Global standards: community and practice

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What is the OGC?

Open geospatial standards development and collaboration across communities of interest.
What is an OGC standard?

• A document describing specifications, established by consensus, approved by the OGC global membership
• Provides rules, guidelines or characteristic implementable in software to support interoperability
• OGC standards are open standards
  - Freely and publicly available
  - No license fees
  - Vendor and data neutral
What is interoperability?

- Cultural
- Institutional
- Legal
- Organisational
- Technical

"capability to communicate, execute programs, or transfer data among various functional units in a manner that requires the user to have little or no knowledge of the unique characteristics of those units"

Source: OGC Abstract Specification Topic 12: Services

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Interoperability: information integration

“We don't have a common language to speak about our geospatial data or our services.”

“We need to find and pull together data from our automated sensors.”

“We need to deliver data to different systems.”

“We have security issues relating to geospatial data exchange.”
Help policy and decision makers to address the following:

a) Is the activity for public benefit? **Measure and record value**

b) What is the business driver? **Internal efficiency, customer satisfaction**

c) Does a capability already exist? **Enable reuse, avoid duplication**
Interoperability: global challenges

Across multiple domains

Use cases

- wildfire
- landfalling hurricane
- severe weather warning service
- for emergency response
- winter highways maintenance
- future aviation
- climate assessment
- science campaign
- riverine flood forecasting

Image courtesy of UK Met Office

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Interoperability: mapped to Esri UC

Industry-specific Agendas

Select your industry below to get a comprehensive guide to key sessions and events related to your work. We've selected the activities you won't want to miss — you may want to print a copy to bring with you.

- Architecture, engineering, and construction (PDF)
- Agriculture (PDF)
- Archaeology (PDF)
- Climate Change (PDF)
- Conservation (PDF)
- Environmental management (PDF)
- Education (PDF)
- Electric, pipeline, and gas (PDF)
- Facilities management (PDF)
- Forestry (PDF)
- Government planning (PDF)
- Health (PDF)
- Insurance (PDF)
- Land administration (PDF)
- Mapping and charting (PDF)
- Mining and geosciences (PDF)
- Oceans (PDF)
Geospatial and location standards for:

Aviation
Built Environment & 3D
Business Intelligence
Defense & Intelligence
Geosciences & Environment
Government & Spatial Data Infrastructure
Mobile Internet & Location Services
Emergency Response & Disaster Management
Sensor Webs
University & Research

OGC and communities of interest

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Domains: Augmented Reality

Expand definition of ARML v1.0, such as enabling dynamic modification of properties, event handling, sophisticated 3D visualizations and audio or haptic representation.

Image courtesy of Augmented Technologies
Develop and test standards-based service-oriented architecture to support the provision of valuable aeronautical information directly to flight decks and Electronic Flight Bags (EFB). AIXM.
Domains: Cryosphere

Global Land Ice Measurements from Space - GLIMSView
– http://astrogeology.usgs.gov/Projects/GLIMSView/

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Real-time access, integration and fusion of static and dynamic assets for counter-terrorism, in support of the Warfighter, and other command and control operations. GWG. DGIWG. NATO.
Domains: Emergency and Disaster Management

In response to a radiation event, identify and deploy a temporary hospital. CAP and EDXL.
Domains: Hydrology

Define an information model that enables sharing of water data on a global basis and then encode as an XML/GML application schema. WaterML2.0
Domains: Humanitarian Assistance

OGC Open GeoSMS works with Ushahidi and Sahana – used recently in Japan during Tsunami. Work underway with United Nations ITU to gain international, government level acceptance.
Domains: Mass Market

Developments in 3D for city planning, OGC CityGML, OpenStreetMap, OGC OpenLS, Internet of Things and Web3D visualization standards.
Oceanographic data is used to force atmospheric models, for both weather forecasting and climate prediction, and to explicitly model the oceans, seas, tides, waves and swell. WMO and WIS
Domains: Sensor Webs

Enable discovery and tasking of sensors, and access/application of sensor observations for enhanced situational awareness.

OGC SWE

- Sensor Model Language (SensorML)
- Observations & Measurements (O&M)
- Sensor Planning Service (SPS)
- Sensor Observation Service (SOS)
- Catalogue Service
- Sensor Alert Service (SAS)

--Complementary Standards--
- IEEE 1451 smart sensor standard
- OASIS (alert) standards

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Esri and the OGC

Esri Inc. – OGC Principal Member
Jeanne Foust, Satish Sankaran, Marten Hogeweg, Dave Danko, Keith Ryden
OGC Technical and Planning Committees
Jeff Peters, OGC Board Director

OGC Members
Esri Canada
Esri Eastern Africa
Esri France
Esri Netherlands
Esri Olympia
Geodata Norway

Opportunities for many more distributors to join!
Open Platform and Technology Support

The ArcGIS platform conforms to open standards and enterprise IT frameworks that allow organizations to incorporate GIS into any application on a variety of computing and mobile devices.

