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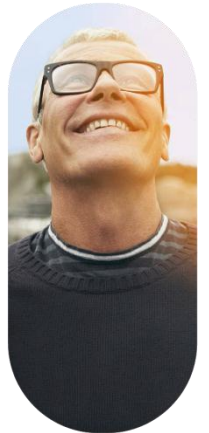
BRKEVT-2805


Understanding and Troubleshooting EX-Series Personal Telepresence Systems, MX-Series and C-Series Codecs.

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“Understand & recognize common endpoint failures. Diagnose and remedy them reducing customer downtime and avoiding unnecessary Return Merchandise Authorizations (RMA).”

TelePresence/Video Sessions

TECEVT-2674	Monday	14:15	Conferencing and Scheduling Design for Cisco Telepresence
BRKARC	Tuesday	11:15	Planning, Building & Deploying Cisco's Remote Expert Solution
BRKEVT-2804	Tuesday	14:15	Monitoring and Troubleshooting Network Impairments in Video Deployments
BRKEVT-2802	Tuesday	14:15	Deploying TelePresence and Video Endpoints on Unified Communications Manager
BRKEVT-2800	Tuesday	16:15	Overview of Cisco TelePresence Solution and Deployments
LTREVT-2300	Wednesday	9:00	Enterprise Medianet: Video Applications and Network Design Lab
BRKEVT-2801	Wednesday	14:00	Integrating Voice and Video Call Routing and Dial Plans
BRKEVT-2805	Wednesday	16:30	Understanding and Troubleshooting EX-Series Personal Telepresence Systems and C-Series Codecs
BRKEVT-2319	Thursday	9:00	Business to Business Video
COCEVT-2577	Thursday	11:30	Inside Cisco IT: The Do's, Don'ts and Lessons Learned during Five Years of Video Deployment
BRKEVT-2803	Thursday	14:00	Designing and Deploying Multipoint Conferencing for Telepresence Video
BRKEVT-2317	Friday	9:00	Video Content: Unlock the Power of Video with "Capture, Transform, Share" Solution
BRKEVT-2400	Friday	11:30	Scheduling Best Practices for Cisco Telepresence



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Agenda



Agenda

Ex90 is Fastest Selling Endpoint We Will Use as Reference in Our Presentation

- Architecture and building blocks
- How to interact/connect with codec
- Console access
- Booting : normal boot, issues during boot and commands to change boot
- Crashes
- Audio/Video
- Touch panel
- Network connectivity
- Debug using call signaling as example
- Maintenance mode

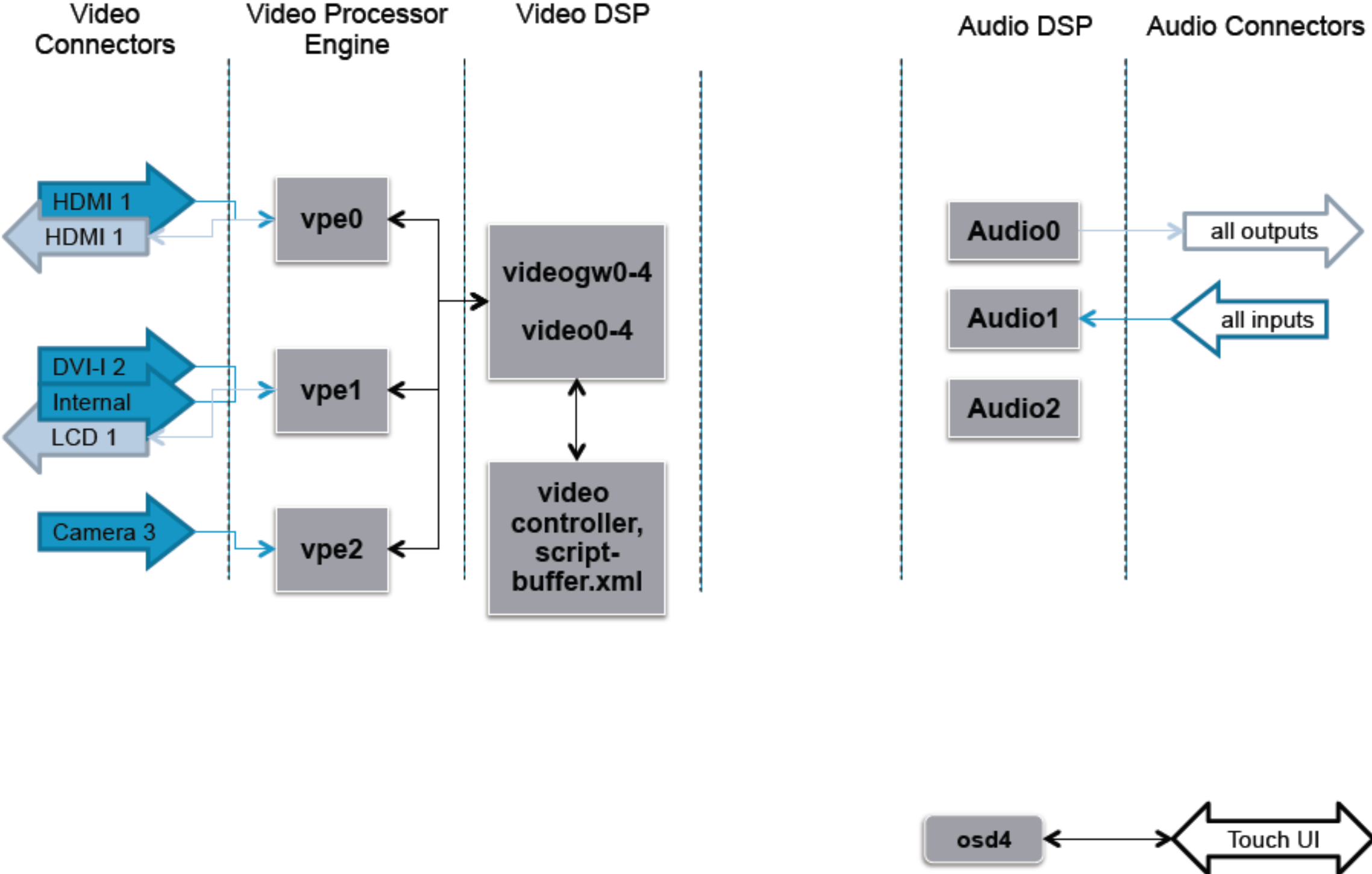


Blockdiagram and Log Files



Block Diagram and Log Files

EX90



Block Diagram and Log Files

`/var/log/eventlog`

- **Audio 0-2:** One log per AUDIO DSP, if they are empty it is a good sign.
- **Application.log:** Debug and application info. Here you will find H.323 messages, call setup etc.
- **Main.log:** Process monitoring. Typically you should look here if the system boots.
- **All.log:** includes all logs. Nice for looking at something chronologically
- **Scriptbuffer.xml:** Is used for video. Includes xml info about communication between video controller and video subsystem.
- **Statedump.xml:** Pretty much the same as scriptbuffer.xml.

Block Diagram and Log Files

/var/log/eventlog

- **endeavour.log** : touch panel log. Process monitoring. Contains sw and hw information. [TC5.1.0]
- **Video0-4**: Are logs for the video ARM processors, typically transcoding and mixing of video signals.
- **Videocontroller.log**: Is for the video controller. Typically tells the system which resolution to encode and decode. 30 and 60 etc.
- **Videogw0-4**: Are the DSP logs. The DSPs will do encoding and decoding of video.
- **VPE0-4**: Video Processor Engine. The video inputs which also is connected to the FPGAs. Typically problems with the video inputs and FGPA.

