

# *CADDY SERVER*

A Lightweight HTTP/2 Web Server

*#Harry Ha @ Black Flag – ox1115*

*<http://hieuht.ox1115.org>*

*<https://github.com/hieuha/Caddy-Configuration>*





1. Caddy! What is it?
2. Getting Started
3. A High Available Caddy System Using HAProxy - Keepalived

```
root@webserver-testing:~# ps aux --sort -rss | grep "nginx|caddy"
root      5529  0.0  0.9 14160 4632 pts/0    Sl+  22:44   0:00  ./caddy
root      5407  0.0  0.5 91008 2568 ?        S    22:42   0:00  nginx: worker process
root      5405  0.0  0.2 90668 1252 ?        Ss   22:42   0:00  nginx: master process /usr/sbin/nginx -g daemon on; master_process on;
```

CPU[|||| 11.2%] Tasks: 31, 26 thr; 2 running  
Mem[|||||109/489MB] Load average: 0.17 0.07 0.06  
Swp[ 0/0MB] Uptime: 01:48:23

PID	USER	PRI	NI	VIRT	RES	SHR	S	CPU%	MEM%	TIME+	Command
6094	root	20	0	91228	2788	992	S	4.6	0.6	0:05.85	nginx: worker process
5405	root	20	0	90800	2432	1052	S	0.0	0.5	0:00.00	nginx: master process /usr

EnterDone EscClear Filter: nginx

98% 556  
99% 579  
100% 727 (longest request)

[root@srv ~]# ab -n 1000 -c 10 http://caddy.0x1115.org/

This is ApacheBench, Version 2.3 <\$Revision: 655654 \$>

Copyright 1996 Adam Twiss, Zeus Technology Ltd, <http://www.zeustech.net/>

Licensed to The Apache Software Foundation, <http://www.apache.org/>

Benchmarking caddy.0x1115.org (be patient)

Completed 100 requests

Completed 200 requests

Completed 300 requests

Completed 400 requests

Completed 500 requests

Completed 600 requests

Completed 700 requests

Completed 800 requests

Completed 900 requests

CPU[||| 8.0%] Tasks: 31, 26 thr; 2 running  
Mem[|||||110/489MB] Load average: 0.00 0.02 0.05  
Swp[ 0/0MB] Uptime: 01:47:09

PID	USER	PRI	NI	VIRT	RES	SHR	S	CPU%	MEM%	TIME+	Command
6125	root	20	0	19796	9844	4196	S	3.3	2.0	0:03.33	./caddy -conf=Wordpress.co
6130	root	20	0	19796	9844	4196	S	3.3	2.0	0:00.69	./caddy -conf=Wordpress.co
6126	root	20	0	19796	9844	4196	S	0.0	2.0	0:00.48	./caddy -conf=Wordpress.co
6129	root	20	0	19796	9844	4196	S	0.0	2.0	0:01.10	./caddy -conf=Wordpress.co
6163	root	20	0	19796	9844	4196	S	0.0	2.0	0:00.62	./caddy -conf=Wordpress.co
6132	root	20	0	19796	9844	4196	S	0.0	2.0	0:00.41	./caddy -conf=Wordpress.co
6127	root	20	0	19796	9844	4196	S	0.0	2.0	0:00.00	./caddy -conf=Wordpress.co
6128	root	20	0	19796	9844	4196	S	0.0	2.0	0:00.00	./caddy -conf=Wordpress.co

EnterDone EscClear Filter: caddy

95% 577  
98% 730  
99% 757  
100% 975 (longest request)

[root@srv ~]# ab -n 1000 -c 10 http://caddy.0x1115.org:8080/

This is ApacheBench, Version 2.3 <\$Revision: 655654 \$>

Copyright 1996 Adam Twiss, Zeus Technology Ltd, <http://www.zeustech.net/>

Licensed to The Apache Software Foundation, <http://www.apache.org/>

Benchmarking caddy.0x1115.org (be patient)

