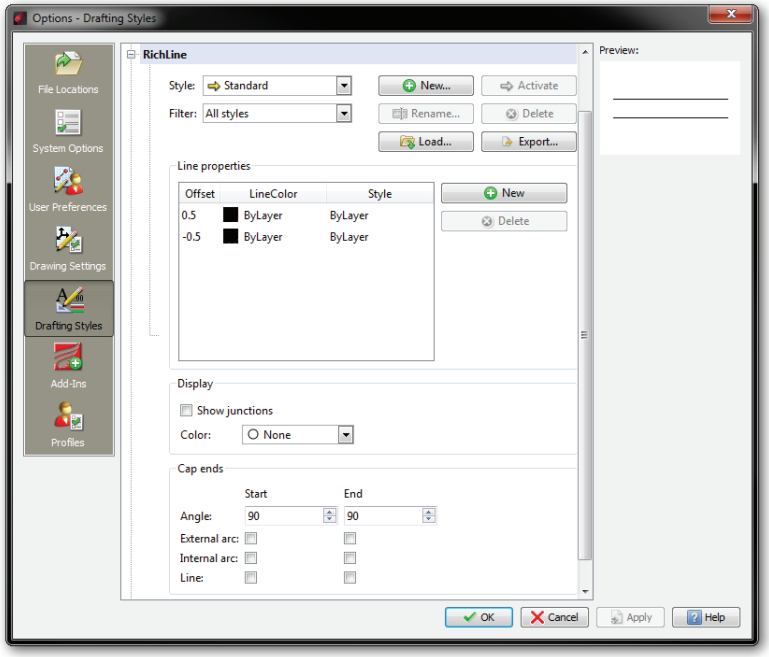
MULTILINE/RICHLINE STYLES

ARES supports the display of multilines in drawings created in AutoCAD. It also creates multiline styles, and supports all properties of AutoCAD's multilines.



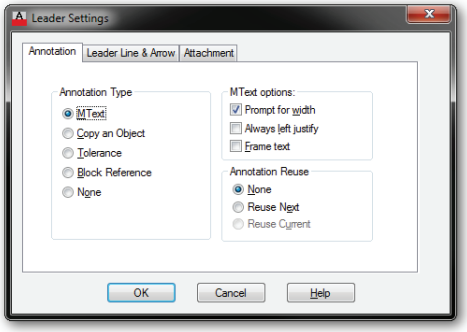
Above: *AutoCAD's MlStyle dialog boxes accessed through the MlStyle command.*

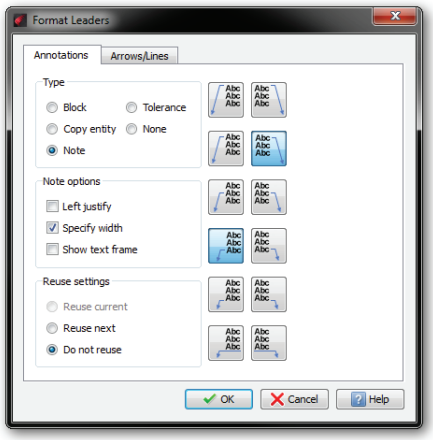
Below: *ARES' Options dialog box for richline styles accessed through the RichlineStyle command.*



QLEADER/SMARTLEADER STYLES

ARES' support for smartleader styles is as extensive as the QLeader command in AutoCAD.





Left: *AutoCAD's QLeader | Settings command's Settings dialog box.*
Right: *ARES' SmartLeader | Settings command's Format Leaders dialog box.*

AutoCAD QLeader Option	Equivalent Option in ARES
Annotation options	***Annotations options***
Annotation Type	Type
MText Options	Note Options
Annotation Reuse	Reuse Settings
Leader Line & Arrow options	***Arrows/Lines options***
Leader Line	Leader Line Type
Number of Points	Vertex Maximum
Arrowhead	Arrow Style
Angle Constraints	Angle Settings
Attachment options	
Text on left side	Buttons on Annotations tab
Text on right side	Buttons on Annotations tab
Underline bottom line	Buttons on Annotations tab

PLOT/PRINT STYLES

AutoCAD and ARES support the two types of print styles:

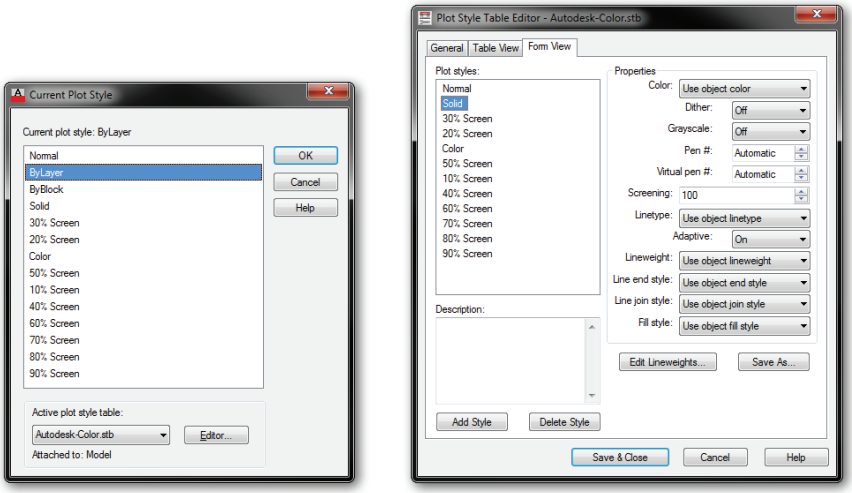
- Color-based styles defined by .ctb files
- Table-based styles defined by .stb files

ARES can use these files when imported from AutoCAD's folder locations.

NEW IN ARES 2013: PLOTTING

Enhancements to plotting drawings in ARES Command Edition 2013 include the following:

- Redesigned Print dialog box
- Faster printing; faster print preview on Mac OS X
- Printing 3D models with hidden lines removed, and with shaded viewports
- Printing with TrueType fonts is more efficient



***Above**: AutoCAD's Plot Style dialog box is accessed through the PlotStyle command.*
***Below**: ARES' Print Style dialog box is accessed through the PrintStyle command.*

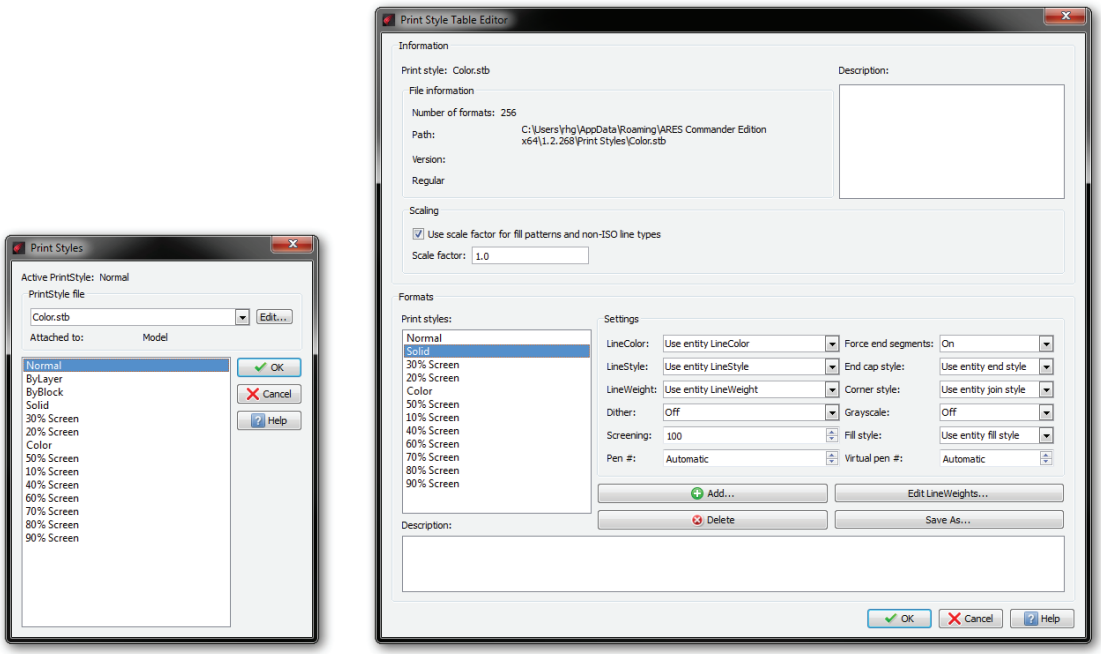
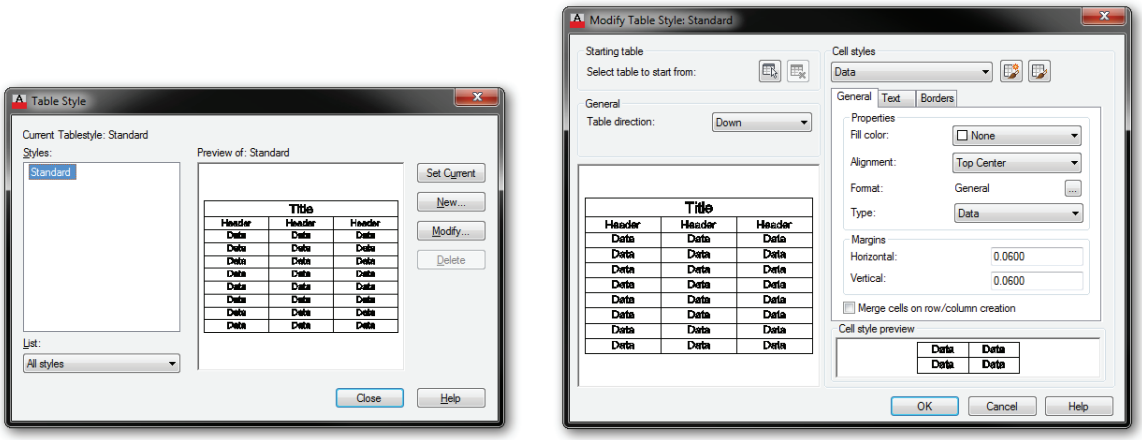


TABLE STYLES

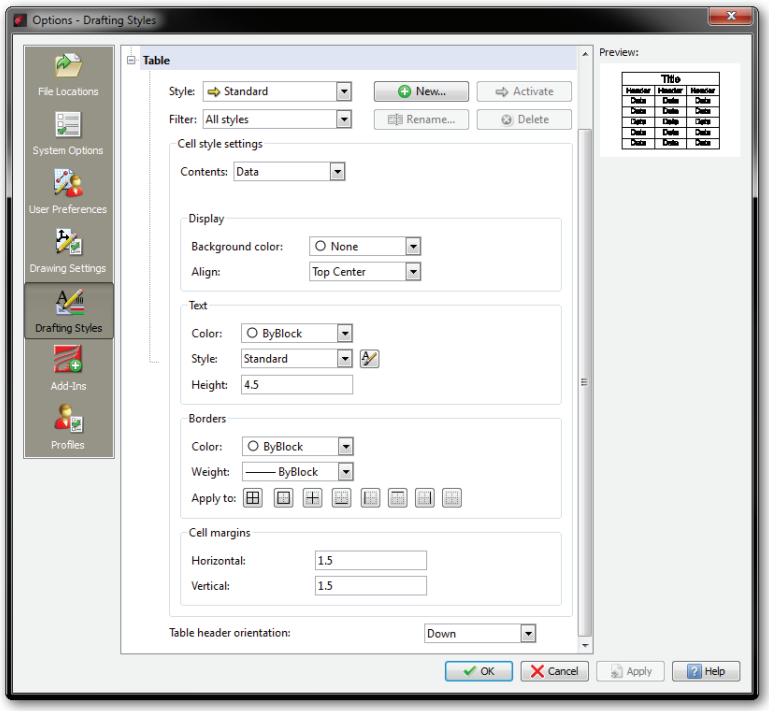
ARES supports styles for tables and, like AutoCAD, formats cells separately through sub-styles named Titles (a.k.a. *Title* in ARES), Headers (a.k.a. *Head*), and Data.

AutoCAD Table Proprieties	Equivalent Property in ARES	Notes
General properties		
Table Direction	...	ARES does not specify table direction
Fill Color	Background Color	
Alignment	Align	
Text Format	...	ARES does not specify number formats
Cell Margins	Cell Margins	
Merge Cells	...	ARES does not merge cells
Text properties		
Style	Style	
Height	Height	
Color	Color	
Angle	...	ARES does not angle text
Borders properties		
Lineweight	Weight	
Linetype	...	ARES cannot apply linetypes to borders
Color	Color	
Double Line	...	ARES does not have double-line borders
Double Line Spacing	...	ARES does not have double-line border
Apply to Borders	Apply To	



***Above**: AutoCAD's Table Style dialog boxes are accessed through the TableStyle command.*

***Below**: ARES' Options dialog box for table styles is accessed through the TableStyle command.*



Chapter 4

Customizing and Programming

In This Chapter

- Understanding the difference between Cui and Customize
- Customizing menus, toolbars, mouse actions, and so on
- Creating new command macros
- Reviewing programming considerations

Most customizing of AutoCAD takes place within its Cui and Options commands; in ARES, the activity takes place in the equivalent Customize and Options commands.

This chapter provides an overview of customizing and programming ARES. For detailed information on programming ARES, contact Graebert for the online developer reference material.

COMPARING AREAS OF CUSTOMIZATION

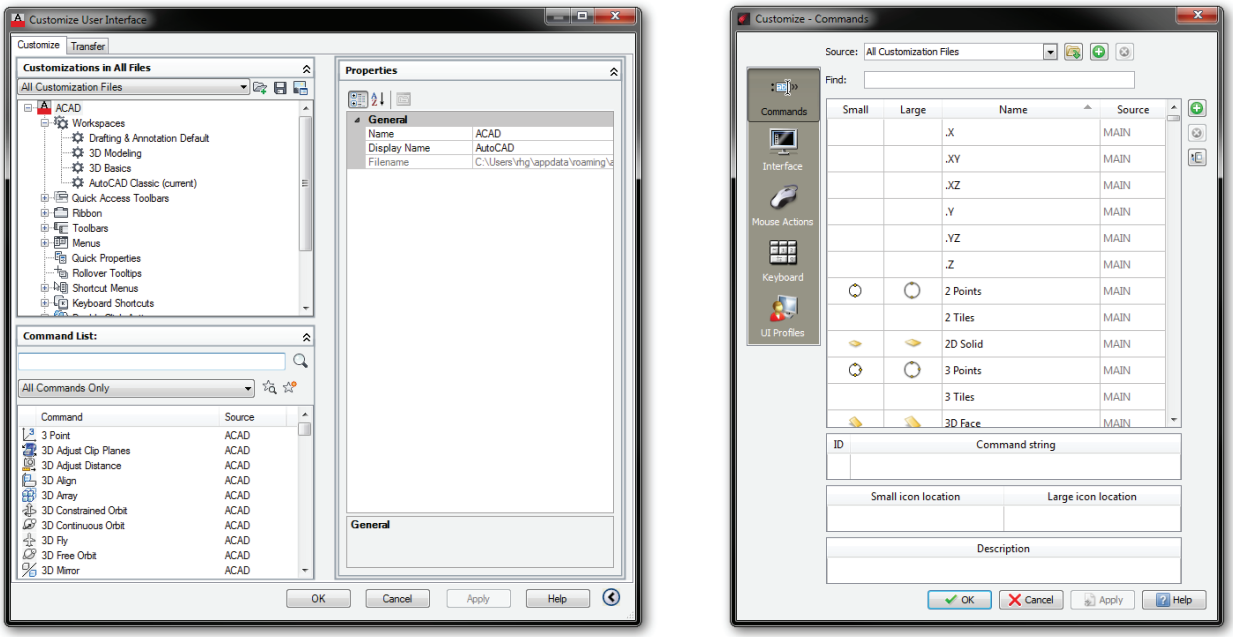
ARES and AutoCAD provide extensive options for controlling the CAD environment, from modifying the look of the user interface to writing new commands. The following table compares the customizations available, and where to access them in ARES. (Programming interfaces are listed later in this chapter.) Those discussed in this chapter are highlighted in **boldface**.

Area of Customization	AutoCAD 2013 Command	ARES 2013 Command
Aliases	*(1)*	Options > User Preferences
Command bar	Options	Options > System Options
Crosshair cursor	Options	Options > System Options
Cui/Customize	Cui	Customize
Diesel	ModeMacro	ModeMacro
Double-click actions	Cui	Customize > Mouse Actions
Dynamic input	Options	...
File paths	Options	Options > File Locations
Fonts	Style	Options > Drafting Styles
Grips	Options	Options > User Preferences
Hatch patterns	*(1)*	*(1)*
Keyboard shortcuts	Cui	Customize > Keyboard
Linetypes	*(1)*	*(1)*
Macros	Cui	Customize
Menu bar	Cui	Customize > Interface
Mouse buttons	Cui	Customize > Mouse Actions
Multiline styles	MlStyle	Options > Drafting Styles
Plot styles	PlotStyle	PrintStyle command
Quick Access toolbar	Right-click, Cui	...
Quick Properties palettes	Cui	...
Ribbon	Cui	...
Rollover tooltips	Cui	...
Selection previews	Options	Options > User Preferences
Shell commands	*(1)*	...
Shortcut menus	Cui	Customize > Mouse Actions
Status bar	Right-click, Diesel	Right-click, Diesel
System variables	SysVar, Options	SysVar, Options
Tablet	Cui	...
Tool palettes/Tool Matrix	Customize	ToolMatrix command
Toolbars	Cui	Customize > Interface
UCS/CS icon	Options	Options > Drawing Settings
User profiles	Cui	Options > Profiles
Workspaces/UI Profiles	Cui	Customize > UI Profiles

(1) Edited using Notepad or other text editor.

AutoCAD's Cui vs ARES' Customize

In ARES, Customize is the equivalent to AutoCAD's Cui command. Both display a dialog box that centralizes the customization of nearly all user interface elements. The dialog boxes look very different from each other.



Right: *Customizing AutoCAD with the Cui dialog box*
Left: *Customizing ARES with the Customize dialog box*

NEW IN ARES 2013: CUSTOMIZATION

New customization functions added to ARES Command Edition since the first release of this ebook include the following items:

- Plugin manager for loading and managing plug-ins
- ACIS solid modeling updated to R21 SP3; ACIS editing improved for edges, faces, and bodies
- ODA Teigha DWG library updated to v3.5
- QT interface updated to v4.7.4
- LISP performance improved; support for split LISP commands
- Faster panning and object selection
- New VSTA toolbar for recording, editing, and running macros
- Visual Studio 2008 used for kernel and API programming

Many of the tasks handled by the two dialog boxes are identical, but AutoCAD tends to have more user interface elements to customize, as listed by the table below:

AutoCAD CUI Dialog Box	ARES Customize Dialog Box
Command list	Commands
Menus	Menus
Toolbars	Toolbars
Mouse buttons	Right-click mouse buttons
Double-click actions	Double-click actions
Shortcut menus	Shortcut menus
Keyboard shortcuts	Keyboard shortcuts
Override keys	Override keys
(1)	User profiles
Ribbon	...
Quick Access toolbar	...
Quick Properties	...
Rollover Tooltips	...
Tablet menus and buttons	*Due to be added later to ARES 2013*
Workspaces	...

(1) User profiles are handled by AutoCAD's Options dialog box (Profiles tab).

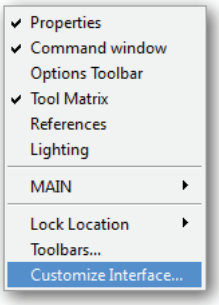
The process in ARES for customizing elements is almost identical for each one:

1. Create or borrow a command macro.
2. Assign it to a UI element, such as a menu item, toolbar button, or mouse action.

When you learn this two-step system for one element, you can then handle any other. Since the ARES method of customization differs significantly from AutoCAD's, for the sample element I describe in this chapter how to customize menus.

You access the Customize dialog box through

- **Customize** command
- **Cui** alias
- **Tools | Customize Interface** menu
- Right-click any toolbar or menu, and then select **Customize Interface**



CUSTOMIZING MENUS IN ARES

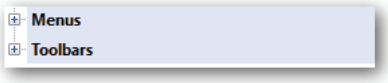
Menus are customized in ARES through the **Interface** section of the Customize dialog box. You can add, edit, and remove items to and from menus. All you have to do is to right-click an existing menu item in the dialog box, and then choose an option from the shortcut menu to create new menus and sub-menus, and add commands and separator bars.

Tutorial: Adding Items to Menus

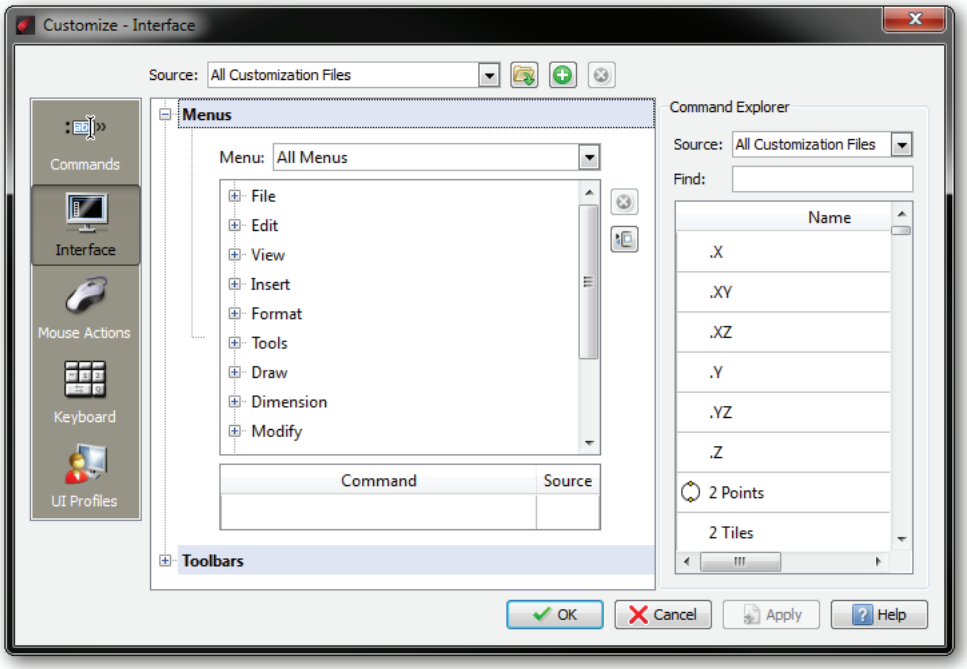
In this tutorial, you add CloseAll to the File menu. The CloseAll command closes all open drawings but is not found in the menu. To edit a menu, follow these steps:

1. Enter the **Customize** command to open the Customize dialog box.
2. In the dialog box's left side, click the **Interface** button.

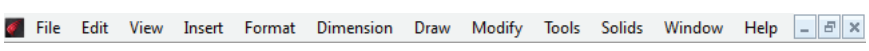
Notice that Interface offers two items, Menus and Toolbars.



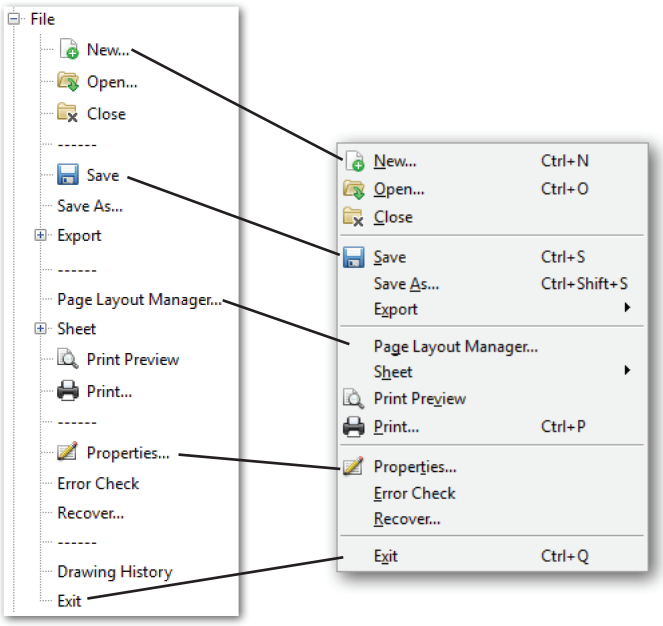
3. Next to **Menus**, click the ⊞ button to expand the menus section. Notice that the Menu section defines the structure of the currently-loaded menu. The names listed in the dialog box, such as File, Edit, and so on, match the names on the ARES menu bar.



Above: *Menu items listed in Customize dialog box...*
Below: *...match the menu bar in ARES*

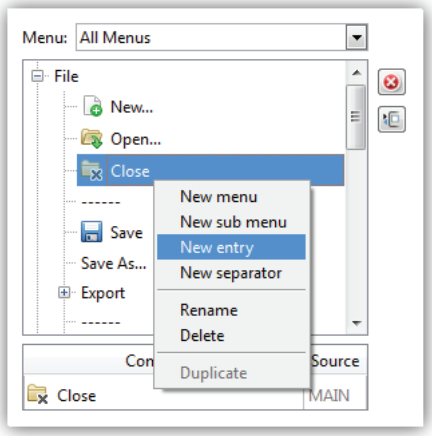


4. You are going to work with the File menu, so click the ⊞ next to **File**. Notice that this reveals the items displayed by the File dropdown menu, as shown below.



Left: *File menu tree in Customize dialog box*
Right*: Menu items under the File menu*

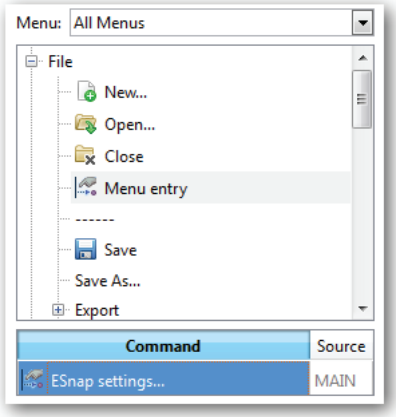
5. Right-click the word **Close.** Notice that ARES displays a shortcut menu.



