

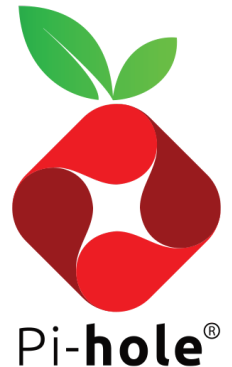
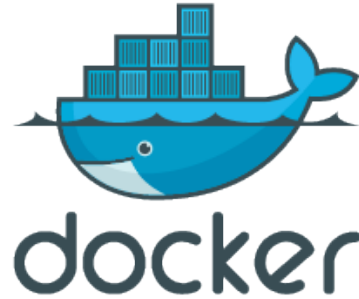
Pihole Setup Guide

Setup your own Pihole Adblocker!

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Getting Started

Overview: What is Pi-hole?



Overview: What is Pi-hole?

Pi-hole is a network-wide ad blocker that acts as a DNS sinkhole, filtering out unwanted content, advertisements, and tracking at the network level. It's typically installed on small devices like a Raspberry Pi but can be deployed on any Linux-based system.

Key Features:

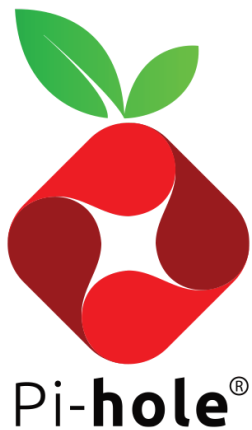
1. **Ad Blocking:** Blocks ads at the DNS level, preventing them from being loaded on any device connected to the network.
2. **Privacy Protection:** Blocks tracking scripts and domains, enhancing user privacy across devices.
3. **Network-wide Filtering:** Applies ad-blocking to all devices on the network, regardless of platform or browser.

4. **Customizable Blocklists:** Supports user-defined blocklists, allowing for granular control over what gets blocked.
5. **Web Interface:** Provides an easy-to-use web dashboard for managing blocklists, monitoring DNS requests, and viewing statistics.
6. **Low Resource Usage:** Can run efficiently on low-power devices like Raspberry Pi without affecting network performance.
7. **Whitelist/Blacklist Control:** Allows users to add specific domains to whitelist or blacklist for customized filtering.
8. **DNS Performance:** Acts as a local DNS resolver, improving browsing speed by reducing the need for external DNS queries.

Pi-hole is widely used for ad-blocking, network security, and improving overall internet performance.

Getting Started

Step-by-Step Install Guide for Pi-hole with Traefik on Docker Swarm



This guide will walk you through setting up **Pi-hole**, a powerful network-wide ad blocker, on a Docker Swarm with **Traefik** as the reverse proxy. We will use Docker to deploy Pi-hole and Traefik for secure and managed access.

Prerequisites

- A Docker Swarm environment with at least one Linux node. -> [Check this Article](#)
- Traefik set up as a reverse proxy (Assuming a Traefik stack is already configured). -> [Check this Article](#)
- A mounted shared volume with **GlusterFS** for data persistence. -> [Check this Article](#)
- A domain or local DNS entry pointing to your Pi-hole service (e.g., `pihole.local`).
- Access to Docker CLI and necessary credentials.

Step 1: Prepare the Directory Structure

To ensure persistent storage for Pi-hole, we will create directories on the shared GlusterFS mount:

```
mkdir /mnt/glustermount/data/pihole_data
mkdir /mnt/glustermount/data/pihole_data/dns
mkdir /mnt/glustermount/data/pihole_data/etc
```

These directories will store Pi-hole's configuration files and DNS settings.

