



# Linux CompactFlash Re-imaging Procedure

April 2007



# Overview

- Procedure
- Warnings
- Setup
- Checksum
- Determining the Drive Number
- Imaging the CompactFlash



# Procedure

- This procedure restores the 512 MB CompactFlash to as-shipped condition
- Can be used to install future updated CompactFlash disk images





# Caution



- This procedure will **erase** a hard drive
  - Make sure you are erasing the Compact Flash and **not** your PC's hard drive
  - Drive numbers mentioned in this procedure sometimes change when your PC reboots - verify the drive number **each** time this procedure is used
  - These tools **do not check** to see if you are doing something wrong
  - If you do not make a backup copy of the CompactFlash card you are imaging, you will lose all the data on the CompactFlash
- Xilinx cannot take responsibility for lost data or damaged hard drives



# Equipment Overview

- SanDisk® 512 MB CompactFlash™
  - Comes preloaded with hardware and software demonstration systems for ML410



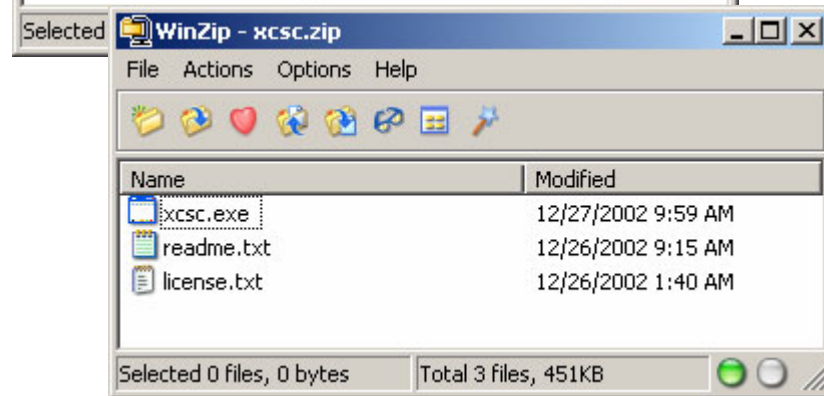
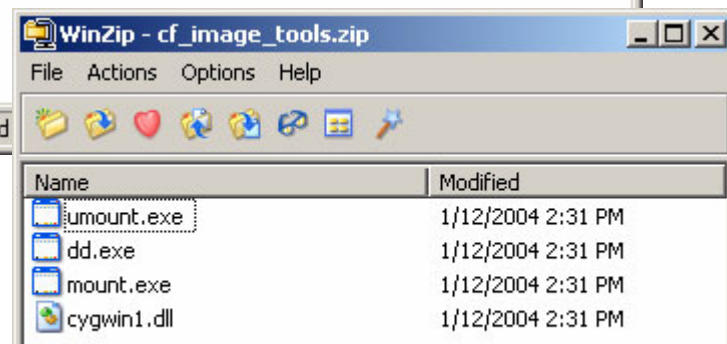
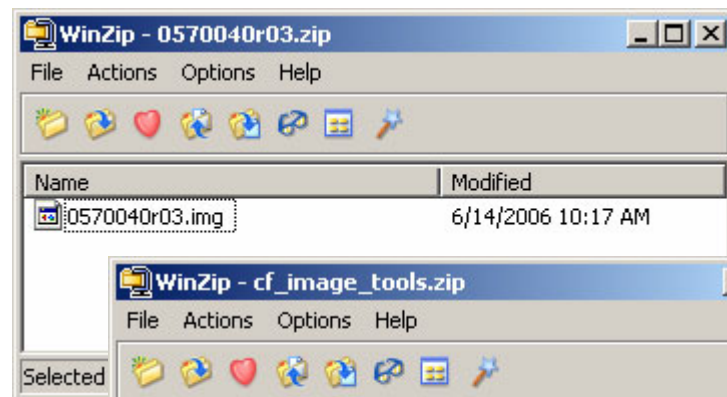
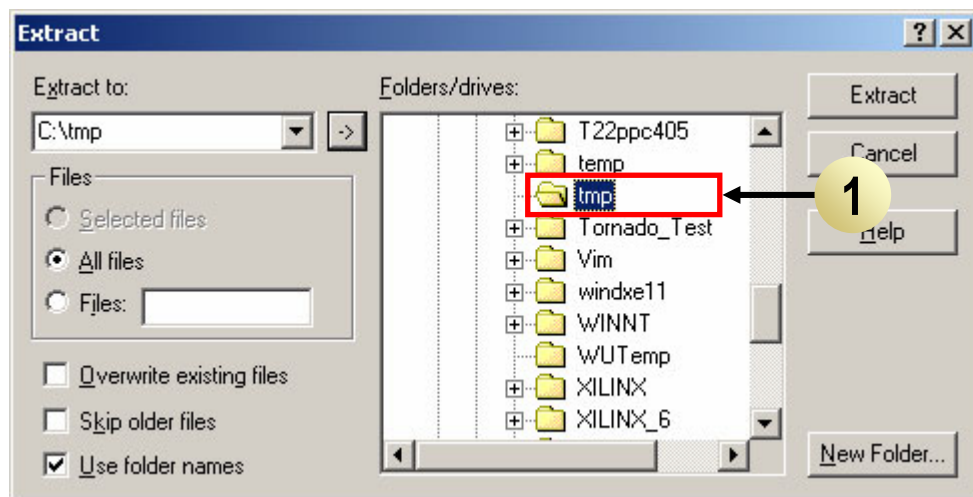
# Equipment Overview

