

An Implementation of the MetOcean DWG Best Practices Proposal for WMS with GeoServer

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Multiple dimensions

- <Dimension name="TIME">
- <Dimension name="ELEVATION">
- <Dimension name="REFERENCE_TIME">

How to create layers with multiple dimensions in GeoServer?



GeoServer

- Open Source software (<http://geoserver.org>)
- Implements WMS, WFS, WCS
- OGC reference implementation for WFS and WCS
- based on GeoTools, an open source GIS Java toolkit
- Provides support for a wide range of raster and vector data formats

Data Source Plugins

New data source

Choose the type of data source you wish to configure

Vector Data Sources

- Directory of spatial files - Takes a directory of spatial data files and exposes it as a data store
- PostGIS NG - PostGIS Database
- PostGIS NG (JNDI) - PostGIS Database (JNDI)
- Properties - Allows access to Java Property files containing Feature information
- Shapefile - ESRI(tm) Shapefiles (*.shp)
- Web Feature Server - The WFSDataStore represents a connection to a Web Feature Server. This connection provides access to the Features published by the server, and the ability to perform transactions on the server (when supported / allowed).

Raster Data Sources

- ArcGrid - Arc Grid Coverage Format
- GeoTIFF - Tagged Image File Format with Geographic information
- Gtopo30 - Gtopo30 Coverage Format
- ImageMosaic - Image mosaicking plugin
- WorldImage - A raster file accompanied by a spatial data file

ImageMosaic Plugin

- allows the creation of a mosaic from a number of georeferenced rasters
- All rasters must share the same CRS and the same spatial resolution
- All raster files must have the same data format
- All raster files must be stored in one directory
- Could be used to define layers with multiple dimensions

ImageMosaic Configuration files

- datastore.properties SPI=org.geotools.data.oracle.OracleNGJNDIDataStoreFactory
indiReferenceName=java:comp/env/idbc/Database
- Projection (PROJCS["COSMO-EU projection",
GEOGCS["COSMO Coordinate System",
DATUM["COSMO Kugel", SPHEROID["Erdkugel", 6371229.0, 0.0]],
PRIMEM["Greenwich", 0.0, REFERENCE_EPOCH["1980-01-01"]],
UNIT["degree", 0.017453292519943295, **regex=[0-9]{8}T[0-9]{4}**],
AXIS["Longitude", EAST], AXIS["Latitude", NORTH]],
PROJECTION["Rotated_Latitude_Longitude"],
PARAMETER["central_meridian", -170.0],
PARAMETER["latitude_of_origin", 40.0],
PARAMETER["scale_factor", 1.0],
PARAMETER["false_easting", 0.0],
PARAMETER["false_northing", 0.0],
UNIT["m", 1.0], AXIS["x", EAST], AXIS["y", NORTH],
AUTHORITY["EPSG", "1000003"]]
- Regular expression
- indexer.properties
Elevation
TimeAttribute
Reference
Schema=tbl
EL
Property
Int
TimestampFileNameExtractorSPI[referenceregex](REFERENCE_TIME)



Creating an ImageMosaic data store

Add Raster Data Source

Description

ImageMosaic
Image mosaicking plugin

Basic Store Info

Workspace

cite

Data Source Name

Description

Enabled

Connection Parameters

URL

file:data/example.extension

Save

Cancel



Specifying dimensions

dwd:TEMPERATURE

Anpassen der Ressource und Publizieren der Informationen für den Layer

Daten

Publizierung

Ausde

Configure dimensions

All fields for TIME are predefined

Time

Aktiviert

Darstellung

Liste

benutzerdefinierte Dimension: REFERENCE_TIME

Aktiviert

Einheiten

ISO8601

Symbol für Einheit

Only the fields UNITS and UNITSYMBOL can be defined for ELEVATION

The following optional fields are not supported:

- multipleValues
- nearestValue
- current

Höhe

Aktiviert

Einheiten

EPSG:5030

Symbol für Einheit

m

Darstellung

Liste



GetCapabilities

```
<Layer queryable="1">
  <Name>dwd:TEMPERATURE</Name>
  ...
  <Dimension name="TIME" default="current" units="ISO8601">
    2013-02-18T12:00:00.000Z/2013-02-21T06:00:00.000Z/P1h</Dimension>
  <Dimension name="ELEVATION" default="10.0" units="EPSG:5030" unitSymbol="m">
    10.0,34.5,69.0,116.0,178.5,258.5,357.5,477.0,618.5,782.5,970.0,1182.5,
    1420.0,1682.5,1972.5,2290.0,2635.0,3007.5,3407.5,3837.5,4295.0,4782.5,
    5300.0,5847.5,6427.5,7040.0,7685.0,8362.5,9075.0,9822.5,10612.5,11447.5,
    12330.0,13292.5,14350.0,15525.0,16850.0,18325.0,19950.0,21750.0</Dimension>
  <Dimension name="REFERENCE_TIME" default="2013-02-18T12:00:00.000Z"
    units="ISO8601">2013-02-18T12:00:00.000Z,2013-02-19T00:00:00.000Z
  </Dimension>
  ...
</Layer>
```



GetMap request

```
http://maps.dwd.de/geoserver/dwd/wms?service=WMS&version=1.3.0&
request=GetMap&layers=dwd:TEMPERATURE&
time=2013-02-26T11:00:00Z&elevation=1972.5&
dim_reference_time=2013-02-26T00:00:00Z&styles=&
bbox=-35.0,26.0,63.0,72.0&width=400&height=300&
crs=EPSG:4326&format=image/png
```



GetFeatureInfo request

```
http://maps.dwd.de/geoserver/dwd/wms?service=WMS&version=1.3.0&
request=GetFeatureInfo&layers=dwd:TEMPERATURE&
time=2013-02-26T05:00:00Z/2013-02-26T08:00:00Z&
elevation=0/100&dim_reference_time=2013-02-26T00:00:00Z&
bbox=-35.0,26.0,63.0,72.0&width=400&height=300&
crs=EPSG:4326&query_layers=dwd:TEMPERATURE&i=100&j=100
```

TEMPERATURE

fid	time	reference_time	elevation	value
fid0000	26.02.2013 05:00:00	26.02.13 00:00	10	271.438232421875
fid0001	26.02.2013 05:00:00	26.02.13 00:00	34.5	271.3604736328125
fid0002	26.02.2013 05:00:00	26.02.13 00:00	69	271.19561767578125
fid0003	26.02.2013 06:00:00	26.02.13 00:00	10	270.8427734375
fid0004	26.02.2013 06:00:00	26.02.13 00:00	34.5	270.7132568359375
fid0005	26.02.2013 06:00:00	26.02.13 00:00	69	270.48736572265625
fid0006	26.02.2013 07:00:00	26.02.13 00:00	10	271.70709228515625
fid0007	26.02.2013 07:00:00	26.02.13 00:00	34.5	271.51824951171875
fid0008	26.02.2013 07:00:00	26.02.13 00:00	69	271.3319091796875
fid0009	26.02.2013 08:00:00	26.02.13 00:00	10	272.836669921875
fid0010	26.02.2013 08:00:00	26.02.13 00:00	34.5	272.6427307128906
fid0011	26.02.2013 08:00:00	26.02.13 00:00	69	272.4332580566406



