N329XX
Linux 2.6.17
Mass Application Note
V1.0

Publication Release Date: Apr. 2013

Support Chips:
N329 Series

Support Platforms:
Non-OS

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N329XX mass application supports to export normal or Hidden device, detects the adaptor or USB Host connected. The application note describes the function in detail.

2. Mass application Function

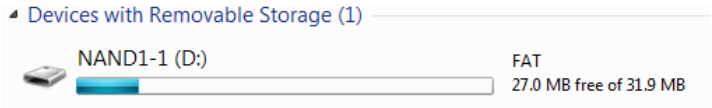
2.1. Mass application Function

2.1.1. Device Modes

Mass application can export deive as Normal mode or Hidden Device mode and mass application can work as a special mode for connection detection.

Normal mode

In Normal mode, deivce disk works as a normal mass storage deivce disk. User can read / write the disk with OS tool like exepoloer.



Hidden Device mode

In Hidden Device mode, deivce disk works as a empty mass storage deivce disk. User can't write the disk, even can't see the files in the disk with OS tool like exepoloer. User only can access the disk by a special disk provided by vendor. So, we can avoid user to do some operation to damage the system dile in the disk.

Null Device mode

It will not exort a deivce disk when it is connected to PC. The Null Device mode is for detecting the conntected device or connected to PC for charging without exporting disk.

2.1.2. Connection detection

Mass application can detect conection status – Adaptor conntected or Host conntected. The function needs usbd driver, mass application and system manager.

Connected to Adaptor

When USB cable connected to a device, usbd driver will send a report "**SYSMGR_STATUS_USBD_PLUG**" to system manager (send "**SYSMGR_STATUS_USBD_UNPLUG**" when USB cable is disconnected to a device). The function only needs usbd driver. So, system manager can get the status after usbd driver works.

Connected to PC

When USB cable connected to a device, system manager regards the connected device is adaptor first (get report "**SYSMGR_STATUS_USBD_PLUG**" first). If the connected device is PC or Notebook, usbd driver will send a report "**SYSMGR_STATUS_USBD_CONNECT_PC**" to system manager. System manager needs to poll the conntion status during a safy time out time (The time out should be long enough to cover all USB Host).

[Note1] How to know the device is PC
After USB cable is plugged to a device (PC or Adaptor), usbd driver will try to let the device know there is some deivce plugged to it (That's why the function needs mass application). If the deivce is Host, it will send Reset command to the device connected to him. According the Reset Command from Host, the usbd driver can know the connected device is PC (If it's adaptor, usbd driver will not get Reset command). So, the response time depends on the time Host needs to send the Reset command after device plugged (System manager needs to poll the connection status during the response time).