- Any CompactFlash Programmer that attaches to your PC - Some examples:
- SanDisk ImageMate®
  - Provides a USB interface for programming CompactFlash cards
  - See [www.sandisk.com](http://www.sandisk.com) for more information
- SanDisk PC Card adapter
  - Used in a laptop PCMCIA slot to program CompactFlash cards



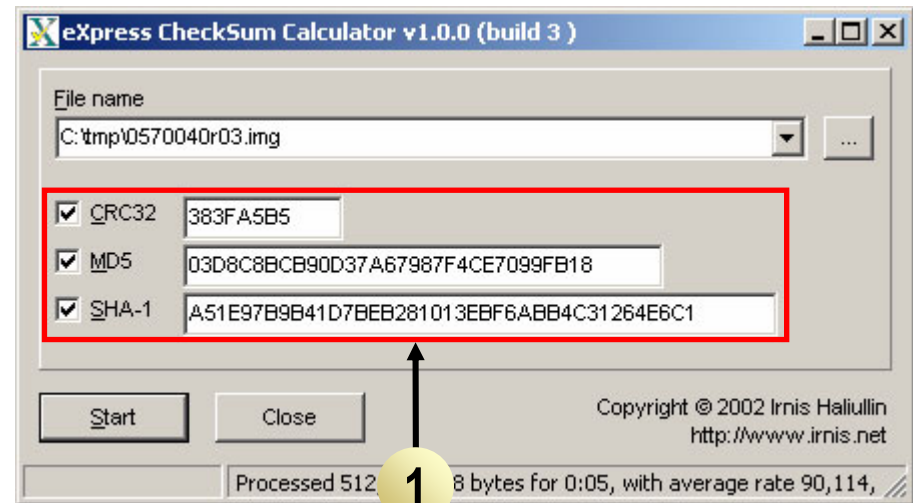
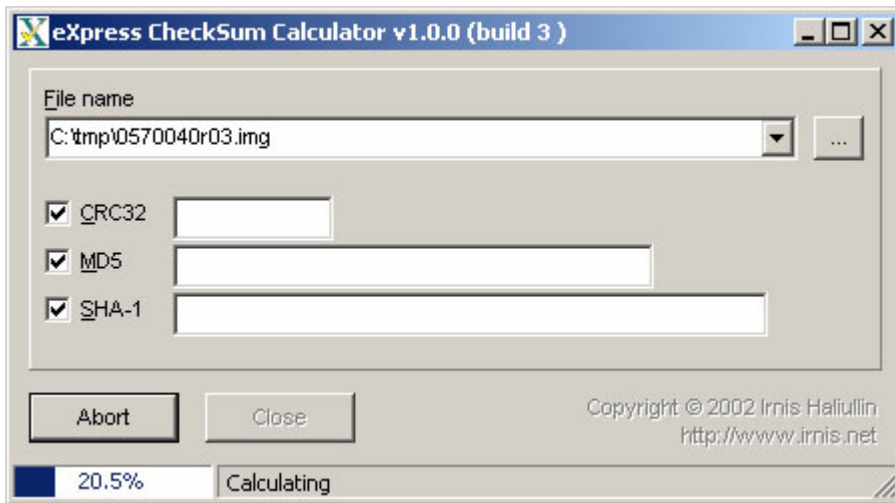
# Files needed

- Unzip these files to a temp directory (1)
  - 0570040r03.zip
  - cf\_image\_tools.zip
  - Optional - xcsc.zip



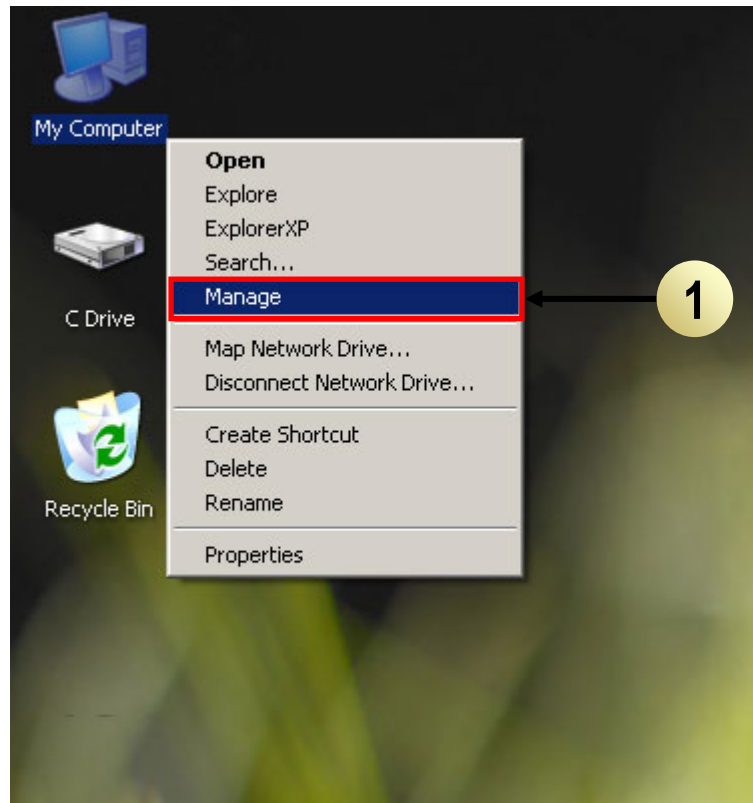
# Image Checksum

- Optional - Run xcsc.exe on the image
  - These values (1) are for the 0570040r03.img