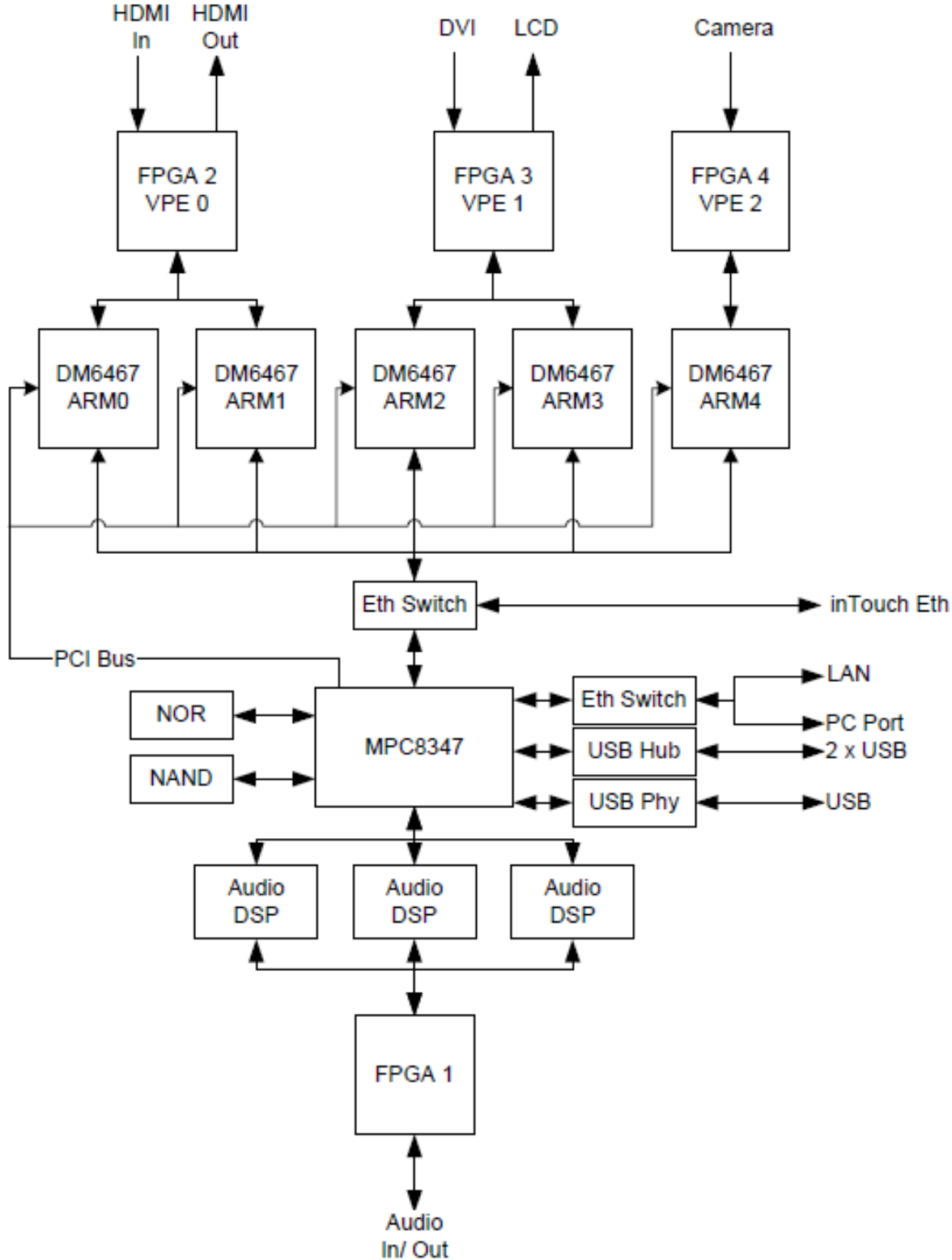
Block Diagram and Log Files

/var/log

- **console:** file where messages are redirected to [stdout] when unit boots
- **dmesg:** the dmesg output is from the kernel booting, showing the devices it has found and if it has been able to configure them at all
- **messages.log** : contains DHCP and other messages
- **kern.log** : kernel messages
- **endeavour-system.log** : contains touchpanel kernel messages [TC5.1.0]
- **ARM0-4** : logfiles of the 'ARMs". ARM is a 32-bit reduced instruction set computer (RISC) instruction set architecture (ISA) developed by ARM holdings

Hardware Diagram

EX90





How to Connect to codec



How to Connect to codec

GUI Using http or https : Admin Guide Can Be Found [Here](#)

The screenshot displays the Cisco Tandberg EX90 administrative interface. At the top, the Cisco logo is on the left, and the system name 'dderidde.ex90.office' and product 'TANDBERG EX90' are on the right. Below this is a navigation bar with tabs for 'Diagnostics', 'Configuration', 'Call Control', and 'Maintenance'. The 'User: admin' is logged in. The main content area is divided into two sections: 'System Information' and 'Sign In Information'.

System Information

General		H323	
System name:	dderidde.ex90.office	Number:	
Software version:	TC5.1.0.280662	ID:	
Product:	TANDBERG EX90	Gatekeeper:	
Serial number:	A1AR21D00173	Status:	Rejected
IP address:	10.48.2.78		
MAC address:	00:50:60:05:52:BA	SIP	
Valid release key:	Yes	URI:	dderidde.ex90.office@cisco.com
Installed options:	MultiSite, PremiumResolution	Proxy:	171.71.193.4
		Status:	Registered

Sign In Information

Last successful sign in:	Sun Apr 1 17:42:08 2012	Unsuccessful authorization attempts since last sign in:	0
Password expires in:	Never		

How to Connect to codec

Telnet or ssh : Login in as Admin User

- When user with administrative rights logs in, the Tandberg shell [aka tsh] is presented to the user
- Root password can be set using "systemtools rootsettings on <password>". Please use a "strong" password. Connect via ssh and not telnet.

```
Welcome to dderidde.ex90.office
```

```
TANDBERG Codec Release TC5.1.0.280662
```

```
SW Release Date: 2012-02-14
```

```
OK
```

```
help
```

```
- User Commands -
```

```
help      xconfiguration  xfeedback      xgetxml      xhistory
```

```
xstatus   xevent          xpreferences   xcommand     systemtools
```

```
bye       log             echo
```

How to Connect to codec

Telnet or ssh : Login Root

- Logging in as root gives access to Linux OS

```
$ ssh root@10.48.2.78
```

```
Password:
```

```
[dderidde-ex90-office:~] $ uname -a
```

```
Linux dderidde-ex90-office 3.0.14-185 #1 PREEMPT Tue Jan 31 10:48:15 CET 2012 ppc GNU/Linux
```

```
[dderidde-ex90-office:~] $ tsh
```

```
Welcome to dderidde.ex90.office
```

```
TANDBERG Codec Release TC5.1.0.280662
```

```
SW Release Date: 2012-02-14
```

```
OK
```

```
bye
```

```
[dderidde-ex90-office:~] $
```


How to Connect to codec

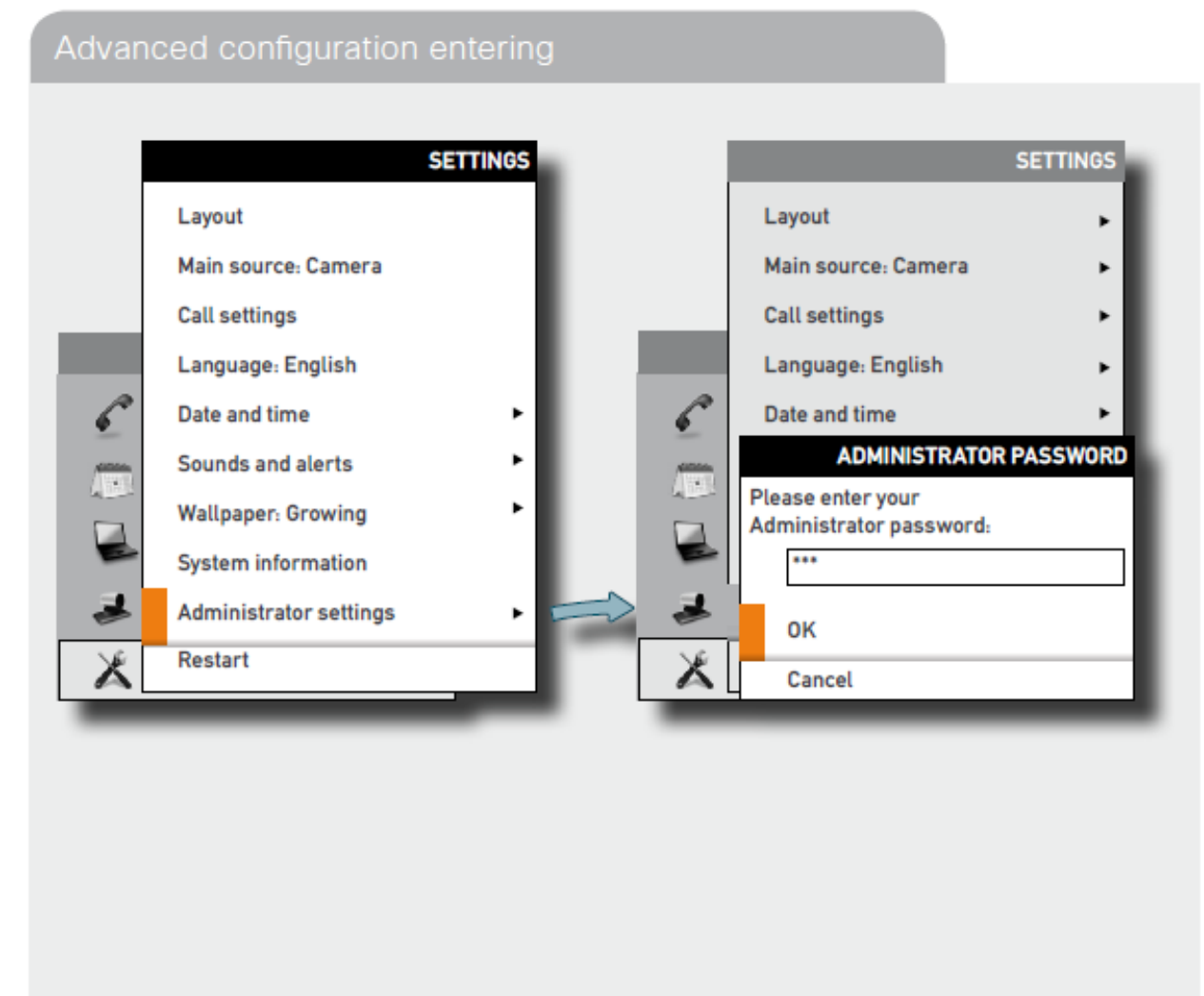
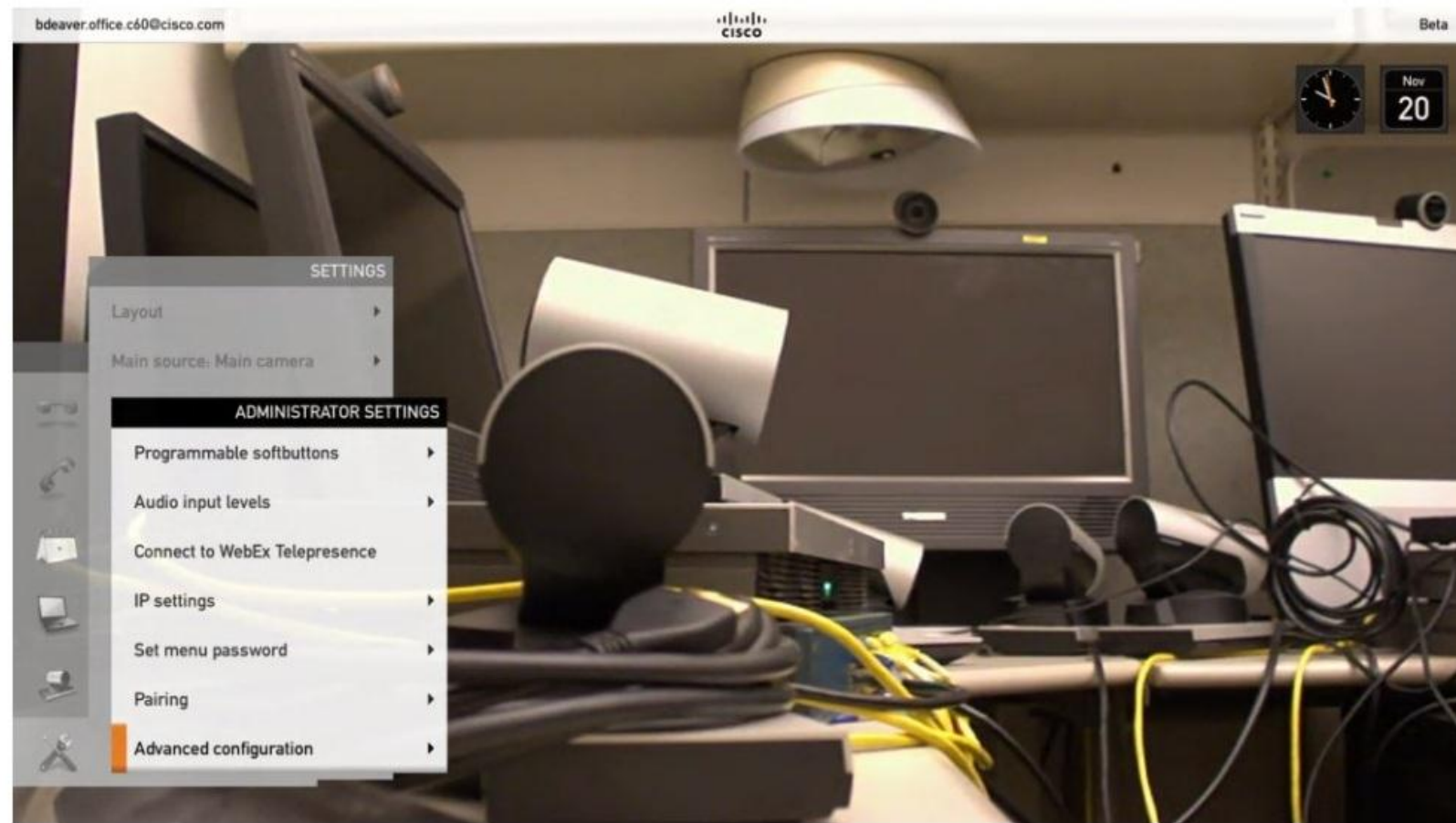
Touch Panel : Check Guide on CCO [Here](#)

