

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

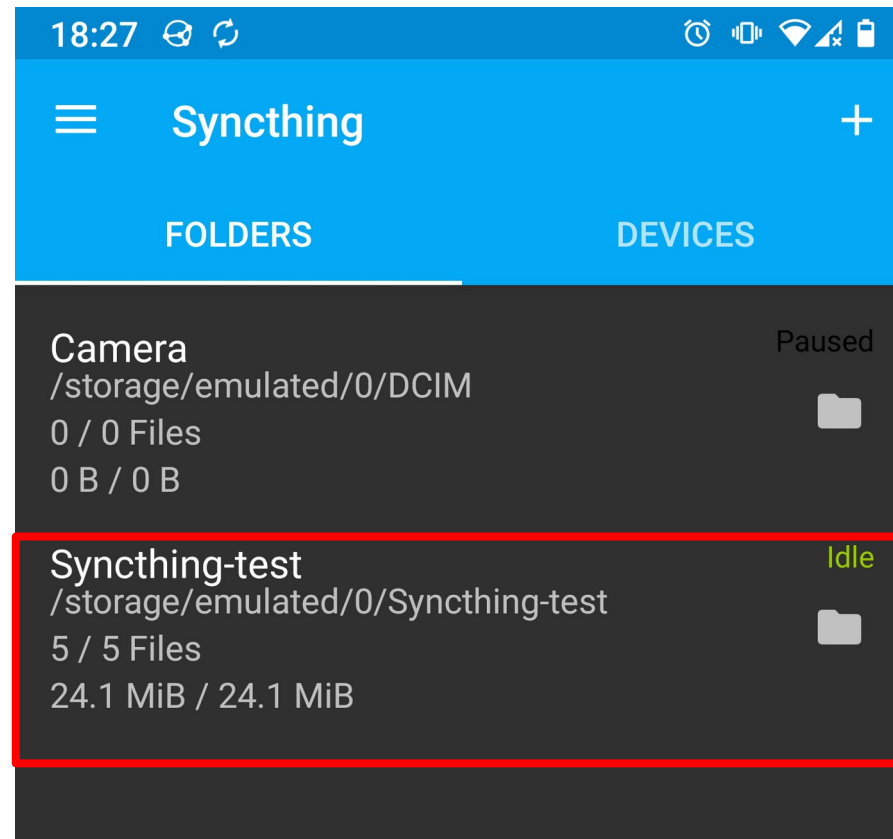
- Hosts
 - Android 11 phone (termux, [sshd 8022](#))
 - Raspberry Pi (Rasbian)
 - Laptop (EndeavourOS)