2.2. Function Control

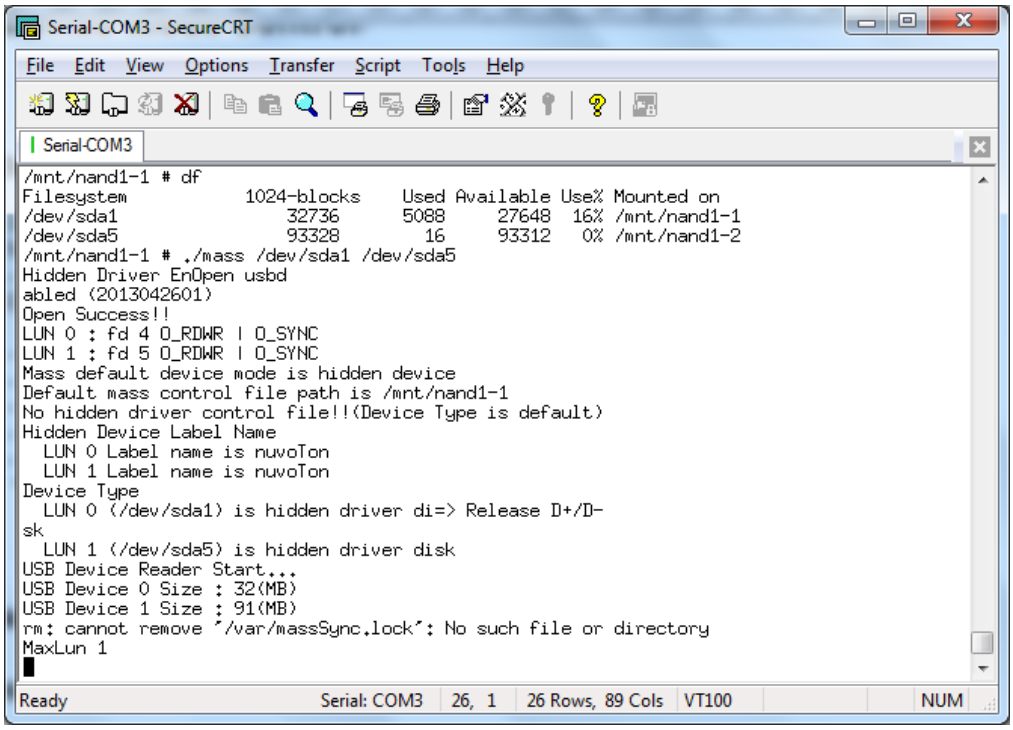
2.2.1. Export Disks

The usage of mass application for exporting disks (Maximum is 10 disks).
Usage : mass <device_name 0> <device_name 1> <device_name 2> …<device_name 9>

Example to export /mnt/nand1-1 & /mnt/nand1-2

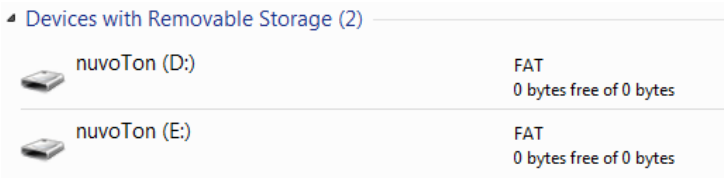
```
/mnt/nand1-1 # ./mass /dev/sda1 /dev/sda5
```

[Log]



[Disk exported]

- ✧ LUN 0 is nand1-1 & LUN1 is nand1-2.
- ✧ Both of them are Hidden devices.



2.2.2. Device Mode Control

Default Device mode

Default Device Mode is Hidden Device. Mass application support an environment variable – MASS_DEFAULT_MODE to change the default Device mode before the mass application executes.

Change default device mode to Normal Device mode

export MASS_DEFAULT_MODE=N

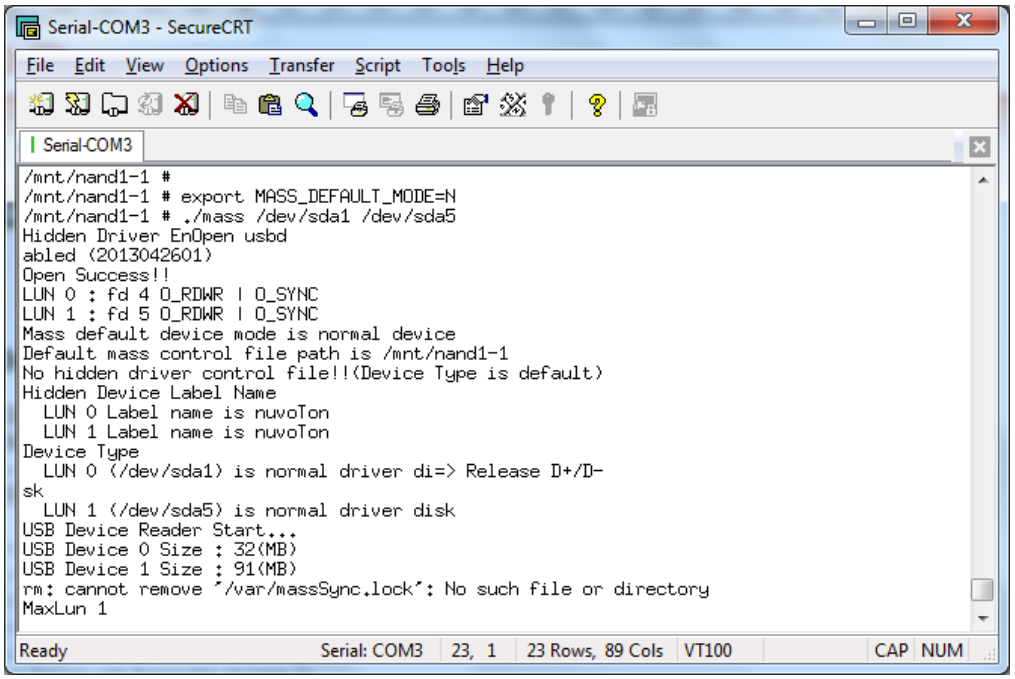
Change default device mode to Hidden Device mode

