

CKAN Overview

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1. Overview

CKAN is the world's leading **open-source data portal platform**. It is a complete out-of-the-box software solution that makes data **accessible** – by providing tools to streamline **publishing**, sharing, **finding** and **using** data. CKAN is aimed at data publishers (national and regional governments, companies and organizations) wanting to make their data open and available. A slide-deck overview of CKAN can be found at <http://ckan.org/tour/>.

CKAN is currently used by governments and user groups worldwide to power both official and community data portals. CKAN was developed by the non-profit **Open Knowledge Foundation** to run TheDatahub.org, a public registry of open knowledge datasets. It now powers more than 40 data hubs around the world (see: <http://ckan.org/instances/>), including portals for local, national and international government, such as the UK's data.gov.uk and the European Union's publicdata.eu

Screenshots of key CKAN functionality

There is tour of CKAN features which can be found at <http://ckan.org/features>. Here we would like to highlight some of our key features with the latest screenshots of ckan instances we run.

Search

The screenshot displays the CKAN search interface. At the top, there is a navigation bar with the CKAN logo, the tagline 'the Open Source Data Portal Software', and links for 'Add Dataset', 'Datasets', 'Groups', 'About', a search bar, and 'Log in / Register'. Below the navigation bar, the main content area is titled 'Search Datasets'. On the left side, there are two filter panels: 'Tags' and 'Formats'. The 'Tags' panel shows a list of tags with counts, including 'transparency(2)', 'poll(1)', 'politics(1)', 'finance(1)', 'election(1)', 'country-italy(1)', 'country-afghanistan(1)', and 'accounts(1)'. The 'Formats' panel shows 'CSV(2)' and 'JSON(1)'. The main search results area shows a search bar with the text 'Search...', a dropdown menu for 'Order by' set to 'Relevance', and a list of 2 datasets. The first dataset is 'Afghanistan Election Districts', described as 'This data created by the National Democratic Institute (NDI) in partnership with Development Seed, a Washington, D.C.-based online communications consultancy, is designed to...'. It has a 'CSV' format button. The second dataset is 'Italian Regional Public Accounts', described as 'The Regional Public Accounts (RPA) measure public financial flows at the regional level providing information on central and local government revenues and expenditures (either...'. It has 'CSV' and 'JSON' format buttons.

CKAN combines a powerful keyword search with the ability to facet by tags and format. You can see the current facets below the search bar, which can be independently removed (by clicking the cross icon). Additional facets can be added by clicking on the links in the left hand sidebar.

Add a dataset form

There is a clear, simple three-step process for inputting metadata. Each metadata field can be edited/added at a later date.

ckan
the Open Source Data Portal Software

[Add Dataset](#) [Datasets](#) [Groups](#) [About](#) [Log in](#) [Register](#)

[Home](#) / [Datasets](#) / **Create Dataset**

1 What are datasets?

Datasets are simply used to group related pieces of data. These can then be found under a single url with a description and licensing information.

1 Create dataset **2 Add data** **3 Additional data**

Title:

URL: [Edit](#)

Description:

You can use [Markdown formatting](#) here

Tags:


License: [License definitions and additional information can be found at \[opendefinition.org\]\(http://opendefinition.org\)](#)

Important: By submitting content, you agree to release your contributions under the Open Database License.

[Cancel](#) [Next: Add Data](#)

We provide datasets with a unique url which you can modify and key fields of title, description, tags and licence. On step three you can also add maintainer name and contact details, source for the data as well as extra custom fields. The metadata schema is customizable.

Resources (individual data files associated to a dataset) also store additional information specific to that resource, such as format, title, description etc.

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[Home](#) / [Datasets](#) / [Example](#) / **Add resource**


i What is data?
Data can be any file or link to a file containing useful data.


1 Create dataset

2 Add data

3 Additional data

 **Link to a file**

 **Link to an API**

 **Upload a file**

Resource:

Name:

Description:

Some useful notes about the data

You can use [Markdown formatting](#) here

Format:

eg. CSV, XML or JSON

[Previous](#)

[Save & add another](#)


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Groups

Group functionality within CKAN can serve a number of purposes, either thematically grouping together datasets or allowing separate authorization options for a group of datasets published by particular organizations/departments. Groups can have their own set of admins and users allowing for tailored curation of datasets.