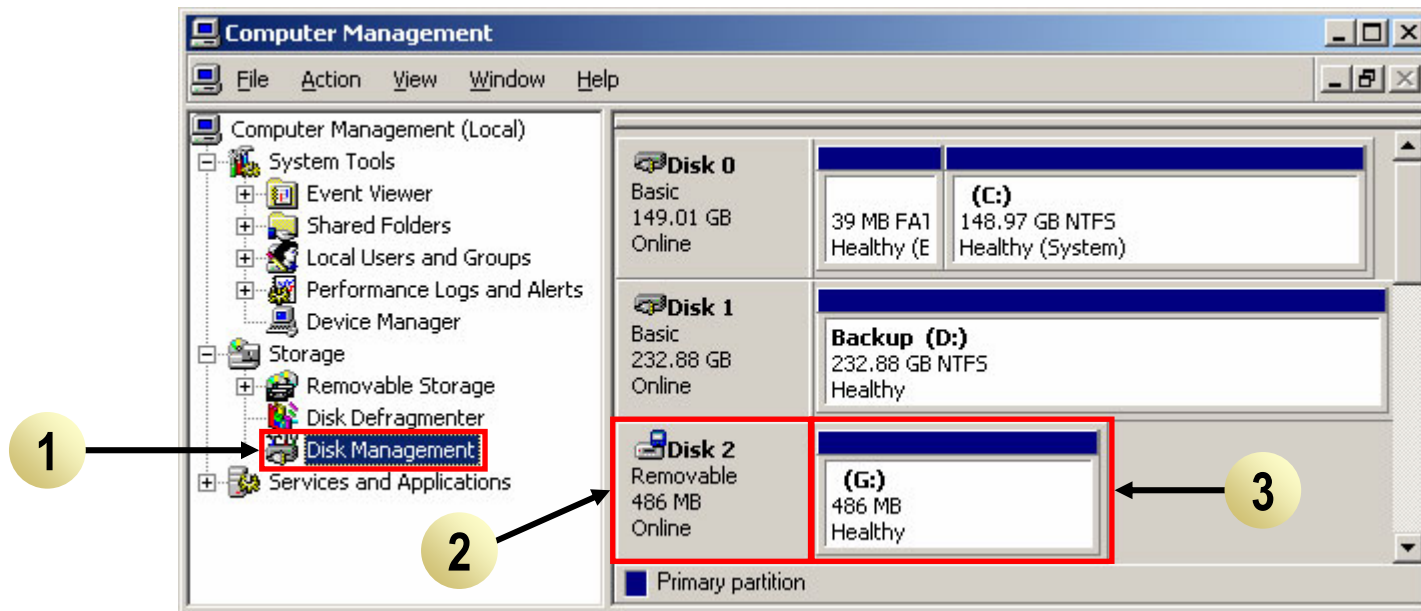
# Determining the Drive Number

- Right click My Computer and select **Manage** (1)