export MASS_DEFAULT_MODE=H

Example:

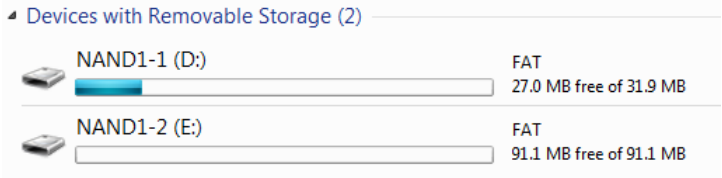
/mnt/nand1-1 # export MASS_DEFAULT_MODE=N

[Log]



[Disk exported]

- ✧ LUN 0 is nand1-1 & LUN1 is nand1-2.
- ✧ Both of them are Normal devices (Change Default Device mode to Normal device).

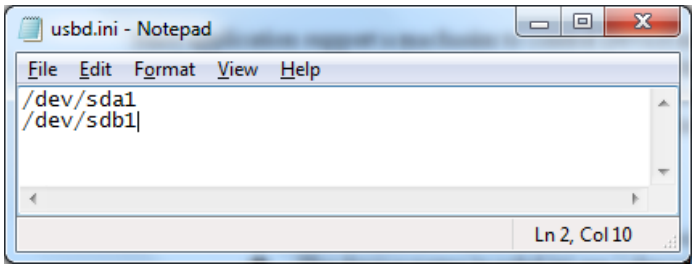


Control Device mode for Each Disk

Mass application support a machasim to control Device mode for Each disk. Mass application will read the file “usbd.ini” in the default path “/mnt/nand1-1”. If the Default Device mode is Hidden Device, the device is Normal Device if the device name in the file. Similarly if the Default Device mode is Normal Device, the device is Hidden Device if the device name in the file. If there is no mode control file (usbd.ini) in the path, all devices are default device mode.

Example:

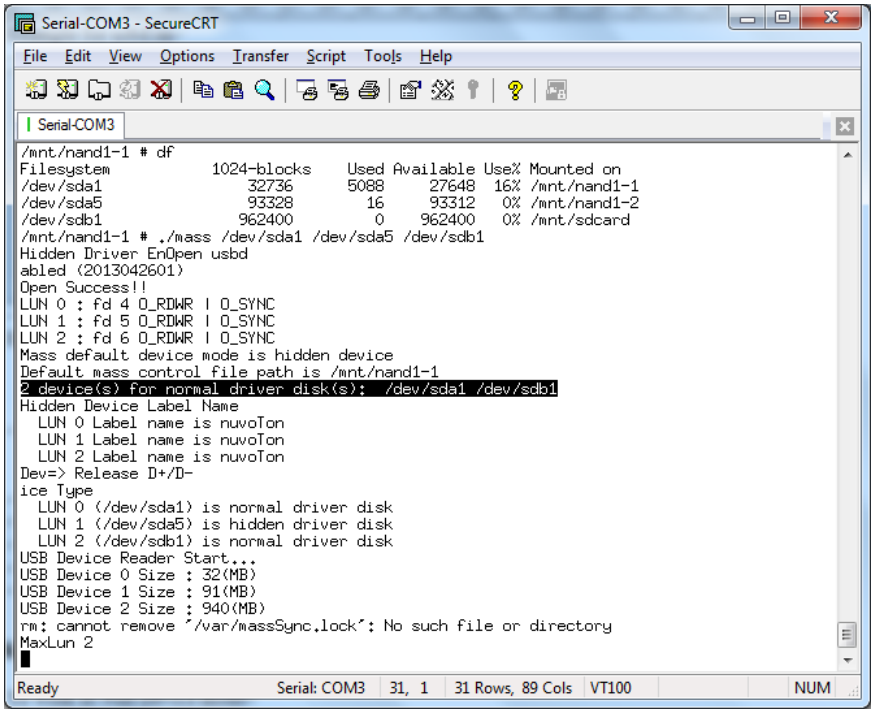
- ✧ The default Device mode is Hidden device.
- ✧ The device name in usbd.ini are ”/dev/sda1” and “dev/sdb1”.
  - ✓ Because the default Device mode is Hidden device, /dev/sda1 and /dev/sdb1 are Normal devices.



