ESRI® ArcObjects™ is the development platform for the ArcGIS™ family of applications such as ArcMap™, ArcCatalog™, and ArcScene™. The ArcObjects software components expose the full range of functionality available in ArcInfo™, ArcEditor™, and ArcView™ to software developers.

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ArcObjects is the development platform for ArcGIS Desktop, a suite of GIS software systems: ArcInfo, ArcEditor, and ArcView. These systems serve GIS professionals with a spectrum of geographic data management, spatial editing, and cartographic visualization functionality.

The ArcGIS Desktop systems each contain a configuration of applications, such as ArcCatalog, ArcMap, ArcToolbox™, and ArcScene, and can host a variety of extension products such as Spatial Analyst, Geostatistical Analyst, 3D Analyst™, and others.

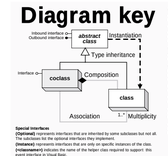
This object model diagram shows the ArcGIS subsystems and their components that coordinate all geographic data management. These are the ArcObjects components documented in volume two of *Exploring ArcObjects*.

You will find updates to ArcObjects developer resources at www.esri.com/arcobjectsonline.

ESRI® ArcGIS™ 8.1 Object Model

Exploring ArcObjects™ • Volume 2 • Geographic data management

Diagram key



Types of Classes

An **abstract class** cannot create new objects; it is a specification for instances of subclasses (through type inheritance.)

A **coclass** can directly create objects by declaring a new object.

Type inheritance defines specialized classes. Instances of the class can be created as a property of another class or instantiated by objects from another class.

Types of Relationships

Associations represent relationships between classes. They have defined multiplicities at each end.

Type inheritance defines specialized classes of objects that share properties and methods with the superclass and have additional properties, methods, or both. Note that interfaces in type/subtype are not displayed in subclasses.

Instantiation specifies that one object from one class has a method with which it creates an object from another class.

Composition is a relationship in which objects from the "whole" class control the lifetime of objects from the "part" class.

An **N-ary association** specifies that more than two classes are associated. A diamond is placed at the intersection of the association branches.

A **multiplicity** is a constraint on the number of objects that can be related to a single object. The most common multiplicities are one-to-one and one-to-many multiplicities as set forth here. This is the notation for multiplicities:

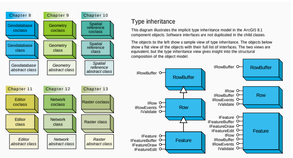
1—One and only one of some shown "1" is implied.
0..1—Zero or one
M..N—From M to N (positive integers)
0..* or ***—From zero to any positive integer
1..*—From one to any positive integer

Special Interfaces

{Optional} represents interfaces that are inherited by some subclasses but not all. The subclasses list the optional interfaces they implement.

{Instance} represents interfaces that are only on specific instances of the class.

{<<enumeration>>} indicates the name of the helper class required to support this event interface in Visual Basic.

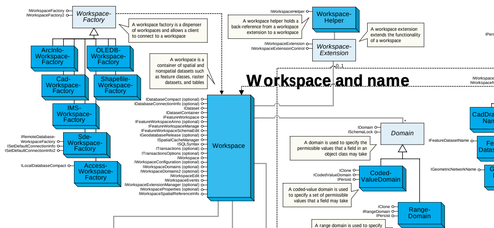


Type inheritance

This diagram illustrates the implicit type inheritance model in the ArcGIS 8.1 component objects. Software interfaces are not duplicated in the child classes.

The objects to the left show a sample view of type inheritance. The objects below show a full view of the objects with their full list of interfaces. The two views are shown to illustrate how a simplified view gives insight into the structural composition of the object model.

