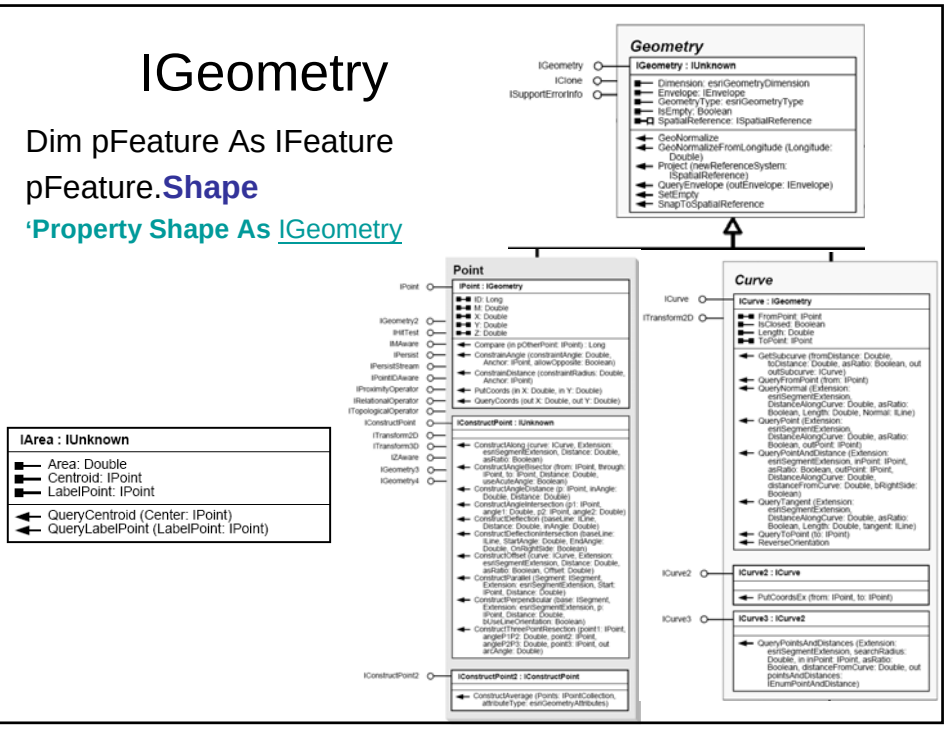
Vector Data

IGeometry

Dim pFeature As IFeature

pFeature.**Shape**

‘**Property Shape As** IGeometry



IFeatureClass.ShapeType Property

Constant	Value	Description
esriGeometryNull	0	A geometry of unknown type.
esriGeometryPoint	1	A single zero dimensional geometry.
esriGeometryMultipoint	2	An ordered collection of points.
esriGeometryLine	13	A straight line segment between two points.
esriGeometryCircularArc	14	A portion of the boundary of a circle.
esriGeometryEllipticArc	16	A portion of the boundary of an ellipse.
esriGeometryBezier3Curve	15	A third degree bezier curve (four control points).
esriGeometryPath	6	A connected sequence of segments.
esriGeometryPolyline	3	An ordered collection of paths.
esriGeometryRing	11	An area bounded by one closed path.
esriGeometryPolygon	4	A collection of rings ordered by their containment relationship.
esriGeometryEnvelope	5	A rectangle indicating the spatial extent of another geometry.
esriGeometryAny	7	Any of the geometry coclass types.
esriGeometryBag	17	A collection of geometries of arbitrary type.
esriGeometryMultiPatch	9	A collection of surface patches.
esriGeometryTriangleStrip	18	A surface patch of triangles defined by three consecutive points.
esriGeometryTriangleFan	19	A surface patch of triangles defined by the first point and two consecutive points.
esriGeometryRay	20	An infinite, one-directional line extending from an origin point.
esriGeometrySphere	21	A complete 3 dimensional sphere.
esriGeometryTriangles	22	A surface patch of triangles defined by non-overlapping sets of three consecutive points each.

