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Overview

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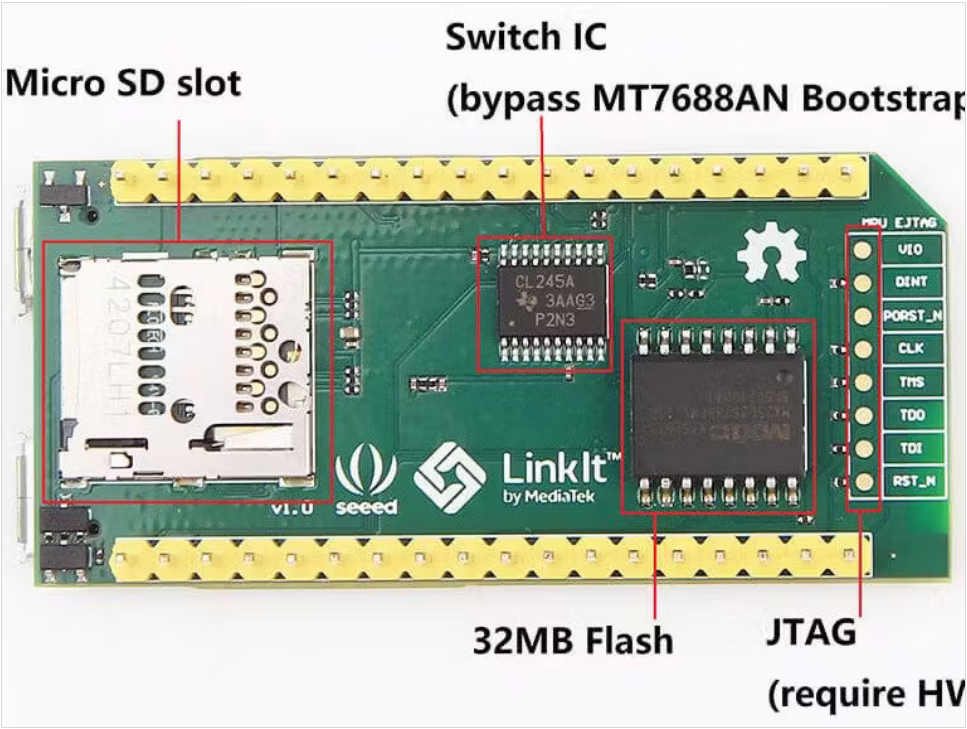
 Check the setup works

Credits

Comments (1)

👍 17

Akash Ravichandran (/akashravichandran)
Published October 29, 2016 © GPL3+ (http://opensource.org/licenses/GPL-3.0)

Expand the Memory in Linkit 7688

Because Linkit 7688 has only 32MB flash, insert an SD card in Linkit 7688 to expand the memory and use it to store data.

 Beginner(/projects?difficulty=beginner)   Protip   ⏱ 2 hours
 👁 2,932

Things used in this project

Hardware components

8GB Memory Card   × 1   /buy/13876?s=BAhJIhIynNpD3MDXjScm9qZWN0BjoGRUY (/products)

Software apps and online services

OpenWrt   ⧉ (https://openwrt.org/)

Story

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Why should I do it ?

The on-board flash on LinkIt Smart 7688 is raw flash. It offers limited write cycles (about 100,000) and doesn't provide a wear leveling mechanism and atomic write operation. Therefore, writing user data to the on-board flash frequently isn't recommended.

In addition, the flash storage is 32MB, this space might not be sufficient for storing user data and software packages. As a result, mounting the root FS on an SD card is recommended. Not only does this provide more storage, it's more reliable too.

Steps:

The steps to mounting the rootFS are provided below. For more details, please refer to the OpenWrt WiKi for extroot. (https://wiki.openwrt.org/doc/howto/extroot)

Note: The procedure provided here assumes there is only one partition on the SD card.

If there are multiple partitions on the SD card, you can use **fdisk** command (http://www.tldp.org/HOWTO/Partition /fdisk_partitioning.html)to manage the partition settings.

