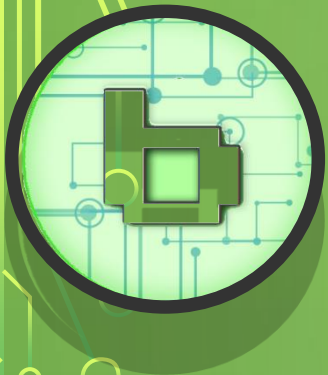


Associazione
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bit01



Linux Day 2022

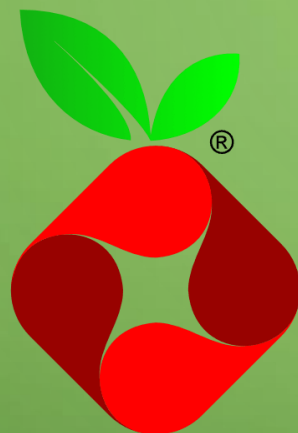
22 ottobre 2022



Associazione
Culturale
bit01



22-10-2022

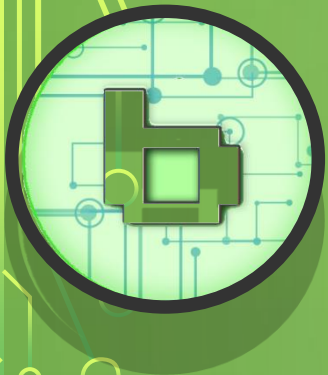


Pi-hole
Network-wide Ad Blocking

22 ottobre 2022

Giuseppe Sgrò

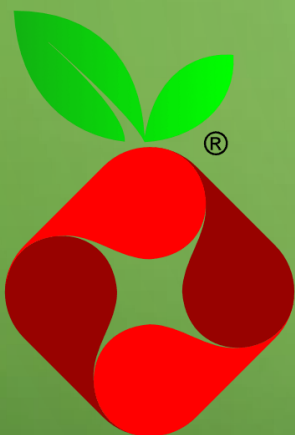
*Associazione Culturale bit01
Resp. Linux*



Cos'è Pi-Hole



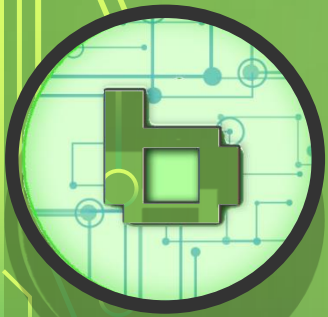
Pi-hole è un software che protegge i dispositivi connessi alla rete LAN da contenuti indesiderati, senza installare alcun software lato client.



Funziona da AdBlocker trasparente per i dispositivi connessi alla rete LAN



Pi-hole - Network-wide Ad Blocking



Caratteristiche principali



Open Source

Requisiti hardware minimi

Ambiente Linux

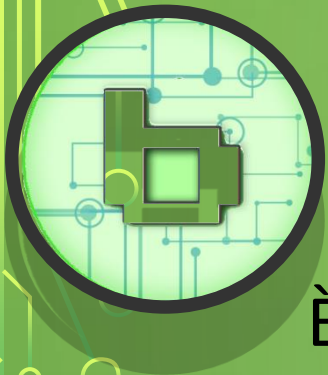
Velocizza la navigazione sul web

Interfaccia utente semplice da usare

Funziona in modo trasparente



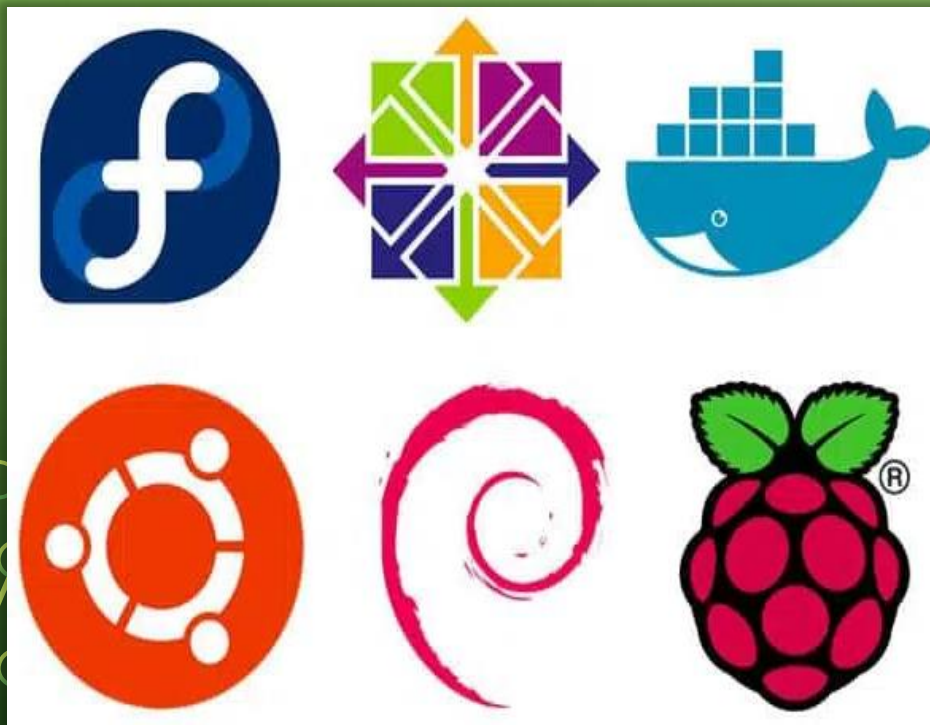
Pi-hole - *Network-wide Ad Blocking*



Sistemi Operativi Supportati



È progettata per dispositivi embedded con risorse limitate, come il Raspberry Pi, ma supporta qualsiasi macchina Linux.



