MCU/TS Operating System Format (Fastbusting) Configuration Example

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Contents

Introduction

This document describes how to fastbust an Multipoint Control Unit / Telepresence Server (MCU/TS).

The MCU or TS software is stored on flash memory inside the unit. This contains the Operating System (OS) plus pre files for the Digital Signal Processor (DSP), web pages for the web interface, the MCU/TS application, audio files, user settings, conference information, audit logs, CDRs and so on.

Fatbusting refers to a procedure where the entire OS partition on the internal memory is formatted and the OS and application are installed from scratch. This is different to a normal software update in which the files on the storage are simply updated with newer files from the upgrade file, with no loss of data.

Fatbusting is done in cases where the unit refuses to boot and a normal upgrade has not fixed it, or where the internal memory has become corrupt for some reason. Reasons for this include:

- Flash memory errors
- Corruption to the software through a bad update
- Powering the unit off without shutting down
- A bad shutdown when a unit has crashed

The process is fairly similar to when you reformat a computer's hard drive and reinstall the OS and applications.

Warning: All data stored on the device will be destroyed. A backup of the config file is advisable, plus any necessary licence keys, SIP/H323 information etc. You also need to format a USB stick or compact flash card so any data that you want to keep from this should also be backed up.

This procedure should be followed only under the guidance of Cisco TAC.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- USB stick (for 8710/8510/5300)
- Compact flash card and reader (for 4200/4500)
- The fatbust image for the hardware platform you want to restore . Please contact Cisco TAC for the image
- Console cable plus serial port or USB to serial adapter
- Terminal emulator program (PuTTY, console, HyperTerminal)

Components Used

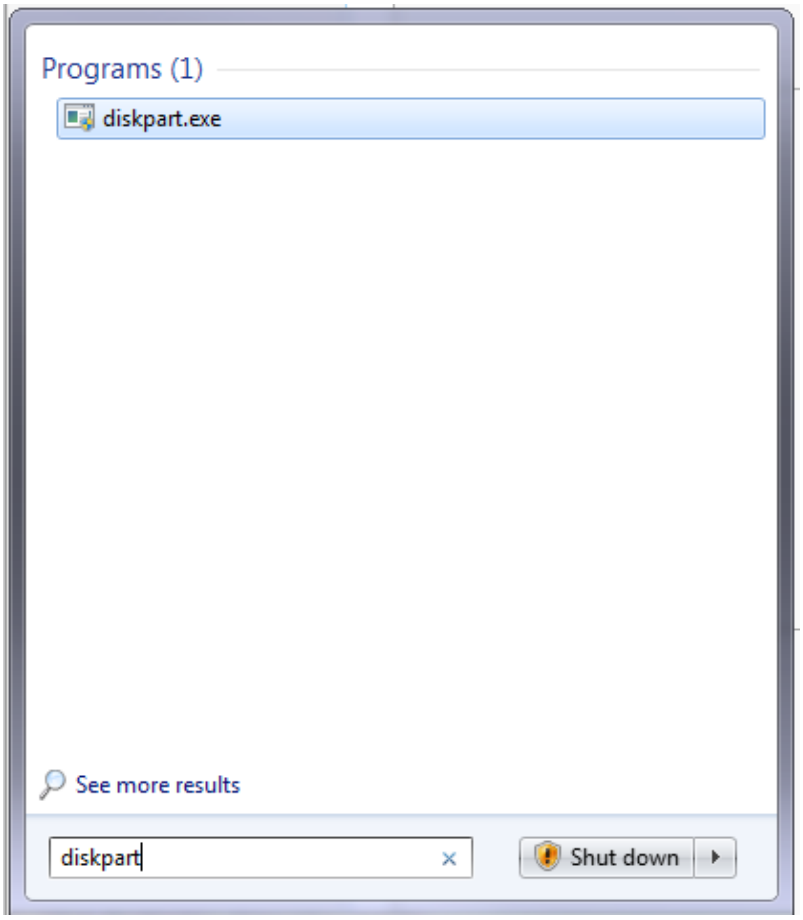
This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

