

Pi-hole DNS Ad-blocking Server

Networkwide ad blocking via your own Linux hardware. No client-side software required



- [pi-hole Homepage](#)
- [Installation Pi-hole DNS Ad-blocking Server auf ARM - \(Depricated\)](#)

Installation von Docker und Docker-Compose

Step 1 - Update the System and install Docker:

```
# apt-get update
# apt-get upgrade

# apt-get install docker-ce
```

Step 2 - Install docker-compose binary:

Neuste Version auf GitHub nachschauen: [docker-compose](#)

```
# curl -L
"https://github.com/docker/compose/releases/download/1.23.2/docker-compose-$(
uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose

# chmod +x /usr/local/bin/docker-compose
# curl -L https://raw.githubusercontent.com/docker/compose/$(docker-compose
version --short)/contrib/completion/bash/docker-compose -o
/etc/bash_completion.d/docker-compose

# docker-compose version
```

Installation eines gehärteten Unbound DNS-Servers

```
# apt-get install unbound

# cd /var/lib/unbound/
```

```
# wget -O root.hints https://www.internic.net/domain/named.root
# chown unbound:unbound /var/lib/unbound/root.hints

# vim /etc/unbound/unbound.conf.d/blackNET.conf
```

```
server:
    verbosity: 1
    port: 5353
    do-ip4: yes
    do-udp: yes
    do-tcp: yes

    # May be set to yes if you have IPv6 connectivity
    do-ip6: no

    # Use this only when you downloaded the list of primary root servers!
    root-hints: "/var/lib/unbound/root.hints"

    # Trust glue only if it is within the servers authority
    harden-glue: yes

    # Require DNSSEC data for trust-anchored zones, if such data is absent,
    the zone becomes BOGUS
    harden-dnssec-stripped: yes

    # Don't use Capitalization randomization as it known to cause DNSSEC
    issues sometimes
    # see
    https://discourse.pi-hole.net/t/unbound-stubby-or-dnscrypt-proxy/9378 for
    further details
    use-caps-for-id: no

    # Reduce EDNS reassembly buffer size.
    # Suggested by the unbound man page to reduce fragmentation reassembly
    problems
    edns-buffer-size: 1472

    # TTL bounds for cache
    cache-min-ttl: 3600
    cache-max-ttl: 86400

    # Perform prefetching of close to expired message cache entries
    # This only applies to domains that have been frequently queried
    prefetch: yes

    # One thread should be sufficient, can be increased on beefy machines
    num-threads: 1

    # Ensure kernel buffer is large enough to not loose messages in traffic
```

```
spikes
  so-rcvbuf: 1m

  # Ensure privacy of local IP ranges
  private-address: 192.168.0.0/16
  private-address: 172.16.0.0/12
  private-address: 10.0.0.0/8
```

```
# systemctl restart unbound
# systemctl status unbound

# netstat -tulpn
# dig blackgate.org @127.0.0.1 -p 5353

// ----- TESTING VON DNS-SEC: -----
-
# dig sigfail.verteiltesysteme.net @127.0.0.1 -p 5353
# dig sigok.verteiltesysteme.net @127.0.0.1 -p 5353
```

Installation / Deployment von pi-hole

Erstellen der benötigten Files und Verzeichnisse

```
# mkdir /opt/docker-pihole
```

