

N329XX  
Linux 2.6.17  
Mass Application Note  
V1.0

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**Support Chips:**  
N329 Series

**Support Platforms:**  
Non-OS

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# 1. Introduction

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

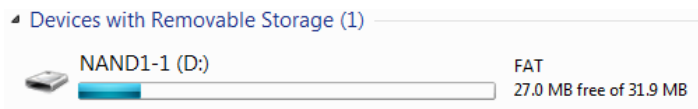
### 2.1. Mass application Function

#### 2.1.1. Device Modes

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

##### **Normal mode**

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



##### **Hidden Device mode**

In Hidden Device mode, device disk works as a empty mass storage device 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 file in the disk.



##### **Null Device mode**

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

## 2.1.2. Connection detection

Mass application can detect connection status – Adaptor connected or Host connected. 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 connection status during a safety 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 device plugged to it (That’s why the function needs mass application). If the device 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).

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## 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]

```



Serial-COM3 - SecureCRT
File Edit View Options Transfer Script Tools Help
Serial-COM3
/mnt/nand1-1 # df
Filesystem            1024-blocks    Used Available Use% Mounted on
/dev/sda1              32736         5088   27648    16% /mnt/nand1-1
/dev/sda5              93328          16   93312     0% /mnt/nand1-2
/mnt/nand1-1 # ./mass /dev/sda1 /dev/sda5
Hidden Driver EnOpen usbd
abled (2013042601)
Open Success!!
LUN 0 : fd 4 0_RDWR | 0_SYNC
LUN 1 : fd 5 0_RDWR | 0_SYNC
Mass default device mode is hidden device
Default mass control file path is /mnt/nand1-1
No hidden driver control file!!(Device Type is default)
Hidden Device Label Name
  LUN 0 Label name is nuvoTon
  LUN 1 Label name is nuvoTon
Device Type
  LUN 0 (/dev/sda1) is hidden driver di=> Release D+/D-
sk
  LUN 1 (/dev/sda5) is hidden driver disk
USB Device Reader Start...
USB Device 0 Size : 32(MB)
USB Device 1 Size : 91(MB)
rm: cannot remove '/var/massSync.lock': No such file or directory
MaxLun 1
Ready          Serial: COM3    26, 1    26 Rows, 89 Cols  VT100    NUM

```

[Disk exported]

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

Devices with Removable Storage (2)

 nuvoTon (D:)	FAT 0 bytes free of 0 bytes
 nuvoTon (E:)	FAT 0 bytes free of 0 bytes

## 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]

```



Serial-COM3 - SecureCRT
File Edit View Options Transfer Script Tools Help
Serial-COM3
/mnt/nand1-1 #
/mnt/nand1-1 # export MASS_DEFAULT_MODE=N
/mnt/nand1-1 # ./mass /dev/sda1 /dev/sda5
Hidden Driver EnOpen usbd
abled (2013042601)
Open Success!!
LUN 0 : fd 4 0_RDWR 1 0_SYNC
LUN 1 : fd 5 0_RDWR 1 0_SYNC
Mass default device mode is normal device
Default mass control file path is /mnt/nand1-1
No hidden driver control file!!(Device Type is default)
Hidden Device Label Name
  LUN 0 Label name is nuvoTon
  LUN 1 Label name is nuvoTon
Device Type
LUN 0 (/dev/sda1) is normal driver di=> Release D+/D-
sk
LUN 1 (/dev/sda5) is normal driver disk
USB Device Reader Start...
USB Device 0 Size : 32(MB)
USB Device 1 Size : 91(MB)
rm: cannot remove "/var/massSync.lock": No such file or directory
MaxLun 1
Ready Serial: COM3 23, 1 23 Rows, 89 Cols VT100 CAP NUM

```

[Disk exported]

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

Devices with Removable Storage (2)

 NAND1-1 (D:)	FAT	27.0 MB free of 31.9 MB
 NAND1-2 (E:)	FAT	91.1 MB free of 91.1 MB

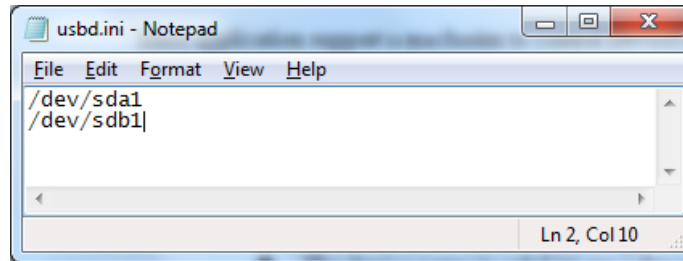
**Control Device mode for Each Disk**

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.