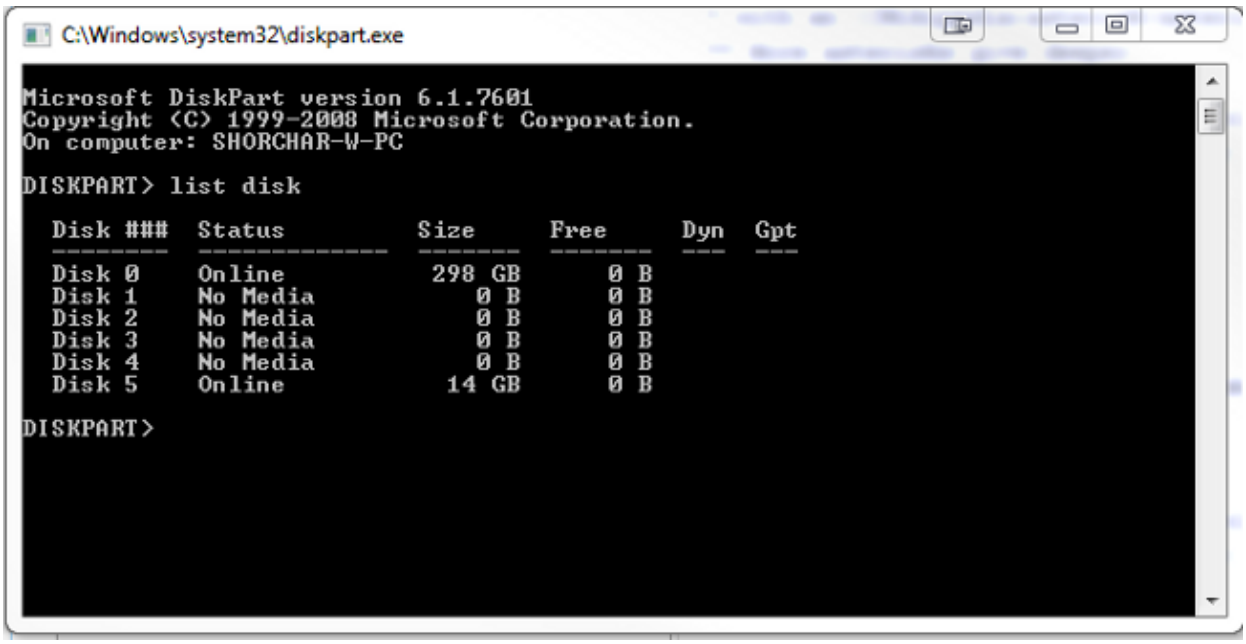
Configure

Prepare the USB Stick or Compact Flash Card − Windows

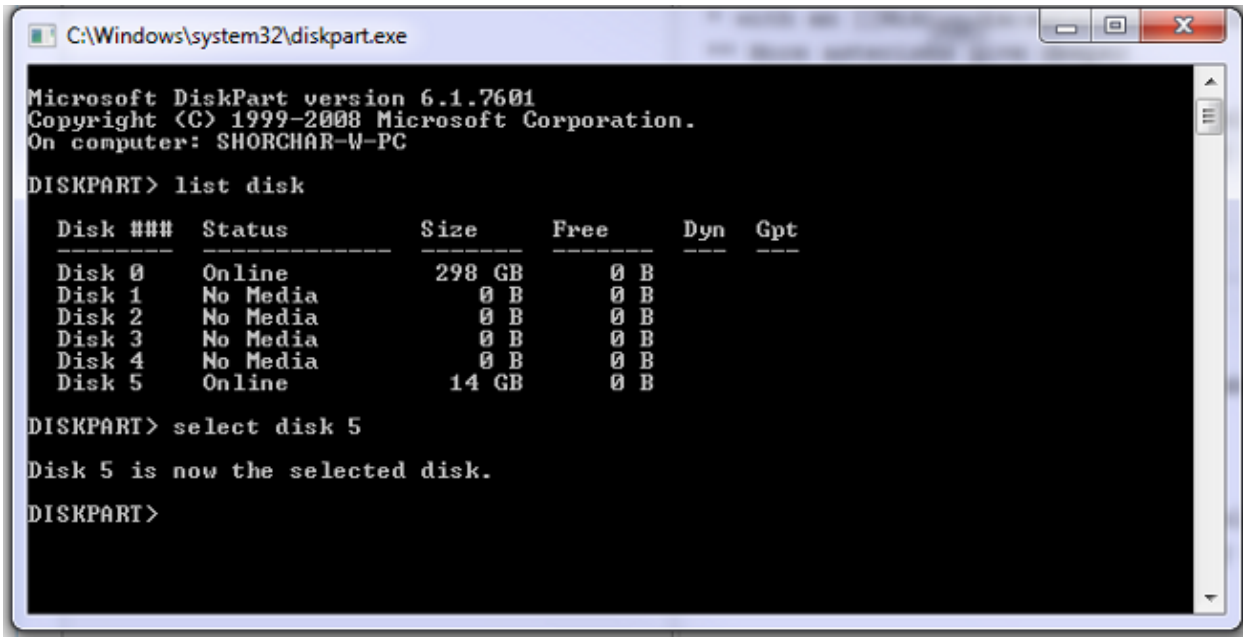
1. Insert the USB device into a USB port on your computer, or insert a compact flash card into a card reader that is attached to your computer.
2. Load the Windows diskpart application. Choose ***Start*** and enter ***diskpart***, then click ***diskpart.exe***:



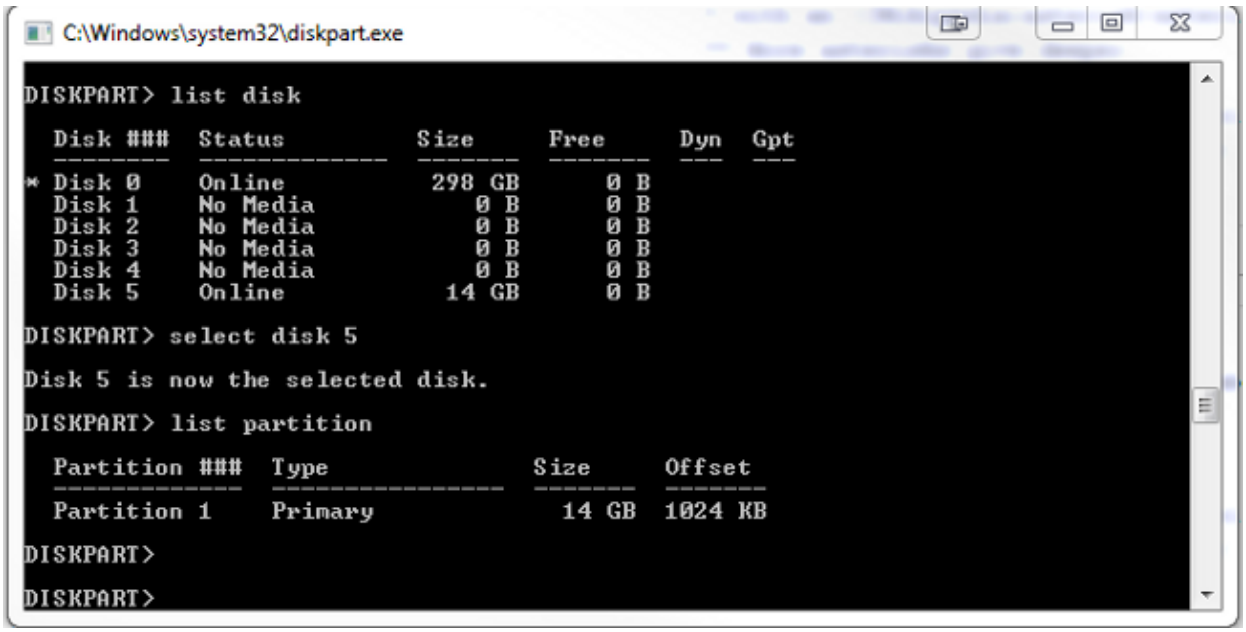
3. Click ***Yes*** in order to accept the Warning message from Windows. You are then presented with a command prompt. Ensure that you type each command correctly and select the correct disk, as a typo could mean that you would format something that you rather not. Enter ***list disk*** in order to show all storage devices in the system:



