

React meets OpenLayers

Vorstellung & Beispiel
react-geo

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Gliederung

- Über...
- React & OpenLayers
- react-geo
- Beispiele

Daniel Koch



- M. Sc. Geographie
- Lead developer @terrestris
- Kernentwickler react-geo
- Kernentwickler SHOGun
- Sprecher & Trainer
national & international

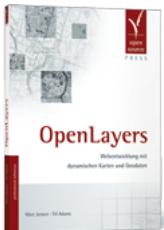
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- Geschäftsführer @terrestris
- Kernentwickler OpenLayers
- Kernentwickler GeoExt
- Buchautor "OpenLayers"
- Sprecher & Trainer
national & international
- OSGeo Foundation Charter
Member

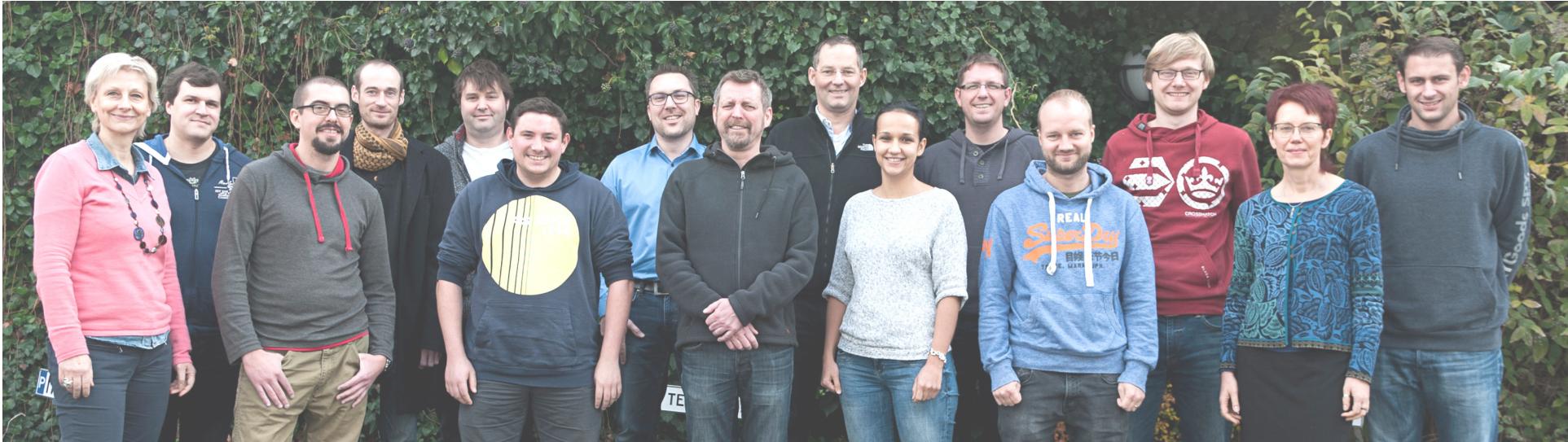
terrestris



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- terrestris.de
- OpenSource GIS aus Bonn
- Entwicklung, Projekte & Support/Schulung
- Beratung, Planung, Implementierung & Wartung

Teil des Teams werden?



- Softwareentwickler/in
- GIS Consultant
- Praktikanten / betreute Abschlussarbeiten

Details gerne am terrestris Stand

React & OpenLayers

React

“

A JavaScript library for building user interfaces

- <https://reactjs.org/>
- Facebook
- Deklarativ & komponentenbasiert
- Virtual DOM & JSX
- Seit 2013, aktuell v16.2.0
- FOSS, MIT-Lizenz

OpenLayers

“

A high-performance, feature-packed library for all your mapping needs.

- <https://openlayers.org/>
- OSGeo Projekt
- Umfangreich, cutting-edge, flexibel, stabil
- Seit 2006, aktuell v4.6.5
- FOSS, BSD-Lizenz



react-geo

react-geo

“

A set of geo related modules to use in combination with React, Ant Design and OpenLayers

- Komponenten, Utility Klassen und HOCs
- OpenLayers, React & antd: latest stable
- Seit September 2017, v5.6.2
- FOSS, BSD-Lizenz
- Inspiration: MapStore2, Boundless SDK, Pirmin Kalberers POC, react-openlayers

react-geo

- <https://terrestris.github.io/react-geo/>
-  <https://github.com/terrestris/react-geo>
-  [npm: @terrestris/react-geo](#)

```
import {  
  DigitizeButton,  
  GeometryUtil,  
  MapComponent,  
  MapUtil,  
  MapProvider,  
  NominatimSearch  
} from '@terrestris/react-geo';
```

