

# DSpace

A new way of handling geolocation based information

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## Question

*If life were a just computer game with awesome sensory input, which standard game features would be missing in our interface in order to play it well, especially when playing in groups?*

## Interface View

Image Street - boring

## Interface View

Image Street - boring Image Street - DSpaced

# Talk-Contents

Who we are?

What do we want?

What do we have?

- Basemaps

- Overlays

- Navigation

- DSpace Client

What do we need?

# Who we are?



**chron0** chrono

JavaScript



**elf-pavlik** elf Pavlik

<https://gitorious.org/~elf-pavlik> [perpetual-tripper@wolves.org](mailto:perpetual-tripper@wolves.org) JavaScript, Ruby, CoffeeScript



**yggi** Sebastian Steuer

[iggy@yggi.de](mailto:iggy@yggi.de) Python, JavaScript, Shell



**alice-wl** alice

PHP, Shell, Python



**nilclass** Niklas Cathor

Hamburg JavaScript, Ruby, Shell

# What do we want?

Staging our wants

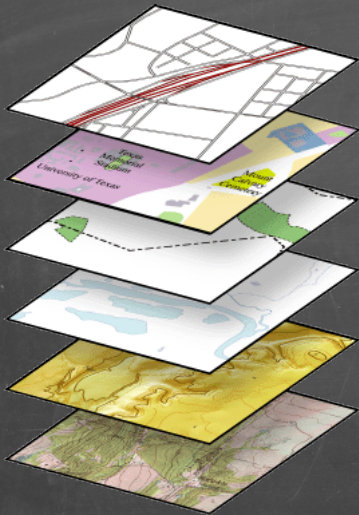
## Something like a standard

Increase the likelihood and efficiency of adding/sharing information by introducing a standardized framework like the W3c in 1993.

- ▶ Federation
- ▶ Free
- ▶ Open Source
- ▶ Lose Bindings
- ▶ Modular Extensions



## Basemaps



- ▶ Roads
- ▶ Lands
- ▶ Boundaries
- ▶ Hydrography
- ▶ Topography
- ▶ Land Imagery

## Basemaps II

- ▶ Static / longterm
- ▶ general interest
- ▶ only one is visible at a time
- ▶ composition depends on region/application

# Overlays

- ▶ POIs
- ▶ location tracking
- ▶ waypoints on a route
- ▶ (Basemap)

## Overlays

- ▶ collections of things at locations
- ▶ public or private
- ▶ can be very dynamic (e.g. realtime tracking)
- ▶ many can be visible (overlaid) at a time
- ▶ can be user-generated and -updated

## Overlay ideas

- ▶ Urban Management
  - ▶ Emergency Response Management (First Responder Setup)
  - ▶ Hitchhiking (linking drivers/hikers in a sector - [hitchwiki.org](http://hitchwiki.org))
  - ▶ Real-Time public transportation information
  - ▶ Real-Time risk distribution
- ▶ Resource Management
  - ▶ Food Mapping/Sharing ([mundraub/foodshare.org](http://mundraub/foodshare.org))
  - ▶ Dumpster Diving ([trashwiki.org](http://trashwiki.org))
  - ▶ Fleet Management
  - ▶ Open Access Mapping ([openwifimap.net](http://openwifimap.net))
- ▶ Organizing Events
  - ▶ Public congress/camp Overlay for visitors
  - ▶ Private engal Overlays for orga

## Even more Overlay ideas

- ▶ Realtime Semantic Mapping Heat mapping twitter hashtags (i.e. heatmap #earthquake to find current EQ reports and positions)
- ▶ Private group overlays for the area of activity (i.e. MuCCC)
- ▶ Drone GCS Interfacing Localization and interactive Mission/WayPoint Management
- ▶ Entertainment Geocaching, AR-MMORPGs, AR-MMO-Strategy-Games
- ▶ Open Network Access Mapping Access Points (<http://openwifimap.net>)-<http://map.pberg.freifunk.net/> + ham-radio repeater information
- ▶ ADS-B Airplane Mapping Overlay
- ▶ Use your imagination

## Architecture Overview

Image of Architecture TileMill -> TileStream -> DSpace Client |  
Directory Server -Remotestorage -feeds -Routino

## What do we need?

Staging our haves



## What do we have?

Before we start to re-invent the wheel, let's have a look at what other generous people already have developed and shared with the rest of humankind.