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

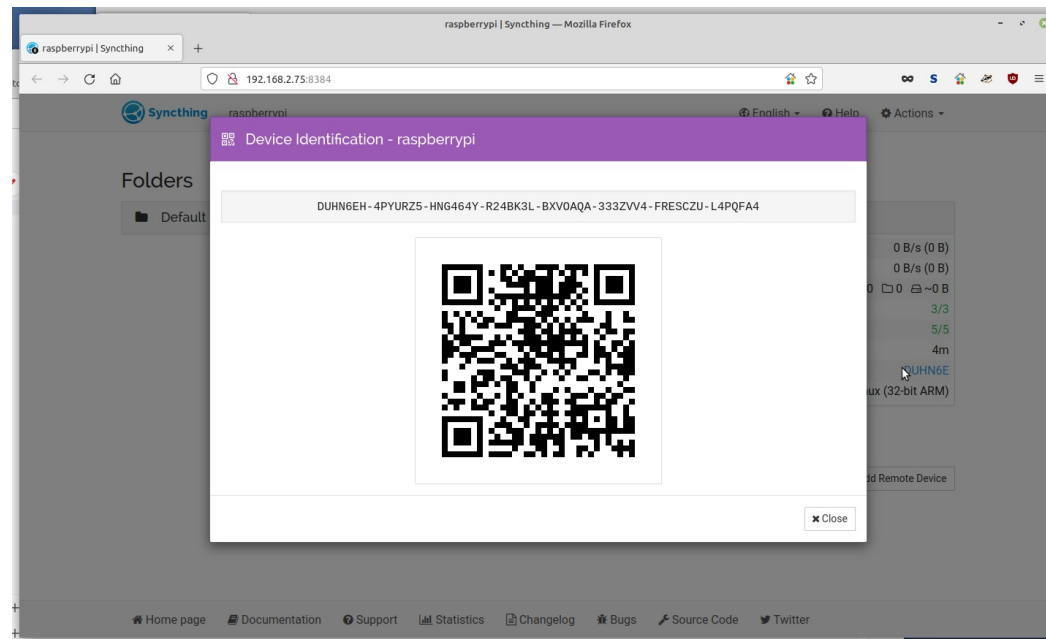
Let's share

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



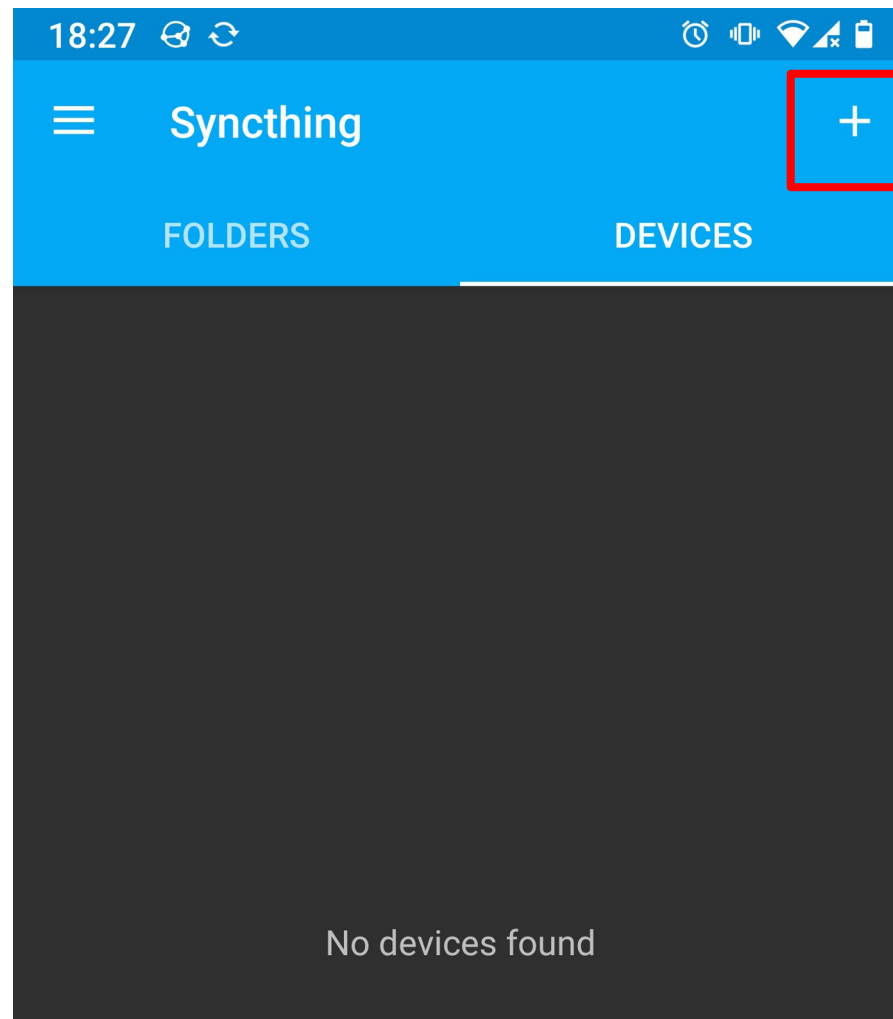
Let's share

- RPi interface: Actions -> Show ID



Add device

- Scan with phone



Accept request

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raspberrypi | Syncthing 192.168.2.75:8384 English Help Actions

New Device 2021-09-27 18:28:43

Device "SM-G930F" (YUOE6B5-2HVEKJE-2IFPOXE-RWN66PV-D773XWJ-RCQXJN-KQZJVEO-HMGHOQG at 192.168.2.160:22000) wants to connect. Add new device?

