

Open-Source Security

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Opensource Software

Computer software developed as a public, open collaboration and made freely available to everyone.



Opensource vs Proprietary

- Source code is available for use or modification
 - Available under a license that controls the redistribution process
 - Typically developed by a community of volunteers
 - Rapid development, innovation, and transparency
- Software is a closed box (source code is hidden)
 - Usually needs a subscription
 - Only the vendor can modify or add features

Opensource Licenses

							
Type	Permissive	Permissive	Permissive	Copyleft	Copyleft	Copyleft	
Provides copyright protection	✓ TRUE	✓ TRUE	✓ TRUE	✓ TRUE	✓ TRUE	✓ TRUE	
Can be used in commercial applications	✓ TRUE	✓ TRUE	✓ TRUE	✓ TRUE	✓ TRUE	✓ TRUE	
Provides an explicit patent license	✓ TRUE	✗ FALSE	✗ FALSE	✗ FALSE	✗ FALSE	✗ FALSE	
Can be used in proprietary (closed source) projects	✓ TRUE	✓ TRUE	✓ TRUE	✗ FALSE	✗ FALSE partially	✗ FALSE for web	
Popular open-source and free projects	Kubernetes Swift Firebase	Django React Flutter	Angular.js JQuery, .NET Core Laravel	Joomla Notepad++ MySQL	Qt SharpDevelop	SugarCRM Launchpad	

Pros. & Cons.

Pros.	Cons.
Agility	difficulty of use
Cost effective	unexpected costs
Scalability	Requirement specifications
No vendor lock-in	Support
Community Engagement	Lack of a single point of contact
Security	Security

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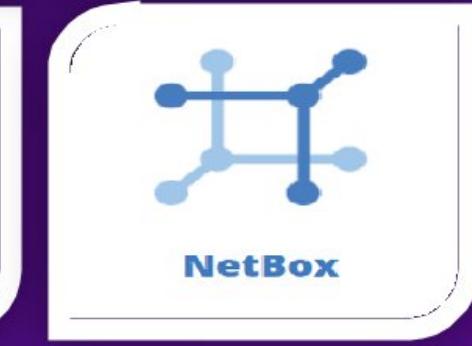
Business Regulations

Requirement	Required?	Available?
License	Required.	Available
Support	Required	Available
SLA	Required	Not always there

Benefits of using Oss in Business

Cost	Save cost, especially during the testing process Much better to use OSS instead of using Cracks
Needs	Solution tailored to your needs
Features	Test new features on the fly

Open source security solutions



<https://landscape.cncf.io/>

Use cases

Asset Inventory	Net-box OSS
Asset Resources info	Zabbix
Firewall	PfSense/OpnSense
SIEM+XDR	Wazuh
IDS/IPS	Snort/Suricata