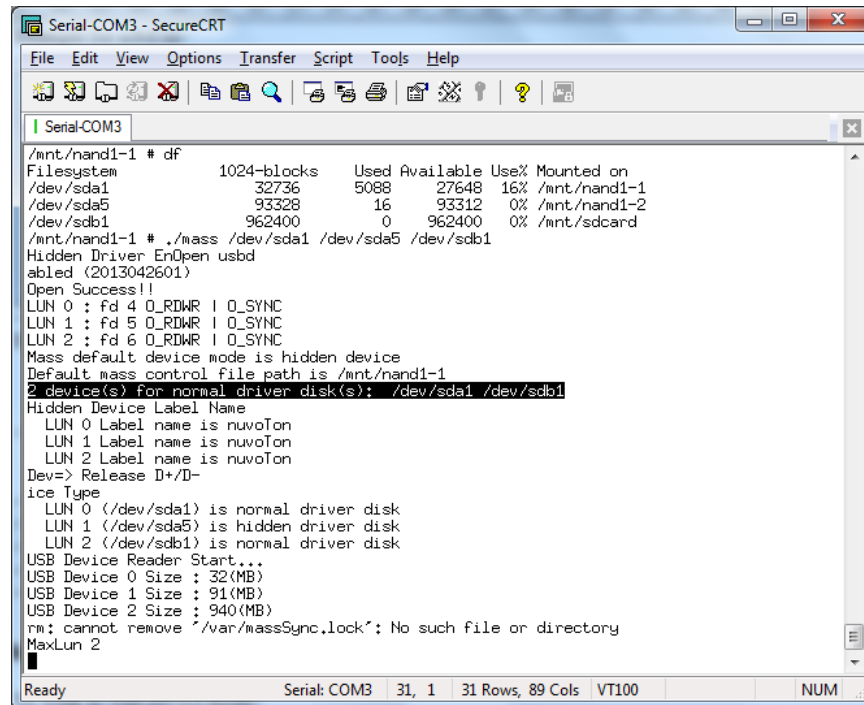




✧ **Command:**

`/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.

▸ **Devices with Removable Storage (3)**

	NAND1-1 (D:)	FAT	27.0 MB free of 31.9 MB
	nuvoTon (E:)	FAT	0 bytes free of 0 bytes
	SD (F:)	FAT	939 MB free of 939 MB

### 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

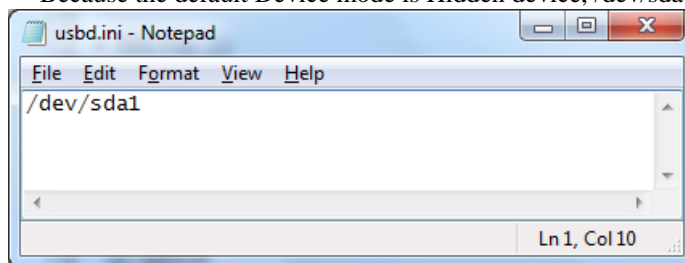
```
/mnt/nand1-1 # export MASS_CONTROL_PATH=/mnt/nand1-2
```

### 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:

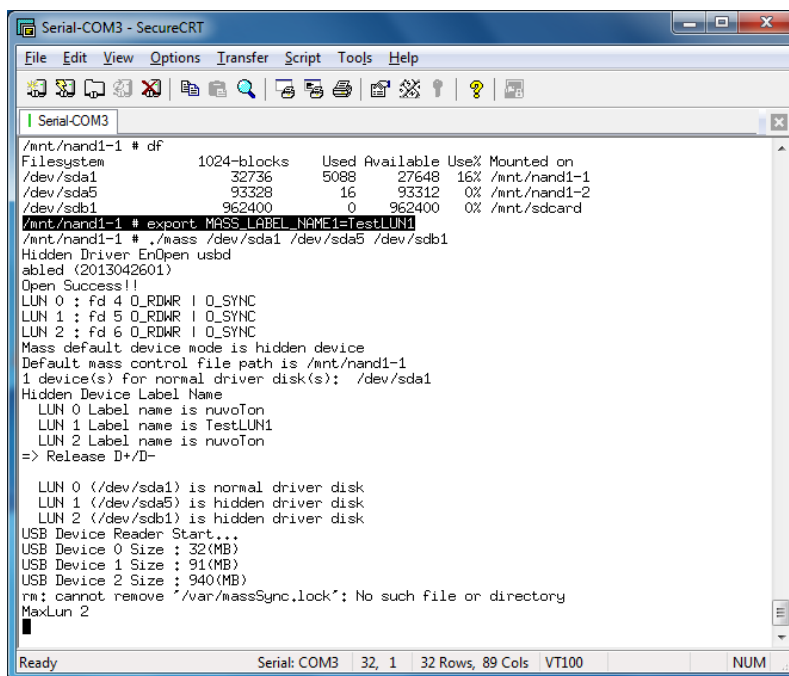
- ✧ The default Device mode is Hidden device.
- ✧ The device name in usbd.ini is “/dev/sda1”.
- ✓ Because the default Device mode is Hidden device, /dev/sda1 is Normal devices.



- ✧ 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.

Devices with Removable Storage (3)

NAND1-1 (D:)	FAT	27.0 MB free of 31.9 MB
TestLUN1 (E:)	FAT	0 bytes free of 0 bytes
nuvoTon (F:)	FAT	0 bytes free of 0 bytes

### Null Device mode

To work as Null Device mode

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

### [Log]

```

Serial-COM3 - SecureCRT
File Edit View Options Transfer Script Tools Help
Serial-COM3
/mnt/nand1-1 # ./mass /dev/null
Hidden Driver EnOpen usbd
abled (2013042601)
Open Success!!
Device Null 0
LUN 0 : fd 4 0_RDWR | 0_SYNC
Mass default device mode is normal device
Default mass control file path is /mnt/nand1-1
No hidden driver control file!!(Device Type is default)
Hidden Device Label Name
LUN 0 Label name is nuvoTon
Device Type
LUN 0 (/dev/null) is normal driver disk
USB Device Reader Start...
USB Device 0 S=> Release D+/D-
ize : 0(MB)
rm: cannot remove "/var/massSync.lock": No such file or directory
MaxLun 0

```

### 3. Revision History

Version	Date	Description
V1.0	Apr. 26, 2013	<ul style="list-style-type: none"> <li>Created</li> </ul>

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