Fedora

Centos

Ubuntu

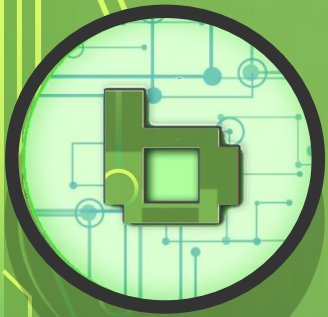
Docker

Debian

Raspbian



Pi-hole - Network-wide Ad Blocking



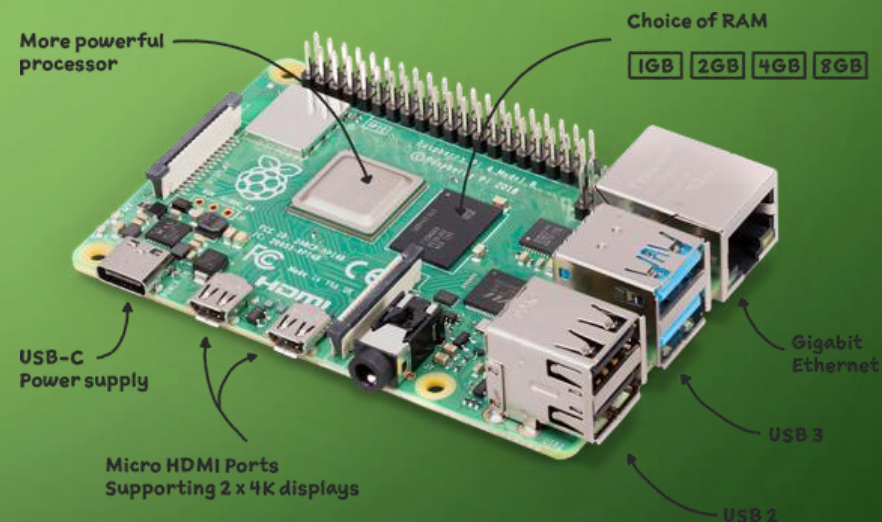
Raspberry Pi



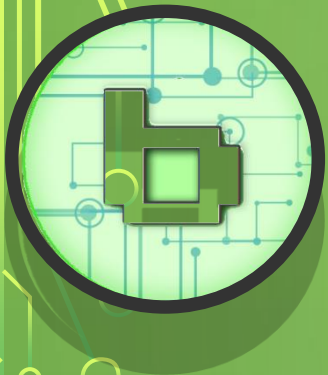
La configurazione su Raspberry Pi è uno dei modi più semplici per iniziare a bloccare gli annunci in tutta la rete.

Funziona come un'unità autonoma, a basso consumo e protegge tutti gli host connessi.

