

HTTP Status Code 451

Bringing censorship into the light

Reports



- Human Rights Impact Assessment
 - Analyzes potential positive and negative human rights impacts of HTTP Status Code 451 according to draft-irtf-hrhc-research
- Implementation Report
 - How HTTP Status Code 451 is being used
 - Impacts the standard might have
 - Suggestions for improvement,
 - Legal background for India, Chile, Russia, Iran, US

Implementations

- JavaScript Crawler
 - Node-based web crawler
 - Recognizes 451 status, reports to collector
- WordPress Plugin
 - Plugin for WordPress CMS
 - Allows a site operator to block content using 451 for specific countries & context
- Block Collector
 - Reporting endpoint
 - Accepts 451 status reports from crawlers, browser plugin, and wp-plugin
- Browser Plugin
 - Chrome-based plugin(portable)
 - Recognizes 451 status, displays info, report to collector
- Python Crawler
 - Desktop app
 - Records status, 451 or otherwise



Specifications

- <https://netblocks.org/spec/>

Standards and specifications

HTTP 451 Detection Framework

[IETF99 451hackathon](#)

Observation reporting JSON format

Specified to support reports from both probe devices and browser plugins:

```
{
  date: 2017-07-14T02:26:46.681Z,
  creator: [tool name, string],
  version: [tool version, string],
  reporter [opt]: [uuid, generated and persisted by crawler instance],
  url: 'https://example.com',
  status: 451,
  statusText: 'Unavailable For Legal Reasons',
  blockedBy: 'https://example.com',
  clientIP [opt]: '192.0.2.4',
  clientLocation [opt]: {FIXME:locality/state/country?},
  originIP [opt]: '192.0.2.207'
}
```

```
who are the parties involved?
* origin -- server that returns 451
* observer -- HTTP client that receives 451
* submitter -- party submitting observation to the collector(may be the same party as the ob
* collector -- aggregator/republisher of observations
```

HTTP 451 Transparency Self-reporting Submission Format

Specified for e.g. WordPress HTTP 451 plugin:

Format for DECLARING RESTRICTIONS (Wordpress CMS etc. self-reporting):

```
{
  date: 2017-07-14T02:26:46.681Z,
  creator: [tool name, string],
  version: [tool version, string],
  reporter: ,
  property: 'https://example.com',
  resources: [resource-array],
}
```



Screenshots: JavaScript Crawler

```
$ node index.js --mode reddit http://redditlist.com/nsfw
```

```
{"date":"2017-07-16T11:45:41.273Z","creator":"block-crawler","version":"0.1","url":"http://reddit.com/r/twinks","status":451,"statusText":"Unavailable For Legal Reasons","blockedBy":{"rel":"blocked-by","url":"https://reddit.com"}}
```

```
{"date":"2017-07-16T11:45:56.535Z","creator":"block-crawler","version":"0.1","url":"http://reddit.com/r/gaypornhunters","status":451,"statusText":"Unavailable For Legal Reasons","blockedBy":{"rel":"blocked-by","url":"https://reddit.com"}}
```

```
{"date":"2017-07-16T11:46:25.706Z","creator":"block-crawler","version":"0.1","url":"http://reddit.com/r/gayporn","status":451,"statusText":"Unavailable For Legal Reasons","blockedBy":{"rel":"blocked-by","url":"https://reddit.com"}}
```

Screenshot: WordPress plugin

Configure blocking / Error 451

☒ If you have to enable blocking of this content, please check the box.

Add comma-separated list of country codes where this page shall be blocked. When left empty, the content shall be blocked from all locations.

AU,DE,FR,CZ,US

Please specify the URL of the authority has requested the block.

http://example.com

You may optionally specify a description so that visitors know why the page is blocked.

This is blocked because we are the gov

Settings Error Code 451

Reporting Settings

If you wish to report censorship instances to a public collector please add the URL here.

Example: <https://registry.wirecdn.com/report>

Enabling this will send the following information to the collector:

- Site Home URL
- Date and time
- Blocked URL
- Description of blocking (If provided)
- URL of Authority requesting the blocking (If provided)
- List of Countries where Content is Blocked

