AutoXChange 2019 User Manual

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Introduction

Introducing AX2019

Tailor Made Software's® AutoXChange 2019™ (also known as AX2019) is a command-line interface application designed to convert AutoCAD DWG, DXF and DWF and MicroStation DGN format files into a wide variety of formats including Scalable Vector Graphics (SVG), Adobe Portable Document Format (PDF), AutoDesk's Drawing Web Format (DWF), JPEG, GIF, PNG and about 50 other formats. It supports any version of AutoCAD up through AutoCAD 2019 and any recent version of MicroStation.

DXF is employed as the most-commonly used file format for transfer between CAD systems. As such, almost all CAD systems can produce or read it. This support by a wide range of CAD systems provides a mechanism for plot image-based file transfer from almost all CAD systems to the supported output formats.

AutoXchange can be installed and utilized on any server that utilizes one of the following operating systems:

- Microsoft Windows 10
- Microsoft Window 8 and 8.1
- Microsoft Windows 7
- Microsoft Windows Vista
- Microsoft Windows XP
- Microsoft Windows Server 2000, 2003 or 2008
- Microsoft Windows NT (4.0) or 2000
- Windows 95 or 98
- Red Hat Linux (v6.1 or later) or corresponding CentOS version
- Debian

AutoXChange 2019 should work on most Linux installations but has only been tested on the systems mentioned

If need arises, AutoXChange can also be utilized via a scripting application to manually convert single files or batches of files.

Overview

This User Guide provides information about the features and functions of AutoXChange 2019, an CAD format conversion application that assists in the rapid transformation of AutoCAD-format drawing files into a large number of other formats.

We have organized the contents of this help window into the topics you see in the "Contents" column to the left. Click any of those links to learn more about AutoXChange 2019 and its uses.

What is the Best Format?

We are often asked what the best format is to use. Assuming there are no pre-determined requirements, then the answer to this question can be one of the most important decisions made in a project.

Obviously, if there **are** predetermined requirements, then the best format to use is the one called for in those requirements, unless you can get them changed.

Raster vs. Vector

AutoXChange 2019 will convert to both raster and vector formats. In a raster (or bitmap) format the image is comprised of a large grid of colored dots (called pixels, short for "picture elements"). Since everything has been devolved into individual dots, all semblance of intelligence is lost when converting to a bitmap. Another drawback of bitmaps is that they either have to be very large or they lose detail very quickly. When you zoom in on a portion of a bitmap image the dots get bigger, but the detail is not there. So instead of a nice smooth circle, you will see a very jagged representation of a circle. As you continue to zoom in more and more detail is lost.

In a vector format the image is comprised of geometrical elements like lines, circles, text and line strings (called polylines). While, depending on the format, some intelligence may be lost, the majority of intelligence is still present in the resulting image. A line is still a line, not a series of dots. Tailor Made Software has always tried to maintain as much intelligence as possible in the resulting drawing, so, unlike some of our competitors, text remains text when we can, circles remain circles and don't become polylines, etc.

The main advantages of vector formats are size and resolution. As mentioned above, when you zoom in on a raster you see grainier and grainier set of dots. When you zoom in on a vector image you continue to see a smooth circle or line or whatever. You no longer have to produce a huge drawing size just to maintain a reasonable degree of resolution like you do in a bitmap.

Types of Vector Formats

The various vector formats have far fewer inherent advantages or disadvantages than the various raster formats do. For raster formats most viewers will display a wide variety of raster formats. For vector formats most systems will only display a few formats and may really prefer one. Therefore the choice of which vector format to use is really determined by the system that will use the resulting image, and not by any inherent advantage of one format over another.

Are there differences? Sure, but they are not usually overwhelming. Uncompressed PDFs or AI files are huge compared to other formats, but compressed PDFs are very reasonable

in size. The same can be said for DWFs, although binary DWFs will be smaller than the equivalent uncompressed PDF.

PDFs, and its PostScript-based cousins like Adobe Illustrator, do have one unusual quirk: they do not have a circular arc or circle element. Instead all curves are made from Bezier curves. Mathematically this makes things simple, but it does mean larger files with elements that can be less precise than normal circular arcs (Beziers can approximate circular arcs, but can also "wobble" a little in tracing the circular arc path).

Types of Bitmap Formats

Most AutoCAD drawings only have 256 colors defined in them. Therefore, using any format that defines more than 256 colors is just wasting space. As a result JPEG, which uses either 24 or 32-bits and allows the definition of millions of colors, is a very inefficient format for rendering CAD drawings. GIF or PNG, both of which are 8 bit formats allowing 256 colors are great for color images of CAD drawings. Now that the UNISYS patent has expired there is no real reason to use PNG instead of the more popular GIF.

However, if you do not need to retain colors, then the best raster format to use (if you can) is TIFF Group IV . This format is a highly compressed format, but is only black and white. Not all viewers will display TIFF files so you may be forced to use GIF instead.

A second reason not to use JPEG is due to how JPEG files are compressed. JPEG uses what is known as "lossy compression". Basically it gets large file size reductions by tossing out some colors and blurring areas together. This works great in multi-million color pictures where the human eye can't really distinguish that many colors in such a small space. It works very poorly for line drawings where black lines are "smudged" with large white areas resulting in fuzzy grey lines. The only way to get around producing fuzzy JPEG drawings is to create non-compressed JPEGs. However, the resulting file sizes are huge. There is no good reason to use JPEG for CAD drawings (unless the customer requires them and you can't change their mind) so stick to GIF or TIFF Group IV if you must use rasters.

Layers

For those formats such as DWF that support layers, AutoXChange 2019 will create a layer for each layer in the DWG or DXF file that has visible items on it. If the layer does not have anything visible on it, then **no layer will be created**. So, it is possible for the resulting file to have fewer layers on it than in the original file.