Dismiss + Add Device Ignore

Folders

Default Folder Unshared

Pause All Rescan All Add Folder

This Device

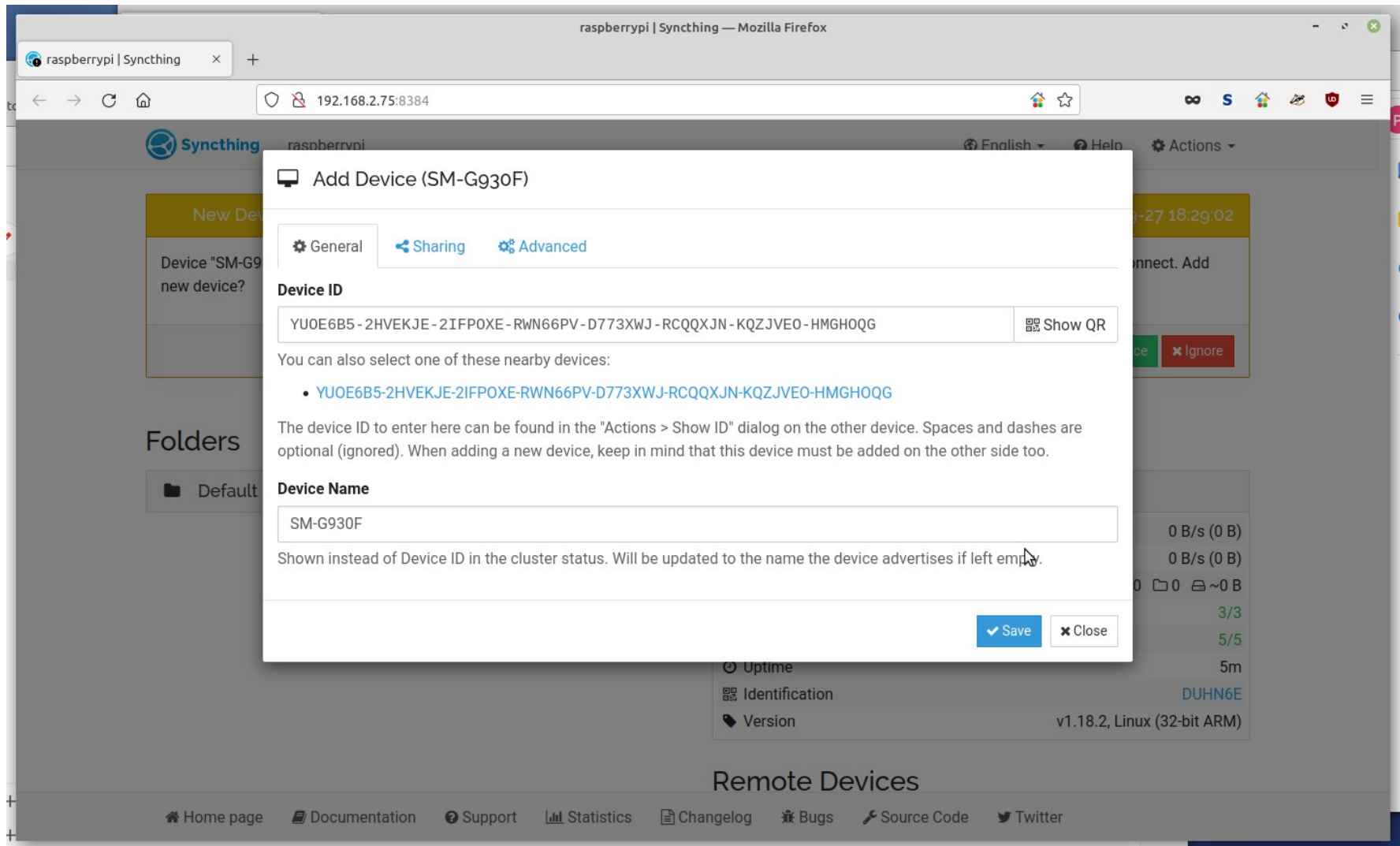
raspberrypi

Download Rate	0 B/s (0 B)
Upload Rate	0 B/s (0 B)
Local State (Total)	0 0 ~0 B
Listeners	3/3
Discovery	5/5
Uptime	4m
Identification	DUHN6E
Version	v1.18.2, Linux (32-bit ARM)