The screenshot displays the Settings application interface. On the left is a sidebar menu with the following items: System Information (highlighted), Call Status, Language, Camera Control & Settings, Display Settings, Ringtone & Sound Settings, Background, Administrator Settings (with a right-pointing arrow), and Restart. The main content area on the right shows the following information:

System Name:	dderidde.ex90.office
Uptime:	4 hours, 13 minutes
NETWORK	
IPv4 Address:	10.48.2.78
IPv6 Address:	
H323	
Number:	n/a
ID:	n/a
Gatekeeper:	n/a
Status:	Rejected. Empty GK string
SIP	
Address:	dderidde.ex90.office@cisco.com
Proxy:	171.71.193.4
Status:	Registered. Secured. Not verified.
SOFTWARE	
Version:	TC5.1.0.277760Beta4
Touch Screen:	TT3.1.0.277760Beta4
Options Installed:	MultiSite, PremiumResolution
HARDWARE	

How to Connect to codec

On Screen Display using Remote Control : Check Guide on CCO [Here](#)





Boot Sequence

Following boot progress without console access



Boot Sequence

Power On

- When power is applied to unit, one can hear the FANs starting up and the power LED next to the power button should be lit
- If there is no power indication on either the EX90 or the touch screen, verify the status of the blue LED on the power supply when it is plugged into the EX90 and when it is not plugged into the EX90.



Boot Sequence

Loading Software

- Shortly after the power LED on the EX90 is lit, the call indicator LED next to the camera will start flashing.
- This indicator will remain flashing until the system has booted up and the wallpaper appears on the screen.



Boot Sequence

Cisco Logo Appears

- After the image is copied from flash, the Cisco logo will momentarily appear on the main screen. After this logo disappears, the screen will remain blank until the background wallpaper appears on the unit. All this time the unit is going through its bootup process.



Boot Sequence

Indications on Touch

- Mute, Volume and ! LED indicators will light momentarily
- The ! LED will remain lit until the "Connecting" logo appears on the touch screen



Boot Sequence

Cisco Logo on Touch Panel

- The touch screen will display the Cisco logo on the screen at about the same time the logo is displayed on the EX90 screen



Boot Sequence

Connecting on Touch

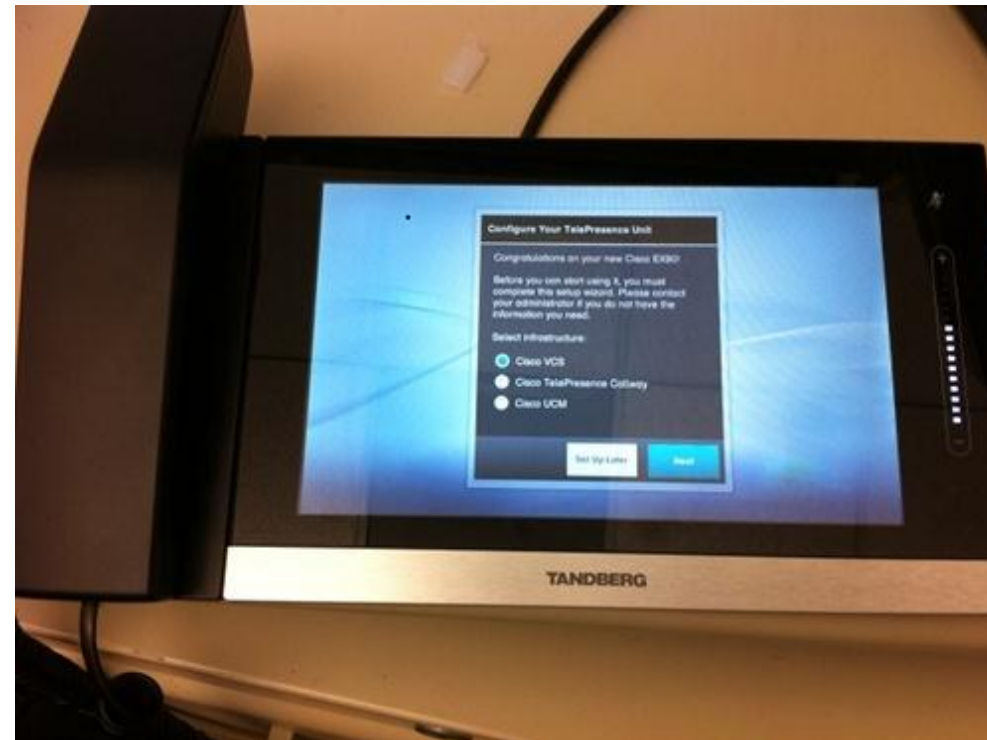
- The touch screen will connect to the EX90 codec. If the EX90 software has been upgraded, the touch screen will display that it is downloading and upgrading the touch screen software package



Boot Sequence

Wallpaper/Wizard on Touch

- Once the unit has successfully booted, on the main screen you should see the standard wallpaper appear on the screen. The touch screen should display the options for making a call as well as settings.
- If this is a new EX90, or the unit has been put through a factory reset, the touch screen will display the startup configuration wizard as shown here:





Boot Failures

Verifying boot failures without console cable



Boot Failures

Prerequisites for Fixing Boot Issues

- By default a codec is set to get its IP address using DHCP. Ask your network administrator how to check the DHCP server to see the lease based on your unit's MAC address.
- When address is static, make a note of your address
- Enable root on your unit so when things fail, you can login as root. [provided your codec already loaded its IP stack prior to failing] Any failure prior to the Tandberg main application loading will result in the inability to gain access using admin user. Again : use strong password for root.