Group Index

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[+ Add Group](#)

What are Groups?

Whilst tags are great at collecting datasets together, there are occasions when you want to restrict users from editing a collection.

A group can be set-up to specify which users have permission to add or remove datasets from it.


Groups



Data Explorer Examples

This group contains various real datasets that show CKAN's data previewer in...


6 Datasets



Example Group

A group where you can change the authorisation permissions and add members,...

1 Dataset




Geospatial Data Explorer examples

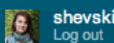
CKAN can plot both latitude and longitude as well as GeoJSON on a map. For...

3 Datasets

Interface for adding a group



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What are Groups?

Whilst tags are great at collecting datasets together, there are occasions when you want to restrict users from editing a collection.

A group can be set-up to specify which users have permission to add or remove datasets from it.

Create a Group

Title:

URL: [Edit](#)

Description:

You can use Markdown formatting here

Image URL:

Create Group

Example of group homepage

The screenshot shows the CKAN group homepage for 'Data Explorer Examples'. The top navigation bar includes the CKAN logo, links for 'Add Dataset', 'Datasets', 'Groups', and 'About', a search bar, and a user profile for 'shevski'. The main header shows the breadcrumb 'Groups / Data Explorer Examples' and buttons for '+ Add Dataset to Group' and 'Edit'. On the left sidebar, there is a 'Data Explorer Examples' section with a description of the group's purpose and a list of administrators: Irina Bolychevsky and Mark Wainwright. Below this is a 'Tags' section with a 'Clear All' link and a list of tags: transparency(2), country-uk(2), time series(1), and spending(1). The main content area features a search bar and a list of 6 datasets. The first dataset is 'UK: Adur District Council Spending Data', followed by 'Afghanistan Election Districts', 'Gold Prices in London 1950-2008 (Monthly)', and 'Italian Regional Public Accounts'. Each dataset entry includes a brief description and a 'CSV' button.

Data Explorer Examples
This group contains various real datasets that show CKAN's data previewer in action. The previewer shows a configurable grid view of tabular data, plots columns of data on a graph, and shows geo-coded data on an interactive map. It can also preview image files and web page...

Administrators
Irina Bolychevsky
Mark Wainwright

Tags [Clear All](#)
transparency(2)
country-uk(2)
time series(1)
spending(1)

6 datasets

UK: Adur District Council Spending Data
From Spikes Cavell, Spotlight on Spend. For Adur, records from April 2009-March 2010 are currently available (2011-008-04)
[CSV](#)

Afghanistan Election Districts
This data created by the National Democratic Institute (NDI) in partnership with Development Seed, a Washington, D.C.-based online communications consultancy, is designed to...
[CSV](#)


Gold Prices in London 1950-2008 (Monthly)
Monthly gold prices (USD) in London from Bundesbank. General: 1 ounce of fine gold = 31.1034768g. Method of calculation: Since 1 April 1968, calculated from the daily...
[CSV](#)

Italian Regional Public Accounts
The Regional Public Accounts (RPA) measure public financial flows at the regional level providing information on central and local government revenues and expenditures (either...
[CSV](#) [JSON](#)


Group or organization homepages include about text, the set of datasets which belong to that group, as well as tags and formats and any other fields which you want to be brought out into the user interface which belong to datasets of the group.

Dataset pages

Our dataset pages with their rich set of standard metadata give data context as well as providing an online home for data. This also means that you can collect datasets together under common tags or groups enabling browsing between related datasets driving data discoverability.


the Open Source Data Portal Software

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[Datasets](#)
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[About](#)


[Log out](#)

[Home](#) / [Datasets](#) / **Malawi Aid Projects**

 Related
  Edit
  Add resource



Geospatial Data Explorer examples

CKAN can plot both latitude and longitude as well as GeoJSON on a map. For more information, see <http://ckan.org/features/geospatial/>

Social

 Google+

 Twitter

 Facebook

Related [Add Related](#)

No apps, ideas, news stories or images have been related to this dataset yet, why not add one now?

