

Functional overview of 3D Analyst classes

Loading the 3D Analyst adds several Avenue classes.

[Views and Themes Object Model diagram](#)

TIN

A TIN is a disk based data object that represents surfaces using a non-overlapping, contiguous set of triangles. The TIN class provides requests for surface analysis functions.

STheme

An STheme is a visual representation of a surface object. Like other subclasses of a Theme (FTheme, ITheme, DBTheme), SThemes inherit all of the properties of the Theme class and have unique properties of their own. The surface of an STheme is a TIN.

TINLegend

TINLegend is a subclass of Legend. A TINLegend contains the information necessary to display a TIN's point, line, and face features using different symbolization schemes. This information includes classifications, symbols, labels, and sorting details that affect how a legend appears in a View, Scene, or Layout.

Grid

A grid is a disk based data object that stores spatial data using a raster (cell-based) data structure; each cell stores a number. The Grid class provides analysis requests that produce new grid objects from other grid objects.

GTheme

A GTheme is a visual representation of a grid object. Like other subclasses of Theme (FTheme, ITheme, and DBTheme), GThemes inherit all of the properties of the Theme class and have unique properties of their own.

GLegExt

The Grid Legend Extension (GLegExt) class supports the addition of GTheme specific information to the Legend class. This includes a reference to another GTheme whose cell values are used for modulating display brightness.

[Document Overview Object Model diagram](#)

Scene

A Scene is a subclass of a view. It is the document used for 3D viewing. Scenes, like views, provide a display and query environment through the use of themes, legends, displays, and graphics. The currently supported theme types in a scene are FTheme, ITheme, GTheme, and STheme.

SceneDisplay

A SceneDisplay maintains some of the global display properties associated with a scene. These include the list of viewers, graphics, sun vector used for shading, zfactor for vertical exaggeration, default viewer background color, and maximum image texture and grid display resolutions.

AnalysisEnvironment

The AnalysisEnvironment class stores the analysis environment for processing grids. Each view or scene document is associated with its own AnalysisEnvironment object that specifies a unique extent, cell size, and mask to be used when performing analysis. The analysis environment can be set for performing analysis outside of a view or scene document without affecting the parameters associated with any document. However, making a view or scene document active will override these temporary settings.

[Scene Object Model diagram](#)

Viewer

A Viewer references both a display window for a Scene document and a Camera that defines a 3D perspective. Many viewers for a scene can be opened at the same time. Each viewer provides different modes and various tools for interacting with the data sets composing the Scene document.

Camera

A Camera is used to define a 3D perspective projection. This perspective is used for rendering in a 3D viewer.

DDDThemeExtension

This class provides methods and properties for 3D display of IThemes. An ITheme uses this extension to reference an STheme. It is the referenced STheme's DDDLegendExtension that provides the height information for the ITheme.

DDDLegendExtension

This class provides 3D specific methods and properties used to display FThemes, SThemes, and GThemes in a scene. It controls height information, shading, transparency, and theme simplification.

[Symbols Object Model diagram](#)

DDDMarker

The DDDMarker class is used to mark a point on the screen and in the 3D viewer. A DDDMarker references a DDDMarkerGraphic which will be displayed in the 3D viewer.

DDDMarkerGraphic

A DDDMarkerGraphic represents a graphic that can be used to symbolize points in a 3D viewer.

DDDFill

A DDDFill uses a texture to fill in polygons in a 3D viewer.

TextureMap

A Texture Map is an object that stores raster data originating from image or grid themes in a form suitable for texture mapping. Texture coordinates are in the range 0.0, 1.0.