

# Forban

a simple link-local opportunistic p2p free software

or

sharing your bookshelf everywhere

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# Introduction



- The legal framework hinders you to share with your neighbors or friends.
- The editors are trying to kill the conviviality of our societies
- and (worst) the Internet is starting to be controlled.

# Books In Our Societies



- Books are part of any free society.
- Books are part of any critical process that could improve our societies.
- Books that you cannot share are useless (e.g. DRM).
- Is the role of the librarian shifting to the reader with the introduction of digital books?
- Can everyone transport a library and play the role of the librarian?

# Forban Started As a Discussion (November 2009)

- Can we do file sharing without the Internet?
- Why is it more easy to share with strangers than with your friends?
- Time of acceptance and protocol complexity?
- Security?
- Proximity and sharing? how to make it simple?

# Basic Objectives

- Rely on HTTP protocol with minimal extension.
- We don't care too much about bandwidth use or optimization.
- Sharing should be possible independently of the files, formats or file structures used.
- Wireless, ad hoc or personal network are unstable by nature.
- Any programmer should be able to reimplement or remix the protocol.

Forban is an experiment. Good ideas are worthless if they are not executed and created. You can blame us, this is fine but show us the code...

# Forban Mode

- Opportunistic (default)
  - sharing and copying everything discovered
- Shared
  - sharing only
- Passive
  - cherry pick files discovered (using a web browser)

# Forban Screenshot

Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://192.168.1.2:12555/

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http://192.168.1.2:12555/ (Untitled) Twitter / Home Understanding the TLS Re...

**forban**  
110101101101010101011110  
Description : Clarisse-McClellans-MacBook-Pro.local  
Mode : opportunistic

Search the loot...

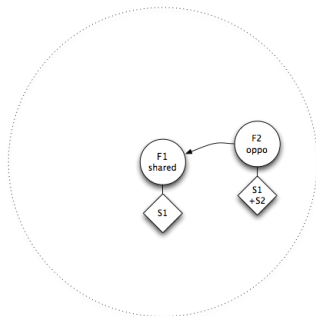
search

**Discovered link-local Forban available with their loot in the last 3 minutes**

Access	Name	Last seen	Size	How many files are missing from yourself?
<a href="#">v4</a> <a href="#">v6</a>	elliptic	12.0 secs ago	12.84GB	Missing 567 files from this loot [ <a href="#">missing?</a> ] [ <a href="#">browse</a> ]
<a href="#">v4</a>	Clarisse-McClellans-MacBook-Pro.local	6.0 secs ago	11.92GB	Missing no files from this loot [ <a href="#">browse</a> ] <i>yourself</i>

Forban is free software released under the [AGPL](#). For more information about Forban and source code : [foo.be/forban/](#).

# Modus Operandi 1/3

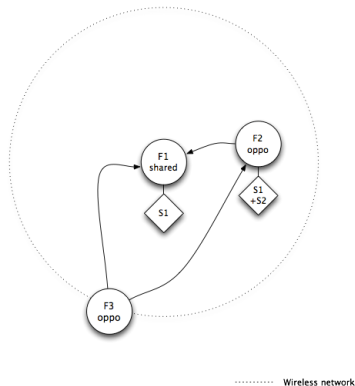


..... Wireless network

- 2 Forban nodes are in the same wireless network
- F1 is only sharing
- F2 is an opportunist (sharing and also copying)
- F2 has all the available files

