



Actuellement, il n'existe pas d'outils publics disponibles pour la visualisation générique des bases de données des graphs. Les solutions existantes sont souvent propriétaires, coûteuses ou spécifiques à des domaines d'application particuliers. Cette présentation introduit un service web interactif, dynamique et hautement configurable, conçu pour la visualisation du contenu des bases de données des graphs, des requêtes et des résultats d'analyses. Les capacités de cet outil seront démontrées en utilisant les données graphiques du broker Fink de l'Observatoire Vera Rubin.

Selection of the Graph server And initial request

Graph context-sensitive operations And introspection

Other ways of graph analyses (as plugins)

Other plugins can be called For more detailed analyses

Graph shown as an interactive table

Global operations on Graph

Interactive view of a Graph (Customisable by a stylesheet)

Operations feedback (Often CLI command to get the same result)

Lomikel Browser is a Web Service to visualize and any graph with Gremlin API. Written in JSP, JavaScript, Groovy and Gremlin. Objects (Vertices and Edges) can be manipulated and interrogated. It works out-of-the box with the default style, but can be heavily customized by visualization stylesheets and plugins.

Stylesheet is a JSON document, describing possible Vertices and Edges, containing scripts in Gremlin or JavaScript.

Plugins can specify

- how Vertices/Edges are shown
- their context-sensitive operations as either call to internal plugins or external services.

Many **standard plugins** exist:

- correlations/overlaps (i.e. properties of Edges between Vertices) as table and Venn diagrams
- scatterplots for Vertex/Edge properties
- time dependence of Vertex/Edge properties (if time property defined)
- visualization of embedded data (pictures,...)
- navigation to connected databases (SQL, NoSQL or Graph)

Future development:

- light version to allow visualization of vast amount of data (but with less interactivity)
- possibility to modify and create objects in the database

```
stylesheet:mes-des-dalles = {
  properties: {
    "color": "#f00",
    "label": "mes-des-dalles",
    "type": "node",
    "value": "mes-des-dalles"
  },
  actions: [
    {
      name: "mes-des-dalles",
      type: "node",
      value: "mes-des-dalles",
      target: "mes-des-dalles"
    }
  ]
}
```

Vertex introspection

Graph with relations to data in external database (FBase in this case)

Overlaps shown as a matrix and a Venn diagram (for one overlap)

Vertex: Group of Fink Alerts of certain type
Edge: Number of common Alerts to both Vertices (=overlap/correlation)