

Cadcorp apSIS applications for SIS



Cadcorp apSIS – the cutting edge of programmable GIS component software

Cadcorp apSIS is short for **applications for SIS** (Spatial Information System) and has been designed for the software developer interested in developing streamlined applications which employ GIS functionality and use map data.

Cadcorp apSIS combines the Microsoft Component Object Model (COM) with the latest OpenGIS standards and low purchase costs to provide an easy-to-use programming environment with well-defined GIS functionality at an economical price.

Cadcorp apSIS applications can be written in a variety of programming languages including Microsoft Visual Basic and Microsoft Visual C++.

Cadcorp apSIS is part of the wider suite of Cadcorp GIS software known as Cadcorp SIS – Spatial Information System.



Sample Run-time apSIS data viewer application

Ted Macy, President of MapShots Inc., a pioneering developer of agricultural software solutions states: "I have been working with versions of apSIS throughout product development. During that time, I have seen the implementation of significant enhancements. I have had to rewrite very little code to accommodate these. That tells me that the original design was very well thought out, and that enhancements are not just thrown on, but are part of a well-planned implementation. I have also found nothing in apSIS that is slow. And some things are so fast they are almost scary!"

Purchase and licensing

For development purposes, apSIS is purchased as an all-inclusive software developer kit (SDK) which is supported on both Windows NT 4.0, 2000 and XP. Run-time licenses can then be deployed when a finished application is implemented and these are available in 10 and 25 user packs.

Key capabilities

Cadcorp apSIS offers a suite of COM objects which cover a wide range of GIS capabilities. These includes graphical display, data projection, transformation, geometry creation, selection, manipulation, spatial querying and much more. This allows a mix and match opportunity for the developer to 'cherry pick' desired GIS functionality. This also allows application sizes (the 'software footprint') to be kept in check, which means that applications can be deployed more efficiently.

Cadcorp apSIS is unique in its support for OpenGIS Interfaces. The OpenGIS Consortium (OGC), of which

Cadcorp is a Technical Member, is the global initiative by all major GIS vendors to establish common GIS functionality and standards. Cadcorp apSIS is officially certified conformant for vector data structures and spatial testing (Simple Features) and coordinate systems and transformation between them (CTS). In addition OpenGIS support for raster images (Grid Coverages) and Geographic Markup Language (GML) is included.



Cadcorp has an unrivalled record for OpenGIS conformance.

Vector data is read using a cursor, much the same way a database table is read. Another name for these is Cursor Datasets. The cursor is used to interrogate the dataset to pull out records as needed. Computer memory usage is significantly reduced because only part of the file is loaded into application memory. It also means that apSIS applications can read 'up to date' records from dynamic or live data sources being edited by individual or multiple concurrent users.

The Cadcorp apSIS Control

The apSIS Control (apSIS.ocx) is an ActiveX Control and the main element within the Cadcorp apSIS SDK. The apSIS Control is added to Visual Basic or Visual C++ Forms at Design-time. During Run-time, the Control is sometimes called a Map Window or Map View. This is because geospatial or digital cartographic data is displayed and manipulated in the Control.



The Cadcorp apSIS Control on a Visual Basic Form at Design-time.

apSIS Dynamic Link Libraries (Dll's)

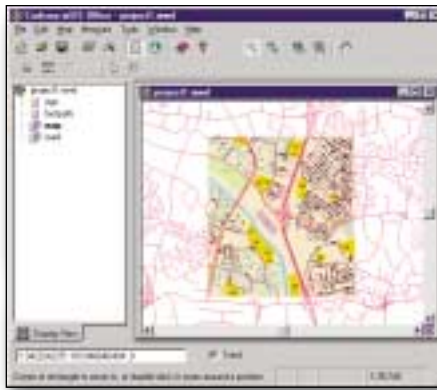
Whilst the apSIS Control is a central mechanism for developing GUI's for mapping applications, the dll's process operations performed on data. The functionality incorporated into these files is extremely sophisticated. No other COM based GIS developer kit offers the same level of OpenGIS conformant functionality. The three dll's supplied with the apSIS SDK are as follows:

- **apSISObjects** provide the display objects for the apSIS Control, e.g. Overlay, Theme, Annotation, and Style.

apSISDataCapture.dll is an object used for advanced geometric operations such as snapping to a vertex, tracing and so on. These objects are useful for applications which require on-screen digitizing or 'red lining'.

apSISRaster.dll contains object classes which implement the BmpConverter interface for converting raster output. Raster files are usually images or backdrop base mapping such as Gif, Jpeg, Tiff, Ecw or Png.