Exmample of MAC <-> IP address binding

<u>IP address</u>	<u>Hardware address</u>	<u>Lease expiration</u>	<u>Type</u>
10.60.142.203	0050.6005.86e6	Apr 12 2012 05:57 AM	Automatic

Boot Failures

When connected to an ethernet switch – use CDP to check IP address

- CSCtx11633 - CDP on TC series codec missing information found on TelePresence devices (fixed in TC5.1.5)

```
dderidde-3750#show cdp neighbors gigabitEthernet 1/0/8 detail
```

```
-----
```

```
Device ID: SEP0050600586E6
```

```
Entry address(es):
```

```
  IP address: 144.254.14.64
```

```
  IPv6 address: 2001:420:4804:1001:250:60FF:FE05:86E6 (global unicast)
```

```
Platform: CTS-CODEC-SX20, Capabilities: Host Phone
```

```
Interface: GigabitEthernet1/0/8, Port ID (outgoing port): eth0
```

```
Holdtime : 127 sec
```

```
Version :
```

```
TC5.1.5.297625
```

```
advertisement version: 2
```

```
Management address(es):
```

```
dderidde-3750#
```

Boot Failures

Progress Indicators

- **No indication of power.** Verify blue LED on the power supply
- **Cisco logo not printed on main screen.** Unit fails early in boot. Could be the device is waiting at u-boot prompt. The U-Boot Universal Bootloader project provides firmware for many CPU architectures and boards. Other possibility could be power is present but out of spec so boot halts
- **Camera LED blinks, Cisco logo is seen, but screen is black after this point.** Could be kernel failed to load, or kernel crash, or kernel loaded correctly but some boot init fails. The system could also have entered maintenance shell mode.
- **Cisco logo is seen but then some time after the blank screen the Cisco logo reappears.** The unit is likely in cyclic boot.

Boot Failures

How to Fix ?

- **No indication of power.** If you have a spare power supply, try it on the failing unit. There have been reports on "early units" failing to boot. We are monitoring these failures and notice failure rates are on the high end of what's deemed normal. RMA the unit.
- **Cisco logo not printed on main screen.** See disaster recovery section
- **Camera LED blinks, Cisco logo is seen, but screen is black after this point.** Try to connect to codec via `ssh admin@ip_address` to see whether maintenance shell is activated. If not, do `ssh root@ip_address` and check `/var/log/console` and `/var/log/eventlog/all.log` files for failures.
- **Cisco logo is seen but then some time after the blank screen the Cisco logo reappears.** Login as `ssh root@ip_address` and execute `"touch /tmp/noboot"` to stop cyclic reboot. Check same files as above.



Console Access



Console access : SX20 and C20

- SX20

- CPN 72-5336-01

Special commands need to be sent to SX20 using remote control to change SX20 from VISCA camera mode to RS-232 mode

Point remote control toward the IR sensor (the power button) and push *13#7469

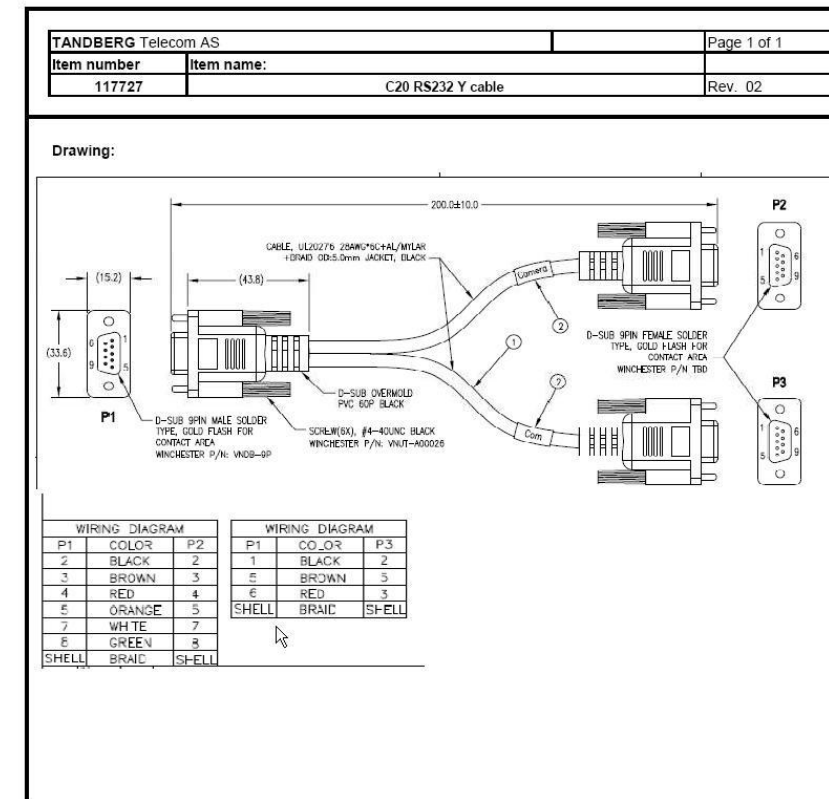
Camera can no longer be used

To restore “normal” mode you need to shutdown the SX20. The remove/reconnect power cable from mains followed by boot

- C20

- CAB-C20-RS232-DBG=

No commands needed, only this Y-cable



Console access : MX and C-Series

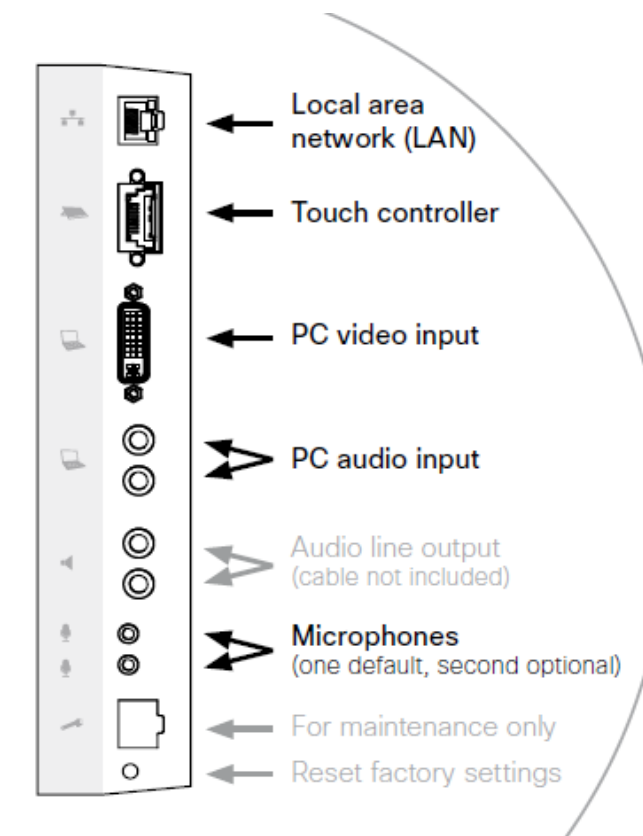
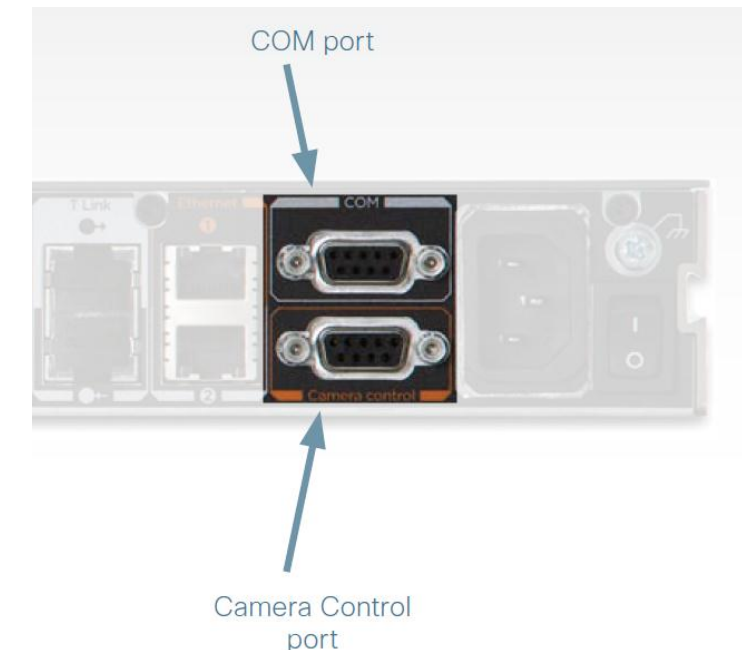
- C-Series

These have a standard RS-232 port where you can attach a DB-9 with DTE appearance from your PC/MAC

Connect using 38400, 8 bits, no parity, 1 stopbit and no flow control (38400,8,N,1)

- MX-Series

These have an RJ45 connector which can be used as console. The electrical levels in use are TTL, therefore you require a special cable.



Console Access EX-Series

Console Port : Location on EX90

- The EX-90 has a console port located at bottom left of the unit.



Console Access EX-Series

Console Port : Location on EX60

- The EX-60 has its console port located at the back of the unit



Console Access E20

Console Port on E20 is RJ45 connector where handset is normally plugged in

- Settings need to be **115200 baud**, 8 data, 1 stop , no parity or flow control



Console Access

EX/MX/E20 - Special TTL to RS-232 Cable Needed

- Need terminal emulation program on the PC/MAC which can communicate with a physical COM port. Latter can also be a USB to serial cable.
- Settings of the serial connection are :
 - speed : 38400
 - parity : none
 - stopbits : 1
- Special TTL to RS232 cable is required.
- Make console cable using CA42 USB data cable from Nokia or using RS232 to TTL/CMOS converter as basis.
- Example of terminal emulation program is PuTTY.