Pi-hole ha bisogno del sistema operativo Linux (Raspbian) su qualsiasi HW

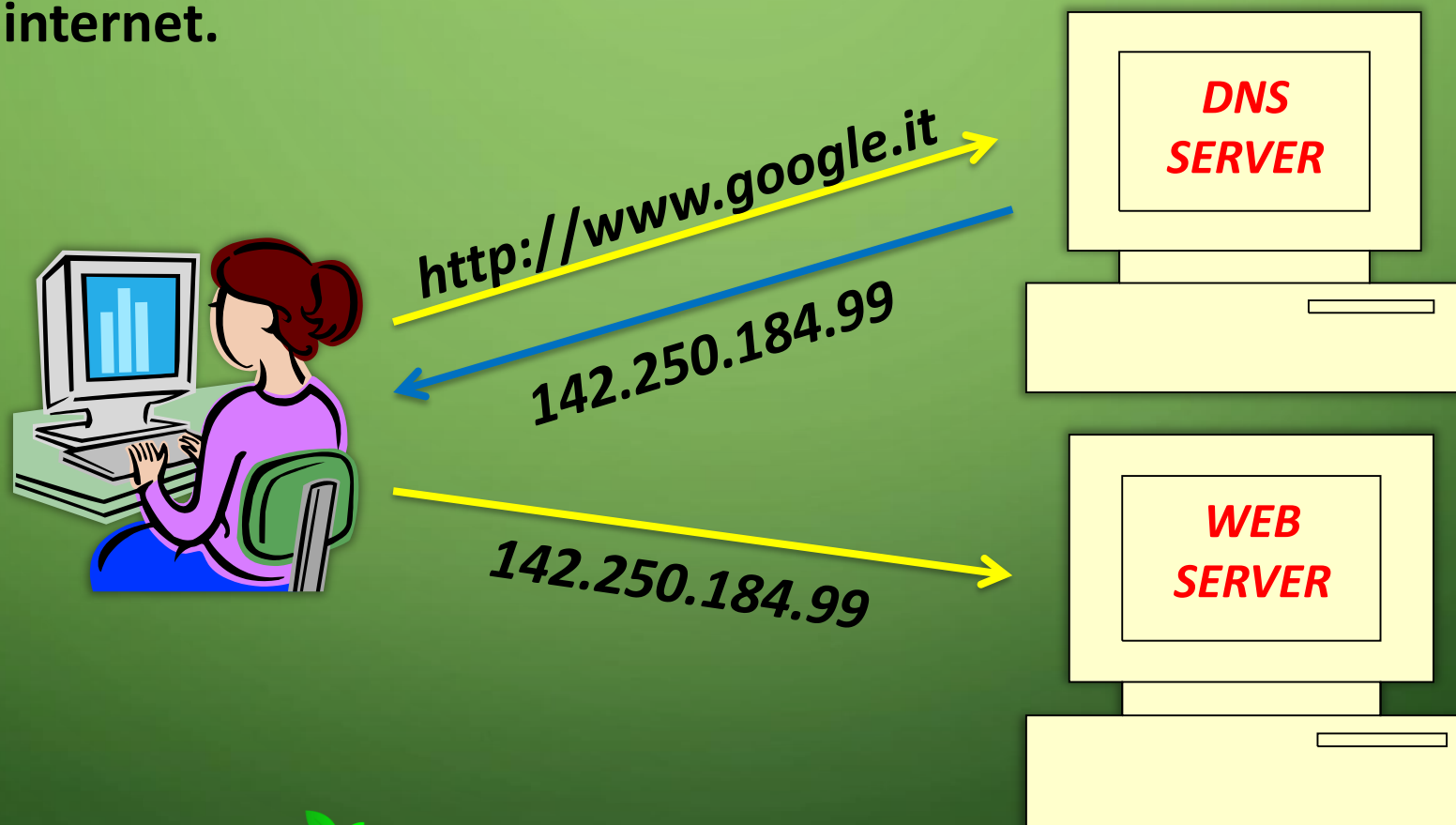


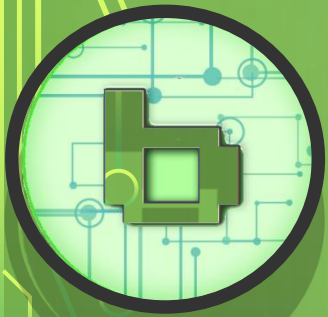
Pi-hole - Network-wide Ad Blocking



DNS – Domain Name System

Il *Domain Name System* (**DNS**) è "l'elenco telefonico" di internet.





Come funziona

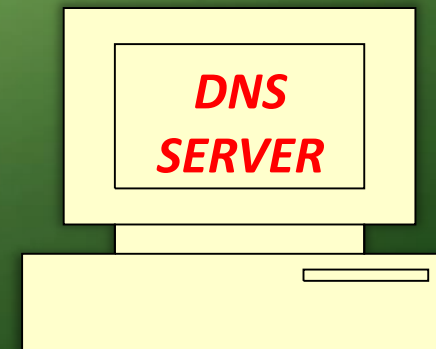
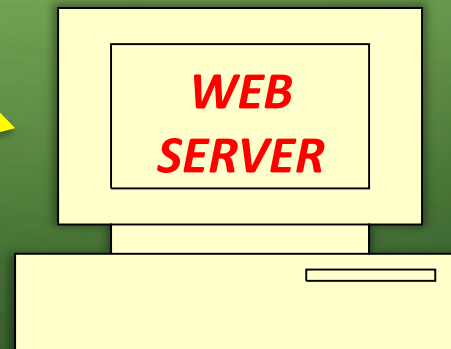
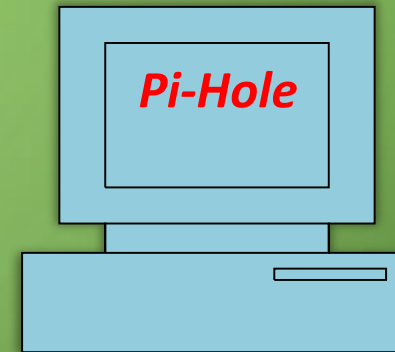
Pi-hole si interpone tra gli host e il server DNS