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Home Network Issues

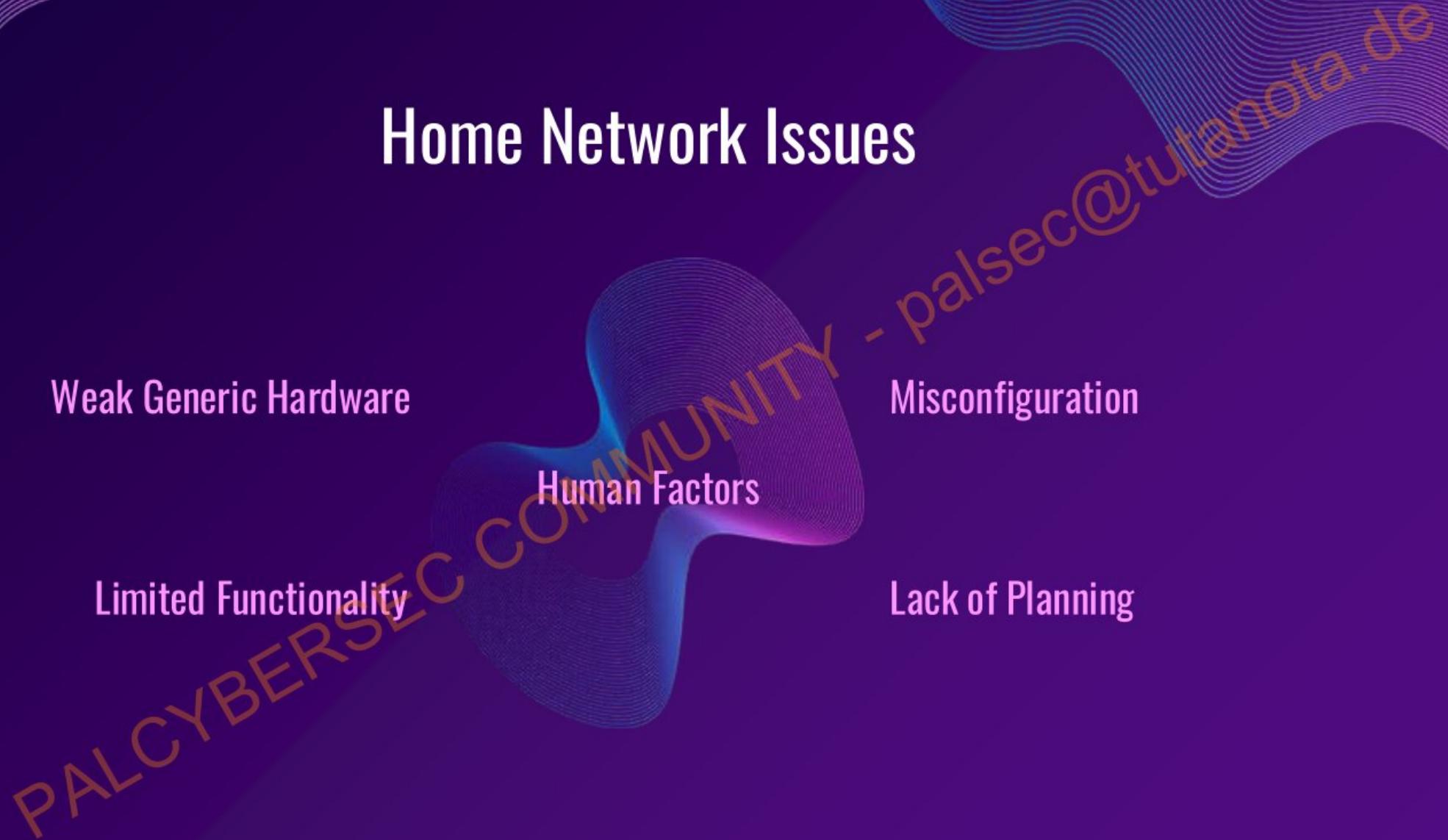
Weak Generic Hardware

Misconfiguration

Limited Functionality

Lack of Planning

Human Factors



Prerequisites

The ability to manage your hardware:

- Some hardware can't be managed(usually provided by the ISP)
- Human is not familiar with router's config

WHAT DO WE DO?

Remove your weak router

Replace it with a more powerful one

Add more capability to your network

Increase the performance of the network

Recycle old hardware that might be going to be thrown away

HOW DO WE DO IT?

Remove weak router
DSL router (Bridge Mode)
Fiber (replace ONT with SFU)

Increase the performance
Added hardware is usually
8X-10X the old router

Recycle old hardware
Using your old computer
that might be thrown away

Add more capability
Using opensource systems
like
openwrt/pfsense/opnsense
will add a lot of capabilities
to the network



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WAN port can be set on this page.

ATM Configuration

VPI(0-255): 8
VCI(1-65535): 35

Notice: The current PVC has a plurality of connection, the following parameters prohibiting to modify!