Console Access

Console : free cable for each attendee

- To help people gain console access and put the theory of the presentation into practice, I am handing out a console cable to each attendee
- The driver to use for this cable is located [here](#).
- The cable is based on the [CA42 USB data cable](#) from Nokia
- A partner commented on even another possibility to make a console cable using a old [Nokia DLR-3P](#) cable.
- Cut off the nokia connector and crimp on an RJ45 plug as follows:
 - BLACK to RJ45 pin 1
 - (GND) GREEN to RJ45 pin 2 (RXD)
 - GRAY to RJ45 pin 7 (TXD)
 - RED to RJ45 pin 8 (+3.3V)

Console access

Console : Login Prompt

- Login as root gives access to Linux OS. admin gives Tandberg shell.

login: **admin**

Welcome to dderidde.ex90.office

TANDBERG Codec Release TC5.1.0.280662

SW Release Date: 2012-02-14

Bye

login: **root**

Password:

Last login: Mon Apr 2 15:59:33 on ttyS0

[dderidde-ex90-office:~] \$

[dderidde-ex90-office:~] \$ **tsh**

Welcome to dderidde.ex90.office

TANDBERG Codec Release TC5.1.0.280662

SW Release Date: 2012-02-14



Boot sequence on console

Follow boot progress on console during normal bootup



Console Messages

U-boot is Loaded

- The U-Boot Universal Bootloader project provides firmware for many CPU architectures and boards.

```
U-Boot 2010.06-94 (Jan 04 2012 - 11:31:30) MPC83XX
Reset Status:
CPU:   e300c1, MPC8347_TBGA_EA, Rev: 3.0 at 600 MHz, CSB: 200 MHz
I2C:   ready
DRAM:  DDR2 RAM: 512 MiB
<Snip>
RTC:   2012-03-28 (Wednesday) - Time: 10:45:42
PCI Video Processor Detection [PASS]
Falcon
Press 'b' to enter u-boot prompt
Press 'c' to stop autoboot:  0
yaffs: Mounting /flash
yaffs: restored from checkpoint
```

Console Messages

Cisco Logo is Loaded onto DaVinci Chips

- DaVinci Digital Media Processors "print" Cisco logo and image flash data gets copied

```
Configure FPGAs
```

```
-
```

```
Setting up Davinci HD (00.10.00)... 675Mhz      [DONE]
Setting up Davinci HD (00.11.00)... 675Mhz      [DONE]
Setting up Davinci HD (00.12.00)... 675Mhz      [DONE]
Setting up Davinci HD (00.13.00)... 675Mhz      [DONE]
Setting up Davinci HD (00.14.00)... 675Mhz      [DONE]
Copy /flash/active/arm/rootfs to 0x03000000... [DONE]
Copy /flash/active/arm/kernel to 0x02000000... [DONE]
Copy /flash/active/arm/u-boot.bin to 0x01000000... [DONE]
Copy /flash/active/kernel to 0x01000000... [DONE]
Copy /flash/active/rootfs to 0x02000000... [DONE]
Copy /flash/active/dtb3 to 0x03000000... [DONE]
```

Console Messages

Loading of Kernel

```
## Booting kernel from Legacy Image at 01000000 ...
```

```
Image Name: Linux-3.0.14-185
```

```
Created: 2012-01-31 9:48:20 UTC
```

```
Image Type: PowerPC Linux Kernel Image (gzip compressed)
```

```
Data Size: 2228538 Bytes = 2.1 MiB
```

```
Load Address: 00000000
```

```
Entry Point: 00000000
```

```
Verifying Checksum ... OK
```

```
## Loading init Ramdisk from Legacy Image at 02000000 ...
```

```
Image Name: TANDBERG rootfs
```

```
Created: 2012-01-31 11:42:34 UTC
```

```
Image Type: PowerPC Linux RAMDisk Image (gzip compressed)
```

```
Data Size: 7601458 Bytes = 7.2 MiB
```

```
<Snip>
```

```
Using MPC8347 Saturn PPC machine description
```

```
Linux version 3.0.14-185 (hgb@prentice.rd.tandberg.com) (gcc version 4.6.1 (crosstool-NG hg_unknown@2
```

Console Messages

Loading of Application(s)

- The main application gets loaded. Messages are printed in `/var/log/console` and not to screen. Boot complete? Login: prompt is shown

```
Memory: 507576k/524288k available (4336k kernel code, 16712k reserved, 228k data, 133k bss, 168k init)
```

```
Kernel virtual memory layout:
```

```
* 0xffffcf000..0xffffffff000 : fixmap
* 0xff8000000..0xffc000000 : highmem PTEs
* 0xff6fb0000..0xff8000000 : early ioremap
* 0xe10000000..0xff6fb0000 : vmalloc & ioremap
```

```
SLUB: Genslabs=15, HWalign=32, Order=0-3, MinObjects=0, CPUs=1, Nodes=1
```

```
NR_IRQS:512
```

```
IPIC (128 IRQ sources) at e1000700
```

```
clocksource: timebase mult[5000002] shift[22] registered
```

```
Console: colour dummy device 80x25
```

```
console [tty0] enabled, bootconsole disabled
```

```
Login:
```



How to alter bootup via console

Special hidden files



How to alter normal bootup

Files in /tmp or /user which change bootup

- When main application is started it checks for the presence of special files in /tmp and /user directories
 - noboot
 - When this file is present, the codec will not reboot after it crashed nor will it enter maintenance mode. Is used to stop cyclic reboots
 - ```
[dderidde-ex90-home:/tmp] $ touch noboot
```
  - nostart
    - When this file is present, the codec boots but the main application is not started



# How to alter bootup via console

U-boot environment settings





# How to alter normal bootup

## Entering U-boot mode

- To change the bootup of a codec we can change its U-boot environment. U-boot can be entered by entering character b followed by c shortly after codec is powered on

Falcon main board

Rev: K

SN: F1545699

Object level: 70

MAC: 40:55:39:0C:EF:66

Net: TSEC0, TSEC1

Hwmon: 45

**Press 'b' to enter u-boot prompt**

**Press 'c' to stop autoboot: 5**

FALCON>

# How to alter normal bootup

## U-boot mode prompts

- America : C40
- Asterix : SX20
- Casper : C60
- Falcon : EX90
- Intrepid : MX200
- Orion : C20
- Pluto : EX60
- Saturn : C90
- Snoopy : E20
- Veneto : MX300

# How to alter normal bootup

## Altering U-boot environment

- Change U-boot environment settings via setenv command to affect boot
  - othbootargs
    - noboot : the codec will not reboot when it crashes
    - allowroot : root will be enabled at boot
    - timestamp : boot logfiles will have a timestamp expressed in seconds after kernel load
    - noconsolefile : redirect output during boot/shutdown on console as opposed to file
    - interactive : user is prompted to start scripts
    - factoryreset : factory reset unit at boottime
  - console
    - ttyS0 : redirect output during boot/shutdown on console as opposed to file
    - FALCON> setenv othbootargs allowroot noconsolefile noboot timestamp
    - FALCON> setenv console ttyS0
    - FALCON> printenv (to print all the environment settings – any change without a saveenv command is lost after boot)
    - FALCON> boot (boot the system with the current environment settings)

# How to prevent changing boot parameters

## Avoid breaking into U-boot

- Customers who do not wish the capability of being able to break into U-boot can opt to turn this off using a systemtools command in admin shell  
systemtools boothalt <options>  
where options can be any of the following :
  - allow
  - prevent
  - status
- [CSCub67692](#) - Unauthenticated Access to U-Boot Console via Serial Port



# Common boot failures in the field

Some boot failures require console access to fix



# Common boot failures in the field

## Overview

- Early boot failures : **require console access to fix**
  - Missing kernel image
  - Corrupted flash file system
  - Missing symbolic link to active software image
- Cyclic reboot
  - Main exits when admin timeout expires.
  - When all distributed ARM processors and DSPs are booted, the PowerPC starts a timer and waits for a heartbeat from all these distributed subsystems. Software or hardware failures will make the timer to pop. Pre-TC5.1.5 releases will trigger cyclic reboots. From TC5.1.5 onwards, maintenance shell will be loaded
- Cannot get login prompt : **requires console access to fix**
  - Corrupted config.db, main tandberg application is not started, checksum or length error(s) in config.db

# Common boot failures in the field

## Early boot failures

- Missing kernel image
  - [CSCtx61205](#) - Missing kernel image after boot
    - Can be fixed by trying selectsw and see whether there's a secondary image one can use
    - If no secondary image one can load new image using tftp when in u-boot
- Corrupted flash file system
  - Probably same root cause as missing kernel image issue above
    - Use same method as in CSCtx61205 to recover
    - Collect the U-boot commands : `yls -l /flash/image1` and `yls -l /flash/image2`
- Missing symbolic link to active software image
  - [CSCud24213](#) - Codec misses symbolic link to determine active software image
    - Run selectsw command and check whether there are any images. If none are tagged as ACTIVE, verify with `yls -l /flash/image1` and `yls -l /flash/image2` which image contains valid files and do `selectsw image1` or `selectsw image2` to recreate the symbolic link
- Once recovered, upgrade to TC5.1.5 or TC4.2.3 (or later releases).



