Outline

- EO Web Coverage Service (EO-WCS) Motivation
- WCS Standardization
  - Current Status
  - Ongoing Work
  - Future Work
- Reference Implementation
  - Integrated Usage of EO-WMS & EO-WCS
  - MapServer, EOxServer, etc.
EO-WCS Motivation
WCS – Current Status

- GMLCOV 1.0.0 – Approved
  OGC 09-146r1, OGC GML 3.2.1 Application Schema – Coverages

- WCS 2.0.0 – Approved
  OGC 09-110r3, OGC WCS 2.0 Interface Standard – Core

- KVP, XML/POST, and XML/SOAP protocol binding extensions 1.0.0 – Approved
  OGC 09-147r1, OGC WCS 2.0 Interface Standard – KVP Protocol Binding Extension
  OGC 09-148r1, OGC WCS 2.0 Interface Standard – XML/POST Protocol Binding Extension
  OGC 09-149r1, OGC WCS 2.0 Interface Standard – XML/SOAP Protocol Binding Extension
WCS – Ongoing Work

GMLCOV 1.0.1 – Submitted for 2-week voting
OGC 09-146r2, OGC GML 3.2.1 Application Schema – Coverages

Adopting three Conformance Classes:

• *gml* – Pure GML encoding
• *multipart* – GML header plus standard encoding
• *special-format* – standard encoding only

Correcting *metadata* element used in EO-WCS

Various minor corrections like adjusting informative examples to adopted SWE Common standard
WCS – Ongoing Work

- WCS 2.0.1 – Submitted for 2-week voting
- OGC 09-110r4, OGC WCS 2.0 Interface Standard – Core
  - Correcting *Extension* elements needed in EO-WCS
  - Adding *nativeFormat* to coverage description
  - Adding optional *format* and *mediaType* parameters to GetCoverage request; default is native format
  - Adding *CoverageSubtypeParent* to allow introducing new coverage types e.g. in EO-WCS
  - Various minor corrections and clarifications
WCS – Ongoing Work

**CRS Extension** – Submitted to TC for public comment period
OGC 11-053, OGC WCS 2.0 CRS Extension

- Adds optional `subsettingCrs` and `outputCrs` parameters to GetCoverage request; default is native CRS
- Defines crs-gridded-coverage Conformance Class for RectifiedGridCoverages and ReferenceableGridCoverages used in EO-WCS
WCS – Ongoing Work

- KVP and XML/POST protocol binding extension corrigenda – Final editing for SWG vote
  - KVP: SWG discussion finished
  - XML/POST: Only editorial corrections necessary
- GeoTIFF, CF-netCDF, and JPEG2000 Encoding extensions – Drafts available
  - Need adoption of discussions
  - Need adjustments to latest WCS standards
- HDF Encoding extension – Editor invited
WCS – Ongoing Work

EO-WCS 1.0.0 – Public comment period passed
OGC 10-140, OGC WCS 2.0 Application Profile - Earth Observation

- One comment received
- Adjustments to GMLCOV and WCS corrigenda
  → ready for voting
EO-WCS

**EO Coverages**

- Rectified- or Reference-able Grid Coverages plus EO Metadata (Acquisition time, Footprint, etc.)

**Dataset**

- Stitched Mosaic – Homogeneous grouping

**DatasetSeries** – Heterogeneous grouping

**DescribeEOCoverageSet operation** – Spatio-temporal search on metadata
WCS Future Work

- XML/SOAP protocol binding extension corrigendum
  - Experience from implementation in O3S
- WCS Transactional (WCS-T)
  - Experience from implementation in O3S
- Band subsetting, Scaling & Interpolation, WCS time handling, WCPS, etc.
- ReferenceableGridCoverages and other additional coverage types
  - First implementation available from O3S
Use Case for Referenceable-GridCoverages

WMS GetMap (georeferencing and reprojecting using GCPs)