Optional: blackGATE custom design! **Achtung:** falls das custom-design nicht gewünscht wird, die ERSTE markierte Zeile im docker_compose.yml WEGLASSEN sowie auch nachfolgende File und den Ordner nicht erstellen.

```
# mkdir /opt/docker-pihole/adminCMS
# vim /opt/docker-pihole/adminCMS/pi-hole.css
```

```
/* Pi-hole: A black hole for Internet advertisements
* (c) 2017 Pi-hole, LLC (https://pi-hole.net)
* Network-wide ad blocking via your own hardware.
* CSS BY MICHU!!!
* This file is copyright under the latest version of the EUPL.
* Please see LICENSE file for your rights under this license. */

/* -----blackGATE RULES-----
---*/
/* BACKGROUND:*/
body {
```

```
background-color: #232323 !important;
}
.layout-boxed {
background: url(https://www.blackgate.org/wood.jpg) !important;
}

/* PAGE FORMATING:*/
.skin-blue .main-header .logo {
background-color: #4a4a4a !important;
}
.skin-blue .main-header .navbar {
background-color: #383838 !important;
}
.skin-blue .wrapper, .skin-blue .main-sidebar, .skin-blue .left-side {
background-color: #2b2b2b !important;
}
.skin-blue .sidebar-menu>li.header {
color: #717171 !important;
background: #212121 !important;
}
.skin-blue .sidebar-menu>li: hover>a, .skin-blue .sidebar-menu>li.active>a {
color: #fff;
background: #383838 !important;
border-left-color: #b7babb !important;
}
.skin-blue .sidebar-menu>li>.treeview-menu {
background: #232323 !important;
}
.box {
background: #eaeaea !important;
border-top: 3px solid #989898 !important;
box-shadow: 0 1px 1px rgba(14, 14, 14, 0.31) !important;
}
.box-header.with-border {
border-bottom: 1px solid #d2d2d2 !important;
}
.table-bordered>thead>tr>th, .table-bordered>tbody>tr>th, .table-
bordered>tfoot>tr>th, .table-bordered>thead>tr>td, .table-
bordered>tbody>tr>td, .table-bordered>tfoot>tr>td {
border: 1px solid #cecece !important;
}
.skin-blue .main-header li.user-header {
background-color: #4a4a4a !important;
}
.navbar-nav>.user-menu>.dropdown-menu>.user-body {
border-bottom: 1px solid #b1b1b1 !important;
border-top: 1px solid #cecece !important;
}

/* DELETE SOME STUFF:*/
```

```

.navbar-nav>.user-menu>.dropdown-menu>.user-footer {
    display: none;
}
#loginform>.row>.col-xs-12>.box.box-solid.box-info {
    display: none;
}

/* .sidebar-menu>li:last-child {
    display: none;
} */

/* ----- START of Default RULES (minified) -----
-----*/
.small-box{cursor:default;-webkit-user-select:none;-moz-user-select:none;-ms-user-select:none;-o-user-select:none;user-select:none}.skin-blue .list-group-item:hover{background:#ddd}@-webkit-keyframes Pulse{from,to{color:#630030;-webkit-text-shadow:0 0 2px transparent}50%{color:#e33100;-webkit-text-shadow:0 0 5px #e33100}}@keyframes Pulse{from,to{color:#630030;text-shadow:0 0 2px transparent}50%{color:#e33100;text-shadow:0 0 5px #e33100}}a.lookatme{-webkit-animation-name:Pulse;animation-name:Pulse;-webkit-animation-duration:2s;animation-duration:2s;-webkit-animation-iteration-count:infinite;animation-iteration-count:infinite}.table-responsive{-webkit-overflow-scrolling:touch}#all-queries td:nth-of-type(1),#all-queries td:nth-of-type(5){white-space:nowrap}#all-queries td:nth-of-type(3){min-width:200px;word-break:break-all;white-space:pre-wrap}#all-queries_info{white-space:unset}#all-queries_wrapper .pagination>li>a{padding-left:6px;padding-right:6px;min-width:34px;text-align:center}@media screen and (max-width:500px),screen and (min-width:767px) and (max-width:1000px){#all-queries_wrapper .pagination>li.next,#all-queries_wrapper .pagination>li.previous{display:none}#all-queries_wrapper .pagination>li:nth-of-type(2) a{border-top-left-radius:4px;border-bottom-left-radius:4px}#all-queries_wrapper .pagination>li:nth-last-of-type(2) a{border-top-right-radius:4px;border-bottom-right-radius:4px}}.main-header>.navbar{height:50px}#resetButton{color:red;font-weight:700}.vertical-alignment-helper{display:table;width:100%;height:100%;pointer-events:none}.vertical-alignment-helper>.vertical-align-center{display:table-cell;vertical-align:middle}.vertical-alignment-helper>.vertical-align-center>.modal-content{width:250px;margin-left:auto;margin-right:auto;word-wrap:break-word;pointer-events:all}.alSpinner{top:.1em;left:.1em;width:.8em;height:.8em;border-radius:50%;border:4px solid silver;border-right-color:transparent;-webkit-animation:fa-spin 1s infinite linear;animation:fa-spin 1s infinite linear}
/* ----- END of Default RULES (minified) -----
-----*/

```

END of Optional

Anlegen des docker-compose file für pi-hole

Das verwendete Image ist ausschliesslich für x86_x64 Systeme geeignet. Soll Pi-hole auf einem ARM basierten System dockerisiert installiert werden, kann [HIER](#) geschaut werden.