AutoXChange will maintain the layer status defined in the original CAD file. So if a layer is off in the original file then it will not appear in the converted file. Likewise if it is on in the original file then it will appear in the converted fiile. The layer visibility state can be altered via parameters (see Layer Table, Layer On and Layer Off).

Installation

Installation

AutoXChange 2019 can be installed and used on a variety of systems including:

- Windows
- Red Hat Linux

AutoCAD fonts may need to be installed on the system. See "Fonts" for more information.

Linux Installation

AutoXChange 2019 for Linux is shipped as a tar.gz file. The executable is called "ax2017_LBB_NN_MM_PP" (where BB is the type of Linux (32-bit or 64-bit), NN is the major version number, MM is the medium version number and PP is the minor version number - so AX2017 Linux 64-bit V1.00.06 would be *ax2017_L64_01_00_06*) but you can rename it to whatever you want.

1. After downloading the executable file, transfer it to the directory of your choice.
2. Rename it if you want
3. You may desire to create a system wide link to this executable from the /usr/system/bin or /usr/bin directories.
4. Uncompress the files using "tar -xvf ax2017_LBB_NN_MM_PP". This will unpack the executable and the needed .so (dynamic system object, like a Windows DLL) files

AutoCAD fonts may need to be installed on the system. See " Fonts" for more information.

Linux Fonts

In order to use something other than the built-in stick font in AutoXChange 2019, you have to have the TTF or SHX file on the system. TTF files on Windows are installed as part of the operating system and should be loaded that way.

SHX fonts are imported from the directory pointed to by the ACAD environment variable. If you have AutoCAD on the system then it should already be set up. Otherwise the SHX fonts need to be put in a directory and the ACAD environment variable should be defined. Under Windows it is defined under the control panel.

On Linux and UNIX it is defined using the “export” command. For instance: export ACAD=”/usr/shxfonts/”. You can see if the environment variable is already set using the “echo $ACAD” command.

Windows Installation

AutoXChange 2019 is usually shipped in a ZIP archive. This is because many companies have virus scanning software that will not allow .exe file attachments. You will need to extract the installation program from the Zip archive.

You will then locate and double-click the installer icon ("ax2017.exe").

When the first Installer wizard appears, proceed through the wizard panes and do the following:

1. Pick the destination directory for the AutoXChange 2019 software installation, if you want to install the software in a directory other than the default.
2. Agree to the terms of the end-user license agreement.
3. Click Finish to conclude the installation.

Concepts

The following describe some of the major concepts used in the development and/or operation of AutoXChange 2019.

Database Linkages

One of the major abilities of AutoXChange 2019 is to allow the easy linkage between drawings and data. Especially when using our CadVIewerJS viewer, AutoXchange can automate the creation of linkages based on data in the drawing or use existing hyperlinks that have already been defined in the drawings.

Automated Area Linkage

Automated Area Linkage is based on the spatial relationship between area polygons (polygons that are defined in the drawing to outline rooms or other types of areas on the drawing) and some sort of identifying text or attribute that can act as the key to the database. By "spatial relationship" we mean that the text (Room Name, Part Number, etc) is preferably physically inside, but at least the closest text to the center of the room outline, on a given layer(s). Many Computer AIded Facilities Management (CAFM) drawings for use with the major CAFM systems have been "polygonized" - polygons have been added on a given layer to define the outline of the rooms.

Automated Area Linkage will automatically match the identifier (henceforth called "Room Name") with the corresponding area outline (henceporth called "Room Polygon") and create a hyperlink that typically passes the Room Name to a javascript function whenever the Room Polygon is clicked or hovered over. The exact mechanism used has a default but usually is customized for each client.

The layer(s) for the Room Name is defined by the Text Layer (TL) parameter while the layer for the Room Polygon is defined by the Room Layer (RL) parameter. As a result you may hear us use the term "RL/TL Processing".

Handle-based Automation

Sometimes the key for the database file is either not present in the drawing or is actually the AutoCAD Handle (the unique identifier that all AutoCAD entities have that remains the same throughout the life of the drawing). For these drawings we do a variation on Automated Area Linkage where the Database Key is the AutoCAD Handle and that is what is passed to the javascript (or other) function.

The layer for the area outline ("Room Polygon") is defined by the Room Layer (RL) parameter. In addition the "HB" (Handle Based) parameter is used to denote Handle-based processing is being used. If the HB parameter is not used and the Text Layer (TL) parameter is not defined (which would cause Automated Area Linkage to be used instead) then nothing occurs.

Raster File Search Order

Raster files (PNG, GIF, BMP, JPG, etc) will often have a path defined when they are referenced into the AutoCAD drawing (here we are talking about external files that are referenced in the drawing, not raster images that are placed into the AutoCAD file like OLE Objects). This path will often point to a place on the user's file system that is not accessible if the AutoCAD drawing is moved to another system. Therefore most times when AutoXChange 2019 is used any such reference file locations are not valid. Normally the reference file location is the first place searched for the referenced files, however, the Repository parameter controls whether or not the reference file location is searched. If the Repository parameter is used then the reference file location will NOT be searched.

The search order for referenced raster files is:

1. Path listed in reference file name (unless the -REPOSITORY parameter is used)
2. Directory where program was executed
3. File with extension of .png in the Directory where Input File is located (overrides the actual file name)
4. Directory where Input File is located (without the PNG override above)
5. If the raster reference file name was a relative path, then using that relative path under the location of the input file

A couple of those are not intuitvely obvious, so let's explain.
#3: Sometimes the referenced raster file (usually only occurs when the file is a strange TIFF variant) cannot be loaded. In that case the raster file can be converted manually into a PNG file and placed in the same directory as the input drawing (AutoCAD DWG/DXF file). AutoXChange 2019 will use this manually converted PNG instead of trying to convert the source file (TIFF, etc).

