Syncthing

Peer-to-peer, continuous file synchronization

What?

Syncthing is a continuous file synchronization program. It synchronizes files between two or more computers in real time, safely protected from prying eyes. Your data is your data alone and you deserve to choose where it is stored, whether it is shared with some third party, and how it's transmitted over the internet.

-- source: https://syncthing.net/

Sounds like…

- BitTorrent/Resilio Sync
- Both use p2p to sync
- BT:
  - proprietary protocol
  - closed source
- ST
  - open/documented protocol
  - open source (https://github.com/syncthing/)

Backup tool?

Syncthing is not a great backup application because all changes to your files (modifications, deletions, etc.) will be propagated to all your devices. You can enable versioning, but we encourage you to use other tools to keep your data safe from your (or our) mistakes.

-- source: FAQ: Is Syncthing my ideal backup application?

Use cases

- Bi-directional syncing required (rsync is unidirectional)
- Large, binary files, which are not great for version control like git
- Example: syncing photos/videos from phone(s) to laptop

How?

- **Private.** None of your data is ever stored anywhere else other than on your computers. There is no central server that might be compromised, legally or illegally.
- **Encrypted.** All communication is secured using TLS. The encryption used includes perfect forward secrecy to prevent any eavesdropper from ever gaining access to your data.
- **Authenticated.** Every device is identified by a strong cryptographic certificate. Only devices you have explicitly allowed can connect to your other devices.

-- source: https://syncthing.net/

Setup?

- Download/install Syncthing client
- Start Syncthing client on hosts (each host has unique ID)
- Define
  - Directories to sync (and what direction)
  - What hosts to sync with
  - Bonus on Android: only sync when on specified WiFi
- Uses public discovery server

Whoah!

- How is a public discovery server secure?
  - IDs are not sensitive (SHA-256 TLS hash)
  - ID links to IP, but cannot be used to establish connection (both devices need to know each other's ID)
  - source: FAQ: Should I keep my device IDs secret?
- But
  - You can run your own discovery server as well
  - documentation

Let’s try it

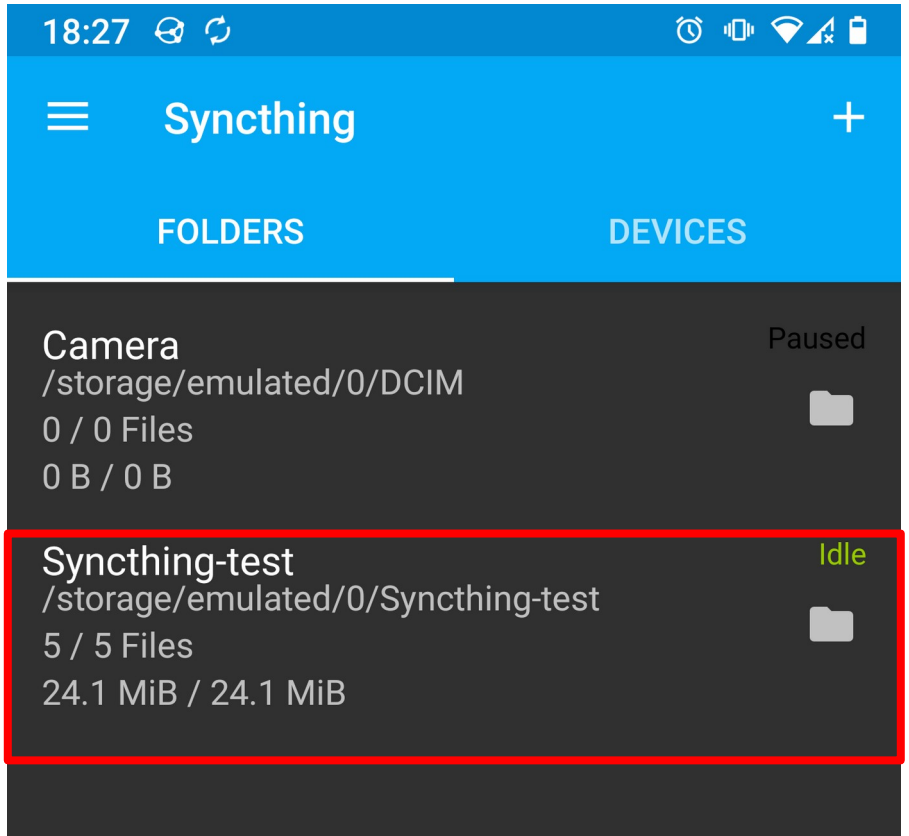
- Hosts
  - Android 11 phone (termux, sshd 8022)
  - Raspberry Pi (Rasbian)
  - Laptop (EndeavourOS)

Start up syncthing

- Install Syncthing app on phone
- Start Syncthing on RPi
- Log into web interface: a.b.c.d:8384
- Configure web interface user