Buffering

FeatureCursorBuffer CoClass

Interfaces

Interfaces	Description
IBufferProcessingParameter	Provides access to members that set and retrieve parameters for the buffering process.
IFeatureCursorBuffer	Provides access to members that control the buffering of features.
IFeatureCursorBuffer2	Provides access to additional functions and configuration capabilities for the buffer generation.

‘Set Output Shapefile Wkspace & Name

```
Dim pFCursorBuffer2 As IFeatureCursorBuffer2
' Define a feature cursor buffer object.

Dim pSRef As ISpatialReference
' Set the spatial reference.
Set pSRef = pMap.SpatialReference

Set pFCursorBuf = New FeatureCursorBuffer

With pFCursorBuf
    Set .FeatureCursor = pFCursor
    .Dissolve = True
    .ValueDistance = 300
    Set .BufferSpatialReference = pSRef
    Set .DataFrameSpatialReference = pSRef
    Set .SourceSpatialReference = pSRef
    Set .TargetSpatialReference = pSRef
End With

' Use the buffer method.
pFCursorBuf.Buffer pBufFCName
```

IFeatureCursorBuffer2 Interface

	All	Description
←	Buffer	Buffers features to a new and existing feature class.
■	BufferedGeometry	Enumerator of buffered features.
→□	BufferSpatialReference	Specifies in which spatial reference system should be buffered.
←	BufferToGraphics	Buffers the selected features and stores them into a composite graphics layer.
→□	CancelTrack	TrackCancel used when buffering.
→□	DataFrameSpatialReference	Specifies the spatial reference system of the data frame.
→■	Dissolve	Indicates if overlapping buffered features should be dissolved.
→□	FeatureCursor	Feature cursor of features to buffer (overrides GraphicsLayer).
→■	FieldDistance	Field specifying distance to buffer on.
←	GraphicsLayer2	Graphics layer of elements to buffer (overrides FeatureCursor).
→■	PolygonBufferType	Indicates how to buffer polygon features.
→■	RingDistance	Multiple rings specifying distance to buffer on.
→□	SourceSpatialReference	Specifies the spatial reference system of the source data (calls IFeatureCursorBuffer::SpatialReference()).
→□	SpatialReference	Projection of buffered features.
→□	TargetSpatialReference	Specifies the target spatial reference system.
→■	Units	Conversion units, from map units to buffer units.
→■	ValueDistance	Constant buffer distance.

```
 Dim pSRef As ISpatialReference
' Set the spatial reference.
Set pSRef = pMap.SpatialReference

Dim pBufWSName As IWorkspaceName
Dim pBufDatasetName As IDatasetName
Dim pBufFCName As IFeatureClassName
' Define the output's workspace and name.
Set pBufFCName = New FeatureClassName
Set pBufDatasetName = pBufFCName 'QI
Set pBufWSName = New WorkspaceName
pBufWSName.WorkspaceFactoryProgID = "esriCore.ShapeFileWorkspaceFactory.1"
pBufWSName.PathName = "c:\data\chap10"
Set pBufDatasetName.WorkspaceName = pBufWSName
pBufDatasetName.Name = "Buffer_result"

Dim pFCursorBuffer2 As IFeatureCursorBuffer2
' Define a feature cursor buffer object.

Set pFCursorBuf = New FeatureCursorBuffer
With pFCursorBuf
      Set .FeatureCursor = pFCursor
      .Dissolve = True
      .ValueDistance = 300
      Set .BufferSpatialReference = pSRef
      Set .DataFrameSpatialReference = pSRef
      Set .SourceSpatialReference = pSRef
      Set .TargetSpatialReference = pSRef
End With

' Use the buffer method.
pFCursorBuf.Buffer pBufFCName
```