# Common boot failures in the field

## Cyclic reboots

- Known software defects
  - [CSCtx57646](#) - C/EX Series codec wont boot if 3 DNS server and Static IP are configured (fixed in TC5.1.2)
  - [CSCua98644](#) - TC5.1.0 TC5.1.3 Continuous Rebooting Due to 50 Character System Name (fixed in TC5.1.4)
  - [CSCtx65144](#) - Corrupted config.db causing cyclic reboot. (fixed in TC6.0.0)
  - [CSCud17719](#) - HW : audio DSPs do not start (waitForRegistrationsAndNotify timeouts)

### Go into U-boot and do

```
setenv othbootargs noboot allowroot
boot
```

# Common boot failures in the field

## Cyclic reboots continued

**Login as root and tar all the logfiles so we can run these through ACR tool to find known defect**

```
tar -cvzf /tmp/historical_log_bundle.tar.gz /config/logs/*
```

```
scp /tmp/historical_log_bundle.tar.gz user@system:historical_log_bundle.tar.gz
```

alternative to scp is to use winSCP to get file from codec

**In case cause of reboot is a corrupted config.db, move the config.db to a backup file name config.db.bad and retrieve the file later once the codec is recovered.**

```
mv /mnt/base/active/config.db /mnt/base/active/config.db.bad
```

```
scp /mnt/base/active/config.db.bad user@system:config.bad.db
```

alternative to scp is to use winSCP to get file from codec

**Upgrade the codec to a release containing fix when known defect is found**

```
scp user@system:s52000tc5_1_5.pkg /upgrade/pkg
```

**Alternative to all the above steps is to do a factory reset, however this will erase config and all historical data making it impossible to find the root cause**

# Common boot failures in the field

## Cannot get login prompt

[CSCuc64359](#) - Codecs Running TC Software Cannot Fully Boot (fixed in TC5.1.6)

[CSCud87896](#) - Hangs in boot-up when having corrupt config\_db (fixed in TC6.0.0)

### **Go into U-boot and do :**

```
setenv othbootargs allowroot noboot interactive
```

```
setenv console ttyS0
```

```
boot
```

**Once codec boots in interactive mode, hit <ENTER> key after each prompt until you reach the script which starts main. The script is named S80main**

```
Run [/etc/init.d/S80main start] (Y/n/r/s/c/?)?
```

```
Type s here to drop to a shell for good
```

**From the shell, you can move the bad config and reboot the system which should be recovered after boot**

```
mv /mnt/base/active/config.db /mnt/base/active/config.db.bad
```

```
scp /mnt/base/active/config.db.bad user@system:config.bad.db
```

**Get historical logfiles via web browser**



# Examples of boot failures



# Examples of boot failures

## CSCtx57646 : Main Exits with Non-zero Value == Non Graceful Reboot

- CSCtx57646 - C/EX Series codec wont boot if 3 DNS server and Static IP are configured

Main started, waiting for system ready...

**Admin timeout set to 60 seconds**

**Timeout - All clients have not reported**

We have 1 clients

Client ip 169.254.0.1, port 43488

```
info {0: {'hw_id': 0, 'prg_id': 0, 'req_id': 0}, 1: {'hw_id': 0, 'prg_id': 2, 'req_id': 1}, 2: {'hw_id': 1, 'prg_id': 2, 'req_id': 2}, 3: {'hw_id': 2, 'prg_id': 2, 'req_id': 3}}
```

```
state emitEnumInfo
```

Monitor listening on port: 43488

**Main has stopped with exit code 1**

Setting up watches.

Watches established.

Timed out waiting for system ready signal

ERROR: S80main: Failed

# Examples of boot failures

## "can't get Kernel image!" Printed on Console

- CSCtx61205 - Missing kernel image after boot

```
Setting up Davinci HD (00.14.00)... 675Mhz [DONE]
```

```
Copy /flash/active/arm/rootfs to 0x03000000... [DONE]
```

```
Copy /flash/active/arm/kernel to 0x02000000... [DONE]
```

```
Copy /flash/active/arm/u-boot.bin to 0x01000000... [DONE]
```

```
Copy /flash/active/kernel to 0x01000000... File not found
```

```
Copy /flash/active/rootfs to 0x02000000... [DONE]
```

```
Copy /flash/active/dtb3 to 0x03000000... [DONE]
```

```
save exit: isCheckpointed 1
```

### Wrong Image Format for bootm command

**ERROR: can't get kernel image!**

```
FALCON>
```

```
FALCON> yls -l /flash/image2
```

```
-rw-r--r-- 0 0 8388608 Mar 30 10:27 2012 /flash/image2/uifs.img
```

```
-rw-r--r-- 0 0 16777216 Mar 30 10:27 2012 /flash/image2/user.img
```

```
<Snip>
```

# Examples of boot failures

## How to Fix Kernel Image Not Found

- [CSCtx61205](#) - Missing kernel image after boot
- Fix is to select another non-active image or to use u-boot and load new image

```
FALCON> selectsw
image2 [ACTIVE]
image1
FALCON>
FALCON> ycat /flash/image1/version
Reading file /flash/image1/version
TC5.1.0 280662
done
FALCON> selectsw image1
FALCON> boot
```





## Other causes of reboot

Power outage or voltage drop within unit



# Other causes of reboots

## hwmon available from U-boot to check power/voltages

```
FALCON> hwmon
```

```
HWMON VERSION: 45
```

```
MEASURED VOLTAGES:
```

```
Main board
```

```
1V2: 1.198 V
```

```
1V2_DM: 1.196 V
```

```
<Snip>
```

```
CHECK VOLTAGES:
```

```
Main board
```

Name	Nom	Probe	Min	Max	Status
1V2:	1.200	1.198	1.180	1.240	<b>OK</b>
1V2_DM:	1.200	1.196	1.180	1.240	<b>OK</b>
12V:	12.000	11.936	11.600	12.400	<b>OK</b>

```
<Snip>
```

# Other causes of reboots

## Power failure (mains)

- Check correlation of the timestamp of the logfile(s) and data in the /var/log/wtmp file
  - The wtmp file records all logins and logouts history but also tracks reboots and linux run levels
  - If there's an orderly shutdown of a system, e.g, normal reboot or even a crash, we will get logfiles
  - If there's a power cut (mains interrupted) or even voltage drop within the codec (hardware failure), we will reboot without generating any logfiles
  - Checking wtmp file by means of last command and checking timestamp of most recent logfiles can give us a clue about a possible reload due to power failure(s)

# Other causes of reboots

## Example of an uncontrolled shutdown/restart

```
[tandberg:~] $ last -x -f /var/log/wtmp
root pts/0 sweet-brew-7.cis Sat Mar 31 14:55 still logged in
root pts/0 sweet-brew-7.cis Sat Mar 31 14:55 still logged in
root ssh sweet-brew-7.cis Sat Mar 31 14:55 still logged in
runlevel (to lvl 2) 2.6.37-64 Sat Mar 31 14:55 - 14:56 (00:01)
reboot system boot 2.6.37-64 Sat Mar 31 14:55 - 14:56 (00:01)
wtmp begins Sat Mar 31 14:55:26 2012
```

```
[tandberg:~] $ cd /config/logs
[tandberg:/config/logs] $ ls -lrt
total 1036
drwxr-xr-x 3 root root 1024 Feb 28 13:17 log
-rw-r--r-- 1 root root 655360 Feb 28 13:43 log.0.tar
-rw-r--r-- 1 root root 68482 Mar 14 17:42 log.1.tar.gz
-rw-r--r-- 1 root root 18664 Mar 14 17:58 log.2.tar.gz
lrwxrwxrwx 1 root root 12 Mar 22 17:58 log.tar.gz -> log.3.tar.gz
-rw-r--r-- 1 root root 306754 Mar 22 17:58 log.3.tar.gz
[tandberg:/config/logs] $
```

# Other causes of reboots

## uncontrolled shutdown/restart : file system was not properly unmounted

Verify current logs, especially, the console.log for any mount errors.

```
Creating tmp files with hw config information
Checking if base file system is mounted... Not mounted. Mounting...
Mounting base filesystem as yaffs2 from device /dev/mtdblock1
OK.
Mounting /devel... OK.
Mounting /extra... OK.
Mounting /apps... OK.
Mounting /www... OK.
Mounting /sounds... OK.
Mounting /web2tsh... OK.
Checking /mnt/base/active/config.img...
fsck 1.41.12 (17-May-2010)
e2fsck 1.41.12 (17-May-2010)
```

**/dev/loop6 was not cleanly unmounted, check forced.**

```
Pass 1: Checking inodes, blocks, and sizes
Pass 2: Checking directory structure
Pass 3: Checking directory connectivity
Pass 4: Checking reference counts
Pass 5: Checking group summary information
```

# Other causes of reboots

## Example of an orderly shutdown/restart

```
[tandberg:~] $ last -x -f /var/log/wtmp
runlevel (to lvl 2) 2.6.37-64 Sat Mar 31 15:00 - 15:00 (00:00)
reboot system boot 2.6.37-64 Sat Mar 31 15:00 - 15:00 (00:00)
root pts/0 sweet-brew-7.cis Sat Mar 31 15:00 - crash (00:00)
root sweet-brew-7.cis Sat Mar 31 15:00 - crash (00:00)
root ssh sweet-brew-7.cis Sat Mar 31 15:00 - crash (00:00)
```