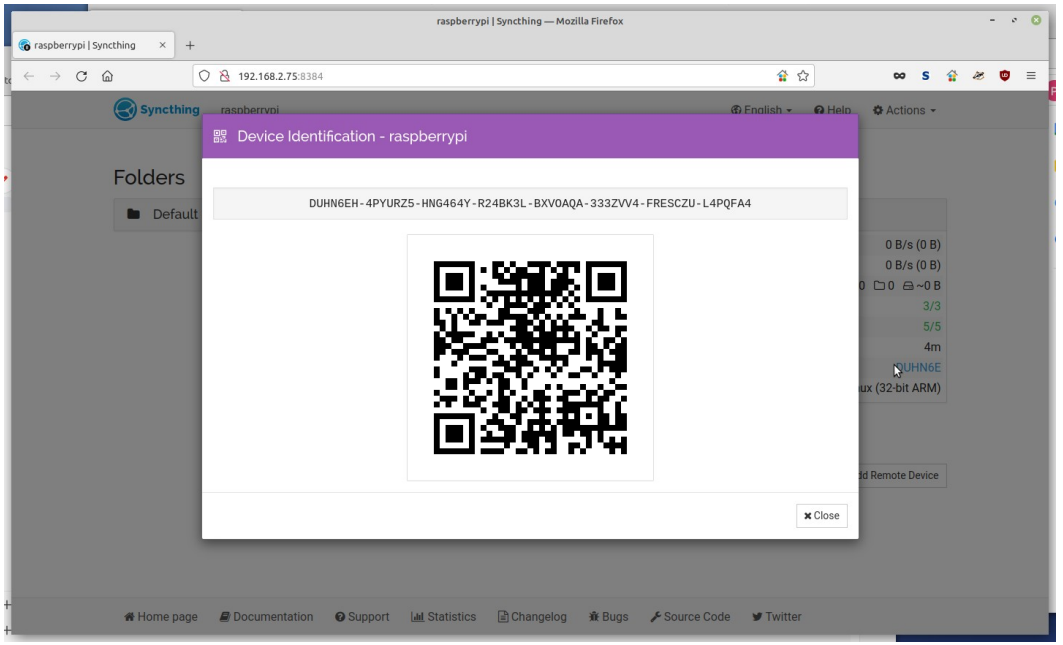
Let’s share

- Add a folder on the phone
- Add some dummy files



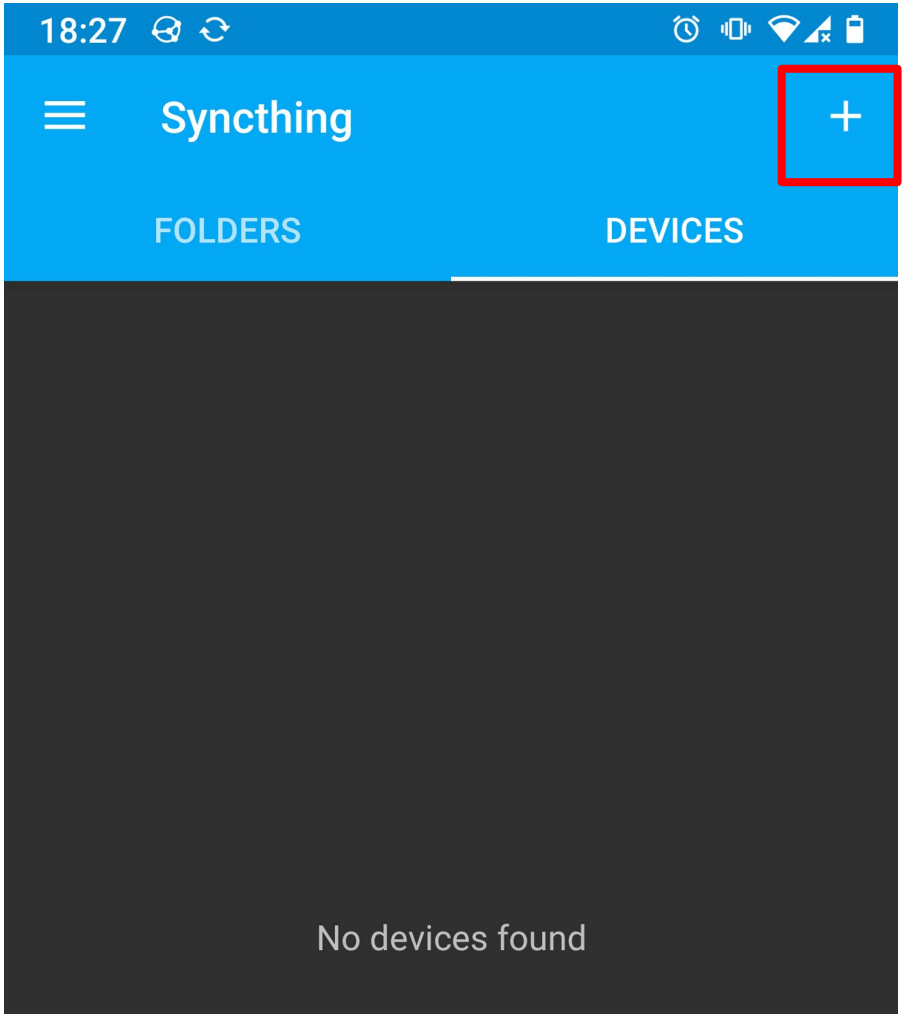
Let’s share

- RPi interface: Actions -> Show ID

