



## What is OpenGIS to a Cartographer?

An Open GIS Consortium (OGC) White Paper

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A cartographer of the old school would be deeply puzzled at a meeting of the Open GIS Consortium Technical Committee. This unique technical process has simmered in its own juices long enough to acquire its own arcane vocabulary. Perhaps only every tenth sentence sounds like it has something to do with cartography. Actually, this activity has been simmering in the juices of a group of converging technologies, each with its own arcane vocabulary. It begins with the software of geoprocessing technologies – GIS, earth imaging, facilities management, digital cartography, and navigation. Modern database theory gets thrown in. The heat to cook it comes from the information technology explosion – object-oriented programming, object modeling, client-server architectures, distributed object architectures, mobile devices that know and report location, fiber and wireless connections, and Web computing standards like http, xml, and Java.

OGC is necessary because someone forgot to put the geospatial salt in the "enterprise and consumer computing" stew, and OGC is the kitchen where that oversight is being rectified.

Of course, the geospatial wasn't forgotten – it was just too complex and heterogeneous to include. All those pioneering geoprocessing software developers had different ideas about how to model geography in software, so their data and their software are like apples, oranges, carrots, and breadsticks. Historically, geoprocessing systems have been isolated from each other and isolated from mainstream computing. Now geoprocessing software developers and users are writing an open interface specification, the OpenGIS Specification – a kind of geoprocessing lingua franca – which specifies common interfaces that formalize network-delivered instructions between different systems within one type of geoprocessing (GIS, for example) and also between systems of different types (GIS and imaging, for example.) Sometimes only very basic information about geometry, earth reference system, and geographic features can be conveyed. But that basic information is often very useful, and as the interfaces become well known and ubiquitous, new products will exploit them as fully as possible. The special needs of particular industries and disciplines will be addressed by special interfaces. Mechanisms for conveying metadata are also being standardized, although a coherent framework of data dictionaries (feature names, attribute definitions, relationships) and metadata schemas depends, of course, not on software but on data coordination efforts.

Some of what's being added is geospatial but not geographic. That is, information systems we use in the next ten years in our work lives and daily lives will, unbeknownst to most of us, be running software components that do things like report our location to an Internet server that enlists a service running on some other Internet server to actually tell us in spoken words something about our vicinity. Things will happen automatically based on the location of a device relative to some set of abstract geospatial features, but no map will be drawn. Place and time information will come to people and to their machines and their present task through automatic queries into a Web sprinkled with spatial data and spatial processing modules. But I predict that cartography will prevail: Within a few years, the most widely used computers will be in-car computers, and the most frequently displayed type of image will be a map, carefully designed to be easily read.