Open GIS Consortium, Inc.

OpenGIS® Simple Features Test Protocol For OLE/COM

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0 Preface

0.1 Submitting Companies

The following companies submitted this test protocol document:

- Computer Aided Development Corporation (Cadcorp) Ltd.
- Intergraph Corporation

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0.3 Document Conventions

The Courier New font has been used to indicate code segments.

1 Overview

This document describes the conformance testing guidelines that the Open GIS Consortium will use in the testing of software implementations for conformance to its specification entitled Open GIS Simple Features for OLE/COM, Revision 1.1.

The Open GIS Consortium, Inc. (OGC) maintains a brand (in the form of a certification mark) that cannot be used in connection with a software product by any organization unless they have submitted a software product to OGC's conformance testing, successfully completed this testing, and received a certificate stating such success. Organizations that have earned the certification mark may use it in ways defined within this document. This set of rules ensures that users who buy products that are branded can be sure that the products carrying the certification mark have been submitted to a testing process. The primary purpose of the conformance testing process is to protect the value of the OpenGIS® brand as an element of OGC's program to promote interoperability between diverse geoprocessing systems.

This document defines the following:

- A general description of the conformance tests and the scope of the tests
- A description of the test data
- A description of the test programs

2 Test Description and Scope

According to the OpenGIS Simple Features Specification for OLE/COM, Revision 1.1 specification (hereafter referred to as "the specification"), there are three components:

- **OLE DB** for implementing data providers
- ADO for presenting a simplified data access model on top of OLE DB
- Geometry and Spatial References for detailed geometry and reference operations

The specification reads:

Each of these components is implemented using the Microsoft Component Object Model (COM). ADO and the Geometry and Spatial Reference objects implement IDispatch and are therefore accessible to rapid development languages such as Visual Basic, Java, and Power Builder. All COM interfaces are accessible from lower level languages such as C++ for optimal performance.

And:

ADO and OLEDB are the facilities by which consumers and providers communicate data and metadata. To achieve a sense of seamless interoperability, standards must be defined to allow GIS consumers and providers to communicate GIS information using these facilities. These standards enable an OLEDB data consumer to determine the GIS capabilities of an OLEDB data provider and retrieve GIS information in a predictable manner.

An OLEDB data consumer that cares nothing about GIS may still utilize data from an OGIS data provider as if it were any other OLEDB data provider. This consumer will simply not take advantage of the GIS information. Similarly, an OGIS data consumer can use the same OLEDB API, without the GIS standards, to utilize data from any OLEDB data provider.

These standards involve:

- · OGIS Data Provider Registry Entries—OGIS data providers must register support for the "OGISDataProvider" component category so that consumers can distinguish them from other OLEDB Data Providers.
- GIS Metadata—Required and Optional GIS Metadata and the manner by which the client retrieves it are described. To a great extent, this is the bulk of the proposal—this is how the client knows there is GIS information and how to get it.

Test suite software is provided to verify conformance of:

- 1. OLE DB Providers, for accessing features in a database independent manner
- 2. COM interfaces, for handling geometry and spatial references.

The test suite software is provided as two Visual Basic programs, **SFProviderTest.exe**. and **SFTest.exe** The source code for both programs is included, as it is necessary to modify the code for implementation-specific calls, and to run the programs in VB runtime mode to identify certain failures to conform.

The test scripts check that all mandatory features have been implemented, and can be called, but they do not check that the returned values are correct.

The two test scripts are written in Microsoft Visual Basic. VB6 was chosen as the test script language, since it has good compatibility with COM, and is widely available.

Unfortunately, the test scripts cannot be completely implementation independent. Small modifications must be made for a specific implementation. For example, the VB programs must be referenced to the implementers Simple Features component(s).

2.1 OLE DB Provider

The specification states:

There is no strict "level of compliance" scheme for OGIS data servers. Clients are expected to use standard COM and OLE DB techniques for determining if a data server supports a specified type of functionality. It is the client's responsibility to decide what action it will take if a data provider fails to support a given service.

The minimum level of support that a data server must pass is:

- · Support the minimum set of interfaces as defined by the OLE DB standard
- · Require providers to register support for the "OGISDataProvider" component category.
- · Geometry values must be exposed as Well Know Binaries (WKB) as described in Section 4.