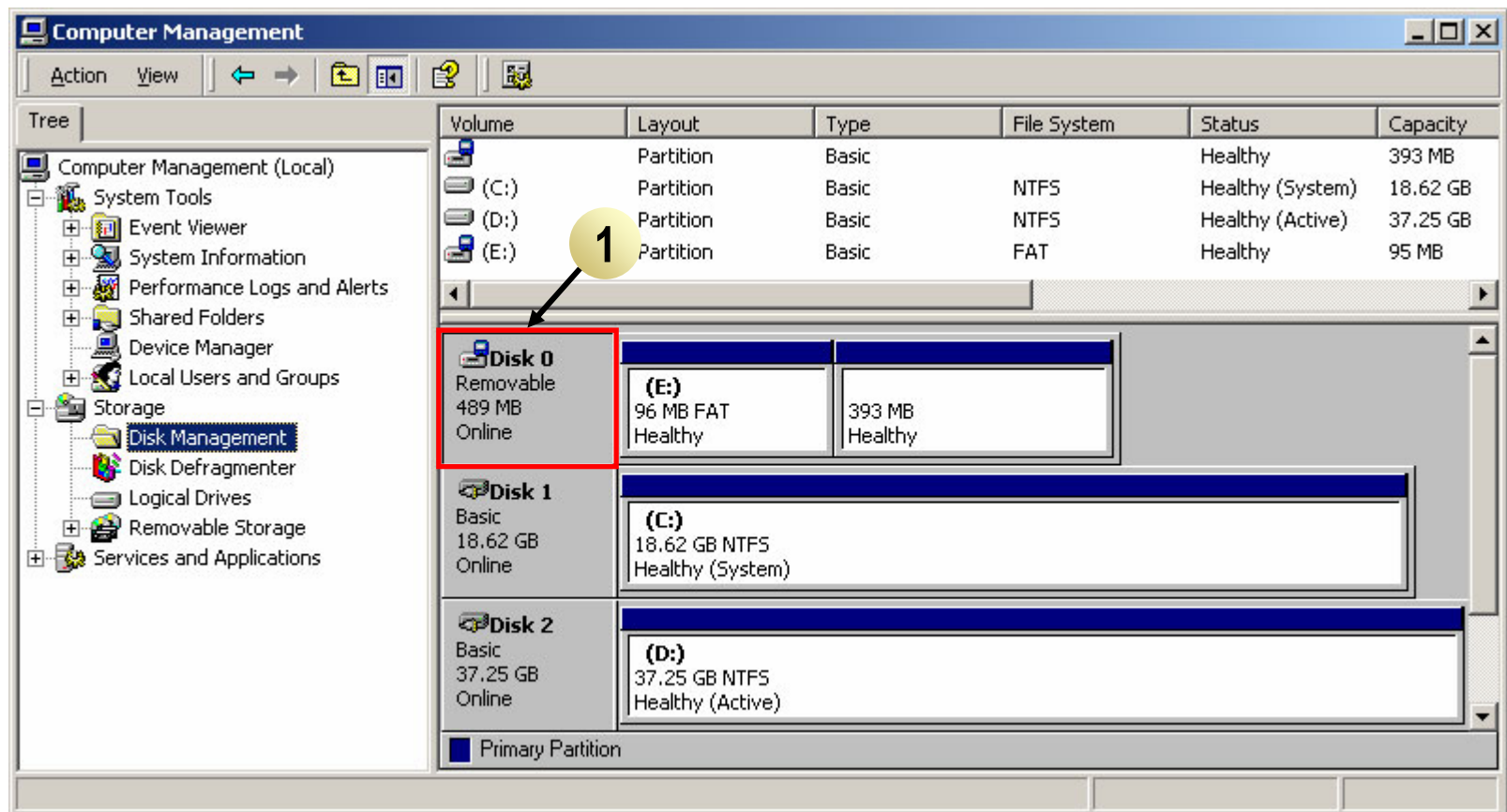
# Determining the Drive Number

- Select **Storage -> Disk Management** (1)
- In this case, the CompactFlash's Drive Number is **"2"** (2)
  - May have a different number on your system
  - This number may change after a reboot or hardware change, so always check
  - The partitioning (3) may look different (two instead of one)



# Determining the Drive Number

- The Drive number for the CompactFlash can vary from PC to PC
  - The Drive number in this case is “0”

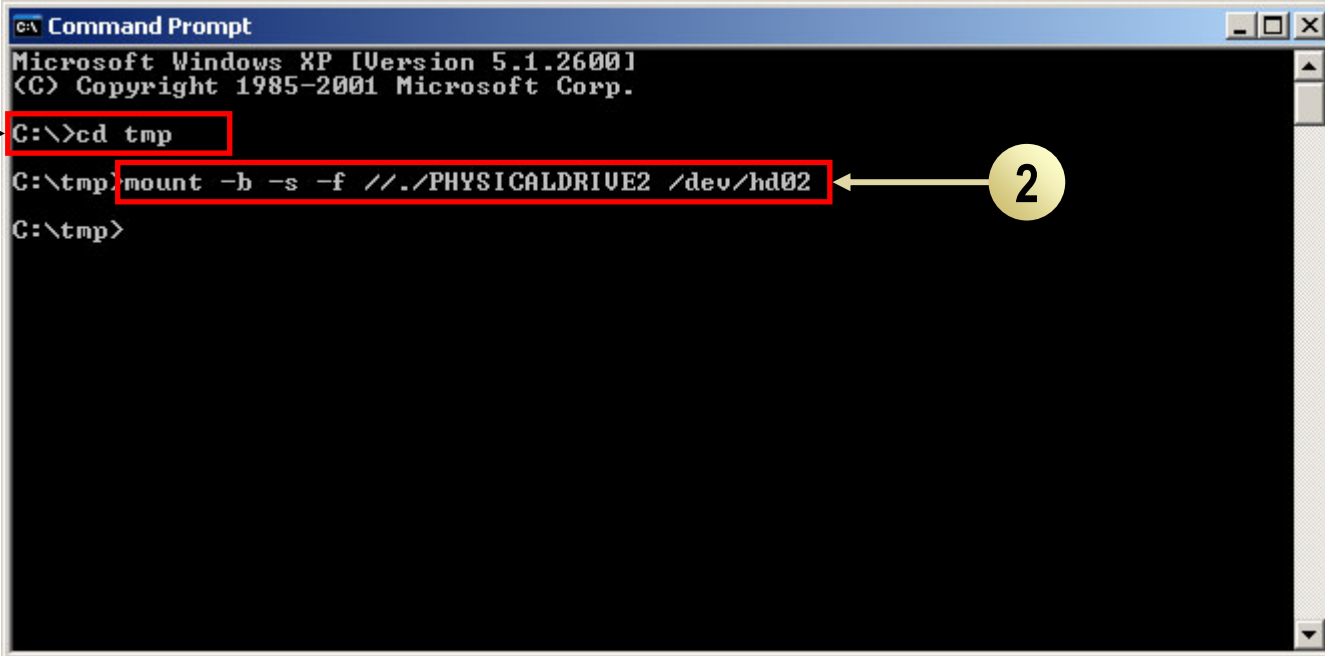


# Mount the CompactFlash

- Start a windows command shell
- CD to the temp directory (1)
- Mount the CompactFlash card (2)