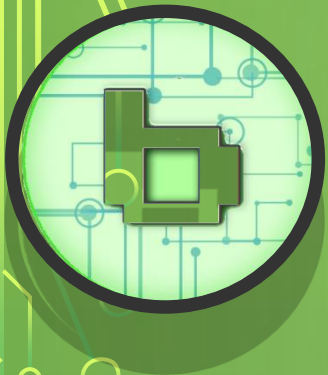
http://www.google.it

142.250.184.99

142.250.184.99

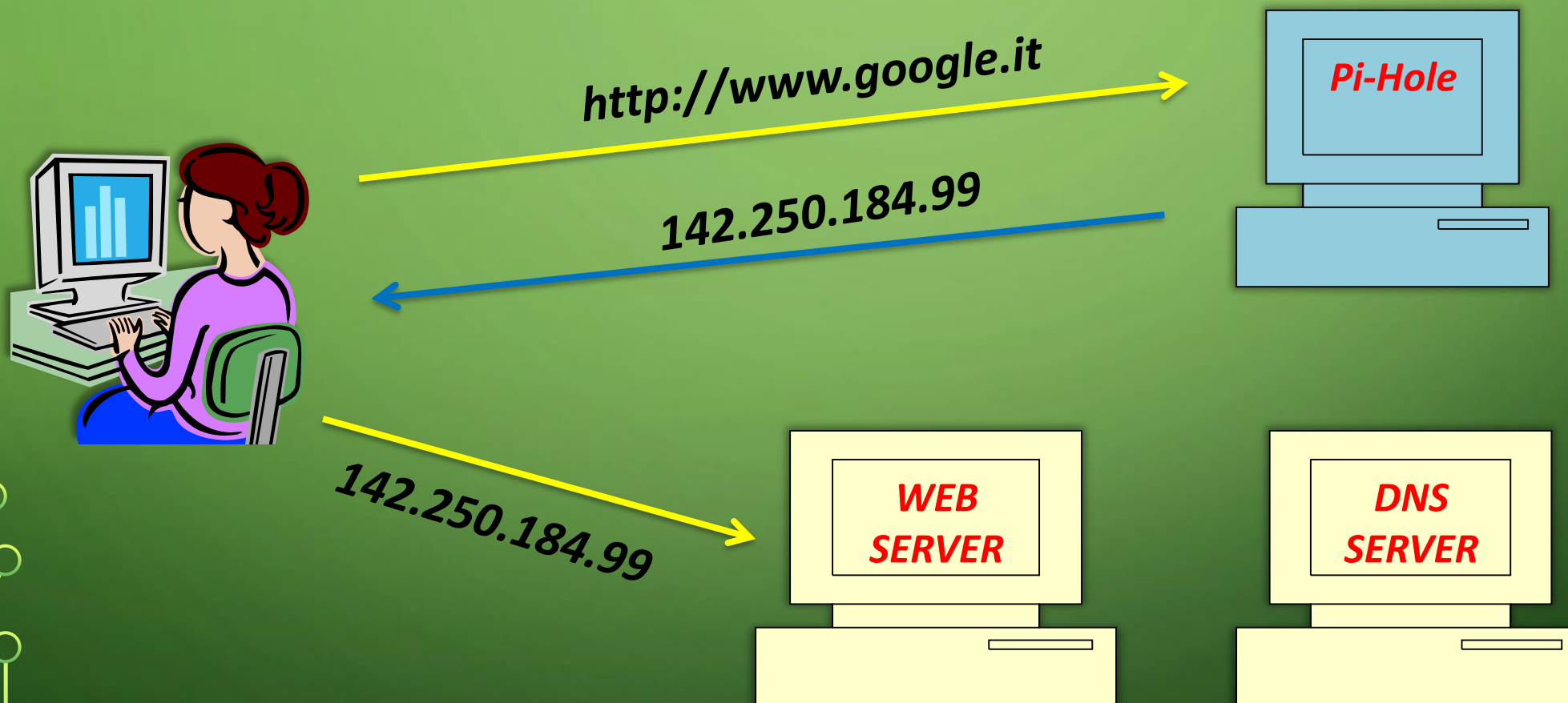


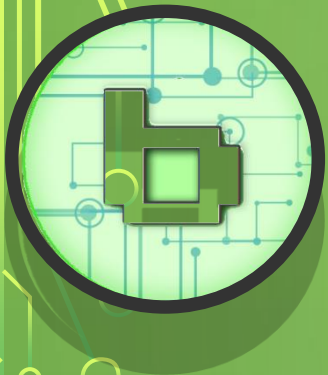
Pi-hole - Network-wide Ad Blocking



Come funziona

Velocizza la navigazione , si ricorda i siti già visti





Come funziona

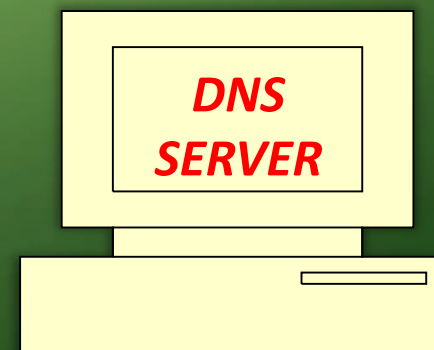
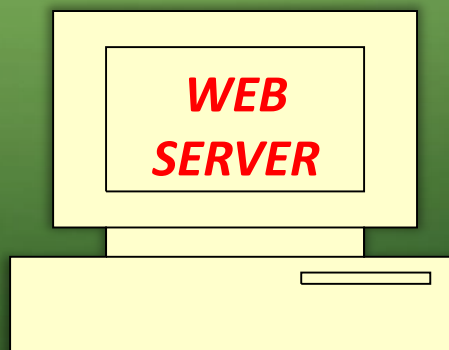
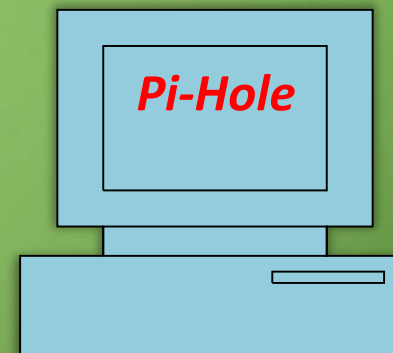