Conformance with the specification for an OLE DB Provider is tested by the program **SFProviderTest.exe**. The following steps describe the process of running the test:

Install Candidate Implementation

Installation of the candidate implementation will be specific to that implementation. No guidelines are given on the process for installing an OLE DB Provider implementation.

Register at Least One Feature Table

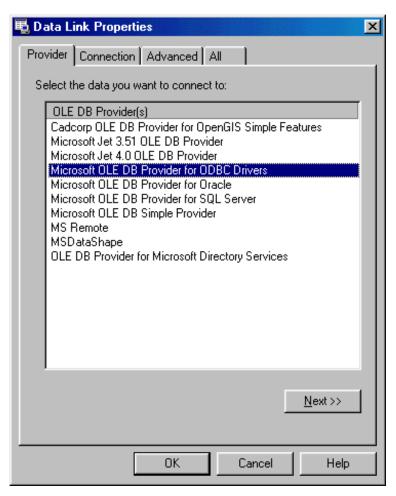
The process of registering feature tables is implementation specific, and no guidelines are given on this process.

Run Microsoft Visual Basic 6

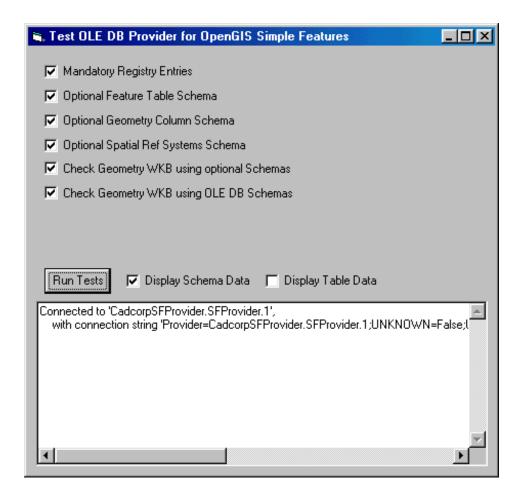
Source code for the OLE DB Provider test is supplied so that organizations submitting candidate software can examine the tests being performed. It is not necessary to run the test in Visual Basic "run time" mode, as no modifications to the code are required, but it may prove useful in identifying areas of non-conformance. The test program may be run as an executable program without Visual Basic if desired.

Run the VB Program

The test program may be run from within Visual Basic or as a compiled executable. Submitting organizations may choose to run the test from within Visual Basic as a debugging aid. Whether the program is started from within Visual Basic, or as an executable program, the dialog shown below will be displayed, enabling the testing personnel to select the registered OLE DB Provider.



The Form_Load event attempts to make a connection using the Data Link class of the Microsoft OLE DB Service Component 1.0 Type Library. The test program reports success or failure:



Choose the Tests You Wish to Perform

The test program verifies mandatory Registry entries, and optionally three schema tests. Additionally, WKB Geometry is verified using the optional schemas and OLE DB schemas. Testing personnel can use the check boxes to select the components of the candidate implementation to be tested.

Press the "Run Tests" Button

When the test program is run, the selected tests are performed, and the dialog displays a message indicating success or failure for each test.

2.2 COM Interfaces

The specification states:

ADO is a Microsoft implementation of an OLEDB data consumer. While it is not an OLEDB data provider, its purpose is to provide the essence of OLEDB data to automation clients via a standard automation server. This allows easy access to data from high level languages such as Visual Basic and Power Builder. The ADO model is analogous to, but much simpler than the OLEDB model. The fundamental objects in the ADO object hierarchy are:

· Connection—This bundles the DSO and the Session and allows the automation client to connect to the data source, access schema information and begin posing queries.

- · Command—This exposes the OLEDB Command capabilities, allowing queries to be posed (Including spatial queries for OGIS data servers).
- · Recordset—This is the result of a query or a request for information.
- · Field—Column values that one would access via IRowset::GetData in OLEDB are accessed as the Value property of Field objects in the Recordset's Fields collection.

Conformance with the specification for COM Interfaces is tested by the program **SFTest.exe**. The following steps describe the process of running the test:

Install Candidate Implementation

Installation of the candidate implementation will be specific to that implementation. No guidelines are given on the process for installing a COM Interface implementation.