**mount -b -s -f ../PHYSICALDRIVE $x$  /dev/hd0 $x$**

- Replace the  $x$ 's with the CompactFlash's drive number



```
Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\>cd tmp
C:\tmp>mount -b -s -f ../PHYSICALDRIVE2 /dev/hd02
C:\tmp>
```

# Image the CompactFlash

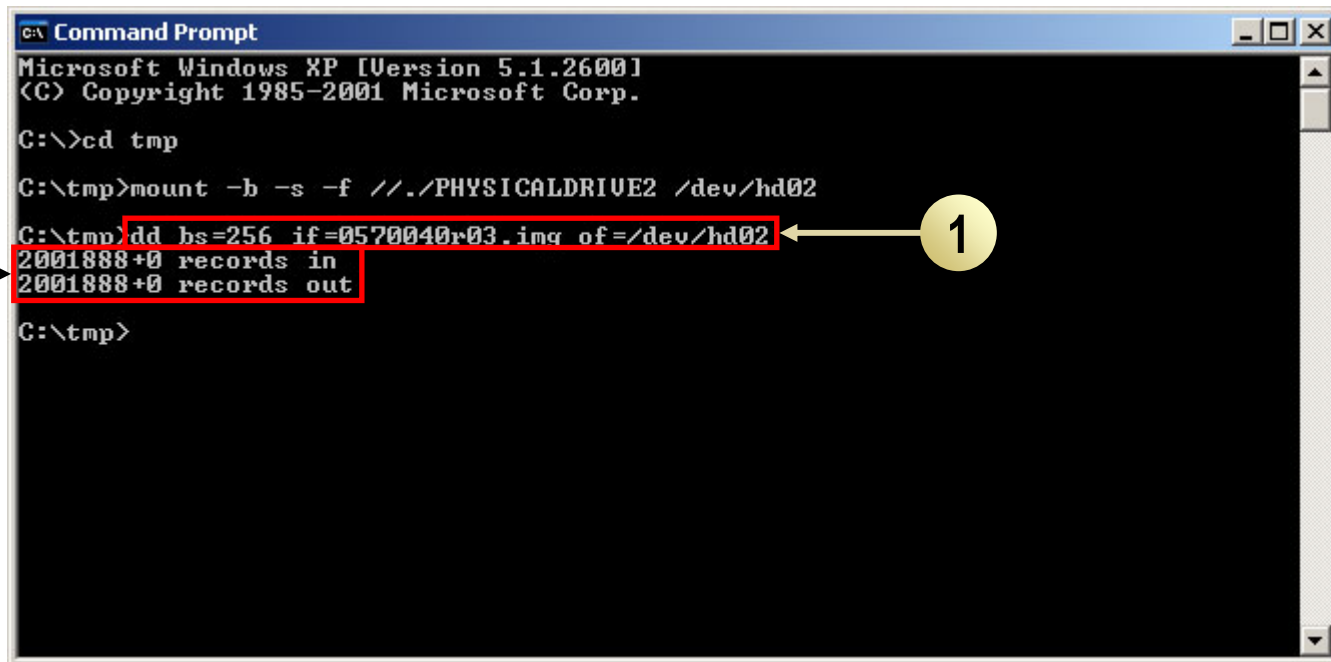
- Write the disk image to the CompactFlash card (1)

```
dd bs=256 if=0570040r03.img of=/dev/hd0x
```