Nicht-funktionale Eigenschaften

- EcmaScript 6 Module
- Getested mit `jest`
- `webpack` und `babel` empfohlen
- > 450 Tests, Code-Coverage ~86%
- 40 Releases seit 09/2017
- Sehr schnelle Entwicklungszyklen

Komponenten

- ...für Karten MapComponent
- ...für Themenbäume LayerTree
 - ...optional: LayerTransparencySlider
 - ...optional: Legend
- ...für Suchen NominatimSearch
- ...zum Zeichnen DigitizeButton
- ...zum Messen MeasureButton
- ...und noch viel mehr

Utilities

- Animationen
- Features
- OGC-Dienst-Interaktionen
- Geometrische Operationen
- Projektionen

Jsonix
Turf.js
Proj4js

Was nicht?

- Kein redux
 - Aber in Applikationen 100% nutzbar
- Kein i18n
 - Aber in Applikationen 100% nutzbar
- Nicht fixiert auf antd, bsp. ag-grid

Beispiele

LayerTree example

Please note that the layers have resolution restrictions, please zoom in and out to see how the trees react to this.

Autoconfigured with topmost LayerGroup of passed map:

- ▶ Layergroup
- OSM

```
import {  
  LayerTree  
} from '@terrestris/react-geo';
```

```
<LayerTree  
  map={map}  
/>
```

```
<LayerTree  
  map={map}  
  layerGroup={layerGroup}  
/>
```

```
<LayerTree  
  map={map}  
  filterFunction={layer => layer.get('name') != 'OSM'}  
/>
```

NominatimSearch example

The NominatimSearch

Ortsname, Straßename, Stadtteilname, POI usw.

This demonstrates the usage of the NominatimSearch.

```
import React from 'react':
```

NominatimSearch Beispiel

```
import {  
  NominatimSearch  
} from '@terrestris/react-geo';
```

```
<NominatimSearch  
  map={map}  
/>
```

```
<NominatimSearch  
  map={map}  
  onMenuItemSelected={rec => /* do sth. with rec */}  
/>
```

GeometryUtil example

Drawing:

Draw polygon

Split by Line

Union

Intersection

Difference

Add Buffer (100 km)

GeometryUtil Beispiel

MultiLayerSlider example

Move the slider to change the layer's opacity:



This example shows the usage of the MultiLayerSlider. It takes an Array of layers that are already added to the map and makes their opacity changeable by a single slider component.

This way you can slide through a set of layers, which e.g. is useful when using layers showing the same area but different content or time.

MultiLayerSlider Beispiel

```
import {  
  MultiLayerSlider  
} from '@terrestris/react-geo';
```

```
<MultiLayerSlider  
  layers={[  
    layer1,  
    layer2,  
    layer3,  
    layer4,  
    layer5  
  ]}  
/>
```

FeatureGrid WFS example

<input type="checkbox"/>	id	osm_id	name	type	ref
<input type="checkbox"/>	3302514	2635489573		bus_stop	
<input type="checkbox"/>	3300355	2634735782		bus_stop	
<input type="checkbox"/>	1687109	676823173		bus_stop	
<input type="checkbox"/>	1687107	676823099		bus_stop	P6
<input type="checkbox"/>	2531909	1732025555		bus_stop	
<input type="checkbox"/>	1687108	676823131		bus_stop	
<input type="checkbox"/>	1246319	439490336		bus_stop	
<input type="checkbox"/>	948605	292382710		bus_stop	
<input type="checkbox"/>	3302515	2635489572		bus_stop	

FeatureGrid Beispiel

```
import {  
  FeatureGrid  
} from '@terrestris/react-geo';
```

```
<FeatureGrid  
  map={map}  
  features={features}  
/>
```

Komplexere Beispiele

SELECT MEASURE PRINT & SAVE DRAW

TT Terrestris09 Terrestris09

Themes Legend

Open layer catalog Import layer

Add preconfigured layer

Layer name Preview

OSM-WMS

OpenStreetMap WMS, bereitgestellt durch terrestris GmbH un Co. KG. Beschleunigt mit MapProxy (<http://mapproxy.org/>)

Scale: 1:100 - 1:2000000

1 2 3 4 5 *** 15 >

Reset selection Apply selection

Scale: 1:50,000 Coordinate system: ETRS89 / UTM Zone 32N 377048.00, 5565105.00

OpenStreetMap contributors

The screenshot displays a geographic information system (GIS) interface. At the top, there are four main toolbars: 'SELECT', 'MEASURE', 'PRINT & SAVE', and 'DRAW'. The 'DRAW' toolbar contains various icons for editing features. To the right, a user profile 'TT Terrestris09 Terrestris09' is shown. Below the toolbar, a legend and a 'Themes' section are visible, with a large red rectangle highlighting specific layers. The main map area shows a rural landscape with roads, fields, and settlements. A large red circle is drawn around a cluster of points in the center-left, and several smaller red dots are scattered across the map. To the left of the map, a sidebar allows adding preconfigured layers, with an 'OSM-WMS' entry currently selected. It includes a preview image of the map and details about the source. At the bottom, map controls for zooming and panning are provided, along with a coordinate display (377048.00, 5565105.00) and a link to 'OpenStreetMap contributors'.