Run Microsoft Visual Basic 6

Source code for the COM Interface test program is supplied so that organizations submitting candidate software can examine the tests being performed. It is also necessary to modify the Form_Load event of the program to cater for implementation specific processes.. After modification, the test program may be run as an executable program without Visual Basic if desired.

Load the Visual Basic Project

Open the Visual Basic project **SFTest.vbp** and display the Form_Load event procedure.

Link to the Candidate Implementation Type Library.

Use the Project References command to link to the candidate implementation type library.

Edit the Form_Load Event

It is necessary to modify the code for this event to use the candidate's implementation of OpenGIS Simple Features library classes. The unmodified code for this event includes the following lines:

```
' Get factories, using implementation specific code.

Set factorySR = New CadcorpSF.SpatialReferenceFactory

Set factoryG = New CadcorpSF.GeometryFactory

Set factorySRA = New CadcorpSF.SpatialReferenceAuthorityFactory
```

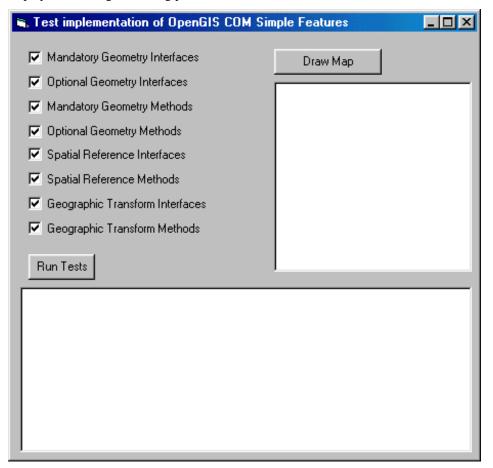
The candidate implementation of a COM Interface should contain classes named SpatialReferenceFactory, GeometryFactory, and SpatialReferenceAuthorityFactory. These classes should be prefixed with the name of the candidate implementation's OpenGIS Simple Features Library.

The test program includes a routine to draw the sample map described in Section 3 of this document. The map data is provided as **sample.txt**, and is in Well Known Text (WKT) format. To draw the map using the candidate implementation's OpenGIS Simple Features Library, it will be necessary to modify the Click event of the command button Command2.

Run the VB Program.

The test program may be run from within Visual Basic or as a compiled executable. Submitting organizations may choose to run the test from within Visual Basic as a debugging aid. Whether the

program is started from within Visual Basic, or as an executable program, the dialog shown below will be displayed, enabling the testing personnel to select the methods and interfaces to be tested:



Choose the Tests You Wish to Perform

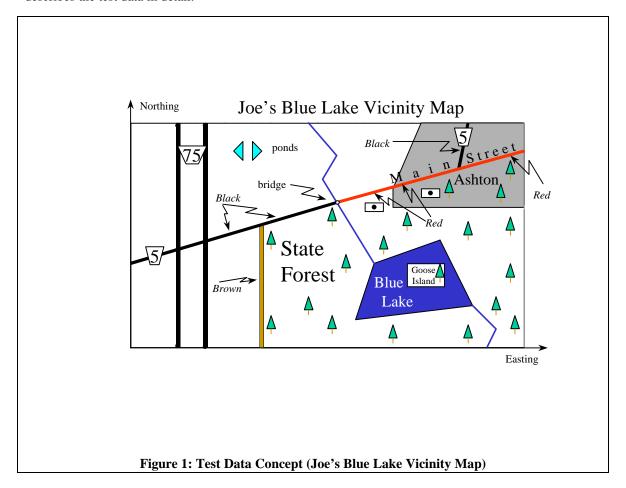
The test program verifies mandatory and optional interfaces and methods. Testing personnel can use the check boxes to select the components of the candidate implementation to be tested.

Press the "Run Tests" Button

When the test program is run, the selected tests are performed, and the dialog displays a message indicating success or failure.

3 Test Data

The data is a synthetic data set, developed, by hand, to exercise the functionality of the specification. It is a set of features that make up a map (see Figure 1) of a fictional location called Blue Lake. This section describes the test data in detail.