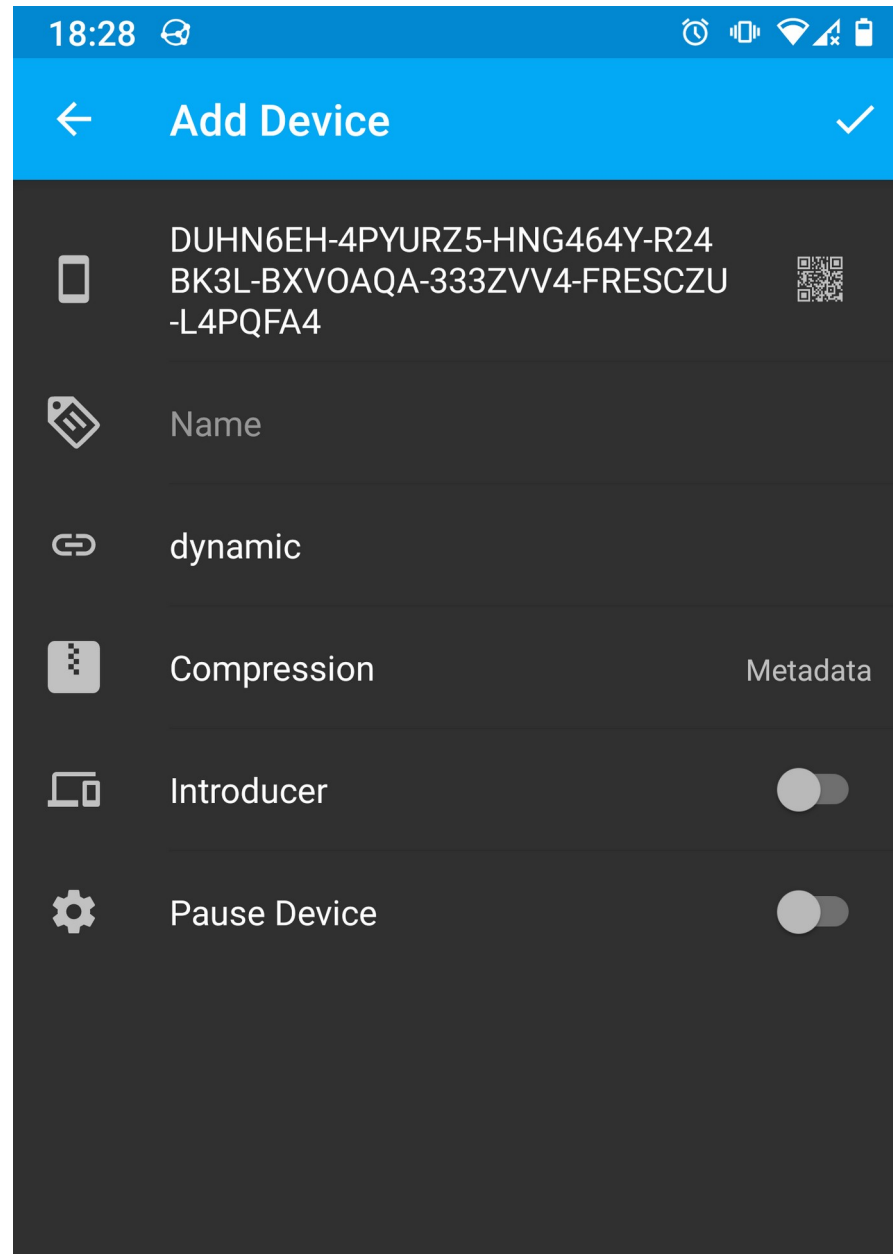
Remote Devices

Home page Documentation