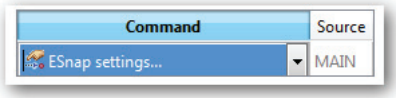
6. Choose **New Entry**. This adds the new menu entry below the currently-selected one. ARES gives it a generic name, "Menu entry."

TIP Messed up the customization of ARES? Get everything back to the out-of-the-box like this: (1) in the Customize dialog box, click the button; (2) choose the appropriate language folder, such as English; and then (3) choose the *application.xml* file.

Notice the droplist of command names below the menu tree. **Command** lists all the names of all commands available in ARES.



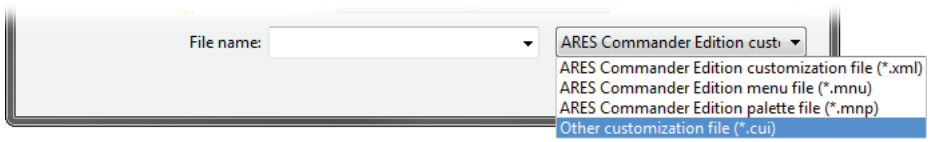
7. To assign the **Close All** command to "Menu entry," follow these steps:
   a. Double-click the droplist to activate it; notice the droplist button that appears to the left of "Main."



HOW TO IMPORT AUTOCAD MENU FILES INTO ARES

To import CUI and MNU customization files from AutoCAD, follow this procedure:

1. In the Customize command's dialog box, click the **Load Customization File** button. Notice the Open Customization File dialog box.
2. Click the droplist, and then choose one of the file types:



   CUI are standard menu files used by AutoCAD Release 2007-2009.

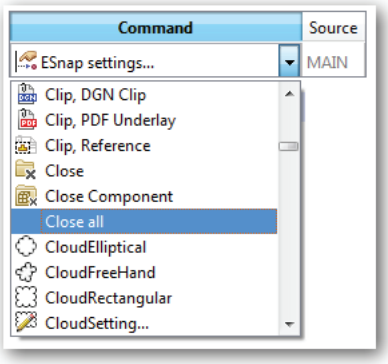
   MNU are older menu files used by AutoCAD and AutoCAD LT prior to release 2007.

3. Click **Open.**

ARES does not open CUIX customization files from AutoCAD 2010 and newer.

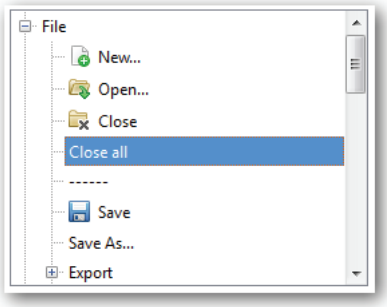
Careful: Although ARES imports AutoCAD menu files, menu picks sometimes do not work, because AutoCAD macros can contain macro code and metacharacters not supported by ARES.

b. Click the dropbox arrow, and then scroll through the list until you find **Close All**.

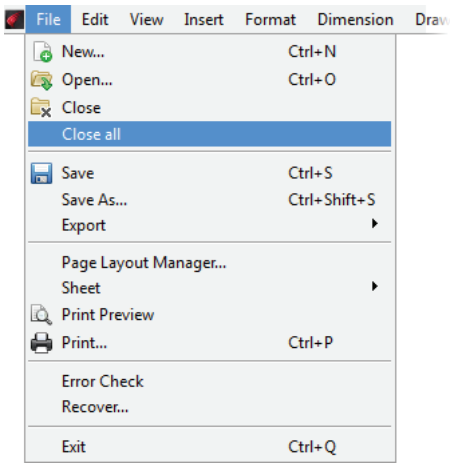


c. Select "Close All" from the list, and then click **Apply**. (This button is located at the bottom of the dialog box.)

Notice that the label changes to "Close all."



8. The CloseAll command has been added to ARES. You are not done yet, because it is important to always test changes made to the CAD system. To test it, follow these steps:
   a. Click **OK** to close the dialog box.
   b. In the menu bar of ARES, choose **File**. Notice the new "Close All" item.
   c. Click **Close All**.



Did ARES prompt you to save the drawing(s)? If so, then your menu modification worked!

CREATING NEW COMMAND MACROS IN ARES

You can create new command macros in ARES. This is accomplished with the **Commands** section of the Customize dialog box. Macros allow you to combine commands and special characters (called "metacharacters") to define new functions. Once defined, the new functions can be attached to menus, toolbars, and mouse buttons.

Tutorial: Writing Macros

This tutorial shows you how to add a macro that does two things: saves the current drawing, and then starts the Print command. The macro is named "Save and Print," and the code looks like this:

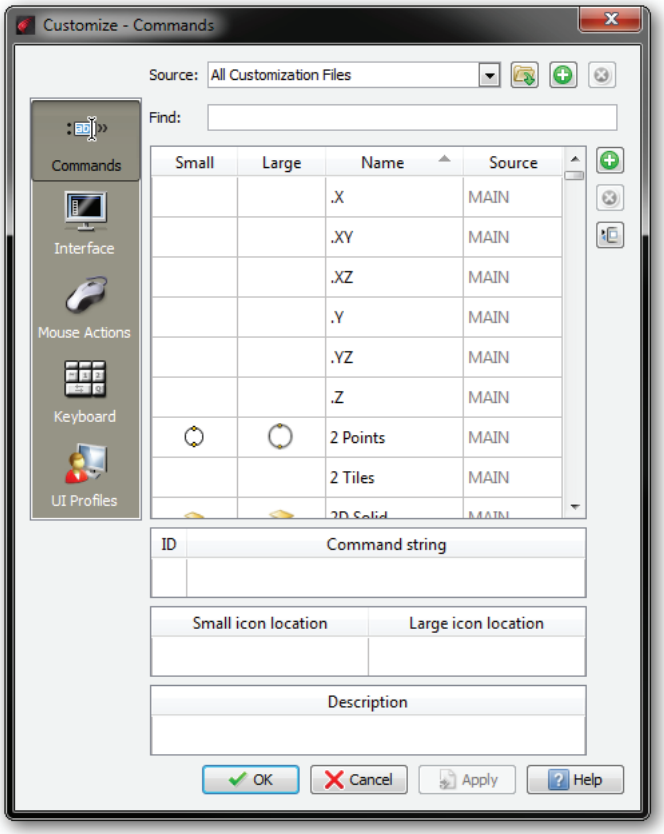
```
^C^C_save;_print
```

In the macro, you can see the Save and Print commands clearly; the remaining characters are exactly the same metacharacters used by AutoCAD in menu and toolbar macros.

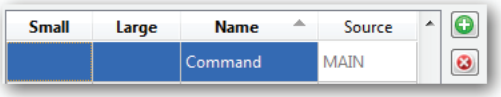
To create the new "command," follow these steps:

1. Open the Customize dialog box with the **Customize** command.
2. On the left hand side, click the **Commands** button.

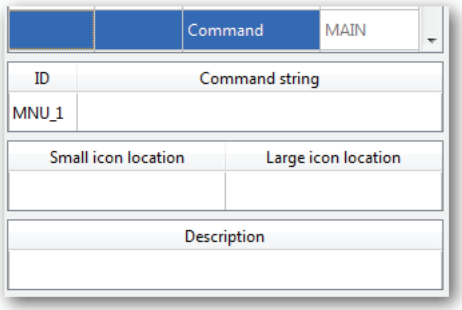
Notice the list of command names and related parameters that appears.



3. On the right hand side, click the **Add Command** button. Notice that ARES adds an item to the list, giving it the generic name of "Command."

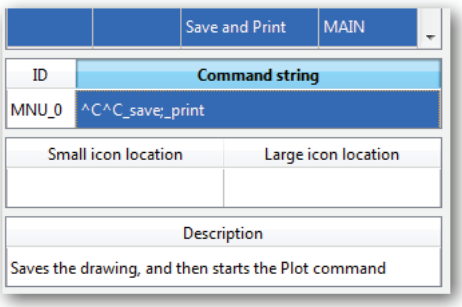


4. Fill in the fields for the "Save and Print" command, as listed below.



Field	Entry	Notes
Name	**Save and Print**	Changes the name from "Command."
ID	*MNU_1*	Leave this field alone, as it is filled in by ARES
Command string	**^C^C_save;_print**	Specifies the macro that cancels the current command, saves the drawing, and then starts the Print command
Small icon location		Specifies the smaller, 16x16-pixel icon
Large icon location		Specifies the larger, 24x24-pixel icon
Description	**Saves the drawing, and then starts the Plot command.**	Specifies the Help text that appears on the status bar

When done, the dialog box should look like this:

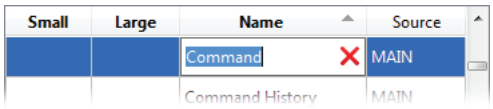


If you need help, the following mini-tutorials show the individual steps for each aspect of creating and editing the fields.

Tutorial: Editing Command Names and Descriptions

To change the **Name** field from "Command" to something else, follow these steps:

1. Double-click the word "Command." Notice that it is highlighted.

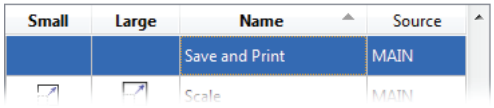


(The purpose of the ✕ button is to erase the text.)

2. Enter the new text. For this tutorial, type the following:

```
Save and Print
```

3. Click **Apply**.



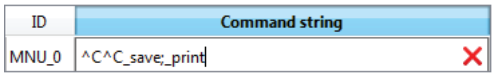
The same procedure applies to the **Description** field.

Tutorial: Entering Command Strings

To enter a macro into the **Command String** field, follow these steps:

1. Double-click the field under **Command String**.
2. Enter the macro. For this tutorial, enter the following:

```
^C^C_save;_print
```



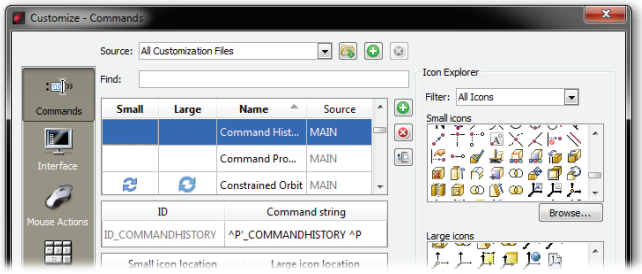
3. Click **Apply**.

If you make a mistake in any of these fields, then just double-click the affected field and then correct the text.

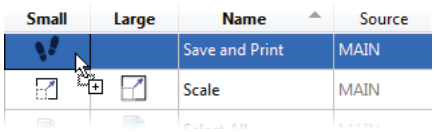
Tutorial: Assigning Icons

To assign icons to the command, follow these steps:

1. Click the **Show Icon Explorer** button. Notice that the dialog box widens to show a collection of small (16x16-pixel) and large (24x24-pixel) icons.



2. Select a small icon, and then drag it to the field under **Small**.



(Do not try to drag the icon to the lower half of the dialog box and its Small Icon Location field; it won't work.)

3. Repeat for the large icon, dragging it from collection of large icons to the **Large** field .
4.. Click **Apply**.

If you wish to access additional icons, click the **Browse** button, and then choose a file from among BMP, JPG, or PNG formats. ARES automatically resizes the image to the correct size.

Now that you've created a new "command," you can apply it to a menu or toolbar following the instructions of the earlier tutorial.

TIP ARES stores all settings from the Customize dialog box in a single file named *Application.xml* file. The location of the file varies according to the operating system on which ARES is running:

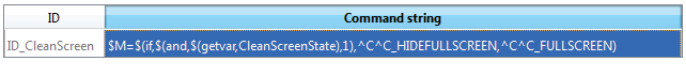
Linux — */home/<login name>/config/ARES Commander Edition/2.x.xxx/UI/*
OS X — */Users/<login name>/Library/Preferences/ARES Commander Edition/2.x.xxx/UI/*
Windows — *C:\Users\<login name>\AppData\Roaming\ARES Commander Edition\2.x.xxx\UI*

The <login name> and x.xxx portions of the path names vary according to your login name and version of ARES installed. The ARES version number is stored in *%ProgramFiles%\Ares Commander Edition\Default Files\version.txt*.

USING MACRO METACHARACTERS AND DIESEL IN ARES

When menu and toolbar items execute macros, they can contain metacharacters and Diesel code. ARES uses many of the same metacharacters as does AutoCAD. For instance, the & (ampersand) designates shortcut keystrokes for accessing menu items with the **ALT** key, and the \ (backslash) pauses for user input.

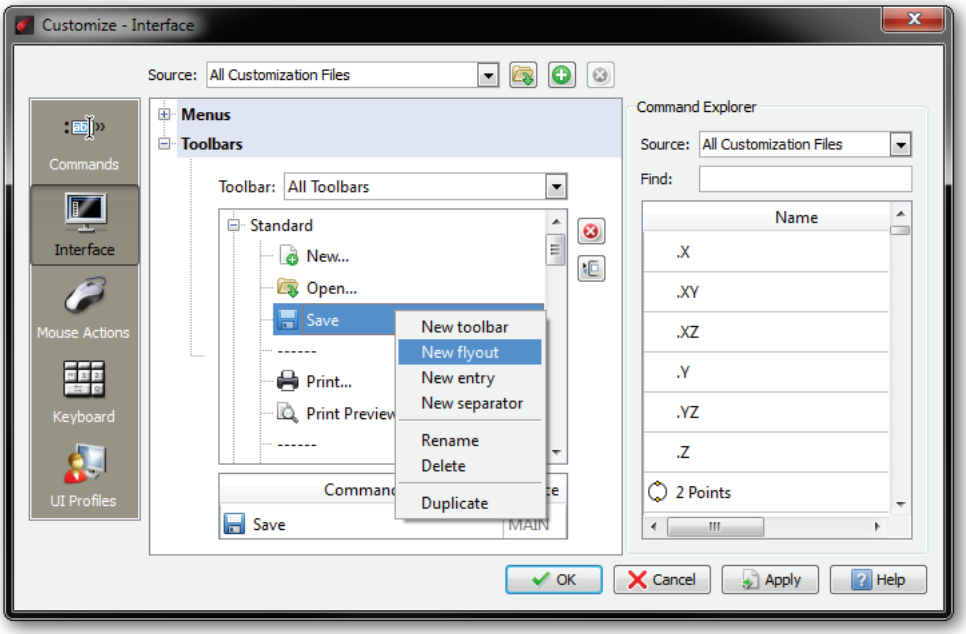
Similarly, ARES and AutoCAD can employ the identical Diesel code in commands and LISP routines. This means that you can copy Diesel routines from AutoCAD for use in ARES.



The figure above shows metacharacters and Diesel code used in the macro for the Cleanscreen command in ARES.

CUSTOMIZING TOOLBARS IN ARES

Toolbars are customized in exactly the same manner, except the job is done through the Toolbars node, as illustrated below.



New to ARES 2013 is the ability to add flyouts to toolbars. Flyouts are sub toolbars that flyout when the host button is held down — analogous to submenus.

Unlike AutoCAD, however, ARES does not let you specify the initial locations of toolbars, such as whether they are docked or floating by default.

TOOL MATRIX

The Tool Matrix palette is not customized by the Customize dialog box. Instead, it is customized within ARES by dragging toolbars in and out of the palette.

To create a custom set of icons and commands for Tool Matrix, create a new toolbar with the Customize dialog box, exit the dialog box, and then drag the newly-created toolbar into the palette.

TABLET BUTTONS AND MENUS

Tablet overlay menus, digitizer buttons,and icon menus are not yet supported by ARES; support is expected to be added later to ARES 2013.

Customizing Mouse Actions in ARES

The Customization dialog box lets you redefine the actions of right-clicks, double-clicks, and shortcut menus through the **Mouse Actions** section.

CHANGING RIGHT-CLICKS

In ARES, you can redefine only the actions of the right mouse button (#2), albeit in combination with the **SHIFT** and **CTRL** keys.

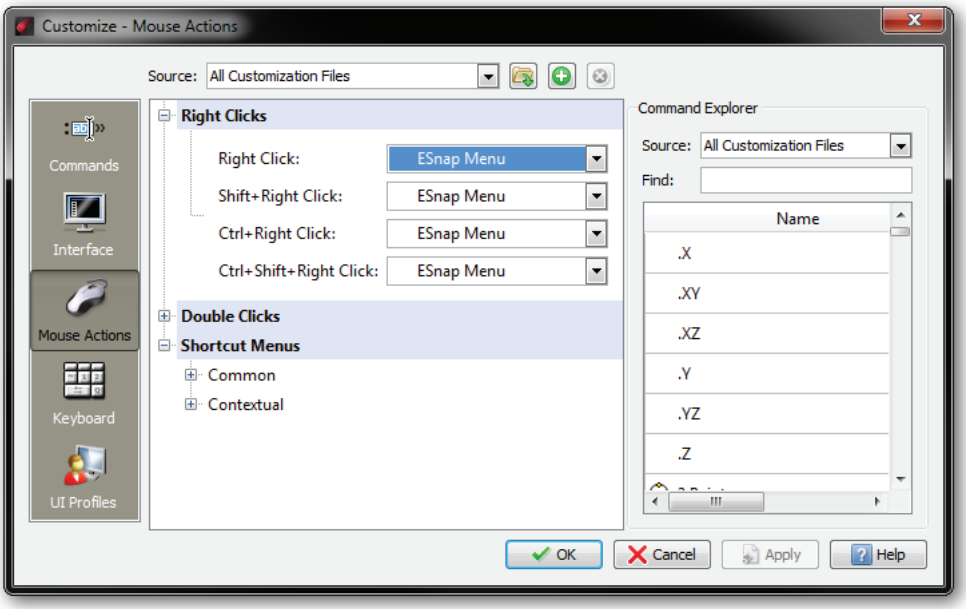
As in AutoCAD, the pick button (#1, left mouse button) cannot be redefined. Curiously, ARES does not let you redefine any other mouse button, such as the center one (#3).

Tutorial: Modifying Right Mouse Button Actions

To change the function of the right mouse button, follow these steps:

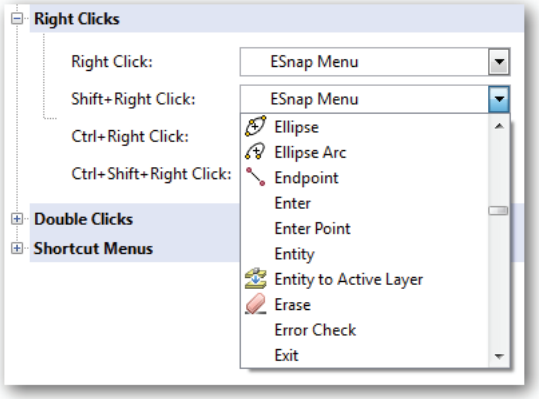
1. With the **Customize** command, open the Customization dialog box.
2. On the left hand side, click **Mouse Actions**.

3. Open the **Right Clicks** node.

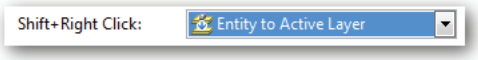


4. Notice that by default all right-clicks display the ESnap (osnap) menu. Decide on a button+keystroke combination to modify; I suggest leaving alone Right Click, and choosing one of the other three.
   - » Right Click
   - » SHIFT+Right Click
   - » CTRL+Right Click
   - » CTRL+SHIFT+Right Click

5. Click the droplist, and then choose a command to replace.



6. Click **Apply** to affix the new definition.



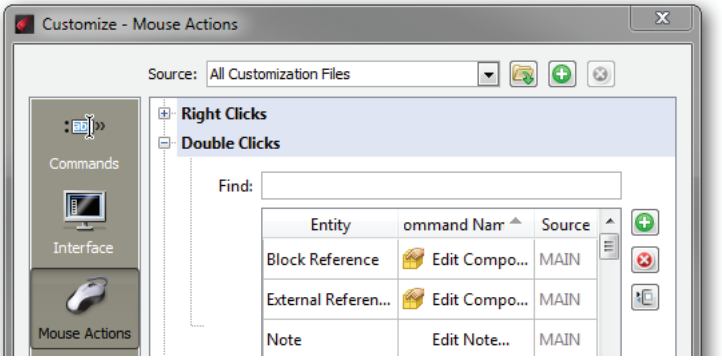
CHANGING DOUBLE-CLICK ACTIONS

Double-clicking the right mouse button on an entity executes a command. ARES lets you modify the action of a double-click, as well as define actions for additional entities. There is, however, just one type of action: execute a command macro.

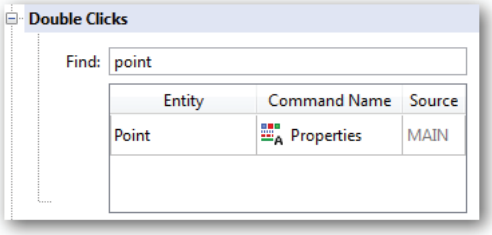
Tutorial: Modifying Double-click Actions

In this tutorial, you change the action associated with the Point entity. The default in ARES executes the Properties command; here, you change it to executing the Zoom Center command. This will let you zoom into a point by double-clicking it.

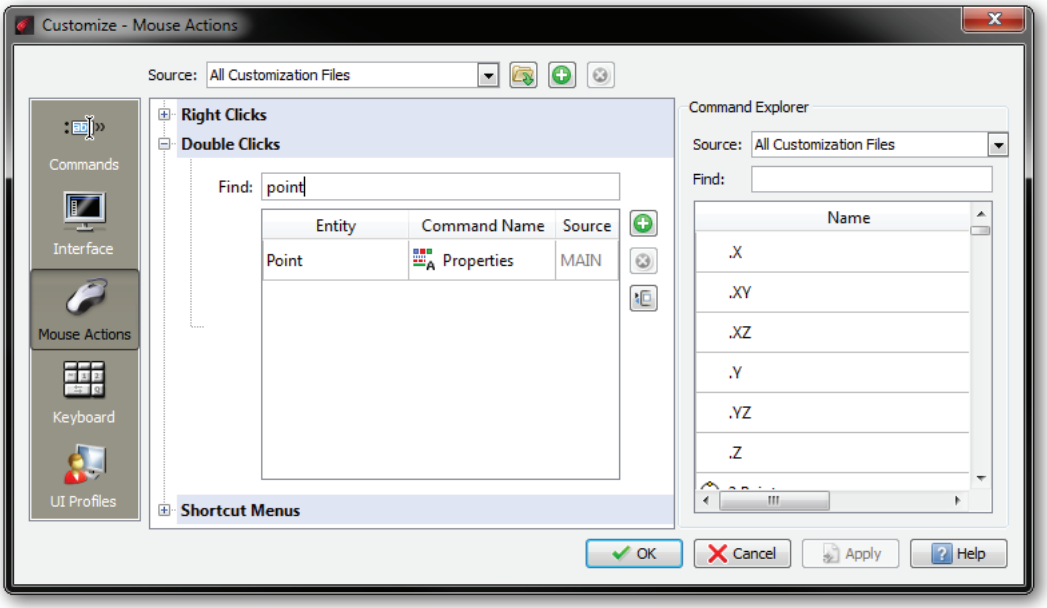
1. In the Customization dialog box's Mouse Actions section, open the **Double Clicks** node.



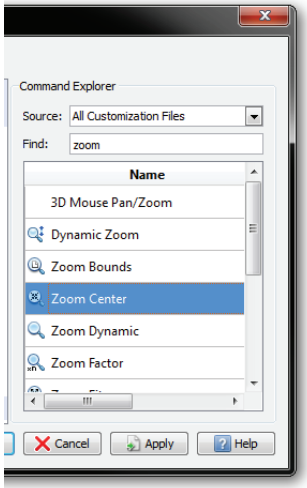
2. It can take a long time to scroll through the hundreds of command names. The shortcut is to use the **Find** field, enter "point." Notice that ARES immediately isolates the list to Point.



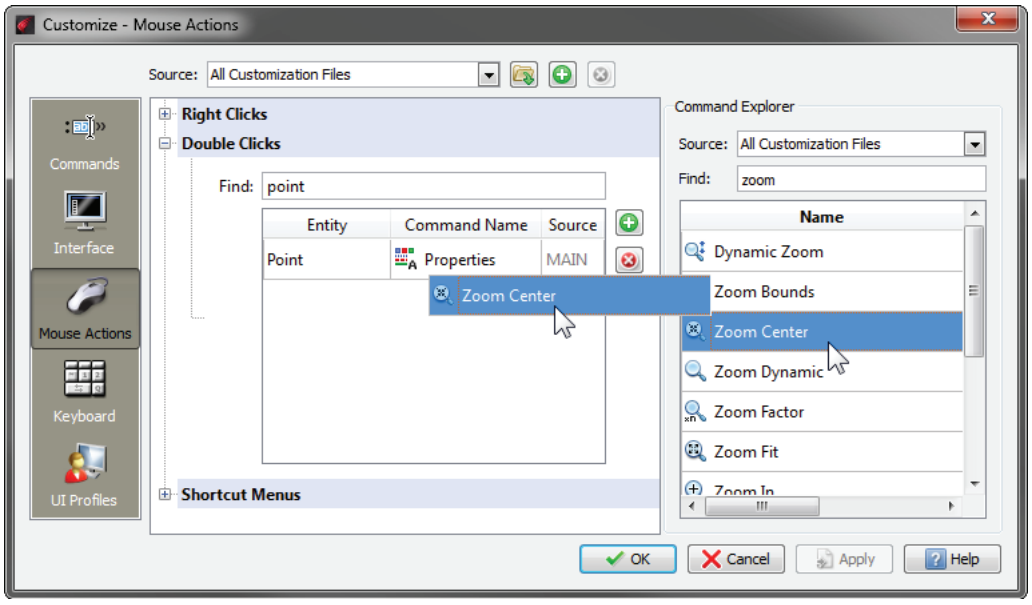
3. If necessary, click the **Show Command Explorer** button to widen the dialog box to list the Command Explorer, which lists the names of all ARES commands — including those you may have added in earlier tutorials.