Reporting URL

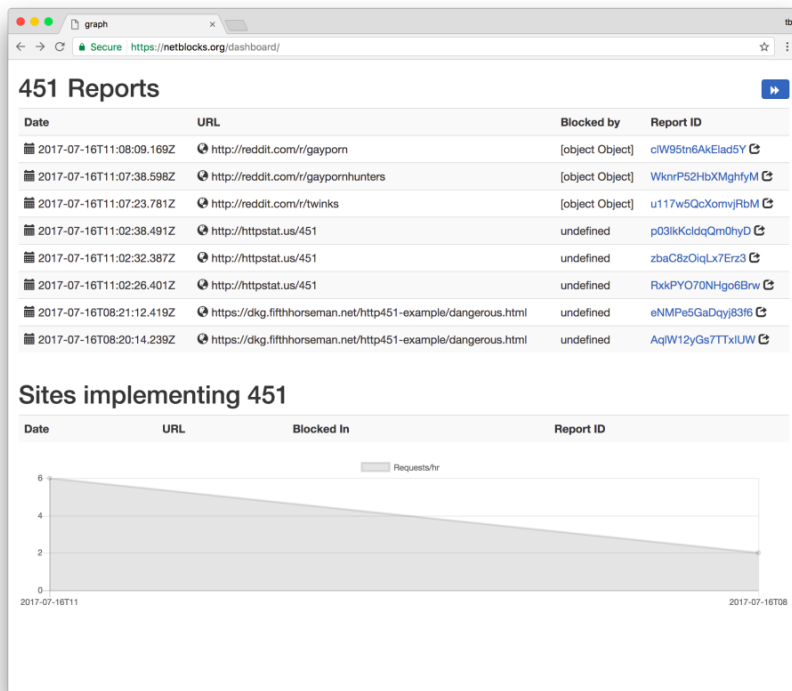
<https://registry.wirecdn.com/report>

Enable client side verification.
(Allow users to self-report over-censorship.)

