

23. GIT INSIDE: DIRECT WORK WITH GIT OBJECTS

Goals

- Explore the structure of the database objects
- Using SHA1 hashes for searching the content in repository

Let us examine git objects with some tools.

Searching for the last commit

RUN:

```
git hist --max-count=1
```

This command should find the last commit in the repository. SHA1 hash is probably different on our systems; however you should see something like this.

RESULT:

```
$ git hist --max-count=1
* 8029c07 2011-03-09 | Added index.html. (HEAD, master) [Marina
Pushkova]
```

Display of the last commit

With SHA1 hash of a commit, as above...

RUN:

```
git cat-file -t <hash>
git cat-file -p <hash>
```

I see this ...

RESULT:

```
$ git cat-file -t 8029c07
commit
$ git cat-file -p 8029c07
tree 096b74c56bfc6b40e754fc0725b8c70b2038b91e
parent 567948ac55daa723807c0c16e34c76797efbcbcd
author Marina Pushkova <marina (at) githowto.com> 1299684476 -0500
committer Marina Pushkova <marina (at) githowto.com> 1299684476 -0500
```

Added index.html.

Note: If you specify the alias as «type» and «dump», as described in the corresponding lesson, you can enter commands `git type` and `git dump` instead of a long command (which I never memorize).

This displays the commit object, which is in the head of master branch.

Tree search

We can display the tree referenced in the commit. This should be a file description (top level) in our project (for a specific commit). Use the SHA1 hash of the tree string from the list above.

RUN:

```
git cat-file -p <treehash>
```

Here is my tree ...

RESULT:

```
$ git cat-file -p 096b74c
100644 blob 28e0e9d6ea7e25f35ec64a43f569b550e8386f90    index.html
040000 tree e46f374f5b36c6f02fb3e9e922b79044f754d795    lib
```

I can see the `index.html` file and `lib` folder.

Display lib directory

RUN:

```
git cat-file -p <libhash>
```

RESULT:

```
$ git cat-file -p e46f374
100644 blob c45f26b6fdc7db6ba779fc4c385d9d24fc12cf72    hello.html
```

There is a `hello.html` file.

Display `hello.html` file

RUN:

```
git cat-file -p <hellohash>
```

RESULT:

```
$ git cat-file -p c45f26b
<!-- Author: Marina Pushkova (marina@githowto.com) -->
<html>
  <head>
</head>
  <body>
    <h1>Hello, World!</h1>
  </body>
</html>
```

And there it is. Tree objects, commit objects and blob objects are displayed directly from the git repository. That's all there is - trees, blobs and commits.

Explore by yourself

The git repository can be explored manually. Try to manually find the original `hello.html` file from the first commit with help of SHA1 hash references in the last commit.

◀ 22. Inside Git: `.Git` directory

24. Creating a Branch ▶

We plan to roll-out a major upgrade to this tutorial pretty soon. We can keep you posted if you want.

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