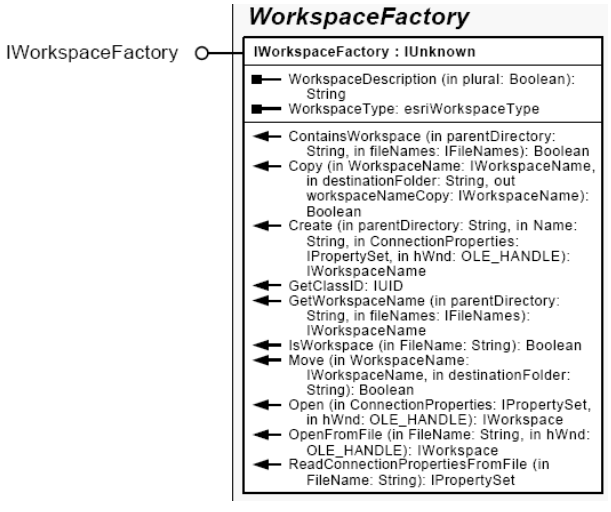
FeatureClassName CoClass

ESRI Feature Class Name object.

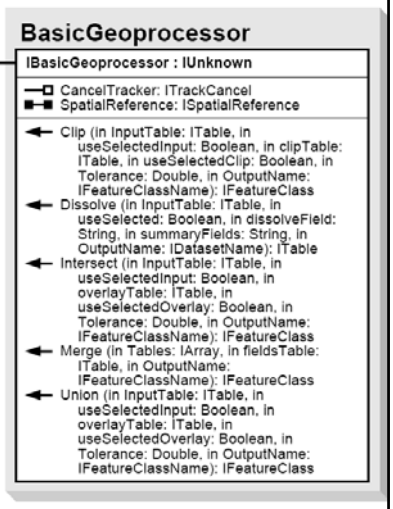
Interfaces

Interfaces	Description
IDatasetName	Provides access to members that supply dataset name information.
IDatasetName2	Provides access to members that supply dataset name information.
IFeatureClassName	Provides access to members that return information about the feature class.
IMetadata	Provides access to members that manage and update metadata.
IMetadataEdit	Provides access to members that provide information about whether metadata can be edited.
IModelInfo	Provides access to the model name of the field.
IName (esriSystem)	Provides access to members that work with Name objects.
INativeTypeInfo	Provides access to the native type.
IObjectClassName	Provides access to the objects class ID.
IPersist	Defines the single method GetClassID, which is designed to supply the CLSID of an object that can be stored persistently in the system. IPersist is the base interface for three other interfaces: IPersistStorage, IPersistStream, and IPersistFile.
IPersistStream (esriSystem)	
ISQLPrivilege	Provides access to members for granting and revoking privileges to database users.
ITableName	Indicator interface for table name objects.
ITopologyClassName	Provides access to members that return information about the topology class.

WorkspaceFactory Interface
(Geodatabase Object Model 1.pdf)



Vector Overlay - IBasicGeoprocessor




```
Dim pBGP As IBasicGeoprocessor
Dim tol As Double
Dim pOutputFC As IFeatureClass

Set pBGP = New BasicGeoprocessor
tol = 0#
Set pOutputFC = pBGP.Intersect(pInputFC, False, _
    pOverlayFC, False, tol, pFeatClassName)
```

```
'Define the datasets for intersect
    Dim pMxDoc As IMxDocument
    Dim pMap As IMap
    Dim pInputLayer As IFeatureLayer
    Dim pOverlayLayer As IFeatureLayer
    Dim pInputFC As IFeatureClass
    Dim pOverlayFC As IFeatureClass
    Set pMxDoc = ThisDocument
    Set pMap = pMxDoc.FocusMap

'Define the input feature class (first in the table of contents)
    Set pInputLayer = pMap.Layer(0)
    Set pInputFC = pInputLayer.FeatureClass

'Define the overlay table (second in the table of contents)
    Set pOverlayLayer = pMap.Layer(1)
    Set pOverlayFC = pOverlayLayer.FeatureClass
```

```
'Define the feature class name and output location
   Dim pNewWSName As IWorkspaceName
   Dim pFeatClassName As IFeatureClassName
   Dim pDatasetName As IDatasetName
   Set pFeatClassName = New FeatureClassName
   Set pDatasetName = pFeatClassName
   Set pNewWSName = New WorkspaceName
   pNewWSName.WorkspaceFactoryProgID = _
   "esriCore.ShapeFileWorkspaceFactory"
   pNewWSName.PathName = "C:\temp"
   Set pDatasetName.WorkspaceName = pNewWSName
   pDatasetName.Name = "StreamBuffer_Soils_Intersect“

'Perform Intersect
   Dim pBGP As IBasicGeoprocessor
   Dim tol As Double
   Dim pOutputFC As IFeatureClass
   Set pBGP = New BasicGeoprocessor 'Define a basic geoprocessor object
   tol = 0  'Use default tolerance

'Run intersect; 4 object qualifiers and 2 arguments
   Set pOutputFC = pBGP.Intersect(pInputFC, False, _
   pOverlayFC, False, tol, pFeatClassName)
```