#5: If the raster reference file path is a relative file, for instance, "./somedir/somefile.tif", then AutoXChange will try to find the file relative to where the input AutoCAD file is located. For instance, if the input file is "c:\mysamples\one.dwg" and the raster file is the above referenced "./somedir/somefile.tif", then #5 will try to find "c:\mysamples\somedir\somefile.tif"

Definitions

AutoCAD Handle	The unique identifier that all AutoCAD entities have that remains the same throughout the life of the drawing. Even if other entities are added or deleted and the drawing is saved, the Handle persists through the life of drawing. The handle is a 16 character Alphanumeric identifier.
Database Key	The identifier that uniquely identifies data in a Database Table
Room Layer	A layer (or layers) that define where area outlines can be found.
Text Layer	A layer (or layers) that define where area identifiers (Room Name, etc) can be found.

Operation

Overview

AutoXChange 2019 is controlled via the use of an extensive set of command parameters. The parameters are entered from the command line. The use of the command line is detailed under " Operation".

Versions of AutoCAD

DWG Versions

AutoDesk does nto change the AutoCAD Drawing File Format nearly as frequently as it releases new versions, at least recently. In the early days the DWG file format was changing with pretty much every release, but while the format change for AutoCAD 2013, it did not change again until AutoCAD 2018, despite yearly releases of the program. So the same file format was used for AutoCAD 2013, AutoCAD 2014, AutoCAD 2015, AutoCAD 2016 and AutoCAD 2017. Similarly the format is identical for AutoCAD 2018 and AutoCAD 2019.

It is easy to decipher what version of AutoCAD created a given drawing file. Open the file in a text editor and look at the first six bytes (five in very early files) and match them to the folowing list. For DXF files this tag is given by the $ACADVER variable in the header. For instance, if the first five bytes are AC1.2 then it was created by the ancient (April 1983, so more than 35 years ago) AutoCAD Version 1.2 (or maybe AutoCAD Version 1.3, things get a little spotty back that far). If the first six bytes are AC1009 then it was created by either AutoCAD Release 11 or AutoCAD Release 12 as they shared the same format version.

If the DWG Tag value is bold in the table that means the file format changed for that version. Otherwise the file format stayed the same as in the previous version.

BTW: AutoXChange 2019 can support any version of DWG and DXF back to AutoCAD 2.5. The format changed greatly at that point and we know of no programs that support older formats. However, that was June of 1986, so the likelihood of seeing a 33+ year old AutoCAD Version 2.22 or before file is remote at best.

Name	DWG tag
AutoCAD Version 1.0	**MC0.0**
AutoCAD Version 1.2	**AC1.2**
AutoCAD Version 1.3	
AutoCAD Version 1.4	**AC1.40**

AutoCAD Version 2.0	
AutoCAD Version 2.05	**AC1.50**
AutoCAD Version 2.1	**AC2.10**
AutoCAD Version 2.21	**AC2.21**
AutoCAD Version 2.22	**AC2.22**
	AC1001
AutoCAD Version 2.5	**AC1002**
AutoCAD Version 2.6	AC1002
AutoCAD Release 9	**AC1004**
AutoCAD Release 10	**AC1006**
AutoCAD Release 11	**AC1009**
AutoCAD Release 12	AC1009
AutoCAD Release 13	**AC1012**
AutoCAD Release 14	**AC1014**
AutoCAD 2000	**AC1015**
AutoCAD 2000i	AC1015
AutoCAD 2002	AC1015
AutoCAD 2004	**AC1018**
AutoCAD 2005	AC1018
AutoCAD 2006	AC1018
AutoCAD 2007	**AC1021**
AutoCAD 2008	AC1021
AutoCAD 2009	AC1021
AutoCAD 2010	**AC1024**
AutoCAD 2011	AC1024
AutoCAD 2012	AC1024
AutoCAD 2013	**AC1027**
AutoCAD 2014	AC1027
AutoCAD 2015	AC1027
AutoCAD 2016	AC1027
AutoCAD 2017	AC1027
AutoCAD 2018	**AC1032**
AutoCAD 2019	AC1032

Processing

Operation

You can configure a process on your server that makes use of AutoXChange 2019 in two ways:

1. process single files or collections of files in a single session

2. use a kron-type application to run AutoXChange 2019 at set times to scan a particular folder/directory and automatically convert all files loaded into this folder—storing the converted images in a designated destination directory.

You should note down a list of files you want to convert, record the exact directory pathways for source and destination directories, and have some idea of which custom parameters you'd like to apply to the conversion process. (Complete information on the parameters can be reviewed in "Command Parameters ").

The basic operation is:

1. Enter the command and all relevant parameters
2. Press Return/Enter to start the conversion process.
3. When the conversion is complete, the terminal window will display a status message.
4. Repeat this process to convert other files at this time.

Command Line Usage

The following is the basic AutoXChange 2019 command syntax:

AX2018 -i <INPUT FILE > -o <OUTPUT FILE> -f <FORMAT>

The main elements of every command are (1) the actions, and (2) any parameters that affect the output.

All command parameters are preceded by a dash (-). Some parameters will be noted as letters and others will be noted as numbers, while others (such as directory paths) will follow the dash with a space and then a text string—as shown in the previous example. Parameters and their values are separated by a space, not by an equal sign as in some Tailor Made Software converters.

The actions in the above-noted example are indicated by the "-i", "-o" and the "-f", plus the three placeholders—as detailed here:

<INPUT FILE>	This placeholder should be replaced with the name of the input (source) file—the .DWG or .DXF-format file you want converted. If the input file is not in the same directory as AX2018, then either the full or relative directory path must be entered—as shown here: -i c:/MainDir/SourceDir/OrigFile.dwg The -i is optional if this is the first parameter listed. If there are any spaces in the file name, the file name must be enclosed in quote marks (usually double quote marks on Windows and single quote marks on Linux/UNIX).
<OUTPUT FILE>	This should be the name of the output (resulting) file. If the output file is not to be created in the same directory as AX2016, then the full directory path of the destination directory must be entered—as shown here:

	-o c:/MainDir/DestDir/NewFile.jpg The -o is optional if this is the second parameter listed and the input file was the first. This parameter is optional. If not listed, the output file name will default to the input file name with the proper extension for the output type. If there are any spaces in the file name, the file name must be enclosed in quote marks (usually double quote marks on Windows and single quote marks on Linux/UNIX).
<FORMAT>	This specifies the format of the output file.