WAN Service Setup

WAN Connection Type

- Static IP
- Dynamic IP
- PPPoE
- PPPoA
- IPoA
- Bridge**

PPP Username:

PPP Password:

Confirm Password:

Choose the right connection type according to your needs:

Connect on demand. The connection will be automatically on when there is Internet access
Max Idle Time: minutes (0 means remain active at all time)

Connect automatically. The connection will be automatically on after startup or disconnection

Connect manually. user connects manually
Max Idle Time: minutes (0 means remain active at all time)

Authentication Method:

Steps



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Steps



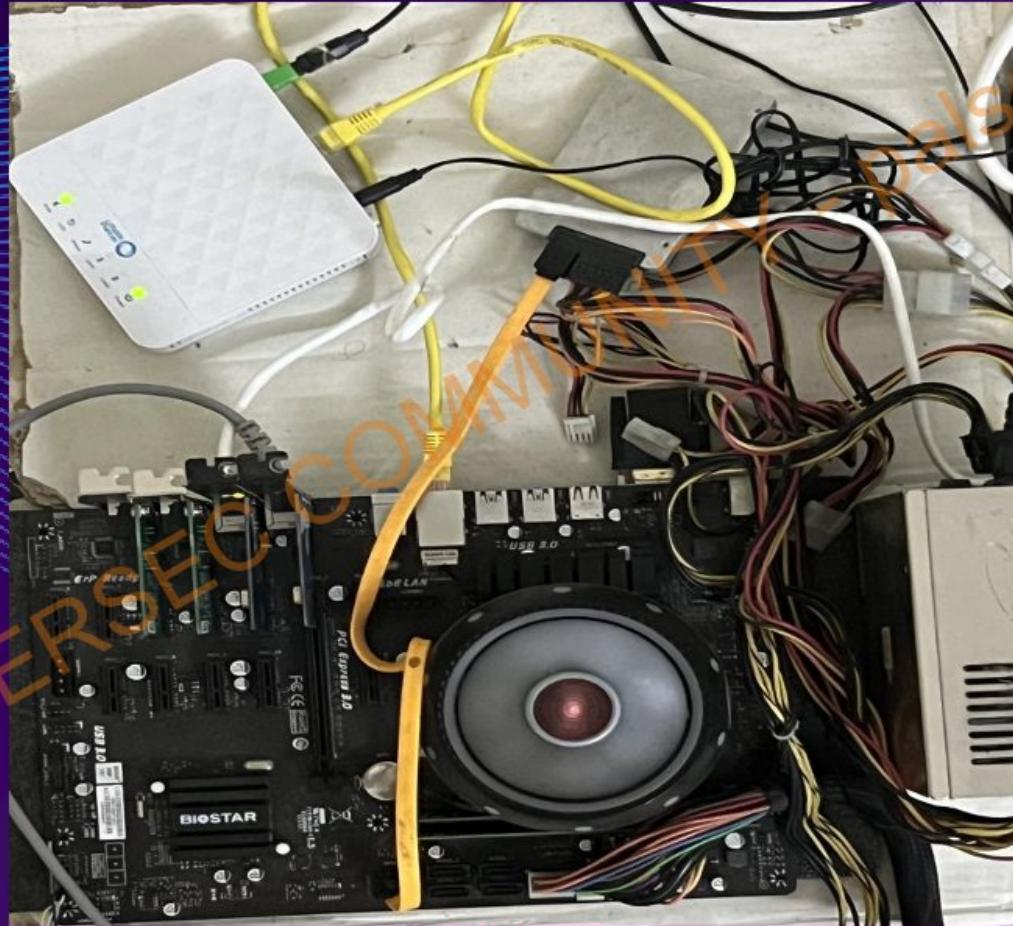
Steps



Examples



Examples



Added functionality examples

Firewall / Rules / INTERNET

Floating WireGuard INTERNET USERS SERVERS OpenVPN

Rules (Drag to Change Order)

#	States	Protocol	Source	Port	Destination	Port	Gateway	Queue	Schedule	Description	Actions
x	0/20 KiB	*	RFC 1918 networks	*	*	*	*	*	*	Block private networks	
x	0/0 B	*	Reserved Not assigned by IANA	*	*	*	*	*	*	Block bogon networks	