Completed 100 requests

Completed 200 requests

Completed 300 requests

Completed 400 requests

Completed 500 requests

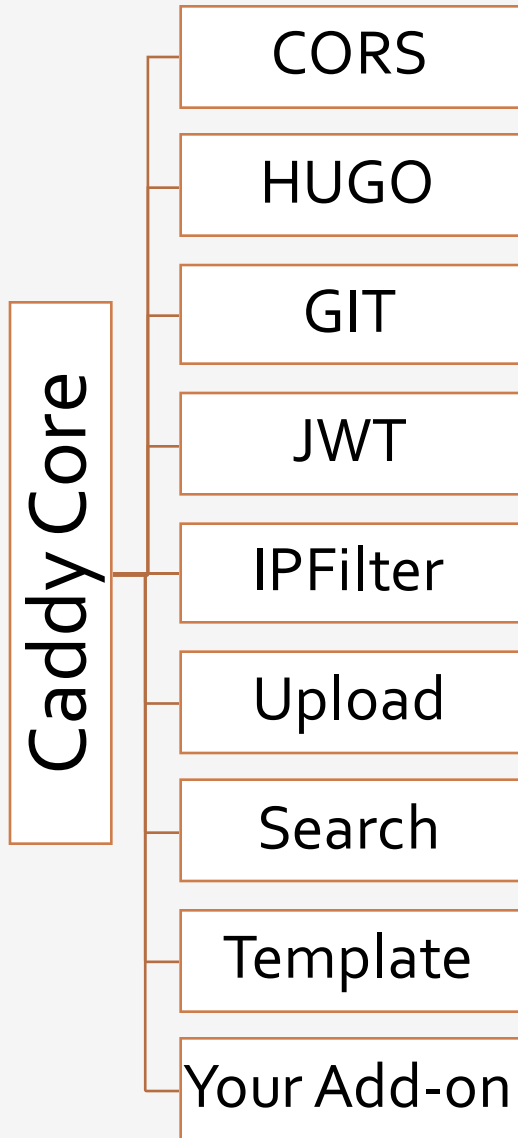
Completed 600 requests

Completed 700 requests

Completed 800 requests

```
-- Nginx
Total transferred:      72432904 bytes
HTML transferred:      72065904 bytes
Requests per second:   37.40 [#/sec] (mean)
Time per request:      267.400 [ms] (mean)
Time per request:      26.740 [ms] (mean, across all concurrent requests)
Transfer rate:         2645.30 [Kbytes/sec] received

--- Caddy
Total transferred:      18914773 bytes
HTML transferred:      18809329 bytes
Requests per second:   25.19 [#/sec] (mean)
Time per request:      396.961 [ms] (mean)
Time per request:      39.696 [ms] (mean, across all concurrent requests)
Transfer rate:         1796.61 [Kbytes/sec] received
```



- Made by Golang
- Speedy HTTP Request using HTTP/2
- Run on multiple CPUs/ Cores
- Server Markdown documents on fly
- Advance Websockets technology
- Available for All known Platform – Windows, Linux, BSD, Mac, Android. Portable Executables.
- Serve FastCGI, Reverse Proxy, Rewrite and Redirects, Clean URL, Gzip compression, Directory Browsing, Virtual Hosts and Headers. ( Of Course)

# HTTP 1.0 vs HTTP 2.0



Credits: cascadingmedia.com

# Getting Started

```
$ caddy -conf="/path/to/Caddyfile"
```

```
# Global Configuration
```

```
# Default site
```

```
:2015          # Host: <any>, Port: 2015
```

```
localhost      # Host: localhost, Port: 2015
```

```
localhost:8080  # Host: localhost, Port: 8080
```

```
0x1115.org      # Host: 0x1115, Port: 443
```

```
http://0x1115.org  # Host: 0x1115.org, Port: 80
```

```
https://0x1115.org  # Host: 0x1115.org, Port: 443
```

```
http://0x1115.org:1234  # Host: 0x1115.org, Port: 1234
```

```
gzip
```

```
log /var/log/caddy/default-access.log
```

```
errors /var/log/caddy/default-error.log
```

```
# Comments can start a line
```

```
0x1115.org {
```

```
    root /www/0x1115.org
```

```
    log /var/log/caddy/0x1115.org
```

```
}
```

```
blog.0x1115.org {
```

```
    root /www/blog.0x1115.org
```

```
    gzip
```

```
    log /var/log/caddy/blog-0x1115-access.log
```

```
}
```

```
hieuht.0x1115.org:2020, https://hieuht.0x1115.org,
```

```
http://hieuht.0x1115.org {
```

```
    ...
```

```
}
```