Support Statistics Changelog Bugs Source Code Twitter

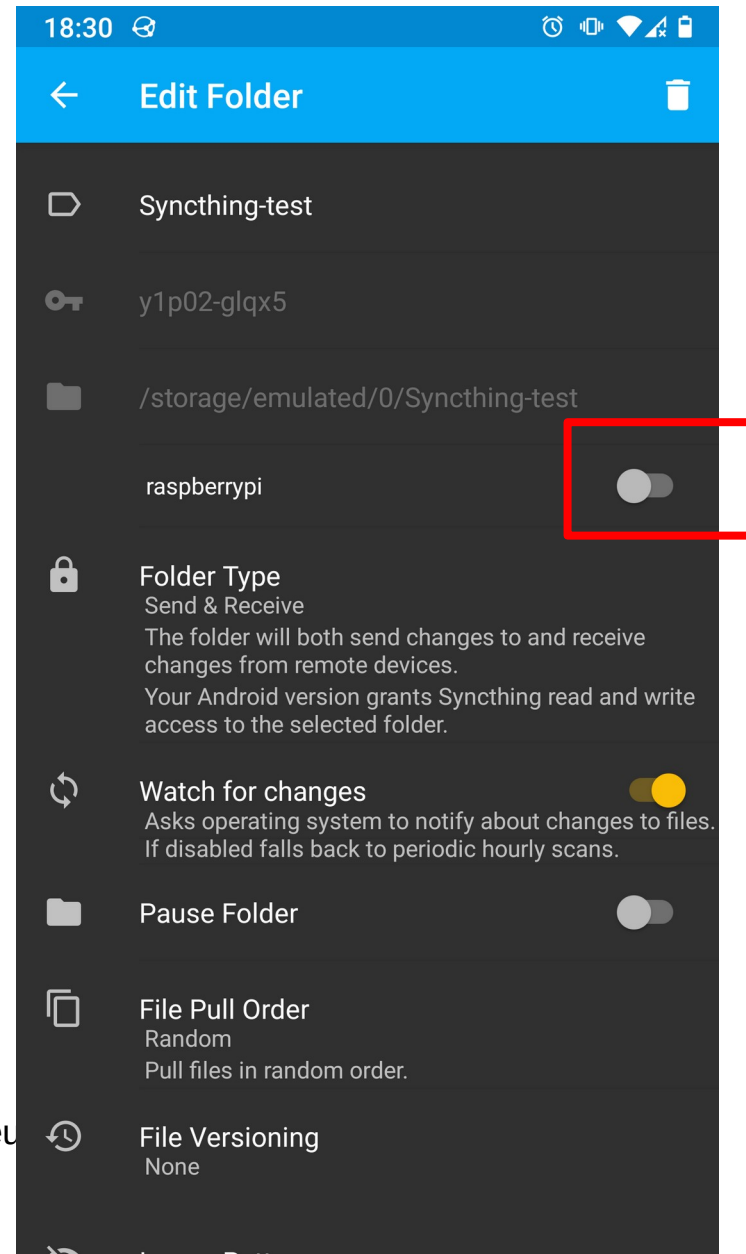