Examples

To customize the conversion of any output files, you can type additional parameters following the "-o" entry. For example, you may want to customize output as detailed here:

-- Convert a .DWG file to SVG file for display in CadViewerJS:

ax2018 -i <SOURCE_FILE.DWG> -o <NEW_FILE.SVG> -f=SVG -last

Parameters

Parameters	
B	Background
BA	Blank Attributes
BW	Bi-tonal output (Black and White only)
BL	Break By Layer
BLDG	Building
BN	BlockName
CP	Codepage
CSV	Create Data File (Comma Seperated Value or CSV)
DF	Default Font
DI	Default Font Italic
A or US	Drawing Size
EN	Encoding (Compression Type)
EXT	Extents
FLR	Floor
HP	High Precision
HIS	Program History
LAY	Layout
LWMIN	Line Weight Minimum
LW	Line Width Scale
MA	Margin
NOEXTENTS	No Extents
NOTS	No Text Scale
ORNT	Orientation
OL	Output List
VARIOUS	PDF Document Information

MP and UP	PDF Passwords
Q	Quiet Mode (No messages output)
ROT	Rotation
SAVEDWG	Save as DWG
SP	Drawing Space Mode
LWTMIN	Thumbnail Line Weight Minimum
THUMBSIZE	Thumbnail Size
TREATAS	Treat As
UN	Units
VW	View
?	Parameter List

Input/Output Parameters

Input/Output Parameters	
I	Input File/Directory Name
O	Output File/Directory Name
F	Output Format
FP	Font Path
LOG	Log File Name
LPATH	License Path
LT	Layer Table File Name
LOFF	Layers Off
LON	Layers On
PARTOFF	Partial Layers Off
PARTON	Partial Layers On
REPOSITORY	Repository
XP	External Reference Path

Input File

PARAMETER	i
Purpose	This parameter defines the input file name.
Notes	You can use wildcards to perform multiple file conversions. * will match any remaining character(s). ? will match any given character.
Example	-i "c:\temp files\my file.dwg" -i c:\temp*.dwg
Use	With all graphic formats

Output File

PARAMETER	o
Purpose	This parameter defines the output file name.
Notes	This parameter is ignored if wildcards were used in the input file name .
Example	-o my_output.dwf
Use	With all graphic formats

Font Path

PARAMETER	FONTPATH
Purpose	This parameter allows the specification of an alternate location for the font files. The default is to look for the font file in the same directory as the executable followed by the directory where the input file is located.
Example	-FP=c:\myfonts
Alias	-FP
Use	With all graphic formats

Output Format

PARAMETER	f	
Purpose	This parameter defines the file type for the output file.	
Example	-f=SVG	
Values	SVG	Simple Vector Graphics
	PDF	Portable Document Format
	DWF	Drawing Web Format *

	PLT	HP-GL and HPGL/2 *
	IGES	Initial Graphics Exchange Specification *
	JPEG, JPG	Joint Photographers Expert Group
	PNG	Portable Network Graphics
	TIFF	Tagged Input File Format
	CCITT	TIFF Group IV *
	?	List all output formats
Aliases	-PDF	-f=PDF
	-DWF	-f=DWF
	-SVG	-f=SVG
	-JPG	-f=JPG
	-JPEG	-f=JPG
	-TIFF	-f=TIF
	-TIF	-f=TIF
	-GIF	-f=GIF
Use	With all graphic formats * On Request	

Log File Name

PARAMETER	LOG
Purpose	This parameter defines the log file name.
Notes	If this parameter is omitted then messages will only be output to the screen. If this parameter is defined then messages will be output to both the screen (depending on the value of -q (quiet)) and to the log file
Example	-log="c:\temp files\my log.log"
Use	With all graphic formats

License Path

PARAMETER	LICENSE_PATH
Purpose	This parameter allows the specification of an alternate location for the License File. The default is to look for the license file in the same directory as the executable followed by the directory where the input

	file is located. If a valid license is not found then the program runs in demo mode.
Example	-LPATH=c:\mystuff
Alias	-LPATH
Use	With all graphic formats

Layer Table

PARAMETER	LT
Purpose	This parameter defines the name for an external file with layer status information. The format of the file is defined below.
Example	-LT
Alias	None
Use	With all graphic formats

Layer Table Format

Each section of the Layer Table Status File will start with a section definition line. The keyword will be enclosed in brackets:

[ON] : Subsequent lines will define those layers to be on. All other layers will be off.

[OFF]: Subsequent lines will define those layers to be off. The All other layers will be on.

[FORCE ON]: Subsequent lines will define those layers to be on. The status of any other layers will not be affected.

[FORCE OFF]: Subsequent lines will define those layers to be off. The status of any other layers will not be affected.

"ON" and "OFF" cannot be used with any of the other commands. "Force ON" and "Force OFF" can be used with each other, but cannot be used with either "ON" or "OFF".

Sample:

[ON]
0
Text
Offices

Layers Off

PARAMETER	LAYERS_OFF
Purpose	This parameter controls which Layers are off in the file. All other layers will be on.

