
SPANG Documentation

spang

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An increasing number of biological databases have been made available in the form of Resource Description Framework (RDF) and accessible through SPARQL endpoints, forming together a worldwide platform of biological data integration across the web. However, writing SPARQL codes for querying the databases often becomes a burden for biologists; thus, an easy-to-use querying interface is necessary.

Here, we developed a command-line SPARQL client, SPANG. SPANG can dynamically generate typical SPARQL queries depending on command-line options and arguments. SPANG supports interprocess communication to pass the variable bindings between queries, enabling execution of combination of queries and integration of data across the multiple SPARQL endpoints. SPANG can also search local RDF files besides remote data stores. These features provide the users an easy ways to integrate distributed data described in RDF, thus enhances the integrative analysis of biological data on the Semantic Web platform.

 Command line usage

2.1 Installation

```
$ cd spang2
$ npm install
$ npm link
```

2.2 Usage

```
Usage: spang2 [options] <SPARQL_TEMPLATE>
```

Options:

```
-V, --version                output the version number
-f, --format <FORMAT>      tsv, json, n-triples (nt), turtle (ttl), rdf/xml,
↳ (rdfxml), n3, xml, html (default: "tsv")
-e, --endpoint <ENDPOINT>  target endpoint
-S, --subject <SUBJECT>    shortcut to specify subject
-P, --predicate <PREDICATE> shortcut to specify predicate
-O, --object <OBJECT>      shortcut to specify object
-F, --from <FROM>          shortcut to search FROM specific graph (use alone or
↳ with -[SPOLN])
-N, --number                shortcut of COUNT query (use alone or with -[SPO])
-G, --graph                 shortcut to search Graph names (use alone or with -
↳ [SPO])
-a, --abbr                  abbreviate results using predefined prefixes
-q, --show_query            show query and quit
-L, --limit <LIMIT>        LIMIT output (use alone or with -[SPOF])
-l, --list_nick_name        list up available nicknames and quit
--param <PARAMS>           parameters to be embedded (in the form of "--param
↳ par1=val1,par2=val2,...")
-h, --help                  output usage information
```


CHAPTER 3

JavaScript library usage

CHAPTER 4

SPANG library

CHAPTER 5

SPANG API

CHAPTER 6

Adding metadata to SPARQL

Formatting SPARQL

SPANG specifies formatting of SPARQL.

`spfmt` is a SPARQL formatter written in JavaScript.

It can be used in a web site or in the command line.

An example web site: <https://hchiba1.github.io/sparql-utils/>

7.1 Usage on a web site

- Download `spfmt_bundled.js` and use it in your HTML.

```
<script src="/js/spfmt_bundled.js"></script>
```

- Then you can use `spfmt.reformat`.

```
spfmt.reformat("SELECT * WHERE {?s ?p ?o}");  
/*  
SELECT *  
WHERE {  
    ?s ?p ?o .  
}  
*/
```

- You can also call `spfmt_bundled.js` through the jsDelivr service.

```
<textarea id="sparql-text" rows=5></textarea>  
<button id="reformat-button">Reformat</button>  
<textarea id="sparql-text-after" rows=5></textarea>  
  
<script src="https://cdn.jsdelivr.net/gh/hchiba1/sparql-utils@master/spfmt/src/  
↪spfmt_bundled.js"></script>  
<script type="text/javascript">
```

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```
window.onload = () => {
  var textArea =
    document.querySelector("#reformat-button").addEventListener('click', ↵
↵ (event) => {
      document.querySelector("#sparql-text-after").value =
        spfmt.reformat(document.querySelector("#sparql-text").value);
    });
};
</script>
```

7.2 Usage in command line

7.2.1 Requirements

- Node.js (>= 11.0.0)
- npm (>= 6.12.0)

7.2.2 Installation

```
$ npm install
$ npm link
```

7.2.3 Usage

```
$ cat messy.rq
SELECT * WHERE {
    ?s ?p ?o }

$ spfmt messy.rq
SELECT *
WHERE {
    ?s ?p ?o .
}
```

7.2.4 Test examples

If you have globally installed mocha

```
$ mocha
```

Otherwise,

```
$ ./node_modules/mocha/bin/mocha
```

7.3 Update spfmt_bundled.js

Update the `spfmt_bundled.js` as follows after editing any other JS codes

```
$ ./node_modules/browserify/bin/cmd.js src/spfmt_browser.js > src/spfmt_bundled.js
```


spang2 command fails, even though it previously runs.

Try `npm install` again.

```
cd spang2
npm install
```