### **wtmp begins Sat Mar 31 15:00:39 2012**

```
[tandberg:/config/logs] $ ls -lrt
total 1055
drwxr-xr-x 3 root root 1024 Feb 28 13:17 log
-rw-r--r-- 1 root root 655360 Feb 28 13:43 log.0.tar
-rw-r--r-- 1 root root 68482 Mar 14 17:42 log.1.tar.gz
-rw-r--r-- 1 root root 18664 Mar 14 17:58 log.2.tar.gz
-rw-r--r-- 1 root root 306754 Mar 22 17:58 log.3.tar.gz
lrwxrwxrwx 1 root root 12 Mar 31 14:59 log.tar.gz -> log.4.tar.gz
-rw-r--r-- 1 root root 18268 Mar 31 14:59 log.4.tar.gz
```





Crashes



# Crashes

## Log.tar.gz Files

- When an EX-Series endpoint crashes, it usually makes a loud "pop" sound and it reboots. There's a defect open to eliminate this "pop" : [CSCts47293](#).
- Whenever a crash/reload occurs, the logfiles of the endpoint are put in a tar file which gets gzipped, so we end up with a file named log.x.tar.gz [x is a number in the range of 0 to 9]. x increases by 1 each time the system crashes or reboots
- To help support engineers to investigate a crash one should retrieve these files via the GUI interface, logged in as admin using `http://<your_IP_address>/wsgi/logs`

# Crashes

## Historical Log Files Bundled

- Recent releases enables the user to bundle all the crash files into one big file which can be attached to the Service Request. Alternatively, one can load each one separately. Timestamp of the file reveals which crash was the most recent.
- Next slide has sample screenshot of GUI file retrieval

# Crashes

## GUI Interface

### Historical Logs

File Name	Size	Last Modified
<a href="#">log.0.tar.gz</a>	76 KB	2012-03-09 12:21
<a href="#">log.1.tar.gz</a>	68 KB	2012-03-09 14:36
<a href="#">log.2.tar.gz</a>	60 KB	2012-03-09 14:58
<a href="#">log.3.tar.gz</a>	59 KB	2012-03-09 15:40
<a href="#">log.4.tar.gz</a>	78 KB	2012-03-12 08:42
<a href="#">log.5.tar.gz</a>	45 KB	2012-03-12 11:48
<a href="#">log.6.tar.gz</a>	54 KB	2012-03-12 13:35
<a href="#">log.7.tar.gz</a>	94 KB	2012-03-09 08:31
<a href="#">log.8.tar.gz</a>	60 KB	2012-03-09 08:46
<a href="#">log.9.tar.gz</a>	60 KB	2012-03-09 12:04
<a href="#">log.tar.gz</a>	54 KB	2012-03-12 13:35

Each file can be downloaded individually

Most recent crash or reload dated March 12<sup>th</sup> 2012

[Download all log files as bundle \(tar.gz format\)](#)

Move cursor over link to the left to download all crash files in a bundle



Cisco *live!*

Audio



# Audio

## Check Speakers/Handset/Headset

- Use API to verify audio input/output

### xstatus Audio

\*s Audio Microphones Mute: Off

\*s Audio Volume: 65

\*s Audio SelectedOutputConnector: Internal

\*\* end

### xConfiguration Audio ?

\*? xConfiguration Audio VolumeHandset: <0..100>

\*? xConfiguration Audio VolumeHeadset: <0..100>

\*? xConfiguration Audio PreferredOutputConnector: <None/HDMI/Internal/BlueTooth/Handset/Headset>

\*? xConfiguration Audio Microphones Mute Enabled: <True/InCallOnly>

\*? xConfiguration Audio InternalSpeaker Mode: <Off/On>

\*? xConfiguration Audio Volume: <0..100>

\*? xConfiguration Audio SoundsAndAlerts RingVolume: <0..100>

\*? xConfiguration Audio SoundsAndAlerts RingTone: <Marbles/IceCrystals/Polaris/Alert/Discreet/Fantasy/Jazz/Nordic/Echo/Rhythmic>

\*? xConfiguration Audio SoundsAndAlerts KeyTones Mode: <Off/On>



# Audio

## Check Speakers/Handset/Headset

- Use API to play sound locally or sys-fsms to play remotely
- If the unit's internal microphone stops working, consider the following defect : [CSCtr09359](#) - EX90 speakerphone microphone stops working. Also handset can stop working. Far end will not receive any audio.

```
xcommand Audio Sound Play sound:videocall loop:on
*r AudioSoundPlayResult (status=OK):
** end
```

OK

```
xcommand Audio Sound stop
```

OK

```
sys-f
```

OK

```
com audlocalin 0 sineGenerator mic 1 0 on
Turning sine generator on mic (1, 0) on
```

```
Turning sine generator on mic (1, 0) off
quit
```

```
Debug session terminated
```



Cisco *live!*

Video



# Video

## Camera with Bad Status

- First check whether selfview is working
- If no selfview : check camera status.
- Cameras on EX-Series are wired via ribbon cable internally in the codec, whilst on SX/C-Series the camera is connected via HDMI and control cable running VISCA protocol. Snippet below is taken from EX90.

```
xconfiguration video Selfview:on
** end
xstatus Camera
*s Camera 1 Connected: True
*s Camera 1 HardwareID: ""
*s Camera 1 Manufacturer: ""
*s Camera 1 Model: "Camera error: Not initiated"
*s Camera 1 SoftwareID: ""
*s Camera 1 SerialNumber: ""
<Snip>
```

# Video

## Camera Not Working : Verify Logfiles and xstatus video input

```
[EX90:/var/log/eventlog] $ cat all.log | grep -i camera
```

```
Oct 17 12:51:22 arm4 vpe2: EX90 camera module found
```

```
Oct 17 12:51:22 arm4 vpe2: camera init task..
```

```
Oct 17 08:51:25 (none) main: 65.39 VIDEOLC-0 I: VIDEOLC_doReadyConfigureInputCnf: Camera 3
```

```
Oct 17 08:51:36 (none) main: 76.07 CAMERA !ER Camera error: Not initiated
```

```
Oct 17 08:51:36 (none) main: 76.07 CAMERA I: CamVisca::sendCAMCameraListInd noOfCameras=1
```

```
Oct 17 12:51:36 arm4 vpe2: ERROR! Camera init FAIL!
```

```
Oct 17 12:51:36 arm4 vpe2: ERROR! IMAGECTRL EX90 Camera motor fail!
```

```
[EX90:/var/log/eventlog] $
```

```
[C60:/var/log/eventlog] $ cat all.log | grep -i camera
```

```
Jan 27 13:52:23 (none) main: 1083.63 CAMERA I: No reply from camera. Giving up.
```

```
Jan 27 13:52:23 (none) main: 1083.63 CAMERA I: CamVisca: ReconfigureAll
```

```
Jan 27 13:52:23 (none) main: 1083.63 CAMERA I: CamVisca::sendCAMCameraListInd noOfCameras=0
```

```
Jan 27 13:52:39 (none) main: 1099.28 CAMERA I: No reply from camera. Giving up.
```

```
Jan 27 13:52:39 (none) main: 1099.28 CAMERA I: CamVisca: ReconfigureAll
```

```
Jan 27 13:52:39 (none) main: 1099.28 CAMERA I: CamVisca::sendCAMCameraListInd noOfCameras=0
```

```
Jan 27 13:52:42 (none) main: 1102.28 CAMERA I: No reply on CAM_IF_CLEAR
```

### C60 xstatus command

```
*s Video Input HDMI 1 Connected: False
```

```
*s Video Input HDMI 1 SignalState: Unknown
```

# Video

## Camera Status OK : Still No Selfview

- xstatus camera shows no issues
- Verify the MainVideoSource. Should be set to camera. [3]
- [CSCtz85368](#) - No selfview due to main video source not set to camera

```
xconfiguration video Selfview:on
```

```
** end
```

```
xconfiguration Video //Input Source Name
```

```
*c xConfiguration Video Input Source 1 Name: "HDMI"
```

```
*c xConfiguration Video Input Source 2 Name: "PC"
```

```
*c xConfiguration Video Input Source 3 Name: "SelfView"
```

```
** end
```

```
xconfiguration Video Input Source 3 Type
```

```
*c xConfiguration Video Input Source 3 Type: camera
```

```
** end
```

```
xconfiguration Video //Main
```

```
*c xConfiguration Video MainVideoSource: 3
```

```
** end
```

# Video

## Camera Problems

- Camera has been working but fails for unknown reason. These problems we are tracking by means of [CSCtx81509](#) - EX Series TelePresence camera not functioning. The defect contains details for support engineers which data to capture so the failures can be categorized.
- [CSCua44699](#) - Camera fails to boot due to checksum validation failure
  - There's also a field notice (FN 63534) for this 4X camera found [here](#)

# Video

## Bad Video Quality

- Latest GUI has details on call from Call Control menu. Touch can also show statistics on current call. Or On Screen Display [OSD]

Participants

dderidde@cisco.com 768 kbps

Layout family: Auto

dderidde  
dderidde@cisco.com

Call rate: 768 kbps  
Protocol: sip

Transmit Call Rate: 768 kbps      Receive Call Rate: 768 kbps      Encryption: Aes-128