✧ **Command:**

/mnt/nand1-1 # ./mass /dev/sda1 /dev/sda5 /dev/sdb1

[Log]



[Disk exported]

- ✧ LUN 0 is nand1-1, LUN1 is nand1-2, and LUN2 is sdcard.
- ✧ nand1-2 (/dev/sda5) is Hidden device.
- ✧ nand1-1 (/dev/sda1) and sdcard (/dev/sdb1) are Normal devices.

Change Control Device mode for Each Disk File Path

The default path of “usbd.ini” is “/mnt/nand1-1”. User can use the environment variable – MASS_CONTROL_PATH to change the path

Example to change the path to /mnt/nand1-2

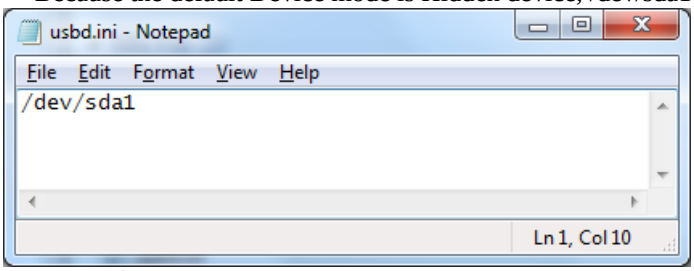
```
/mnt/nand1-1 # export MASS_CONTROL_PATH=/mnt/nand1-2
```

Change the Label name for each Hidden Device

The default Label name of Hidden Device is “nuvoTon”. User can use the environment variable – MASS_LABEL_NAME0~MASS_LABEL_NAME9 to change the Label name for Hidden Device LUN0~LUN9.

Example:

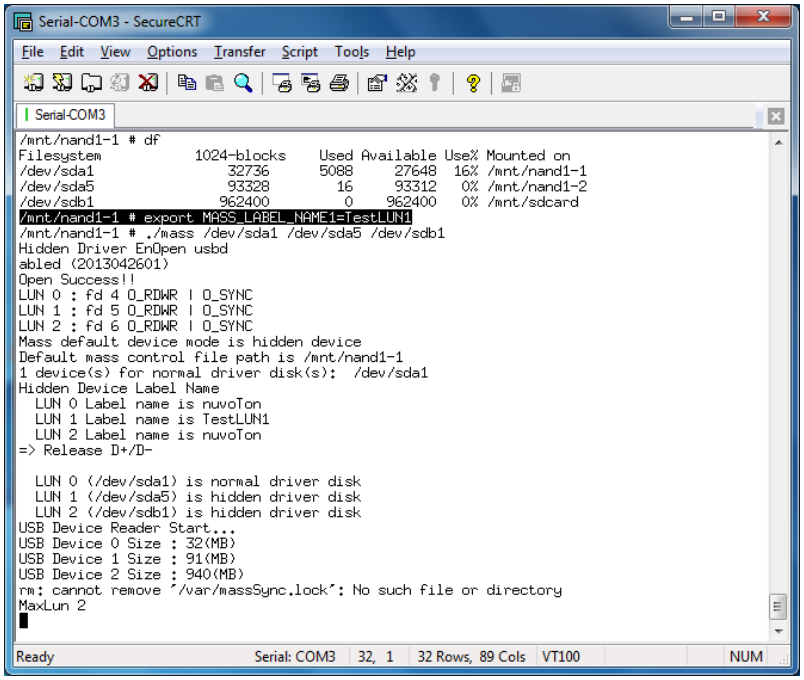
- ✧ The default Device mode is Hidden device.
- ✧ The device name in usbd.ini is ”/dev/sda1”.
  - ✓ Because the default Device mode is Hidden device, /dev/sda1 is Normal devices.