# Path Matching





# Template Actions

Caddy templates use the syntax defined in Go's [text/template](#) package

Templates are supported by a few different directives such as:

- Template
- Browse
- Markdown

**Syntax: {{ variable }}**

Does not apply for customizing error pages

---

# Template

## Include another file:

```
{{.Include "path/to/file.html"}}
```

## Include and render a Markdown file

```
{{.Markdown "path/to/file.md"}}
```

## Show current timestamp: ([format](#))

```
{{.Now "Monday, 2 Jan 2006"}}
```

## Cookie value:

```
{{.Cookie "name"}}
```

## Header field value:

```
{{.Header "name"}}
```

## Visitor's IP:

```
{{.IP}}
```

## Request URI:

```
{{.URI}}
```

## Host portion of request:

```
{{.Host}}
```

## Port portion of request:

```
{{.Port}}
```

## Request method:

```
{{.Method}}
```

## A part of the URL:

```
{{.URL.RawQuery}}
```



# browse

browse enables directory browsing within the specified base path. It displays a file listing for directories which don't have an index file in them

```
browse /photos ../photo_album.tpl
```

Response:

- Template Format (HTML)
- JSON Response

```
$ curl -H "Accept: application/json" 'localhost:2015/?limit=1'
```

---

# Markdown

markdown serves [Markdown](#) files as HTML pages on demand, but it can also generate a static site from Markdown so it doesn't have to render on-the-fly. You can specify whole custom templates or just the CSS and JavaScript files to be used on the pages to give them a custom look and behavior.

```
markdown /blog {  
    ext .md .txt  
    css /resources/css/blog.css  
    js  /resources/js/blog.js  
    template default.html  
    template blog    blog.html  
    template about  about.html  
}
```

---

# Baiscauth

```
basicauth /secret Bob hiccup

basicauth "Mary Lou" milkshakes {
    /marylou-files
    /another-file.txt
}
```

# Rewrite

```
rewrite [basepath]{
    regexp pattern
    ext extensions...
    if a cond b
    status code
    to destinations...
}
```

---

```
rewrite {
    if {file} not favicon.ico
    to {path} {path}/ /maintenance.html
    /index.php
}
```

```
rewrite {
    if if {>User-agent} has mobile
    to {path} {path}/ /mobile/index.php
}
```

# Git (Add-on)

```
git repo [clonepath] {  
    repo      repo  
    path      clonepath  
    branch    branch  
    key        key  
    hook      path [secret]  
    interval  interval  
    then      command [args...]  
    then_longcommand [args...]  
}
```

Private repository pulled into the "subfolder" directory with tag v1.0 once per day:

```
git {  
    repo  git@github.com:user/myproject  
    branch v1.0  
    key    /home/user/.ssh/id_rsa  
    path   subfolder  
    interval 86400  
}
```

# Fast-cgi

```
fastcgi /blog/ 127.0.0.1:9000 php
```

```
fastcgi / /var/run/php5-fpm.sock php
```

## Search (Using Bleve Engine)

full-text search and indexing for Go

```
search ^/blog/ {  
    +path /static/docs  
    -path ^/blog/admin/  
    -path robots.txt  
}
```

---

# IPFilter

```
ipfilter paths... {
    rule    block | allow
    ip      list or/and range of IPs...
    country  countries ISO codes...
    database db_path
    blockpage block_page
    strict
}

ipfilter / {
    rule    block
    ip      212.10.15.0-255 213.10.15.0-10 5.23.4.24
    blockpage /local/data/default.html
}

ipfilter /notglobal /secret {
    rule    block
    country  US JP
    database /local/data/GeoLite2-Country.mmdb
    blockpage /local/data/default.html
}
```

# Real-IP (Add-on)

```
realip {
    header name
    from      cidr
    strict
}

realip {
    header X-Forwarded-For
    from    cloudflare
    from    1.2.3.4/32
    from    0.0.0.0/0
}
```