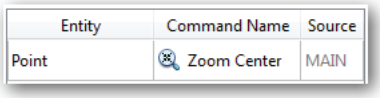
4. Again, use the Find field to locate the Zoom Center command. This time, however, you enter "zoom" in the **Find** field in the Command Explorer pane.



5. Drag **Zoom Center** from the Command Explorer into the Command Name field of the Point entity.



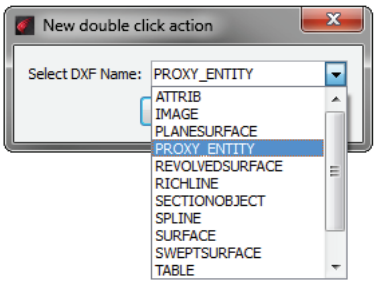
Notice that Zoom Center replaces Properties.



6. Click **Apply** to affix the change.

To test this change, click **OK** to exit the dialog box. Draw a point at the side of the drawing area, and then double-click it to see the Zoom command start with the Center option.

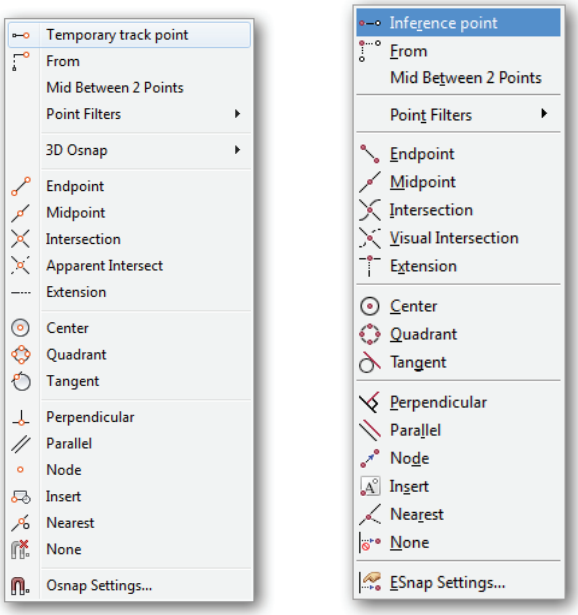
TIP To add a new entity type, click the **Add** button. ARES prompts you to select the DXF entity name from the dialog box selected below. Note that the dialog box conveniently lists only those entities not yet on the Double Clicks list.



TIP Click the header of any column in this dialog box to sort the names in forward or reverse order. For instance, you click **Command Name** once, and ARES lists the command names in alphabetical order; click it again to see the list in reverse order.

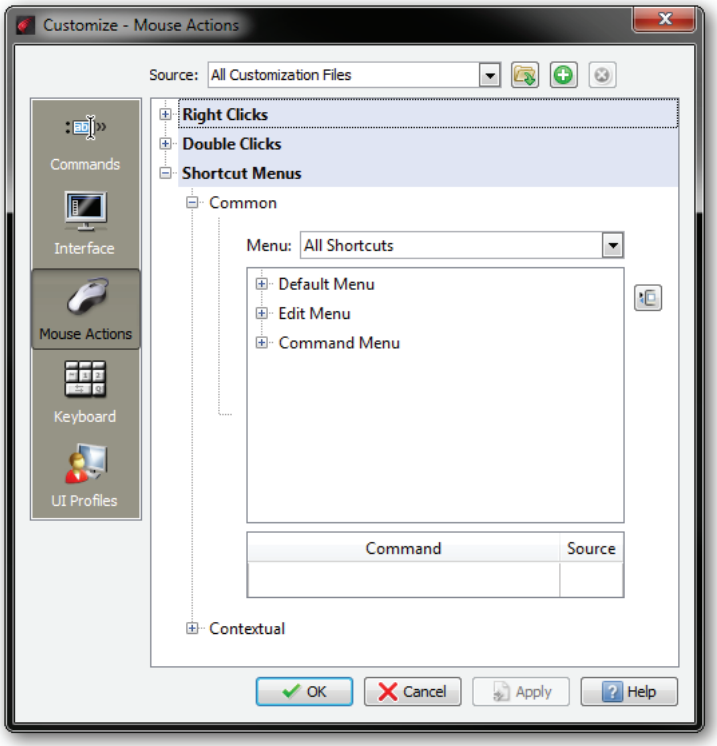
CHANGING SHORTCUT MENUS

ARES uses shortcut menus (a.k.a. context menus) in the same way as AutoCAD: right-click the drawing area, and ARES displays a menu of options. I have illustrated below the default shortcut menus for both CAD programs:



Left: *Default* ***SHIFT****+right-click shortcut menu for AutoCAD...*
Right: *...and for ARES display entity snap modes.*

The customization of shortcut menus is found in the **Mouse Actions** section of the Customize dialog box.

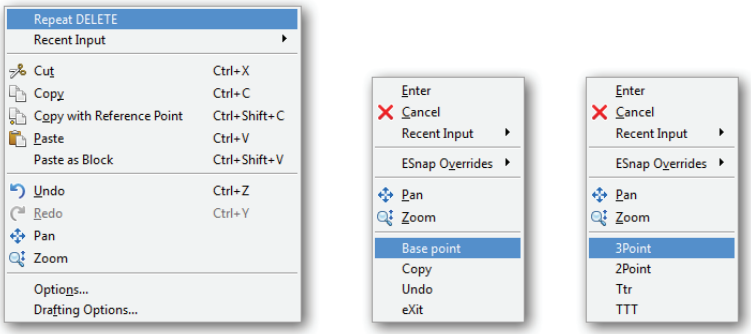


ARES specifies two classes of shortcut menus, Contextual and Common.

Contextual shortcut menus appear when you right-click an object, such as a line or circle. Included in this class is the ESnap Cursor menu, which appears when you hold down the **CTRL** or **SHIFT** key while right-clicking.

Common shortcut menus appear at other times:

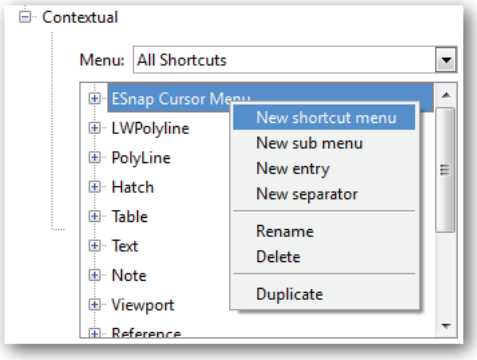
Common Shortcut Menu	Appears When...
Default menu	...when no command is active.
Edit Menu	...when grips are active.
Command Menu	...when a command is active.



Left to right: *default, edit, and command shortcut menus in ARES*

To add (or remove) items from the shortcut menus, use the same procedure as for menus.

To create a new shortcut menu from scratch, you need to right-click an item in the **Contextual** section, and then choose **New Shortcut Menu**.



New ones cannot be created in the Common section.

Customizing Keystrokes in ARES

The Customization dialog box lets you redefine the actions of keystroke shortcuts and override keys through the Keyboard section.

CHANGING KEYBOARD SHORTCUTS

Keyboard shortcuts and override keys are customized in the Keyboard section, as illustrated below. ARES has many of the same shortcuts as AutoCAD. You can use combinations of the **ALT**, **CTRL**, and **SHIFT** keys with all alphabetic, numeric, punctuation, and function keys.

Appendix D contains a useful cross-reference of shortcuts for both programs.

CHANGING OVERRIDE KEYS

Override keys temporarily override entity snap and other drafting settings, just as in AutoCAD. ARES has the same set of enable and disable overrides as AutoCAD. One bonus, however, is that ARES has a set of overrides designed for the German keyboard, the layout of which differs from the North American keyboard.

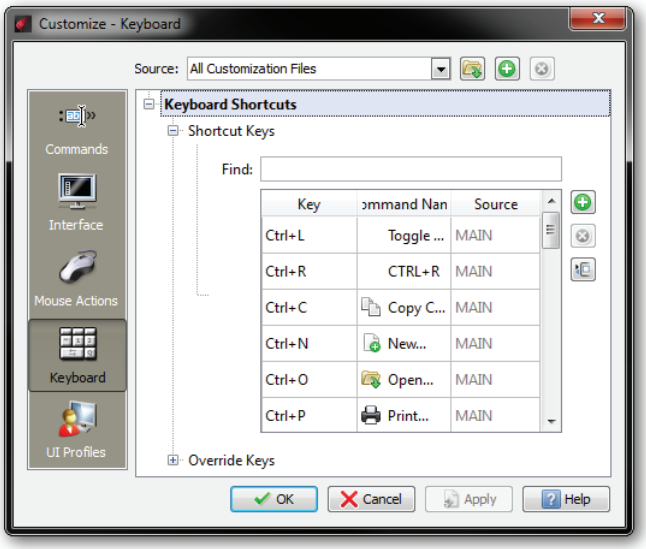
See Appendix D for the complete list.

Tutorial: Modifying Keyboard Shortcuts and Overrides

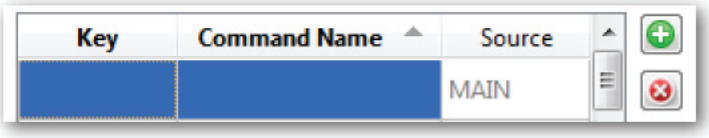
Keyboard shortcuts and overrides are customized in the same manner, but differently from AutoCAD. In the following tutorial, you assign the "Save and Print" command to the **CTRL**+**ALT**+P keystroke combination.

1. In the right side of the Customization dialog box, click **Keystrokes**.

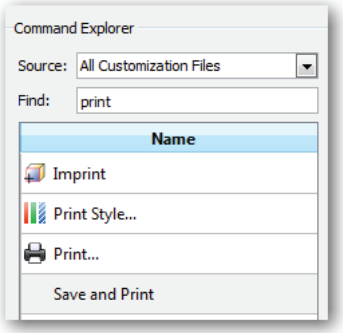
2. Open the **Shortcut Keys** node.



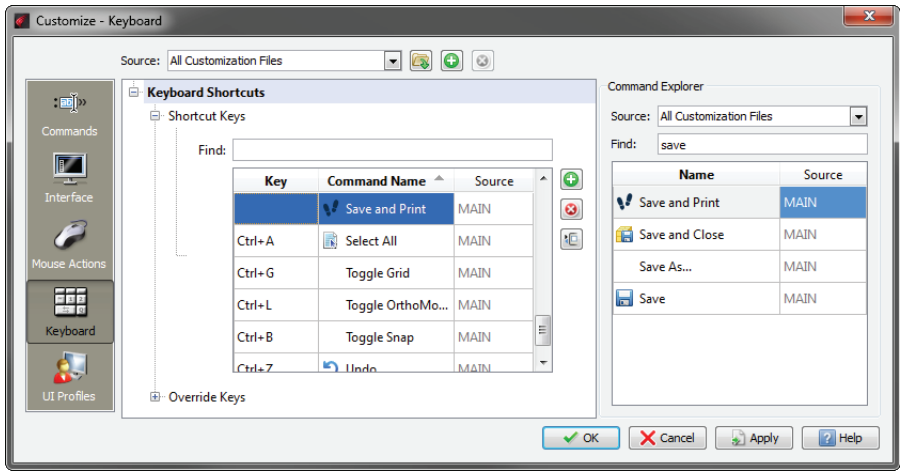
3. To create a new keystroke shortcut, click the **New** button. Notice that ARES adds a new, blank entry.



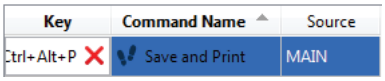
4. To access the list of command names, click the **Show Command Explorer** button.
5. In the **Find** field, enter "print"to locate the Save and Print command you wrote in an earlier tutorial.



6. Drag **Save and Print** from the Command Explorer into the blank Command name field.



7. To specify the keystroke associated with the command, follow these steps:
   a. Double-click the cursor inside the **Key** field.
   b. Press the desired key combination. For this tutorial, hold down the CTRL and ALT keys, and then press **P**.



8. Click **Apply**.

Should you press a key combination already in use, ARES warns you, "Shortcut key already assigned to another command."

CHANGING ALIASES IN ARES

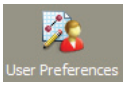
ARES has many of the same aliases as AutoCAD, because aliases are used to make ARES command-compatible with AutoCAD.

Command aliases are customized by the Options dialog box — not Customize!

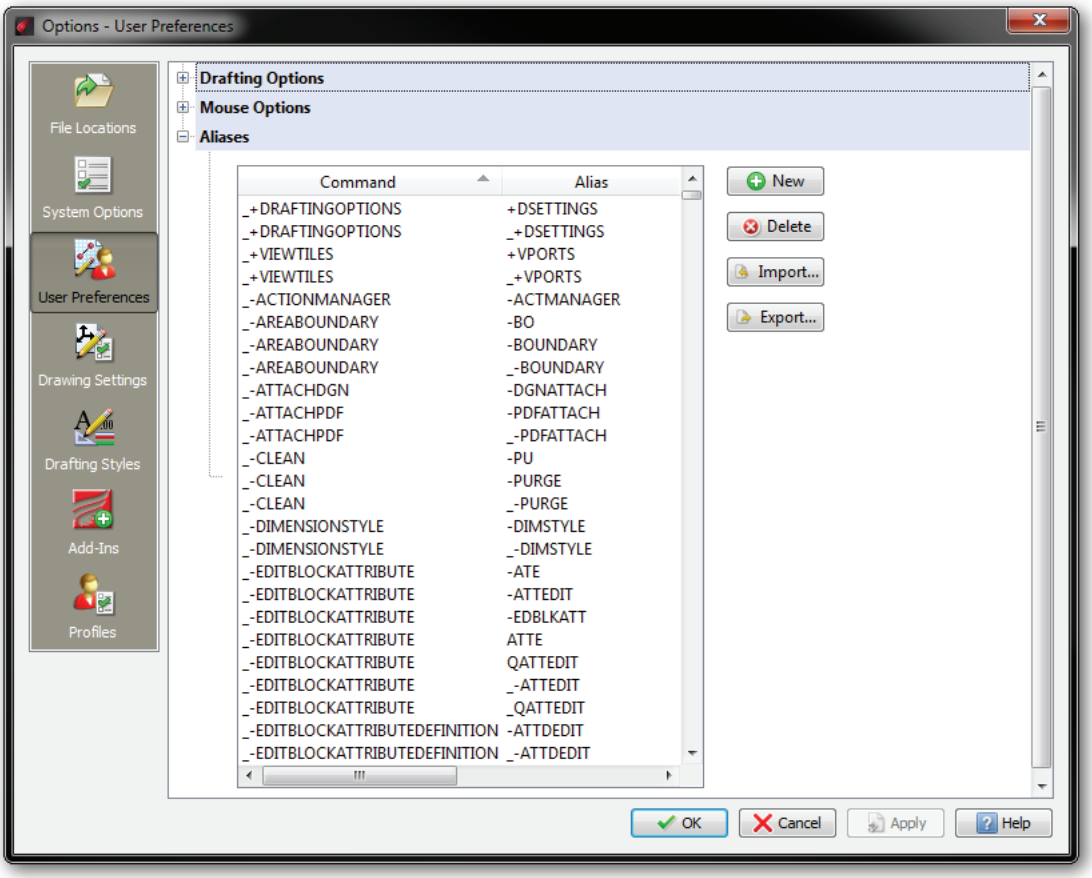
Tutorial: Customizing Aliases

Follow these steps to create and edit aliases for commands:

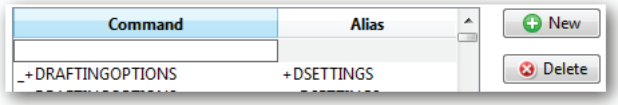
1. Enter the **Options** command.
2. In the left side of the dialog box, choose the **User Preferences** section.



3. Open the **Aliases** node. Notice the list of defined aliases.



4. To create a new alias:
   a. Click the **New** button.



b. Notice the new, blank entry in the list. Click the **Command** field, and then type the name of a command. Because this is the Options dialog box, the list of commands is not readily available; you'll have to memorize the command name, or else write it down on a scratch piece of paper.
c. In the **Alias** field, enter a one- or two-letter alias. ARES uses the same rules as AutoCAD for the construction of aliases.
d. Click **Apply**.

TIP Click the header of any column in this dialog box to sort the names in forward or reverse order. For instance, you click **Alias** once, and ARES lists the alias names in alphabetical order; click it again to see the list in reverse order.

Using AutoCAD Aliases in ARES

ARES can import PGP files from AutoCAD and ICA files from IntelliCAD. If you have customized your *acad.pgp* file, you can load it into ARES with the **Import** button.

ARES stores aliases in the *aliases.xml* file in the following locations. (AutoCAD uses the *acad.pgp* file.)

» **Linux** — */home/*<login>*/config/ARES Commander Edition/*<ver#>*/Alias*
» **Mac OS X** — */Users/*<login>*/Preferences/ARES Commander Edition/*<ver#>*/Alias*
» **Windows** — *C:\Users*<login>*\AppData\Roaming\ARES Commander Edition*<ver#>*\Alias*

Appendix A lists the aliases associated with all of ARES' commands.

TIP To create your own list of aliases, click the Export button.

Shell Commands

ARES does not customize shell commands, which are holdover in AutoCAD from the days before Windows.

ARES' UI Profiles vs AutoCAD's Workspaces

User interface profiles are the ARES equivalent to AutoCAD's workspaces. Profiles determine which UI elements are displayed, allowing you to customize the look of ARES.

Through profiles you specify whether the following user interface elements are displayed:

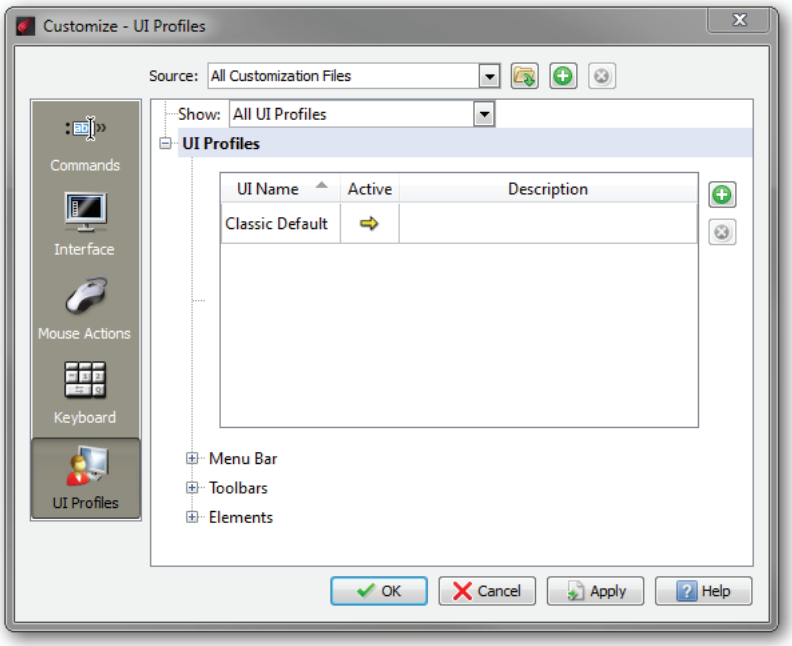
- Menu bar dropdowns
- Toolbars
- Status bar
- Command prompt window
- Properties, References, Lighting, and/or Tool Matrix panels
- Options toolbar

For instance, you could specify a menu bar that displays only the File and Help dropdowns, along with all toolbars. Whatever!

The "Classic Default" profile is the default, and so cannot be modified.

CUSTOMIZING UI PROFILES IN ARES

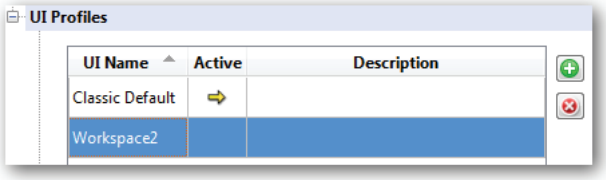
The UI Profile section of the Customize dialog box lists the names of profiles and controls which user interface elements are to be active.



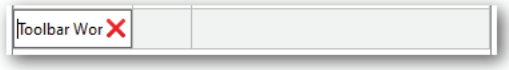
Tutorial: UI Profiles Mode

The UI Profiles node lists the names of profiles. In this tutorial, you create a profile that turns off the menu bar, and turns on certain toolbars. To create the new profile, follow these steps:

1. Enter the **Customize** command, and then choose the **UI Profiles** section.
2. Click the **New** button.
3. Notice that ARES adds a profile with the generic name of "Workspace2."

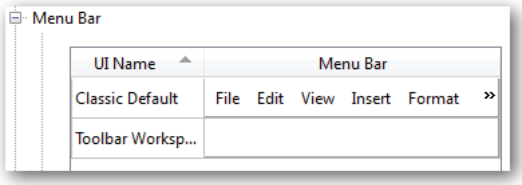


4. Double-click **Workspace2** to rename it as "Toolbar Workspace."

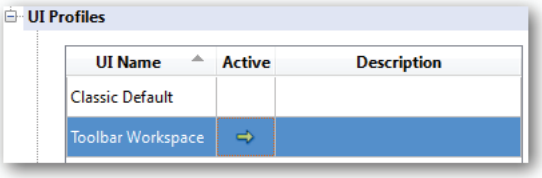


5. The Menu Bar and Toolbars nodes determines which dropdowns menu or toolbars to be displayed.

   Open the **Menu Bar** node, and notice that it is empty. This means that when Toolbar Workspace is activated, the menus will disappear.

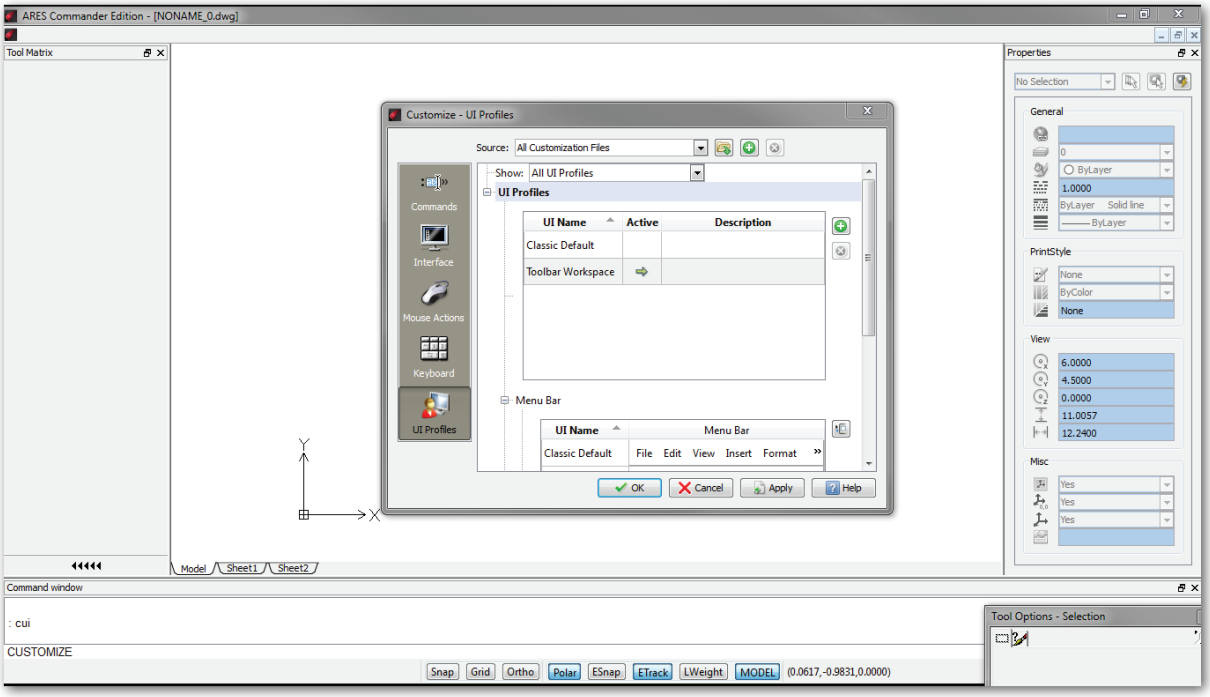


6. To confirm this, follow theses steps:
   a. In the UI Profiles node, double-click in the **Active** column. The golden arrow confirms that "Toolbar Workspace" is now current.

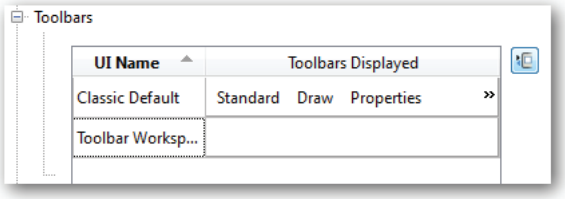


   b. Click **Apply**.

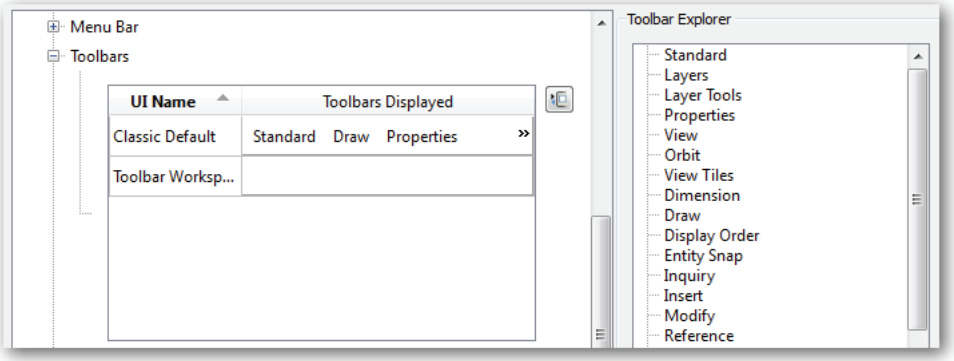
In the background, notice that ARES looses its menus and toolbars.