- ✧ Command:

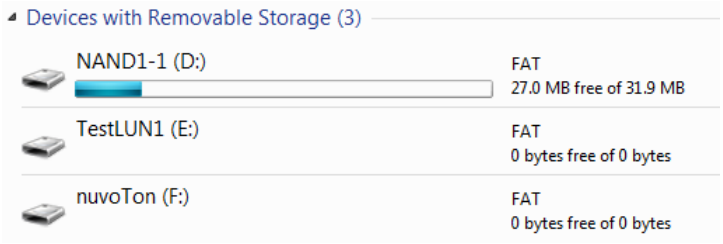
```
/mnt/nand1-1 # export MASS_LABEL_NAME1=TestLUN1
/mnt/nand1-1 # ./mass /dev/sda1 /dev/sda5 /dev/sdb1
```

[Log]



[Disk exported]

- ✧ LUN 0 is nand1-1, LUN1 is nand1-2, and LUN2 is sdcard.
- ✧ nand1-2 (/dev/sda5) and sdcard (/dev/sdb1) are Hidden devices.
  - ✓ Set Label Name for LUN1 to TestLUN1.
  - ✓ Label Name for LUN0 keeps default name “nuvoTon”.
- ✧ nand1-1 (/dev/sda1) is Normal device.

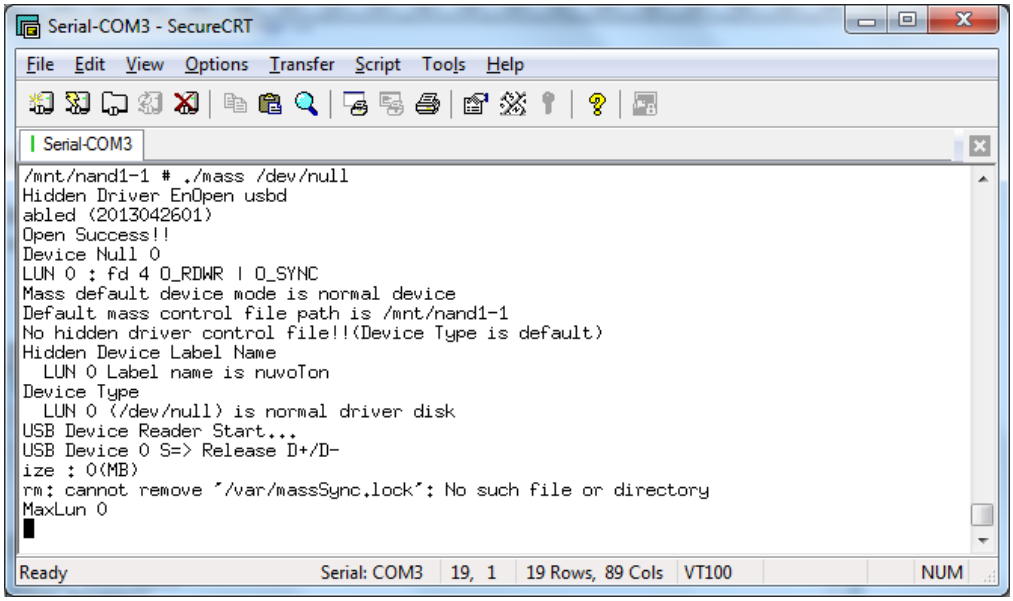


Null Device mode

To work as Null Device mode

```
/mnt/nand1-1 # ./mass /dev/null
```

[Log]



3. Revision History

Version	Date	Description
V1.0	Apr. 26, 2013	● Created

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