- Insert a microSD card into micro SD slot in the LinkIt Smart 7688 device. **WARNING:** All data on the SD card will be erased as result of the following steps.
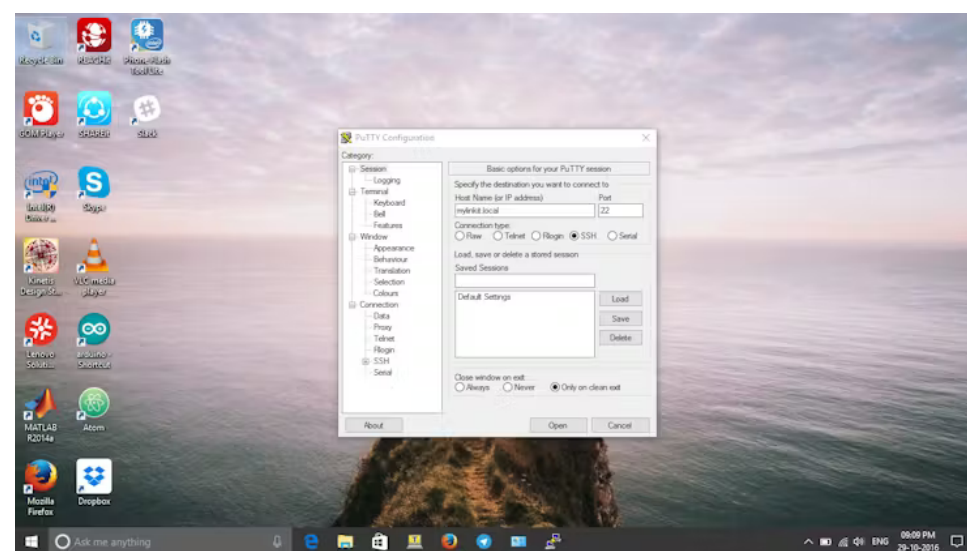