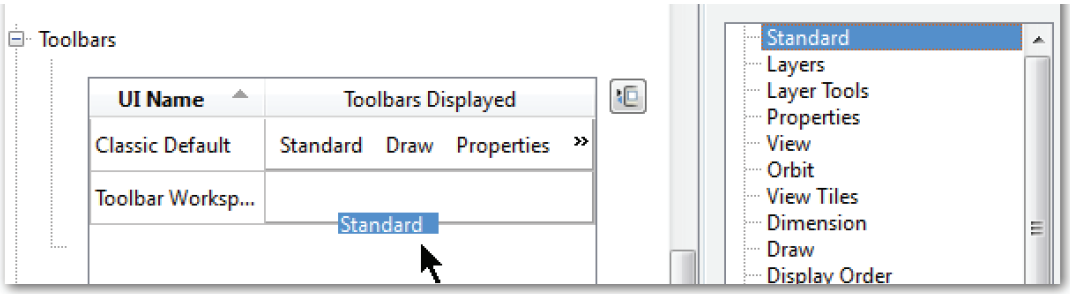
7. Let's return some toolbars. Open the **Toolbars** node. Notice that it too is empty. Let's fill it.



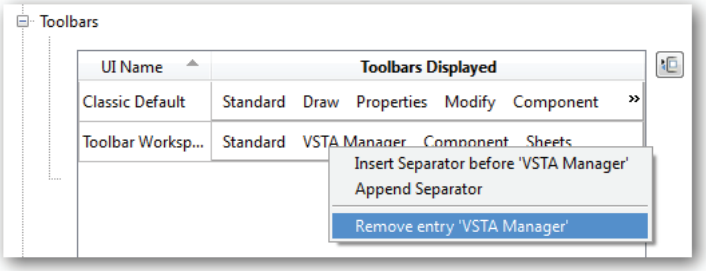
8. To add toolbars to the profile, click the **Show Menu Explorer** button. Notice that the dialog box widens to display the list of available toolbar items.



9. Drag toolbar names from the Toolbar Explorer to the Toolbars Displayed field, and then click **Apply**.

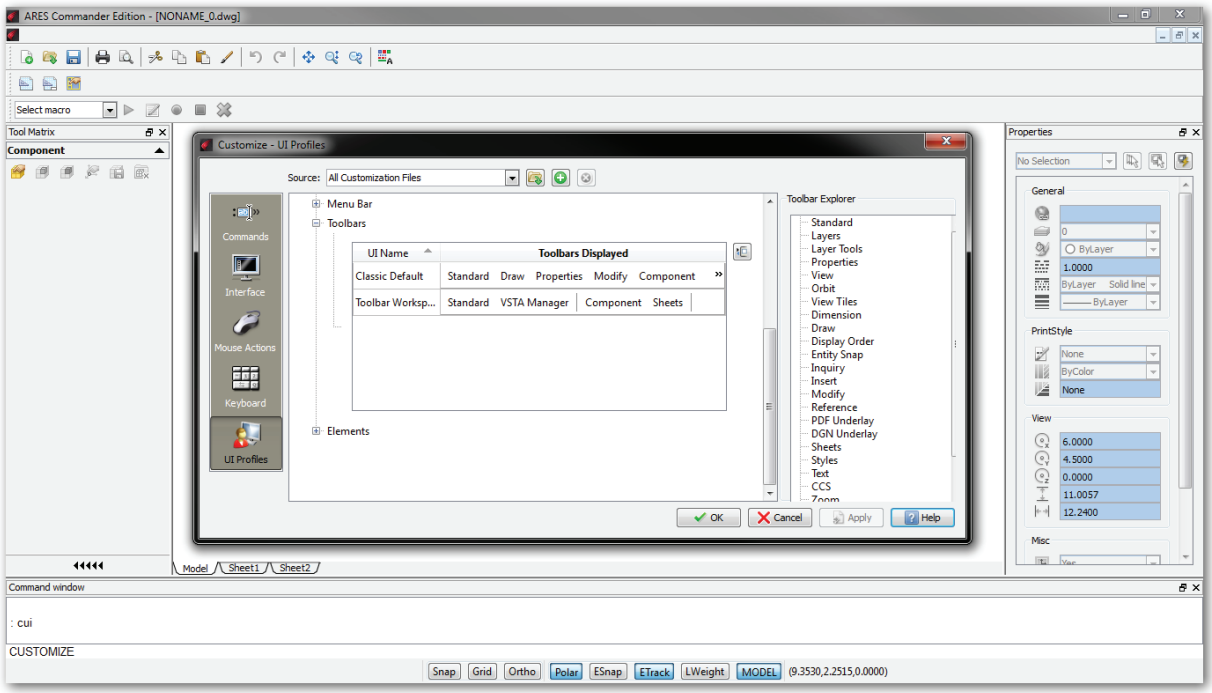


10. If you wish, add a few more toolbar names. (If you add the same toolbar name twice, only one will be displayed.) To remove a toolbar name, right click it, and then choose **Remove** from the shortcut menu.

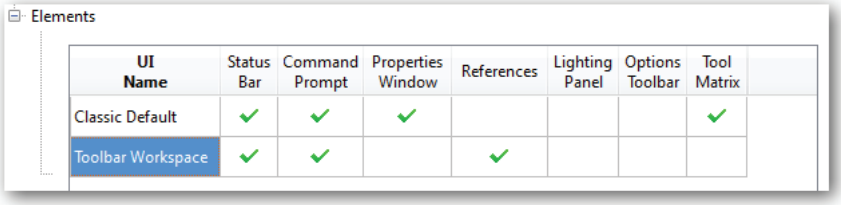


The **Insert Separator** option adds a vertical bar in front of the selected toolbar name; the **Append Separator** option places the bar at the end of the row of names. The bars appear only in this dialog box; they don't show up in the ARES user interface.

11. Click Append. Notice that the toolbars appear in the ARES user interface.



12. If you wish, you can toggle additional user interface elements in the **Elements** node. Double-click the boxes with the green arrows to turn them on or off.



13. Click **Apply** to see the effect in ARES. When done, click **OK**.

CHANGING PROFILES

ARES and AutoCAD support user profiles, which store your customization settings for each CAD program. *Profiles* are not the same as *UI Profiles* discussed above; unhappily, they share the same name, and it would be better if UI Profiles were renamed workspaces.

Here's how they differ:

Item	Records	Controlled By	Export/Import
UI Profiles	User interface elements	Customize dialog box	No
Profiles	All elements set by the Options dialog box	Options dialog box	Yes

Profiles customize all other aspects of ARES, everything controlled by the Options dialog box. After changing settings with the Options command, you save them to an XML file. You can take this file to another computer, and when you activate it, ARES will look exactly the same as on your own computer. You can create multiple profiles, each for a different user or different project.

ARES cannot, unfortunately, import AutoCAD ARG files, the files in which AutoCAD stores profiles.

In ARES, user profiles are generated through the **Profiles** section of the Options dialog box.

About Roaming Profiles

ARES and AutoCAD support *roaming profiles*, which let you "roam" about the office and use another copy of the CAD software customized with your settings on any computer connected to the office network. Your settings are identified by your login name automatically, which you enter when you access a computer.

Not all CAD-related files are roamable; some remain local, such as DWG drawing files. The roamable and nonroamable files are kept in different folders, which is how you can tell which are and which are not roamable.

ARES's roamable files are kept in *C:\Users\login\AppData\Roaming\ARES Commander Edition\2.x.xxx*, where *login* is your computer login name, and *x.xxx* is the current version number of ARES. In this folder are found the following sub folders:

- Aliases
- Fonts
- Linestyles

- Print styles
- Profiles
- RichLine styles
- Templates
- User interface language
- Workspaces

ARES's nonroamable files are kept in *C:\Program Files\Graebert GmbH\ARES Commander Edition 2013*, and folder has the following folders:

- Fonts *(roamable fonts are located in the roaming folder)*
- Help

Accessing Hidden Folders in ARES

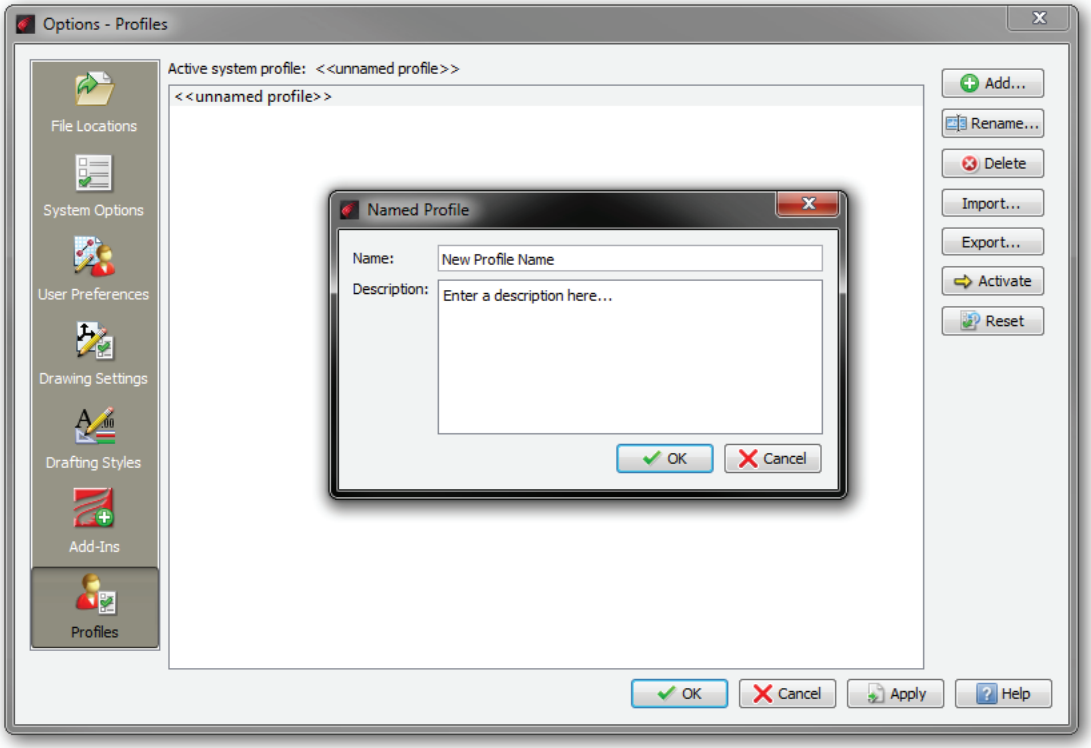
The local and roaming folders can be difficult to find, because unfortunately they are typically hidden from users. Here are some ways to access hidden folders in Windows:

- Make all hidden folders visible through **Start | Control Panel | Folder Options | View tab | Show Hidden Files and Folders**. (You can also access the dialog box through the Tools menu, if menus are turned on for Explorer.)
- Or, copy (CTRL+**C**) the folder path from this ebook, and then paste it (CTRL+V) into the address bar of Explorer.
- Or, create shortcuts on your computer's desktop to the hidden folders: hold down CTRL+ALT while dragging the folder's name from Explorer onto the desktop.

Tutorial: Creating a New Profile

All settings in effect when you create a new profile are remembered by it:

1. Enter the **Options** command, and then choose the **Profiles** section.
2. Click **New**, and then name the profile. You're done!



Other Types of Customizations in ARES

Other areas of customization include fonts, linetypes, plot styles, and file paths. ARES does not, however, customize hatch patterns or plotter management files.

USING FONTS

AutoCAD and ARES use the same font files: TTF (TrueType) and SHX (compiled shapes). AutoCAD also supports PFB (PostScript Type B) fonts indirectly through its Compile command, which converts PostScript fonts to SHX format; ARES does not work with PostScript fonts.

ARES can use any font employed in AutoCAD drawings. Since Windows controls TrueType fonts, there is no need to copy any TTF files to ARES; they are all stored in the *\windows\fonts* folder for use by all Windows programs.

Mapping Fonts

ARES and AutoCAD support font mapping, handy when fonts are missing from your drawing. Both use the same two system variables:

- FontAlt
- FontMap

The FontAlt system variable specifies the name of the font to use when the correct one cannot be found. Both CAD systems use *arial.ttf* as the default replacement font, ARES uses *arsimp.shx*, its version of simplex..

The FontMap system variable specifies the file name of the FMP file to map alternative font names. Whereas AutoCAD uses *acad.fmp*, ARES uses *fonts.fmp*.

CAD System	FontMap File	Default Folder
AutoCAD	acad.fmp	C:\Users\login\AppData\Roaming\Autodesk\AutoCAD 2013\R19.0\enu\Support
ARES	fonts.fmp	C:\Program Files\Graebert GmbH\ARES Commander Edition 2013\Fonts\

Both CAD systems use the same format of font mapping file, so you can copy the *.fmp* file from AutoCAD. Here are the first several mappings from ARES' *fonts.fmp* file:

```
@EXTFONT2.SHX;Kanji-j2.shx
AMGDT.SHX;ARAGDT.SHX
BIGFONT.SHX;Kanji-j1.shx
COMPLEX.SHX;ARCOMP.SHX
EXTFONT.SHX;Kanji-j1.shx
EXTFONT2.SHX;Kanji-j2.shx
GBCBIG.SHX;FSSIM.SHX
GOTHICE.SHX;ARGOTHE.SHX
GOTHICG.SHX;ARGOTHG.SHX
GOTHICI.SHX;ARGOTHI.SHX
GREKC.SHX;ARGREKC.SHX
GREKS.SHX;ARGREKS.SHX
ISO.SHX;ARISOP1.SHX
```

About Shape Files

ARES reads SHX shape files used for legacy fonts, legacy shapes (early form of block), and complex linetypes.

CHANGING LINETYPES

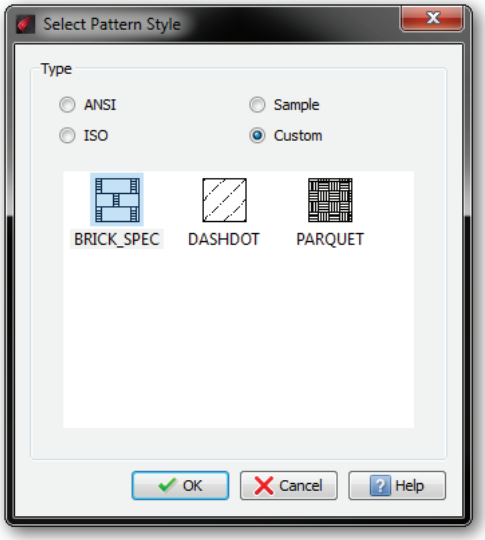
ARES and AutoCAD use the same definitions for linetypes. Both simple and complex linetypes are defined by LIN files. The default names are as follows:

AutoCAD Default	ARES Default	Notes
acad.lin	inch.lin	Imperial units
acadiso.lin	mm.lin	Metric, ISO-standard linetypes

ARES can use linetypes customized for AutoCAD. Copy the files from AutoCAD's support folder to the ARES support folder at *C:\Users*login*\AppData\Roaming\ARES Commander Edition x64\2.x.xxx\Linestyles*. Or, use ARES to access the AutoCAD linetype files through the Linetype command's Load button.

CHANGING HATCH PATTERNS

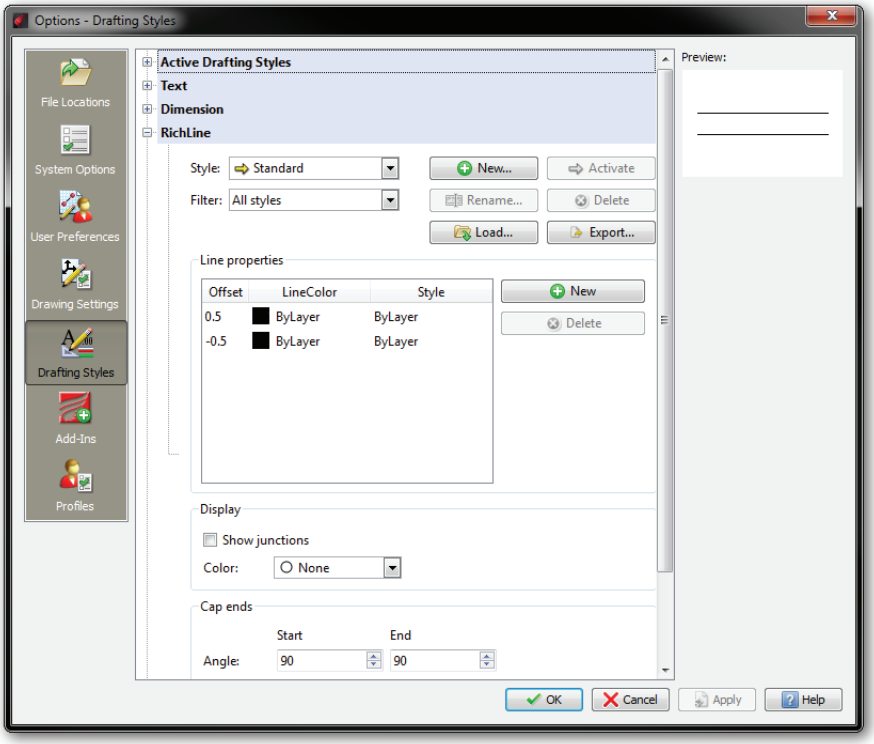
Hatch patterns are hard-coded in ARES, but you can add patterns through PAT files. Place AutoCAD's PAT files in the *C:\Program Files\Graebert GmbH\ARES Commander Edition 2013\Default Files\Support* folder, and ARES displays them in the Custom category (Hatch command), as illustrated below:



CHANGING RICHLINE STYLES (MULTLINES)

ARES reads AutoCAD's MLN multiline style files, which ARES calls "richlines." The default style is named "Standard," and is stored in the *rlstyles.mln* file, in the *C:\Users*user*\AppData\Roaming\ARES Commander Edition x64\2.x.xxx\RichLine Styles* folder.

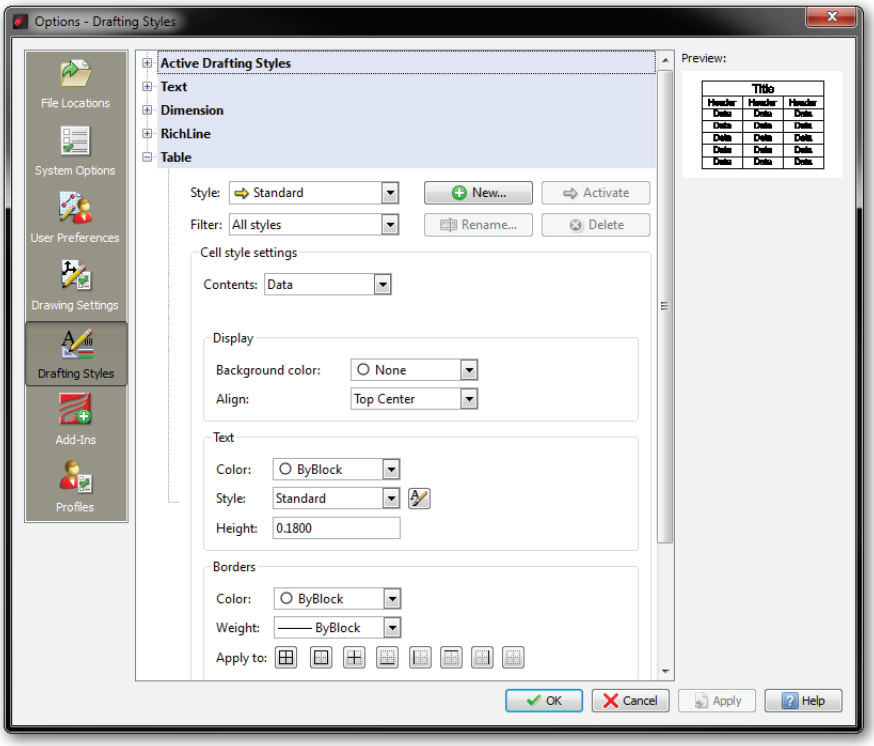
Richlines are customized in the Drafting Styles section of the Options dialog box, as illustrated below.



To import MLN files from AutoCAD, click the **Load** button, and then choose the **Browse** button. in the Load Rich Line Style dialog box, navigate to the folder in which AutoCAD keeps its .mln files, such as *C:\Autodesk\AutoCAD_2013_English_Win_64bit\x64\acad\Program Files\Root\UserDataCache\Support*.

About Table and Other Styles

ARES also works with table, text, and dimension styles. ARES, however, does not export or import any of these style. Table and the other styles are handled by the associated node in the Drafting Styles section, as illustrated below.

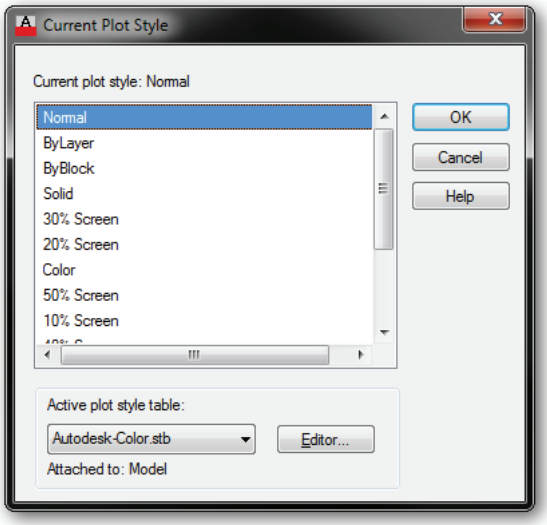


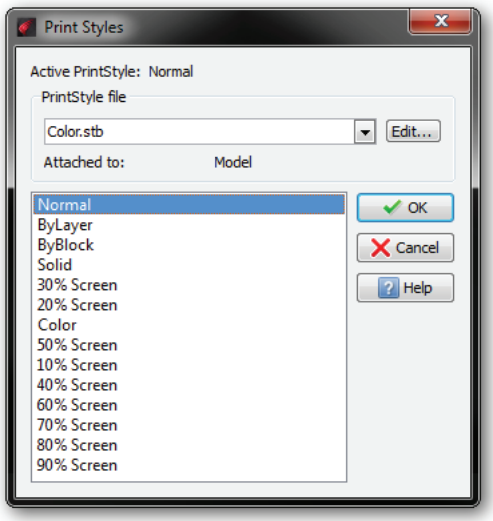
CHANGING PLOT STYLES

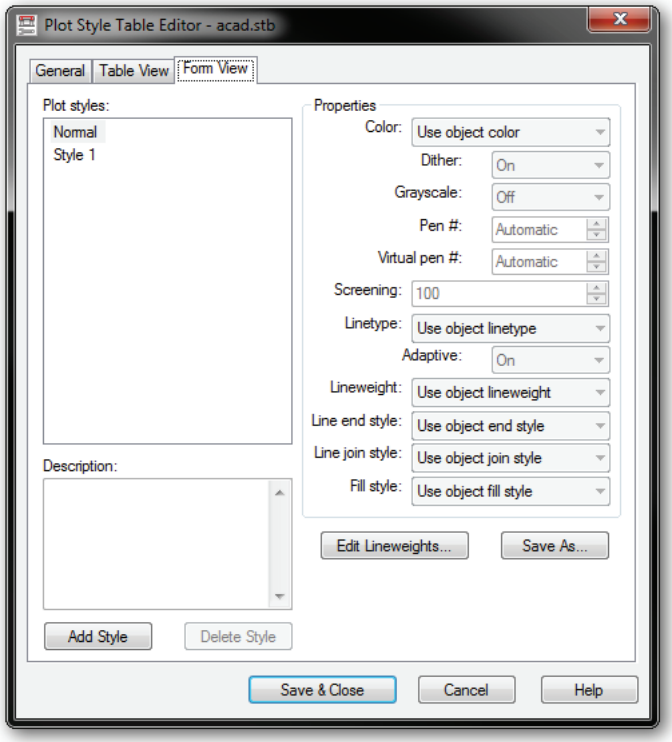
ARES and AutoCAD support both CTB (color-based) and STB (style-based) plot styles, which allow entities to look different when plotted.

ARES can use STB and CTB files created in AutoCAD. The sole difference is the name of default style table files: AutoCAD's default is *acad.stb*, however, while ARES's default is *color.stb*.