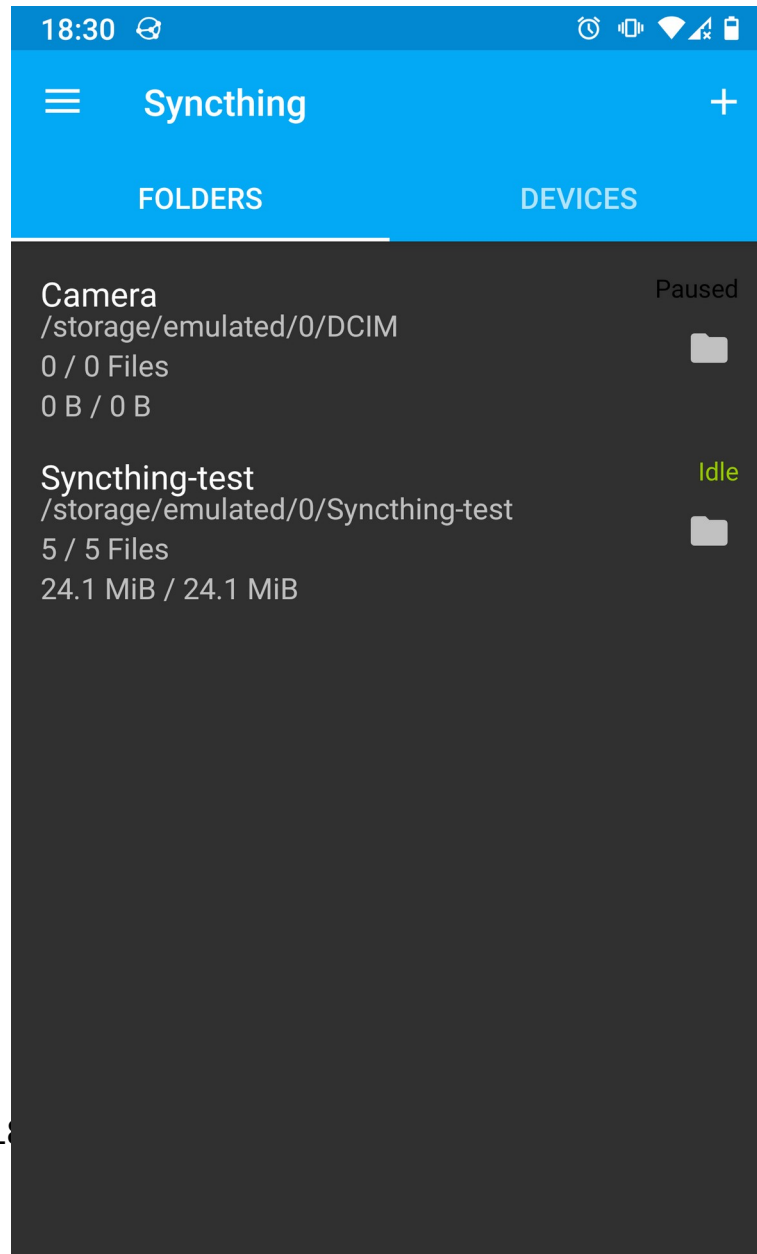
Device details