Example	-LOFF=0;LAY1;LAY2
Alias	-LOFF
Use	With all graphic formats

Layers On

PARAMETER	LAYERS_ON
Purpose	This parameter controls which Layers are on in the file. All other layers will be off.
Example	-LON=0;LAY1;LAY2
Alias	-LON
Use	With all graphic formats

Part Off

PARAMETER	PART_OFF
Purpose	This parameter controls which Layers are forecd off in the file. The layers status of any layers not listed is unaffected.
Example	-PARTOFF=0;LAY1;LAY2
Alias	-PARTOFF
Use	With all graphic formats

Part On

PARAMETER	PART_ON
Purpose	This parameter controls which Layers are forced on in the file. The layers status of any layers not listed is unaffected.
Example	-PARTON=0;LAY1;LAY2
Alias	-PARTON
Use	With all graphic formats

Repository

PARAMETER	REPOSITORY
Purpose	This parameter controls if original reference paths are used when trying to find referenced raster files. See Raster File Search Order
Example	-REPO
Alias	-REPO -RE
Use	With all graphic formats

Treat As

PARAMETER	TREATAS
Purpose	This parameter forces the converter to treat the input file as a particular type of CAD drawing despite what the file extension might be. For instance, a valid MicroStation file can have the extension .PCF instead of the normal .DGN. Using -TreatAs=DGN forces the PCF file to be processed as a DGN file.
Example	-TREATAS=DGN
Values	DGN - Treat as MicroStation Design file (DGN) DWF - Treat as AutoCAD DWF file (usually for .W2D file) DWG - Treat as AutoCAD DWG file (usually for .BAK file) DXF - Treat as AutoCAD DXF file (for compleness)
Alias	None
Use	With all graphic formats

XPath

PARAMETER	XPATH
Purpose	This parameter define an alternate path to search for orphaned x-refs (x-refs where there normal path does not exist).
Example	-xpath=c:\temp
Alias	-XP
Use	With all formats

Output Formatting

Output Formatting Parameters	
CSV	Create Data File (Comma Seperated Value or CSV)
HP	High Precision
LWMIN	Line Weight Minimum
LW	Line Width Scale
MA	Margin
NOEXTENTS	No Extents
NOTS	No Text Scale
ORNT	Orientation
ROT	Rotation
SAVEDWG	Save as DWG
UN	Units

Create CSV File

PARAMETER	CSV
Purpose	This parameter forces the converter to create a comma seperate value format file (CSV) containing an sequence number and text or attirubtes from a drawing. This output is based on customer specifications so the CSV processing is a custom feture for a given customer.
Example	-CSV
Alias	None
Use	With all graphic formats

High Precision

PARAMETER	HP
Purpose	This parameter defines whether High Precision mode is used for DWF and PDF drawings. For DWF files, normal precision mode the coordinates of the drawing extend from 0,0 to 32000,32000. In high precision mode the coordinates extend from 0,0 to 2000000,2000000. Medium precision is treated as High precision for DWF files. For PDF files, precision defines the number of places used to the right of the decimal point. Low precision is none, medium is one and

	high is two. Since each unit in a PDF file is 1/72 of an inch (one "point"), medium precision is accurate to 1/720th of an inch and high precision to 1/7200 of an inch.
Notes	High Precision should be used sparingly for DWF files. Normal precision is usually more than adequate for display purposes and High Precision results in much larger drawings. However, in some applications where there is a need to see small details on very large, complex drawings, then High Precision should be used. On the other hand, low precision should be used sparingly for PDF files. Accuracy to 1/72 of an inch is usually not sufficient for PDF files.
Values	0 -- Normal Precision Mode 1 -- Medium Precision Mode 2 -- High Precision Mode
Use	DWF and PDF
Alias	-LOW : Normal Precision -MED[IUM] : Medium Precision -HIGH : High Precision -PREC

Line Weight Minimum

PARAMETER	LWMIN
Purpose	This parameter defines the minimum width to be used for normal entities such as lines and polylines.
Example	-lwmin .5
Use	With all formats

Line Weight Scale

PARAMETER	LW
Purpose	This parameter defines a factor for scaling the width of lines and polylines.
Example	-lw 2.5
Use	With all formats

Margin

PARAMETER	MA

Purpose	This parameter defines the margin to leave aournd images in PDF and raster formats.
Example	-MA=5
Alias	None
Use	With PDF and all raster formats

NoExtents

PARAMETER	NOEXTENTS
Purpose	This parameter ensures the last saved dimensions of the current view (Model or Paper space) are converted, not extents of the graphics in the current view. Very little used parameter.
Example	-NOEXTENTS
Alias	None
Use	With all graphic formats

No Text Scale

PARAMETER	NOTEXTSCALE
Purpose	This parameter turns off scaling for text width. Normally text characters are narrower than they are tall. Text scaling sets the width to be narrower. However, this will increase the size of many formats and will slow processing. For instance, to scale a SVG string the string must be translated to (0,0), scaled and then moved back to its original point. Otherwise the scaling would be different depending on how far the text string was from the origin.
Example	-NOTEXTSCALE
Alias	NOTS
Use	With all graphic formats

Orientation

Orientation

PARAMETER	ORNT
Purpose	This parameter defines whether the output will be in landscape or portrait orientation.
Values	-1: Calculate best fit 0: Landscape 1: Portrait
Example	-ORNT 1
Alias	-R n

	-LANDSCAPE: -R 0 -PORTRAIT: -R 1
Use	With all graphic formats

Landscape

PARAMETER	LANDSCAPE
Purpose	This parameter forces the output to be in landscape (horizontal) orientation.
Example	-landscape
Use	With all graphic formats

Portrait

PARAMETER	PORTRAIT
Purpose	This parameter forces the output to be in portrait (vertical) orientation.
Example	-portrait
Use	With all graphic formats

Rotation

PARAMETER	ROT
Purpose	This parameter defines the rotation to be applied to PDF and HPGL drawings
Example	-ROT=90
Alias	-RO
Use	With PDF and HPGL output formats

Save DWG

PARAMETER	SAVEDWG
Purpose	This parameter forces the converter to save the intermediate file created after the source file has been read. So, for instance, it would be a DWG version of a DGN file. The output dwg file name will be the normal output file name with the suffix ".dwg" appended. So, "test.dwg" converted to PDF would result in a an intermediate file being created as "test.pdf.dwg".
Example	-SAVEDWG
Alias	None
Use	With all graphic formats

Units

PARAMETER	UN
Purpose	These parameters control the units defined in DWF drawings
Values	IN: Inches F: Feet Y: Yards MI: Miles (also MILE) MM: Millimeters CM: Centimeters M: Meters (also MT, METER and METRE)
Note	If only A or US is used, then Drawing Size Mode is ignored
Example	-UN=IN
Alias	-INCH: -UN=IN -INCHES -UN=IN -FOOT -UN=F -FEET -UN=F -YARD -UN=Y -YARDS -UN=Y -MILE -UN=MI -MILES -UN=MI -MM -UN=MM -METER -UN=M -METRE -UN=M -METERS -UN=M -METRES -UN=M
Use	With all graphic formats

Color Parameters

Color Parameters	
B	Background
BW	Black and White
GS	Greyscale

Background

PARAMETER	B or BAC[KGROUND]
Purpose	This parameter defines whether the background of the output image is black or white.