Blocca la navigazione verso i siti pericolosi

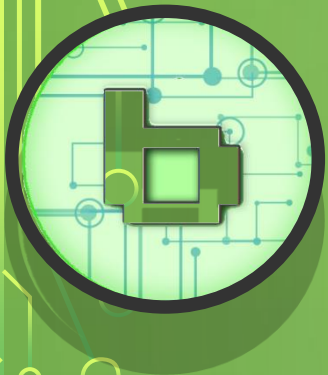


http://www.sito.xyz

INDIRIZZO BLOCCATO



Pi-hole - Network-wide Ad Blocking



CONFIGURAZIONE RETE LAN



Indirizzi IP statici

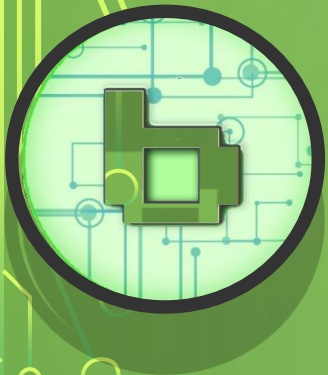
Configurazione manuale del DNS (Pi-hole) nelle proprietà dell' interfaccia di rete dei singoli host.

Indirizzi IP dinamici

Impostazione del DNS (Pi-hole) nella configurazione del router che rilascia gli indirizzi di rete



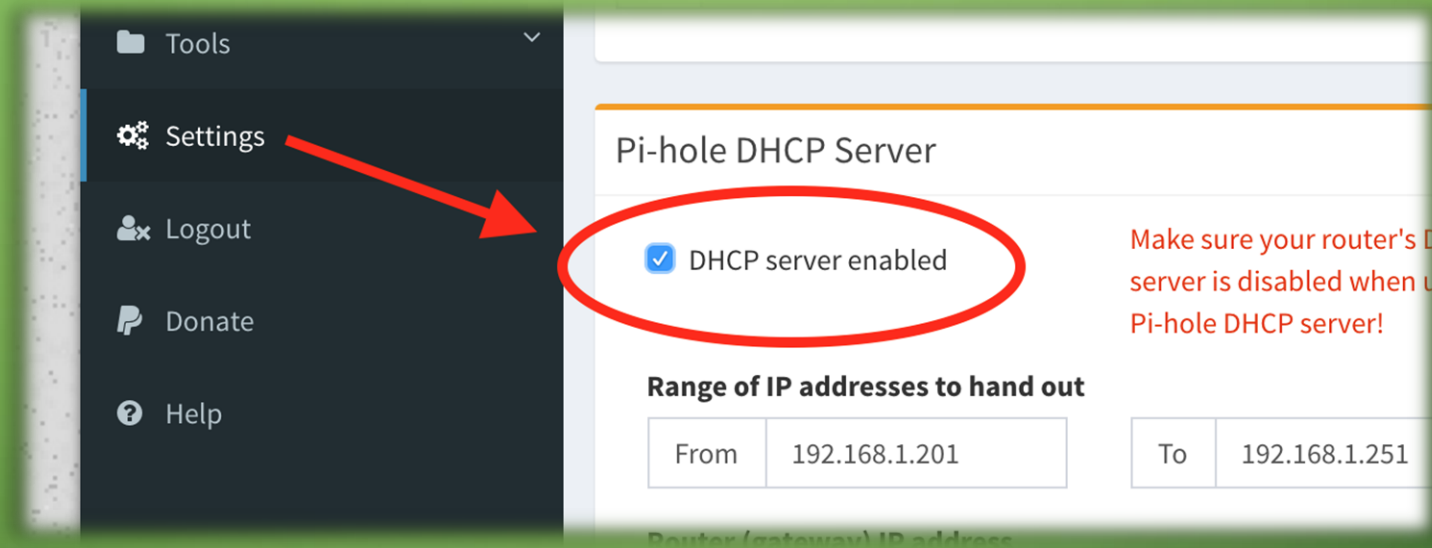
Pi-hole - *Network-wide Ad Blocking*



DHCP server



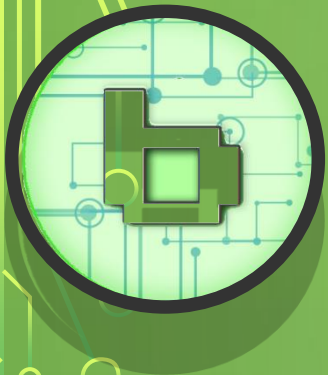
Pi-Hole può fare da server DHCP nella rete LAN



La configurazione degli host connessi
alla rete è automatica



Pi-hole - Network-wide Ad Blocking



DHCP



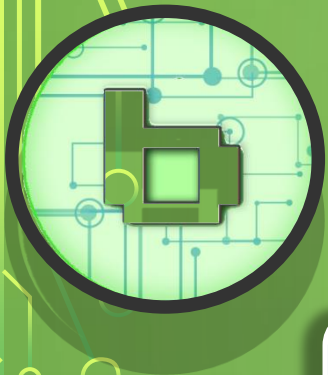
Si può avere un solo server DHCP nella rete LAN

I singoli host saranno monitorati.