3.1 Test Data Semantics

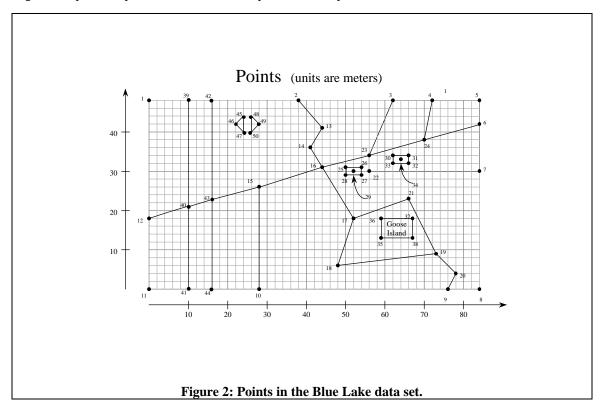
The semantics of this data set are as follows:

- A rectangle of the Earth is shown in UTM coordinates. Horizontal coordinates take meaning from POSC Horizontal Coordinate System #32214. Note 500,000 meters false Easting, and WGS74. Units are meters. (see http://www.petroconsultants.com/epsgweb/epsg.htm)
- Blue Lake (which has an island named Goose Island) is the prominent feature.
- There is a watercourse flowing from North to South. The portion from the top neatline to the lake is called Cam Stream. The portion from the lake to the bottom neatline has no name (Name value is "Null")
- There is an area place named Ashton.
- There is a State Forest whose administrative area includes the lake and a portion of Ashton. Roads form the boundary of the State Forest. The "Green Forest" is the State Forest minus the lake.
- Route 5 extends across the map. It is two lanes where shown in black. It is four lanes where shown in Red.

- There is a major divided highway, Route 75, shown in a double black line, one line for each part of the divided highway. These two lines are seen as a multi-line.
- There is a bridge (Cam Bridge) where the road goes over Cam Stream, a point feature.
- Main Street shares some pavement with Route 5, and is always four lanes wide.
- There are two buildings along Main Street; each can be seen either as a point or as a rectangle footprint.
- There is a one-lane road forming part of the boundary of the State Forest, shown in brown.
- The are two fish ponds, which are seen as a collective, not as individuals; that is, they are a multipolygon.

3.2 Test Data Points and Coordinates

Figure 2 depicts the points that are used to represent the map.



The following table gives these coordinates associated with each point.

Point	Easting	Northing	Point	Easting	Northing
1	0	48	26	52	31
2	38	48	27	52	29
3	62	48	28	50	29
4	72	48	29	52	30
5	84	48	30	62	34
6	84	42	31	66	34
7	84	30	32	66	32

8	84`	0	33	62	32
9	76	0	34	64	33
10	28	0	35	59	13
11	0	0	36	59	18
12	0	18	37	67	18
13	44	41	38	67	13
14	41	36	39	10	48
15	28	26	40	10	21
16	44	31	41	10	0
17	52	18	42	16	48
18	48	6	43	16	23
19	73	9	44	16	0
20	78	4	45	24	44
21	66	23	46	22	42
22	56	30	47	24	40
23	56	34	48	26	44
24	70	38	49	28	42
25	50	31	50	26	40