MicroSD Slot
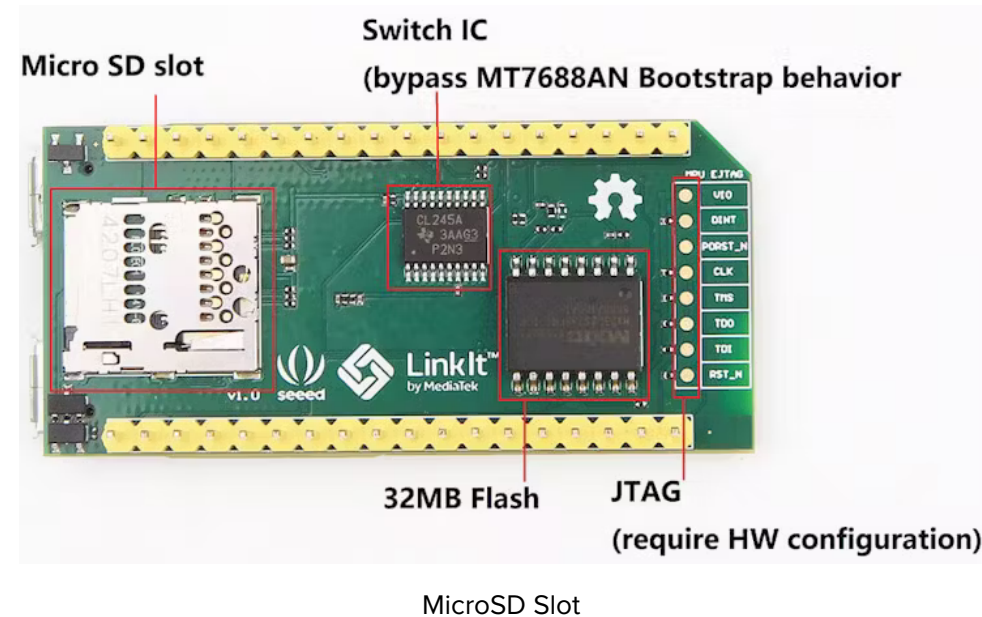
- Make sure the device is in Station mode and can access the internet.
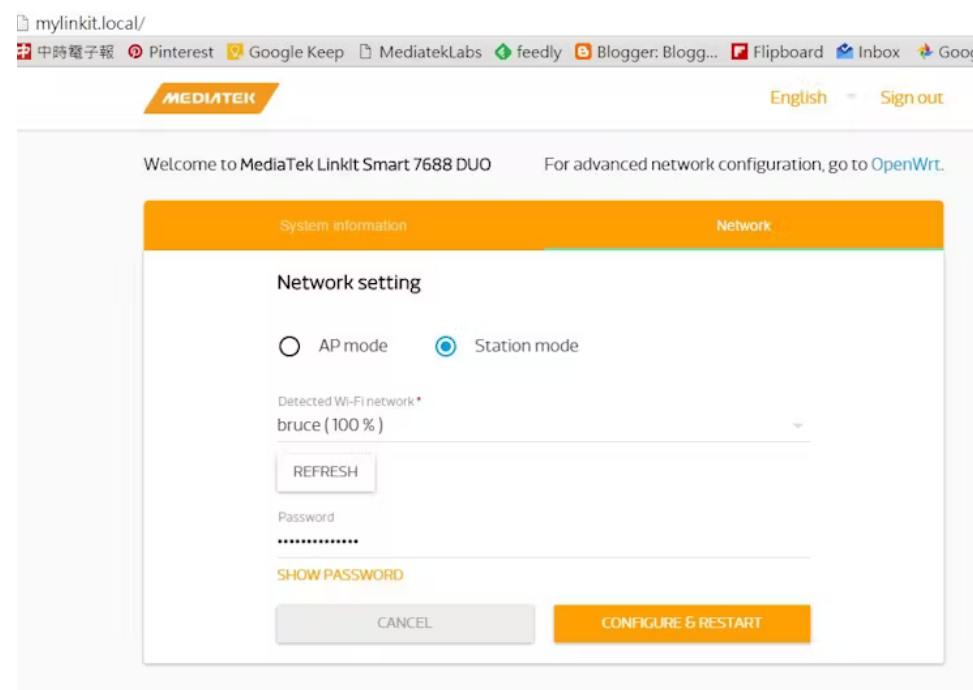
Station Mode

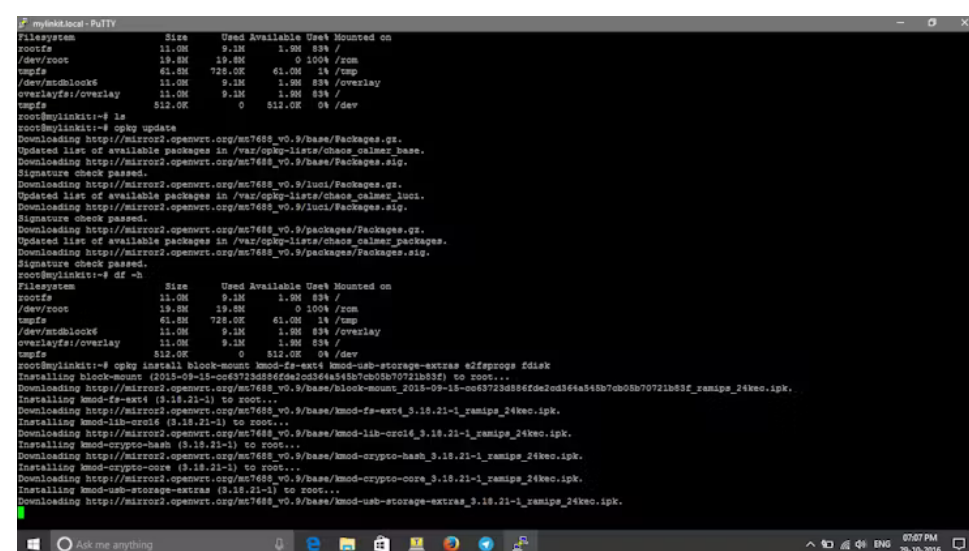- Open the LinkIt Smart 7688 system console using Putty.