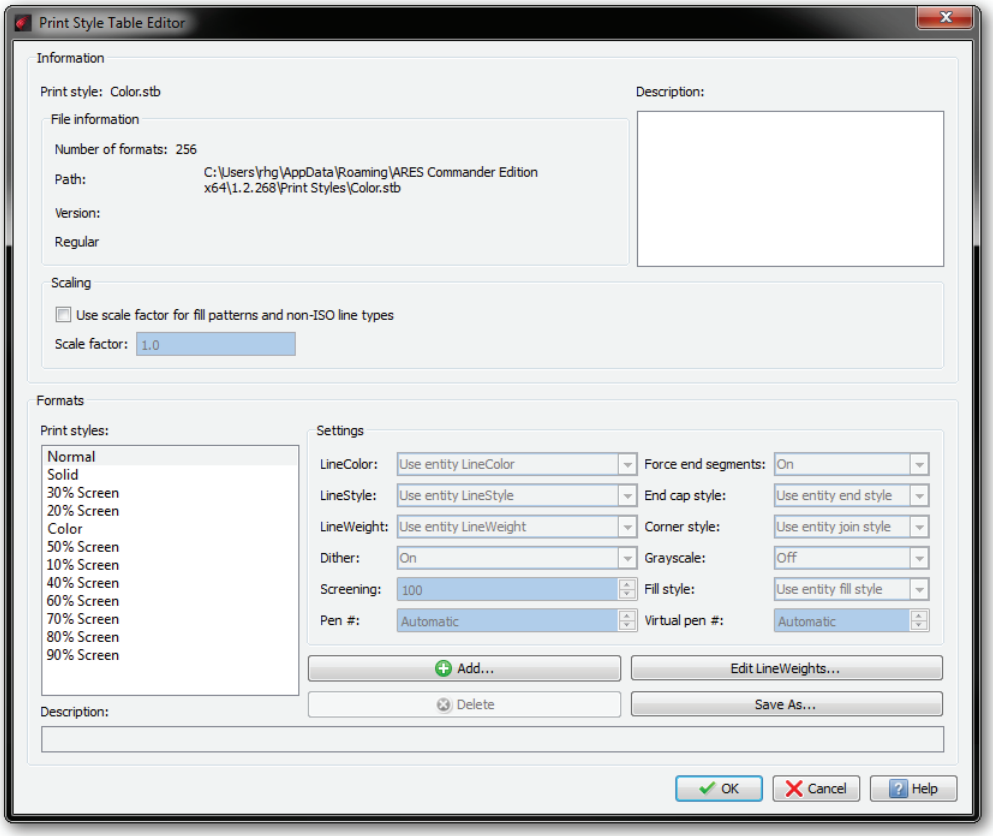
To create and edit plot styles in ARES, choose **Print Style** from the **Format** menu, or enter the **PrintStyle** command. The figures below show that ARES has the same plot style options as AutoCAD:







Above: *AutoCAD's STB dialog box.*
Below: *ARES's STB dialog box.*



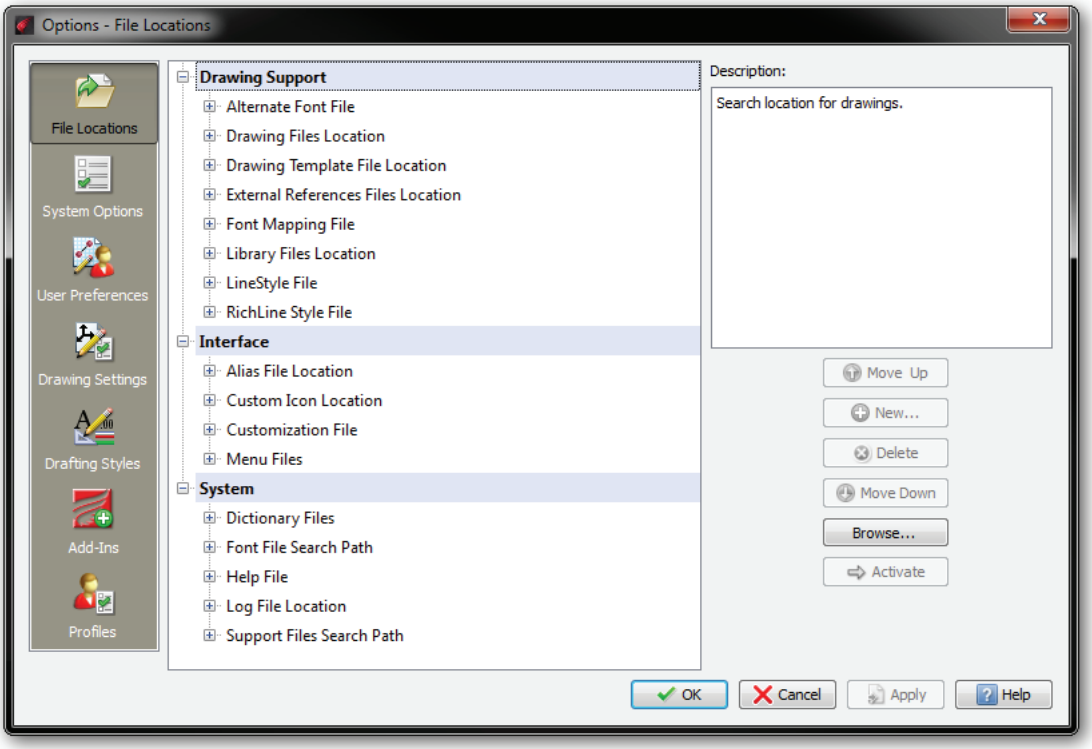
About Plotter Manager

ARES does not support AutoCAD's PC3 plotter manager files, which are used to customize plotter options. Thus, ARES cannot use PC3 files created in AutoCAD.

CHANGING FILE PATHS

In addition to the core DWG drawing file, ARES and AutoCAD use many support files. In older, simpler times, support files were simply stored in a folder named *\Support*. But as Microsoft made Windows more complex, support files became scattered throughout computer hard drives — and sometimes not even on the computer you use.

Both CAD programs let you specify the paths to these folders. In ARES, paths are specified in the File Locations section of the Options dialog box.



The complexity stems from networking. Different support files need to be handled differently:

- Local files
- Common files
- Temporary files
- Roaming files
- Network files

- **Local files** are stored on the computer you use; these files are specific to each user and each CAD program, such as DWG drawing files and local customization files.

- **Common files** are stored on the computer you use; these files are common to many programs, such as fonts and printer drivers.
- **Temporary files** are stored "anywhere," locally or on the network; these files are created by CAD programs for the duration of the editing session, such as automatic backup files.
- **Roaming files** are stored on any computer; these files, such as for linetypes and hatch patterns, are specific to you, and can be accessed from any networked computer. See Roaming Profiles below.
- **Network files** are stored on the network and accessible to everyone; these files, such as for blocks and templates, are meant to be shared by everyone.

You can use the File Locations section to point ARES to support files used by AutoCAD.

Programming Considerations

ARES Commander Edition has support for the following programming interfaces:

- LISP
- LISP vl-, vlr-, vla- and vlax- reactor functions (partial support)
- LISP encryption
- DCL for dialog boxes
- Diesel for macros
- FDT (ADS-like C/C++ development system)
- DRX (ARX-like runtime extension) from Open Design Alliance with ARES extensions
- C/C++ Unicode support

(API is short for "application programming interface," and is the software link between ARES and programming languages/compilers.)

The following work only in the Windows version, and no in the Linux or OS X versions:

- Visual Studio 2008-compatible
- COM
- Delphi
- ActiveX
- VSTA (Visual Studio for Applications)

Graebert makes it easy for third-party developers to transfer AutoCAD add-ons to ARES by supporting many of the same programming languages and APIs as does AutoCAD.

AutoCAD API	ARES Equivalent	Notes
ADS	FDT	ADS is considered obsolete by Autodesk, but is fully supported in ARES Commander Edition
ARX	TX	ARX code requires porting
AutoLISP	LISP	AutoLISP code runs as-is in ARES
DCL	DCL	DCL code runs as-is in ARES
Diesel	Diesel	Diesel code runs as-is in ARES
Windows only:		
COM	COM	AutoCAD COM code runs as-is in ARES
.Net	DWGdirect.NET	AutoCAD .Net code is partially supported by ARES
VBA	...	VBA is considered obsolete by Autodesk
VSTA	VSTA	VSTA code runs as-is in ARES

Generally ARES provides a nearly identical subset of equivalent function names. In the case of non-compiled code, such as LISP and DCL, you just drop it into the ARES environment. For compiled code, you recompile using the headers provided by Graebert.

Porting ARX to TX

The TX SDK (Teihga runtime extension software development kit) is largely compatible with Autodesk's ARX (AutoCAD runtime extension). Graebert supplies an SDK with ARES-specific extensions that complement DRX classes.

TX is available to members of the Open Design Alliance at www.opendesign.com.

Porting AutoLISP to LISP

Most AutoLISP routines work directly in ARES, including encrypted ones. Its LISP engine partially supports VL, VLA functions, and LISP reactors; it does not support compiling to FAS (compiled LISP) files.

You may experience the following issues:

- ARES's command line input can vary slightly from AutoCAD. The solution is to verify the content of all (command) functions. Or avoid the use of (command) altogether.
- ARES does not implement a few AutoLISP functions. The solution is to rewrite the code, or adapt external libraries.

ARES provides DOSLib, a library of LISP-callable functions not found in regular AutoLISP.

Porting DCL to ARES

Most DCL routines work directly in ARES.

Porting Diesel to ARES

Diesel routines work directly in ARES.

Porting ADS to FDT

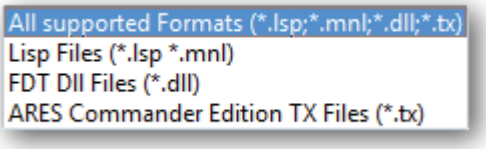
Since ADS (AutoCAD development System) was developed some 20 years ago, Autodesk considers ADS "deprecated," meaning that the API is still in AutoCAD, but Autodesk recommends that developers no longer use it. In contrast, Graebert fully supports C-language programming through FDT.

Porting COM to ARES

COM (Common Object Model) is available in ARES Command Edition for Windows, and is accessed through programming languages like VSTA and C++.

LOADING APPLICATIONS INTO ARES

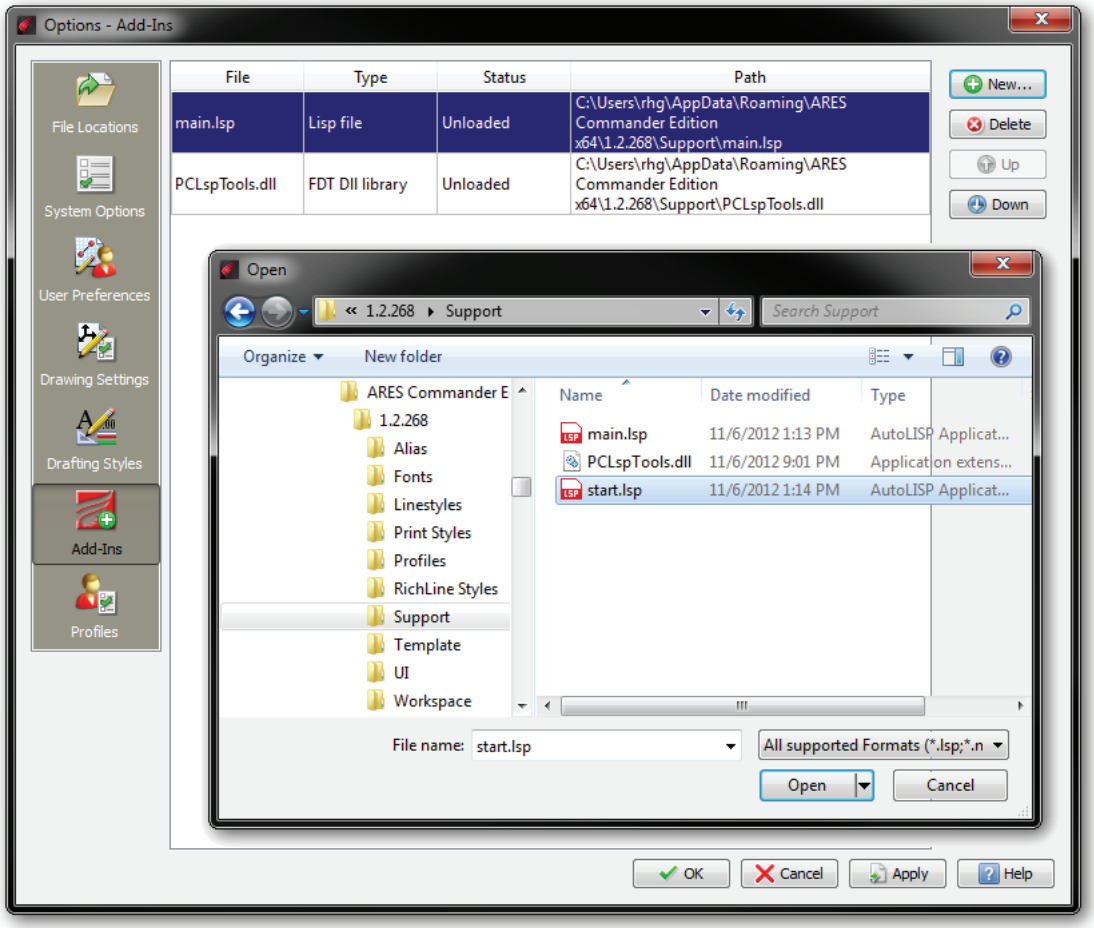
ARES and AutoCAD both use the **AppLoad** command to load applications. In the case of ARES, the command displays a dialog box for selecting a program file to open. Types supported include the following:



Choose the application file you wish to load, and then click **Open**.

CONTROLLING ADD-INS

While you cannot write programs for the basic level of ARES, it can run add-ins through the Options dialog box: choose the **Add-Ins** section, and then click **New** to load an app.



ABOUT THE ARES OEM LICENSE

As a CAD software developer, you can create add-ons and plug-ins for ARES Commander Edition. Alternatively, you can create independent CAD applications based on the ARES OEM engine.

Graebert has 15 years of experience in providing services and programs for every type of developers -- whether an ISV (independent software vendor) looking for a CAD kernel, a developer of add-ons and plug-ins for ARES, or a hardware vendor looking for software solutions.

You can either develop add-ons for ARES Commander Edition, or become an OEM and develop a solution that combines your application and the CAD features of ARES as one solution. Ask for the OEM licensing program to use ARES as a CAD engine to distribute stand-alone products for your industry based on the open architecture and wide range of API features. ARES Commander Edition is fully programmable using the application interfaces listed earlier.

BUILDING YOUR OWN STAND-ALONE APPLICATION

To become a registered developer, follow these steps:

1. Email the OEM department at oem@graebert.com.
2. Receive a developer program summary and forms.
3. Review and sign the appropriate Developer License Agreement.
4. Place the initial order.
5. Receive the secure access codes and first-year authorization.
6. Download the SDK (software developer kit).

The SDK is provided to registered software application developers free of charge. It contains documentation of the individual programming interfaces as well as several examples of programming code.

For instance, you will find code examples to interface with ARES using C/C++ or Delphi. Also, you will find descriptions and examples on object oriented access to the drawing database using DRX and of using the C# .net programming interface. In addition, the SDK contains information about the customization of the user interface and about the program's directory structure.

Appendix A

AutoCAD-ARES Command Cross-reference

This appendix cross-references the commands supported by AutoCAD and ARES. The list is sorted alphabetically by command name, with the equivalent command and alias(es) names for ARES.

> **Bold text** indicates commands that have the same name or alias in both CAD packages.
>
> ***use CmdName*** points to the closest ARES equivalent when AutoCAD lacks an exact match for a command name unqiue in ARES.
>
> **Red text** indicates commands added to ARES since the first edition of this book.

When an ARES Command Edition 2013 command differs significantly or has no equivalent in AutoCAD 2013, notes provide a brief explanation.

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
A			
About	**About**	...	
AcisIn	ImportSAT	**acisin**, satin	
AcisOut	ExportSAT	**acisout**, satout	
ActBasepoint	...	...	
use LayMCur	ActivateLayer	**laymcur**, actlay	Activates the layer of the selected entity
...	ActivateViewport	...	Activates a tiled view in model tab, or a viewport in a sheet tab
ActManager	-ActionManager	...	
ActRecord	ActionRecord	...	
ActStop	ActionStop	...	
ActUserInput	...	...	
ActUserMessage	...	...	
AdCenter / AdcClose	...	...	
AdcNavigate	...	...	
Adjust	...	...	
Align	**Align**	al	
use 3dAlign	Align3D	**3dalign**, al3	
AllPlay	...	...	
AmeConvert	...	...	
...	AngleDimension	...	Draws linear dimensions at an angle
AniPath	...	...	
AnnoReset	...	...	
AnnoUpdate	...	...	
Aperture	Gravity	**aperture**	
AppLoad	LoadApplication	**appload**, ap	
Arc	**Arc**	a	
Archive	...	...	
use DimArc	ArcLengthDimension	**dimarc**, dar	
Area	GetArea	**area**, aa, ga	
use Boundary	AreaBoundary	...	
use -Boundary	-AreaBoundary	...	
use Render	ARender	...	
Array	Pattern	**array**, ar, pat	
-Array	-Pattern	**-array**, -ar, qarray	
Arx	*use AppLoad command*	...	
Attach	References	externalreferences, er, refs, xlink, xr, xref, image, im	
use DgnAttach	AttachDGN	...	
use XAttach	AttachDrawing	**xattach**, xa	
use ImageAttach	AttachImage	**imageattach**, atimg, attachimg, iat	
AttachURL	AttachLink	**attachurl**, atlnk	
use PdfAttach	AttachPDF	...	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
AttDef	MakeBlockAttribute	**attdef**, att, mblkatt	
-AttDef	-MakeBlockAttribute	**-attdef**, -att, qattdef	
AttDisp	DisplayBlockAttributes	**attdisp**, dsatt, dispblkatt	
AttEdit	EditBlockAttribute	**attedit**, ate, attxedit, ddatte, edblkatt	
-AttEdit	-EditBlockAttribute	**-attedit**, ate, atte, -edblkatt, qattedit	
AttExt	ExtractBlockAttribute	**attext**	
-AttExt	-ExtractBlockAttribute	**-attext**	
AttIPedit	...	...	
AttRedef	...	...	
AttSync	...	...	
Audit	Check	**audit**, chk	
AutoConstrain	...	...	
AutoPublish	...	...	
use Reinit	AutoRebuild	...	

B

Base	...	...	
use DimBaseline	BaselineDimension	**dimbaseline**, basedim, bldim, dba, dimbas	
BAttMan	...	...	
BEdit	...	...	
BESettings	...	...	
Blipmode	**Blipmode**	...	
Block	MakeBlock	**block**, b, mblck, partdef, bmake	
-Block	-MakeBlock	**-block**, -b	
...	BlockAttributeOutput	attout, battout	Writes attribute values of selected blocks to text files without templates
BlockIcon	...	...	
BmpOut	ExportBMP	**bmpout**	
Boundary	AreaBoundary	**boundary**, ab, -ab, bo, bpoly	
-Boundary	-AreaBoundary	**-boundary**, -bo	
Box	**Box**	...	
use QText	BoxText	**qtext**, btext	
Break	Split	**break**, br, sp	
BRep	...	...	
Browser	OpenWebpage	**browser**, oweb	

C

Cal	OsCalc	**cal**, wcalc	
Camera	...	...	
use Ucs	Ccs	**ucs**	
use DimCenter	CenterMark	**dimcenter**, cm, dce	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
Chamfer	**Chamfer**	cha	
Change	Modify	**change,** -ch, mod, qpropedit	
use RefSet	ChangeElements	**refset**	
use Audit	Check	**audit**, c	
CheckStandards	...	...	
ChProp	ModifyProperties	**chprop**, modprops	
ChSpace	...	...	
Circle	**Circle**	c	
use Purge	Clean	**purge**, cl, pu	
use -Purge	-Clean	**-purge**, -pu	
CleanScreenOn	FullScreen	**cleanscreenon**, fscreen	
CleanScreenOff	HideFullScreen	**cleanscreenoff**, hfscreen	
Clip	ClipReference	xclip, **clip**, xc	
use CopyClip	ClipboardCopy	**copyclip**	
use DgnClip	ClipDGN	...	
use ImageClip	ClipImage	**imageclip**, iclip	
use PdfClip	ClipPDF	...	
use XClip	ClipReference	**xclip**, clip, xc	
use VpClip	ClipViewport	**vpclip**	
Close	**Close**	...	
CloseAll	**CloseAll**	...	
use RefClose	CloseComponent	**refclose**	
use RevCloud	Cloud	...	
Color	LineColor	**color**, col, colour, , lc, lcolor	
-Color	-LineColor	**-color**, -lcolor	
use TextScr	CommandHistory	**textscr**, cmdhist	
CommandLine	CommandWindow	**commandline**, cmdwin	
CommandLineHide	HideCommandWindow	**commandlinehide**, hidecmdwin	
use CommandLine	CommandWindow	**commandline**, cmdwi	
Compile	...	...	
Cone	**Cone**	...	
ConstraintBar	...	...	
ConstraintSettings	...	...	
use DimContinue	ContinueDimension	**dimcontinue**, cdim, dco, dimcont	
Convert	...	...	
ConvertCTB	...	...	
ConvertOldLights	...	...	
ConvertOldMaterials	...	...	
(use OLEConvert)	ConvertOLE	...	
ConvertPStyles	ConvertPrintStyles	**convertpstyles**	
ConvToSolid	...	...	
ConvToSurface	...	...	
Copy	**Copy**	co, cp	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
CopyBase	Copy@	**copybase**, cp@	
CopyClip	ClipboardCopy	**copyclip**	
CopyHist	CopyHistory	**copyhist**	
CopyLink	...	...	
CopyToLayer	...	...	
use UcsIcon	CSIcon	**ucsicon**	
use UcsMan	CSStyle	**ucsman**, css,	
CUI	Customize	**cui**, cust	
CuiExport / CuiImport	...	...	
CuiLoad / CuiUnload	...	...	
CustomerInvolvement-Program	ReportBug	...	
Customize	**Customize**	cui, cust	Customizes all aspects of the user interface
CutClip	Cut	**cutclip**	
CvShow / CvHide	...	...	
Cylinder	**Cylinder**	cyl	

D

DataExtraction	...	...	
DataLink	...	...	
DataLinkUpdate	...	...	
DbConnect / DbClose	...	...	
DbList	...	...	
DdEdit	EditAnnotation	textedit, **ddedit**, ed, edanno, edittext	
DdGrips	EntityGrips	**ddgrips**, egrips, gr	Displays Options dialog
DdPtype	PointFormat	**ddptype**	Displays Options dialog
DdVPoint	ViewDirection	vpoint, -vp, vdirect	
Delay	PauseScript	**delay**	
DelConstraint	...	...	
use Erase	Delete	**erase**, del, e	
use LayDel	DeleteLayer	**laydel**, dellay	
use ExternalReferences	DetachDgn	...	
use ExternalReferences	DetachDrawing	...	
use ImageAttach	DetachImage	imagedetach, dimage	Detaches images from the drawing
DetachURL	*use Hyperlink*	...	
DgnAdjust	...	...	
DgnAttach	AttachDGN	...	
DgnClip	ClipDGN	...	
...	DgnUnderlayOptions	...	Toggle esnap and frame options
DgnImport	...	...	
DgnExport	...	...	
DgnLayers	LayersDgn	...	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
DgnMapping	...	...	
use -DimStyle	-DimensionStyle	**-dimstyle**	
use DimStyle	DimensionStyle	**dimstyle**, d, dimsty, dst	Creates and modifies dimension styles
use DistantLight	DirectionalLight	**distantlight**	
use AttDisp	DisplayBlockAttributes	**attdisp**, dsatt, dispblkatt	
...	DisplayCoords	...	Toggles coordinate display in status bar
...	DisplayDialogs	...	Toggles filename input between File dialog box and command line
use FillMode	DisplayFills	...	
use ImageFrame	DisplayImageFrame	**imageframe**, iframe	
use DrawOrder	DisplayOrder	**draworder**, dr, do	
use ViewRes	DisplayQuality	**viewres**	
DistantLight	Directionallight	**distantlight**	
Dist	GetDistance	**dist**, di, gd, getdist	
Divide	MarkDivisions	**divide**, div, mdiv	
Donut	Ring	**donut**, do	
use DSettings	DraftingOptions	**dsettings**, dop, ds, se, draftingstyles	Displays Options dialog
use Options	DraftingStyles	...	Displays Options dialog
use Limits	DrawingBounds	**limits**, bounds	
use DwgProps	DrawingProperties	...	
DrawingRecovery	Recover	...	
DrawingRecoveryHide	...	...	
use Options	DrawingSettings	...	Displays Options dialog
DrawOrder	DisplayOrder	**draworder**, dr, do	
DSettings	DraftingOptions	**dsettings**, dop, ds, se, draftingstyles	Displays Options dialog
DsViewer	...	...	
DView	...	...	
DwfAdjust	...	...	
DwfAttach	ImportDWF	**dwfattach**, dwfin	Imports DWF files
DwfClip	ClipDgn	...	
DwfFormat	...	...	
DwfLayers	...	...	
DwgProps	...	...	
DxbIn	...	...	
DxfIn	ImportDXF	**dxfin**	
DxfOut	ExportDXF	**dxfout**	

DIMENSIONING

Dim	**Dim**	...	
Dim1	**Dim1**	...	
DimAligned	ParallelDimension	**dimaligned**, dal, dimali, pdim, paralleldim	
DimAngular	AngleDimension	**dimangular,** aldim, angledim, dan, dimang	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
use DimAngular	4PointAngleDimension	dima4p, dim4ap, 4padim	Angular dimension based on four pick points.
use DimAngular	3PointAngleDimension	dima3p, dim3ap, 3padim	Angular dimension based on three pick points.
DimArc	ArcLengthDimension	**dimarc**, dar,	
DimBaseline	BaselineDimension	**dimbaseline**, basedim, bldim, dba, dimbase	
DimBreak	...	...	
DimCenter	CenterMark	**dimcenter**, cm, dce	
DimConstraint	...	...	
DimContinue	ContinueDimension	**dimcontinue**, cdim, dco, dimcont,	
DimDiameter	DiameterDimension	**dimdiameter**, ddi, dimdia,	
DimDisassociate	UnrelateDimension	**dimdisassociate**, dda, undim, unrelatedim	
DimEdit	EditDimension	**dimedit**, ded, dimed, editdim	
use DimEdit	ObliqueDimension	dimobl, obliquedim, odim	Obliques extension lines of linear dimensions
DimHorizontal	HorizontalDimension	dimhor, hdim	
DimInspect	...	...	
DimJogged	JoggedDimension	**dimjogged**, djo, jog, jogdim	
DimJogLine	...	...	
DimLinear	LinearDimension	**dimlinear**, dimlin, , dli, ldim	
DimOrdinate	OrdinateDimension	**dimordinate**,dimord,dor,orddim,ordinatedim	
DimOverride	OverrideDimensionStyle	**dimoverride**, dimover, dov, overdims	
DimRadius	RadiusDimension	**dimradius**, dimrad, dra, rdim, radiusdim	
DimReassociate	RelateDimension	**dimreassociate**, dre, redim	
...	RebuildDims	...	Verifies dimension measurements
DimRegen	RebuildDimension	dimupdate, dimupd, rebuilddim	
DimSpace	...	...	
DimStyle	DimensionStyle	**dimstyle**, d, dimsty, dst	
-DimStyle	-DimensionStyle	**-dimstyle**	
DimTEdit	EditDimensionText	**dimtedit**, dimted, editdimtxt	
use DimTEdit	RotateDimensionText	dimtrot, rodimtext	Rotates dimension text
use DimTEdit	MoveDimensionText	dimtmove, movedimtxt	Moves dimension text
use DimTEdit	ResetDimensionText	dimthome, resetdimtext	Resets the location of dimension text
...	ReplaceDimensionText	dimtnew, replacedimtxt	Edits the value of dimension text
DimVertical	VerticalDimension	dimver, vdim	