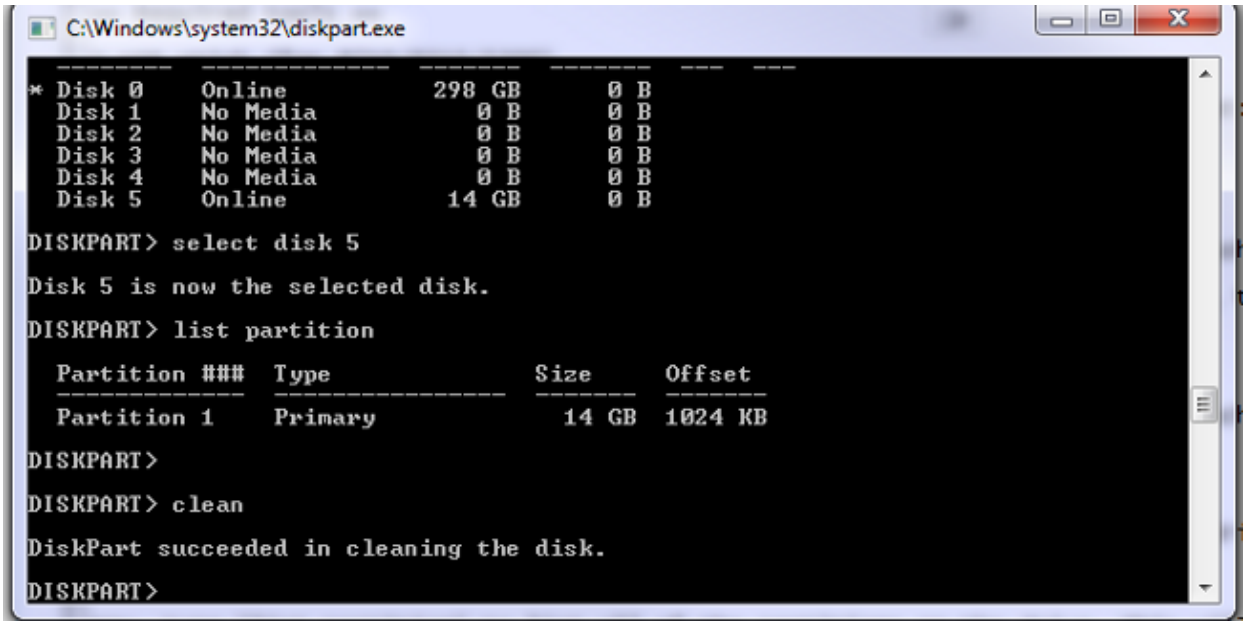
4. Look carefully at the list of devices. Disk 0 is probably your computer's C: drive, and any other hard drives, USB devices, card readers and so on are listed. Look for the drive that corresponds closely with the device you plan to format. In this case, a 16GB USB drive is inserted. Therefore, select the 14GB drive as it is the only other option in the system. Enter ***select disk X*** in order to select the disk. X is the disk number in the listing. In this example, disk 5:



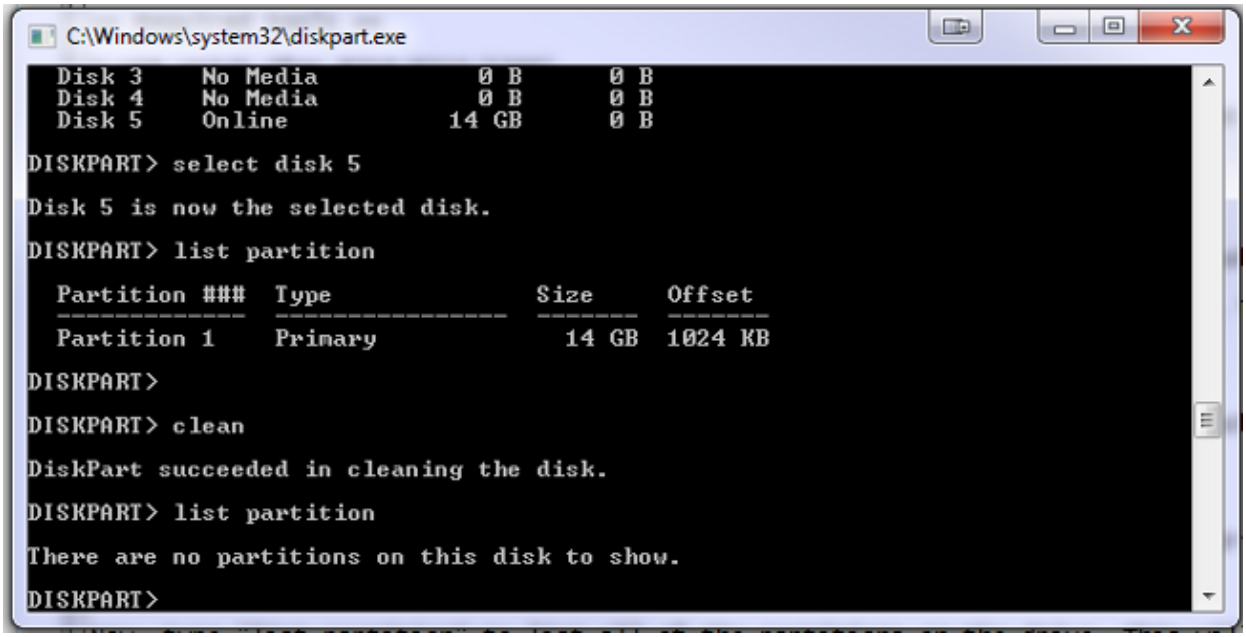
5. Enter ***list partition*** in order to list all of the partitions on the drive. This tells you what partitions exist, and also ensures that you have selected the right disk.



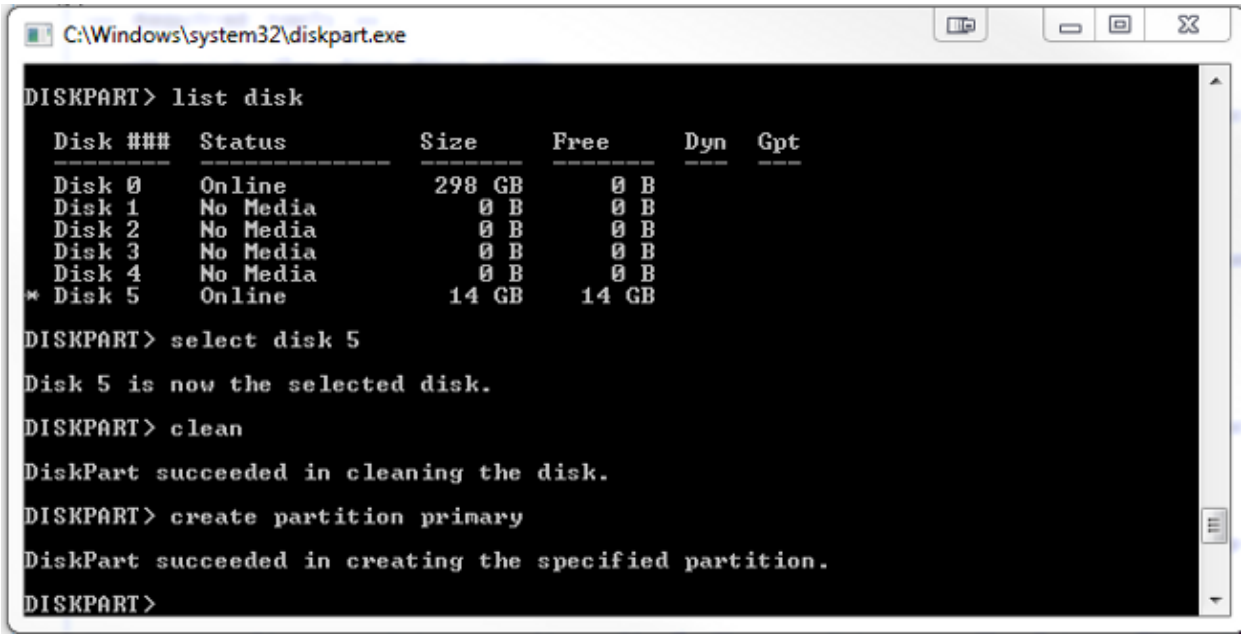
6. Destroy all partitions on the drive. In order to do this, enter ***clean***. ***There are no confirmations and warnings. This destroys the partition table on the drive and makes it more difficult to recover any data. Remember to check that you have the correct drive selected!***