## What do we have?

Before we start to re-invent the wheel, let's have a look at what other generous people already have developed and shared with the rest of humankind. Images of project logos (OSM, remotestorage, NASA, DLR, ...)

# OSM

OSM is great, and fundamental for DSpace, but:  
not everything is in OSM (Topo, aerial) Image OSM Rendered Map  
- ¿ openSTREETMap  
not everything belongs in OSM (tracking, personal POIs)  
DSpace self-rendered Map

# Map Forge

- ▶ NodeJS
- ▶ Mapnik + TileMill + OSM-Bright
- ▶ PostgreSQL + PostGIS + imposm
- ▶ OpenStreepMap data
- ▶ NASA/CGIAR SRTM SIR-C-Band V41 90m Topo data
- ▶ DLR SRTM X-Band SAR 25m Topo data
- ▶ TerraSAR-X/TanDEM-X data (Future)

```
1 imposm -U gisuser -d gis -m \  
2 /tmp/osm-bright/imposm-mapping.py --overwrite-cache --read --write --optimize \  
3 --deploy-production-tables planet-latest.osm.pbf
```

## Map Forge Screenshot

Include picture of Map Forge in action

# Map Delivery

- ▶ NodeJS + TileStream

# Map Delivery

Live DEMO

## Overlays: Read-Only

- ▶ Simple HTTP GeoJSON Feed
- ▶ SpaceAPI



## Read-Write

- ▶ [remotestorage.io](https://remotestorage.io)

# Navigation

- ▶ Routino
- ▶ OpenStreetmap import

## DSpace Client

Introduction on the Client now we have nice basemaps and  
sources for overlays  
presentation comes together in the client

# Client

Live DEMO

# Client

Client-side js assembled, built and packaged in node.js focus on:  
as lightweight as possible Powerful Plugin-API Mobile  
Readiness/Integration

# NPM Package Overview

```
almond@0.2.4
backbone@0.9.10
bean@1.0.3
bonzo@1.3.5
cssso@1.3.7
domready@0.2.11
+ ender@1.1.0
+ ender-js@0.4.4-1 extraneous
handlebars@1.0.8
  optimist@0.3.5
  wordwrap@0.0.2
  uglify-js@1.2.6
morpheus@0.6.7
qquery@3.4.1
requirejs@2.1.4
request@0.6.4
underscore@1.4.4
```

## Comfortable Build Process

```
# make init
Rebuilding GIT submodules... [OK]
Building local deps... [OK]
Building AMD Deps... [OK]
Assembling JS components... [OK]

# make deps
Building Ender... [OK]
Building local deps... [OK]
Building AMD Deps... [OK]
Assembling JS components... [OK]

# make build
Building Ender... [OK]
Building local deps... [OK]
Building AMD Deps... [OK]
Assembling JS components... [OK]
Cleaning up build/... [OK]
Build & minify dspace-client.js... [OK]
Copying Assets... [OK]
Copying Plugin Assets... [OK]
Merging and compressing dspace-client.css... [OK]
>>> Client build complete
```

## Ops friendly deploy

Taking care of easy and structured deployment to leave flexibility for different setups and potential rewrite issues.

```
+ assets
  + css
  - dspace-client.js
  + icons
  + images
index.html
+ plugins
  + remotestorage
    + assets
      - remoteStorageIcon.svg
      - style.css
  + search
    + assets
```



# What do we need?

Staging our needs

## Directory Server

Federated searchable ranked, geobounded, tagged list of  
basemaps and overlay feeds ...

## Client

more overlay functionality (polygons, 3D, translated images ...)  
mobile integration (ios, android, glass) Overlay browser

## Collaboration

People forging and serving basemaps for their area  
People exposing existing geodata as dspace overlay feeds  
People helping with docs, bugs, issues, features (mostly on the client for now)

# Utopia

Augmented Reality glasses (contact lens FTW!) ...

# THEEND

Thanks for your attention.  
Discussion