ArcGIS supports multiple approaches to standards and interoperability:

Show/Hide All Answers

Geospatial Standards

Esri is a principal member of the Open Geospatial Consortium, Inc. (OGC), and actively participates in the development of many specifications. Members of Esri's standards and interoperability team serve as representatives on some of the ISO/TC 211
Customer Success Stories

An increasing requirement for GIS architectures is standards-based interoperability. This is especially true of spatial data infrastructures. A sampling of Esri customers around the world using ArcGIS for their interoperable GIS solutions include

**Abu Dhabi SDI Supports E-Government Programs** [PDF]
Esri's Jim Baumann describes how Abu Dhabi's spatial data infrastructure helps empower government and society.

**European Union to Develop Comprehensive Spatial Data Infrastructure**
Recognizing the need to unify its spatial data infrastructure (SDI), the European Union (EU) began to develop the INSPIRE initiative in 2002. The goal: To make geospatial data more readily available for European community policy making.

**Colombia National Mapping Agency: Countrywide Mapping Made Possible with GIS**
Esri and the OGC

About OGC WMS

Open Geospatial Consortium, Inc. (OGC), web services provide a way to make your maps and data available in an open, internationally recognized format over the web. OGC has defined specifications for making maps and data available on the web to anyone with a supported client application. All developers are free to use the OGC specifications to create these supported clients, such as a web browser or desktop map viewer.

OGC Web Map Service (WMS) specification

The website and ArcGIS.com map viewer currently support the OGC Web Map Service (WMS) specification. It is an international specification for serving and consuming dynamic maps on the web. You can add your OGC WMS layer to the website and share it with others, and use it as a layer in a map you create with the ArcGIS.com map viewer. If you share your OGC WMS layer in the website, others can discover it to use in their own maps.

You can learn more about OGC at the Open Geospatial Consortium website. Esri also maintains an Interoperability and Standards web page detailing its support for OGC services in ArcGIS.

Sharing your OGC WMS layer

You can add an OGC WMS layer to the website through the Add Item button on the My Content page. See About adding items for details. Once you've added your OGC WMS layer, you can share it with groups you belong to or make it public by sharing with everybody. See Sharing items for more information. When others discover your layer, they can automatically open it in the ArcGIS.com map viewer. If your layer uses a projection other than Web Mercator, the projection of the default World Topographic basemap, the ArcGIS.com map viewer uses a OCS WGS84 World Imagery basemap that is usually compatible with OGC services not in Web Mercator.

Adding an OGC WMS layer to a web map

If you know a specific OGC WMS you want to include in a web map, you can add it by entering its URL. See Adding layers from the web for more information.
Esri and the OGC

OGC support in ArcGIS Server

Open Geospatial Consortium, Inc. (OGC) Web services provide a way that you can make your maps and data available in an open, internationally recognized format over the Web. OGC has defined specifications for making maps and data available on the Web to anyone with a supported client application. All developers are free to use the OGC specifications to create these supported clients. In some cases, the client can be as simple as a Web browser. In other cases, it can be a rich client such as ArcMap.

OGC publishing capabilities in ArcGIS Server

OGC has defined different types of services for serving different kinds of data and maps. ArcGIS Server allows you to publish three types of OGC services:
- Web Map Services (WMS) for serving collections of layers as map images
- Web Feature Services (WFS) for serving data as vector features
- Web Coverage Services (WCS) for serving data as raster coverages (not to be confused with ESRI’s ArcInfo coverages)

You publish these services by enabling capabilities on certain types of ArcGIS Server services. When you create the service, you must explicitly enable the OGC capabilities. The capabilities are not enabled by default.

The table below shows which service types can expose OGC capabilities.

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<tr>
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<th>WMS</th>
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<td>Map services</td>
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<td>Geodata services</td>
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<td>Image services</td>
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Consuming OGC services

In addition to publishing services, you can use ArcGIS to consume existing OGC services from both inside and outside your organization. For example, the Web Application Developer Framework (ADF) included with ArcGIS Server allows you to build out-of-the-box Web mapping applications that consume WMS services. Additionally, ArcMap, ArcGlobe, and ArcGis Explorer support the visualization and query of OGC services.
Esri and the OGC

Esri Supported Open Geospatial Consortium, Inc.®, and ISO/TC 211 Standards


A node on the IT network, a hub on the geospatial network
OGC Blog

http://www.opengeospatial.org/blog
OGC Update

http://www.opengeospatial.org/ogcupdate
OGC Twikis

http://external.opengeospatial.org/twiki_public/MetOceanDWG/WebHome
OGC LinkedIn

http://www.linkedin.com/groups
OGC Forums

Organize OGC standards requirements, priorities and outreach activities consistent with language, culture, policy, and political environment.

– Regional
  • Asia Forum
  • Europe Forum
  • Iberian and Latin American Forum
  • Nordic Forum
  • North America Forum

– National
  • France Forum
  • India Forum
  • Korea Forum
  • UK and Ireland Forum
Public input

- Requests for Information
- Requests for Comment
- Call For Participation
- Change Requests
- OGC Public Forum
- OGC Network
Thank you for your attention – visit booth # 2818, Esri UC