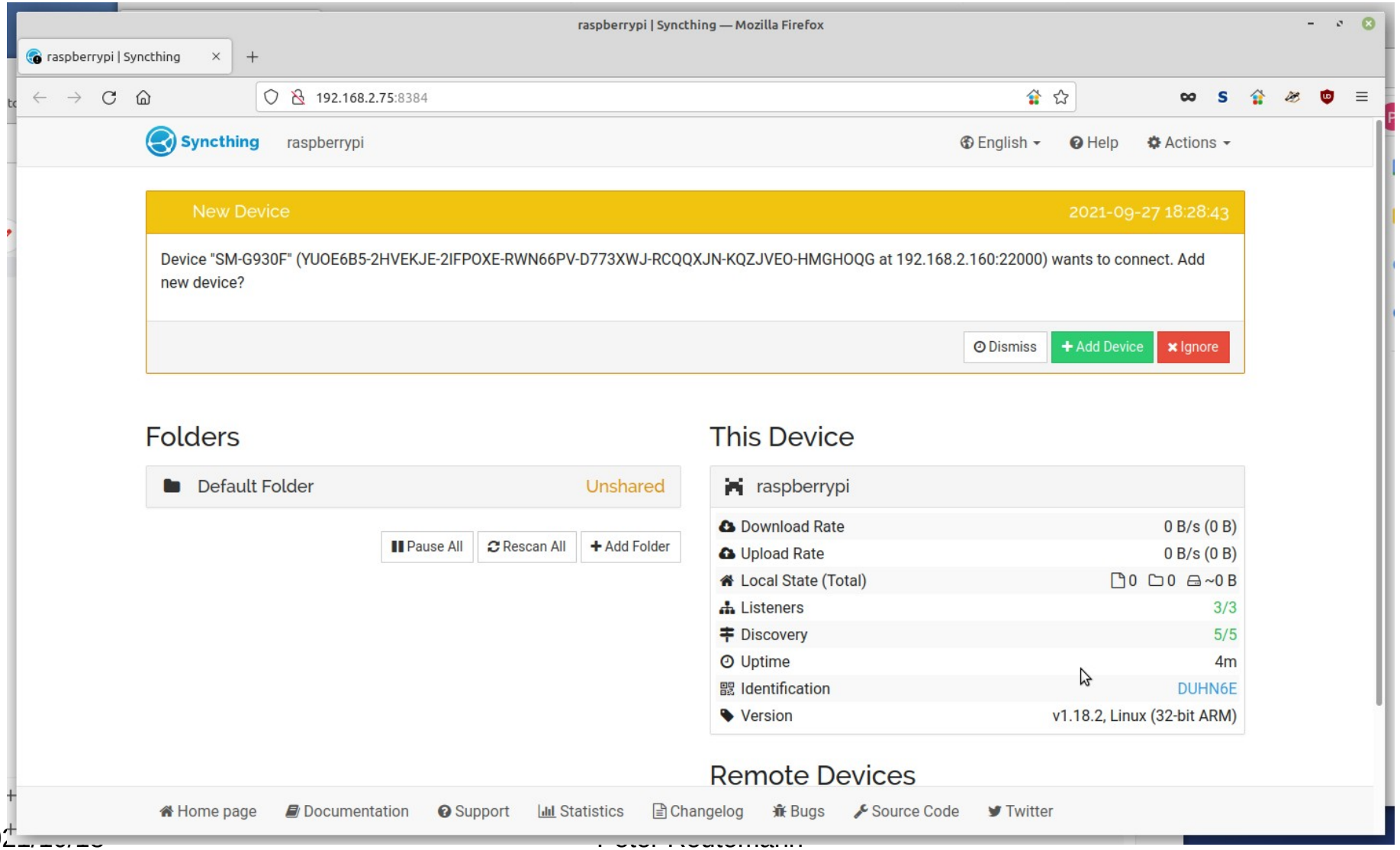


Add device

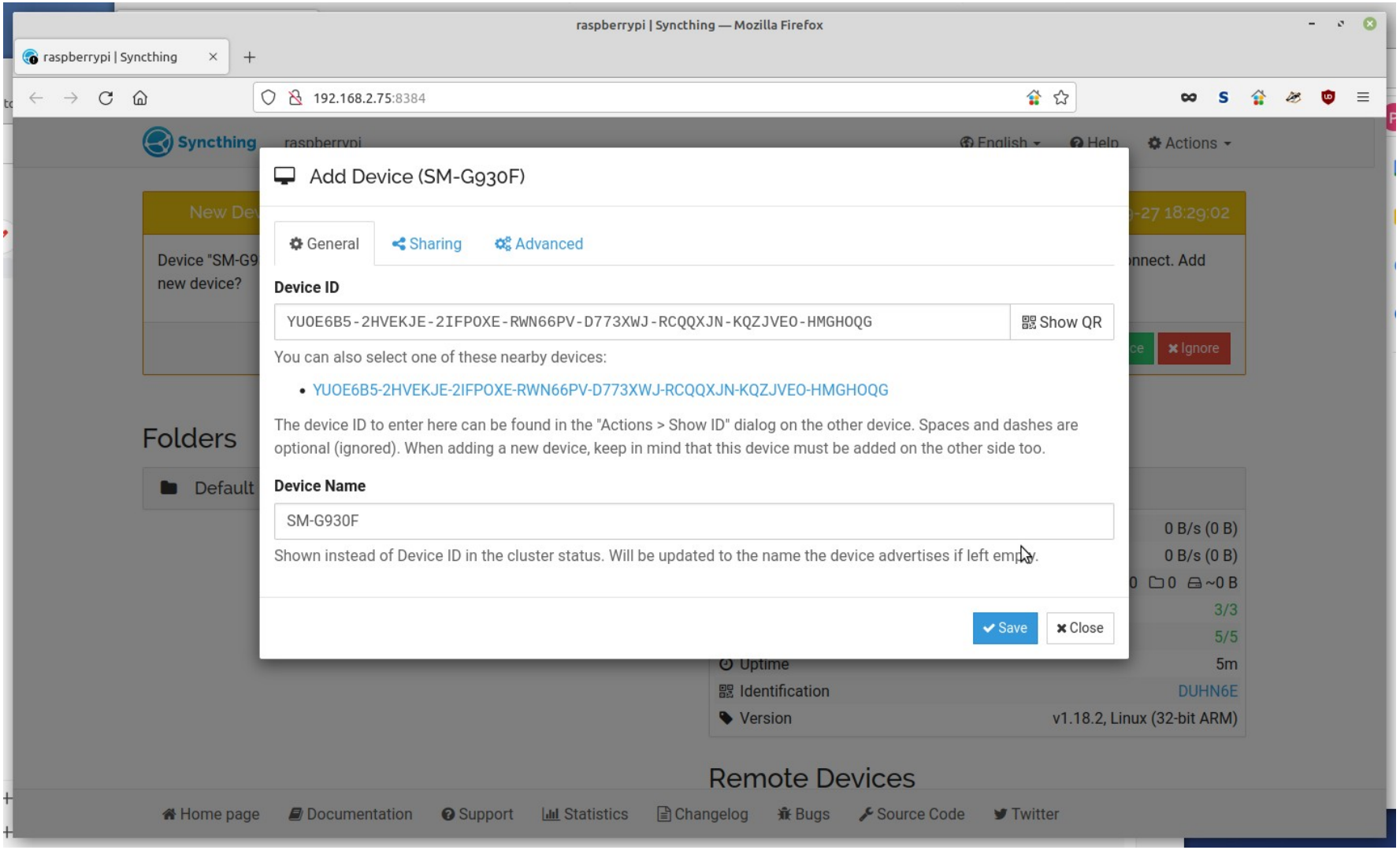
- Scan with phone



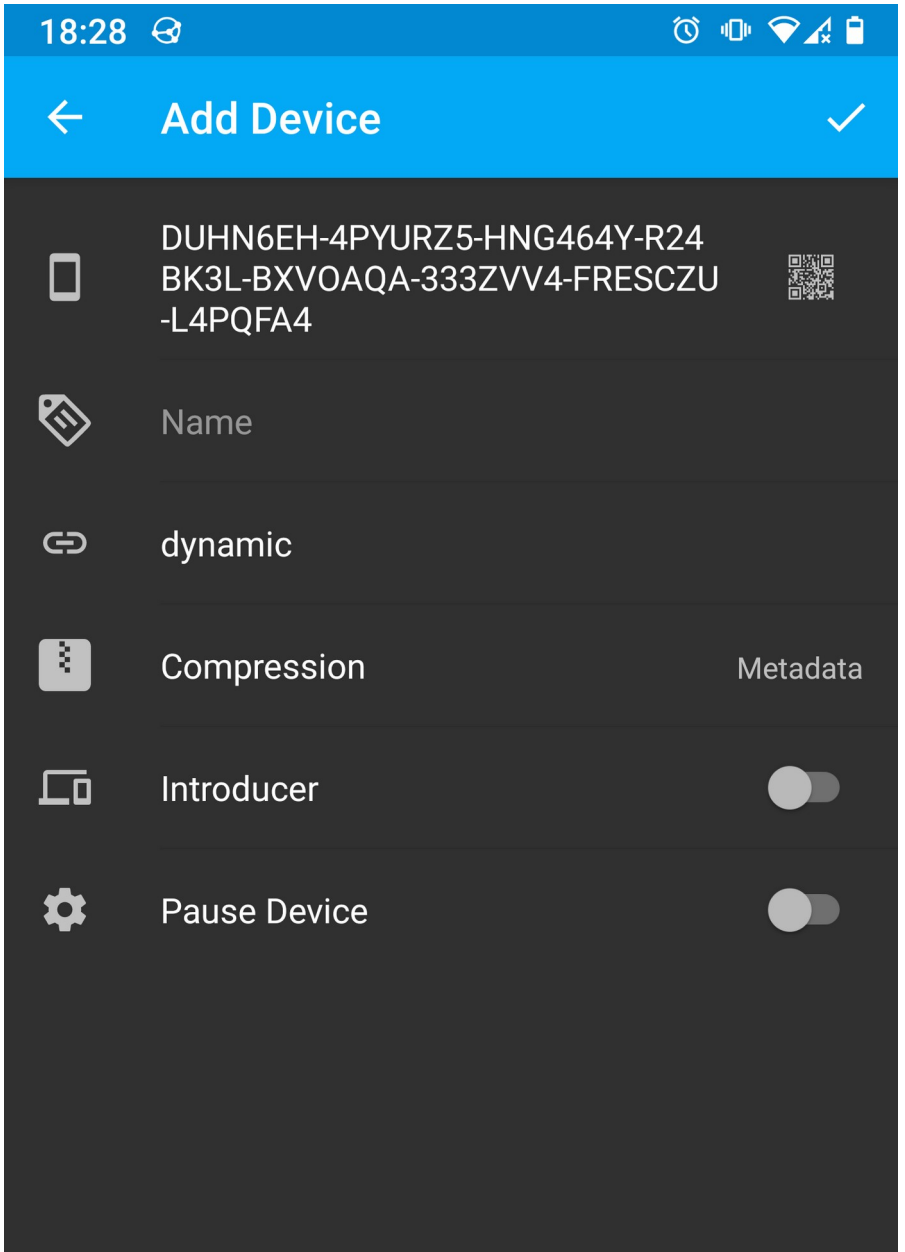
Accept request



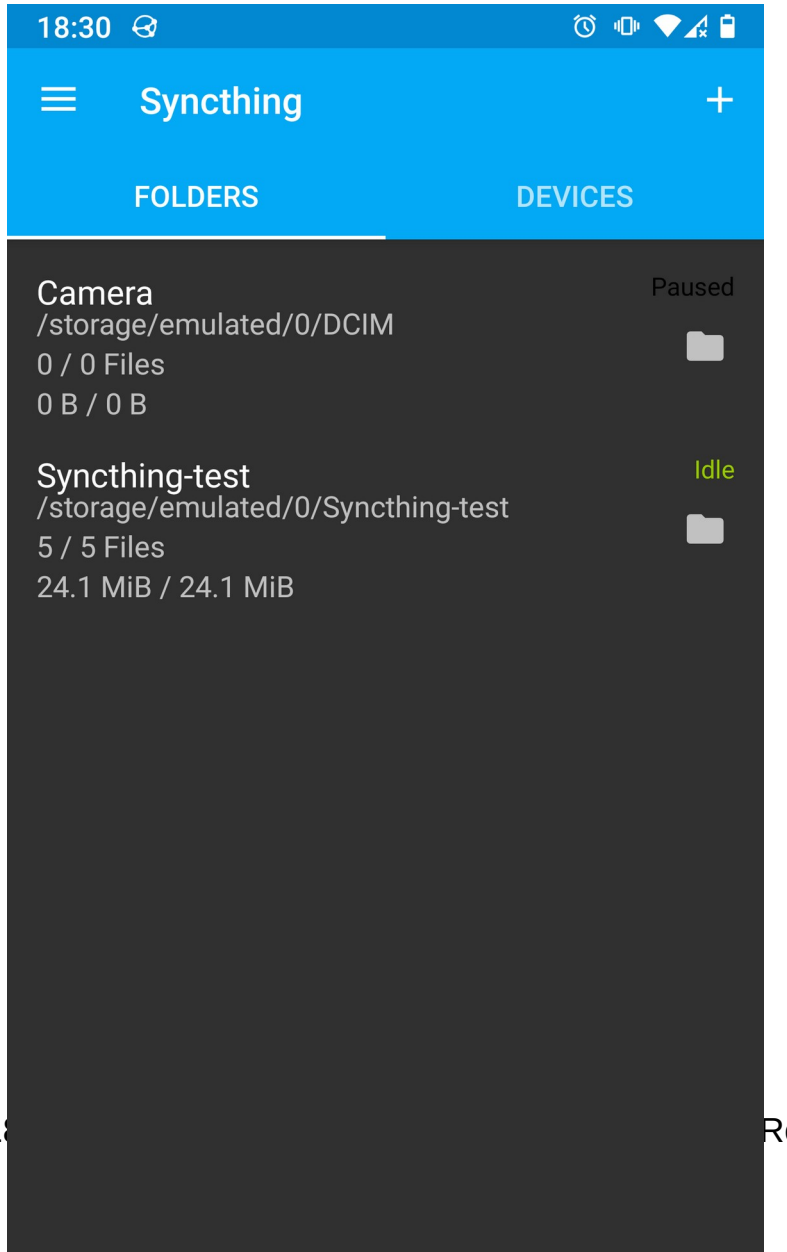
Device details