Joining Data by Location

```
'Define the source and join tables
Dim pMxDoc As IMxDocument
Set pMxDoc = ThisDocument

Dim pMap As IMap
Set pMap = pMxDoc.FocusMap

'Define the source feature class
Dim pSourceLayer As IFeatureLayer
Set pSourceLayer = pMap.Layer(0)

Dim pSourceFC As IFeatureClass
Set pSourceFC = pSourceLayer.FeatureClass

'Define the join feature class
Dim pJoinLayer As IFeatureLayer
Set pJoinLayer = pMap.Layer(1)

Dim pJoinFC As IFeatureClass
Set pJoinFC = pJoinLayer.FeatureClass
```

```
'Define the output dataset
Dim pOutWorkspaceName As IWorkspaceName
Dim pFCName As IFeatureClassName
Dim pDatasetName As IDatasetName
Set pFCName = New FeatureClassName
Set pDatasetName = pFCName
Set pOutWorkspaceName = New WorkspaceName
pOutWorkspaceName.WorkspaceFactoryProgID =
        "esriCore.ShapefileWorkspaceFactory.1"
pOutWorkspaceName.PathName = "C:\Documents and
        Settings\Owner.YOUR-906971236B\Desktop\GEOG_590"
pDatasetName.Name = "Spatial_Join"
Set pDatasetName.WorkspaceName = pOutWorkspaceName
```

```
'Perform spatial join
Dim pSpatialJoin As ISpatialJoin
Dim pOutputFeatClass As IFeatureClass
Dim maxMapDist As Double

'Create and define a spatial join object
Set pSpatialJoin = New SpatialJoin
With pSpatialJoin
   .ShowProcess(True) = 0
   .LeftOuterJoin = False
   Set .SourceTable = pSourceFC
   Set .JoinTable = pJoinFC
End With

'Use infinity as the maximum max distance
maxMapDist = -1

'Run the join nearest method
Set pOutputFC = pSpatialJoin.JoinNearest(pFCName, maxMapDist)
```

ISpatialJoin performs a join operation based a spatial relationship between two feature classes.

Members

	All	Description
←	JoinAggregate	Join using aggregate. Only features within a distance of maxMapDist will be joined. A maxMapDist of -1 means infinity.
←	JoinNearest	Joins with the nearest feature in the join feature class. Only features within a distance of maxMapDist will be joined. A maxMapDist of -1 means infinity.
→	JoinTable	The spatial table to append fields from.
←	JoinWithin	Joins a feature in the source feature class with the feature if it falls within in the join feature class.
■	LeftOuterJoin	Indicates whether a match is required before adding a record from the source feature class to the result. If TRUE, all records in the source feature class are added regardless of whether there is a match.
■	ShowProcess	Indicates whether to show update messages while processing join.
→	SourceTable	The spatial table to append fields to.

CoClasses that implement ISpatialJoin

CoClasses and Classes	Description
SpatialJoin	Spatial Join two feature classes.

```
'Create the output layer and add it to the active
    map
Dim pOutputFeatLayer As IFeatureLayer
Set pOutputFeatLayer = New FeatureLayer
Set pOutputFeatLayer.FeatureClass = pOutputFC
pOutputFeatLayer.Name = pOutputFC.AliasName
pMap.AddLayer pOutputFeatLayer
```