Workspace and name



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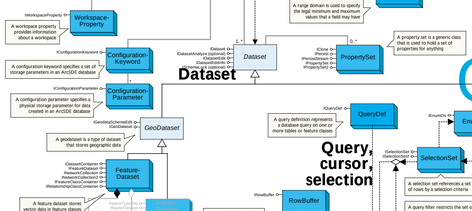
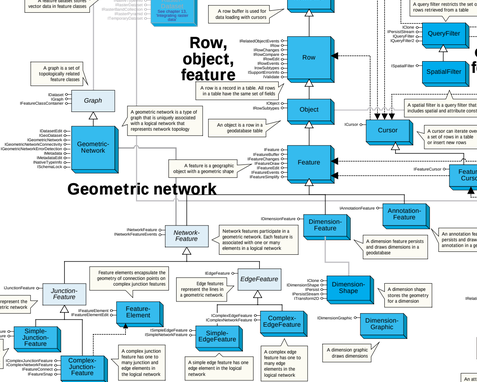


Geometric network



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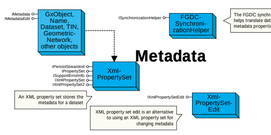
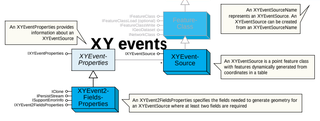


XY events

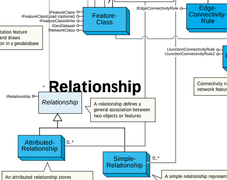


Query, cursor, selection

Row, object, feature

Table, object class, feature class

Relationship



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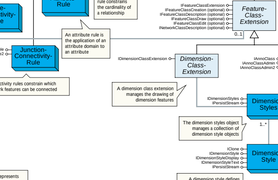
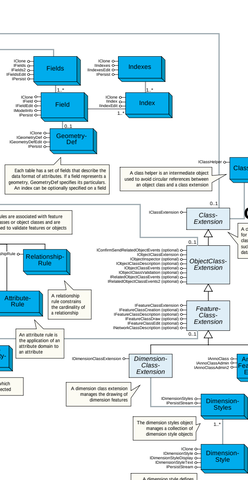
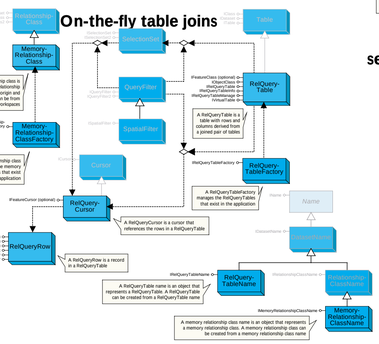