 Add Item

License

License Not Specified 

Dataset extent



Malawi Aid Projects

Geocoded data on aid projects from the Government of Malawi's Aid Management Platform. It includes sub-national geocodes for approximately 550 aid projects undertaken in Malawi since 2000, representing nearly \$5.3 billion in total commitments from over 30 donors or roughly 80% of all aid reported to the Ministry of Finance during that time. The work is the result of a collaboration between AidData, the Malawi Ministry of Finance, and Climate Change and African Political Stability Program (CCAPS) at the University of Texas.

Citation: Peratsakis, Christian, Joshua Powell, Michael Findley, and Catherine Weaver. 2012. Geocoded Activity-Level Data from the Government of Malawi's Aid Management Platform. Washington D.C. AidData and the Robert S. Strauss Center for International Security and Law.

Data and Resources

 **Mapped data - click on Map Preview to view**

This dataset is based on the donor-reported aid information captured in the...

 Explore Data

 **Metadata**

Variable and field definitions for the Malawi data. You can expand the...

 Explore Data


aid country-mw geocoded

Additional Info


Field	Value
Source	http://blog.aiddata.org/2012/04/where-are-donors-working-in-malawi-new.html
State	active
spatial	{ "type": "Polygon", "coordinates": [[[[32.689701, -17.135811], [32.689701, -9.373335], [35.92416, -9.373335], [35.92416, -17.135811], [32.689701, -17.135811]]]] }
spatial-text	Malawi

This is a dataset page on demo.ckan.org displaying title, description, licence, tags, group, the resources themselves, social functions, related items, geographical extent and additional information. We have a standard set of metadata fields which conform to the DCAT standard and also allow for the customization and extension of additional metadata fields.

Clicking on 'Explore Data' next to a Resource / data file takes you to a resource page:


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[Add Dataset](#)
[Datasets](#)
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[About](#)


shevski
[Log out](#)

[Home](#) / [Datasets](#) / [UK: Adur ...](#) / **Adur District Council April ...**
[Back to dataset](#)
[Edit](#)
[Download](#)
[Data API](#)
[Grid](#)
[Graph](#)
[Map](#)
564 records
 -

Filters
[Add filter](#)
Resource Information

 Last Updated: May 08, 2012
 Format: text/csv
 License Not Specified

Resources

[Adur District Council ...](#)
[Revised CSV for import](#)

Additional Information

Field	Value
created	2012-05-08T12:01:07.002960
format	CSV
hash	9c2205cc35d7b499a56310232a33a5a35e8d115a
id	281dffa6-ea9b-4446-be41-05dced06591f
last_modified	2012-05-08T12:01:11.721393
mimetype	text/csv

Here you can actually preview the data itself (if available) as well as download the data and access

the data API. The data explorer you see above lets you sort, move and hide columns, add filters, search the data as well as plot the data on a graph or map.

Dataset authorization permissions

Datasets can have configurable authorization permissions. This usually runs from group authorization and can be seen below in the old interface:

Authorization: itest

View

Resources (0)

History

Settings

Authorization

Update Existing Roles

User	anon_editor	admin	editor	reader
Ira	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Save Changes

Add Roles for Any User

User	anon_editor	admin	editor	reader
<div>tester</div> <div>tester</div> <div>testertester [Mr. Tester]</div>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Add Role

You can edit the authorization for your dataset, or example giving limited edit rights to existing users (autocomplete helps you find the right username) as well as making your dataset private by changing the permissions of visitors (not logged in) or general logged in users (see example below).

Authorization: Corruption Index 2011

View

Resources (1)

History

Settings


Authorization

Update Existing Roles


User	anon_editor	admin	editor	reader
Ira	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
visitor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
logged_in	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Save Changes

Resource editor



[Add Dataset](#) [Datasets](#) [Groups](#) [About](#)

 shevski
Log out

[Home](#) / [Datasets](#) / [African Terrestrial Fibre ...](#) / **Edit Resource**

What is data?


Data can be any file or link to a file containing useful data.


Resources


[AfterFibre Data ...](#)

[Bespoke map ...](#)

[Scripts and ...](#)

 Link to a file

 Link to an API

 Upload a file

Resource:

Name:

Description:

Test dataset for AfTerFibre project to map terrestrial fibre optic cable projects in Africa.
Click on 'Map' to see location of the fibre cables mapped from the data.