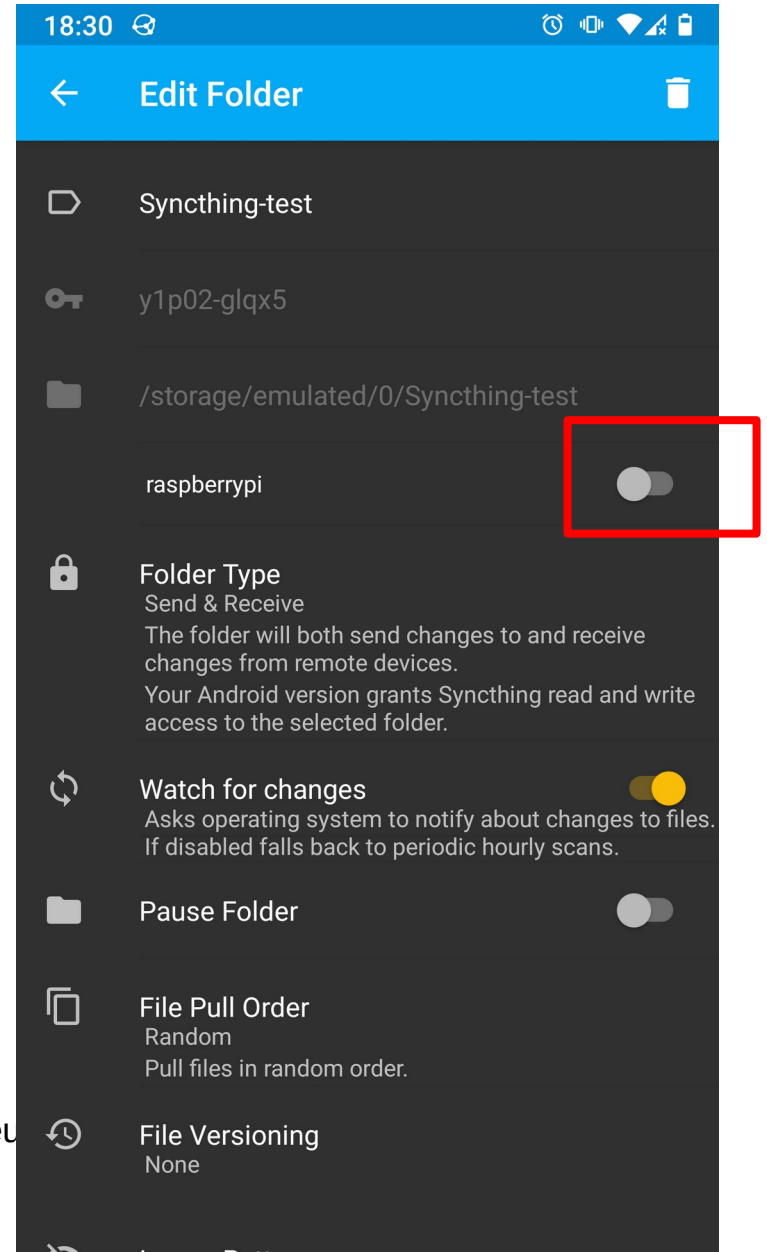


Configure device

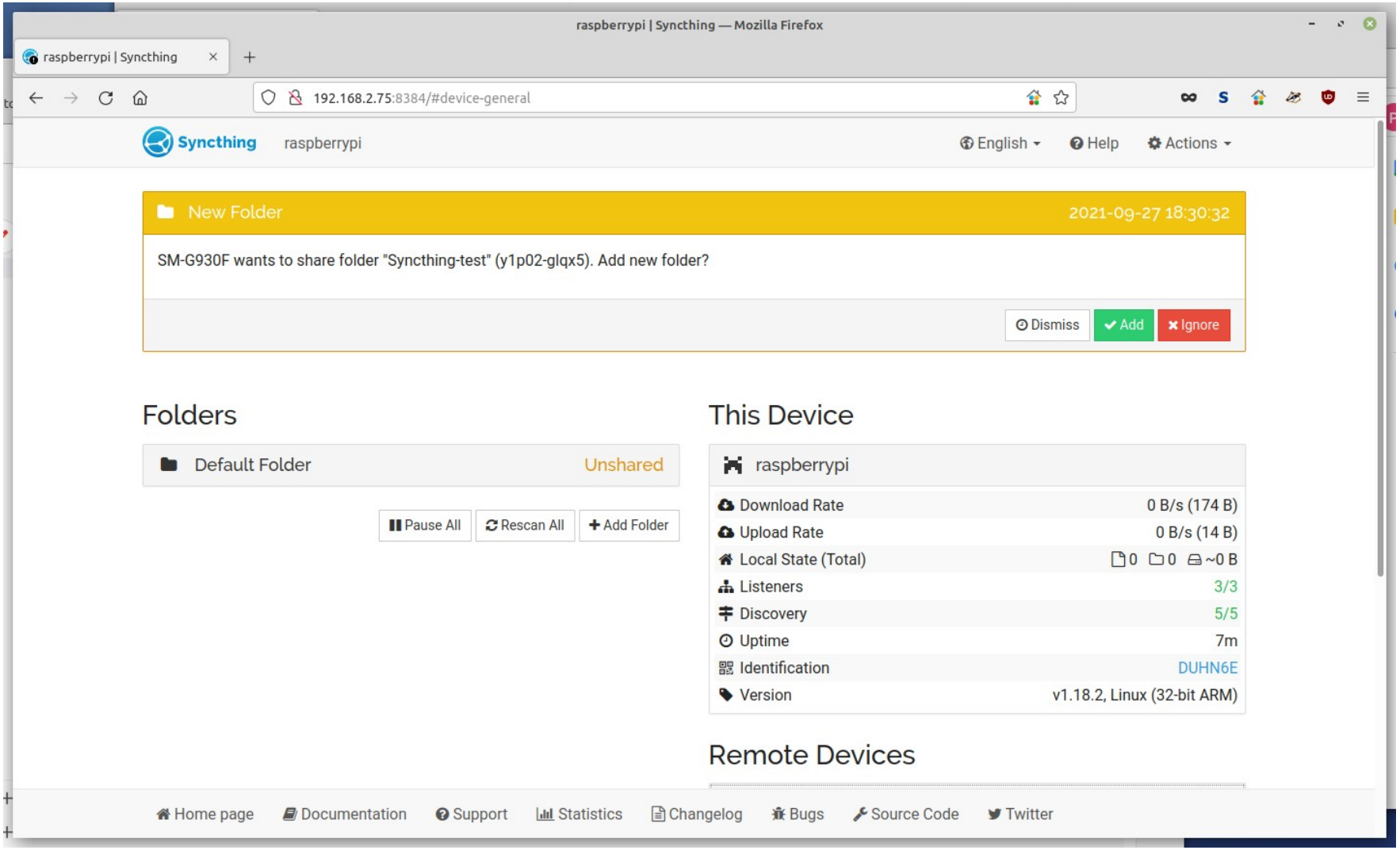


Start sharing

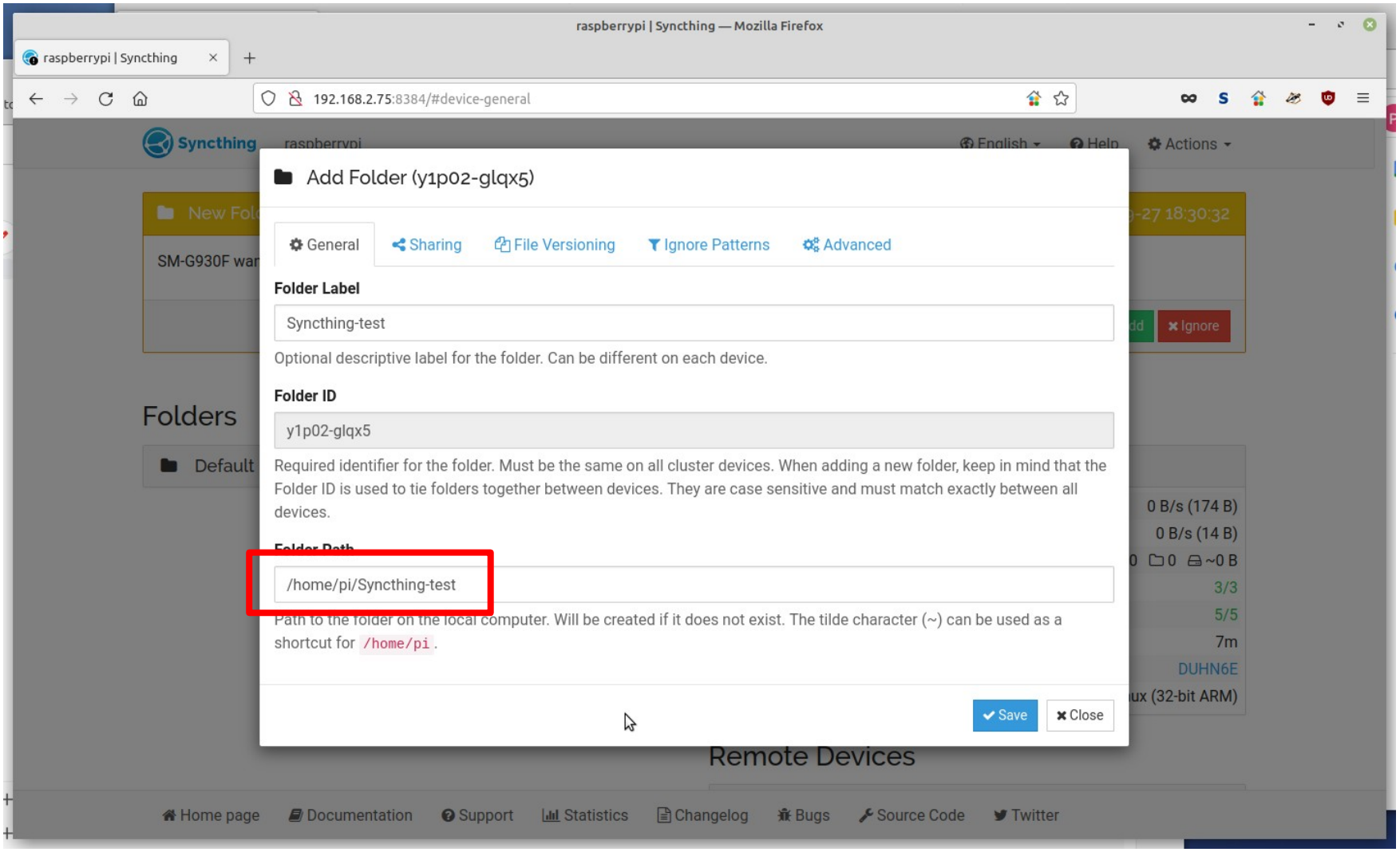




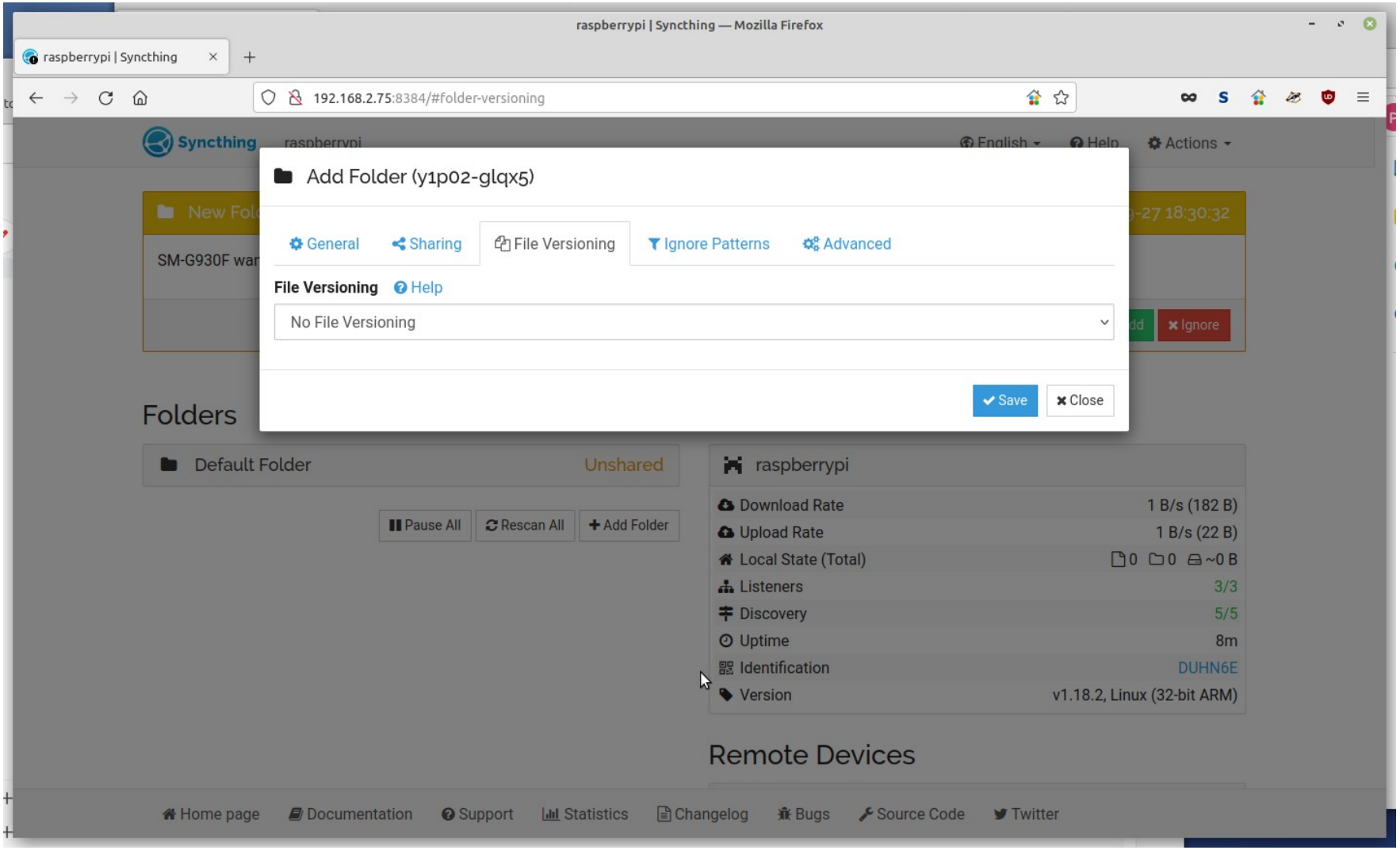
Add folder


raspberrypi | Syncthing — Mozilla Firefox
raspberrypi | Syncthing
192.168.2.75:8384/#device-general
Syncthing
raspberrypi
English
Help
Actions
New Folder
2021-09-27 18:30:32
SM-G930F wants to share folder "Syncthing-test" (y1p02-glqx5). Add new folder?
Dismiss
Add
Ignore
Folders
Default Folder
Unshared
Pause All
Rescan All
Add Folder
This Device
raspberrypi
Download Rate
0 B/s (174 B)
Upload Rate
0 B/s (14 B)
Local State (Total)
0 0 ~0 B
Listeners
3/3
Discovery
5/5
Uptime
7m
Identification
DUHN6E
Version
v1.18.2, Linux (32-bit ARM)
Remote Devices
Home page
Documentation
Support
Statistics
Changelog
Bugs
Source Code
Twitter