Class extension



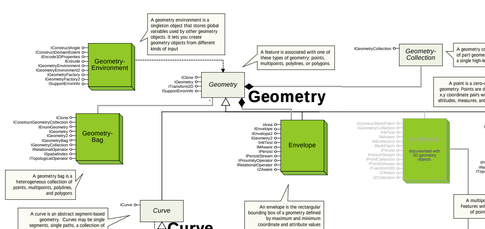
Versioning

On-the-fly table joins

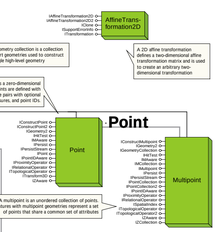


XY events

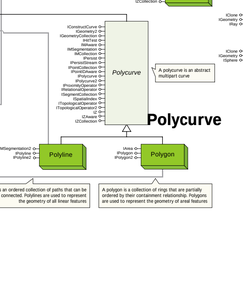
Geometry



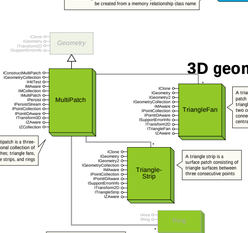
Point



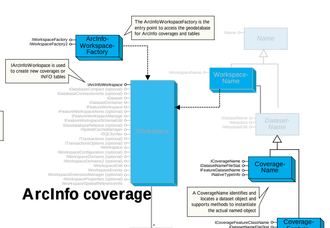
Polycurve



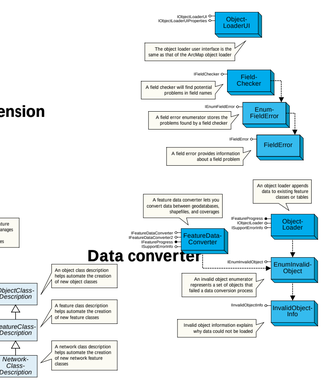
3D geometry



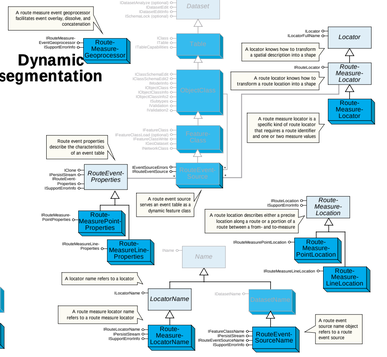
ArcInfo coverage



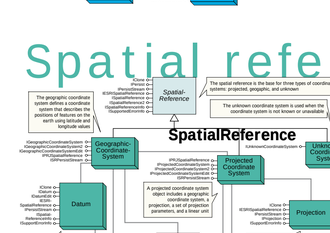
Data converter



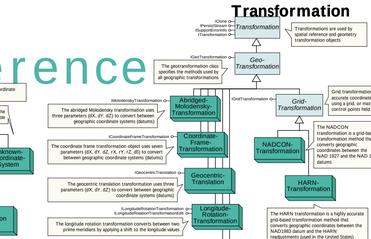
Dynamic segmentation



Spatial reference



Transformation

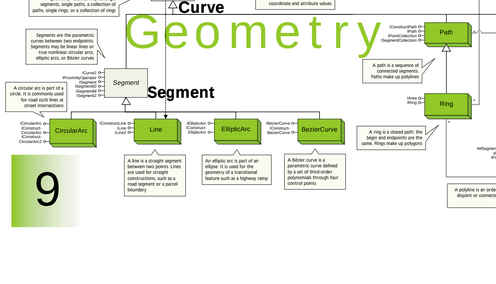


Geometry

Point

Polycurve

Segment



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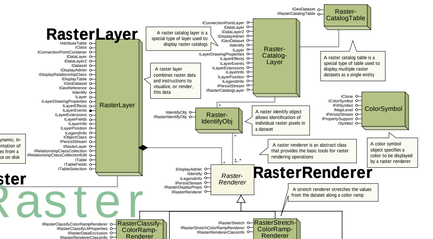

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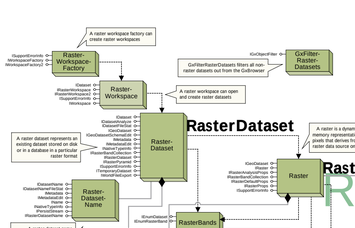

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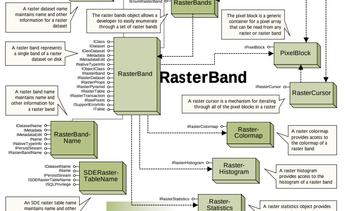

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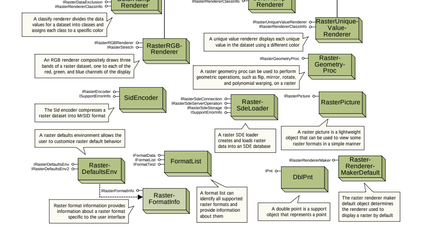

Raster

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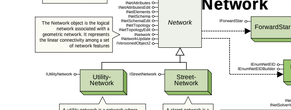
Network



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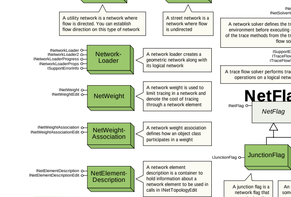

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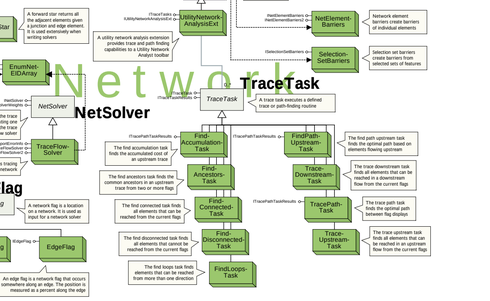

TraceTask

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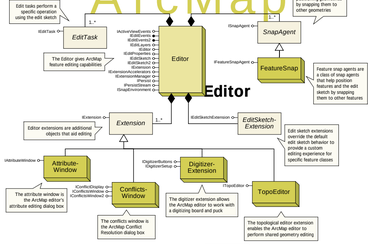
Editing in ArcMap™



Editor

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