- Replace the **x** with the CompactFlash's drive number

- This process can take up to 30 minutes

- When finished it will list the records in and out (2)



```
Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

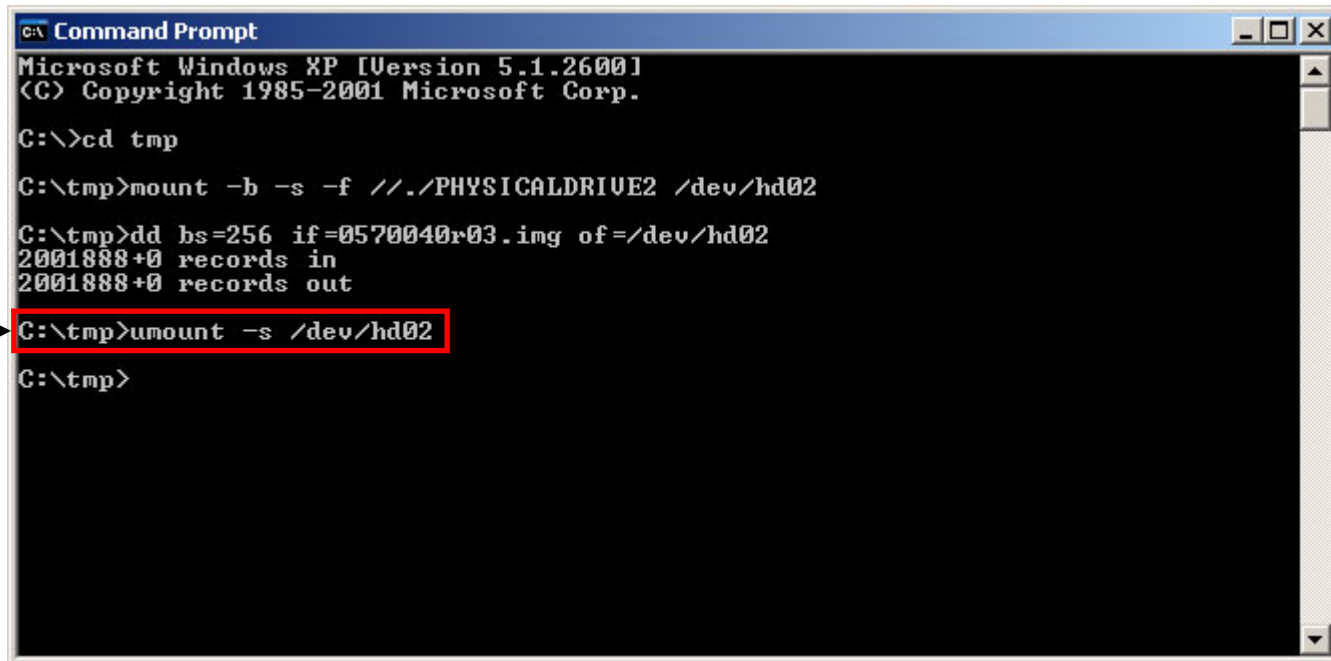
C:\>cd tmp
C:\tmp>mount -b -s -f ../PHYSICALDRIVE2 /dev/hd02
C:\tmp>dd bs=256 if=0570040r03.img of=/dev/hd02
2001888+0 records in
2001888+0 records out
C:\tmp>
```

# Unmount the CompactFlash

- Unmount the CompactFlash card (1)

**umount -s /dev/hd0x**

- Replace the **x** with the CompactFlash's drive number



```
Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\>cd tmp

C:\tmp>mount -b -s -f ../PHYSICALDRIVE2 /dev/hd02

C:\tmp>dd bs=256 if=0570040r03.img of=/dev/hd02
2001888+0 records in
2001888+0 records out

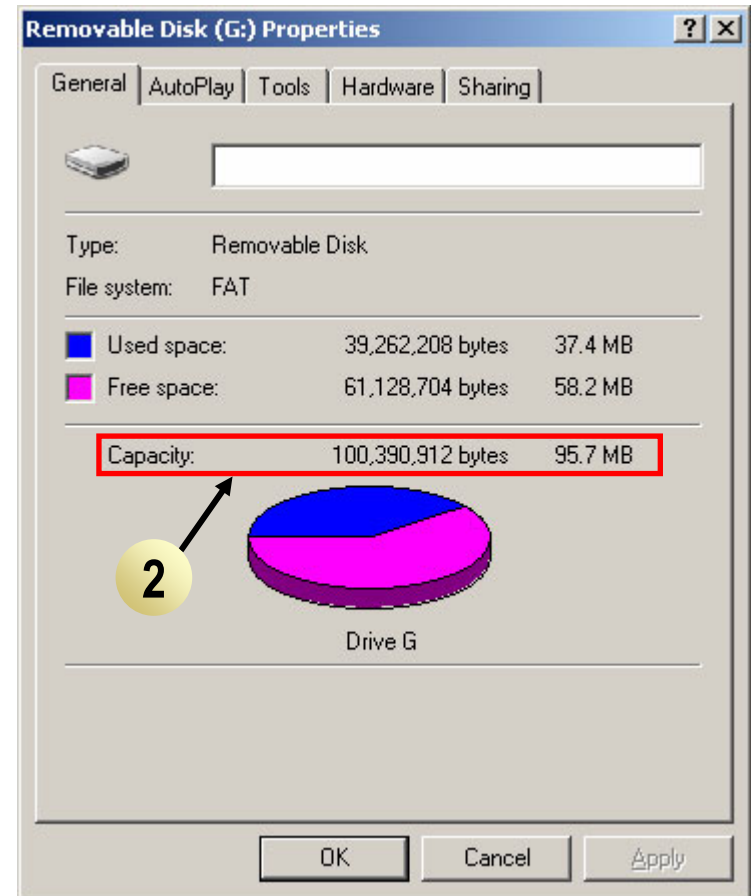
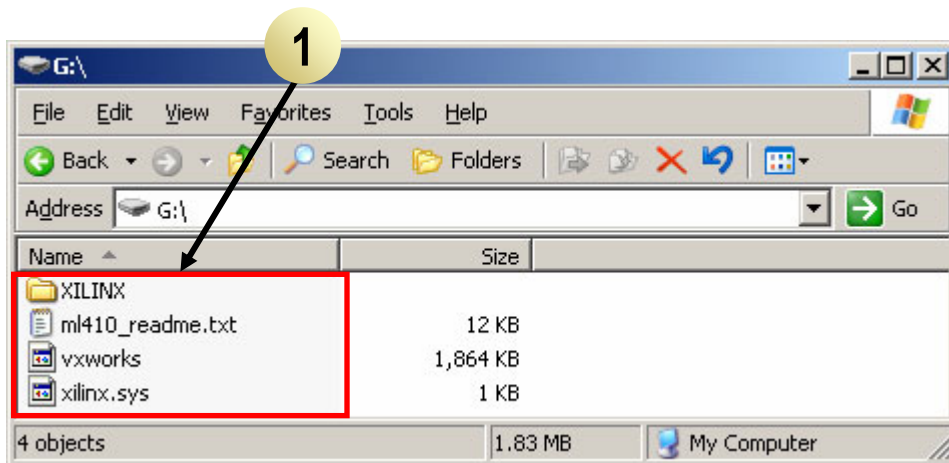
C:\tmp>umount -s /dev/hd02

C:\tmp>
```