7. Enter ***list partition*** in order to verify that the partition table is cleaned:



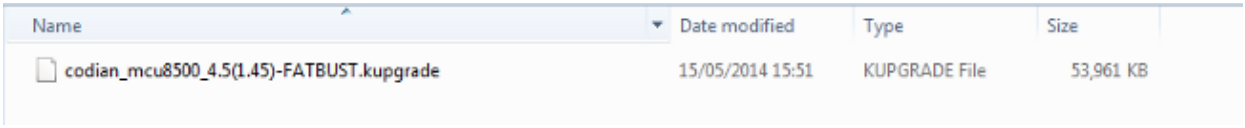
8. In order to create one partition that uses the whole of the drive, enter ***create partition primary***:



9. Format the new partition. It is important that it is File Allocation Table 32 (FAT32) so that the MCU/TS can recognise it. It does not recognise Mac or New Technology File System (NTFS) formatted drives. In order to do this, enter ***format fs=fat32 quick*** for a quick format with FAT32:

You can now view the disk in My Computer:

10. Copy the fatbust image to the disk. The fatbust image is specific to the hardware platform you want to recover. As with a normal software update, you can only apply an 8510 fatbust to an 8510 blade, a 5300 fatbust to a 5300 unit and so on. Please obtain the image from TAC and copy it to the USB drive:

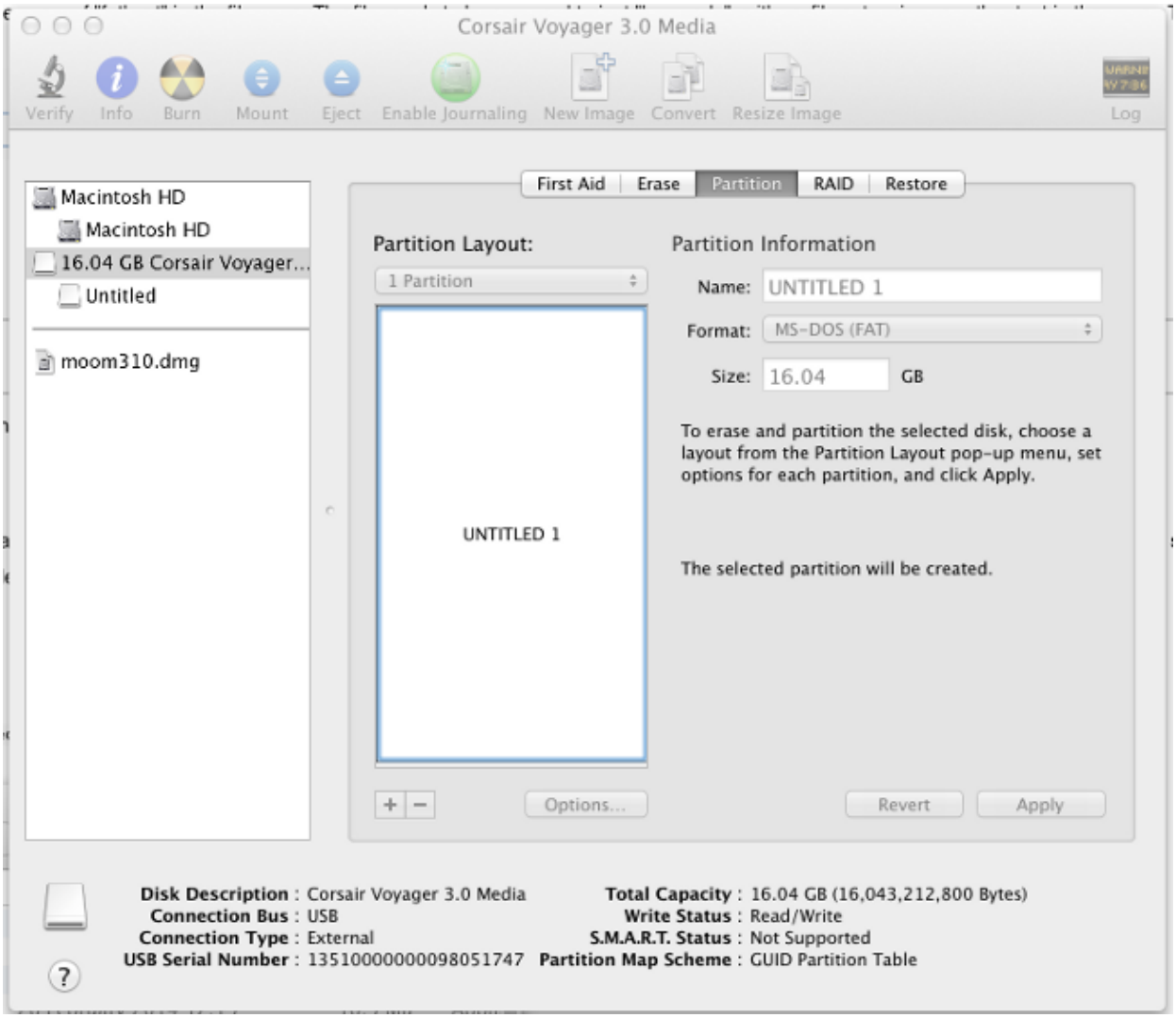


You can tell the difference between a fatbust and a normal image by the presence of "fatbust" in the filename. The file needs to be renamed to just "kupgrade", with no file extensions or other text in the name. In order do this, rename the file as you would any other file in Windows (and accept the warning about the change in the file extension):

