

The background features a dark blue gradient with a subtle pattern of white dots. On the left side, there are several overlapping circular elements. A prominent one is a large circle with a scale around its perimeter, marked with numbers from 140 to 260 in increments of 10. Other circles are partially visible, some with dashed lines and arrows, suggesting a technical or scientific theme.

LOGGING FILE SYSTEM FOR THE RASPBERRY PI

WHAT IS A LOGGING FILE SYSTEM

- I was looking for a file system that could track versions of all files in the file system
- I wanted it to work on the Raspberry Pi
- There is a pretty stable logging file system called NILFS that is available on the Raspberry Pi.
- See <http://nilfs.sourceforge.net/en/>

Welcome to NILFS

NILFS is a log-structured file system supporting versioning of the entire file system and continuous snapshotting which allows users to even restore files mistakenly overwritten or destroyed just a few seconds ago.

NILFS was developed by NTT Laboratories and published as an open-source software under GPL license, and now available as a part of Linux kernel.

This site provides information and resources related to the NILFS filesystem.

*** Fake site warning ***

"www.nilfs.org" has been reopened as a fake site by a third party after we abandoned the domain in September 2014. The fake site defaces the original content, leading visitors to unrelated websites, so please be careful not to go to the site mistakenly. NILFS community and NTT are absolutely not related to this fake site.

The official NILFS website is nilfs.sourceforge.net or nilfs.osdn.jp (mirror site). Please use these sites when accessing information related to NILFS.

FIRST, I WANTED TO ATTACH A SSD TO THE RPI



- I found an interesting board from SupTronics that was basically a USB-to-SATA adapter but was made to attach to a Raspberry Pi.
- I used this board to attach a 1TB SSD

CREATE THE FILE SYSTEM

- The steps are pretty straightforward
 - Install the NILFS package with 'sudo apt-get install nilfs-tools'
 - Find the USB-attached drive with 'sudo blkid'. In my case, it was at /dev/sda
 - Create a partition with 'sudo fdisk /dev/sda'.
 - Delete a partition with 'd'
 - Create a new partition with 'n'. I created a partition with the default starting and ending values
 - List the partitions with 'p'
 - Write the partition table with 'w'
 - Create the file system with 'sudo mkfs -t nilfs2 /dev/sda1'
 - Create a mount point with 'mkdir -p ~pi/mnt/nilfs'
 - Add a line to /etc/fstab: '/dev/sda1 /home/pi/mnt/nilfs nilfs2'
 - Reboot
 - See the results with 'mount'

USE NILFS

- A couple key commands:
 - `lscp` – see the list of checkpoints and snapshots
 - `chcp` – change a checkpoint to a snapshot or back

```
pi@raspberrypi:~/bin $ lscp -n 20
```

CNO	DATE	TIME	MODE	FLG	BLKCNT	ICNT
1	2017-06-03	13:22:18	cp	-	4	2
2	2017-06-03	13:41:32	cp	-	5	3
3	2017-06-03	13:41:41	cp	-	6	4
4	2017-06-03	13:45:35	cp	-	1717	239
5	2017-06-03	13:45:41	cp	-	4308	224
6	2017-06-03	13:45:46	cp	-	7922	224
7	2017-06-03	13:45:52	cp	-	10370	224
8	2017-06-03	13:45:57	cp	-	12811	224
9	2017-06-03	13:46:03	cp	-	15259	224
10	2017-06-03	13:46:09	cp	-	18873	224
11	2017-06-03	13:46:14	cp	-	21670	224
12	2017-06-03	13:46:19	cp	-	25284	224
13	2017-06-03	13:46:24	cp	-	28326	224
14	2017-06-03	13:46:30	cp	-	29612	224
15	2017-06-03	13:46:31	cp	-	29969	225
16	2017-06-03	13:46:35	cp	-	37601	2791
17	2017-06-03	13:46:36	cp	-	39086	3245
18	2017-06-03	13:46:38	cp	-	39581	3572
19	2017-06-03	13:46:43	cp	-	41795	3707
20	2017-06-03	13:46:48	cp	-	44409	3699

```
pi@raspberrypi:~/bin $
```