Values	0: White (Default) 1: Black 2: Grey White Black Grey/Gray
Examples	-B 1 -B BLACK
Aliases	-BLACK : same as -B 1 -WHITE : same as -B 0 -GREY: same as -B 2
Use	With all graphic formats

Black and White

PARAMETER	BW	
Purpose	This parameter selects Black and White only mode. Output will be Black on a White background	
Example	-BW	
Values	1 or nothing	Black and White only
	0	Normal Color mode
Default	0 - Normal color mode	
Alias	-MONO (for *"Monochrome"*)	
Use	All formats	

Greyscale

PARAMETER	GREYSCALE
Purpose	This parameter selects Black and White only mode. Output will be Black on a White background
Example	-GS
Alternate Spelling	-GREYSCALE -GRAYSCALE
Default	0 - Normal color mode
Alias	-GS

	-GREY
	-GRAY
Use	All formats

Database Linkages

The following parameters define the methods for making Database Linkages. See Database Linkages for the description of how this works.

Database Parameters	
HB	Handle Based
RL	Room Layer
TL	Text Layer
BA	Blank Attributes

Handle Based

PARAMETER	*HANDLE BASED*
Purpose	This parameter specifies that Handle Based Database Linkages are to be created. The Room Layer (-RL) parameter must be used to define the Room Polygons and the Text Layer (-TL) parameter must NOT be used. If TL is defined then an error is output and nothing happens.
Example	-HB
Alias	-HB
Use	With SVG Only

Room Layer

PARAMETER	*ROOM LAYER*
Purpose	This parameter specifies the "Room Layer" for either Automated Area Linkage or Handle Based Database Linkages to be created. While it is called "Room" layer, it is actually any layer where closed polygons are used to define areas to be used for database linkages. For Automated Area Linkage the Text Layer (-TL) parameter is used to define the layer to search for Room/Area Names. The Handle Based (-HB) parameter must NOT be used. For Handle Based Database Linkages the Handle Based (-HB) parameter must be used to specify the mode and the Text Layer (-TL) parameter must NOT be used. If TL is defined then an error is output and nothing happens.
Example	-RL=RM$
Alias	-RL
Use	With SVG Only

Text Layer

PARAMETER	*TEXT LAYER*
Purpose	This parameter specifies the "Text Layer" for Automated Area Linkage to be created. It is used to define the layer to search for Room/Area

	Names For Automated Area Linkage the Room Layer (-RL) parameter must be used to define the layers to search for room outlines. The Handle Based (-HB) parameter must NOT be used. Text Layer must NOT be used for Handle Based Database Linkages. If HB and TL are both defined then an error is output and nothing happens.
Example	-TL=RM$TXT
Alias	-TL
Use	With SVG Only

Blank Attributes

PARAMETER	BLANKATTRIBUTES
Purpose	This parameter allows the definition of blank attributes (attributes that have no text) in the SVG file. Normally blank attributes are suppressed, but since attributes can be overwritten usign CadViewerJS, maintaining blank attributes allows those attributes to be updated on-the-fly.
Example	-BATTR
Alias	-BATTR -BA
Use	SVG

Font Parameters

Font Parameters	
CP	Codepage
DF	Default Font
DI	Default Font Italic

Codepage

PARAMETER	CODEPAGE
Purpose	This parameter allows the specification of a different code page to be used for font defintions. The default is the standard Widnows Code Page CP1252.
Example	-CODEPAGE=CP1250
Alias	-CP
Use	With all graphic formats

Default Font

PARAMETER	FONT
Purpose	This parameter controls which font is used when the original font is not recognized.
Example	-FONT=arial
Alias	-DF
Use	With all graphic formats

Default Font Italic

PARAMETER	ITALIC
Purpose	This parameter controls which font is used when the original italic font is not recognized.
Example	-ITALIC=arial
Alias	-DI
Use	With all graphic formats

View and Size Processing

View and Size Processing Parameters	
BN	BlockName
A or US	Drawing Size
EXTENTS	Extents
HEIGHT	Height
LAY	Layout Name
SIZE	Size
SP	Drawing Space Mode
VW	View
WIDTH	Width

Block Name

PARAMETER	BLOCKNAME
Purpose	If the block named by this parameter is processed, then the AutoCAD Handle is output on the SVG Group (<g>) command using the tag "`cvjs:handle`".