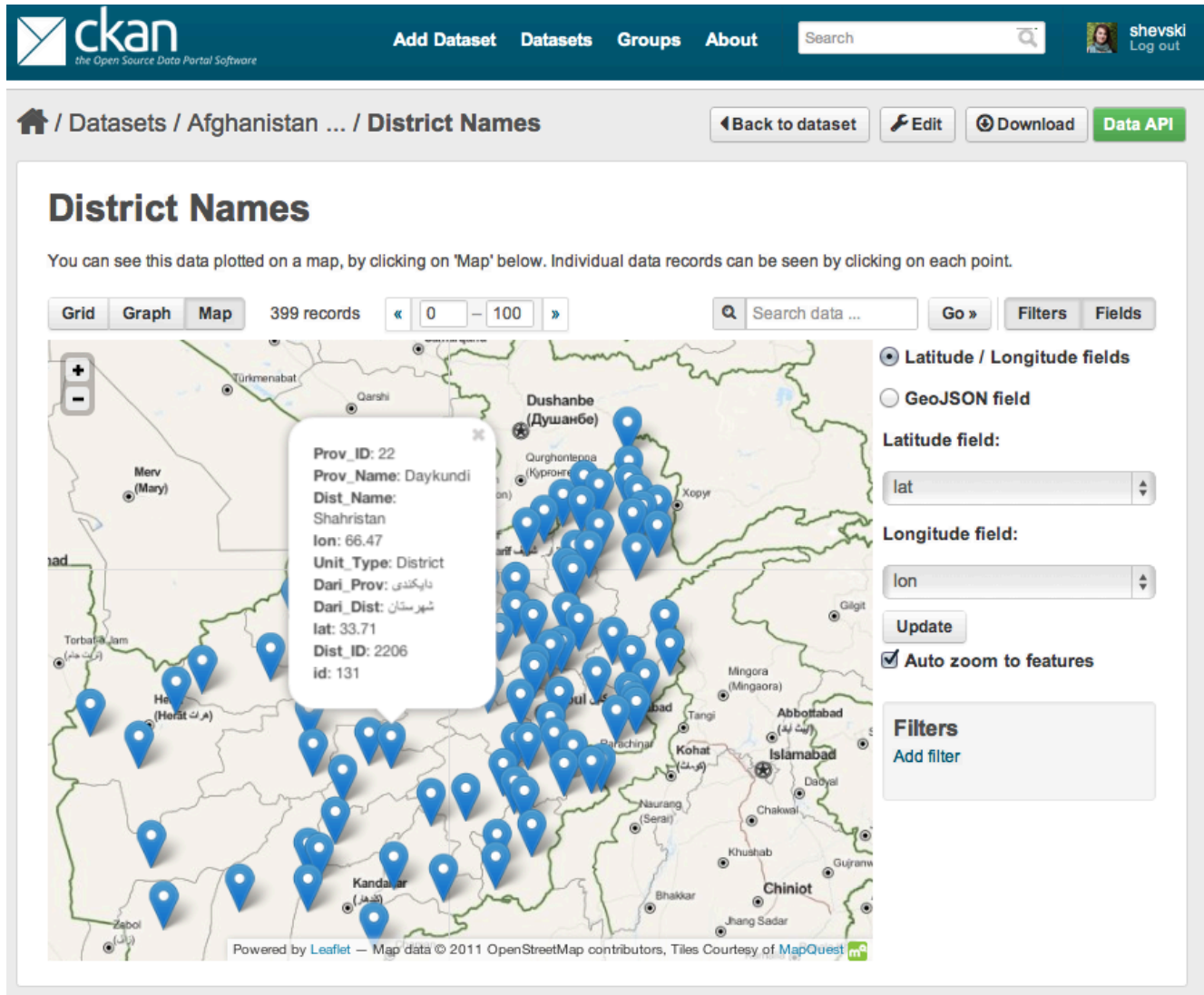
You can use [Markdown formatting](#) here

Format:

CSV

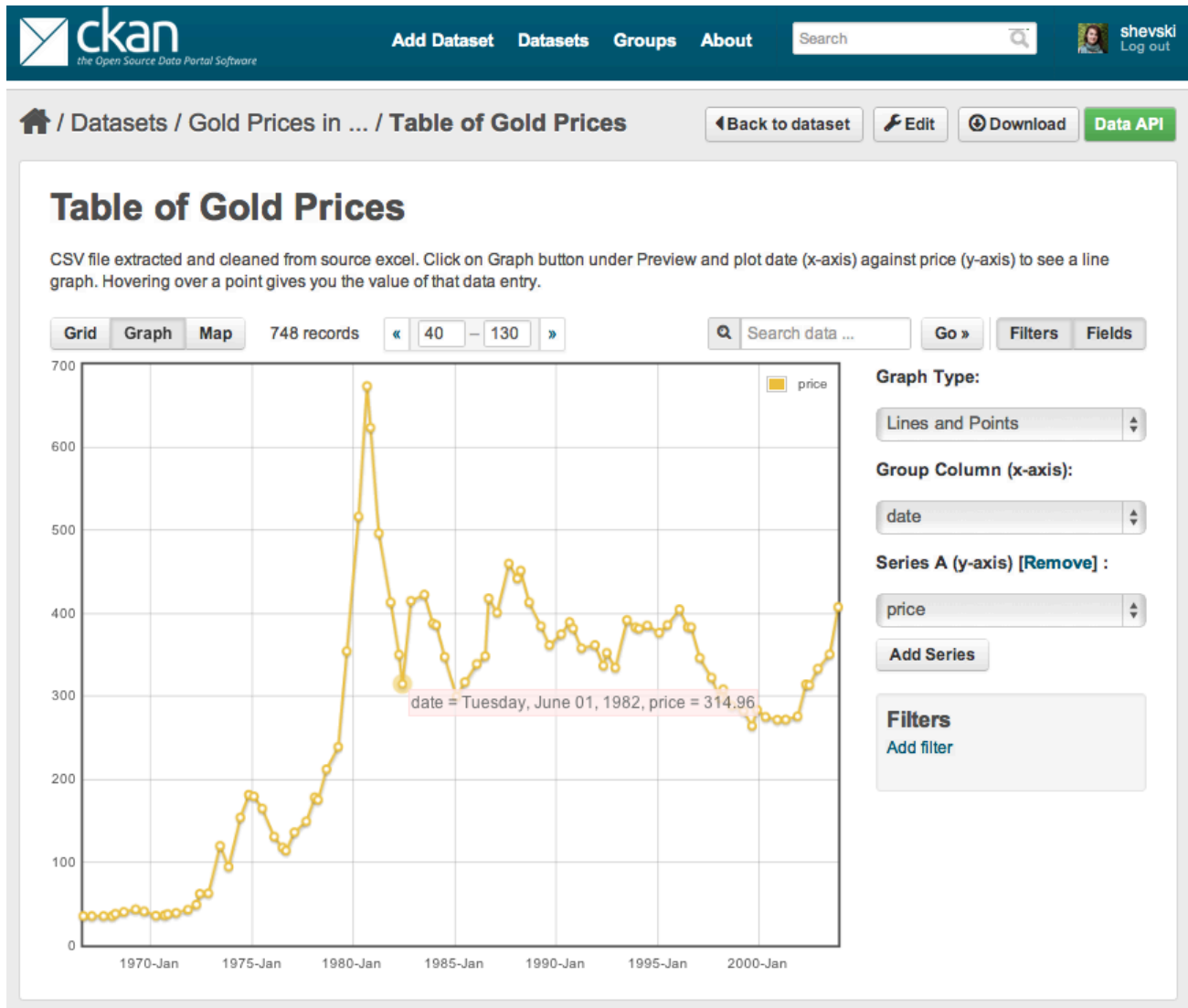
[Update Resource](#)

For adding and editing the resources of a dataset. You can edit all the resources of a dataset by moving between them in the sidebar navigation.



CKAN provides in-browser previews of various data types - including HTML pages, images previews, google docs and a tabular data explorer (for CSV, XML, excel etc) which you can interact with and download.

Our data explorer allows you to build basic visualizations:



Revision History

History: itest

View	Resources (1)	History	Settings	Authorization
Revisions				
<input checked="" type="radio"/>	Revision	Timestamp	Author	Log Message
<input type="radio"/>	ce28...	Apr 03, 2012, 13:27	Ira	Edited resources.
<input type="radio"/>	d290...	Mar 26, 2012, 16:55	Ira	Created new dataset.
Compare »				


You can view and compare previous versions of your datasets with a full revision history.


