



Rapid prototyping of Linked Data visualizations using LODSPeaKr

Alvaro Graves (email: gravea3@rpi.edu, twitter: [@alvarograves](https://twitter.com/alvarograves))

Rensselaer Polytechnic Institute 110 8th St., Troy, NY, 12180 United States

Abstract

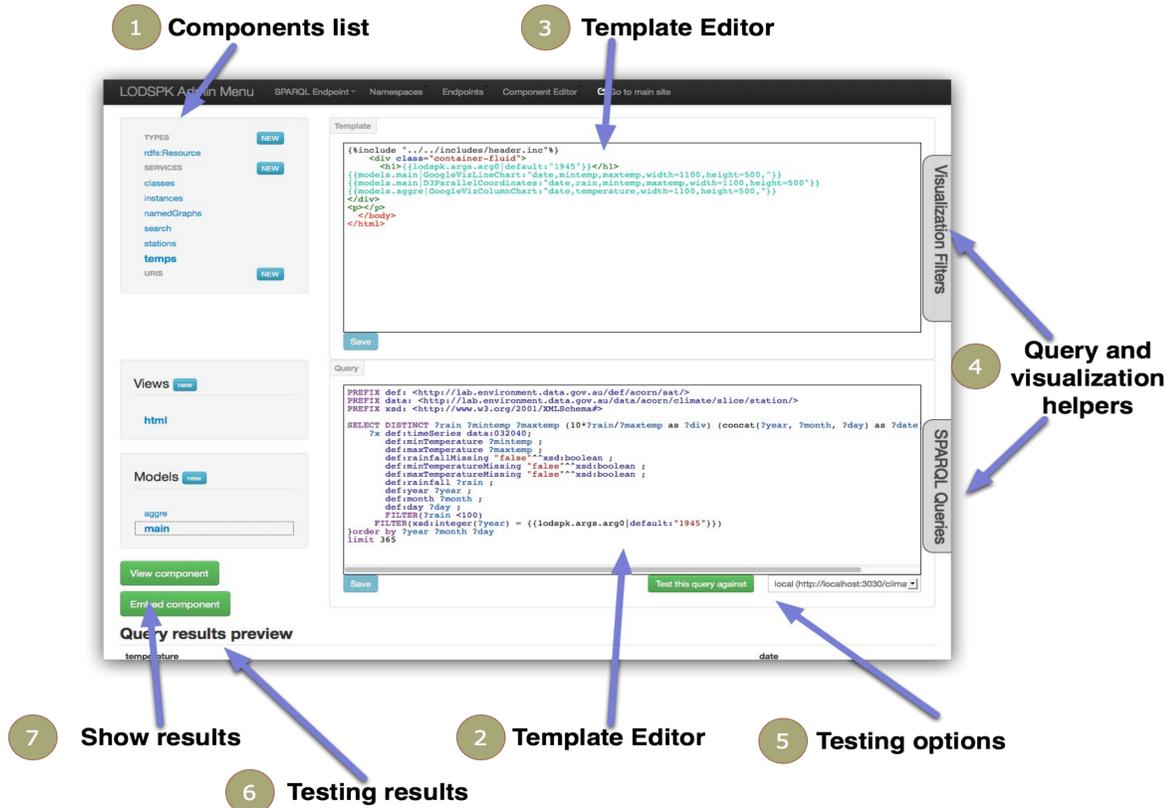
Humans are generally not well suited for analyzing large amounts of data, that's why we use visualizations that help us identify outliers and trends among other phenomena in the data. Linked Data is a set of technologies that offer multiple benefits for publishing and sharing data, by providing a standard way to describe information on the Web. However, few tools provide an environment for creating visualizations based on this data.

What is LODSPeaKr?

LODSPeaKr is a framework that facilitates linked data exploration and visualization. It facilitates the exploration and navigation of data and makes it easy to create visualizations.

LODSPeaKr GUI Editor

LODSPeaKr provides a GUI editor to create new components. It provides a series of "helpers" with snippets of code useful to create visualizations and a "query testing" area to debug SPARQL queries.