Wichtig: Alle im `docker_compose.yml` File markierten Stellen sind zu kontrollieren oder bei einer Nichtübereinstimmung anzupassen!

```
# vim /opt/docker-pihole/docker_compose.yml
```

```
version: "3.2"
```

```
services:
```

```
# -----
```

```
----
```

```
pihole:
```

```
  image: pihole/pihole:latest
```

```
  container_name: "pihole-main"
```

```
  volumes:
```

- /opt/docker-pihole/pihole/:/etc/pihole/
- /opt/docker-pihole/dnsmasq.d/:/etc/dnsmasq.d/
- /opt/docker-pihole/adminCMS/pi-

```
hole.css:/var/www/html/admin/style/pi-hole.css
```

- /etc/localtime:/etc/localtime:ro

```
  environment:
```

- VIRTUAL_HOST=www.blackgate.org
- ServerIP=192.168.1.2
- DNS1=127.0.0.1#5353
- DNS2=no
- TZ=Europe/Zurich
- WEBPASSWORD=MY_LOGIN_PASSWORD
- WEB_PORT=81
- INTERFACE=enp1s0

```
  #ports:
```

```
  # - 53:53/tcp
```

```
  # - 53:53/udp
```

```
  # - 67:67/udp
```

```
  # - 81:80
```

```
  #networks:
```

```
  # - local
```

```
  restart: always
```

```
  network_mode: "host"
```

```
# -----
```

```
----
```

```
#networks:
```

```
#  local:
```

```
#    driver: bridge
```

Erklärung zu den Environment Variablen:

- **VIRTUAL_HOST**: Die FQND von welcher später via Web-GUI auf das Pi-hole zugegriffen werden soll.
- **ServerIP**: Die Server IP-Adresse des Docker-Hosts. (Ausserhalb des Containers)
- **DNS1**: Standard Upstream-DNS-Server von Pi-hole.
- **WEBPASSWORD**: Repräsentiert das admin-Passwort welches benötigt wird um sich am Web-GUI anzumelden.
- **WEB_PORT**: Der Port auf welchem der Server das Admin-GUI ausliefert.
- **INTERFACE**: Das Host-Interface. (**Wichtig wenn Standard nicht eth0**)

Starten und testen des pi-hole Docker Containers

```
# docker-compose -f /opt/docker-pihole/docker_compose.yml up -d
# docker ps -a
```