1

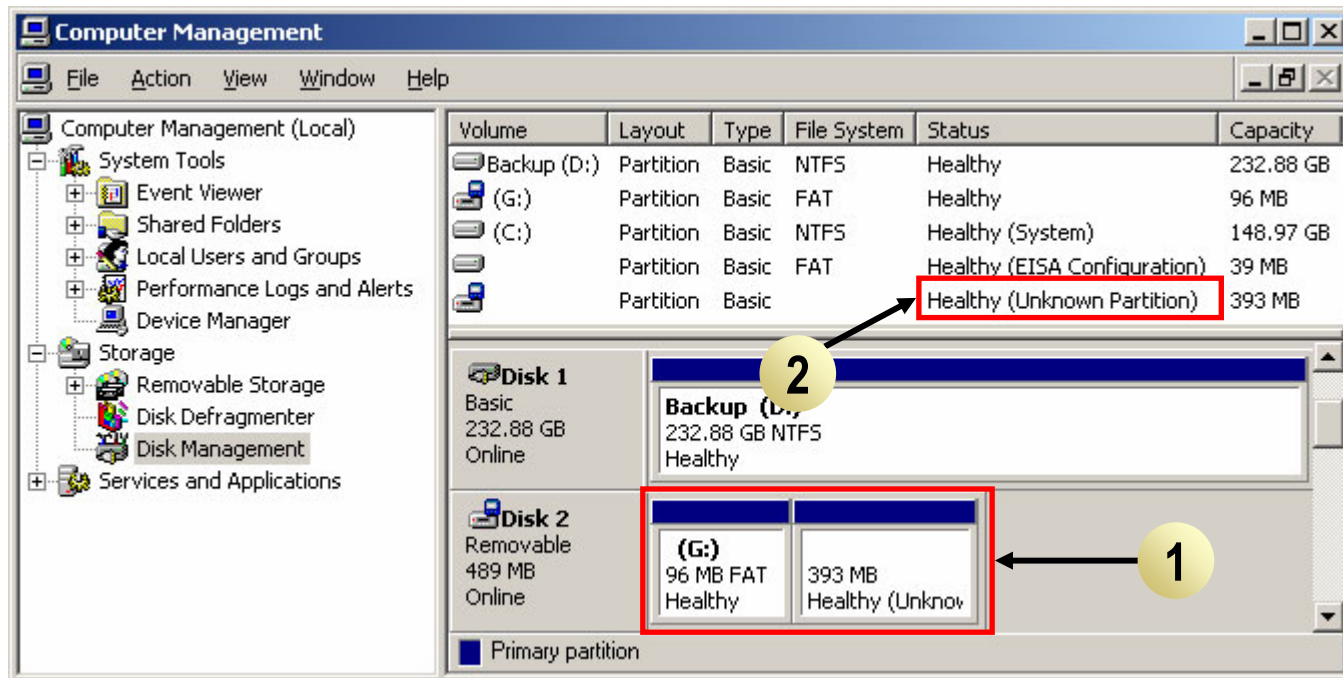
# Drive Contents

- The CompactFlash should look like this after Imaging (1)
  - **Note:** You may have to eject and reinsert the CompactFlash to see this
  - Review “[Remove the CompactFlash](#)” slide before ejecting the disk
- The Disk Properties will show 95 MB space on the disk (2)