Example	-BN=THISBLOCK
Alias	-BN
Use	SVG Only

Drawing Size

PARAMETER	A or US
Purpose	These parameters control the output drawing size for PDF documents.
Values	A: 0: A0 to 5: A5 US: A: ANSI A to E: ANSI E
Note	If only A or US is used, then Drawing Size Mode is ignored
Example	-A=2
Alias	-A0: DIN A0 -A1: DIN A1 -A2: DIN A2 -A3: DIN A3 -A4: DIN A4 -A5: DIN A5 -UA: ANSI A -UB: ANSI B -UC: ANSI C -UD: ANSI D -UE: ANSI E
Use	With all graphic formats

Extents

PARAMETER	EXTENTS
Purpose	This parameter forces the entire extents (all of the graphics) in the current "space" (Model Space or Paper Space) to be converted, not just the graphics in the current view.
Example	-EXTENTS
Alias	None
Use	With all graphic formats

Height

PARAMETER	HEIGHT
Purpose	This parameter sets the height of the output drawing. The size is given in the default units of the output format (pixels for SVG and points

	(1/72nd of an inch) for PDF).
Example	-HEIGHT 792
Alias	-HGT
Use	With all graphic formats
Note	The drawing width is not affected

Layout Name

PARAMETER	LAY
Purpose	This parameter controls which Paperspace Layout is converted. The default is "Layout1".
Notes	The Layout must exist in the drawing or nothing will be converted and an error message will be output. If a Layout Name is listed, Paperspace Mode will be automatically selected.
Example	-LAY=Layout30
Alias	-LAYOUT
Use	With all graphic formats

Size

PARAMETER	SIZE
Purpose	This parameter sets both the height and the wdith of the output drawing to the same value. The size is given in the default units of the output format (pixels for SVG and points (1/72nd of an inch) for PDF).
Example	-SIZE 792
Alias	-SZ
Use	With all graphic formats

Space Mode

PARAMETER	SP[ACE]
Purpose	This parameter controls whether the Paperspace or Modelspace portion of the AutoCAD drawing is converted.
Values	0 -- Last Saved View 1 -- Modelspace 2 -- Paperspace L[AST] -- Last Saved View M[ODEL] -- Modelspace P[APER] -- Paperspace

Note	If Layout Name (-L) is used, then Space Mode is ignored. If Space Mode is set to Paperspace without using the Layout Name command, then "Layout1" is used as the Layout Name.
Example	-SP=1 -SP=M
Alias	-LAST -- Last Saved View -MODEL -- Modelspace -PAPER -- Paperspace
Use	With all graphic formats

View

PARAMETER	VIEW
Purpose	This parameter controls which Modelspace View is converted.
Notes	The View must exist in the drawing or nothing will be converted and an error message will be output
Example	-VIEW=Model1
Alias	-VN
Use	With all graphic formats

The following define the modes for the multiple view conversions:

VIEW NAME COMMAND	PARAMETER ALIAS	
-VN=*ALL*	-all	Convert all views including ModelSpace, PaperSpace Layouts and ModelSpaceViews plus Paperspace default and Last Saved View
-VN=*BASIC*	-basic	Convert all views except ModelSpace, so PaperSpace Layouts and ModelSpace Views
-VN=*NOLAST*	-nolast	Convert all views including ModelSpace, PaperSpace Layouts and ModelSpace Views plus Paperspace default but not Last Saved View
-VN=*ALLPAPER*	-allpaper	Converts all PaperSpace Layouts plus PaperSpace default
-VN=*ALLMODEL*	-allmodel	Converts all ModelSpace Views plus ModelSpace
-VN=*VIEWSONLY*	-viewsonly	Converts all ModelSpace Views but not ModelSpace
-VN=*LAYOUTSONLY*	-layoutsonly	Converts all PaperSpace Layouts but not PaperSpace default

-VN=*FIRSTLAYOUT*	-firstlayout	Converts the first PaperSpace Layout only

Multiple View Conversion

The following define the modes for the multiple view conversions:

VIEW NAME COMMAND	PARAMETER ALIAS	
-VN=*ALL*	-all	Convert all views including ModelSpace, PaperSpace Layouts and ModelSpaceViews plus Paperspace default and Last Saved View
-VN=*BASIC*	-basic	Convert all views except ModelSpace, so PaperSpace Layouts and ModelSpace Views
-VN=*NOLAST*	-nolast	Convert all views including ModelSpace, PaperSpace Layouts and ModelSpace Views plus Paperspace default but not Last Saved View
-VN=*ALLPAPER*	-allpaper	Converts all PaperSpace Layouts plus PaperSpace default
-VN=*ALLMODEL*	-allmodel	Converts all ModelSpace Views plus ModelSpace
-VN=*VIEWSONLY*	-viewsonly	Converts all ModelSpace Views but not ModelSpace
-VN=*LAYOUTSONLY*	-layoutsonly	Converts all PaperSpace Layouts but not PaperSpace default
-VN=*FIRSTLAYOUT"	-firstlayout	Converts the first PaperSpace Layout only

All

PARAMETER	ALL
Purpose	This parameter forces all views including ModelSpace, PaperSpace Layouts and ModelSpaceViews plus Paperspace default and Last Saved View to be converted.
Example	-all
Alias	-VN=*ALL*
Use	With all graphic formats

Basic

PARAMETER	BASIC
Purpose	This parameter forces conversion of all views except ModelSpace, so PaperSpace Layouts and ModelSpace Views are converted.
Example	-basic
Alias	-VN=*BASIC*
Use	With all graphic formats

NoLast

PARAMETER	NOLAST
Purpose	This parameter forces conversion of all views including ModelSpace, PaperSpace Layouts and ModelSpace Views plus Paperspace default but not Last Saved View.
Example	-nolast
Alias	-VN=*NOLAST*
Use	With all graphic formats

AllPaper

PARAMETER	ALLPAPER
Purpose	This parameter forces all PaperSpace Layouts plus PaperSpace default to be converted.
Example	-allpaper
Alias	-VN=*ALLPAPER*
Use	With all graphic formats

AllModel

PARAMETER	ALLMODEL
Purpose	This parameter forces all ModelSpace Views plus ModelSpace default to be converted.
Example	-allmodel
Alias	-VN=*ALLMODEL*
Use	With all graphic formats

LayoutsOnly

PARAMETER	LAYOUTSONLY
Purpose	This parameter forces all PaperSpace Layouts but not PaperSpace default to be converted.
Example	-layoutsonly
Alias	-VN=*LAYOUTSONLY*
Use	With all graphic formats

ViewsOnly

PARAMETER	VIEWSONLY
Purpose	This parameter forces all ModelSpace Views but not ModelSpace default to be converted.
Example	-viewsonly
Alias	-VN=*VIEWSONLY*
Use	With all graphic formats

FirstLayout

PARAMETER	FIRSTLAYOUT
Purpose	This parameter converts the first PaperSpace Layout only.
Example	-first
Alias	-VN=*FIRSTLAYOUT*
Use	With all graphic formats

Width

PARAMETER	WIDTH
Purpose	This parameter sets the width of the output drawing. The size is given in the default units of the output format (pixels for SVG and points (1/72nd of an inch) for PDF).
Example	-WIDTH 792
Alias	-WID
Use	With all graphic formats
Note	The drawing height is not affected.