Step 2: Create the `docker-compose.yml` File

In your working directory, create a `docker-compose.yml` file with the following content:

```
version: '3'

services:
  pihole:
    networks:
      - management_net # For management via Traefik
```

```
image: pihole/pihole:latest
ports:
  - "53:53/tcp"
  - "53:53/udp"
  - "888:80"
environment:
  TZ: 'Europe/Zurich'
  WEBPASSWORD: '${PIHOLE_PASSWORD}'
volumes:
  - '/mnt/glustermount/data/pihole_data/etc:/etc/pihole'
  - '/mnt/glustermount/data/pihole_data/dns:/etc/dnsmasq.d'
restart: unless-stopped
deploy:
  mode: replicated
  replicas: 1
  placement:
    constraints: [node.platform.os == linux]
  labels:
    - 'traefik.enable=true'
    - "traefik.http.services.pihole.loadbalancer.server.port=888"
networks:
  management_net:
    external: true
```

- **Volumes:** The `/mnt/glustermount/data/pihole_data/etc` and `/mnt/glustermount/data/pihole_data/dns` directories are used to persist Pi-hole data.
- **Ports:** Port `53` for DNS queries is exposed on both TCP and UDP.
- **Environment Variables:** Set the timezone (`TZ`) and the Pi-hole admin password (`WEBPASSWORD`).
- **Traefik Labels:** These labels enable Pi-hole to be accessible through Traefik via the domain `pihole.local` using HTTPS.

Step 3: Deploy the Stack

Deploy the Stack: Use the following command to deploy Pi-hole with Traefik in Docker Swarm.

```
docker stack deploy -c docker-compose.yml pihole
```

Step 4: Access Pi-hole Web Interface

After the deployment completes, you can access Pi-hole's admin interface by navigating to `https://pihole.local/admin` in your browser. Log in with the password you specified in the environment variable (`PIHOLE_PASSWORD`).

Step 5: Update DNS Settings

To start using Pi-hole, configure your router or devices to use your Pi-hole instance as the DNS server. The IP address of your Pi-hole service is the one assigned by Docker, which you can retrieve using:

```
docker service ps pihole_pihole
```

OR if you use Keepalived you can use your VIP.

Conclusion

Setting up Pi-hole in a Docker Swarm environment with Traefik as a reverse proxy provides network-wide ad blocking, improving privacy and performance for all devices connected to your network. By leveraging Docker Swarm and Traefik, you achieve high availability, flexibility, and ease of management for your Pi-hole deployment.

Other Informations

Environment Variables for Pi-hole



Variable	Default Value	Description
PIHOLE_DNS_	8.8.8.8;8.8.4.4	Upstream DNS servers, separated by <code>;</code> . Supports custom ports (e.g., <code>127.0.0.1#5053</code>). DNS servers added via the web interface will be overwritten on restart.
DNSSEC	false	Enable DNSSEC support (<code>true</code> or <code>false</code>).
DNS_BOGUS_PRIV	true	Prevents forwarding reverse lookups for private ranges.
DNS_FQDN_REQUIRED	true	Prevents forwarding of non-FQDNs (Fully Qualified Domain Names).

Variable	Default Value	Description
REV_SERVER	false	Enables DNS conditional forwarding for local device name resolution.
REV_SERVER_DOMAIN	unset	Set the domain of the local network router if conditional forwarding is enabled.
REV_SERVER_TARGET	unset	IP of the local network router when conditional forwarding is enabled.
REV_SERVER_CIDR	unset	Reverse DNS zone (e.g., <code>192.168.0.0/24</code>) for conditional forwarding.
DHCP_ACTIVE	false	Enable DHCP server (<code>true</code> or <code>false</code>).
DHCP_START	unset	Start IP for DHCP server (if DHCP is enabled).
DHCP_END	unset	End IP for DHCP server (if DHCP is enabled).
DHCP_ROUTER	unset	Router (gateway) IP for the DHCP server (if DHCP is enabled).
DHCP_LEASETIME	24	Lease time for DHCP (in hours).
PIHOLE_DOMAIN	lan	Domain name sent by the DHCP server.
DHCP_IPv6	false	Enable DHCP IPv6 support (<code>true</code> or <code>false</code>).
DHCP_rapid_commit	false	Enable DHCPv4 rapid commit.
VIRTUAL_HOST	<code>\${HOSTNAME}</code>	Sets the virtual host for web access (e.g., <code>http://pi.hole/admin</code>).
IPv6	true	Disables IPv6 configuration when set to <code>false</code> (helpful for Unraid).
TEMPERATUREUNIT	c	Sets temperature unit (<code>c</code> : Celsius, <code>k</code> : Kelvin, or <code>f</code> : Fahrenheit).
WEBUIBOXEDLAYOUT	boxed	Use boxed or traditional layout for the web interface.
QUERY_LOGGING	true	Enables or disables query logging.
WEBTHEME	default-light	User interface theme (options: <code>default-dark</code> , <code>default-light</code> , <code>default-auto</code> , etc.).
WEBPASSWORD_FILE	unset	Set admin password via Docker secrets. Ignored if <code>WEBPASSWORD</code> is set.