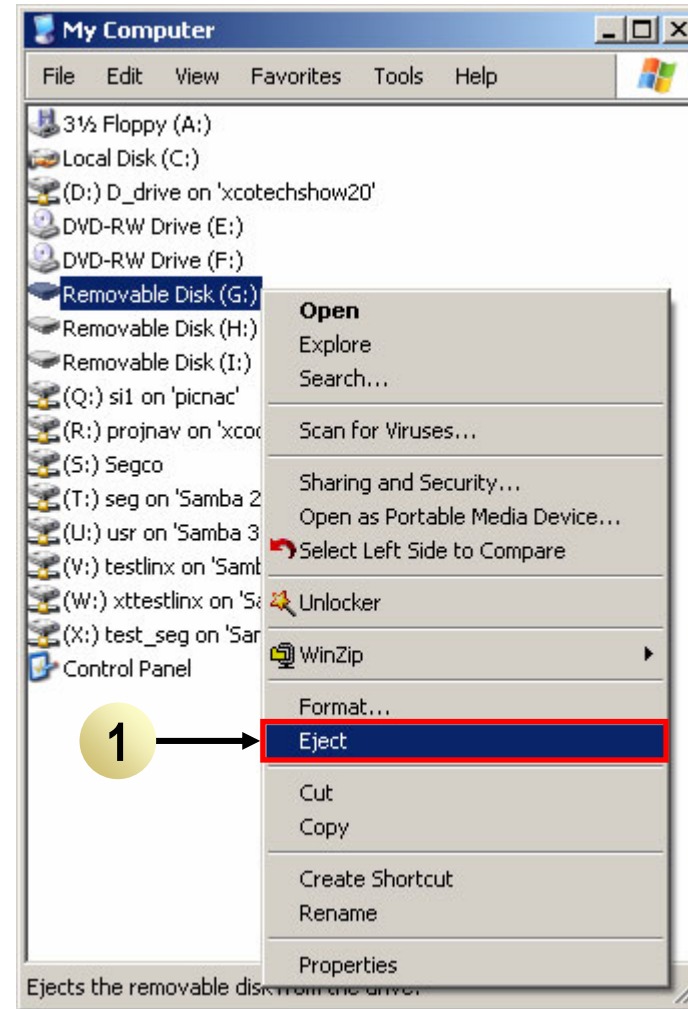
# Drive Partitions

- After imaging, two partitions will appear on the CompactFlash (1)
  - The second (393 MB) is the Linux partition
  - Windows doesn't know about the Linux file system (2)



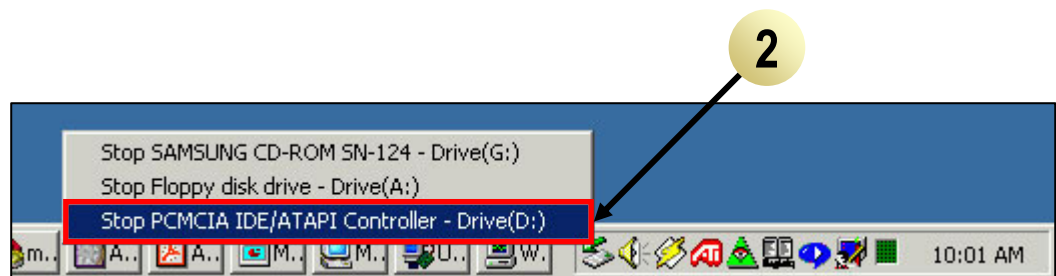
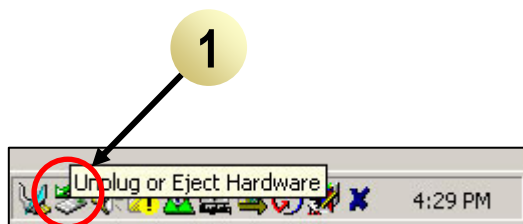
# Remove the CompactFlash

- To insure data integrity, always Eject the Compact Flash prior to removing it from the adapter
- Right-click on the CompactFlash Drive and select Eject (1)
- Remove the Compact Flash card



# Remove the CompactFlash

- When using a PC Card Adapter, the card must be properly stopped before the it is removed from your PC
  - Click on the Unplug or Eject Hardware icon in your system tray (1)
  - Stop the PCMCIA controller (2)



# CompactFlash IDs

- Use a PC Card Adapter
- Right click on the CF disk and select Properties (1)
- This disk is a SDCFB-512 (2)

The screenshot shows the Windows Computer Management console. In the left pane, 'Storage' is expanded to show 'Disk Management'. In the main pane, 'Disk 0' is selected, and a context menu is open with 'Properties' highlighted. A yellow circle with the number '1' points to the 'Properties' menu item. To the right, the 'Disk 0 Properties' dialog box is open, showing the 'General' tab. The 'Hardware Vendor' field is highlighted with a red box, and a yellow circle with the number '2' points to it. The 'Hardware Vendor' value is 'SanDisk SDCFB-512'. Below this, the 'Volumes contained on this disk:' section shows a table with two volumes: (C:) with a capacity of 393 MB and (E:) with a capacity of 95 MB.

Volume	Capacity
(C:)	393 MB
(E:)	95 MB



# Available Documentation

- Platform Studio Documentation
  - Embedded Development Kit (EDK) Resources  
[http://www.xilinx.com/ise/embedded\\_design\\_prod/platform\\_studio.htm](http://www.xilinx.com/ise/embedded_design_prod/platform_studio.htm)
- ML410
  - ML410 User's Guide  
<http://www.xilinx.com/bvdocs/userguides/ug085.pdf>
  - ML410 Overview  
<http://www.xilinx.com/ml410>
  - ML410 Schematics  
[http://www.xilinx.com/products/boards/ml410/docs/ml410\\_revE.pdf](http://www.xilinx.com/products/boards/ml410/docs/ml410_revE.pdf)