Added functionality examples

Firewall / pfBlockerNG

General IP DNSBL Update Reports Feeds Logs Sync Wizard

General Settings

Links Firewall Aliases Firewall Rules Firewall Logs

pfBlockerNG Enable

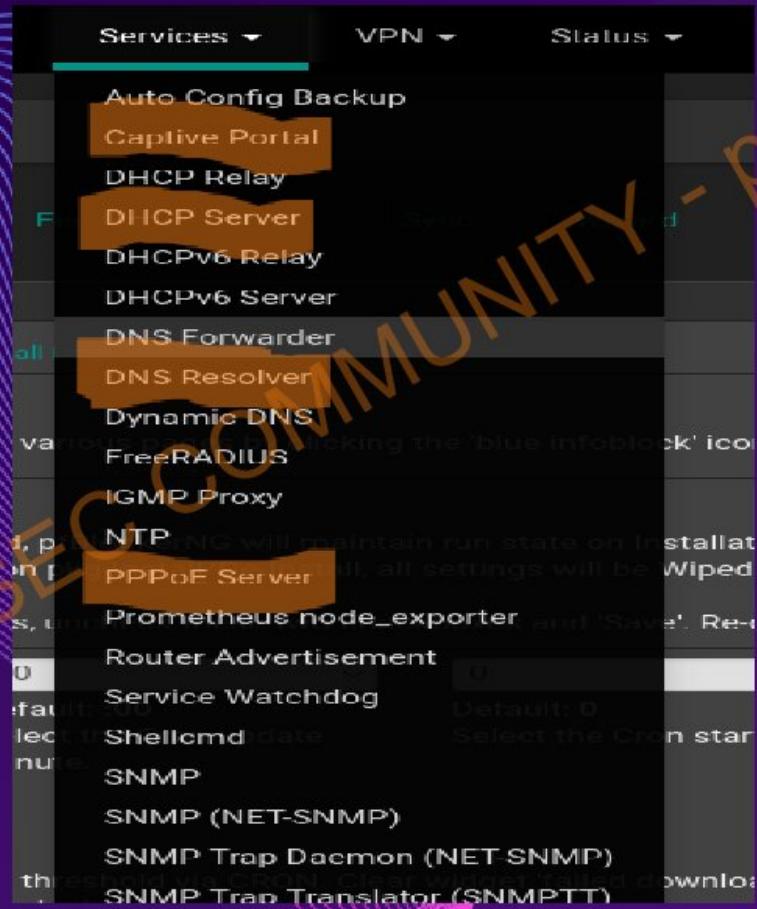
Note: Context help is available on various pages by clicking the 'blue infoblock' icons -->

Keep Settings Enable

Note: With 'Keep settings' enabled, pfBlockerNG will maintain run state on Installation/Upgrade.
If 'Keep Settings' is not 'enabled' on pkg Install/De-Install, all settings will be Wiped!

Note: To clear all downloaded lists, uncheck these two checkboxes and 'Save'. Re-check both boxes and run a 'Force Update|Reload'

Added functionality examples



Easy Setup

The image shows two screenshots of the pfSense software interface. The left screenshot is the 'Wizard / pfSense Setup / pfSense Setup' screen, which displays a welcome message, information about the wizard, and links to learn more or proceed to the next step. The right screenshot is the 'Interfaces / WAN (pppoe0)' configuration screen under the 'General Configuration' tab. It shows the configuration for the WAN interface, including the enable status, description (WAN), IPv4 configuration type set to PPPoE, and other settings like MTU and MSS.

Wizard / pfSense Setup /

pfSense Setup

Welcome to pfSense® software!

This wizard will provide guidance through the initial configuration of pfSense.

The wizard may be stopped at any time by clicking the logo image at the top of the screen.

pfSense® software is developed and maintained by Netgate®

Learn more

» Next

Interfaces / WAN (pppoe0)

General Configuration

Enable Enable interface

Description

Enter a description (name) for the interface here.

IPv4 Configuration Type

IPv6 Configuration Type

MTU

If this field is blank, the adapter's default MTU will be used. This is typically 1500 bytes but can vary.

MSS

If a value is entered in this field, then MSS clamping for TCP connections to the value entered above minus 60 for IPv6 (TCP/IPv6 header size) will be in effect.

PPPoE Configuration



What now?

Do whatever you want!

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THANKS

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