

# **Open Source Software Report**

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# 1 Linux Distribution

## 1.1 Distribution Used: Ubuntu 22.04 LTS

Ubuntu 22.04 LTS is a widely used Linux operating system that provides Long Term Support, stability, and security updates for 5 years, making it ideal for development and server hosting.

## 1.2 Why Ubuntu?

- **User-Friendly:** Easy to install and use
- **Stable and Secure:** Long-term support
- **Developer Tools:** Supports Git, Node.js, Python, GCC
- **Server Ready:** Commonly used for cloud deployments

## 1.3 System Specifications

- OS: Ubuntu 22.04 LTS
- Kernel: Linux 5.15
- Architecture: x86\_64
- Shell: Bash 5.1

## 2 Encryption and GPG

### 2.1 What is Encryption?

Encryption converts readable data into ciphertext so that only authorized users with the correct key can read it.

### 2.2 Types of Encryption

#### 2.2.1 Symmetric Encryption

- Same key for encryption and decryption
- Fast and efficient
- Examples: AES, DES

#### 2.2.2 Asymmetric Encryption

- Uses a public and private key
- Commonly used for secure communication
- Example: RSA

### 2.3 What is GPG?

GPG (GNU Privacy Guard) is an open-source encryption tool used to:

- Encrypt data
- Decrypt messages
- Digitally sign documents

### 2.4 Installing GPG

```
1 sudo apt update
2 sudo apt install gnupg
```

### 2.5 Generating Keys

```
1 gpg --full-generate-key
```

### 3 Sending Encrypted Email

#### 3.1 Why Encrypt Email?

Emails can be intercepted across networks. Encryption ensures privacy, integrity, and authenticity.

#### 3.2 Tool Used: Mozilla Thunderbird

Thunderbird supports OpenPGP encryption for secure communication.

#### 3.3 Steps to Send Encrypted Email

1. Install Thunderbird
2. Add email account
3. Import GPG keys
4. Enable encryption before sending

## 4 Privacy Tools from Prism-Break.org

### 4.1 1. Signal

- End-to-end encrypted messaging
- Open source and secure

### 4.2 2. Tor Browser

- Anonymous browsing
- Protects against tracking and surveillance

### 4.3 3. Tutanota

- Encrypted email service
- Open-source clients

### 4.4 4. KeePassXC

- Password manager
- Stores data locally in encrypted format

### 4.5 5. OnionShare

- Share files anonymously over Tor
- No central server required

## 5 Open Source License

### 5.1 License Used: MIT License

The MIT License is a permissive open-source license that allows anyone to use, copy, modify, and distribute the software as long as the original license is included.

```
1 MIT License
2 Copyright (c) 2025
3 Permission is hereby granted...
```

## 6 Self-Hosted Server: PairDrop

### 6.1 What is PairDrop?

PairDrop is a peer-to-peer file sharing tool that allows devices on the same network to transfer files directly using WebRTC, without internet or user accounts.

### 6.2 Why I Selected PairDrop

- Lightweight and fast
- No signup or cloud storage
- Perfect for LAN file sharing

### 6.3 Installation on Ubuntu

#### Step 1: Install Node.js and npm

```
1 sudo apt update
2 sudo apt install nodejs npm -y
```

#### Step 2: Clone Repository

```
1 git clone https://github.com/schlagmichdoch/PairDrop.git
2 cd PairDrop
```

#### Step 3: Install Dependencies

```
1 npm install
```

#### Step 4: Start Server

```
1 npm start
```

### 6.4 Accessing PairDrop

```
1 http://localhost:3000
2 http://<local-ip>:3000
```

### 6.5 PairDrop Web Interface

### 6.6 Self-Hosted Demonstration at KL University

### 6.7 Localization (Telugu Translation)

To make PairDrop accessible to Telugu users, I translated key documentation sections.