Daten suchen

Wetterstationen

- Station1 (2016)
- Station1 (2017)
- Station2 (2017)
- Station6 (2017)
- Station7 (2017)

Felder

- DeckerCW17

Experimente

- CW17BOWWW
- CW17KAWW
- PH16KAWW

Parzelle

- 1 (CW17BOWWW)
- 10 (CW17BOWWW)
- 11 (CW17BOWWW)
- 12 (CW17BOWWW)
- 13 (CW17BOWWW)
- 14 (CW17BOWWW)
- 15 (CW17BOWWW)
- 16 (CW17BOWWW)
- 17 (CW17BOWWW)
- 18 (CW17BOWWW)
- + 86 ...

Von

02.03.2017 00:00:00

Bis

16.03.2018 00:00:00 Punktmessungen einschließen 

Merkmalsammlung

- Präsentationsdaten

Merkmale

- KOPflanzenhöhe
- KeimdichteAH
- KornertragAH
- KornzahlähreAH
- TRBodenbedeckungsgrad
- TausendkorgewichtAH
- TriebdichteAH
- ÄhrendichteAH

Messungen

Parzellen	Versuchsfaktor ...	Versuchsfaktor... ▾	Wetterstation	Geometrie	Zeitstempel	Tausendkorgne...	KeimdichteAH (...)	TriebdichteAH (1...)	ÄhrendichteAH (...)	KornzahlähreAH...	Kornertra...
12 (CW17BOWWW)	CAR				19.07.2017 02:00:00	39.19	314.58	741.67	470.83	44.9	
25 (CW17BOWWW)	CAR				19.07.2017 02:00:00	42.82	289.58	662.5	408.33	44.6	
26 (CW17BOWWW)	ALP				19.07.2017 02:00:00	38.74	179.17	883.33	329.17	68.3	
27 (CW17BOWWW)	FER				19.07.2017 02:00:00	64.89	254.17	891.67	391.67	53.6	
28 (CW17BOWWW)	DIP				19.07.2017 02:00:00	40.83	295.83	741.67	508.33	48.3	
29 (CW17BOWWW)	HYF				19.07.2017 02:00:00	40.36	227.08	704.17	516.67	51.2	
30 (CW17BOWWW)	TOB				19.07.2017 02:00:00	34.3	220.83	479.17	404.17	52.8	
31 (CW17BOWWW)	REF				19.07.2017 02:00:00	41.22	239.58	504.17	508.33	48.8	
32 (CW17BOWWW)	HYV				19.07.2017 02:00:00	40.89	275	962.5	420.83	67.7	
33 (CW17BOWWW)	DIC				19.07.2017 02:00:00	34.37	268.75	1075	512.5	59.3	
34 (CW17BOWWW)	MID				19.07.2017 02:00:00	44.44	279.17	1050	425	51.6	
35 (CW17BOWWW)	ELI				19.07.2017 02:00:00	35.44	277.08	929.17	566.67	64.4	
36 (CW17BOWWW)	JUL				19.07.2017 02:00:00	40.79	289.58	1075	470.83	44.9	
49 (CW17BOWWW)	CAR				19.07.2017 02:00:00	43.12	256.25	533.33	575	41	

Themenauswahl

- Messungs Geometrien
- Traktorfotos
 - CW17KAWW_traktor_17070
- Luftbilder Bornheim
- Luftbilder Klein-ALTendorf
- Hintergrundkarten
 - OSM WMS
 - OSM WMS Grau

[WMS hinzufügen](#)