E

EAttEdit	EditBlockAttributeDefinition	...	
EdgeSurf	EdgeMesh	**edgesurf**	
use TextEdit	EditAnnotation	**textedit**, ddedit, ed, edanno, edittext	
use Basepoint	EditBasePoint	...	
use AttEdit	EditBlockAttribute	**attedit**, ate, attxedit, ddatte, edblkatt	
use -AttEdit	-EditBlockAttribute	**-attedit**, ate, atte, -edblkatt, qattedit	
use DimEdit	EditDimension	**dimedit**, ded, dimed, editdim	
use DimTEdit	EditDimensionText	**dimtedit**, dimted, editdimtxt	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
use HatchEdit	EditHatch	**hatchedit**, he	
use -HatchEdit	-EditHatch	**-hatchedit**	
use -Image	EditImage	**-image**, im	
use AttIpEdit	EditIpBlockAttribute	...	
EditShot	...	...	
use Lengthen	EditLength	**lengthen**, edlen, len	
use MtEdit	EditNote	**mtedit**, edn	
use PEdit	EditPolyLine	**pedit**, edpl, edpline, pe, polyedit	
use -MlEdit	-EditRichLine	**-mledit**	
use MlEdit	EditRichLine	**mledit**, editrline, edrl	
use SolidEdit	EditSolid	**solidedit**	
use TablEdit	EditTable	**tabledit**, edtbl, tableedit	
...	EditTolerance	edittol, edtol, toledit	Edits tolerances
use PEdit	EditVertex	editvtx, vtxedit	Edits 2D polyline vertices
Elev	ZPlane	**elev**	
Ellipse	**Ellipse**	el	
use -XBind	-EmbedDrawing	**-xbind**, -embeddwg	
...	EnterPoint	entpt	Displays dialog box for entering points by a variety of means
use DdGrips	EntityGrips	**ddgrips**, egrips, gr	Displays Options dialog
use Group	EntityGroup	**group**, g, egroup	
use -Group	-EntityGroup	**-group**, -g,	
use OSnap	EntitySnap	**osnap**, es, esnap, os	
use -OSnap	-EntitySnap	**-osnap**, -es, -esnap, -os	
Erase	Delete	**erase**, del, e	
eTransmit	PackAndGo	...	
use Quit	Exit	...	
Explode	**Explode**	x	
(use TxtExp)	ExplodeText	...	Explodes TrueType text into lines and arcs; AutoCAD TxtExp is unsupported Express Tool
...	ExplodeX	...	Converts ellipses and splines into polylines
Export	**Export**	exp	
use BmpOut	ExportBMP	**bmpout**	
use WBlock	ExportDrawing	**wblock**, dwgout, w	
use -WBlock	-ExportDrawing	**-wblock**, -exportdwg, -w	
ExportDWF	Export	exp	Choose DWF format
ExportDWFx	...	...	
use DxfOut	ExportDXF	**dxfout**	
...	ExportEMF	emfout	Saves selected entities in EMF (Enhanced Meta Format) files
use EpsOut	ExportEPS	...	
use JpgOut	ExportJPG	**jpgout**	
ExportLayout	...	...	
ExportPDF	**ExportPDF**	pdfout	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
use PngOut	ExportPNG	**pngout**	
use AcisOut	ExportSAT	**acisout**, satout	
ExportSettings	...	...	
...	ExportSTL	...	Exports model in stereolithography format
...	ExportSVG	svgout	Saves the current view in SVG (scaled vector graphics) file
Extend	**Extend**	ex	
ExternalReferences	References	**externalreferences**, er, refs, xlink, xr, xref, image, im	
ExternalReferencesClose	HideReferences	hiderefs, xrefclose	
use AttExt	ExtractBlockAttribute	**attext**	
use -AttExt	-ExtractBlockAttribute	**-attext**	
Extrude	**Extrude**	ext	

F

use 3dFace	Face	**3dface**, 3f	
Field	Field	...	
use Options	FileLocations	...	Opens File Locations section of the Options dialog box
Files	FileManager	explorer	
FileOpen	SmartOpen	qopen	Opens drawings at the command prompt
Fill	FillMode	...	
use Gradient	FillArea	**gradient**	
Fillet	**Fillet**	f	
FilletEdges	**FilletEdges**	...	
Filter	SelectionFilter	**filter**, fi, sf	
Find	**Find**	...	
...	Flip	fl	Mirrors and deletes the original entity
...	FlipArrows	...	Reverses direction of dimension arrowheads
FlatShot	MakeFlatSnapshot	...	
use LayFrz	FreezeLayer	**layfrz**, frzlay	
use CleanScreenOn	FullScreen	**cleanscreenon**, fscreen	

G

GeographicLocation	...	...	
GeomConstraint	...	...	
get Area	GetArea	**area**, aa, ga	
use Dist	GetDistance	**dist**, di, gd, getdist	
use List	GetProperties	**list**, getprops, gp	
use Status	GetStatus	**status**, gs	
use Time	GetTime	**time**, gt	
use Id	GetXY	**id**, gxy	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
Gradient	FillArea	**gradient**	
GraphScr	HideCommandHistory	**graphscr**, hidecmdhist	
use Aperture	Gravity	**aperture**	
Grid	Grid	...	
Group	EntityGroup	**group**, g, egroup	
-Group	-EntityGroup	**-group**, -g	

H

Hatch	**Hatch**	bh, bhatch, h	
-Hatch	**-Hatch**	-bhatch, -h, qhatch	
HatchEdit	EditHatch	**hatchedit**, he	
-HatchEdit	-EditHatch	**-hatchedit**	
Helix	...	...	
Help	**Help**	...	
Hide	HideView	**hide**, hi, hview, qhide	
use GraphScr	HideCommandHistory	**graphscr**, hidecmdhist	
use CommandLineHide	HideCommandWindow	**commandlinehide**, hidecmdwin	
use CleanScreenOff	HideFullScreen	**cleanscreenoff**, hfscreen	
use LayOff	HideLayer	**layoff**, hidelay	
use LightListClose	HideLightlist	**lightlistclose**	
HidePalettes	...	...	
use PropertiesClose	HideProperties	**propertiesclose**, hideprops, prclose	
use ExternalReferences-Close	HideReferences	hiderefs, xrefclose	
use Hide	HideView	**hide**, hi, hview, qhide	
use DimHorizontal	HorizontalDimension	dimhor, hdim	
Hyperlink	**Hyperlink**	...	
-Hyperlink	**-Hyperlink**	...	
HyperlinkOptions	...	...	

I

Id	GetXY	**id**, gxy	
-Image	EditImage	**-image**, im	
ImageAdjust	...	...	
ImageAttach	AttachImage	**imageattach**, atimg, attachimg, iat	
ImageClip	ClipImage	**imageclip**, iclip	
ImageFrame	DisplayImageFrame	**imageframe**, iframe	
ImageQuality	**ImageQuality**	iquality	
Import	**Import**	...	
use DwfAttach	ImportDWF	**dwfattach**, dwfin	Imports DWF files
use DxfIn	ImportDXF	**dxfin**	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
use AcisIn	ImportSAT	**acisin**, satin	
use XLine	InfiniteLine	**xline**, il, iline, xl	
Imprint	...	...	
Insert	InsertBlock	**insert**, i,	
-Insert	-InsertBlock	**-insert**, -i, , qinsert	
use MInsert	InsertBlockN	**minsert**, insblock	
InsertObj	InsertObject	**insertobj**	
use Shape	InsertShape	**shape**, inshape, insshape	
Interfere	**Interfere**	inf	
Intersect	**Intersect**	in	
use IsoLay	IsolateLayer	**layiso**, isolay	
Isoplane	IsometricGrid	**isoplane**, isogrid	

J

use DimJogged	JoggedDimension	**dimjogged**, djo, jog, jogdim	
Join	Weld	**join**, j	
JpgOut	ExportJPG	**jpgout**	
JustifyText	...	...	

L

...	Language	...	Sets the language with which to communicate
LayCur	ToActiveLayer	**laycur**	
LayDel	DeleteLayer	**laydel**, dellay	
Layer / LayerClose	**Layer**	la	
-Layer	**-Layer**	-la, qlayer	
LayerP	UndoLayer	**layerp**	
LayerPMode	...	...	
use DgnLayer	LayersDgn	...	
use PdfLayer	LayersPDF	...	
LayFrz	FreezeLayer	**layfrz**, frzlay	
LayIso	IsolateLayer	**layiso**, isolay	
LayLck	LockLayer	**laylck**, llay, lcklay	
LayMch	MatchLayer	**laymch**, mlay	
LayMCur	ActivateLayer	**laymcu**r, actlay	
LayMrg	...	...	
LayOff	HideLayer	**layoff**, hidelay	
LayOn	ShowLayers	**layon**	
-Layout	Sheet	**-layout**, lo, layout, -sheet	
LayoutWizard	...	...	
LayThw	ThawLayers	**laythw**, thawlay	
LayTrans	...	...	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
LayULk	UnlockLayer	**layulk**, unla	
LayUniso	UnisolateLayer	**layuniso**	
LayVpi	...	...	
LayWalk	...	...	
Leader	**Leader**	lead	
Lengthen	EditLength	**lengthen**, edlen, len	
Light	**Light**	...	
LightList	**Lightlist**	...	
LightListClose	HideLightlist	**lightlistclose**	
Limits	DrawingBounds	**limits**, bounds	
Line	**Line**	l	
use DimLinear	LinearDimension	**dimlinear**, dimlin, , dli, ldim	
use Color	LineColor	**color**, col, colour, , lc, lcolor	
use -Color	-LineColor	**-color**, -lcolor	
use LtScale	LineScale	**ltscale**, lscale, lts	
Linetype	LineStyle	**linetype**, lstyle, lt, ltype, qlinetype	
-Linetype	-LineStyle	**-linetype**,, loadltype, -lt, -ltype	
List	GetProperties	**list**, getprops, gp	
LiveSection	...	...	
Load	LoadShape	**load**	
use AppLoad	LoadApplication	**appload**, ap	
use Menu	LoadMenu	**menu**, lmenu	
use Script	LoadScript	**script**, lscript, scr	
use Load	LoadShape	**load**	
use LayLck	LockLayer	**laylck**, llay, lcklay	
Loft	**Loft**	...	
LogFileOff	...	...	
LogFileOn	...	...	
LtScale	LineScale	**ltscale**, lscale, lts	
LWeight	LineWeight	**lweight**, lw	
-LWeight	-LineWeight	**-lweight**	

M

use Block	MakeBlock	**block**, b, mblck, partdef, bmake	
use -Block	-MakeBlock	**-block**, -b	
use AttDef	MakeBlockAttribute	**attdef**, att, mblkatt	
use -AttDef	-MakeBlockAttribute	**-attdef**, -att, qattdef	
use Divide	MarkDivisions	**divide**, div, mdiv	
use Flatshot	MakeFlatSnapshot	...	
use Measure	MarkLengths	**measure**, me, mlen	
Markup / MarkupClose	...	...	
use Wipeout	Mask	**wipeout**	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
MassProp	**MassProp**	...	
MatchCell	...	...	
use LayMch	MatchLayer	**laymch**, mlay	
MatchProp	PropertyPainter	**matchprop**, ma, paint	
MaterialAttach	...	...	
MaterialAssign	...	...	
MaterialMap	...	...	
Measure	MarkLengths	**measure**, me, mlen	
MeasureGeom	*use Area, Distance*	...	
Menu	LoadMenu	**menu**, lmenu	
Mesh	...	...	ARES displays 3D mesh objects from DWG files, but cannot create them
...	Mesh	3dmesh	Creates 3D polygon meshes
MeshCrease	...	...	
MeshUncrease	...	...	
MeshOptions	...	...	
MeshPrimitiveOptions	...	...	
MeshRefine	...	...	
MeshSmooth	...	...	
MeshSmoothLess	...	...	
MeshSmoothMore	...	...	
MeshSplit	...	...	
MInsert	InsertBlockN	**minsert**, insblock	
Mirror	**Mirror**	mi	
Mirror3D	**Mirror3D**	3dmirror, mi3d	
MLeader	...	...	ARES displays mleaders from DWG files, but cannot create them
MLeaderAlign	...	...	
MLeaderCollect	...	...	
MLeaderEdit	...	...	
MLeaderStyle	...	...	
MlEdit	EditRichLine	**mledit**, editrline, edrl	
-MlEdit	-EditRichLine	**-mledit**	
MLine	RichLine	**mline**, ml, rl	
MlStyle	RichLineStyle	**mlstyle**, rls, rlstyle, rlinestyle	
Model	**Model**	...	
use MSPace	ModelMode	**mspace**, mm, ms	
use Change	Modify	**change**, -ch, mod, qpropedit	
use ChProp	ModifyProperties	**chprop**, modprops	
Move	**Move**	m	
...	MoveDimensionText	dimtmove, movedimtxt	Moves dimension text
MRedo	RedoN	**mredo**	
MSlide	...	...	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
MSpace	ModelMode	**mspace**, mm, ms	
MtEdit	EditNote	**mtedit**, edn	
MText	Note	**mtext**, mt, n, t	
-MTtext	-Note	**-mtext**, qmtext	
Multiple	Repeat	**multiple**	
MView	Viewport	**mview**, mv	
MvSetup	...	...	

N

NavSMotion	*use 3D mouse*	...	
NavSMotionClose	...	...	
NavSWheel	...	...	
NavVCube	...	...	
NetLoad	AooLoad	...	
New	**New**	...	
use New	ReplaceNew	rnew	Creates a new drawing file, replacing the current drawing
NewSheetset	...	...	
NewShot	...	...	
use FreeSpot	Nontargetlight	**freespot**	
use MTExt	Note	**mtext**, mt, n, t	
use -MText	-Note	**-mtext**, qmtext	
...	NoteOptions	...	Specifies options for using Note and SimpleNote commands

O

...	ObliqueDimension	dimobl, obliquedim, odim	Obliques extension lines of linear dimensions
ObjectScale	...	...	
Offset	**Offset**	o	
OleConvert	ConvertOLE	...	
OleLinks	...	...	
OleOpen	OpenOLE	...	
OleReset	ResetOLE	...	
OleScale	...	...	
Oops	Undelete	**oops,** undel	
Open	**Open**	...	
OpenDwfMarkup	*use ImportDwf*	...	
OpenSheetset	...	...	
use XOpen	OpenReference	**xopen**	
use Browser	OpenWebpage	**browser**, oweb	
Options	**Options**	op, config	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
Options	SystemOptions	**options**	Opens System Options section of Options dialog box
use DimOrdinate	OrdinateDimension	**dimordinate**,dimord,dor,orddim,ordinatedim	
Ortho	**Ortho**	...	
use Cal	OsCalc	**cal**, wcalc	
OSnap	EntitySnap	**osnap**, es, esnap, os	
-OSnap	-EntitySnap	**-osnap**, -es, -esnap, -os	
use DimOverride	OverrideDimensionStyle	**dimoverride**, dimover, dov, overdims	

P

use eTransmit	PackAndGo	...	
PageSetup	PageLayout	**pagesetup**	
Pan	**Pan**	p, dpan, pandynamic, rtpan, pdy	
-Pan	**-Pan**	-p	
use Pan	PanDown	...	Pans down
use Pan	PanLeft	...	Pans left
use Pan	PanRight	...	Pans right
use Pan	PanUp	...	Pans up
Parameters	...	...	
ParametersClose	...	...	
use DimAligned	ParallelDimension	**dimaligned**, dal, dimali, pdim, paralleldim	
PartiaLoad	...	...	
-PartialOpen	...	...	
PasteAsHyperlink	...	...	
PasteBlock	PasteAsBlock	**pasteblock**	
PasteOrig	Paste@SourcePosition	...	
PasteClip	Paste	**pasteclip**	
PasteSpec	PasteSelected	...	
use Array	Pattern	**array**, ar, pat	
use -Array	-Pattern	**-array**, -ar, qarray	
use 3dArray	Pattern3D	**3darray**, 3a, pat3d	
use Delay	PauseScript	**delay**	
PcInWizard	...	...	
PdfAdjust	...	...	
PdfAttach	AttachPDF	...	
PdfClip	ClipPDF	...	
PdfLayers	LayersPDF	...	
PEdit	EditPolyLine	**pedit**, edpl, edpline, pe, polyedit	
PFace	PolyFace	...	
Plan	PlanView	**plan**, pview	
PlaneSurf	**PlaneSurf**	...	
...	PlugIns	...	Manages plugin software
PLine	PolyLine	**pline**, pl	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
Plot	Print	**plot**	
-Plot	-Print	**-plot**	
PlotStamp	PrintStamp	pstamp	
PlotStyle	PrintStyle	**plotstyle**, pstyle	
-PlotStyle	-PrintStyle	**-plotstyle**	
PlotterManager	...	...	
PngOut	ExportPNG	**pngout**	
Point	**Point**	po, pt	
use DdPtype	PointFormat	**ddptype**	Displays Options dialog
PointLight	**PointLight**	...	
Polygon	**Polygon**	pol, pgon	
use PLine	PolyLine	**pline**, pl	
use 3dPoly	PolyLine3D	**3dpoly**, 3p, pl3, pline3d	
PolySolid	...	...	
PressPull	...	...	
Preview	**Preview**	pre	
use Plot	Print	**plot**	
use -Plot	-Print	**-plot**	
use PlotStamp	PrintStamp	pstamp	
use -PlotStyle	-PrintStyle	**-plotstyle**	
use PlotStyle	PrintStyle	**plotstyle**, pstyle	
use Options	Profiles	...	Stores individual profiles
Properties	**Properties**	ch, mo, pr, props	
PropertiesClose	HideProperties	**propertiesclose**, hideprops, prclose	
use MatchProp	PropertyPainter	**matchprop**, ma, paint	
PSetupIn	...	...	
PSpace	SheetMode	**pspace**, ps, sm	
Publish	*use Plot*	...	
PublishToWeb	*use Export*	...	
Purge	Clean	**purge**, cl, pu	
-Purge	-Clean	**-purge**, -pu	
Pyramid	**Pyramid**	...	

Q

QDim	SmartDimension	...	
QLeader	SmartLeader	**qleader**, le	
QNew	SmartNew	**qnew**	
QSave	Save	**qsave**	
QSelect	SmartSelect	ss	
QText	BoxText	**qtext**, btext	
QuickCalc / QcClose	SmartCalculator	**quickcalc**, calc, smartcalc, qc	
QuickCui	*use Customize*	...	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
...	QuickPrint	...	Prints the current view to the default printer
QuickProperties	...	...	
Quit	Exit	**quit**	
QvDrawing	...	...	
QvDrawingClose	...	...	
QvLayout	...	...	
QvLayoutClose	...	...	

R

use DimRadius	RadiusDimension	**dimradius**, dimrad, dra, rdim, radiusdim	
Ray	**Ray**	...	
use Regen	Rebuild	**regen**, re	
use RegenAll	RebuildAll	**regenall**, rea	
use DimUpdate	RebuildDimension	**dimupdate**, dimupd, rebuilddim	
use UpdateField	RebuildField	...	
Recover	**Recover**	...	
RecoverAll	...	...	
Rectang	Rectangle	**rectang**, rec, rect	
Redefine	**Redefine**	...	
Redo	**Redo**	...	
use MRedo	RedoN	**mredo**	
Redraw	Refresh	**redraw**, r	
use Reinit	RefreshAliases	**reinit**	
RedrawAll	RefreshAll	**redrawall**, ra	
RefClose	CloseComponent	**refclose**	
RefEdit	EditComponent	**refedit**	
use ExternalReferences	References	**externalreferences**, er, refs, xlink, xr, xref, image, im	
RefSet	ChangeElements	**refset**	
Regen	Rebuild	**regen**, re	
RegenAll	RebuildAll	**regenall**, rea	
RegenAuto	AutoRebuild	**regenauto**	
Region	**Region**	reg	
Reinit	RefreshAliases	**reinit**	
use DimReassociate	RelateDimension	**dimreassociate**, dre, redim	
Rename	**Rename**	ren, rn	
-Rename	**-Rename**	-ren	
Render	ARender	**render**	
RenderCrop	...	...	
RenderEnvironment	...	...	
RenderExposure	...	...	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
-RenderOutputSize	...	...	
RenderPresets	...	...	
RenderWin	...	...	
use Multiple	Repeat	**multiple**	
...	ReplaceDimensionText	dimtnew, replacedimtxt	Edits the value of dimension text.
use Open	ReplaceOpen	ropen	Closes current drawing then opens another one
use Customer-InvolvementProgram	ReportBug	...	
ResetBlock	...	...	
...	ResetDimensionText	dimthome, resetdimtext	Resets the location of dimension text
OLEReset	ResetOLE	...	Resets OLE entities to original size
Resume	ResumeScript	**resume**	
RevCloud	Cloud	...	
Reverse	...	...	
Revolve	**Revolve**	rev	
RevSurf	RevolvedMesh	**revsurf**	
Ribbon / RibbonClose	...	...	
use MLine	RichLine	**mline**, ml, rl	
use MlStyle	RichLineStyle	**mlstyle**, rls, rlstyle, rlinestyle	
use Donut	Ring	**donut**, do	
use 3dOrbit	RollView	...	
Rotate	**Rotate**	ro	
Rotate3D	**Rotate3D**	ro3d	
use DimRotated	RotatedDimension	...	
...	RotateDimensionText	dimtrot, rodimtext	Rotates dimension text
RPref / RPrefClose	...	...	
RScript	ScriptN	**rscript**	
RtPan	PanDynamic	**rtpan,** pdy	
RuleSurf	RuledMesh	**rulesurf,** revmesh	

S

Save	**Save**	qsave	
use Save	SaveAll	...	Saves all open drawings
SaveAs	**SaveAs**	...	
use Ref	SaveComponent	...	
SaveImg	*use Export*	...	
Scale	**Scale**	sc	
ScaleListEdit	...	...	
ScaleText	...	...	
Script	LoadScript	**script**, lscript, scr	
use RScript	ScriptN	**rscript**	
Section	**Section**	sec	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
SectionPlane	...	...	
SectionPlaneJog	...	...	
SectionPlaneSettings	...	...	
SectionPlaneToBlock	...	...	
SecurityOptions	...	...	
Select	**Select**	...	
...	SelectAll	...	Selects all unfrozen entities
use Filter	SelectionFilter	**filter**, fi, sf	
SelectURL	*use Hyperlinks*	...	
SequencePlay	...	...	
SetByLayer	...	...	
SetIDropHandler	...	...	
SetVar	SetVariable	**setvar**, set	
use -ShadeMode	Shade	...	
-ShadeMode	ShadeView	**-shademode**, sha, shademode, sview	
Shape	InsertShape	**shape**, inshape, insshape	
ShareWithSeek / Seek	...	...	
use Layout	Sheet	-layout, lo, **layout**, -sheet	
use PSpace	SheetMode	**pspace**, ps, sm	
Sheetset / SheetsetHide	...	...	
Shell	**Shell**	...	
use LayOn	ShowLayers	**layon**	
use About	ShowLicense	...	Displays the license agreement
ShowPalettes	...	...	
SigValidate	...	...	
use Text	-SimpleNote	...	
use Text	SimpleNote	**text**, dtext, snote, dt	
use Polygon	SimplePolygon	spoly, ngon	
Sketch	**Sketch**	...	
Slice	**Slice**	sl	
use BmpOut	SmartBmp	qbmpout	Exports view, window, or everything in BMP format
use QuickCalc	SmartCalculator	**quickcalc**, calc, smartcalc, qc	
use QDim	SmartDimension	...	
use QLeader	SmartLeader	**qleader**, le	
use QNew	SmartNew	**qnew**	
use FileOpen	SmartOpen	qopen	Opens drawings at the command prompt
use QSelect	SmartSelect	ss	
Snap	**Snap**	sn	
SolDraw	...	...	
Solid	**Solid**	so	
SolidEdit	EditSolid	s**olidedit**	
SolProf	...	...	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
SolView	...	...	
SpaceTrans	...	...	
Spell	SpellCheck	**spell**	
Sphere	**Sphere**	...	
Spline	**Spline**	spl	
SplinEdit	...	...	
use Break	Split	**break**, br, sp	
SpotLight	**SpotLight**	...	
Standards	...	...	
Status	GetStatus	**status**, gs	
StlOut	ExportSTL	...	
Stretch	**Stretch**	s	
Style	TextStyle	**style**, st, txs	
-Style	-TextStyle	**-style**	
StylesManager	...	...	
Subtract	**Subtract**	su	
SunProperties	...	...	
SunPropertiesClose	...	...	
Sweep	**Sweep**	...	
use TileMode	SwitchArea	**tilemode**, tlmode, switch	
use Options	SystemOptions	**options**	Opens System Options section of Options dialog box
SysWindows	Windows	**syswindows**	

T

Table	**Table**	tb	
-Table	**-Table**	ts	
TablEdit	EditTable	**tabledit**, edtbl, tableedit	
TableExport	...	...	
TableStyle	**TableStyle**	...	
Tablet	...	...	
TabSurf	TabulatedMesh	**tabsurf**, tabmesh	
TargetPoint	TargetpointLight	**targetpoint**	
Text	SimpleNote	**text**, dtext, snote, dt	
-Text	-SimpleNote	...	
TextEdit	EditAnnotation	**textedit**, ddedit, ed, edanno, edittext	
TextScr	CommandHistory	**textscr**, cmdhist	
use -Style	-TextStyle	**-style**	
use Style	TextStyle	**style**, st, txs	
TextToFront	*use DrawOrder*	...	
use LayThw	ThawLayers	**laythw**, thawlay	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
Thicken	Thicken	...	
TileMode	SwitchArea	**tilemode**, tlmode, switch	
Time	GetTime	**time**, gt	
TifOut	...	...	
TInsert	...	...	
use LayCur	ToActiveLayer	**laycur**	
Tolerance	**Tolerance**	tol	
...	Toolbars		Displays dialog box to toggle the display of toolbars
-Toolbar	-Toolbars	**tbconfig**	
...	ToolMatrix	...	Toggles the Tool Matrix palette
ToolPalettes	...	...	
ToolPalettesClose	...	...	
Torus	**Torus**	tor	
TpNavigate	...	...	
Trace	**Trace**	...	
Transparency	...	...	
use Solid	Trapezoid	...	Creates a 2D trapezoid from a polyline
TraySettings	...	...	
TreeStat	...	...	
Trim	**Trim**	tr	

U

U	**U**	...	
use Workspace	UIProfile	...	Manages user interface profiles
Ucs	CCS	**ucs**	
UcsIcon	CSIcon	**ucsicon**	
UcsMan	CSStyle	**ucsman**, css, uc	
ULayers	*use Layers*	....	
Undefine	**Undefine**	....	
use Oops	Undelete	**oops**, undel	
use LayerP	UndoLayer	**layerp**	
Undo	UndoN	**undo**	
Union	**union**	uni	
use LayUnIso	UnisolateLayer	**layuniso**	
Units	UnitSystem	**units**, un	
-Units	-UnitSystem	**-units**, -un	
use LayULk	UnlockLayer	**layulk**, unla	
use DimDisassociate	UnrelateDimension	**dimdisassociate**, dda, undim, unrelatedim	
...	UpdateBlockAttributes	...	Updates blocks with new attribute data
UpdateField	...	...	
UpdateThumbsNow	...	...	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
use Options	UserPreferences	...	Defines drafting options, mouse options, and alias commands

V

...	VertifyDimensions	...	Updates dimension text to match entities
use DimVertical	VerticalDimension	**dimver**, vdim	
use VPoint	ViewDirection	**vpoint**, -vp, vdirect	
use MView	Viewport	**mview**, mv	
use -VPorts	-Viewport	**-vports,** qviewport	
use VpLayer	ViewportLayer	**vplayer**	
View	Views	**view**, v	
-View	-Views	**-view**, -v, qview	
ViewPlay	...	....	
ViewPlotDetails	...	....	
ViewRes	DisplayQuality	**viewres**	
use VSlide	ViewSlide	**vslide**	
VisualStyles	...	...	
VisualStylesClose	...	...	
use VPorts	ViewTiles	**vports**, viewports	
VLisp	...	...	
...	VoiceNote	vnote	Adds audio memos to drawings
VpClip	ClipViewport	**vpclip**	
VpLayer	ViewportLayer	**vplayer**	
VpMax / VpMin	...	...	
VPoint	ViewDirection	**vpoint**, -vp, vdirect	
VPorts	ViewTiles	**vports**, viewports	
-VPorts	-Viewport	**-vports**, qviewport	
VsCurrent	...	...	
VSlide	ViewSlide	**vslide**	
VsSave	...	...	
...	VSTA	...	Runs VSTA programming language macros
...	VSTAManager	...	Manages VSTA macros
VTOptions	...	...	