The following gives entire test data in Well Known Text (WKT) format, as supplied in the file sample.txt:

```
"PROJCS['UTM_ZONE_14N', GEOGCS['World Geodetic System 72',DATUM['WGS_72', SPHEROID D']
['NWL_10D', 6378135, 298.26]],PRIMEM['Greenwich', 0], UNIT['Meter', 1.0]], D'

PROJECTION['Transverse_Mercator'], PARAMETER['False_Easting', 500000.0], D'

PARAMETER['False_Northing', 0.0], PARAMETER['Central_Meridian', -99.0], D'

PARAMETER['Scale_Factor', 0.9996], PARAMETER['Latitude_of_origin', 0.0],UNIT['Meter',1.0]]"

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101,"Blue Lake","POLYGON( (52 18, 66 23, 73 9, 48 6, 52 18), (59 18, 67 18, 67 13,59 13, 59 18) )"

102,"Route 5","LINESTRING( 0 18, 10 21, 16 23, 28 26, 44 31 )"

103,"Route 5","LINESTRING( 44 31, 56 34, 70 38 )"

104,"Route 5","LINESTRING( 70 38, 72 48 )"

105,"Main Street","LINESTRING( 70 38, 84 42 )"

106,"Dirt Road by Green Forest","LINESTRING( 28 26, 28 0 )"

109,"Green Forest","MULTIPOLYGON( ( (28 26, 28 0, 84 0, 84 42, 28 26), (52 18, 66 23,73 9, 48 6, 52 18) ), D'

110,"Cam Bridge","POINT( 44 31 )"
```

```
111,"Cam Stream","LINESTRING( 38 48, 44 41, 41 36, 44 31, 52 18 )"
112,"Cam Stream","LINESTRING( 76 0, 78 4, 73 9 )"
113,"123 Main Street","GEOMETRYCOLLECTION( POINT( 52 30 ), POLYGON( ( 50 31, 54 31, 5429, 50 29, 50 31) ))"
114,"215 Main Street","GEOMETRYCOLLECTION( POINT( 64 33 ), POLYGON( ( 66 34, 62 34, 6232, 66 32, 66 34) ))"
115,"Neat Line","POLYGON( ( 0 0, 0 48, 84 48, 84 0, 0 0 ) )"
117,"Ashton","POLYGON( ( 62 48, 84 48, 84 30, 56 30, 56 34, 62 48) )"
118,"Goose Island","POLYGON( ( 67 13, 67 18, 59 18, 59 13, 67 13) )"
119,"Route 75","MULTILINESTRING( (10 48, 10 21, 10 0), (16 0, 10 23, 16 48) )"
120,"Stock Pond","MULTIPOLYGON( ( ( 24 44, 22 42, 24 40, 24 44) ), ( ( 26 44, 26 40,28 42, 26 44) ) )"
```

indicates that the subsequent line of text is a continuation.]

4 Conformance Items

This section details the tests that are to be executed. Each test constitutes a Conformance Item in the terminology of the Conformance Testing Program document. The ID in the following tables is used to reference the specific Conformance Item:

4.1 Conformance Items for OLE DB Providers

The OpenGIS GUIDs are defined in OLEDBGIS.h supplied separately, and are initialized as constants within the test program.

ID	Functionality Tested	Description	Result
PO	Registry Settings (Mandatory)	The Registry should contain the following key: HKEY_LOCAL_MACHINE\Software\CLASSES\ CLSID\{ProviderCLSID}\Implemented Categories\{CATID_OGISDataProvider}\ CATID_OGISDataProvider is defined as {A0690A28-FAF5-11D1-BAF5-080036DB0B03} in OLEDBGIS.h	If any level in reading the hierarchy of this key fails, a suitable message will be displayed. Otherwise a success message is displayed.
P1	Feature Tables Schema (Optional)	The column names and values of schema DBSCHEMA_OGIS_FEATURE_TABLES are interrogated	If the Feature Tables Schema cannot be opened, a message is displayed. Otherwise each field name and value is reported for visual comparison of conformance with the specification.
P2	Geometry Columns Schema (Optional)	The column names and values of schema DBSCHEMA_OGIS_GEOMETRY_COLUMNS are interrogated	If the Geometry Columns Schema cannot be opened, a message is displayed. Otherwise each field name and value is reported for visual comparison of conformance with the specification.
Р3	Spatial Ref Systems Schema (Optional)	The column names and values of schema DBSCHEMA_OGIS_SPATIAL_REF_SYSTEMS are interrogated	If the Spatial Ref Systems Schema cannot be opened, a message is displayed. Otherwise each field name and value is reported for visual comparison of conformance with the specification.

C WIZD	A	IC
-		If any of the schemas
~ .		cannot be opened a
Schemas		message will be
		displayed. Otherwise
		the Geometry WKB is
	U 1	tested, and success or
	1 1	failure is reported.
	DBSCHEMA_OGIS_SPATIAL_REF_SYSTEMS	Optionally the table
	to get Spatial Ref WKT.	data may be displayed,
	If successful, the structure of the tables, column	e.g.:
	names and spatial reference system is evaluated.	GID: 15
		OGIS_GEOMETRY: Polygon with 1 ring(s)
		fid: 118
		name: Goose Island
Geometry WKB	The same tests are performed as in test P4, but	If any of the schemas
using OLE DB	using all OLE DB schemas. The test is performed	cannot be opened a
Schemas	where the schema IDs are those specified in	message will be
	OLEDBGIS.h	displayed. Otherwise
		the Geometry WKB is
		tested, and success or
		failure is reported.
		Optionally the table
		data may be displayed,
		e.g.:
		GID: 15
		OGIS_GEOMETRY:
		Polygon with 1 ring(s) fid: 118
		name: Goose Island
	using OLE DB	Using optional Schemas DBSCHEMA_OGIS_FEATURE_TABLES to enumerate Feature Tables. If successful, an attempt is made to open schema DBSCHEMA_OGIS_GEOMETRY_COLUMNS to get Spatial Ref System ID. If successful, an attempt is made to open DBSCHEMA_OGIS_SPATIAL_REF_SYSTEMS to get Spatial Ref WKT. If successful, the structure of the tables, column names and spatial reference system is evaluated. Geometry WKB using OLE DB Schemas The same tests are performed as in test P4, but using OLE DB schemas. The test is performed where the schema IDs are those specified in

