

# Customizing AutoCAD™ for S-File and Beyond

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The S-File space management utility is one of the primary tools developed to carry out the Air Force's goal of reducing facilities footprints 20 percent by 2020. The S-File relies on an accurate baseline for space use. GeoBase and other personnel at Hill Air Force Base, Utah, have developed a number of time-saving practices, computer-aided drafting automations, and geographic information systems processes to establish these space use baselines.

The S-File input process consists of four basic steps:

1. Review and update, or create existing CAD drawings of buildings
2. Align the drawing with prescribed CAD and layer standards
3. Interview the facility manager and tabulate space use and personnel assignments
4. Compile space objects and attributes in a GIS environment and export to a database consistent for use with the S-File utility

The main tools created are customized CAD commands (lisp routines) that arrange data needed for the S-File utility into a format within each building's AutoCAD drawing (.dwg). Automated GIS processes extract space-use data from the building floor plan drawing to create area shapes and associated attributes. These routines cut compilation time in half or more for larger buildings, increase quality, and more precisely tabulate cubicles and support spaces. Special scripts automatically compile the data into a spatial database engine GIS platform.



Alternatively, users operating within the AutoCAD Map 3D environment for GIS operations could easily read the attributes from within an existing drawing, use them to directly populate the established tables and relate them to individual space objects.

An AutoCAD .dwg file is very similar to a .dxf (drawing exchange file) format. When opened in a text editor, the elements in a .dxf file are parsed into separate rows more or less in a single column (i.e., it reads from top to bottom). For an AutoCAD Mtext object, properties exist within a .dwg file for such things as the insertion point, size, orientation and content. If all your space attributes exist within delimited text objects on a unique layer, it is possible to extract them for uses outside of CAD (e.g., like a related personnel table).

A comma makes a great delimiter. The software tool featured here extracts all of the comma-delimited Mtext contents of a drawing to a common .csv comma-delimited file that can be opened by Microsoft Excel™ or most text editing programs.

Safeguards are also in place for accidental transpositions and duplications. A separate dialog utility prompts the user to pick on a closed polyline, and then prompts the user to enter the room number, space type, organization, flight, number of workstations, number of personnel, and personnel type. The comma-separated label is created automatically with the SPACE\_ID automatically incremented for the next space. The area is derived from the polyline area, and the MAJCOM field is populated in the label from the user value entered into a predefined variable. A Microsoft Excel macro alerts for duplicate spaces, or misspellings.

The S-File utility is a GIS based interim stepping stone for the asset management platform NexGenIT. The tools presented here just scratch the surface of possibilities for accelerating productivity in the gathering, compilation and publication of S-File space use data.

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