#### 6.7.1 Translated Title

PairDrop



pairdrop\_web.png

Figure 1: PairDrop Web Interface

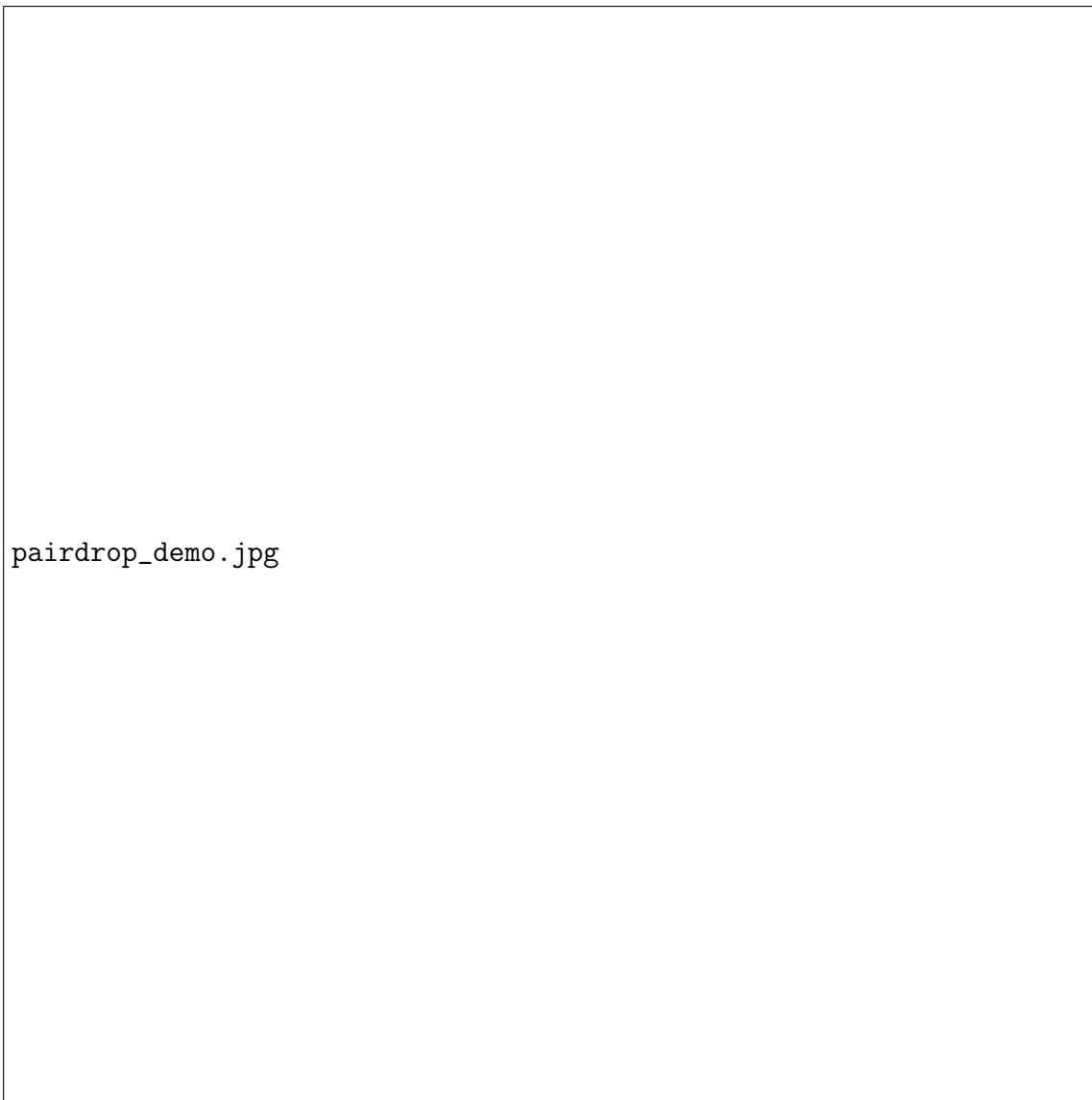
#### 6.7.2 Translated Terms

- Installation –
- Server –
- Network –
- File Transfer –

### 6.8 Poster Overview

A poster was designed to showcase:

- What is PairDrop
- How it works



pairdrop\_demo.jpg

Figure 2: PairDrop Demonstration at KL University

- Key features
- Benefits of self-hosting

## 7 Open Source Contributions (PRs)

### 7.1 Repositories Contributed

1. **fineanmol/hacktoberfest** – Added quick guide
2. **yfosp/start-here** – Added name and profile
3. **zero-to-mastery/start-here-guidelines** – Contributor update
4. **firstcontributions/first-contributions** – Added name

### 7.2 Summary

- Total PRs: 4
- Merged: 4
- Open: 0

## 8 LinkedIn Posts

### 8.1 Post 1: First Open Source Contribution

<https://www.linkedin.com/feed/update/urn:li:activity:7399151134055055360>

### 8.2 Post 2: Self-Hosting PairDrop

<https://www.linkedin.com/in/mahi-korrapati-a24773369/>

### 8.3 Post 3: Open Source Journey

<https://www.linkedin.com/feed/update/urn:li:activity:7399163090891587584>

## 9 Conclusion

This report helped me explore:

- Linux and command-line usage
- GPG and secure communication
- Privacy tools
- Open-source licensing
- Hosting a real application
- GitHub collaboration

It strengthened my understanding of open-source culture, security, and real-world deployment.