# Proxy

```
proxy from to... {  
    policy random  
    | least_conn  
    | round_robin  
    fail_timeout duration  
    max_fails integer  
    health_check path [duration]  
    proxy_header name value  
    without prefix  
    except ignored_paths...  
    insecure_skip_verify  
    preset  
}
```

```
proxy / web1.local:80 web2.local:90  
web3.local:100 {  
    policy round_robin  
    health_check /health  
    proxy_header Host {host}  
    proxy_header X-Real-IP {remote}  
    proxy_header X-Forwarded-Proto {scheme}  
}
```

## **Proxy WebSocket connections:**

```
proxy / localhost:8080 {  
    websocket  
}
```

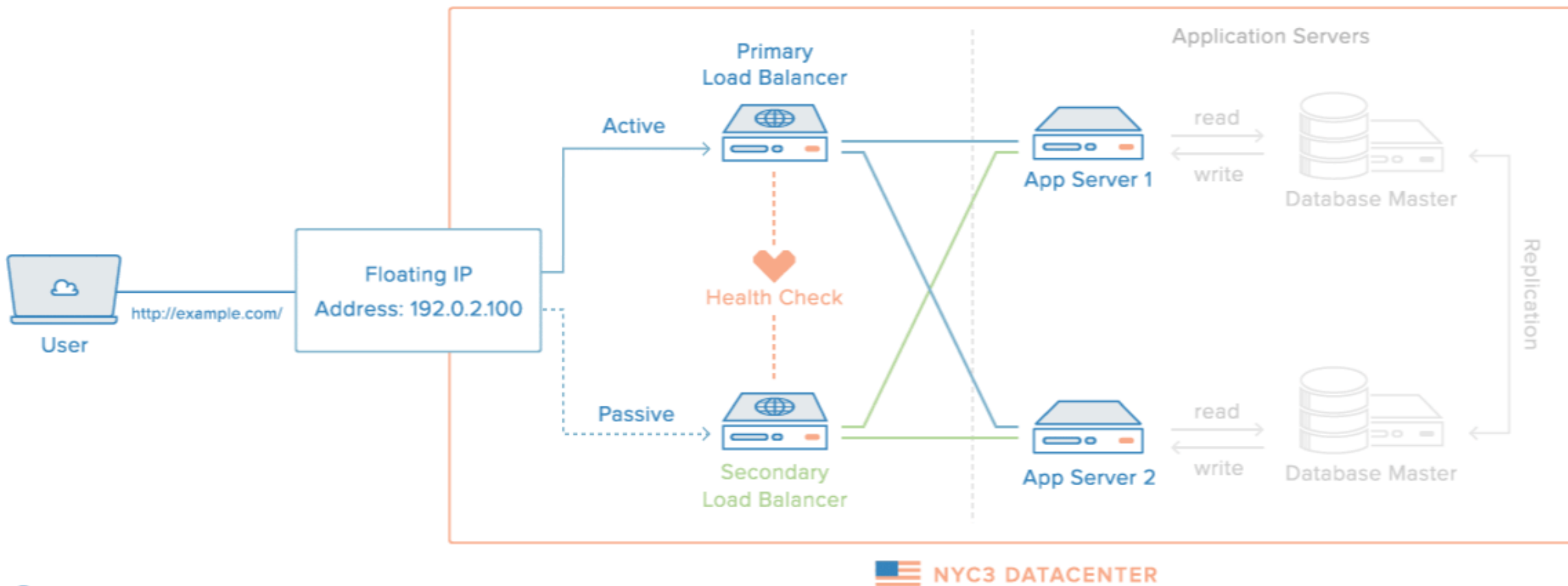
## **Proxy everything except requests to /static or /robots.txt:**

```
proxy / backend:1234 {  
    except /static /robots.txt  
}
```

# Logs

```
log / access.log {  
    rotate {  
        size 100 # Rotate after 100 MB  
        age 14 # Keep log files for 14 days  
        keep 10 # Keep at most 10 log files  
    }  
}  
  
errors {  
    log / error.log {  
        size 50 # Rotate after 50 MB  
        age 30 # Keep rotated files for 30 days  
        keep 5 # Keep at most 5 log files  
    }  
}
```

---



- 1 Active/Passive Cluster is healthy
- 2 Primary node fails
- 3 Floating IP is assigned to Secondary node

 NYC3 DATACENTER