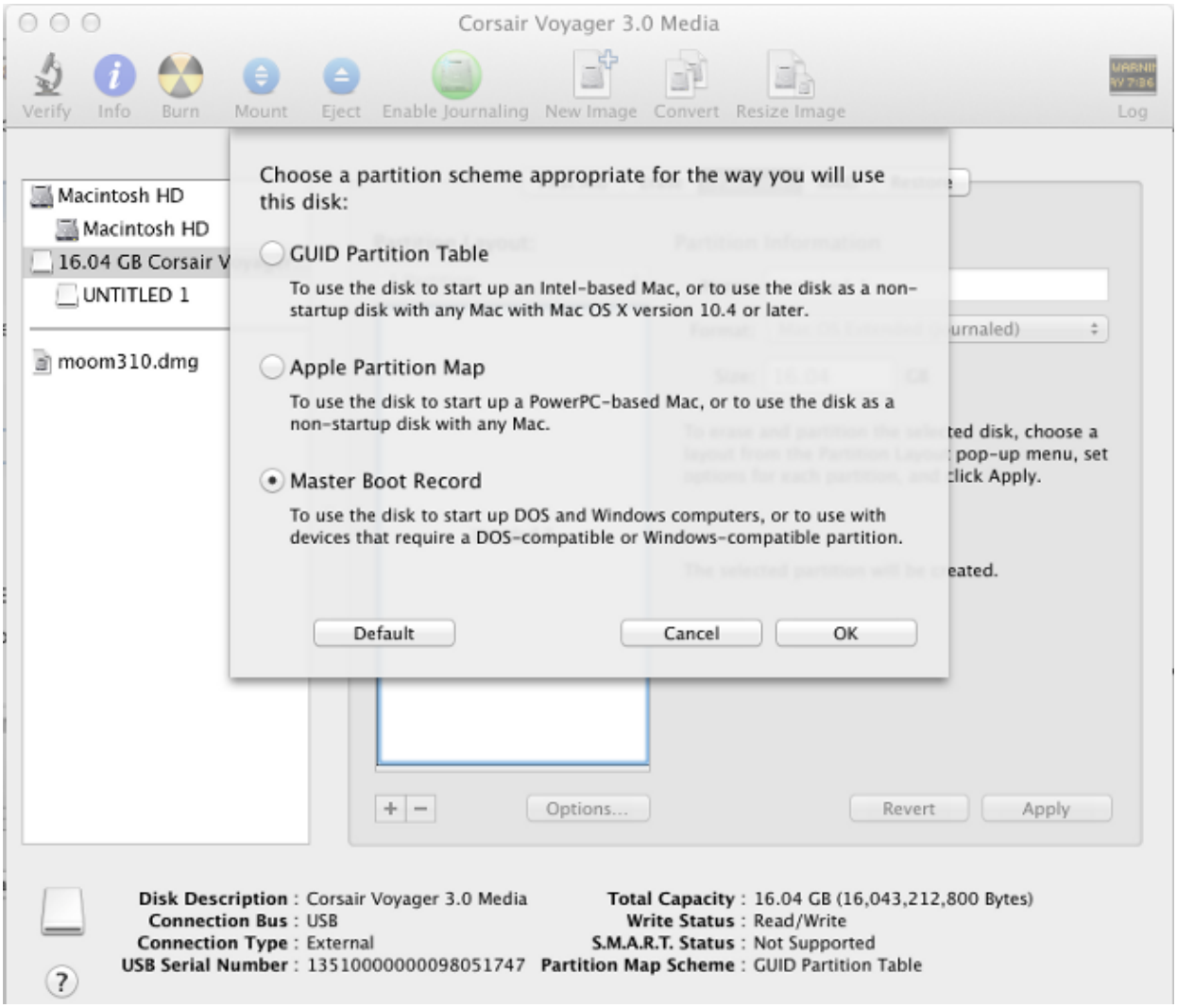
The storage device is now ready to restore the unit.

Prepare the USB Stick or Compact Flash Card − Mac

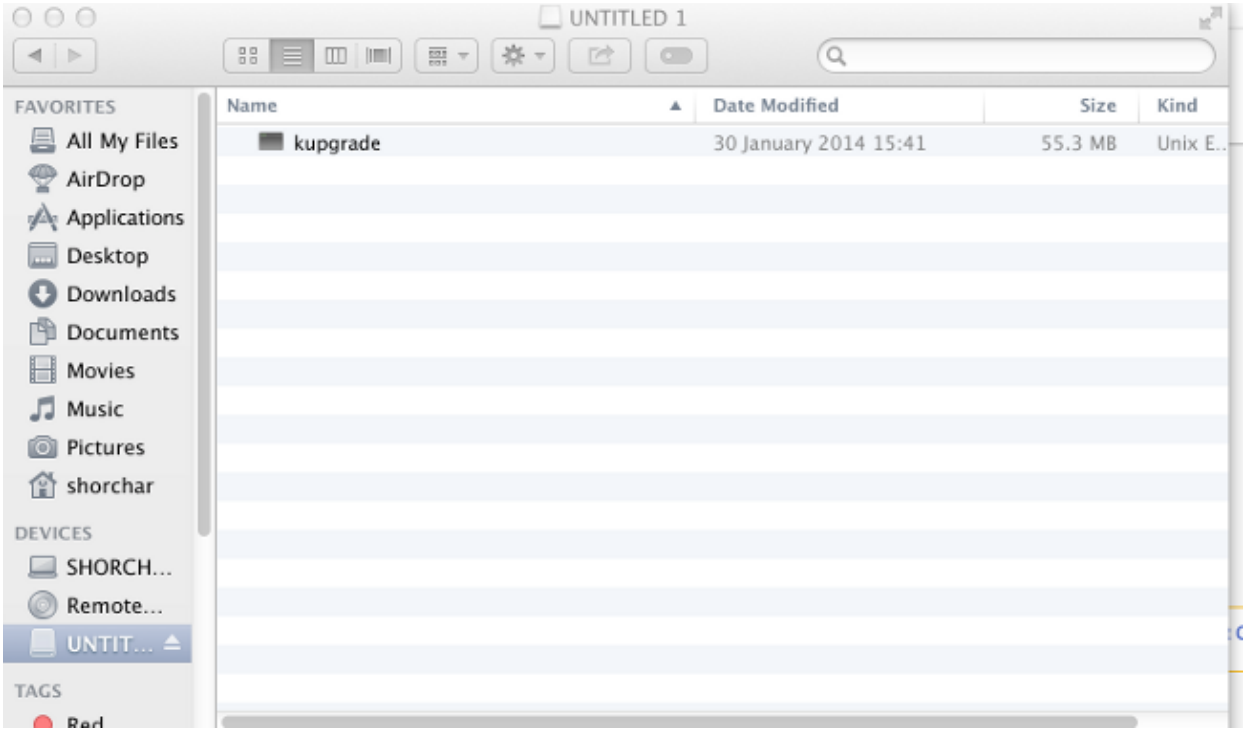
1. Connect a storage device to the Mac's USB port (either a USB drive or USB compact flash card reader).
2. Start Disk Utility. Either enter ***Disk Utility*** into the spotlight search box on the menu bar, or choose ***Applications*** > ***Utilities*** > ***Disk Utility***.
3. Click on the device you wish to format. Remember to double check that you plan to format the correct drive, then click the Partition tab. From the Current drop−down box, choose ***1 Partition***, then choose ***MS−DOS (FAT)*** in the Format drop−down box. The name does not matter:



4. Click ***Options*** at the bottom of the window. It is important that you choose ***Master Boot Record*** as the partition scheme, as by default the Mac tries to use Globally Unique Identifier (GUID) Partition Table:



5. Click ***Apply***. Once the format completes, you should then have a device that is correctly formatted. Go to the device in the Finder, and copy the file to the USB drive as you would any other file. Then click on the file, press the return key, and rename it to "kupgrade":



The storage device is ready for use.