WCS GetCoverage AOI subsetting

Bounding box subsetting

WCS GetCoverage response
  * ReferenceableGridCoverage or
  * RectifiedGridCoverage (georeferencing and reprojecting using GCPs)
EO-W*S Client – Date Slider
EO-W*S Client – Date Picker
EO-W*S Client – Bounding Box
EO-W*S Client – Download
EO-W*S Client – Download sub.
EO-W*S Client – Download full
Reference Implementation
Reference Implementation

❖ MapServer 6.0
  ❖ WCS 2.0.0 via KVP & XML/POST
  ❖ Anticipating future extensions (CRS, Scaling & Interpolation, Band subsetting, Encodings)

❖ EOxServer
  ❖ EO-WCS 1.0.0 & EO-WMS on top of MapServer
  ❖ Release 0.2 soon

❖ SOAP Proxy
  ❖ Proxy to add XML/SOAP for WCS & EO-WCS
Reference Implementation

EOxServer Highlights

- MIT-style license and based on Open Source SW
- Rectified- and ReferenceableGridCoverages
- DatasetSeries and StitchedMosaics
- WCS Transactional (WCS-T)
- Integration with security system
- Data registration via admin gui or command line
- Simple client demonstrating integrated usage of EO-WMS & EO-WMS
EOxServer Open Source SW

MapServer
python
django
geodjango
GEOS

MapServer
open source web mapping

GDAL

OSGeo
Your Open Source Compass

PostGIS
Spatial PostgreSQL

sqlite

OpenLayers

jQuery
write less. do more.

...
Welcome to the EOxServer Open Source Project

EOxServer is a server for Earth Observation (EO) data

EOxServer implements the OGC Implementation Specifications EO-WCS, and EO-WMS on top of MapServer's WCS, and WMS implementations.

EOxServer is released under the EOxServer Open License a MIT-style license and written in Python and entirely based on Open Source software including MapServer, Django, GDAL, Spatialite, or PostGIS, and PROJ.4. Versions 0.1.x are released under the GNU General Public License.

Download EOxServer

EOxServer Demonstration

The currently available functionality includes:

- Support of GML AP – Coverages for RectifiedGridCoverages
- Support of adopted WCS 2.0 specification (Core including GetCapabilities, DescribeCoverage, and GetCoverage requests, KVP, and XML/POST protocol binding)
- Anticipated support of ehris "anticipating" we mean to r
- Support of 2-D EO Coverages
- Support of Dataset Series a
- Support of new DescribeEO
- Support of Stitched Mosaic
- Support of EO Metadata (re)
- Protocol bindings supported
  - KVP
  - XML/POST (used toge
- Coverage formats supported
  - GeoTIFF
  - Formats supported by
- Support of EO-WMS for EO

EOxServer Mailing Lists

EOxServer Documentation

EOxServer API Documentation

Work on EOxServer has been par

EOxServer Wiki

This wiki is a major source of inf

This Page

Show Source

Quick search

Global Use Case

This section describes the global Use Case of EOxServer including concrete usage scenarios as examples.

Figure: "Parties involved in the EOxServer Global Use Case" introduces the involved parties in this global Us

On the one side there is a provider of Earth Observation (EO) data. The provider has a possibly huge, in
size, archive of EO data and wants to provide this data to users. Of course the data provision has
constraints and requirements like technical, managerial, or security frame conditions but in general the p
reach as many users as possible with minimal efforts.

EO Data

User

Provider

Parties Involved in the EOxServer Global Use Case
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This project is managed by Stephan Meissl.

Tagged as proxy webmapservice coverage opensource gis earthobservation python26 wms ogc_web_services gdal django mapserver ogc wcs python ooserver mapping osgeo webcoverageservice soap

Code Analysis

Lines of Code

Zoom 1yr All

40k

20k

0

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Ah Jan '11 Jul '11 Jan '12
Stephan Meißl
+43 664 968 8701
stephan.meissl@eox.at

EOX IT Services GmbH
Thurngasse 8/4
1090 Wien
Austria
eox.at

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