PDF Only Parameters

PDF Only Parameters	
VARIOUS	PDF Document Information
MP and UP	PDF Passwords

PDF Document Info

PARAMETER	Various
Purpose	These parameters define information that is placed in the PDF Document Summary. Each of the parameters is a text string that defines the corresponding information in the document.
AUTHOR	Defines the document author
SUBJECT	Defines the document subject
KEYWORDS	Defines the document keywords
TITLE	Defines the document title
Use	PDF Only

PDF Passwords

PARAMETER	Various
Purpose	These parameters define the Master and User Passwords for the PDF document.
UP	Defines the document User password
MP	Defines the document Master password
Use	PDF Only

Raster Parameters

The following parameters are just used when converting to raster formats like JPEG, GIF, PNG and TIFF.

AU	Input File/Directory Name
RHT	Raster Height
RSZ	Raster Size
RWD	Raster Width

Autotrim

PARAMETER	AU
Purpose	Defines whether raster images should be trimmed of excess "white space" or not. If Autotrim is on any white area around the drawing image will be trimmed from the image. For instance, if there is a 10 pixel white border around a 200 by 300 image then the resulting image will be 180 by 280. The rest of the image is not modified in any way.
Values	None If the parameter is present then the image is trimmed. If the parameter is not used, then the image is not trimmed
Examples	-AU
Use	With all raster formats

Raster Height

PARAMETER	RHT
Purpose	This parameter defines the height in pixels of the output raster image.
Example	-RHT=2500
Use	With all raster formats

Raster Size

PARAMETER	RSZ
Purpose	This parameter defines both the height and the width in pixels of the output raster image.
Example	-RSZ=5000
Use	With all raster formats

Raster Width

PARAMETER	RWD
Purpose	This parameter defines the width in pixels of the output raster image.
Example	-RWD=4500
Use	With all raster formats

SVG Only Parameters

SVG Only Parameters	
BLOCKS	Blocks
BL	Break By Layer
BLDG	Building
FLR	Floor
LWTMIN	Thumbnail Line Weight Minimum
THUMBSIZE	Thumbnail Size

Blocks

PARAMETER	BLOCKS
Purpose	This parameter controls whether blocks are created in the SVG file (as group codes) or whether a "flat" file is created with no block structure.
Example	-BLOCKS=IGNORE
Values	Ignore/Off/No : Turns off block creation
	On/Yes/"Blank": Turns on block creation (Default)
Alias	None
Use	SVG Only

Break By Layer

PARAMETER	BL
Purpose	This parameter forces the converter to output each AutoCAD Layer as a seperate output file. The files are all defined in the same definition space and, if overlaid, will form a composite drawing equivalent to the drawing created if this parameter is not used.
Example	-BL
Alias	None
Use	With SVG Only

Building

PARAMETER	BUILDING
Purpose	This parameter allows the specification of the name of the Building. This is an informational only field that is added to the Metadata area of the SVG file.

Example	-BLDG="New Office Building"
Alias	-BLDG
Use	SVG Only

Floor

PARAMETER	FLOOR
Purpose	This parameter allows the specification of the name of the Floor in the Building. This is an informational only field that is added to the Metadata area of the SVG file.
Example	-FLR="4th Floor"
Alias	-FLR
Use	SVG Only

Thumbnail Line Weight Minimum

PARAMETER	LWTMIN
Purpose	This parameter defines the minimum width to be used for entities in the Thumbnail file.
Example	-lwtmin .5
Use	SVG Only

ThumbSize

PARAMETER	THUMBSIZE
Purpose	This parameter defines the threshold to be included in Thumbnail file
Example	-THUMBSIZE=2
Use	With SVG Only

Miscellaneous

Miscellaneous Parameters	
HIS	Program History
OL	Output List
Q	Quiet Mode (No messages output)
?	Parameter List

History

PARAMETER	HIS[TORY]

Purpose	This parameter lists the various versions of AutoXChange 2019 and major items that changed with each version. This is a purely informational parameter
Example	-his
Note	If this parameter is used all other parameters are ignored and the program execution will stop after the history is given.

Output List

PARAMETER	OL
Purpose	This parameter defines whether to produce an Output File List. If the list is produced AutoXChange 2019 will terminate after the list is complete. The list will contain the names of the files that would be produced if the conversion were run to completion but the files will NOT actually be created.
Values	None
Example	-OL
Use	With all graphic formats

Quiet

PARAMETER	q
Purpose	This parameter controls whether messages are output to the screen or not.
Example	-q
Default	Off - all messages output to the screen
Use	With all graphic formats

Parameter List

PARAMETER	?
Purpose	This parameter lists all of the parameters that are valid for AutoXChange 2019. This is a purely informational parameter
Example	-?
Note	If this parameter is used all other parameters are ignored and the program execution will stop after the parameter list is given.

Technical Support

Contact

Tailor Made Software is committed to providing high-quality support for registered users of AutoXChange 2019. If you have problems that you are unable to resolve, please contact us by these means:

Email: support@tailormade.com

Please provide the following information ready when you contact us:

1. Registration information (user name and product serial number)
2. AutoXChange 2019 version number
3. Operating system (and version) of your computer environment
4. The process that led up to the problem
5. The text of any error or informational message that was displayed