I dispositivi verranno identificati con il nome
host poiché Pi-hole gestisce le assegnazioni
degli indirizzi



Pi-hole - *Network-wide Ad Blocking*



Installazione



Si può operare in locale o tramite terminale ssh

Procedura molto semplice a riga di comando

`"curl -sSL https://install.pi-hole.net | bash"`

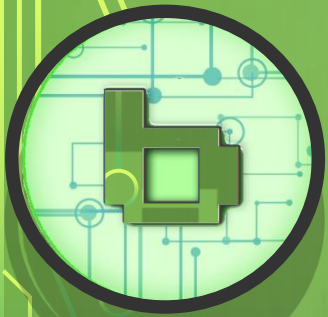
Necessita di un indirizzo IP statico

Pochi parametri da fornire allo script

(interfaccia di rete, dns server, indirizzo ip)



Pi-hole - Network-wide Ad Blocking



Installazione



22-10-2022

```
Choose An Interface (press space to select)

[ ] eth0  available
[ ] wlan0  available

<Ok>          <Annulla>
```

```
Select Upstream DNS Provider. To use your own, select Custom.

Google (ECS)
OpenDNS (ECS)
Level3
Comodo
DNS.WATCH
Quad9 (filtered, DNSSEC)
Quad9 (unfiltered, no DNSSEC)

<Ok>          <Annulla>
```

Static IP Needed

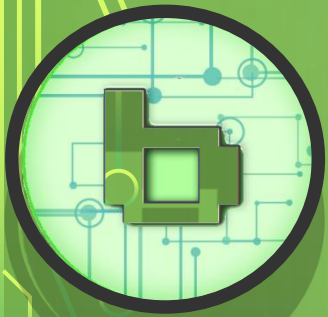
The Pi-hole is a SERVER so it needs a STATIC IP ADDRESS to function properly.

In the next section, you can choose to use your current network settings (DHCP) or to manually edit them.

<Ok>



Pi-hole - Network-wide Ad Blocking



Installazione



Installation Complete!

Configure your devices to use the Pi-hole as their DNS server using:

IPv4: 192.168.1.26
IPv6: Not Configured

If you set a new IP address, you should restart the Pi.

The install log is in /etc/pihole.

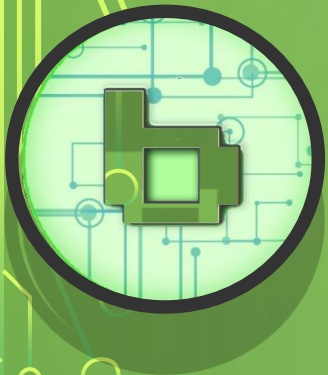
View the web interface at <http://pi.hole/admin> or
<http://192.168.1.26/admin>