W

WalkFlySettings	...	...	
WBlock	ExportDrawing	**wblock**, dwgout, w	
-WBlock	-ExportDrawing	**-wblock**, -exportdwg, -w	
Wedge	**Wedge**	we	
use Join	Weld	**join**, j	
WhoHas	...	...	

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
use SysWindows	Windows	**syswindows**	
WipeOut	Mask	**wipeout**	
WmfIn	...	....	
WmfOpts	...	...	
WmfOut	*use ExportEmf*	...	
WorkSpace	UiProfiles	...	
WsSave	...	...	
WsSettings	...	...	

X

XAttach	AttachDrawing	**xattach**, xa	
XBind	*use -XBind*	...	
-XBind	-EmbedDrawing	**-xbind**, -embeddwg	
XClip	ClipReference	**xclip**, clip, xc	
XEdges	...	....	
XLine	InfiniteLine	**xline**, il, iline, xl	
XOpen	OpenReference	**xopen**	
Xplode	*use Explode*	....	
-XRef	-References	**-xref**, -xr, qxref, qxlink	

Z

Zoom	**Zoom**	**z**	
use Zoom P	ZoomBack	zb	Zooms to previous view
use Zoom D	ZoomDynamic	dzoom, zoomdyn, zd	
use Zoom x	ZoomFactor	zfa	Zooms by a factor
use Zoom E	ZoomFit	zf	Zooms to the drawing extents
use Zoom	ZoomIn	zi	Zooms in to the drawing
use Zoom	ZoomOut	zo	Zooms out
use Zoom W	ZoomWindow	zoomarea, zw	Zooms to a region specified by a rectangle
use Elev	ZPlane	elev	

#

3D	**3D**	...	
3dAlign	Align3d	**3dalign**, al3	
3dArray	Pattern3D	**3darray**, 3a, pat3d	
3dClip	...	...	
3dConfig	...	...	
3dCOrbit / 3dDistance **3dFOrbit** / 3dOrbit 3dOrbitCtr / 3dSwivel	RollView	**3dorbit**, 3do, orbit	Controls 3D viewing

AutoCAD Command	ARES Command	ARES Alias(es)	Notes
3dDwf	...	...	
3dFace	Face	**3dface**, 3f	
3dFly / 3dWalk	...	...	
3dMesh	...	...	
...	3DMouseButtons	...	Assigns commands to 3D mouse buttons
...	3DMouseOptions	...	Dialog box for 3D mouse settings
...	-3DMouseOptions	...	Command line for 3D mouse settings
3dMove	...	...	
3dPan / 3dZoom	...	...	
use DimAngular	3PointAngleDimension	dima3p, dim3ap, 3padim	Angular dimension based on three pick points
3dPoly	PolyLine3D	**3dpoly**, 3p, pl3, pline3d	
3dPrint	...	...	
3dRotate	...	...	
3dScale	...	...	
3dsIn	...	...	
use DimAngular	4PointAngleDimension	dima4p, dim4ap, 4padim	Angular dimension based on four pick points

Appendix B

AutoCAD-ARES System Variable Cross-reference

Many of AutoCAD's 800+ system variables are found in ARES. This appendix compares the names of system variables in AutoCAD and ARES, as reported by each program's SetVar command.

The variables are sorted alphabetically. Some of the system variables found in ARES are included for compatibility with AutoCAD and have no effect in ARES. Comments are provided for system variables that are different in ARES.

- The red color labels system variables that are new to ARES 2013.
- (R/O) marks read-only system variables, ones whose values are set by ARES and cannot be changed by users.

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
A		
acadlspasdoc	acadlspasdoc	
acadprefix	acadprefix	
acadver	acadver	
acisoutver	acisoutver	
...	acissaveasmode	Controls how ACIS entities are exploded for export
...	actdb	(R/O) Returns ID number of active drawing database
actpath	actpath	
actrecorderstate	actrecorderstate	
actrecpath	...	
actui	...	
adcstate	adcstate	
aeceipinprogress	...	
aflags	aflags	
angbase	angbase	
angdir	angdir	
annoallvisible	annoallvisible	ARES does not support annotative scaling
annoautoscale	...	
annotativedwg	annotativedwg	ARES does not support annotative scaling
apbox	apbox	
aperture	aperture	
...	apilanguage	Reserved for application development API settings
...	apilevel	Reserved for application development API settings
...	apipath	Reserved for application development API settings
appframeresources	...	
apstate	apstate	
area	area	
...	arlinedisp	Determines whether edges of faces and bodies are displayed by the real-time render window
assiststate	assiststate	
attdia	attdia	
attipe	...	
attmode	attmode	
attmulti	...	ARES does not create multiline attributes
attreq	attreq	
auditctl	auditctl	
aunits	aunits	
auprec	auprec	
autodwfpublish	...	ARES does not automatically publish in multiple formats
automaticpub	...	
...	autonew	Determines whether ARES starts new drawings based on a default template drawing, or asks the user to specify the template file
...	autonewname	Specifies name of new drawings; default = "noname_n," where n is incremented

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
autosnap	...	

B

backgroundplot	backgroundplot	
backz	backz	
bactionbarmode	...	
bactioncolor	bactioncolor	ARES does not support dynamic blocks
bconstatusmode	...	
bdependencyhighlight	bdependencyhighlight	ARES does not support dynamic blocks
bgripobjcolor	bgripobjcolor	ARES does not support dynamic blocks
bgripobjsize	bgripobjsize	ARES does not support dynamic blocks
...	bigfontalt	Specifies the replacement Bigfont file to substitute for Bigfont used in the current drawing when it is not available
bindtype	bindtype	ARES supports the binding of xrefs, but ignores this system variable
blipmode	blipmode	
blockeditlock	blockeditlock	ARES does not have a block editor
blockeditor	blockeditor	ARES does not have a block editor
blocktestwindow	...	
bparametercolor	bparametercolor	ARES does not support dynamic blocks
bparameterfont	bparameterfont	ARES does not support dynamic blocks
bparametersize	bparametersize	ARES does not support dynamic blocks
bptexthorizontal	...	
btmarkdisplay	btmarkdisplay	ARES does not support dynamic blocks
bvmode	bvmode	ARES does not support dynamic blocks
C		
calcinput	calcinput	ARES does not support results exported from the Calculator
cameradisplay	cameradisplay	
cameraheight	cameraheight	
cannoscale	cannoscale	ARES does not support annotative scaling
cannoscalevalue	...	
capturethumbnails	...	
cbartransparency	...	
cconstraintform	...	
cdate	cdate	
...	cdefaultcolor	Sets color for the display of default values at the command line
cdyndisplaymode	...	
cecolor	cecolor	
celtscale	celtscale	
celtype	celtype	
celweight	celweight	
centermt	centermt	
chamfera	chamfera	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
chamferb	chamferb	
chamferc	chamferc	
chamferd	chamferd	
chammode	chammode	
cipmode	...	
circlerad	circlerad	
clayer	clayer	
cleanscreenstate	cleanscreenstate	
clistate	clistate	Reports the state of the command line interface
cmaterial	cmaterial	
cmdactive	cmdactive	
cmddia	cmddia	
cmdecho	cmdecho	
cmdinputhistorymax	cmdinputhistorymax	
...	cmdlntext	Specifies the wording of the command prompt; default is ':'
cmdnames	cmdnames	
cmleaderstyle	cmleaderstyle	
cmljust	cmljust	
cmlscale	cmlscale	
cmlstyle	cmlstyle	
compass	compass	
constraintbardisplay	...	
constraintbarmode	...	
constraintnameformat	constraintnameformat	
constraintrelax	...	
constraintsolvemode	...	
coords	coords	
copymode	...	
cplotstyle	cplotstyle	
cprofile	cprofile	
crossingareacolor	crossingareacolor	
cshadow	cshadow	ARES does not support shadow casting
ctab	ctab	
ctablestyle	ctablestyle	
...	cursormode	Specifies the look of the crosshair cursor
cursorsize	cursorsize	
cvport	cvport	

D

dashboardstate	dashboardstate	ARES does not have a Dashboard palette
datalinknotify	...	ARES does not support database links
date	date	
dbcstate	dbcstate	ARES does not support database links

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
dblclkedit	dblclkedit	
dbmod	dbmod	
dctcust	dctcust	
dctmain	dctmain	
...	debugmode	Controls graphic card optimization; used for support reasons
defaultgizmo	...	
defaultindex	...	
defaultlighting	defaultlighting	
defaultlightingtype	defaultlightingtype	
deflplstyle	deflplstyle	
defplstyle	defplstyle	
...	defplstyletable	Specifies the default print style for new entities and layers in drawing files that use the R14 (or earlier) DWG or DXF format
delobj	delobj	
demandload	demandload	
...	devoptions	
dgnframe	dgnframe	
dgnimportmax	dgnimportmax	
dgnmappingpath	...	
dgnosnap	dgnosnap	
diastat	diastat	
dispsilh	dispsilh	
distance	distance	
divmeshboxheight	...	ARES does not support parameter variables for mesh objects
divmeshboxlength	...	
divmeshboxwidth	...	
divmeshconeaxis	...	
divmeshconebase	...	
divmeshconeheight	...	
divmeshcylaxis	...	
divmeshcylbase	...	
divmeshcylheight	...	
divmeshpyrbase	...	
divmeshpyrheight	...	
divmeshpyrlength	...	
divmeshsphereaxis	...	
divmeshsphereheight	...	
divmeshtoruspath	...	
divmeshtorussection	...	
divmeshwedgebase	...	
divmeshwedgeheight	...	
divmeshwedgelength	...	
divmeshwedgeslope	...	
divmeshwedgewidth	...	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
donutid	donutid	
donutod	donutod	
dragmode	dragmode	
dragp1	dragp1	
dragp2	dragp2	
dragvs	dragvs	
draworderctl	draworderctl	
drstate	...	
dtexted	dtexted	
...	dtoolarea	Not yet implemented
...	dtoolareastyle	Not yet implemented
dwfframe	dwfframe	
dwfosnap	dwfosnap	
dwgcheck	...	
dwgcodepage	dwgcodepage	
dwgname	dwgname	
dwgprefix	dwgprefix	
dwgtitled	dwgtitled	
dxeval	dxeval	
...	dxfprec	Specifies the default precision when saving drawings as DXF files
...	dynasnap	Specifies visibility of entity snap cues and tooltips
...	dynasnappolarmode	Toggles polar snap mode
...	dynasnapsize	Specifies the size of entity snap icons displayed when moving the cursor over geometric features of objects
dynconstraintdisplay	...	
dynconstraintmode	dynconstraintmode	ARES does not support dimensional constraints
dyndigrip	dyndigrip	
dyndivis	dyndivis	
dynmode	dynmode	
dynpicoords	dynpicoords	
dynpiformat	dynpiformat	
dynpivis	dynpivis	
dynprompt	dynprompt	
dyntooltips	dyntooltips	

DIMENSIONS

dimadec	dimadec	
dimalt	dimalt	
dimaltd	dimaltd	
dimaltf	dimaltf	
dimaltrnd	dimaltrnd	
dimalttd	dimalttd	
dimalttz	dimalttz	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
dimaltu	dimaltu	
dimaltz	dimaltz	
dimanno	...	ARES does not support annotative scaling
dimapost	dimapost	
dimarcsym	dimarcsym	
dimaso	dimaso	
dimassoc	dimassoc	
dimasz	dimasz	
dimatfit	dimatfit	
dimaunit	dimaunit	
dimazin	dimazin	
dimblk	dimblk	
dimblk1	dimblk1	
dimblk2	dimblk2	
dimcen	dimcen	
dimclrd	dimclrd	
dimclre	dimclre	
dimclrt	dimclrt	
dimconstrainticon	dimconstrainticon	ARES does not support constraints
dimdec	dimdec	
dimdle	dimdle	
dimdli	dimdli	
dimdsep	dimdsep	
dimexe	dimexe	
dimexo	dimexo	
dimfit	dimfit	
dimfrac	dimfrac	
dimfxl	dimfxl	
dimfxlon	dimfxlon	
dimgap	dimgap	
dimjogang	dimjogang	
dimjust	dimjust	
dimldrblk	dimldrblk	
dimlfac	dimlfac	
dimlim	dimlim	
dimltex1	dimltex1	
dimltex2	dimltex2	
dimltype	dimltype	
dimlunit	dimlunit	
dimlwd	dimlwd	
dimlwe	dimlwe	
dimpost	dimpost	
dimrnd	dimrnd	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
dimsah	dimsah	
dimscale	dimscale	
dimsd1	dimsd1	
dimsd2	dimsd2	
dimse1	dimse1	
dimse2	dimse2	
dimsho	dimsho	
dimsoxd	dimsoxd	
dimstyle	dimstyle	
dimtad	dimtad	
dimtdec	dimtdec	
dimtfac	dimtfac	
dimtfill	dimtfill	
dimtfillclr	dimtfillclr	
dimtih	dimtih	
dimtix	dimtix	
dimtm	dimtm	
dimtmove	dimtmove	
dimtofl	dimtofl	
dimtoh	dimtoh	
dimtol	dimtol	
dimtolj	dimtolj	
dimtp	dimtp	
dimtsz	dimtsz	
dimtvp	dimtvp	
dimtxsty	dimtxsty	
dimtxt	dimtxt	
dimtxtdirection	dimtxtdirection	
dimtzin	dimtzin	
dimunit	dimunit	
dimupt	dimupt	
dimzin	dimzin	

E

edgemode	edgemode	
elevation	elevation	
enterprisemenu	enterprisemenu	ARES does not use CUI files
errno	errno	
erstate	erstate	
expert	expert	
explmode	explmode	
exporteplotformat	...	
exportmodelspace	exportmodelspace	ARES does not support these export functions

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
exportpagesetup	exportpagesetup	
exportpaperspace	exportpaperspace	
extmax	extmax	
extmin	extmin	
extnames	extnames	

F

faceterdevnormal	...	ARES does not create 3D mesh models
faceterdevsurface	...	ARES does not support parameter variables for mesh objects
facetergridratio	...	
facetermaxedgelength	...	
facetermaxgrid	...	
facetermeshtype	...	
faceterminugrid	...	
faceterminvgrid	...	
faceterprimitivemode	...	
facetersmoothlev	...	
facetratio	facetratio	
facetres	facetres	
...	fcmultisel	LISP ssget flag specifies whether one or multiple entities are added to selection sets chosen from the graphics area
...	fctemplate	Specifies the default template drawing used by New command
...	fcversion	Version number based on legacy Graebert CAD product numbering
fielddisplay	fielddisplay	
fieldeval	fieldeval	
filedia	filedia	
filletrad	filletrad	
fillmode	fillmode	
fontalt	fontalt	
fontmap	fontmap	
frame	frame	
frontz	frontz	
fullopen	fullopen	ARES does not open drawings partially
fullplotpath	fullplotpath	

G

geolatlongformat	geolatlongformat	ARES does not support geographic coordinates
geomarkervisibility	geomarkervisibility	ARES does not support geographic coordinates
gfang	gfang	
gfclr1	gfclr1	
gfclr2	gfclr2	
gfclrlum	gfclrlum	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
gfclrstate	gfclrstate	
gfname	gfname	
gfshift	gfshift	
griddisplay	griddisplay	ARES does not support lined grids
gridmajor	gridmajor	ARES does not support lined grids
gridmode	gridmode	ARES does not support lined grids
gridunit	gridunit	
gripblock	gripblock	
gripcolor	gripcolor	
gripdyncolor	gripdyncolor	
griphot	griphot	
griphover	griphover	
gripobjlimit	gripobjlimit	
grips	grips	
gripsize	gripsize	
gripsubobjmode	...	
griptips	griptips	
gtauto	gtauto	ARES does not have grip tools
gtdefault	gtdefault	ARES does not have grip tools
gtlocation	gtlocation	ARES does not have grip tools
H		
halogap	halogap	
handles	handles	
hideprecision	hideprecision	
hidetext	hidetext	
hidexrefscales	...	
highlight	highlight	
hpang	hpang	
hpassoc	hpassoc	
hpbound	hpbound	
hpdouble	hpdouble	
hpdraworder	hpdraworder	
hpgaptol	hpgaptol	
hpinherit	hpinherit	
hpmaxlines	...	
hpname	hpname	
hpobjwarning	hpobjwarning	
hporigin	hporigin	
hporiginmode	hporiginmode	
hpscale	hpscale	
hpseparate	hpseparate	
hpspace	hpspace	
hyperlinkbase	hyperlinkbase	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
I		
imageframe	imageframe	
imagehlt	imagehlt	
impliedface	impliedface	
indexctl	indexctl	
inetlocation	inetlocation	
...	inifilename	Stores the name of an application initialization file used for development support
...	initgetflag	LISP initget flag maintains compatibility with legacy Graebert CAD products
inputhistorymode	inputhistorymode	
insbase	insbase	
insname	insname	
insunits	insunits	
insunitsdefsource	insunitsdefsource	
insunitsdeftarget	insunitsdeftarget	
intelligentupdate	intelligentupdate	
interferecolor	interferecolor	ARES does not support interference displays
interfereobjvs	interfereobjvs	
interferevpvs	interferevpvs	
intersectioncolor	intersectioncolor	ARES does not support intersection displays
intersectiondisplay	intersectiondisplay	
isavebak	isavebak	
isavepercent	isavepercent	
isolines	isolines	
L		
largeobjectsupport	...	
...	language	Specifies the language used by ARES' user interface (0 = operating system's language, 1 = German, 2 = English)
lastangle	lastangle	
...	lastapploadfolder	(R/O) Reports the folder path from which the last application was loaded
...	lastattachfolder	(R/O) Reports the folder path from which the last externally referenced drawing file was attached
...	lastinsertfolder	(R/O) Reports the folder path from which the last block was inserted
...	lastlispfolder	(R/O) Reports the folder path from which the last LISP routine was loaded
...	lastopenfolder	(R/O) Reports the folder path from which the last DWG file was opened
lastpoint	lastpoint	
lastprompt	lastprompt	
...	lastscriptfolder	(R/O) Reports the folder path from which the last SCR script file was loaded
...	lastshapefolder	(R/O) Reports the path to the folder from which the last SHX shape file was loaded
latitude	latitude	ARES does not support geographic data
layerdlgmode	...	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
layereval	layereval	
layerevalctl	...	
layerfilteralert	layerfilteralert	
layernotify	layernotify	
laylockfadectl	...	
layoutregenctl	layoutregenctl	
legacyctrlpick	...	
lenslength	lenslength	
lightglyphdisplay	lightglyphdisplay	
lightingunits	lightingunits	
lightliststate	lightliststate	
lightsinblocks	lightsinblocks	
limcheck	limcheck	
limmax	limmax	
limmin	limmin	
linearbrightness	...	
linearcontrast	...	
lispinit	lispinit	
locale	locale	
localrootprefix	localrootprefix	
lockui	lockui	
loftang1	loftang1	
loftang2	loftang2	
loftmag1	loftmag1	
loftmag2	loftmag2	
loftnormals	loftnormals	
loftparam	loftparam	
logexpbrightness	...	ARES does not support photometric lighting
logexpcontrast	...	
logexpdaylight	...	
logexpmidtones	...	
logexpphysicalscale	...	
logfilemode	logfilemode	
logfilename	logfilename	
logfilepath	logfilepath	
loginname	loginname	
longitude	longitude	
...	lspaload	Names the LISP file to load when opening FLX files (legacy PowerCAD and FelixCAD prodcuts)
ltscale	ltscale	
lunits	lunits	
luprec	luprec	
lwdefault	lwdefault	
lwdisplay	lwdisplay	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
...	lwdispscale	Specifies the factor by which lineweights are scaled on screen
lwunits	lwunits	

M

matstate	matstate	ARES does not have a materials browser
maxactvp	maxactvp	
...	maxhatchdensity	Specifies maximum density of hatching
maxsort	maxsort	
mbuttonpan	mbuttonpan	
measureinit	measureinit	
measurement	measurement	
...	memorysize	Specifies the memory size of the application; not measured in bytes
menubar	...	
menuctl	menuctl	
menuecho	menuecho	
menuname	menuname	
meshtype	meshtype	ARES does not support 3D mesh objects
mirrtext	mirrtext	
mleaderscale	...	
modemacro	modemacro	
msltscale	msltscale	
msmstate	msmstate	ARES does not have a Markup Set Manager palette
msolescale	msolescale	
mtextcolumn	...	
...	mstoponerr	Toggles whether macros halt on error
mtexted	mtexted	
mtextfixed	mtextfixed	
mtexttoolbar	...	
mtjigstring	mtjigstring	
mydocumentsprefix	mydocumentsprefix	

N

navswheelmode	...	ARES does not support the navigation steering wheel interface
navswheelopacitybig	...	
navswheelopacitymini	...	
navswheelsizebig	...	
navswheelsizemini	...	
navvcubedisplay	...	ARES does not support the navigation viewing cube interface
navvcubelocation	...	
navvcubeopacity	...	
navvcubeorient	...	
navvcubesize	...	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
nomutt	nomutt	
northdirection	northdirection	ARES does not support geographic data
O		
obscuredcolor	obscuredcolor	
obscuredltype	obscuredltype	
offsetdist	offsetdist	
offsetgaptype	offsetgaptype	
oleframe	oleframe	
olehide	olehide	
olequality	olequality	
olestartup	olestartup	
...	openfilterindex	Presets the default file format for the Open dialog box
...	openformatversion	Presets the default drawing file format for the Open command by setting the index number for the Files of Type droplist of the Open dialog box
openpartial	openpartial	
opmstate	opmstate	
orthomode	orthomode	
osmode	osmode	
osnapcoord	osnapcoord	
osnaphatch	osnaphatch	
osnapnodelegacy	osnapnodelegacy	
osnapoverride	osnapoverride	
osnapz	osnapz	
osoptions	osoptions	

P

...	pagesetupmanager	Determines whether the Page Layout dialog box is displayed with the creation of new sheets
paletteopaque	paletteopaque	ARES does not support transparent palettes
...	panscale	Specifies scale factor when panning left, right, up, and down
paperupdate	paperupdate	
parametercopymode	...	
...	parameterstatus	Not yet implemented
pdfframe	pdfframe	
pdfosnap	pdfosnap	
pdmode	pdmode	
pdsize	pdsize	
peditaccept	peditaccept	
pellipse	pellipse	
perimeter	perimeter	
perspective	perspective	
perspectiveclip	...	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
pfacevmax	pfacevmax	
pickadd	pickadd	
pickauto	pickauto	
pickbox	pickbox	
pickdrag	pickdrag	
pickfirst	pickfirst	
pickstyle	pickstyle	
platform	platform	
...	plinecache	Controls creation of the OdDb2dPolyline vertex cache when database file is opened
plineconvertmode	...	
plinegen	plinegen	
plinetype	plinetype	
plinewid	plinewid	
plotoffset	plotoffset	
plotrotmode	plotrotmode	
...	plotter	Specifies plotter name; no longer used
plquiet	plquiet	
polaraddang	polaraddang	
polarang	polarang	
polardist	polardist	
polarmode	polarmode	
polysides	polysides	
popups	popups	
...	prevcmd	(R/O) Reports the name of the command currently executing (meant for use by application developers)
...	preview_height	Specifies the height of preview images
...	preview_width	Specifies the width of preview images
previeweffect	previeweffect	
previewfilter	previewfilter	
previewtype	previewtype	
product	product	
program	program	
projectname	projectname	
projmode	projmode	
proxygraphics	proxygraphics	
proxynotice	proxynotice	
proxyshow	proxyshow	
proxywebsearch	proxywebsearch	
psltscale	psltscale	
psolheight	psolheight	
psolwidth	psolwidth	
psprolog	psprolog	
psquality	psquality	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
pstylemode	pstylemode	
pstylepolicy	pstylepolicy	
psvpscale	psvpscale	
publishallsheets	publishallsheets	ARES does not publish drawings and sheets
publishcollate	...	
publishhatch	publishhatch	ARES does not publish drawings and sheets
pucsbase	pucsbase	

Q

qcstate	qcstate	ARES does not have the Quick Calc palette
qplocation	...	
qpmode	...	
qtextmode	qtextmode	
qvdrawingpin	...	
qvlayoutpin	...	