Putty Console.

- Type the following commands to install the required packages:

```
# opkg update
# opkg install block-mount kmod-fs-ext4 kmod-usb-storage-ext
ras e2fsprogs fdisk
```

- Format the SD card **ext4** file system is used in this example:
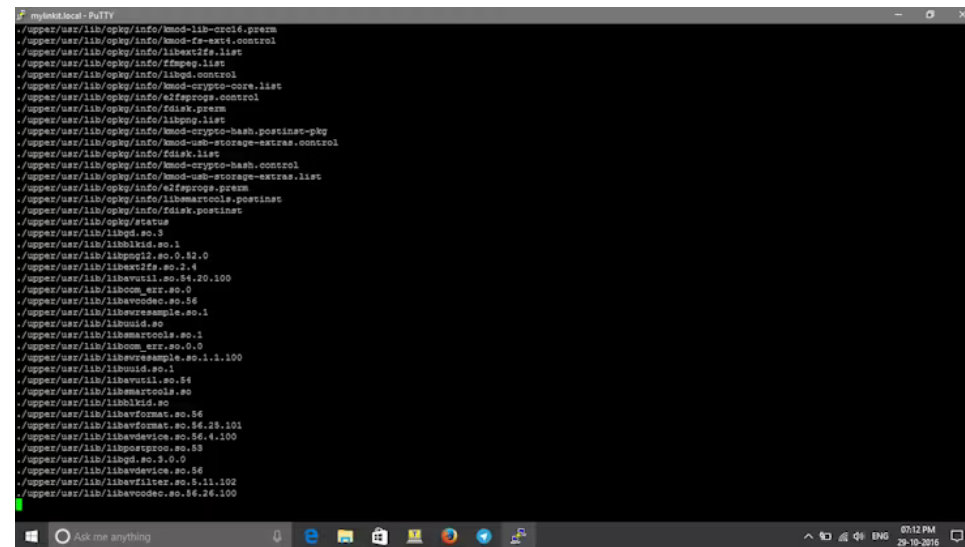
```
# mkfs.ext4 /dev/mmcblk0p1
```


Format SD card.

During the formatting process, you'll be prompted to confirm: Proceed anyway? (y,n). Press " y " to continue.

- Duplicate the current root FS and move it to the SD card

by typing the following commands:

```
# mount /dev/mmcblk0p1 /mnt
# tar -C /overlay -cvf - . | tar -C /mnt -xf -
# umount /mnt
```


Mount and Unmount.

- Create a *fstab* template, for example:

```
# block detect > /etc/config/fstab
```

- Open the *fstab* configuration (vi is used as the editor in this example):

```
# vi /etc/config/fstab
```
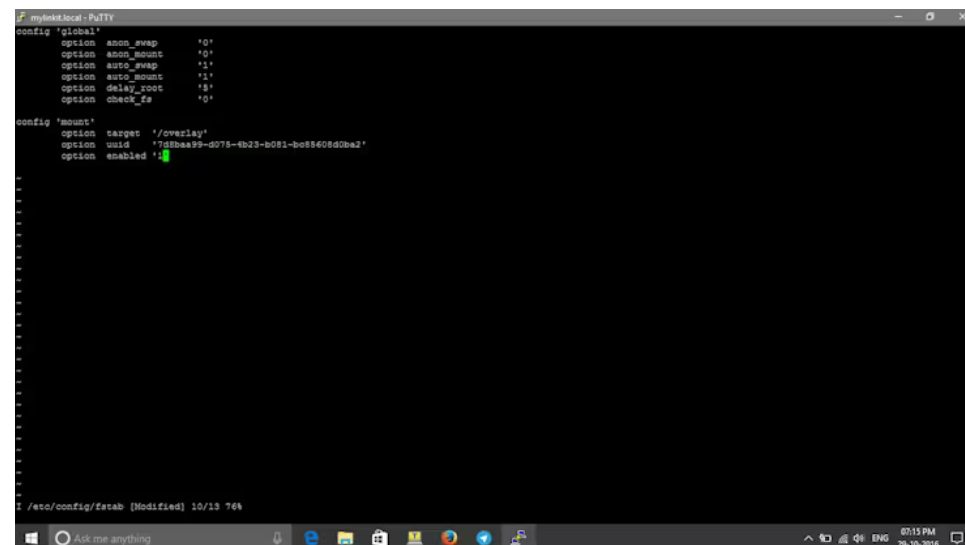