5 Stars of Linked Open Data Evaluator


Part of the QA extension (which generates reports for broken data links) we also display a 5-star linked data rating for resources. More info on what each star means here:


<http://lab.linkeddata.deri.ie/2010/star-scheme-by-example/> and in hover tooltip (see below):

Gold Prices in London 1950-2008 (Monthly) / C cleaned from source excel

 **View**

 **Resources (1)** ▾

 **History**

 **Settings**

Last updatedUnknown

Formatcsv

LicenceOpen Data Commons Public Domain Dedication and Licence (PDDL)

Quality★_★_★

OPENDATA

CS★★★★★

"Linked to other data to provide context."

Pre★★★★★

"Uses URIs to identify things, so that people can link to it."

Gr★★★★

"Uses non-proprietary formats (e.g., CSV instead of Excel)."

price★★

"Available as structured data (eg. Excel instead of a scanned table)."

34.9★

"Available under an open license."

Activity Streams

Activity streams allow you to track events around users, groups and datasets.

The screenshot shows the CKAN user profile page for Irina Bolychevsky. The header includes the CKAN logo, navigation links (Add Dataset, Datasets, Groups, About), a search bar, and a user profile (shevski) with a 'Log out' link. The main content area is titled 'Users / Your Profile' and includes an 'Edit' button. On the left, there's a 'Users' sidebar with a search bar and a link to 'All Users'. The main profile section displays a user photo, the name 'Irina Bolychevsky', and a note that no biography has been provided. To the right of the photo, user details are listed: Username: shevski, Email: irina.bolychevsky@okfn.org, Member Since: May 08, 2012, API Key: cf4dad39-ff19-4aa6-a7cb-593bb3a6b2c4, and Datasets: 2 Edits: 48. Below this, there are two tabs: 'Datasets' and 'Activity Stream'. The 'Activity Stream' tab is active, showing a list of recent activities: updating a resource 'After Fibre November 2011' in the 'African Terrestrial Fibre Optic Cables' dataset, updating a resource 'Adopt a roadside activity' in the 'Test dataset', updating a resource with a long URL in the 'Test dataset', updating the 'Test dataset' itself, adding a resource with a long URL to the 'Test dataset', and creating the 'Test dataset'.

We provide a user profile and dashboard page which lets you quickly find datasets you have added or edited.

2. In depth features

We would like to highlight two key features which we have recently done a significant amount of work on - our geospatial capabilities and our datastore (a structured data store that powers our data previews and visualizations).

Geospatial

CKAN has advanced geospatial features covering discovery, search and view. These features are used to power the UK's INSPIRE portal at data.gov.uk. Let's look at each in turn.

Discovery

CKAN implements a Discovery Metadata Service based on our harvesting infrastructure which understands standards such as ISO19139 and GEMINI 2.1 and can import records hosted in a variety of ways including directly from XML, from CSW servers or from an HTML index page. The architecture is extensible to make it easy to support other standards and distribution services. CKAN can also serve geospatial packages via its own CSW interface facilitating easy two-way integration with other products such as GeoNetwork.

Search

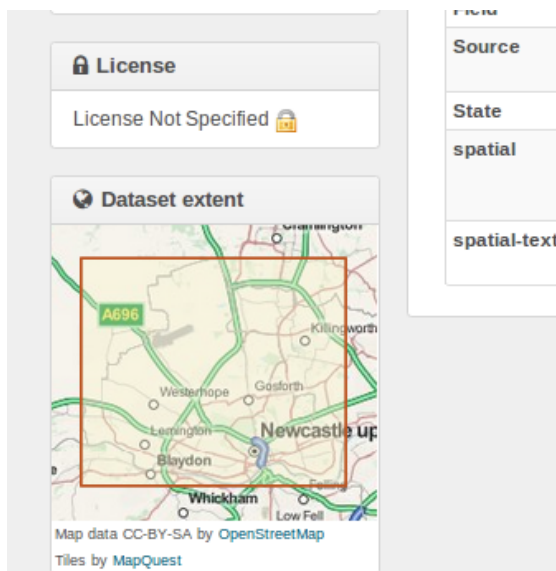
Once CKAN has harvested geospatial records, it parses them to extract various key pieces of data such as a bounding box, tags, description, resource locators and other information and creates a CKAN package for each record. CKAN understands different co-ordinate geometries enabling it to offer geospatial search facilities via its API so that, once enabled, someone visiting a CKAN site can filter search results based on the geographic location they are interested in.