R

...	r12saveaccuracy	Specifies number of segments between spline control segments, or on 90° elliptical arcs, when saving ellipses and splines to R12 DWG or DXF
...	r12savedeviation	Specifies deviation when saving ellipses and splines to R12 DWG or DXF
rasterdpi	rasterdpi	
rasterpercent	...	
rasterpreview	rasterpreview	
rasterthreshold	rasterthreshold	
...	rclkcontextmenutime	Not yet implemented
...	realworldscale	Controls the rendering of materials with units set to real-world scale
recoverymode	recoverymode	
refeditname	refeditname	
regenmode	regenmode	
re-init	re-init	
rememberfolders	rememberfolders	
...	renderengine	Specifies the engine to use for renderings
...	renderprefsstate	(R/O) Reports on the status of the Rendering Preferences
renderquality	...	
renderuserlights	...	
reporterror	reporterror	
ribboncontextselect	...	ARES does not support the ribbon interface
ribboncontextsellim	...	
ribbondockedheight	...	
ribbonselectmode	...	
ribbonstate	...	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
roamablerootprefix	roamablerootprefix	
rollovertips	...	
rtdisplay	rtdisplay	

S

...	saveddwgchecksum	Specifies whether drawing files created by Teigha API are recognized as trusted drawings; not implemented
savefidelity	savefidelity	
savefile	savefile	
savefilepath	savefilepath	
...	savefilterindex	Presets the default drawing file format for the SaveAs command by setting its index number for the Files of Type droplist in the SaveFile dialog box
savename	savename	
...	saveroundtrip	Determines whether entities unknown to DWG R14 are stored in R14 DWG drawing files
savetime	savetime	
screenboxes	screenboxes	ARES does not support the side screen menu
screenmode	screenmode	
screensize	screensize	
sdi	sdi	
(pickbox)	selectbox	Specifies the size of the square pickbox cursor when selecting entities; same as the PickBox variable
selectionannodisplay	...	
selectionarea	selectionarea	
selectionareaopacity	selectionareaopacity	
selectionpreview	selectionpreview	
...	sernumber	(R/O) Reports the serial number of the user's ARES licence number
setbylayermode	...	
shadedge	shadedge	
shadedif	shadedif	
shadowplanelocation	shadowplanelocation	ARES does not support shadow planes
...	shapealt	Specifies the SHX shape file to substitute for references to unavailable shapes found in the current drawing
shortcutmenu	shortcutmenu	
showhist	showhist	
...	showhyperlinkcursor	Toggles the display of the hyperlink cursor and tooltip, which appear when the cursor moves over entities with hyperlinks
showlayerusage	showlayerusage	
showmotionpin	...	
shpname	shpname	
sigwarn	sigwarn	
sketchinc	sketchinc	
skpoly	skpoly	
skystatus	skystatus	ARES does not display skies

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
smoothmeshconvert	...	ARES does not support smoothed meshes
smoothmeshgrid	...	
smoothmeshmaxface	...	
smoothmeshmaxlev	...	
snapang	snapang	
snapbase	snapbase	
snapisopair	snapisopair	
snapmode	snapmode	
snapstyl	snapstyl	
snaptype	snaptype	
snapunit	snapunit	
solidcheck	solidcheck	
solidhist	solidhist	
sortents	sortents	
spaceswitch	spaceswitch	
splframe	splframe	
splinesegs	splinesegs	
splinetype	splinetype	
ssfound	ssfound	ARES does not support sheet sets
sslocate	sslocate	
ssmautoopen	ssmautoopen	
ssmpolltime	ssmpolltime	
ssmsheetstatus	ssmsheetstatus	
ssmstate	ssmstate	
standardsviolation	standardsviolation	ARES does not support CAD standards
startup	startup	ARES does not have a Startup dialog box
statusbar	...	
stepsize	stepsize	ARES does not support animations
stepspersec	stepspersec	
subobjselectionmode	...	
...	sunpropertiesstate	ARES does not support sun lights
sunstatus	sunstatus	
surftab1	surftab1	
surftab2	surftab2	
surftype	surftype	
surfu	surfu	
surfv	surfv	
syscodepage	syscodepage	

T

tableindicator	tableindicator	
tabletoolbar	...	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
tabmode	tabmode	
target	target	
tbcustomize	tbcustomize	
tdcreate	tdcreate	
tdindwg	tdindwg	
tducreate	tducreate	
tdupdate	tdupdate	
tdusrtimer	tdusrtimer	
tduupdate	tduupdate	
tempoverrides	tempoverrides	
tempprefix	tempprefix	
texteditor	...	
texteval	texteval	
textfill	textfill	ARES does not support text plotting parameters
textqlty	textqlty	
textsize	textsize	
textstyle	textstyle	
thickness	thickness	
thumbsize	thumbsize	
tilemode	tilemode	
...	tilemodelightswitch	Controls the synchronization of lighting in all model space viewports
timezone	timezone	ARES does not support times zones for sun lights
tooltipmerge	tooltipmerge	
tooltips	tooltips	
...	touchscreenmode	Determines the stylus behavior when using a touchscreen with ARES-based surveying applications.
tpstate	tpstate	ARES does not have a Tools palette
tracewid	tracewid	
trackpath	trackpath	
trayicons	trayicons	ARES does not have a tray
traynotify	traynotify	
traytimeout	traytimeout	
treedepth	treedepth	ARES does not use tree-style object optimization
treemax	treemax	
trimmode	trimmode	
tspacefac	tspacefac	
tspacetype	tspacetype	
tstackalign	tstackalign	
tstacksize	tstacksize	

U

ucsaxisang	ucsaxisang	The ARES name for "user coordinates" is *custom coordinates*
ucsbase	ucsbase	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
ucsdetect	ucsdetect	
ucsfollow	ucsfollow	
ucsicon	ucsicon	
ucsname	ucsname	
ucsorg	ucsorg	
ucsortho	ucsortho	
ucsview	ucsview	
ucsvp	ucsvp	
ucsxdir	ucsxdir	
ucsydir	ucsydir	
undoctl	undoctl	
undomarks	undomarks	
...	undozoompangrouping	Groups zoom and pan operations as a single operation
unitmode	unitmode	
uosnap	uosnap	
updatethumbnail	updatethumbnail	ARES does not support sheet sets
useri1-5, userr1-5, users 1-5	useri1-5, userr1-5, users 1-5	

V

viewctr	viewctr	
viewdir	viewdir	
viewmode	viewmode	
viewsize	viewsize	
viewtwist	viewtwist	
visretain	visretain	
vplayeroverrides	...	
vplayeroverridesmode	...	
vpmaximizedstate	vpmaximizedstate	ARES will support maximized viewports in a future release
vprotateassoc	...	
vsbackgrounds	vsbackgrounds	ARES does not support visual styles
vsedgecolor	vsedgecolor	
vsedgejitter	vsedgejitter	
vsedgeoverhang	vsedgeoverhang	
vsedges	vsedges	
vsedgesmooth	vsedgesmooth	
vsfacecolormode	vsfacecolormode	
vsfacehighlight	vsfacehighlight	
vsfaceopacity	vsfaceopacity	
vsfacestyle	vsfacestyle	
vshalogap	vshalogap	
vshideprecision	vshideprecision	
vsintersectioncolor	vsintersectioncolor	
vsintersectionedges	vsintersectionedges	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
vsintersectionltype	vsintersectionltype	
vsisoontop	vsisoontop	
vslightingquality	vslightingquality	
vsmaterialmode	vsmaterialmode	
vsmax	vsmax	ARES will support maximized viewports in a future release
vsmin	vsmin	
vsmonocolor	vsmonocolor	ARES does not support visual styles
vsobscuredcolor	vsobscuredcolor	
vsobscurededges	vsobscurededges	
vsobscuredltype	vsobscuredltype	
vsshadows	vsshadows	
vssilhedges	vssilhedges	
vssilhwidth	vssilhwidth	
vsstate	vsstate	
...	vstastate	Defines the state of VSTA integration; 0 = VSTA successfully loaded
...	vstavisible	Toggles the visibility of the VSTA toolbar
vtduration	vtduration	ARES does not support variable speed zooms
vtenable	vtenable	
vtfps	vtfps	

W

whiparc	whiparc	ARES does not use the WHIP display driver
whipthread	whipthread	
windowareacolor	windowareacolor	ARES does not fill windowed selection areas
wmfbkgnd	wmfbkgnd	
wmfforegnd	wmfforegnd	
worlducs	worlducs	
worldview	worldview	
writestat	writestat	
wscurrent	...	

X

xclipframe	xclipframe	
xdwgfadectl	...	
xedit	xedit	
xfadectl	xfadectl	ARES does not fade xrefs
xloadctl	xloadctl	
xloadpath	xloadpath	
xrefctl	xrefctl	
xrefnotify	xrefnotify	
xreftype	xreftype	

AutoCAD System Variable	Equivalent ARES Sysvar	Comment
Z		
...	zinscale	Specifies zoom factor for the ZoomIn command
zoomfactor	zoomfactor	
zoomwheel	zoomwheel	
...	zoutscale	Specifies zoom factor for the ZoomOut command
3		
3dconversionmode	...	
3ddwfprec	3ddwfprec	
...	3dmoptions	Sets options for the 3dconnexion 3D mouse.
...	3dmsensitivity	Sets the sensitivity for the 3dconnexion 3D mouse.
...	3dmvelocity	Sets the speed of the 3dconnexion 3D mouse.
3dselectionmode	...	

Appendix C

AutoCAD-ARES Dictionary

CAD systems have a language of their own. Often the jargon is shared among CAD packages, in words such as "mesh" and "render," which have different meanings from everyday usage.

Sometimes, CAD packages employ terms unique to each one. For instance, AutoCAD uses the term "multiline" which ARES calls "rich line." Occasionally, the differences are subtle; what AutoCAD calls the "color" property, ARES calls "line color."

This appendix lists the jargon that differs between the two systems, presenting the lists twice: first sorted in order of ARES' names, and then in order of AutoCAD's names.

ARES-AutoCAD Dictionary

ARES	AutoCAD
: *(prompt)*	Enter a command: *(prompt)*

A

Active	Current

B

Back *(zoom)*	Previous *(zoom)*
Bounds *(zoom)*	Limits *(zoom)*
Box text	QText *(quick text)*

C

CS Icon	UCS icon
CCS *(custom coordinate system)*	UCS *(user coordinate system)*
Check	Audit
Clean	Purge
Command history	Text screen
Command window	Command line
Component	Block

D

Display quality	ViewRes *(viewing resolution)*
Drawing bounds	Limits

E

Embed	Bind
Entity	Object
ESnap *(entity snap)*	OSnap *(object snap)*
ETrack *(entity tracking)*	OTrack *(object tracking)*

F

Fill Area	Gradient
Filled circle	Donut
Fit *(zoom)*	Extents *(zoom)*
Full screen	Clean screen

G

GetXY	Id
Gravity	Aperture

ARES	AutoCAD
I	
Infinite Line *(iline)*	XLine *(infinite line)*
L	
Line color	Color
Line style	Linetype
LISP	AutoLISP
M	
Mark Divisions	Divide
Mark Lengths	Measure
Mask	Wipeout
Multiple	Repeat
N	
Note	MText *(multi-line text)*
P	
Parallel *(dimension)*	Aligned *(dimension)*
Pattern	Array
Print style	Plot style
Print stamp	Plot stamp
R	
Rebuild	Regen *(regeneration)*
Reference	XRef *(external reference)*
Refresh	Redraw
Ring	Donut
RichLine *(rline)*	Multiline *(mline)*
Roll View	Orbiting
S	
ShadeMode	Visual style
Sheet	Layout
SheetMode	TileMode
Simple note	Text *(single-line)*
SmartCalculator	QuickCalc
Split	Break

ARES	AutoCAD
T	
Text Style	Style
TX or DRX	ARX
U	
Unit System	Units
W	
Weld	Join
Z	
Z Plane	Elevation

AutoCAD-ARES Dictionary

AutoCAD	ARES
A	
Aligned *(dimension)*	Parallel *(dimension)*
Aperture	Gravity
Array	Pattern
ARX	DRX or TX
Audit	Check
AutoLISP	LISP
B	
Bind	Embed
Block	Component
Break	Split
C	
Clean screen	Full screen
Color	Line color
Command line	Command window
Enter a command: *(prompt)*	: *(prompt)*
Current	Active
D	
Divide	Mark divisions
Donut	Filled circle
Donut	Ring
E	
Elevation	Z plane
Extents *(zoom)*	Fit *(zoom)*
G	
Gradient	Fill area
I	
Id	GetXY

AutoCAD	ARES
J	
Join	Weld
L	
Layout	Sheet
Limits *(zoom)*	Bounds *(zoom)*
Limits	Drawing bounds
Linetype	Line style
M	
Measure	Mark lengths
MText *(multiline text)*	Note
Multiline *(mline)*	RichLine *(rline)*
O	
Object	Entity
Orbiting	Roll View
OSnap *(object snap)*	ESnap *(entity snap)*
OTrack *(object tracking)*	ETrack *(entity tracking)*
P	
Plot Style	Print style
Plot Stamp	Print stamp
Previous *(zoom)*	Back *(zoom)*
Purge	Clean
Q	
QText *(quick text)*	Box text
QuickCalc	SmartCalculator
R	
Redraw	Refresh
Regen	Rebuild
Repeat	Multiple
S	
Style	Text Style

AutoCAD	ARES
T	
Text *(single-line)*	Simple note
Text screen	Command history
TileMode	SheetMode
U	
UCS icon	CS icon
UCS *(user coordinate system)*	CCS *(custom coordinate system)*
Units	Unit system
V	
ViewRes	Display quality
Visual style	ShadeMode
W	
Wipeout	Mask
X	
XLine *(infinite line)*	Infinite line *(iline)*
XRef *(external reference)*	Reference

Appendix D

AutoCAD-ARES Keystroke and Button Cross-reference

In this appendix, you will find a comparison of the default shortcut keystrokes and mouse buttons defined by AutoCAD and ARES. In many cases, the keystrokes and buttons perform exactly the same thing.

Both CAD programs can define new shortcuts and buttons, and modify existing ones. The primary difference is that ARES does not yet support tablets.

A separate listing is provided for the Mac OS X versions of both software packages.

Keystroke	Meaning
Alt	Alternative key on Windows and Linux
Ctrl	Control key on Windows and Linux
Cmd	Command key on Mac OS X
F	Function key

Keyboard Shortcuts for Linux and Windows

The following tables list keyboard shortcuts for the Windows versions of AutoCAD and ARES, and the Linux version of ARES.

To customize keyboard shortcuts in ARES, enter the **Customize** command, and then choose **Keyboard**.

Function	AutoCAD Shortcut	ARES Shortcut	ARES Command Executed
Cleanscreen toggle	Ctrl+0	Ctrl+0	Fullscreen, HideFullscreen
Properties palette	Ctrl+1	Ctrl+1	Properties, HideProperties
DesignCenter palette	Ctrl+2	...	...
Tool palettes	Ctrl+3	...	...
Sheet set palette	Ctrl+4	...	...
dbConnect palette	Ctrl+6	...	...
MarkUp palette	Ctrl+7	...	...
QuickCalc palette	Ctrl+8	...	...
Command bar	Ctrl+9	Ctrl+9	CommandWindow, HideCommandWindow
Select all entities	Ctrl+A	Ctrl+A	SelectAll
Toggle group mode	Ctrl+Shift+A	...	
Snap toggle	Ctrl+B	Ctrl+B	Snap
Copy to Clipboard	Ctrl+C	Ctrl+C	ClipboardCopy
Copy with reference point	Ctrl+Shift+C	Ctrl+Shift+C	Copy@
Dynamic UCS toggle	Ctrl+D	...	
Dynamic UCS toggle	Ctrl+Shift+D	...	
Isoplane toggle	Ctrl+E	...	
Entity snap toggle	Ctrl+F		
Find and replace text		Ctrl+F	Find
Grid toggle	Ctrl+G	Ctrl+G	Grid
Pick style toggle	Ctrl+H	...	
Palette display toggle	Ctrl+Shift+H	...	
Coordinate toggle	Ctrl+I	...	
Constraint inference toggle	Ctrl+Shift+I	...	
Hyperlinks dialog box	Ctrl+K	Ctrl+K	Hyperlink
Ortho toggle	Ctrl+L	Ctrl+L	Ortho
Add objects to selection set	Ctrl+Shift+L	...	
New drawing	Ctrl+N	Ctrl+N	New
Open drawing	Ctrl+O	Ctrl+O	Open
Print dialog box	Ctrl+P	Ctrl+P	Print
Quick Properties toggle	Ctrl+Shift+P	...	Print
Quit	Ctrl+Q	Ctrl+Q	Exit
Switch viewports	Ctrl+R	Ctrl+R	^R
Save drawing	Ctrl+S	Ctrl+S	Save
Save drawing as	Ctrl+Shift+S	Ctrl+Shift+S	SaveAs
Tablet toggle	Ctrl+T	...	
Polar tracking toggle	Ctrl+U	...	
Paste from Clipboard	Ctrl+V	Ctrl+V	Paste
Paste as block with insertion point	Ctrl+Shift+V	Ctrl+Shift+V	PasteAsBlock

Cut to Clipboard	Ctrl+X	Ctrl+X	Cut
Redo	Ctrl+Y	Ctrl+Y	Redo
Undo	Ctrl+Z	Ctrl+Z	U
Erase entities	Del	Del	Delete
Cancel current command	Esc	Esc	^C
Enforce ortho mode	Shift	Shift	Shift

FUNCTION KEYS

Function	AutoCAD Shortcut	ARES Shortcut	ARES Command Executed
Help	F1	F1	Help
Text screen toggle	F2	F2	CommandHistory, HideCommandHistory
Text screen toggle	Ctrl+F2	...	
Entity snap toggle	F3	F3	-ESnap
Tablet toggle	F4	...	
Close program	Alt+F4	Alt+F4	Close
Close drawing	Ctrl+4	Ctrl+F4	Close
Isometric toggle	F5	F5	IsometricGrid
Dynamic UCS toggle	F6	...	
Switch to next drawing	Ctrl+F6	Ctrl+F6	
Grid toggle	F7	F7	^G
Ortho toggle	F8	F8	^L
Starts VBA	Alt+F8	...	
Snap toggle	F9	F9	^B
Polar mode toggle	F10	F10	
Entity tracking toggle	F11	F11	
Open VBA IDE	Alt+F11	...	
Dynamic input toggle	F12	...	

KEYBOARD SHORTCUTS FOR MAC OS X

The following tables list keyboard shortcuts for the Mac OS X versions of AutoCAD and ARES. Autodesk follows the OS X standard for shortcuts, while Graebert follows the Windows standard.

To customize keyboard shortcuts in ARES, enter the **Customize** command, and then choose **Keyboard**.

Mac OS X Function	AutoCAD Shortcut	ARES Shortcut	ARES Command Executed
Cleanscreen toggle	Cmd+0	Cmd+0	Fullscreen, HideFullscreen
Toolsets palette	Cmd+1		
Properties palette		Cmd+1	Properties, HideProperties
Content palette	Cmd+2	...	
Command bar	Cmd+3	...	
Layers palette	Cmd+4	...	
Properties inspector	Cmd+5	...	
Status bar	Cmd+6	...	
Reference manager	Cmd+7	...	
Project (sheetset) manager	Cmd+8	...	
Materials browser	Cmd+9		
Command window		Cmd+9	CommandWindow, HideCommandWindow
Select all entities	Cmd+A	Cmd+A	SelectAll
Toggle group mode	Cmd+Shift+A	...	
Snap toggle	Cmd+B	Cmd+B	Snap
Copy to Clipboard	Cmd+C	Cmd+C	ClipboardCopy
Copy with reference point	Ctrl+Shift+C	Cmd+Shift+C	Copy@
Color dialog box	Cmd+Shift+C	...	
Dynamic UCS toggle	Cmd+D	...	
Dynamic UCS toggle	Cmd+Shift+D	...	
Export file dialog box	Cmd+E	...	
Find and replace text	Cmd+F	Cmd+F	Find
Full screen toggle	Cmd+Shift+F	...	
Group toggle	Cmd+G		
Grid toggle		Cmd+G	Grid
Ungroup	Cmd+Shift+G	...	
Hide AutoCAD	Cmd+H	...	
Palette display toggle	Cmd+Shift+H	...	
Properties toggle	Cmd+I	...	
Constraint inference toggle	Cmd+Shift+I	...	
Hyperlinks dialog box	...	Cmd+K	Hyperlink
Ortho toggle	Cmd+L	Cmd+L	Ortho
Add objects to selection set	Cmd+Shift+L	...	
Minimize	Cmd+M	...	
New drawing	Cmd+N	Cmd+N	New
New project (sheetset)	Cmd+Alt+N	...	
Open drawing	Cmd+O	Cmd+O	Open
Open project (sheetset)	Cmd+Alt+O	...	
Print dialog box	Cmd+P	Cmd+P	Print
Page setup manager	Cmd+Shift+P	...	Print

Quit	Cmd+Q	Cmd+Q	Exit
Regen	Cmd+R		
Switch viewports		Cmd+R	^R
Regen all viewports	Cmd+Shift+R	...	
Save drawing	Cmd+S	Cmd+S	Save
Save drawing as	Cmd+Shift+S	Cmd+Shift+S	SaveAs
Autosnap toggle	Cmd+T	...	
Polar tracking toggle	Cmd+U	...	
Paste from Clipboard	Cmd+V	Cmd+V	Paste
Paste as block with insertion point	...	Cmd+Shift+V	PasteAsBlock
Close AutoCAD	Cmd+W	...	
Cut to Clipboard	Cmd+X	Cmd+X	Cut
Redo	Cmd+Y	Cmd+Y	Redo
Undo	Cmd+Z	Cmd+Z	U

Erase entities	Backspace	fn+Delete	Delete
Cancel current command	Esc	Esc	^C
Toggle ortho mode	Shift	Shift	Ortho
Display online help		Cmd+?	Help

Help	F1	F1	Help
	Cmd+/		
Toggle command history	F2	F2	CommandWindow, HideCommandWindow
Toggle entity snaps	F3	F3	Esnap
Toggle 3D object snaps	F4	...	
Switch to next isometric grid	F5	F5	IsometericGrid
Toggle dynamic UCS	F6	...	
Toggle grid display	F7	F7	Grid
Toggle ortho mode	F8	F8	Ortho

Layouts dialog box	Cmd+.	...	
Preferences (options)	Cmd+,	...	
Spell	Cmd+:	...	
Zoom In	Cmd++	...	
Zoom Out	Cmd+-	...	

Mouse Buttons

To customize mouse buttons and double-click actions in ARES, enter the **Customize** command, and then choose **Mouse Actions**. Button #1 (right mouse button) cannot be customized. ARES does not support tablets.

PRIMARY BUTTONS

Button	Action
1 (left)	Picks entities.
2 (right)	Displays the context menu.
3 (middle)	Displays the context menu.

Shift+Buttons

Button	Action
2 (right)	Displays entity snap menu.
3 (middle)	Orbits drawing transparently.

Ctrl+Button

Button	Action
2 (right)	Displays entity snap menu.

Shift+Ctrl+Buttons

Button	Action
2 (right)	Displays entity snap menu.
3 (middle)	Orbits drawing transparently.

Double-click

Button	Action
1 (left)	*(See the Double-click Section.)*
2 (right)	Zooms drawing to fit viewport.

Roller Wheel

Wheel Movement	Action
Roll Up	Zooms in
Roll Down	Zooms out
Hold down	Pans the drawing

DOUBLE CLICK ACTIONS

Most double-clicked entities display the Properties palette. Those that don't are segregated in the list below. Entities shown in red were added since the first edition of this book.

Left Button

Entity Double-clicked	ARES Command Executed
Attribute definition (AttDef)	EditAnnotation
Attribute instance (AttBlockRef)	EditBlockAttribute
Block instance	EditComponent
Block reference	EditComponent
Hatch	EditHatch
LwPolyline	EditPolyline
Note (Mtext)	EditAnnotation
Ole2Frame	OpenOle
Polyline	EditPolyline
RichLine	EditRichLine
Tolerance	EditTolerance
SimpleNote (Text)	EditAnnotation
Vnote (Voice note)	VoiceNote
Arc	Properties
Body	Properties
Circle	Properties
Cloud	Properties
DgnReference	Properties
Dimension	Properties
Ellipse	Properties
ExtrudedSurface	Properties
Helix	Properties
ILine	Properties
Leader	Properties
Light	Properties
Line	Properties
LoftedSurface	Properties
Mask	Properties
Point	Properties
Ray	Properties
Region	Properties
Shape	Properties
Solid	Properties
Table	Properties
Trace	Properties
3dFace	Properties
3dSolid	Properties

Middle button

Entity Double-clicked	Command Executed
...	Zooms drawing to fit viewport.

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