Useful links

- LODSPeaKr: <http://lodspeakr.org>
- Applications using LODSPeaKr: <http://alangrafu.github.com/lodspeakr/applications.html>
- Demo: <http://bit.ly/esip2013demo>
- ACORN-SAT: <http://datahub.io/dataset/acorn-sat>

Acknowledgments:

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Demo (<http://bit.ly/esip2013demo>)

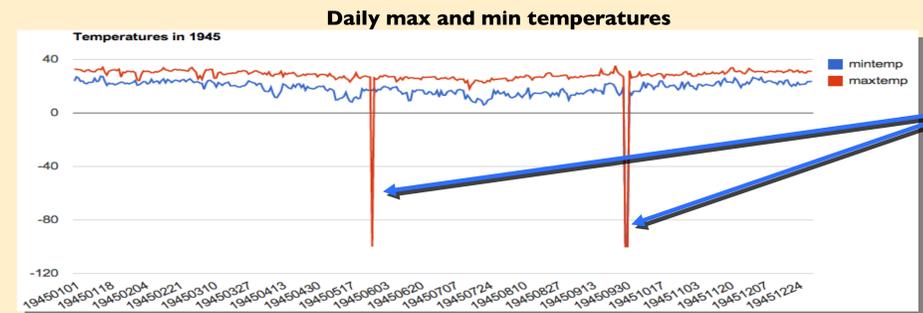
We created a demo using the Australian Climate Observations Reference Network - Surface Air Temperature (ACORN-SAT) dataset. Each visualization is composed of one query (what data to show) and one template (how to show it). In this case we used the same query for multiple templates.

Query

```
SELECT DISTINCT ?mintemp ?maxtemp (concat(?year, ?month, ?day) as ?date) WHERE {
  ?x def:timeSeries data:032040;
  def:minTemperature ?mintemp ;
  def:maxTemperature ?maxtemp ;
  def:year ?year ;
  def:month ?month ;
  def:day ?day ;
  FILTER(xsd:integer(?year) = 1945)
}order by ?year ?month ?day
```

Template

```
{{models.main|GoogleVizLineChart:"date,mintemp,maxtemp,width=1100,height=500"}}
```



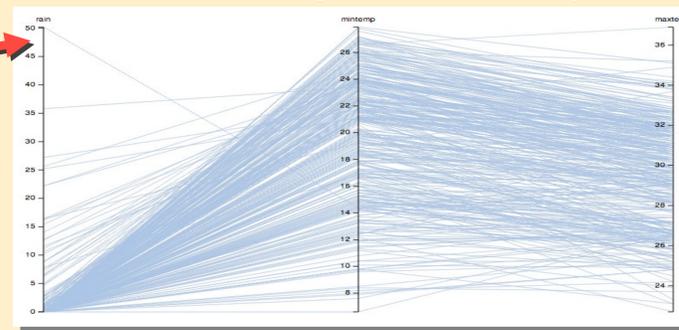
Anomalies in data that are easy to detect by visual inspection

Template

```
{{models.main|D3ParallelCoordinates:"date,rain,mintemp,maxtemp,width=1100,height=500"}}
```

Different visualizations can help identify trends and outliers

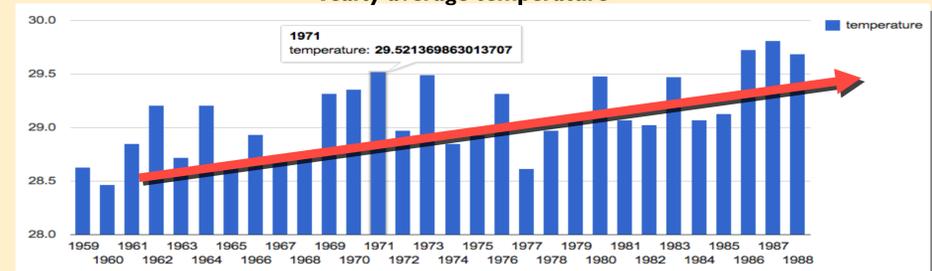
Parallel Coordinates showing rain, max and min temperatures



Template

```
{{models.aggre|GoogleVizColumnChart:"date,temperature,width=1100,height=500"}}
```

Yearly average temperature



Increasing trend of yearly average temperature

Conclusions

LODSPeaKr facilitates the creation of visualizations for rapid prototyping and data publishing in machine-readable form. Using these visualizations, scientists can discover phenomena that otherwise would not be noticed.