View

For certain types of record, it is possible for CKAN to display a map widget which connects to an underlying WMS server to display map data directly from within CKAN allowing a user to directly visualise geospatial data on a map.

So for example, you can associate a dataset with a place on a map – a point, or a polygon.

Polygon Example



Example with associating a point with a dataset

Additional Information

Field	Value
spatial	{ "type": "Point", "coordinates": [-1.609,54.9756] }

Geographic extent



CKAN uses PostGIS to store the spatial property, so you can do a spatial search of datasets. For example you can search in a bounding box for datasets:

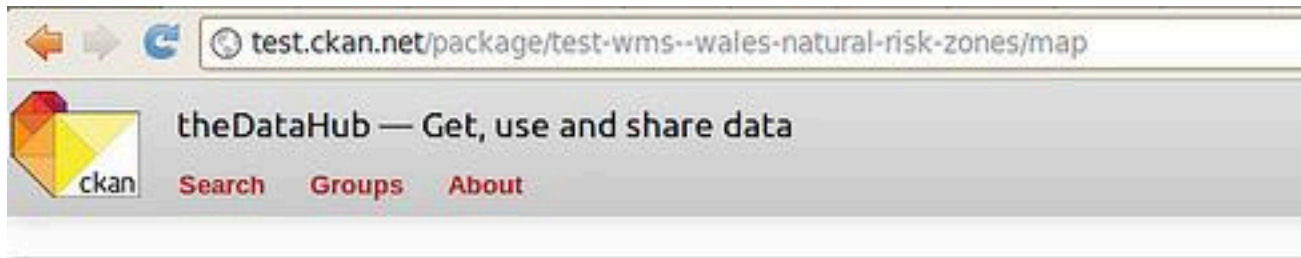
<http://test.ckan.net/api/2/search/package/geo?bbox=-180,-90,90,180>

Returns:

```
{"count": 3, "results": ["bb22bf62-6816-4b5f-97ea-ca8e8a4ce60c",  
"5016d4fe-acd8-42f7-bb7a-e0fb50a5e1fc", "0145ab94-ea32-4994-90e4-a227a22f3e68"]}
```

Web Map Services previews

CKAN can also preview geographic datasets or services, for example Web Map Services (WMS):