Recovery − 8510 / 8710

The procedure is the same for both the 8510 and 8710 as they are the same hardware.

In order to recover the unit:

1. Prepare a USB stick as previously explained.
2. Insert the USB stick into one of the two USB ports on the front of the blade, at the top near the console connection. Connect a console cable to the console port and load a terminal emulator (the serial port settings are 38400bps, 8 data bits, 1 stop bit, no parity):
3. Reboot the unit. Enter ***shutdown*** and ***reboot*** into the serial console:

```
MCU:> shutdown
    shutting down
    MCU:>       reboot
    104725.174 SYSTEM : Warning : Product activation key required
    reboot: waiting for shutdown to complete
    104729.531 SYSTEM : Info : shutdown monitor − shutdown initiated
    104729.531 GATEKEEPER : Info : shutdown initiated
    104729.531 GATEKEEPER : Info : shutdown complete
    104729.531 CONFERENCE : Info : no active participants − shutdown now complete
    104730.032 SYSTEM : Info : shutdown process − all priority 100 handlers complete
    104730.032 SYSTEM : Info : shutdown process − shutdown complete
    Waiting (max 60 seconds) for system process `vnlru' to stop...done
    Waiting (max 60 seconds) for system process `fastpath' to stop...done
    Waiting (max 60 seconds) for system process `bufdaemon' to stop...done
    Waiting (max 60 seconds) for system process `syncer' to stop...
    Syncing disks, vnodes remaining...0 0 done
    All buffers synced.
    Uptime: 29m39s
    ...
    Rebooting...
    cpu_reset: Stopping other CPUs
    Host requested soft−reboot... Asserting nHOST_RESET
    HUB configured.
```

```
Hardware Revision = 0x01
SlotID = 0xf2
Asserting MCU_DSP_PWR_EN
Deasserting nHOST_RESET
```

As the unit reboots, you should see a message that it is loading a kupgrade file from a USB device. When the unit has finished the copy and starts to boot, unplug the USB stick:

```
Checking system timer ... OK
    EEPROM digest:
    84 b2 ce a9 66 a2 4f 9b e4 b0 6b 66 c1 53 a9 82
    FreeUsbd v.0.1.2
    USB pre initialised
    FIDDLESTICKS
    Host stat now 42

            USB mass storage manufacturer : General (8644)
    USB mass storage product name : USB Flash Disk (8003)
    USB mass storage serial number: 0531230000000636
    Number of logical drives: 1

                    USB drive (1) mounted: fsName 'usbfs2a'
    kernel_boot(usbfs1a:kupgrade)
    kernel_boot(usbfs2a:kupgrade)
    ................................................
         No fat payload ## unplug here
    Image version: 4.0(2.8)
    entrypoint 0xc045f2b0
    KDB: debugger backends: ddb
    KDB: current backend: ddb
    Copyright (c) 1992-2013 The FreeBSD Project.
    Copyright (c) 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994
     The Regents of the University of California. All rights reserved.
    FreeBSD is a registered trademark of The FreeBSD Foundation.
    FreeBSD 8.4-RELEASE #0: Fri Jan 31 13:08:49 GMT 2014
```

4. After the unit boots, the recovery process begins. The new partitions are created, and then files are copied and firmware is updated just as a normal update.:

```
**********************
        * Starting kupgrade *
        **********************
        Mounting filesystems...
        ugen2.2: <General> at usbus2 (disconnected)
        umass0: at uhub2, port 2, addr 2 (disconnected)
        (da0:umass-sim0:0:0:0): lost device - 0 outstanding, 3 refs
        (da0:umass-sim0:0:0:0): got CAM status 0xa
        (da0:umass-sim0:0:0:0): fatal error, failed to attach to device
        (da0:umass-sim0:0:0:0): removing device entry
        kupgrade running in mode: fatbust
        ugen1.2: <TANDBERG 09> at usbus1
        Erasing ALL filesystems in 5 seconds...
        Creating partition table
        ******* Working on device /dev/ada0 *******
        Creating disk label
        Creating root fs
        /dev/ada0s2a: 384.0MB (786432 sectors) block size 16384, fragment size 2048 using
 cylinder groups of 96.02MB, 6145 blks, 12352 inodes.
        super-block backups (for fsck -b #) at: 160, 196800, 393440, 590080
        newfs: Cannot retrieve operator gid, using gid 0.
        Creating cfg fs
        /dev/ada0s2b: 16.0MB (32768 sectors) block size 16384, fragment size 2048 using 4
 cylinder groups of 4.02MB, 257 blks, 576 inodes.
        super-block backups (for fsck -b #) at: 160, 8384, 16608, 24832
        newfs: Cannot retrieve operator gid, using gid 0.
        Creating rdwr fs
```

```
        /dev/ada0s2d: 64.0MB (131072 sectors) block size 16384, fragment size 2048 using 4
cylinder groups of 16.02MB, 1025 blks, 2112 inodes.
        super−block backups (for fsck −b #) at: 160, 32960, 65760, 98560
        newfs: Cannot retrieve operator gid, using gid 0.
        Creating cdr fs
        /dev/ada0s2e: 256.0MB (524288 sectors) block size 16384, fragment size 2048 using
cylinder groups of 64.02MB, 4097 blks, 8256 inodes.
        super−block backups (for fsck −b #) at: 160, 131264, 262368, 393472
        newfs: Cannot retrieve operator gid, using gid 0.
        Creating fat fs
        /dev/ada0s1: 529040 sectors in 66130 FAT32 clusters (4096 bytes/cluster)
        BytesPerSec=512 SecPerClust=8 ResSectors=4 FATs=2 Media=0xf0 SecPerTrack=36
Heads=255 HiddenSecs=0 HugeSectors=530082 FATsecs=518 RootCluster=2 FSInfo=1 Backup=2
        All filesystems recreated, mounting...
        Verify fat filesystem:

** /dev/ada0s1
        ** Phase 1 − Read and Compare FATs
        ** Phase 2 − Check Cluster Chains
        ** Phase 3 − Checking Directories
        ** Phase 4 − Checking for Lost Files
        1 files, 264516 free (66129 clusters)
        default v1
        Upgrading system:
        Extracting cfg
:       0% 25% 50% 75% 100%
        ********************************************************************************
        Extracting file system:
        0% 25% 50% 75% 100%
        ********************************************************************************
        Extracting fat:
        0% 25% 50% 75% 100%
        ********************************************************************************
        Upgrading flash systems
        Upgrading LOM:
        This version is already installed. Skipping.
        Upgrading HUB:
        This version is already installed. Skipping.
        Upgrading L2:
        This version is already installed. Skipping.
        Upgrading LCD:
        This version is already installed. Skipping.
        Upgrade complete.
        Rebooting...
        Waiting (max 60 seconds) for system process `vnlru' to stop...done
        Waiting (max 60 seconds) for system process `bufdaemon' to stop...done
        Waiting (max 60 seconds) for system process `syncer' to stop...
Syncing disks, vnodes remaining...0 0 done
        All buffers synced.
        Uptime: 56s
```