WMS Layer hinzufügen

Themenkarten des GEOportal.nrw

GetCapabilites-Url

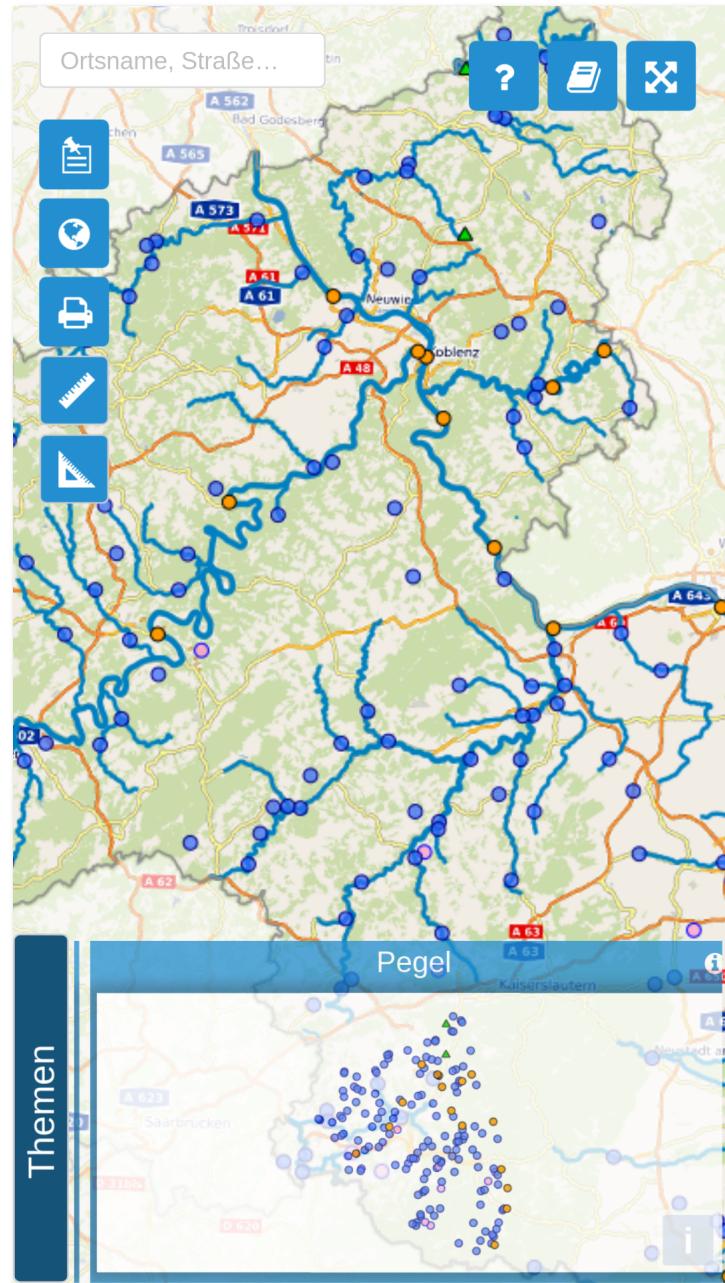
Bitte eine WMS GetCapabilites URL angeben oder einen Dienst des GEOportal.nrw wählen...

[Ausgewählte Layer hinzufügen](#) [Alle Layer hinzufügen](#) [Abbrechen](#)

Messungen



Parzellen	Versuchsfak...	Versuchsfak...	Wetterstation	Zeitstempel	Tausendkor...	Keimdichte...	TriebdichteA...	ÄhrendichteAH (1/m ²)	Kornzahläh...	KornertragA...	TRBodenbe...	KOPflanzen...
57 (CW17BO...)	DIC	I		07.2017 02:00:00	37.3	320.83	1525	645.83	49.3	92.47	undefined	undefined
15 (CW17BO...)	TOB	E		07.2017 02:00:00	37.07	137.5	325	612.5	59.5	76.62	undefined	undefined
3 (CW17BOWW)	TOB	I		07.2017 02:00:00	35.86	239.58	512.5	604.17	54.5	76.53	undefined	undefined
60 (CW17BO...)	JUL	I		07.2017 02:00:00	40.36	314.58	991.67	600	51	90.19	undefined	undefined
79 (CW17BO...)	JUL	I		07.2017 02:00:00	41.74	325	1454.17	595.83	44.4	94.93	undefined	undefined
54 (CW17BO...)	TOB	I		07.2017 02:00:00	36.72	214.58	483.33	587.5	59.3	90.84	undefined	undefined
81 (CW17BO...)	MID	I		07.2017 02:00:00	45.63	325	1058.33	579.17	48.5	86.63	undefined	undefined
49 (CW17BO...)	CAR	I		07.2017 02:00:00	43.12	256.25	533.33	575	41	73.47	undefined	undefined



Ausblick

- Auslagerung der Utilities
- Benutzerfreundlichere API-Docs und Beispiele
- Rasteroperationen
- Upgrade OpenLayers v5
- Harmonisierung mit anderen geogr. React Bibliotheken

Vielen Dank

Fragen & Anmerkungen?

Impressum

Impressum

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Lizenz

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