Your Admin Webpage login password is **xHIVUCYz**

<Ok>



Pi-hole - Network-wide Ad Blocking



La Dashboard

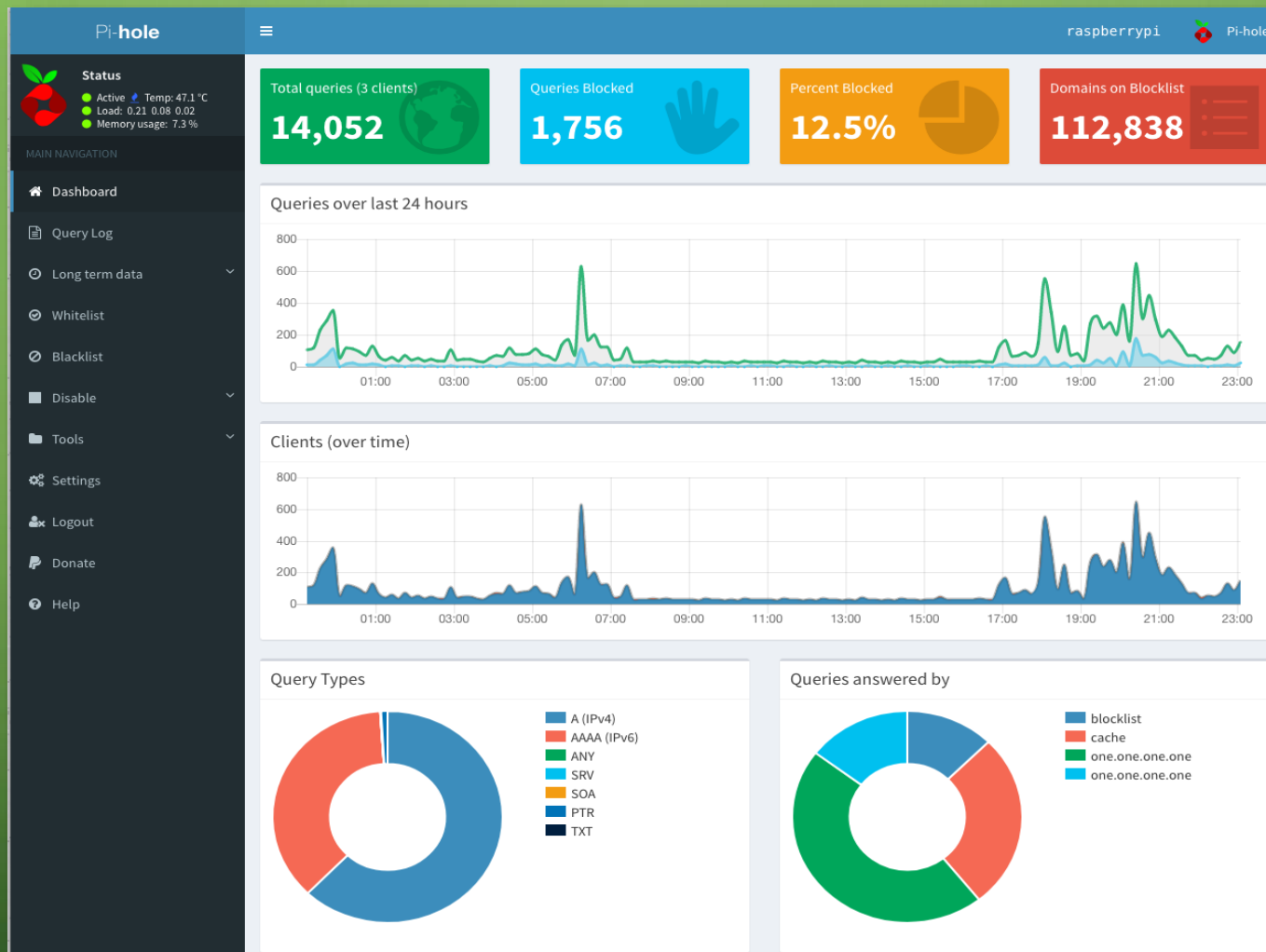


Total query

Query Blocked

Perc. Blocked

Domain Adlist



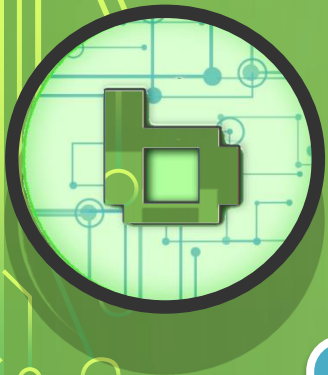
Query last 24h

Query x clients

Protocolli rete
Servers DNS



Pi-hole - Network-wide Ad Blocking



La Dashboard *altre informazioni*



Top Permitted Domains
Elenco dei domini consentiti

Top Blocked Domains
Elenco dei domini bloccati

Top Clients (total)
Numero di query per client e
percentuale d'uso

Top Clients (blocked only)
Numero di query per client
bloccate e percentuale

**Per i dati oltre le 24h si può utilizzare la funzione LONG-TERM DATA
Selezionando il periodo di tempo desiderato.**




Pi-hole - Network-wide Ad Blocking

Query log



Pi-hole

**Status**

- Active Temp: 45.1 °C
- Load: 0.17 0.13 0.08
- Memory usage: 10.0 %

MAIN NAVIGATION

- Dashboard
- Query Log**
- Long term data
- Whitelist
- Blacklist
- Disable
- Tools
- Settings
- Logout
- Donate
- Help

raspberrypi Pi-hole

Recent Queries (showing all queries within recent 10 minutes, [show all](#))

Search:

Show entries

Previous

1

2

3

4

5

...

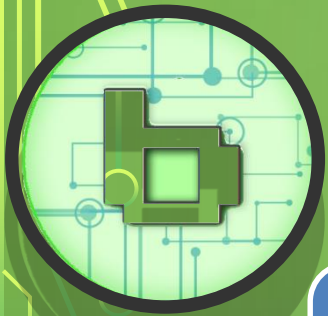
57

Next

Time	Type	Domain	Client	Status	DNSSEC	Action
2018-04-14 07:39:15	IPv4	device-metrics-us.amazon.com	192.168.1.206	Pi-holed	-	Whitelist
2018-04-14 07:39:13	IPv4	device-metrics-us.amazon.com	192.168.1.206	Pi-holed	-	Whitelist
2018-04-14 07:39:11	IPv4	device-metrics-us.amazon.com	192.168.1.206	Pi-holed	-	Whitelist
2018-04-14 07:39:10	IPv4	spectrum.s3.amazonaws.com	192.168.1.226	OK (forwarded)	-	Blacklist
2018-04-14 07:39:09	IPv4	fw-update2.smarththings.com	192.168.1.37	OK (forwarded)	-	Blacklist
2018-04-14 07:39:09	IPv6	fw-update2.smarththings.com	192.168.1.37	OK (cached)	-	Blacklist
2018-04-14 07:39:09	IPv4	device-metrics-us.amazon.com	192.168.1.206	Pi-holed	-	Whitelist
2018-04-14 07:39:08	IPv4	api.eu-west-1.aiv-delivery.net	192.168.1.228	OK (forwarded)	-	Blacklist
2018-04-14 07:39:08	IPv4	local.report-uri.io	192.168.1.20	OK (forwarded)	-	Blacklist
2018-04-14 07:39:08	IPv6	local.report-uri.io	192.168.1.20	OK (forwarded)	-	Blacklist



Pi-hole - Network-wide Ad Blocking



Ad lists

Le Adlist sono le liste dei domini da bloccare.

Sono semplici files Ascii che vengono importati nel db di pi-hole

Online si trovano molte liste già pronte da usare , anche per tipi di clients

Ogni singola adlist, oltre a singoli domini, può essere abilitata o disabilitata.