5. The unit reboots again, and hopefully boots normally into the MCU/TS application, at which point you can reconfigure it normally. If, at this point the unit still does not boot, contact the TAC.

Recovery − 4500 Series

1. Prepare the compact flash card using the previous instructions. You should have a formatted Compact Flash card. Ensure the only file on the card is "kupgrade" and that it contains the fatbust image.
2. Place the card into the compact flash card slot on the front of the MCU. Connect a console cable to the console port and load a terminal emulator (the serial port settings are 38400bps, 8 data bits, 1 stop bit, no parity)
3. You might have to press the ***Enter*** key a couple of times in order to get the MCU prompt. When you have a console, enter ***shutdown*** in order to shut the MCU down. Then enter ***reboot*** in order to reboot it.

If the MCU does not boot, powercycle the MCU or put the card in before it reboots itself.

During the boot process, you should see that the MCU is aware of the CF card you have inserted. After this, it attempts to copy the upgrade file to its memory and begins to boot from it:

```
  rebooting
         *** (C) Codian Ltd 2004-2005 ***
         Resetting PCI
         Calling Mpc107init
         Mpc107init done
         Testing SDRAM data lines ... ok
         Testing SDRAM address lines ... ok
         Relocating .text from FFF00000-FFF0B36E to 0E010000
         Relocating .data from FFF0B380 to 0E01B380-0E01B7C8
         Clearing .bss from 0E01B7C8-0E09EDA4
         Initialising timebase regs
         Calling main L1 strap : built at Jul 7 2005 - 23:19:46
         L2 found : image size 000362e4 version 2005:07:08 11:19
         Starting L2
         L2 Bootstrap
         Relocating .text from FFF10000-FFF450B0 to 0E010000
         Relocating .data from FFF450C0 to 0E0450C0-0E0462E4
         Clearing .bss from 0E0462E4-0E0CA930
         Calling main Hello from l2_main
         card detected in internal slot (EXCA_STATUS = 4c)
         waiting until status ready ...ok!
         mounting dos0
         fatsize = 00010000
         card detected in external slot (EXCA_STATUS = 6f)
         waiting until status ready ...ok!
         mounting dos1
         fatsize = 0001e600
         Product - Unknown (00000054)
         MAC address - 00:0d:7c:e2:00:06
         Serial number - XX710003
         Motherboard serial number - SM00674
         Slotmask : 00000028
          03 - SD01127
          05 - SD01234
         Devmode : 00010000
              Trying dos1:kupgrade
              copying dos1:kupgrade to md0:00000000.............................
.........................0226bbe6 bytes copied # the unit is copying the image
         Image version : 4.5(1.45)
         fd=7
         loadelf fd=7 Elf_Ehdr=0xefffe58 marks=0xe0c632c flags=0000003f
         loadelf line 78
         loadelf line 86
         loadelf line 93
         loadelf line 150
         loadelf line 165
         loadelf line 178
         loadelf line 200
         loadelf line 200
         ok
         MARK[0] = 00090000
         MARK[1] = 00090000
         MARK[2] = 00000001
         MARK[3] = 024f7da8
         MARK[4] = 02530838
         calling ksyms_init (startkernel=0x090000 endkernel=0x253b000 edata=0x0
 end=0x7f454c46 startsym=0x24f7da8 endsym=0x2530838
         ksyms_init
         Loaded initial symtab at 0x24f7da8, strtab at 0x25162dc, # entries 7245
         Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003
```

```
 The NetBSD Foundation, Inc. All rights reserved.
        Copyright (c) 1982, 1986, 1989, 1991, 1993 The Regents of the
University of California. All rights reserved.
        NetBSD 1.6ZG (RAMDISK) #0: Fri Sep 6 20:35:51 UTC 2013
jenkins@bv-freebsd-01:/scratch/jenkins/workspace/netbsd1.6-ramdisk--default/systems/os/net
marvin/compile/obj/RAMDISK
        total memory = 240 MB
        avail memory = 183 MB
        using 3072 buffers containing 12388 KB of memory
        sysctl_createv: sysctl_create(cacheinfo) returned 17
        mainbus0 (root)mainbus_attach

        eumbbus_match: cpu eumbbus
        cpu0 at mainbus0: Version 0x8081 (Revision 0x1014), ID 0 (primary)
        cpu0: HID0 90c000<DOZE,DPM,ICE,DCE>
        config_found cpu done
        eumbbus_match: eumbbus eumbbus
        eumbbus0 at mainbus0eumbbus_attach
        ....... .......
        wd0 at atabus0 drive 0: <SILICONSYSTEMS INC 256MB>
        wd0: drive supports 1-sector PIO transfers, LBA addressing
        wd0: 248 MB, 994 cyl, 16 head, 32 sec, 512 bytes/sect x 508928 sectors
        howto 2 bootdev 0 boot device: wd0
        root on md0a dumps on md0b
        about to call domountroothook
        about to call vfs_mountroot
        rtcinit()
        Warm Boot
        Time is now 02:11:16.53 07/08/14

        root file system type: ffs
        Enabling serial port...
        Setting up serial terminal...
        Starting kupgrade process
             **********
             * Starting kupgrade *
             ********** # remove CF card here

        Checking filesystems...
        Mounting filesystems...
        card ready
        rbus_space_alloc: addr 0, size 1000, mask fff, align 1000
        Mounting flash card...
             kupgrade running in mode: fatbust # recovery process begins
        Erasing ALL filesystems in 5 seconds...
        Wipe MBR
        card ready
        rbus_space_alloc: addr 0, size 1000, mask fff, align 1000
        32+0 records in
        32+0 records out
        16384 bytes transferred in 0.675 secs (24272 bytes/sec)
        Add MBR
        card ready
        rbus_space_alloc: addr 0, size 1000, mask fff, align 1000
        wd0: no disk label
