

Appendix D

Exporting AGTEK Data

Overview of Exportable File Types

AGTEK data can be exported in many different formats and this two-page overview can be used to identify an export format compatible with the intended use of the exported data. [AGTEK's old video at www.agtek.com/video.html?id=199 provides an overview of exportable machine control files with the now-discontinued exporting menu organization (in AGTEK 3D and pre-v1.20 releases of AGTEK 4D). AGTEK's webinar video at www.agtek.com/video.html?id=528 includes a comprehensive overview of current AGTEK 4D machine control export options: covers managing **exported line work colors** (@ 15:15 min, also see pages 285-286), **Leica** (@ 22:50 min), **Trimble** (@ 31:50 min), **Topcon** (@ 36:05 min) and **stringless curb alignments** (@ 45:45 min).]

DWG / DXF (CAD) Files This format is best when AGTEK data is to be used in a CAD system such as AutoCAD, MicroStation, Terramodel, etc. (page 287). DWG/DXF files can also be used to export elevation contours to Autodesk Revit BIM (page 288) and a 3D surface to SketchUp (page 290). Finally, DWG/DXF files can be used to export data for use with third-party survey and grade control systems, including Leica (page 297), Topcon (page 298) and Trimble (page 301).

AGT (Coordinate Text) Files This **PNEZ** format is a good choice when exporting data to be used with AGTEK software, including subsets of Data Lines, entire surfaces, Stake Lists for field stakeout, Benchmark control points, or Job Files for AGTEK's legacy *Graphic Grade* and *Graphic Survey* programs (page 294).

CSV (Coordinate Text) Files The **PNEZ** format option for these comma-delimited files is similar to that of the AGT file, but is a better choice when transferring data to third-party survey applications (see **Stake List Points** on page 284, and the examples/videos on pages 296, 297 and 300). The **XYZ** format CSV option can be used to export contours and sloping data lines as 3D points compatible with Autodesk Revit BIM (page 289). The **File > Export > Ground Control Points** (*Gradework 4D* only) menu includes options to export job file Benchmarks to a CSV file as ground control points for use in 3D Robotics (**PNEZ** format), DroneDeploy (**PNEZ** format), PhotoModeler (**Lat/Lon/Elev** format), Pix4D (**PENZ** format) or Agisoft (**P/Lat/Lon/Elev** format).

iCON (Leica) Files This specially-formatted DXF file is used with Leica grade control systems (page 297).

LN3 / TN3 / TP3 (Topcon) Files Export separate LN3 (2D plan-view line work) and TN3 (3D TIN surface) files or (*Gradework 4D v1.08.0+* only) a single TP3 file (combined line work and TIN surface) for use with Topcon machine control systems (page 298). [Note: The new Topcon **TP3** file export option is covered in AGTEK's videos at www.agtek.com/video.html?id=528 (advance to @ 36:05 min for the TP3 export topic) and at www.agtek.com/video.html?id=531 (advance to @ 26:07 min for the TP3 export topic).]

TTM (Trimble) Files These TIN surface files are used with Trimble grade control systems (page 301).

XML Files (*AGTEK 4D* only) These LandXML text files may contain site surface data (pages 297, 299, 302), highway alignment and cross-section data (page 300) or alignments for stringless curb machines (page 303). XML files can be used to transfer data to CAD, grade control and other third-party applications.

IFC Files (*Gradework 4D* only) open-format **IFC** (Industry Foundation Classes) files are used to transfer AGTEK surface data to BIM (Building Information Management) systems. For an IFC export example, see AGTEK's *v1.11 New Features* video at www.agtek.com/video.html?id=654 (advance to @ 5:19 min for the IFC export example).

KMZ (Google Earth) Files (*AGTEK 4D*) These files are used to display geo-referenced AGTEK data (layers, cut/fill map, quantities, and plan images) in Google Earth (page 291) and to share data with AGTEK's *SmartPlan*, *SmartDirt* and *SmartGrade* mobile apps as an alternative to the ADF export option (next page). [AGTEK 3D Notes: A less robust KMZ export function was included in the retired *GradeModel 3D* and *PDF-Enabled SiteModel 3D* products with export steps similar to the AGTEK 4D steps on page 291. No KMZ export function was included with the other retired AGTEK 3D products, but these AGTEK 3D users can print a cut-fill map to PDF, convert the PDF to JPG then upload and overlay the resulting JPG image in Google Earth.]

