

GCAP - GoCAD Access Class Project Library



Independent Import & Export of GoCAD Data Objects

GCAP provides an independent C++ class library (Software Development Toolkit – SDK) to read/write GoCAD data for creating new data bridges. Defining principle data structures from GoCAD data models with methods to access GoCAD compatible files, the library has an efficient memory model with large file scalability. Full source code is available if required with the benefit that no other 3rd party software are required. A suite of example programs, including a VTK-based visualizer is available to simplify integrating GCAP into your applications.

Currently Geological/Geophysical software is faced with unsolved problems of data management and visualisation of large multi-file and multi-entity geologic models. The aims of GCAP are to offer a C++ class defining principle data structures from GoCAD models, with methods to read and write this data structure to GoCAD compatible files, using “out of core” scalable techniques.

Motivation:

With the development of GCAP, one such problem is solved that exists in the data management and visualisation of geologic models. Such models have grown significantly in storage and logical complexity in recent years. The field of software applications available to geologists and geophysicists has not kept pace with current practices and needs, especially as the minority of software applications that can address this complexity are in themselves very complex and difficult to use. While some applications exist, none offer an easy to use interface to other existing commercial or internal research applications.

Existing Practices:

GoCAD software and tools define a proprietary file transport standard for complex geologic models. This is supported by the vendor's native library API. This limits the scope of potential users to those organisations participating with GoCAD tools. Most 3rd party applications surveyed appear to only support a limited subset of GoCAD specifications, and have only written the portion of the data model support they were interested in. Many smaller groups have not been able to take up the full GoCAD system, creating an opportunity to provide an alternative with different design goals to the geological and geophysical community.



Aims:

GCAP seeks to achieve a significant advance in the data management and data visualisation of complex geologic 3D models, especially where models are defined using GoCAD format specifications. By integrating GCAP, full access to GoCAD hierarchical and multi-segment models can be manipulated at will from within your application, with the details of "out-of-core" scalability hidden from the developer.

What is GCAP ?

GCAP stands for **GoCAD Access Class Project**. It is a library of C++ classes that can be used to read, store and write GoCAD data objects.

The GCAP library consists of three main modules:

1. GoCAD Data Object Module
2. GoCAD File Reader Module
3. GoCAD File Writer Module

GCAP currently supports the following object types:

1. Atomic or VSet
2. Tsurf
3. Tsolid
4. Grid3D or Voxet
5. Gsurf
6. SGrid

A full 50-page user manual and 200-page API Reference describes how to install and use GCAP in your application.

Features:

- Independent C++ Class Library
- Scalability using "out-of-core" methods
- Dictionary system allows application to pick and choose parts
- Handles attributes and properties, not just raw geometry
- Comprehensive professional documentation, hyperlinked help
- Both Linux and Windows supported platforms

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