☒ yes

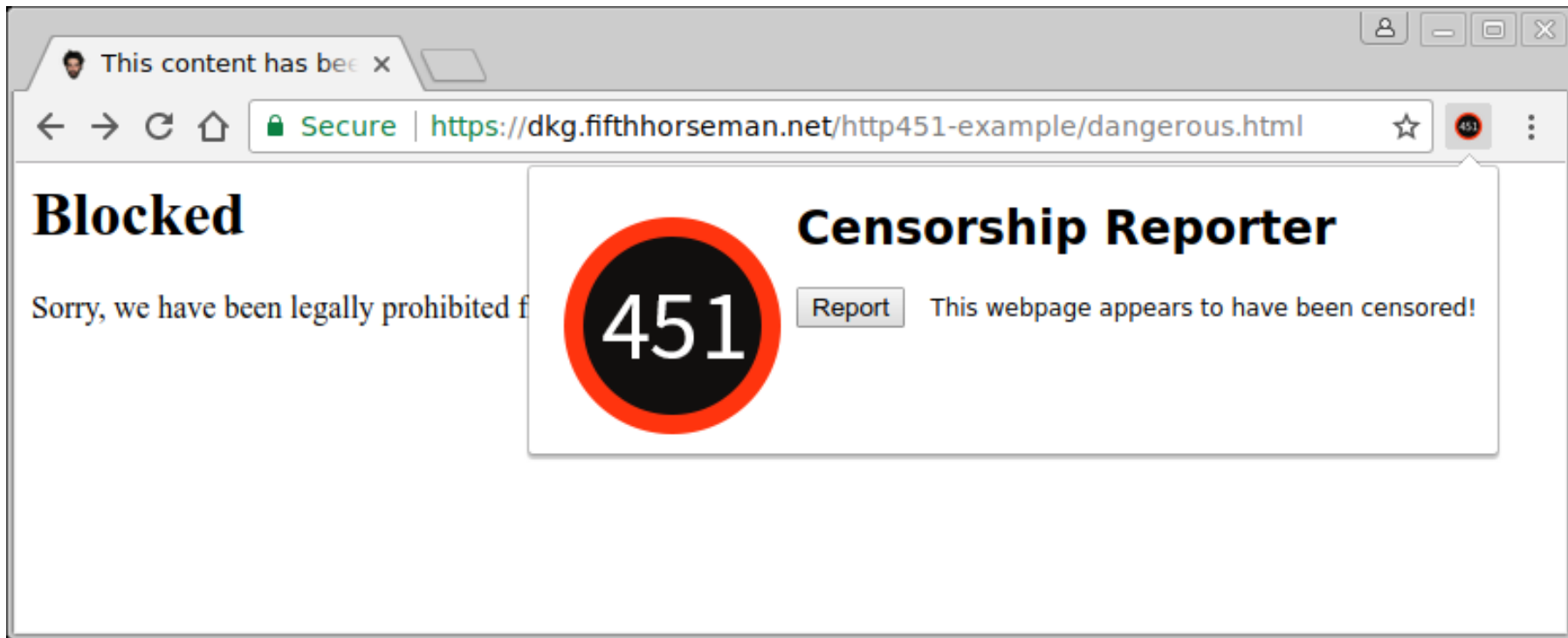
Save Changes

Screenshot: Block Collector

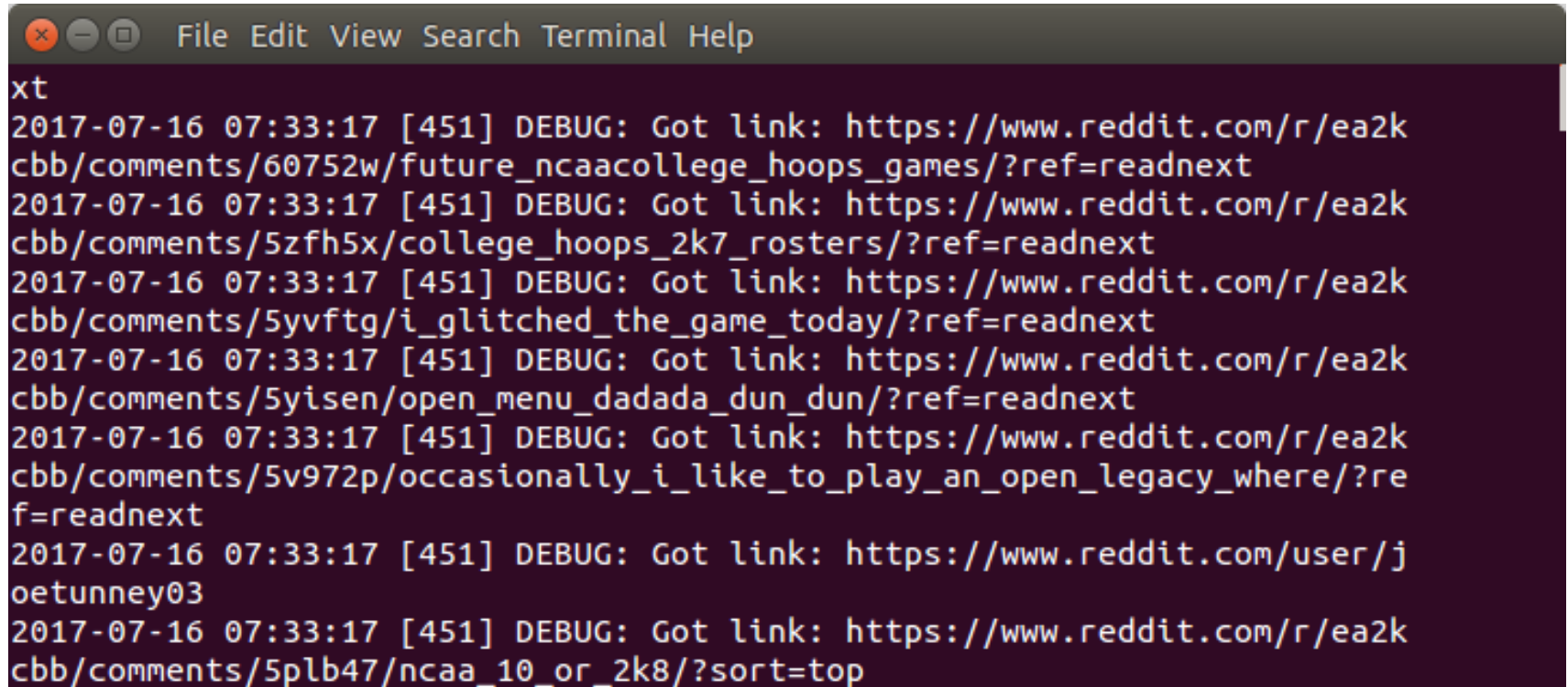




Screenshot: Browser Plugin



Screenshot: Python Crawler

A screenshot of a terminal window with a dark background and light-colored text. The window has a title bar with standard macOS window controls (close, zoom, and full screen buttons) and a menu bar with the options: File, Edit, View, Search, Terminal, and Help. The terminal content shows a series of debug messages from a Python crawler. Each message starts with a timestamp '2017-07-16 07:33:17', followed by '[451] DEBUG:', and then 'Got link:'. The links are all from the subreddit r/ea2kcbb on reddit.com, specifically pointing to comments in the 'future_ncaacollege_hoops_games' and 'college_hoops_2k7_rosters' threads. The messages end with '?ref=readnext'. The final message points to a user profile 'oetunney03' and a thread 'ncaa_10_or_2k8/?sort=top'.

```
xt
2017-07-16 07:33:17 [451] DEBUG: Got link: https://www.reddit.com/r/ea2k
cbb/comments/60752w/future_ncaacollege_hoops_games/?ref=readnext
2017-07-16 07:33:17 [451] DEBUG: Got link: https://www.reddit.com/r/ea2k
cbb/comments/5zfh5x/college_hoops_2k7_rosters/?ref=readnext
2017-07-16 07:33:17 [451] DEBUG: Got link: https://www.reddit.com/r/ea2k
cbb/comments/5yvftg/i_glitched_the_game_today/?ref=readnext
2017-07-16 07:33:17 [451] DEBUG: Got link: https://www.reddit.com/r/ea2k
cbb/comments/5yisen/open_menu_dadada_dun_dun/?ref=readnext
2017-07-16 07:33:17 [451] DEBUG: Got link: https://www.reddit.com/r/ea2k
cbb/comments/5v972p/occasionally_i_like_to_play_an_open_legacy_where/?re
f=readnext
2017-07-16 07:33:17 [451] DEBUG: Got link: https://www.reddit.com/user/j
oetunney03
2017-07-16 07:33:17 [451] DEBUG: Got link: https://www.reddit.com/r/ea2k
cbb/comments/5plb47/ncaa_10_or_2k8/?sort=top
```