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Overview of Exportable File Types (Cont.)

LAS / TIF (Down-Sampled) Files (Gradework 4D) *Gradework 4D* can import a raw (full-size) LAS/XYZ point cloud file and a full-resolution orthomosaic GeoTIFF file (files resulting from a UAV photogrammetric survey). *Gradework* provides down-sampling options when importing the point cloud file (see video and the orthomosaic GeoTIFF is automatically converted to a lower-resolution background TIF. After the point cloud data is imported, down-sampled and transferred to a surface *Data Lines* layer, it can be exported by selecting **File > Export > Export Lidar/Drone (*.las,*.xyz)** from the menu. The lower-resolution background TIF is not exported but it can be found in the temporary image cache folder (the cache folder path is typically **C:\Users\AGTEK_User_Name\AppData\Local\AGTEK**). In firms using a mix of **Gradework 4D** and **Earthwork 4D** seats, *Earthwork 4D* users can import the down-sampled files exported by *Gradework 4D* (see related *Earthwork 4D* notes and *Video 304* link referenced on page 197), but it's much easier if *Gradework's* ESW job file containing the down-sampled drone data is directly opened in *Earthwork 4D*. AGTEK users will find numerous drone data processing videos linked at agtek.my.site.com/community/s/training-drone-data?tabset-27513=1.

ADF (AGTEK) Mobile Files (AGTEK 4D) These files are used to export geo-referenced AGTEK data and high-resolution plan sheet images for AGTEK's *SmartPlan*, *SmartDirt*, *SmartGrade* and *SmartTrack* mobile products. The following AGTEK training videos include examples of prepping, exporting and managing ADF files for AGTEK's Smart mobile apps:

www.agtek.com/video.html?id=19 (*SmartPlan* geo-referencing for ADF/KMZ export),

www.agtek.com/video.html?id=22 (export ADF with plan sheets only),

www.agtek.com/video.html?id=290 (*SmartDirt* geo-referencing for ADF/KMZ export),

www.agtek.com/video.html?id=292 (legacy *SmartGrade* ADF export) and

www.agtek.com/video.html?id=291 (AGTEK Access web-based file manager).

www.agtek.com/video.html?id=528 (This webinar video covers latest methods for exporting geo-referenced data for AGTEK's Smart apps via ADF and KMZ options—ADF/KMZ topics begin @ 48:31 min).

ESW (AGTEK) Files Native **AGTEK 3D** ESW files are used by AGTEK's discontinued *Graphic Grade 3D* and *SiteModel GPS* field products [*Note: Effective with Earthwork 4D v1.24.3 and Gradework 4D v1.06.3, AGTEK 4D no longer includes a EW3D Compatible Save As/Export file function, which produced ESW files compatible with the old AGTEK 3D products (see pages 34, 36)*]. A *PlanPilot* ESW file can be exported from *Earthwork 3D* by selecting **File > PlanPilot Export** from *Earthwork 3D's* main menu [*Note: Effective with Earthwork 4D v1.20 and Gradework 4D v1.02, AGTEK 4D no longer includes the Plan Pilot export function for AGTEK's discontinued PlanPilot, GradePilot and Grade Super mobile products (the old video at www.agtek.com/video.html?id=186 documents these discontinued export functions).*] AGTEK's discontinued *Graphic Grade Machine Control* product used a special *Aligned ESW* file that was exported from AGTEK's old *Machine Control Setup* program (see the *Graphic Grade Machine Control* user manual).

ESZ (AGTEK) Files ZIP export format for AGTEK ESW data file (select **File > Save As** from menu and select **AGTEK EarthWork Zip Files (*.esz)** for *Save as type*). The **AGTEK 3D/4D** earthwork programs can directly read and write ESZ files. **AGTEK 4D** (not **AGTEK 3D**) users have the option of attaching background images to the exported ESZ file, with a choice of **No Images**, **Current Image**, **Used Images**, or **All Images** in the corresponding *PDF/Image Attachment* dialog (see AGTEK's ESZ training video at <https://bit.ly/3R8R0Iy> for a short demonstration).

Other Files Various other files can be exported from AGTEK for documentation purposes, including the volume report (**TXT/XLSX** files), *Print Page* objects/layout (**EMF**, **AIP** and **PDF** files), and VRML 3D surfaces (**WRL** files). See pages 241-244 and 302-304 of the *Day 1 Handbook* for instructions on producing these files.