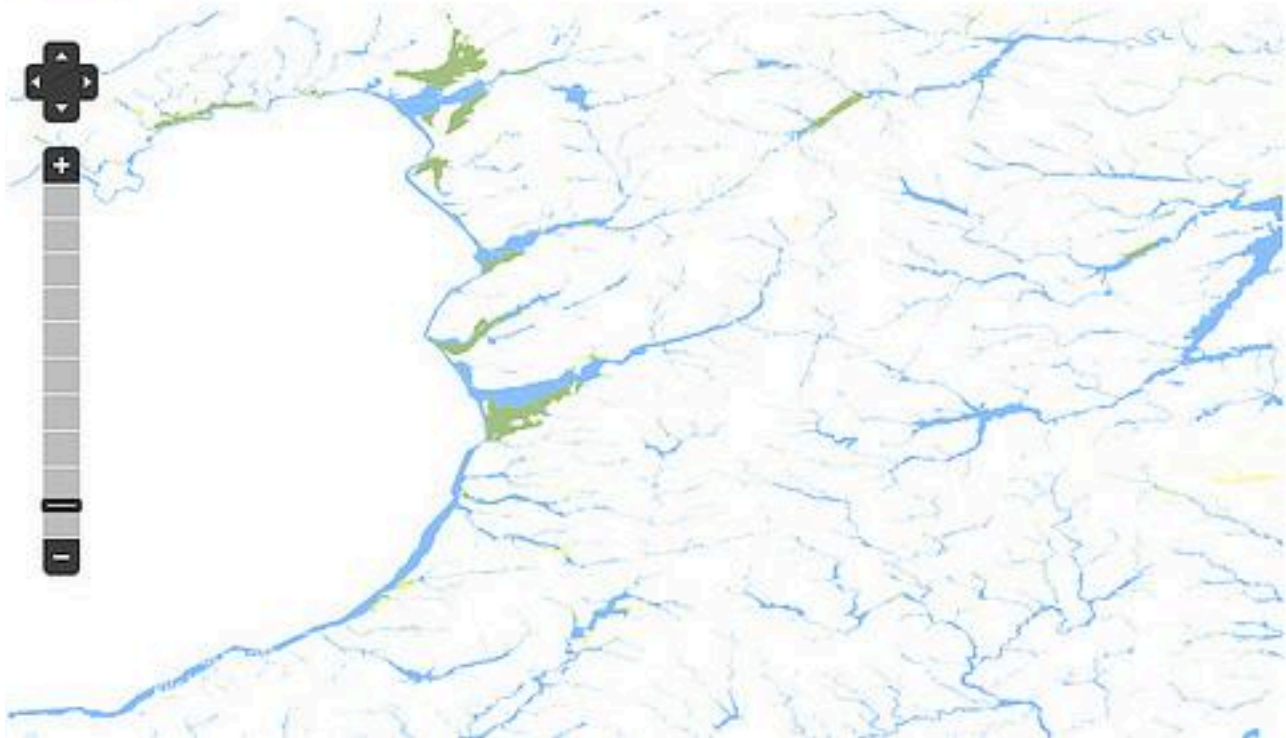


Test WMS - Wales Natural Risk Zones

Source: http://inspire.wales.gov.uk/maps/Natural_risk_zones/wms

[Package details](#)

WMS preview



CKAN will collect geographic data and serve it through a CSW interface, although only the basic parts of the standard are currently supported. Our aim is to offer full support for INSPIRE, a directive of the European Union to harmonize geographic data catalogues.

Going forward we will:

- Let users draw points and polygons on the map widget. This is not only for choosing where to search, but also for registering a dataset – you can easily indicate where it applies.
- Georeferencing place names. This will allow you to type “London” and for the polygon of

London to be marked on the map.


- Explore integrating PyCSW. This is a full-blown high-quality CSW service.

Geospatial search

We can also integrate filtering by location into normal CKAN keyword search:

Search - CKAN

« Filter by location



Select an area

Clear

Click on the 'Select' button to draw an area of interest. Use the map controls or the mouse wheel to zoom. Drag to pan the map.

Search

CKAN DataStore (for visualization & data previews)

Summary

The CKAN DataStore provides, as an integrated part of CKAN, a database for structured storage of data – together with a powerful Web-accessible, JSON-based, Data API.

Data can be automatically inserted into the DataStore from spreadsheet files in .csv or .xls (Excel) format that are uploaded or linked to in CKAN. Alternatively it can be added directly via the Data API.

By building on the open-source [ElasticSearch](#) storage and search engine (which is in turn built on [Lucene](#)), the CKAN DataStore is able to leverage those technologies' excellent scalability, reliability and search capabilities, delivering a great combination of features and robustness.

Functionality

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The DataStore and Data API significantly enhances existing CKAN capabilities, making it easy to do things like:

- Link or upload a file and **automatically** get a powerful web API to your data in seconds.
- Build apps and mashups quickly and easily. Using the DataStore means you don't need to spend time creating and hosting a data API, but can instead focus on building your app or mashup using CKAN's powerful JSON-based one.
- Utilise the full capabilities of our powerful [Recline data explorer](#), for example rich filtering and full-text search of datasets (when their data is in the DataStore).
- Is the foundation of our data visualization capabilities and lets us work on any stored files in our system.
- Allows us to talk to other applications and pull data in and out of CKAN for many purposes.
- Allows data to be updated in another system and then reflected in the CKAN datahub.

4. Further resources & links

Main information site on CKAN: <http://ckan.org/>

Tour & demo: <http://ckan.org/tour/>

Feature walkthrough: <http://ckan.org/features/>

Instances page: <http://ckan.org/instances/>

Case Studies: <http://ckan.org/case-studies/>

Documentation & developer info: <http://ckan.org/developers/>