Adlist group management

Add a new adlist

Address:

Comment:

Hints:

1. Please run `pihole -g` or update your gravity list [online](#) after modifying your adlists.
2. Multiple adlists can be added by separating each *unique* URL with a space
3. Click on the icon in the first column to get additional information about your lists. The icons correspond to the health of the list.

Add

List of adlists

Show

10

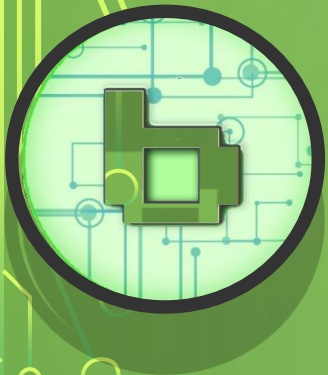
 entries

Search:

☐

Previous1234567Next

	⇕ Address	⇕ Status	⇕ Comment	⇕ Group assignment	
<input type="checkbox"/>	✓ https://phishing.army/download/phishing_army_blocklist_extended.txt	Enabled	<input type="text"/>	Default	
<input type="checkbox"/>	🔄 https://blocklistproject.github.io/Lists/ransomware.txt	Enabled	<input type="text"/>	Default	



Gruppi



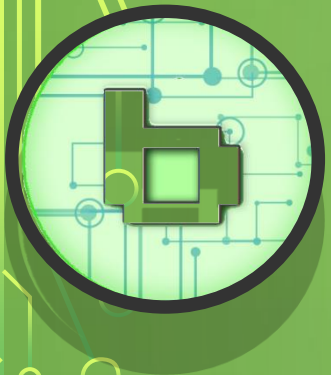
E' possibile raggruppare i singoli domini o intere blocklist

I gruppi possono essere abilitati, disabilitati o studiare le attività dei domini.

E' utile per sbloccare/bloccare temporaneamente dei servizi raggruppati secondo una specifica funzione

Se non si creano gruppi tutti i domini saranno inseriti nel gruppo di default





Aggiornamento Pi-Hole e Adslists



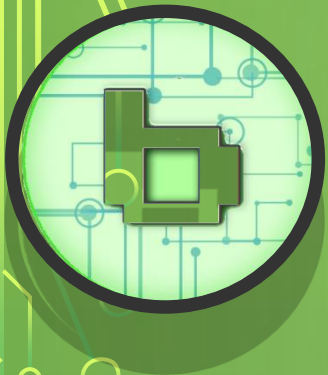
Il software ci avverte quando è disponibile una nuova versione aggiornata.

*Da terminale SSH si usa il comando **pihole -up***

Le adlists vengono aggiornate periodicamente, ma si può avviare manualmente il processo dal menu laterale tramite il comandoTools- Upgrade gravity



Pi-hole - Network-wide Ad Blocking



Mobile Client

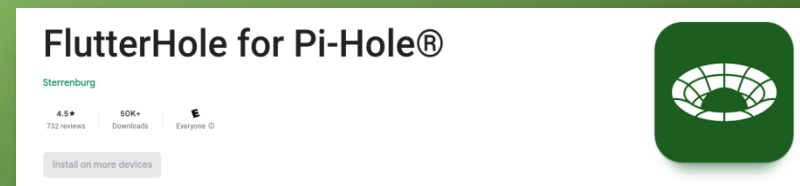


L'interfaccia web di gestione è responsive
ma esistono molti client per dispositivi mobili

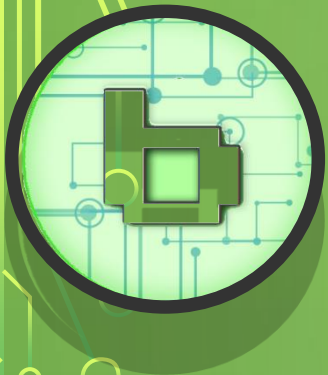
iOS



Android



Pi-hole - Network-wide Ad Blocking



Risorse online

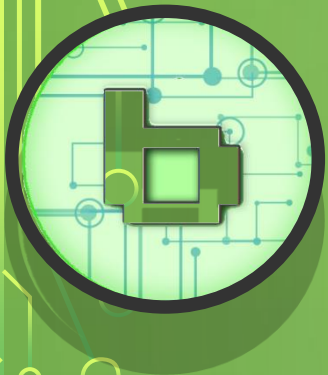
Sito web ufficiale : <https://pi-hole.net>

Archivio Blocklist: <https://firebog.net/>

Github: <https://github.com/pi-hole/pi-hole>



Pi-hole - *Network-wide Ad Blocking*



Risorse online

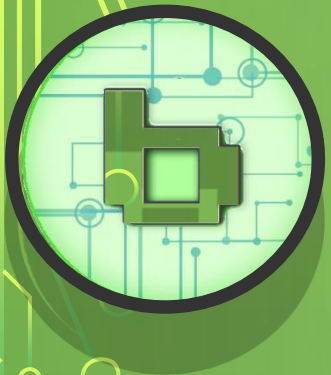


E' disponibile una VM Debian con Pi-hole all'indirizzo:

<https://www.associazionebit01.it/pi-hole.html>



Pi-hole - *Network-wide Ad Blocking*



Associazione
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***Grazie per
l'attenzione***



Pi-hole - Network-wide Ad Blocking