Advanced Variables

Variable	Default Value	Description
INTERFACE	unset	NIC interface for DNS or DHCP services.
DNSMASQ_LISTENING	unset	Listening behavior (<code>local</code> , <code>all</code> , <code>single</code>).
WEB_PORT	unset	Custom web interface port (may affect the "blocked" page functionality).
WEB_BIND_ADDR	unset	Bind address for the web interface.
SKIPGRAVITYONBOOT	unset	Skip updating Gravity Database on boot (set to <code>1</code> to skip).
CORS_HOSTS	unset	List of FQDNs allowed for CORS (comma-separated).
CUSTOM_CACHE_SIZE	10000	Sets cache size for <code>dnsmasq</code> . Ignored if DNSSEC is enabled.
FTL_CMD	no-daemon	Customize <code>dnsmasq</code> options (e.g., <code>no-daemon -- --dns-forward-max 300</code>).
FTLCONF_[SETTING]	unset	Customize <code>pihole-FTL.conf</code> settings (e.g., <code>FTLCONF_LOCAL_IPV4</code>).

Experimental Variables

Variable	Default Value	Description
DNSMASQ_USER	unset	Change the user that <code>FTLDNS</code> runs as (<code>pihole</code> or <code>root</code>).
PIHOLE_UID	999	Override Pi-hole's default user ID.
PIHOLE_GID	999	Override Pi-hole's default group ID.
WEB_UID	33	Override the <code>www-data</code> user ID.
WEB_GID	33	Override the <code>www-data</code> group ID.
WEBLOGS_STDOUT	0	Redirects web logs to stdout when set to <code>1</code> .

Configure Adlists

To enhance Pi-hole's ability to block unwanted ads, trackers, and malicious content, you can add custom adlists. Below is a step-by-step guide to add adlists in Pi-hole, followed by a comprehensive list of popular adlists.

Step 1: Access Pi-hole's Web Interface

1. Open a web browser and navigate to your Pi-hole admin page. If you set up Pi-hole to run at a specific IP and port (e.g., `888`), you can visit the following URL:

```
http://my-server-ip:888/admin/groups-adlists.php
```

2. Log in using your Pi-hole admin password.

Step 2: Navigate to the Adlists Section

1. Once logged in, go to the **Group Management** tab.
2. Select the **Adlists** option from the sidebar.

Step 3: Add New Adlists

1. In the **Adlists** page, you'll see an option to **Add a new adlist**.
2. Enter the URL of the adlist you wish to add in the "Address" field.
3. Add a comment or label for future reference (e.g., `Default`).
4. Click on **Add**.

Adlists with **7.303.876 Domains** on the Adlists:

```
https://raw.githubusercontent.com/StevenBlack/hosts/master/hosts https://big.oisd.nl
https://nsfw.oisd.nlhttps://raw.githubusercontent.com/PolishFiltersTeam/KADhosts/master/KADhosts.txt
https://raw.githubusercontent.com/FadeMind/hosts.extras/master/add.Spam/hosts
https://v.firebog.net/hosts/static/w3kbl.txt https://raw.githubusercontent.com/matomo-org/referrer-spam-
blacklist/master/spammers.txt https://someonewhocares.org/hosts/zero/hosts
https://raw.githubusercontent.com/VeleSila/yhosts/master/hosts https://winhelp2002.mvps.org/hosts.txt
```

