



OGC's Role in the Spatial Standards World

An Open GIS Consortium (OGC) White Paper

1 Introduction

Because there are so many incompatible standards in the geo-information technology area, geospatial information and geoprocessing are not part of most information systems, and sharing geodata between geoprocessing systems and between user communities requires considerable time and expertise. Most of the standards attempt to normalize one of the following: 1) the encoding of information in software systems (data format standards and data transfer standards), or 2) the naming of features and feature relationships (data dictionaries), or 3) schemas for descriptions of data sets (metadata). Uniquely, OGC addresses the Babel-like profusion of data format and data transfer standards by creating open, common interfaces between software system components, and letting those systems use any data format internally. These OpenGIS® Interfaces provide access to both information and functionality. OGC also works to develop open software approaches that address inconsistent data dictionaries and metadata schemas.

OGC is not a de jure standards organization. It is an international industry consortium whose consensus process involves technology users and providers and whose objective is market enablement through interoperability between commercial geoprocessing software products. OGC adds implementation detail to the standards of de jure standards organizations, and extends de jure standards whenever the marketplace needs stricter guidelines to experience greater growth.

OGC works to provide the geospatial technology marketplace with standards that support:

agriculture	general coverages	service architecture
cascading servers	image coordinate transformation	telecommunications
defense and intelligence	image exploitation	terrain analysis
disaster management	info. communities semantics	topological relationships
feature identification	location services	transportation
feature relationships	public safety	web mapping
gazetteers	route analysis	... and many others

2 Related Standards Organizations

Several standards organizations' agenda and scope intersect the interests of OGC:

<u>Organization</u>	<u>Abbreviated Content</u>
ISO/IEC JTC1 SC32	SQL Spatial Extensions, Geometry Model
ISO/IEC JTC1 SC24	Computer Graphics
ISO TC204	Mobile computing, and most relevantly, automobile navigation systems
ISO TC211	Geodata standards: Metadata, Spatial Schema, Spatial Reference, Application Schema, Conceptual Schema Language, Quality, Portrayal, Encoding, Catalog, ...
OMG	CORBA, Brokers, many foundational object management and domain services
W3C	Commerce on the web, HTML, XML, RDF, SVG, ...
IETF	Security, HTTP, Transport, Routing, ...
SEDRIS	Scene Synthesis
Sun Microsystems	JAVA, JINI
Microsoft	COM-based Standards and Conventions
WAP	WAP: Wireless Applications Protocol. The WAP environment raises important issues, such as "GIS on a palmtop"
LIF	Geographic location of wireless terminals and devices.

Some of these organizations address spatial standards, others supply parts of the distributed computing environment.

3 The ISO/OGC Agreement

OGC and ISO TC211 have an agreement to sustain the technical alignment of their respective developments. This is accomplished through mutual review and development of draft documents. When lack of agreement is discovered, steps are taken to evolve a common and consensus view. In many ways, OGC can be viewed as implementing (or adding an implementation layer on top of) ISO TC211 standards. When an OGC specification meets certain requirements, ISO will adopt it as an ISO specification. The agreement provides for sharing of private documents, freedom from certain copyright restrictions, and access to each other's experts.

4 Bilateral and Three-way Reviews

Some issues, like Geometry Schema, are within the scope of three (and sometimes more) standards organizations. Geometry Schema is in the scope of ISO/IEC JTC1 SC32, ISO TC211,

and OGC, so a three-way review and alignment initiative was organized and executed involving representatives from all three bodies. More common are bilateral ad-hoc groups that come together to resolve specific issues and dissolve after harmony is achieved.

5 The Benefits

There are a number of OGC membership benefits that derive from the ISO/OGC agreement and from the close attention OGC pays to international standards. These benefits include:

- Assurance that OpenGIS® conformant products will also conform closely with ISO TC/211 standards, which supports global product acceptance and global interoperability.
- Better OpenGIS® Specifications and better ISO TC/211 standards
- Rapid development and testing of implementation specifications in testbeds and pilot projects in the OGC Interoperability Program, accelerating COTS product interoperability.
- Dynamic attention to market conditions and fast generation of standards that grow the market for Standards-based Commercial Off-The-Shelf (SCOTS) geospatial software.
- Interface-based components yield manageable growth and plug-and-play solutions.
- Markets in which outstanding components are rewarded with wide market acceptance, lifting the whole community of GIS users.
- International recognition of excellence in the GIS disciplines.