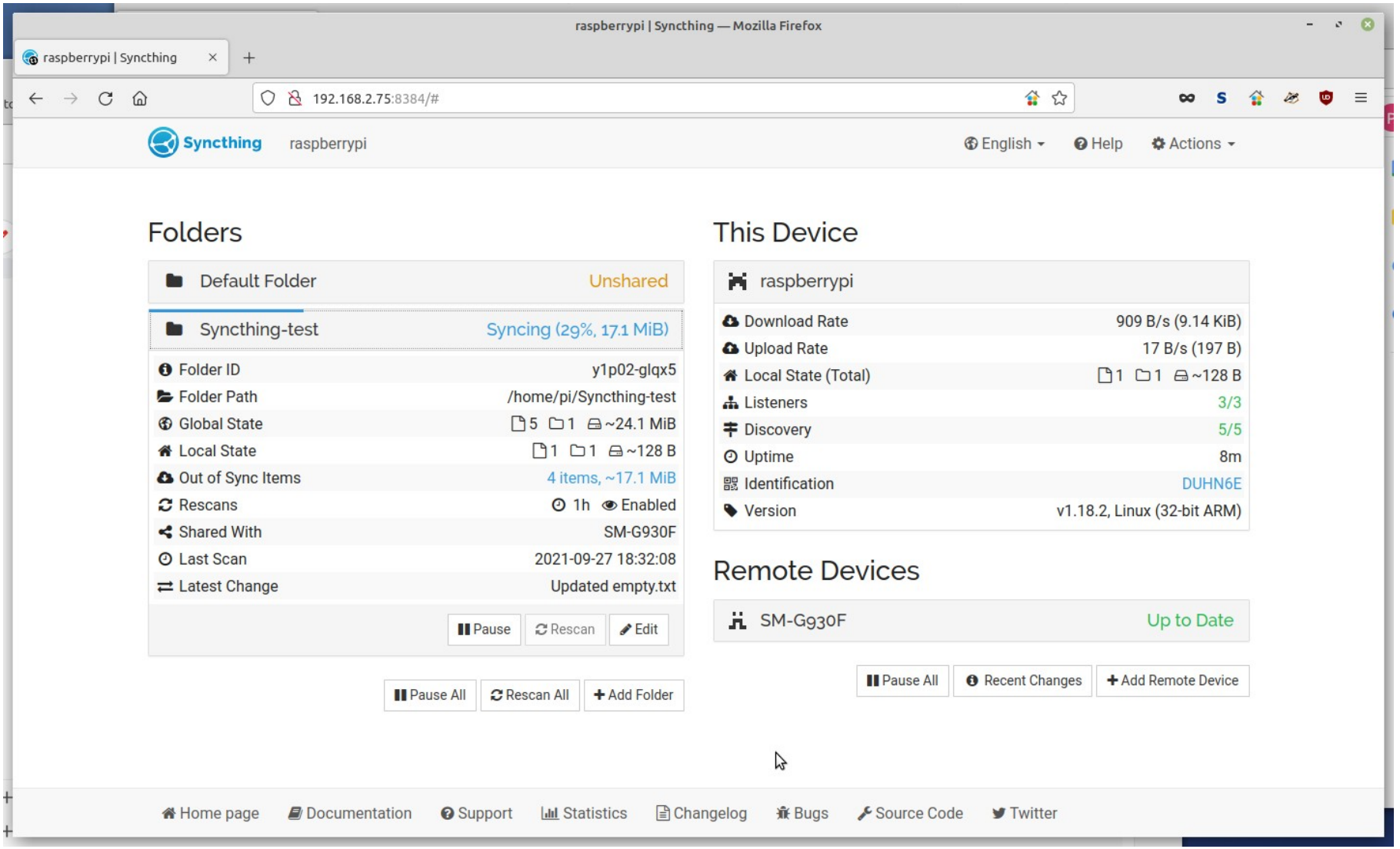
Add folder


raspberrypi | Syncthing — Mozilla Firefox
raspberrypi | Syncthing
192.168.2.75:8384/#device-general
Syncthing
raspberrypi
English
Help
Actions
Add Folder (y1p02-glqx5)
General
Sharing
File Versioning
Ignore Patterns
Advanced
Folder Label
Syncthing-test
Optional descriptive label for the folder. Can be different on each device.
Folder ID
y1p02-glqx5
Required identifier for the folder. Must be the same on all cluster devices. When adding a new folder, keep in mind that the Folder ID is used to tie folders together between devices. They are case sensitive and must match exactly between all devices.
Folder Path
/home/pi/Syncthing-test
Path to the folder on the local computer. Will be created if it does not exist. The tilde character (~) can be used as a shortcut for /home/pi.
Save
Close
Folders
Default
Remote Devices
Home page
Documentation
Support
Statistics
Changelog
Bugs
Source Code
Twitter

File versioning?



Syncing


raspberrypi | Syncthing — Mozilla Firefox
raspberrypi | Syncthing
192.168.2.75:8384/#
Syncthing
raspberrypi
English
Help
Actions
Folders
Default Folder
Unshared
Syncthing-test
Syncing (29%, 17.1 MiB)
Folder ID
y1p02-glqx5
Folder Path
/home/pi/Syncthing-test
Global State
5 1 ~24.1 MiB
Local State
1 1 ~128 B
Out of Sync Items
4 items, ~17.1 MiB
Rescans
1h Enabled
Shared With
SM-G930F
Last Scan
2021-09-27 18:32:08
Latest Change
Updated empty.txt
Pause
Rescan
Edit
Pause All
Rescan All
+ Add Folder
This Device
raspberrypi
Download Rate
909 B/s (9.14 KiB)
Upload Rate
17 B/s (197 B)
Local State (Total)
1 1 ~128 B
Listeners
3/3
Discovery
5/5
Uptime
8m
Identification
DUHN6E
Version
v1.18.2, Linux (32-bit ARM)
Remote Devices
SM-G930F
Up to Date
Pause All
Recent Changes
+ Add Remote Device
Home page
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