        fdisk: partition table invalid, no magic in sector 0
        card ready
        rbus_space_alloc: addr 0, size 1000, mask fff, align 1000
        wd0: no disk label
        fdisk: partition table invalid, no magic in sector 0
        card ready
        rbus_space_alloc: addr 0, size 1000, mask fff, align 1000
        wd0: no disk label
        fdisk: partition table invalid, no magic in sector 0
        card ready
        rbus_space_alloc: addr 0, size 1000, mask fff, align 1000
```

```
        wd0: no disk label
        fdisk: partition table invalid, no magic in sector 0
        add cf disklabel
        card ready
        rbus_space_alloc: addr 0, size 1000, mask fff, align 1000
        wd0: no disk label
        disklabel: Invalid signature in mbr record 0
        newfs 0a
        card ready
        rbus_space_alloc: addr 0, size 1000, mask fff, align 1000
        /dev/rwd0a: 64.0MB (131072 sectors) block size 8192, fragment size 1024
using 4 cylinder groups of 16.00MB, 2048 blks, 3968 inodes.
        super-block backups (for fsck -b #) at: 32, 32800, 65568, 98336,
        newfs 0d
        card ready
        rbus_space_alloc: addr 0, size 1000, mask fff, align 1000
        /dev/rwd0d: 8.0MB (16384 sectors) block size 8192, fragment size 1024
using 4 cylinder groups of 2.00MB, 256 blks, 448 inodes.
        super-block backups (for fsck -b #) at: 32, 4128, 8224, 12320,
        newfs 0b
        card ready
        rbus_space_alloc: addr 0, size 1000, mask fff, align 1000
        /dev/rwd0b: 130748 sectors in 32687 FAT16 clusters (2048 bytes/cluster)
        MBR type: 6
        bps=512 spc=4 res=1 nft=2 rde=512 mid=0xf8 spf=128 spt=32 hds=16 hid=32 bsec=1310
        card ready
        rbus_space_alloc: addr 0, size 1000, mask fff, align 1000
        Extracting read-write fs

0% 0 0.00 KB/s --:-- ETA
         19% 175 KB 174.38 KB/s 00:04 ETA/
        100% 885 KB 439.40 KB/s 00:00 ETA
        100% 885 KB 415.22 KB/s 00:00 ETA
        /dev/rwd0a: 64.0MB (131072 sectors) block size 8192, fragment size 1024
using 4 cylinder groups of 16.00MB, 2048 blks, 3968 inodes.
        super-block backups (for fsck -b #) at: 32, 32800, 65568, 98336,
        Extracting root fs 0% 0 0.00 KB/s --:-- ETA 1% 722 KB 701.11 KB/s 01:26
ETA 2% 1554 KB 754.67 KB/s 01:19 ETA 3% 2335 KB 777.73 KB/s 01:15
ETA 4% 3058 KB 763.62 KB/s 01:16 ETA 6% 3826 KB 757.91 KB/s 01:15
ETA ... 99% 61359 KB 748.26 KB/s 00:00 ETA 99% 61375 KB 739.24 KB/s 00:00
ETA 99% 61407 KB 730.89 KB/s 00:00 ETA 100% 61411 KB 722.43 KB/s 00:00
ETA 100% 61411 KB 715.36 KB/s 00:00 ETA
        Upgrade complete
        umount: /rootfs: Device busy
        Rebooting...
        Aug 7 02:13:32 reboot: rebooted by root

Aug 7 02:13:32 init: single user shell terminated, restarting

syncing disks... done
        rebooting

*** (C) Codian Ltd 2004-2005 ***

Resetting PCI
        Calling Mpc107init
        Mpc107init done
        Testing SDRAM data lines ... ok
        Testing SDRAM address lines ... ok
        Relocating .text from FFF00000-FFF0B36E to 0E010000
        Relocating .data from FFF0B380 to 0E01B380-0E01B7C8
        Clearing .bss from 0E01B7C8-0E09EDA4
        Initialising timebase regs
        Calling main L1 strap : built at Jul 7 2005 - 23:19:46
        L2 found : image size 000362e4 version 2005:07:08 11:19
        Starting L2
```

```
          L2 Bootstrap
          Relocating .text from FFF10000-FFF450B0 to 0E010000
          Relocating .data from FFF450C0 to 0E0450C0-0E0462E4
          Clearing .bss from 0E0462E4-0E0CA930
          Calling main Hello from l2_main
          card detected in internal slot (EXCA_STATUS = 4c)
          waiting until status ready ...ok!
          mounting dos0
          fatsize = 00010000
          no card in external slot (EXCA_A[EXCA_STATUS] = 00)
          Product - Unknown (00000054)
          MAC address - 00:0d:7c:e2:00:06
          Serial number - XX710003
          Motherboard serial number - SM00674
          Slotmask : 00000028
           03 - SD01127
           05 - SD01234
          Devmode : 00010000
          Trying dos1:kupgrade
          error opening source file dos1:kupgrade
          Trying dos0:kupgrade
          error opening source file dos0:kupgrade
          Trying dos0:netbsd
          copying dos0:netbsd to md0:00000000.....................002f09c3 bytes copied
          Image version : 4.5(1.45)
          fd=6
          loadelf fd=6 Elf_Ehdr=0xefffe58 marks=0xe0c632c flags=0000003f
          loadelf line 78
          loadelf line 86
          loadelf line 93
          loadelf line 150
          loadelf line 165
          loadelf line 178
          loadelf line 200
          loadelf line 200
          ok
          MARK[0] = 00090000
          MARK[1] = 00090000
          MARK[2] = 00000001
          MARK[3] = 005ff688
          MARK[4] = 00648c48
          Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006,
2007, 2008, 2009, 2010 The NetBSD Foundation, Inc. All rights reserved.
          Copyright (c) 1982, 1986, 1989, 1991, 1993 The Regents of the
University of California. All rights reserved.
          NetBSD 5.1 (ZAPHODCONF) #0: Tue Apr 1 17:33:24 BST 2014
root@bv-ubuntu-09:/ram-work/systems/os/netbsd5_1/usr/src/sys
/arch/sandpoint/compile/obj/ZAPHODCONF
                boot process continues
```

The unit reboots again, and hopefully boots normally into the MCU/TS application, at which point you can reconfigure it normally. If, at this point the unit still does not boot, contact Cisco TAC

Verify

There is currently no verification procedure available for this configuration.

Troubleshoot

There is currently no specific troubleshooting information available for this configuration.