Cadcorp mSIS – a commercial application built using apSIS (image courtesy of agis, Singapore)



Cadcorp Dynamic Link Libraries

As well as apSIS dll's, a range of generic Cadcorp dll's used by the core Cadcorp SIS product range are included and cover a range of purposes.

- Each apSIS application requires that any geospatial data used must be within a Co-ordinate System. A Co-ordinate System is a means of expressing the position of 3 dimensional data from the real world on a 2 dimensional view. Cadcorp apSIS handles this for the programmer within the CadcorpCoordinateSystem library.
- Transformation from one projection to another is handled by CadcorpCoordinateTransformation, Cadcorp's implementation of the OpenGIS CoordinateTransformation and MathTransformFactory interfaces.
- **CadcorpDataObjects** Library provides the data objects referenced in applications. These include DatasetFactory, Recordset, Columns etc. Display objects are created by apSISObjects.
- **CadcorpGeometryTransformation** includes objects for transforming and manipulating Geometry objects for on-screen rendering.
- **CadcorpGridCoverages** is an implementation of the OpenGIS specifications for raster data.
- **CadcorpSimpleFeatures** is an implementation of the OpenGIS specifications for vector data and spatial testing.

Supported Datasets: Vector

Cadcorp In-memory Dataset A dataset for on-screen display and annotation.

Cadcorp Shared Dataset The common metric between apSIS and other Cadcorp products such as Cadcorp SIS and Cadcorp mSIS.

ESRI Shape A de facto industry standard, useful for data transfer between apSIS and other applications.

Ordnance Survey NTF Dataset Full support for the OS NTF product range: Built in data Indexing and Feature Tables provide an immediate cartographic base for UK applications.

Supported OS products include; Address-Point, BaseDataGB, Boundary-Line, Land-Form, Land-Line, Meridian, OSCAR, OS Raster, Strategi and TravelMaster.

Supported Datasets: Raster

Cadcorp Grid Coverages Because Cadcorp are at the forefront of OpenGIS specification and development, apSIS boasts a wide range of raster capability. This capability is brought about through the implementation of the OpenGIS Grid Coverages interface.

The following is a list of the file types apSIS can handle: Bitmap, ECW + ER Mapper Image Web Server, ESRI BIL, ESRI GRID ASCII, GeoTIFF, TIFF, TIFF (LZW), GIF, GSI Mem (Japan), GTOPO30, JPEG, OSGB DEM, USGS DEM, Web Map Server (OpenGIS).

Supported Datasets: Databases

Oracle Spatial Connect to an Oracle Database Layer (Spatial Object-Relational), as a Dataset. The data is returned to apSIS as a vector layer as far as the end user is concerned. Leverage your enterprise's spatial data with Oracle as a back engine.

Cadcorp OS MasterMap Dataset OS MasterMap is the new, seamless, British, large scale vector mapping product from Ordnance Survey. It is supplied in GML and resupplied on a 'change-only update' basis.

Cadcorp provide a specific management tool for OS MasterMap, which populates and manages a database for end-users. This Database is made available to apSIS users via the Cadcorp OS MasterMap Dataset. It means that OS MasterMap is made available to desktop clients in a vector format.

Summary

Cadcorp apSIS is a unique and flexible development tool for the creation of streamlined GIS applications. Based upon Microsoft COM objects and OpenGIS Interface standards, apSIS is also attractively priced and can be flexibly deployed. It should be your first choice when considering programmable GIS component software.

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