Weiteres

Wiederherstellen der alten pi-hole Konfiguration (Stand: 06.11.2018)

```
# docker-compose -f /opt/docker-pihole/docker_compose.yml down
# vim /opt/docker-pihole/dnsmasq.d/01-pihole.conf
```

```
# Pi-hole: A black hole for Internet advertisements
# (c) 2015, 2016 by Jacob Salmela
# Network-wide ad blocking via your Raspberry Pi
# http://pi-hole.net
# dnsmasq config for Pi-hole
#
# Pi-hole is free software: you can redistribute it and/or modify
# it under the terms of the GNU General Public License as published by
# the Free Software Foundation, either version 2 of the License, or
# (at your option) any later version.
#####
####
#       FILE AUTOMATICALLY POPULATED BY PI-HOLE INSTALL/UPDATE PROCEDURE.
#
# ANY CHANGES MADE TO THIS FILE AFTER INSTALL WILL BE LOST ON THE NEXT
UPDATE #
#
#
#       IF YOU WISH TO CHANGE THE UPSTREAM SERVERS, CHANGE THEM IN:
#
#                               /etc/pihole/setupVars.conf
```

```
#
#
#
#       ANY OTHER CHANGES SHOULD BE MADE IN A SEPERATE CONFIG FILE
#
#               OR IN /etc/dnsmasq.conf
#
#####
####

addn-hosts=/etc/pihole/gravity.list
addn-hosts=/etc/pihole/black.list
addn-hosts=/etc/pihole/local.list

localise-queries

no-resolv

cache-size=10000

log-queries=extra
log-facility=/var/log/pihole.log

local-ttl=2

log-async
server=127.0.0.1#5353
domain-needed
bogus-priv
interface=enp1s0
server=/fritz.box/192.168.1.1
server=/1.168.192.in-addr.arpa/192.168.1.1
```

```
# vim /opt/docker-pihole/pihole/blacklist.txt
```

```
bvadtgs.scdn1.secure.raxcdn.com
4b6994dfa47cee4.com
metrics.plex.tv
gebadu.com
pl4518712.puserving.com
analytics.ff.avast.com
p5-3os3pimkl6tg2-ixzsvd47ghupqap6-659208-i1-v6exp3.ds.metric.gstatic.com
```



```
# vim /opt/docker-pihole/pihole/whitelist.txt
```

```
raw.githubusercontent.com
mirror1.malwaredomains.com
sysctl.org
zeustracker.abuse.ch
s3.amazonaws.com
hosts-file.net
serials.ws
www.serials.ws
www.googleadservices.com
platform.linkedin.com
cdn.ravenjs.com
public-assets.envato-static.com
ipm-provider.ff.avast.com
www.smartredirect.de
```

```
# vim /opt/docker-pihole/pihole/setupVars.conf
```

```
DHCP_START=192.168.1.180
DHCP_END=192.168.1.250
DHCP_ROUTER=192.168.1.1
DHCP_LEASETIME=48
PIHOLE_DOMAIN=local
DHCP_IPv6=true
DHCP_ACTIVE=false
DNS_FQDN_REQUIRED=true
DNS_BOGUS_PRIV=true
DNSSEC=false
CONDITIONAL_FORWARDING=true
CONDITIONAL_FORWARDING_IP=192.168.1.1
CONDITIONAL_FORWARDING_DOMAIN=fritz.box
CONDITIONAL_FORWARDING_REVERSE=1.168.192.in-addr.arpa
PIHOLE_DNS_1=127.0.0.1#5353
PIHOLE_DNS_2=
QUERY_LOGGING=true
INSTALL_WEB_SERVER=true
INSTALL_WEB_INTERFACE=true
LIGHTTPD_ENABLED=
```

```
IPV4_ADDRESS=192.168.1.2
IPV6_ADDRESS=
WEBPASSWORD=d295e1c88d5494f1f40cce9be08428e73a79792d37f4ffa6100ac283901479a
a
PIHOLE_INTERFACE=enp1s0
```

```
# docker-compose -f /opt/docker-pihole/docker_compose.yml up -d
# docker ps
```

Reverse Proxy Setup Beispiel

```
# vim /etc/apache2/sites-available/blackgate.org.conf
```

```
<VirtualHost *:443>
  ServerName www.blackgate.org
  #
    ServerAdmin ${blackgate_serveradmin}
    Header always set Strict-Transport-Security "max-age=63072000;
includeSubdomains; preload"
    SSLEngine on
    SSLCertificateFile ${blackgate_ssl_path}/cert.pem
    SSLCertificateKeyFile ${blackgate_ssl_path}/privkey.pem
    SSLCertificateChainFile ${blackgate_ssl_path}/chain.pem

    ProxyPass /error_docs !
    ErrorDocument 503 /error_docs/ServiceUnavailable.html

    RewriteEngine on
    RewriteRule ^/pi-hole$ /pi-hole/ [R]

    ProxyPass          /pi-hole/ http://127.0.0.1:81/admin/
    ProxyPassReverse   /pi-hole/ http://127.0.0.1:81/admin/

    ProxyPass          / http://192.168.1.21/
    ProxyPassReverse   / http://192.168.1.21/

    <Proxy http://127.0.0.1:81/admin/>
      Order deny,allow
      Allow from all
      AuthType Basic
      Authname "Password Required"
      AuthUserFile /etc/apache2/.htpasswd
      Require valid-user
    </Proxy>
</VirtualHost>
```

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