4.2 Conformance Items for COM Interfaces

ID	Functionality	Description		Result
	Tested			
C1	Geometry	Well Known Text (WKT) geometry co-classes are	The number of
	Interfaces	created using the candida		mandatory interfaces
	(Mandatory)		e mandatory interfaces for	passing the test is
		each geometry are tested,	as below:	reported. A message
		POINT	IPoint, IGeometry, IWks	is displayed listing
		LINESTRING	ILineString, ICurve,	any failures.
			IGeometry, IWks	
		POLYGON	IPolygon, ISurface,	
			IGeometry, Iwks	
		MULTIPOINT	IGeometryCollection,	
			IGeometry, IWks	
		MULTILINESTRING	IMultiCurve,	
			IGeometryCollection,	
			IGeometry, IWks	
		MULTIPOLYGON	IMultiSurface,	
			IGeometryCollection,	
			IGeometry, IWks	
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		Page	17	
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		GEOMETRY	IGeometryCollection,]
		COLLECTION	IGeometry, IWks	
C2	Geometry Interfaces (Optional)	The geometry co-classes and the following options geometry are tested: ISpatialRelation ISpatialRelation2 ISpatialOperator	listed in test C1 are created, al interfaces for each	A message is displayed of the number of optional interfaces found. Examination of the program in runtime mode will reveal which optional interfaces are not present in the candidate implementation.
C3	Geometry Methods (Mandatory)	all methods on co-classes Return values are NOT c program can catch errors implementations failing. On Error GoTo fail may be commented out o allow VB to stop on failu Well Known Text (WKT created using the candida	hecked, but the VB runtime due to method The statement: led of the Test3 procedure to are. The geometry co-classes are attenued in the method of the method	If all methods tested pass the test, a "Passed" message is displayed. If any method fails, this test is halted with a failure message. The method causing the failure may be discovered by running the test in VB runtime mode.
		IPolygon	SetEmpty Centroid, Clone, Dimension, Envelope, Extent2D, ExteriorRing, InteriorRing, IsEmpty, IsSimple, NumInteriorRings, PointOnSurface, Project, SpatialReference, SetEmpty	

	1			
		IMultiCurve	Clone, Dimension,	
			Envelope, Extent2D,	
			Geometry, IsClosed,	
			IsEmpty, IsSimple,	
			Length, NumGeometries,	
			Project, SpatialReference,	
			SetEmpty	
		IMultiSurface	Area, Centroid, Clone,	
			Dimension, Envelope,	
			Extent2D, Geometry,	
			IsEmpty, IsSimple,	
			NumGeometries,	
			PointOnSurface, Project,	
			SpatialReference,	
			SetEmpty	
		IGeometryCollection	Clone, Dimension,	
		13cometry concetion	Envelope, Extent2D,	
			Geometry, IsEmpty,	
			IsSimple,	
			NumGeometries, Project,	
			SpatialReference,	
			SetEmpty	
		Additionally IV/leasesth		
			ods are tested on geometry	
		co-classes. Point, Linestri		
		MultiLineString, MultiPo	• •	
			metries are created using the	
		candidate implementation	•	
		CreateFromWKT method		
		_	oWKB, ImportFromWKT	
C4	Canada Mathada	and ImportFromWKB are		TE all another de toots d
C4	Geometry Methods	Point, Linestring, Polygo		If all methods tested
	(Optional)	MultiLineString, MultiPo	• •	pass the test, a
			metries are created using the	"Passed" message is
		candidate implementation CreateFromWKT method		displayed. If any
				method fails, this
		The following methods a	re tested:	test is halted with a
		for ISpatialRelation: Contains		failure message. The
		Crosses		method causing the
				failure may be
		Disjoint		discovered by
		Equals		running the test in VB runtime mode.
		Intersects		VB runtime mode.
		Overlaps		
		Touches		
		Within		
		for ISpatialRelation2:		
1		Relate		
		for ISpatialOperator:		
		Boundary		
		Buffer		
		ConvexHull		
		Distance		
		Difference		