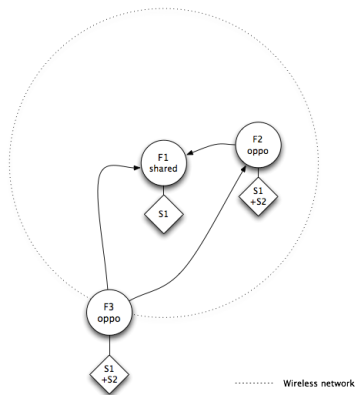


## Modus Operandi 2/3



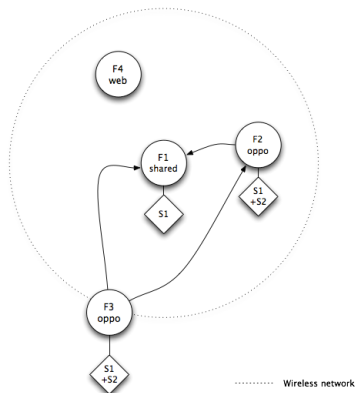
- 3 Forban nodes are in the same wireless network
- F1 is only sharing
- F2 is an opportunist (sharing and also copying)
- F3 is also opportunist (sharing and also copying)
- F3 has nothing to share
- F3 discovers F1 and F2 and is fetching the indexes

## Modus Operandi 3/3



- 3 Forban nodes are in the same wireless network
- F1 is only sharing
- F2 is an opportunist (sharing and also copying)
- F3 is also opportunist (sharing and also copying)
- F3 got all files from F1 and F2

# Modus Operandi



- 3 Forban nodes are in the same wireless network
- 1 passive web client
- F4 can use his web browser to get F1, F2 or F3 files

# The Forban Protocol (version 1.0)

## The Forban protocol in 5 lines

- Each Forban has an UUID (RFC 4122)
- Each Forban is flooding the network with an announce (UDP announce)
- Each Forban maintains a list on how to access the other Forban
- Each Forban is providing an index of the files available (HTTP)
- Each Forban has an interface to get a file from his index (HTTP)

# The Forban Protocol (version 1.0)

## The announce message

```
<sourceinterface.ipv4> -> 255.255.255.255:12555  
<sourceinterface.ipv6> -> ff02::1:12555
```

```
forban;name;adulau shared forban;  
uuid;cb001bf2-1497-443c-9675-74de7027ecf9;  
hmac;e3c363965a22f365d6557a1f166d225d461b68bc
```

## one-liner Forban discover

```
tcpdump -iany -t -p -n -l -A -s0 "udp and port 12555 and udp[8:2]==0x666f"
```

# The Forban Protocol (version 1.0)

## Getting the index

```
GET http://<sourceinterface_v4>:12555/s/?g=forban/index
...
InfoVis/AppliedSecurityVisualization.pdf,22121928
InfoVis/OReilly_Slideology.pdf,9252536
Fiction/SciFi/4931-hackers_heroes_of_the.pdf,2761072
```

- The index includes recursively all the files available in the shared directory.
- The index is composed of the filename including a path along with the total size of each file.
- Everything available in the index can be fetched.
- The index is a text file without limitation.

# The Forban Protocol (version 1.0)

## Getting a file

```
GET http://<sourceinterface_v4>:12555/  
/s/?g=base64_urlsafes(<filenamefromindex>)&f=b64e
```

- This is a traditional HTTP download with 'Content-Disposition' header.

# The Forban Protocol (version 1.0)

## The opportunistic mode

```
foreach index in forban.discovered:  
    compare the index with remote index:  
        fetch missing files
```

- The opportunistic algorithm is quite simple and follows a brute-force approach.
- The file with the largest size is replicated among the Forban nodes. (e.g. file with the same name will be overwritten by the larger one)
- Filters on a name can be used to limit the copied files.



Do you want to share at FOSDEM?

# Quick Install of Forban Python's Prototype

- **git clone git://github.com/adulau/Forban.git**
- **cd Forban**
- **./bin/forbanctl start**
- and open your web browser to : **http://127.0.0.1:12555/**
- To share some files, you'll just need to copy them in `./var/share/`

# What's next?

- Handle duplicate files with different file names.
- Improve wireless usage by self-limiting Forban nodes.
- Create easy to install binaries of Forban software for various platforms.
- Help others to remix, reuse or abuse Forban and its protocol.
- Forban in a device, in a tshirt,... to ease local sharing.

*Defense of conviviality is possible only if undertaken by the people with tools they control. Ivan Illich (1973).*

# Q and A

- My time is over.
- Thank you and don't forget to share.
- Q&A via a@foo.be
- <http://www.foo.be/forban/>