Configure device



Start sharing



Add folder

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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

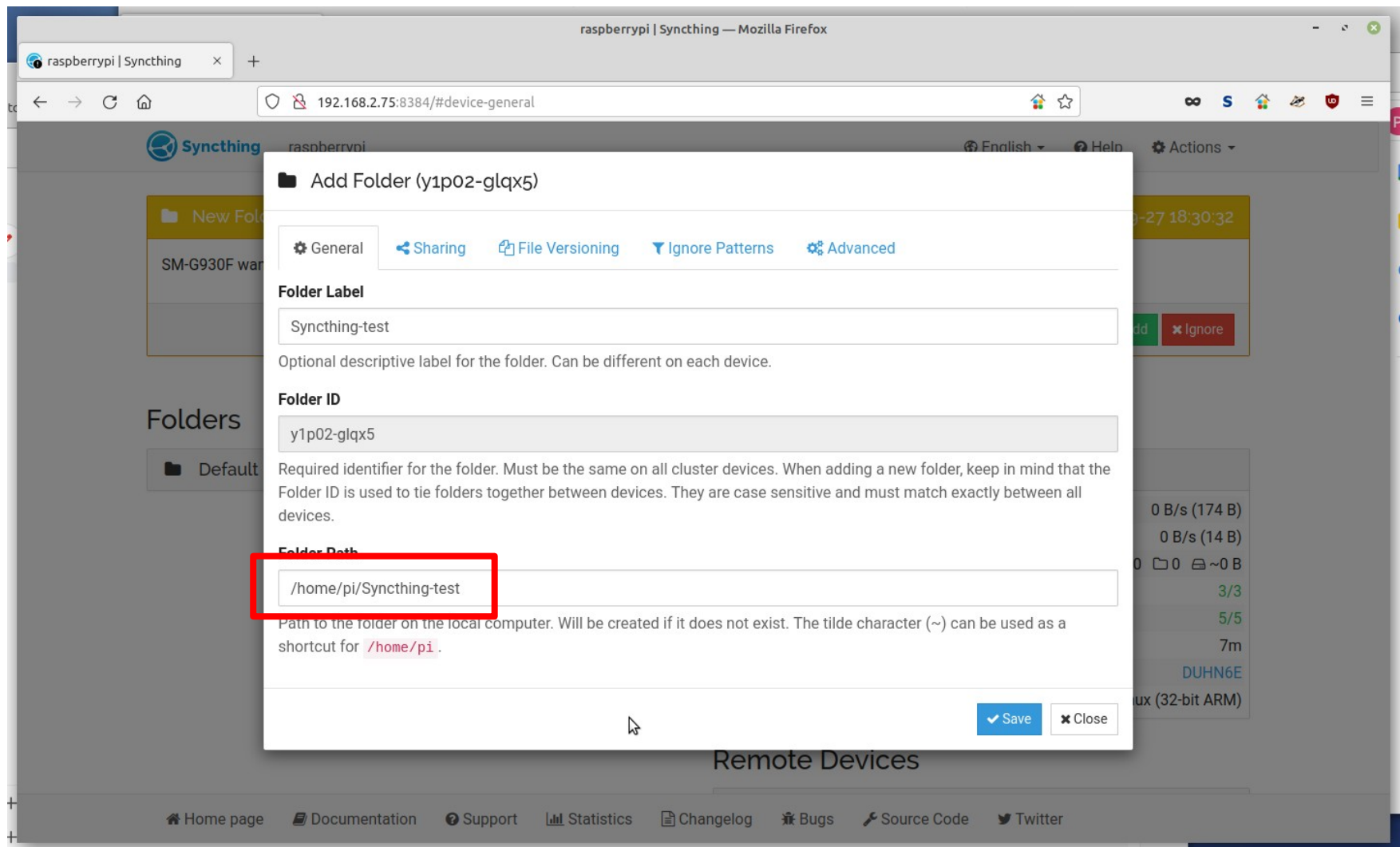
raspberrypi

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)