Vim Editor.

- In the **'mount'** config section, change the following:

```
(In vi, press the "i" key to start editing)
```

The target option to '**/overlay**' the enabled option to '**1**'.
Then, the config file will look like this:

```
config 'mount'
option  target  '/overlay'
...
option  enabled '1'
```

- Save and exit the configuration file (press **Esc** key and type **:x**. Then press **Enter** in vi to save the file).

- Finally Plug out the LinkIt 7688 and plug in again. Let it reboot.

- Login to your console and type **#df -h.**

Check the setup works:
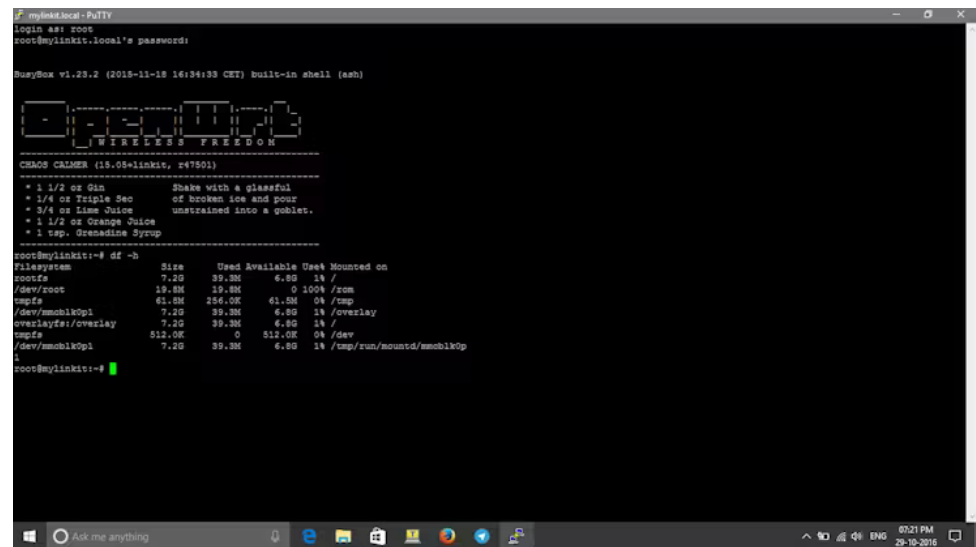
The rootFS is now 7.2 GB.

Credits

Akash Ravichandran (/akash

(/akashravichandran)

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(/ryanjgill2) **Ryan Gill (/ryanjgill2)**
6 years ago

Thanks for the guide. It was very easy to follow and is working great!

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linkit-smart-7688-duo-
wireless-storage-fe8844)

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Smart 7688 Duo Wireless
Storage (/gsgill112
/christmas-special-linkit-
smart-7688-duo-wireless-
storage-fe8844)**

Gurinder Singh Gill (/gsgill112)

👍 6   👁 913   🔖

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👍 5   👁 900   🔖

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👍 1   👁 557   🔖

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**GPS datalogger with Linkit
ONE (/Momy93/gps-
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fe6541)**

Mohamed Fadiga (/Momy93)

👍 18   👁 4.8K   🔖

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Multiple Authors ⌄

👍 8   👁 3.6K   🔖

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👍 15   👁 2.0K   🔖

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👍 4   👁 1.9K   🔖

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