# Geospatial Modeling & Visualization

*A Method Store for Advanced Survey and Modeling Technologies*

## Using Leica's COE Plug-In in AutoCAD

**This workflow will show you how to use Leica's COE plug-in to import and export objects and points in AutoCAD.**
*Hint: You can click on any image to see a larger version.*

INTRODUCTION

Using COE Plug-In to Import & Export Objects and Points in AutoCAD

Leica's CloudWorx and COE (Cyclone Object Exchange) applications allow the user to view, import, and export files between Cyclone and CAD software while maintaining links and information. This relationship allows the user to take advantage of the accuracy of the point cloud data and the advanced modeling functions in AutoCAD; it also makes comparisons, analysis, and visualizations possible.

The COE import/export tool allows points and modeled objects to be imported/ exported/edited between Cyclone and ACAD (objects can be imported/exported with or without the point cloud data) and must be installed separately. Objects and points can be directly edited in the CAD environment. Importing/exporting points with the COE tool is only recommended for small point sets (less than 1,000,000 points). See the GMV guide 'Leica CloudWorx 4.2 and AutoCAD 2012' for more information about the CloudWorx application.

CONFIRM INSTALLATION AND SET UNITS

**I. In ACAD, confirm that the COE tool has been installed** (enter COEIN in the command line in ACAD; an import options dialogue box should appear).  If it is not installed, download the installation file from the Leica downloads page – check for updates as the plug-in changes as versions update). During installation, the .exe will open AutoCAD, command line (F2) will note the installation and the availability of new commands such as COEIN & COEOUT.

**II. UNITS ->** To avoid complications, it is highly recommended to work in the same units as the Cyclone Files > CHECK UNITS IN ALL NEW DRAWINGS BEFORE DRAWING, MODELING, OR IMPORTING **>** In new ACAD drawing -> Command Line: UNITS > Adjust options to match Cyclone > Generally, Type: Decimal, Insertion Scale Units: Meters > OK

COE COMMANDS

**III. The following COE commands** may be accessed through these entries or through the toolbar

**COEIN** :Import COE files into ACAD
**COEOUT:** Export contents of drawing to COE file
**COEXPLODE**: explodes blocks into individual objects
**COEANN**: toggles annotations from cyclone on/off

# IMPORT OBJECTS INTO ACAD

**IV. To import objects into ACAD** -> command line: COEIN -> dialogue box appears -> Under 'Import File Name' browse for file -> Import Options:

**Import objects as ACIS Solids** -> imports objects as 3D ACIS solids

**Import Objects as Blocks** -> Blocks are made up of one or more objects that are combined to create a single object; *using blocks results in the best compression rate when objects are brought to ACAD* (per Cyclone 7.0 Help) and are useful when repeating objects. When editing a block, all similar blocks are simultaneously edited. A block must be exploded or "re-written" to remove or adjust this link between identical blocks. Dynamic blocks are more easily editable and are only available in newer versions of ACAD. See ACAD help -> "Work with blocks" for more information

**Import Point Sets** -> In general, CloudWorx is recommended for large point clouds (1,000,000+ points), while the COE tool is recommended for objects and smaller point clouds (less than 1,000,000 points) -> If Import Point Sets is selected and you experience problems/crashing, it is recommended that you either decrease the size of the point cloud for import or that you use CloudWorx to view the point cloud versus import it

**Log files** -> log files are automatically created, adjust path as desired

**Units Preference** -> UNITS MUST MATCH (see Step II) -> In most cases, scan data is acquired in meters; if imported in a different unit, ACAD should automatically apply a scale factor but using the same units avoids problems (If acquired and imported in the same unit, this scale factor will be 1)

# EXPORT OBJECTS FROM AUTOCAD

**V. To export objects from AutoCAD** -> Toolbar or command line: COEOUT -> Dialogue box appears -> Browse to project folder and name file -> Select Objects to Export -> OK -> Export Options:

**Export objects USING ORIGINAL COE file as reference**: When selected, the COE file that is created/exported from ACAD references the original Cyclone data set enabling as much original object information/data as possible to be maintained when the object is brought back into Cyclone; select when integrating ACAD data with the original COE file from Cyclone.Export objects WITHOUT original COE reference file: When selected, the COE file is new and maintains no connection or reference to Cyclone data set or original COE file.

**Export Objects**: choose option All, Visible, or Selected objects

**Units:** as in importing in Step VI, UNITS MUST MATCH -> In most cases, scan data is acquired in meters; if exported in a different unit, a scale factor should automatically apply but using the same units avoids problems (If acquired and imported in the same unit, this scale factor will be 1)

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## Login

Log in