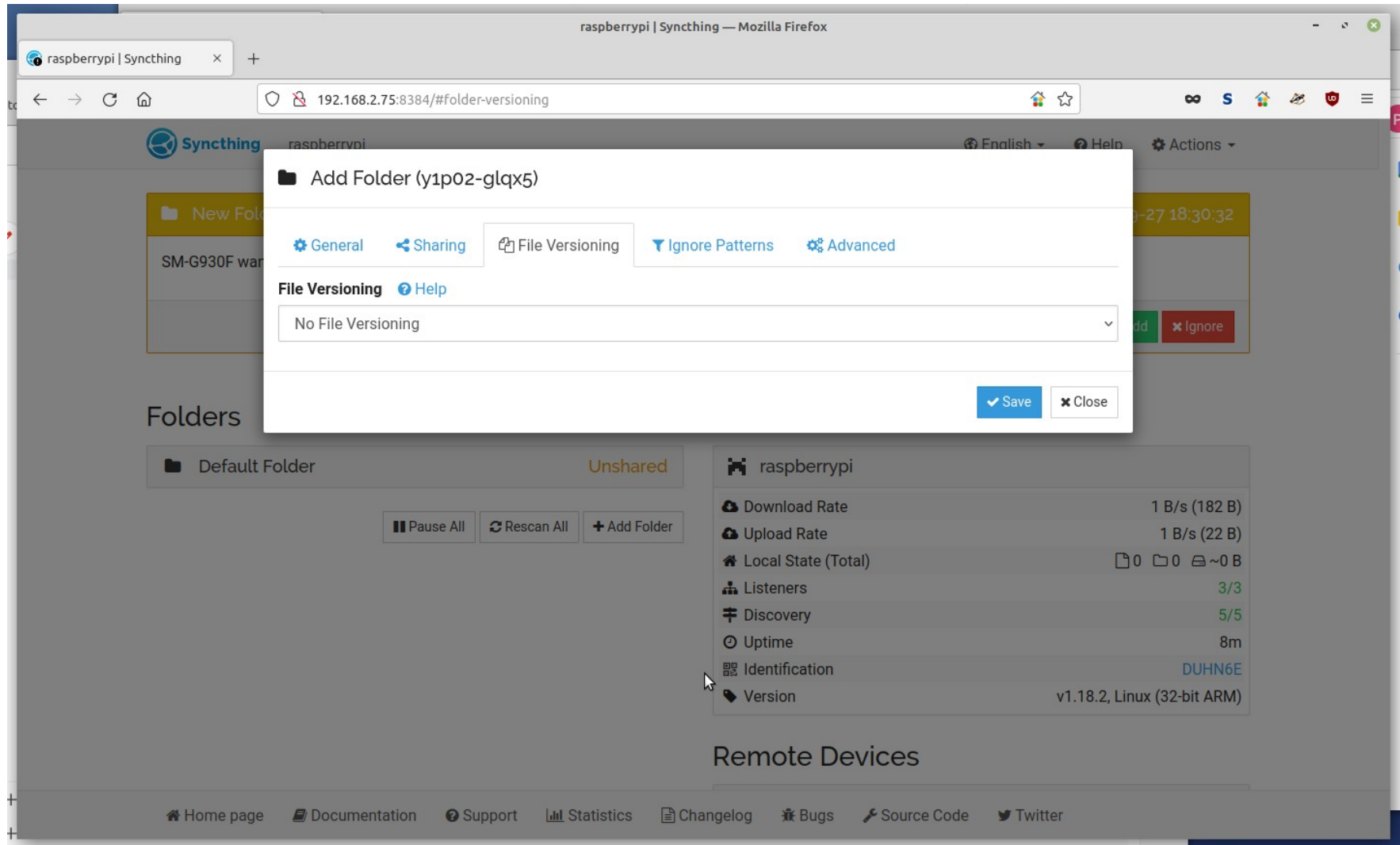
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Add folder



File versioning?



Syncing

The screenshot shows the Syncthing web interface in a Mozilla Firefox browser. The browser's address bar shows the URL `192.168.2.75:8384/#`. The interface has a header with the Syncthing logo, the name 'raspberrypi', and links for 'English', 'Help', and 'Actions'.

The main content area is divided into three sections:

- Folders:** A list of folders. The 'Syncthing-test' folder is selected and shows a status of 'Syncing (29%, 17.1 MiB)'. Below the folder name, a table lists various attributes: Folder ID (y1p02-glqx5), Folder Path (/home/pi/Syncthing-test), Global State (5 folders, 1 file, ~24.1 MiB), Local State (1 folder, 1 file, ~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), and Latest Change (Updated empty.txt). At the bottom of this section are buttons for 'Pause', 'Rescan', and 'Edit'.
- This Device:** A summary of the local device's status. It shows 'raspberrypi' with a download rate of 909 B/s (9.14 KiB), an upload rate of 17 B/s (197 B), and a local state of 1 folder, 1 file, ~128 B. It also lists 3/3 listeners, 5/5 discovery, 8m uptime, identification 'DUHN6E', and version 'v1.18.2, Linux (32-bit ARM)'.
- Remote Devices:** A list of remote devices. One device, 'SM-G930F', is shown with a status of 'Up to Date'. Below this list are buttons for 'Pause All', 'Recent Changes', and 'Add Remote Device'.

At the bottom of the interface, there is a footer with links to 'Home page', 'Documentation', 'Support', 'Statistics', 'Changelog', 'Bugs', 'Source Code', and 'Twitter'.