C5	Spatial Reference Interfaces	Intersection SymmetricDifference Union A WktSpatialReference is created in the Form_Load event for use as the basis of this test. The following interfaces are tested and the SpatialReferenceInfo interface tested for each: AngularUnit / Unit Ellipsoid GeodeticSpatialReference GeographicCoordinateSystem HorizontalDatum LinearUnit / Unit		A total of 26 interfaces are tested. Failure of any test will result in an appropriate failure message. Success is indicated if all tests are passed.
		ParameterInfo / Parameter ProjectedCoordinateSystem Projection		
C6	Spatial Reference	The following Spatial Refer	ence methods are tested:	A "Passed" or
	Methods	AngularUnit	Abbreviation, Alias, Authority, Code, Name, Remarks, WellKnownText, RadiansPerUnit	"Failed" message is displayed at the end of this test. The statement: On Error GoTo failed
		Ellipsoid	Abbreviation, Alias, Authority, Code, Name, Remarks, WellKnownText, AxisUnit, InverseFlattening, SemiMajorAxis, SemiMinorAxis	may be commented out of the Test6 procedure to allow VB to stop on failure to determine the method(s) causing failure.
		GeodeticSpatialReference	Abbreviation, Alias, Authority, Code, Name, Remarks, WellKnownText	
		GeographicCoordinate System	Abbreviation, Alias, Authority, Code, Name, Remarks, WellKnownText, AngularUnit, HorizintalDatum, PrimeMeridian	
		HorizontalDatum	Abbreviation, Alias, Authority, Code, Name, Remarks, WellKnownText, Ellipsoid	
		LinearUnit	Abbreviation, Alias, Authority, Code, Name, Remarks, WellKnownText, MetersPerUnit	

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		Parameter	Abbreviation, Alias,	
			Authority, Code,	
			Name, Remarks,	
			WellKnownText,	
			Value, ValueUnit	
		ProjectedCoordinate	Abbreviation, Alias,	
		System	Authority, Code,	
			Name, Remarks,	
			WellKnownText,	
			DefaultParameterInfo,	
			Forward,	
			GeographicCoordinate	
			System, Inverse,	
			LinearUnit,	
			ParameterInfo,	
			Projection, Usage	
		Duciaction		-
		Projection	Abbreviation, Alias,	
			Authority, Code,	
			Name, Remarks,	
			WellKnownText,	
			AngularUnit,	
			Classification,	
			DefaultParameterInfo,	
			Ellipsoid, Forward,	
			Inverse, LinearUnit,	
			ParameterInfo, Usage	
		SpatialReferenceInfo	Abbreviation, Alias,	
			Authority, Code,	
			Name, Remarks,	
			WellKnownText	
		Unit	Abbreviation, Alias,	
			Authority, Code,	
			Name, Remarks,	
			WellKnownText	
C7	Geographic	A GeographicTransform is	created using the	A total of 2
	Transform	candidate implementation's	C	interfaces are tested.
	Interfaces	SpatialReferenceAuthorityF	actory	Failure of any test
		CreateGeographicTransforn		will result in an
		the Form_Load event. The		appropriate failure
		and SpatialReferenceInfo in	- 1	message.
				Success is indicated
				if all tests are passed.
C8	Geographic	The following GeographicT	ransform methods are	A "Passed" or
	Transform Methods	tested:	ransionin monious arc	"Failed" message is
	Transform Memous	Abbreviation, Alias, Author	rity Code Name	displayed at the end
		Remarks, WellKnownText,	•	of this test.
		ParameterInfo, Forward, Inv		The statement:
			reise, sourcedes,	On Error GoTo
		TargetGCS		failed
				may be commented
				out of the Test8
				procedure to allow
				_
	l			VB to stop on failure

	to determine the method(s) causing
	failure.

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Conformance Test Guidelines for OpenGIS Simple Features Specification for COM