<https://v.firebog.net/hosts/neohostsbasic.txt> <https://raw.githubusercontent.com/RooneyMcNibNug/pihole-stuff/master/SNAFU.txt> <https://paulgb.github.io/BarbBlock/blacklists/hosts-file.txt> <https://adaway.org/hosts.txt>
<https://v.firebog.net/hosts/AdguardDNS.txt> <https://v.firebog.net/hosts/Admiral.txt>
<https://raw.githubusercontent.com/anudeepND/blacklist/master/adservers.txt>
<https://v.firebog.net/hosts/Easylist.txt>
<https://pgl.yoyo.org/adservers/serverlist.php?hostformat=hosts&showintro=0&mimetype=plaintext>
<https://raw.githubusercontent.com/FadeMind/hosts.extras/master/UncheckyAds/hosts>
<https://raw.githubusercontent.com/bigdargon/hostsVN/master/hosts>
<https://raw.githubusercontent.com/jdlingyu/ad-wars/master/hosts> <https://v.firebog.net/hosts/Easyprivacy.txt>
<https://v.firebog.net/hosts/Prigent-Ads.txt>
<https://raw.githubusercontent.com/FadeMind/hosts.extras/master/add.2o7Net/hosts>
<https://raw.githubusercontent.com/crazy-max/WindowsSpyBlocker/master/data/hosts/spy.txt>
<https://hostfiles.frogeye.fr/firstparty-trackers-hosts.txt> <https://www.github.developerdan.com/hosts/lists/ads-and-tracking-extended.txt> <https://raw.githubusercontent.com/Perflyst/PiHoleBlocklist/master/android-tracking.txt>
<https://raw.githubusercontent.com/Perflyst/PiHoleBlocklist/master/SmartTV.txt>
<https://raw.githubusercontent.com/Perflyst/PiHoleBlocklist/master/AmazonFireTV.txt>
<https://gitlab.com/quidsup/notrack-blocklists/raw/master/notrack-blocklist.txt>
<https://raw.githubusercontent.com/DandelionSprout/adfilt/master/Alternate%20versions%20Anti-Malware%20List/AntiMalwareHosts.txt> <https://osint.digitalside.it/Threat-Intel/lists/latestdomains.txt>
<https://v.firebog.net/hosts/Prigent-Crypto.txt>
<https://raw.githubusercontent.com/FadeMind/hosts.extras/master/add.Risk/hosts>
https://bitbucket.org/ethanr/dns-blacklists/raw/8575c9f96e5b4a1308f2f12394abd86d0927a4a0/bad_lists/Mandiant_APT1_Report_Appendix_D.txt
https://phishing.army/download/phishing_army_blocklist_extended.txt <https://gitlab.com/quidsup/notrack-blocklists/raw/master/notrack-malware.txt> <https://v.firebog.net/hosts/RPiList-Malware.txt>
<https://v.firebog.net/hosts/RPiList-Phishing.txt> <https://raw.githubusercontent.com/Spam404/lists/master/main-blacklist.txt> <https://raw.githubusercontent.com/AssoEchap/stalkerware-indicators/master/generated/hosts>
<https://urlhaus.abuse.ch/downloads/hostfile/> <https://malware-filter.gitlab.io/malware-filter/phishing-filter-hosts.txt>
<https://v.firebog.net/hosts/Prigent-Malware.txt> https://zerodot1.gitlab.io/CoinBlockerLists/hosts_browser
https://raw.githubusercontent.com/chadmayfield/my-pihole-blacklists/master/lists/pi_blocklist_porn_top1m.list
<https://v.firebog.net/hosts/Prigent-Adult.txt>
<https://raw.githubusercontent.com/anudeepND/blacklist/master/facebook.txt>
<https://raw.githubusercontent.com/xxcriticxx/.pl-host-file/master/hosts.txt>
https://raw.githubusercontent.com/Goooler/1024_hosts/master/hosts <https://tgc.cloud/downloads/hosts.txt>

Conclusion

By adding these adlists, you can extend Pi-hole's capabilities to block a wider variety of ads, trackers, and malicious content. This can significantly improve browsing speed, privacy, and security across your network. Make sure to regularly update Pi-hole's Gravity to keep the adlists up to date.