	Audio		Video	
	Transmit	Receive	Transmit	Receive
Protocol	AACLD	AACLD	H264	H264
Channel rate	61 kbps	61 kbps	686 kbps	136 kbps
Resolution	-	-	1024x576@30	640x480@8
Jitter	1 ms	0 ms	0 ms	12 ms
Loss	0 %	0 %	1 %	0 %

[Hide details](#)



# Video

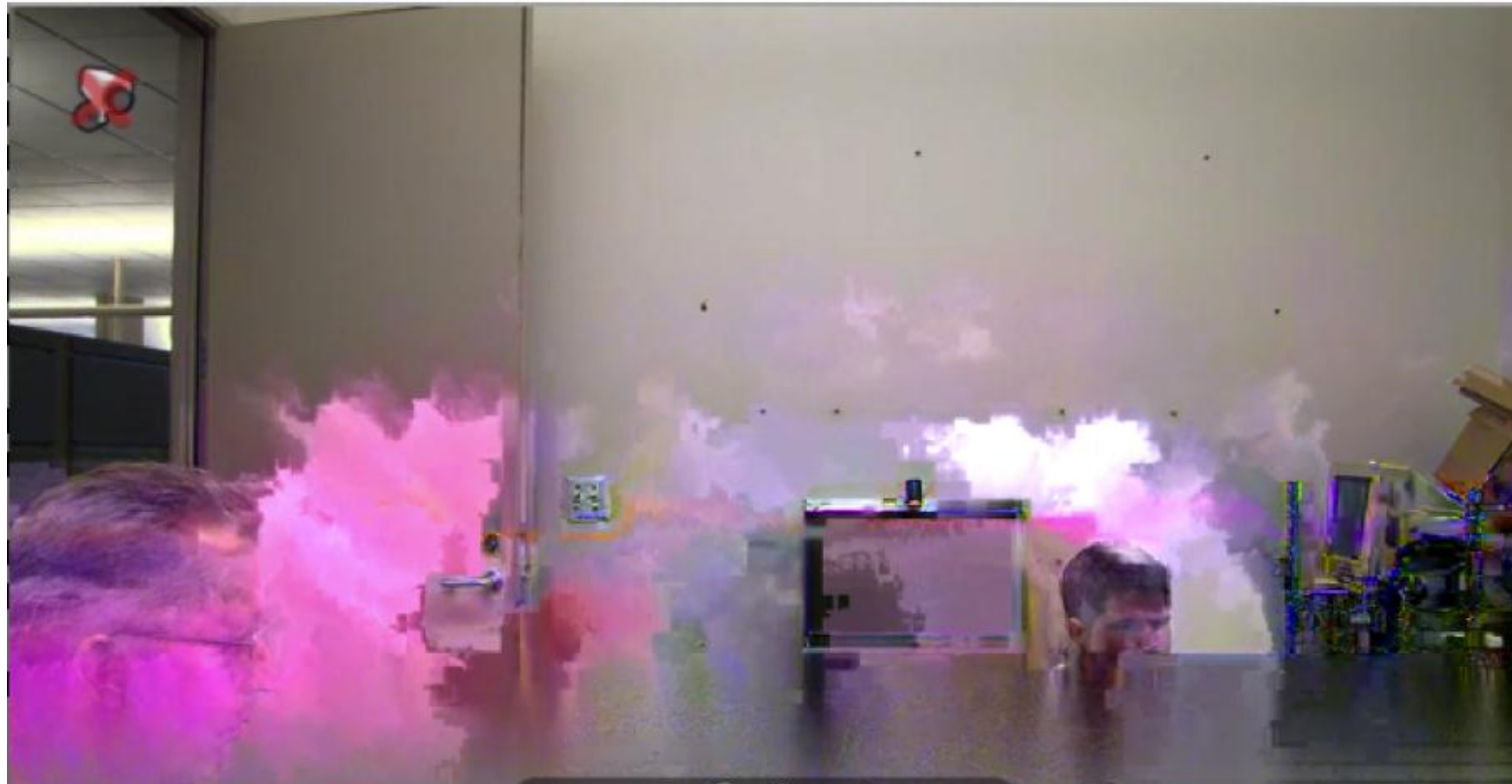
## Bad Video Quality – Stats on Touch

**Settings** Exit

System Information	Remote URI: dderidde.sx20@cisco.com
<b>Call Status</b>	Call Rate: 1472 kbps      Encryption Type: None
Language	Protocol: sip      Encryption Status: Off
Camera Control & Settings	<b>VIDEO</b> Transmit      Presentation      Receive      Presentation
Display Settings	Protocol: H264      Off      H264      Off
Ringtone & Sound Settings	Resolution: 1280x720      n/a      1280x720      n/a
Background	Frame Rate: 30      n/a      30      n/a
Administrator Settings >	Channel Rate: 1349 kbps      n/a      1335 kbps      n/a
Restart	Total Packet Loss (%): 0.1%      0.0%
	Current Packet Loss (%): 0.0%      0.0%
	Jitter: 0 ms      8 ms
	<b>AUDIO</b> Transmit      Receive
	Protocol: AACLD - Mono      AACLD - Mono
	Channel Rate: 127 kbps      125 kbps
	Total Packet Loss (%): 0.1%      0.0%
	Current Packet Loss (%): 0.0%      0.0%
	Jitter: 0 ms      8 ms

# Video

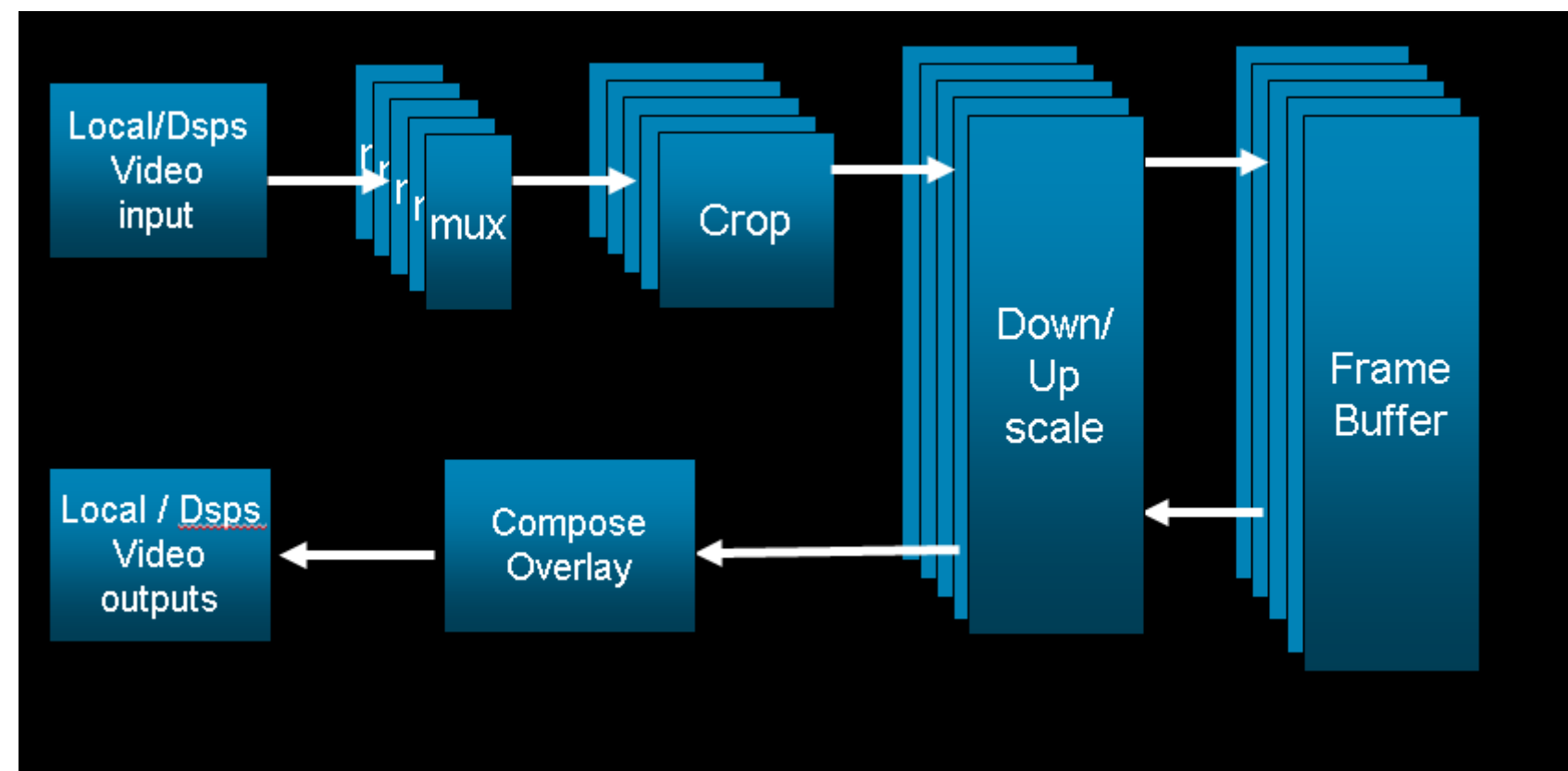
Bad Video Quality – example due to packet loss



# Video

## Other video input/outputs

- The Video Processing Engine [VPE] is a Field Programmable Gate Array [FPGA] where all video input/outputs of the codec are connected to. VPE can give detailed information about these input/outputs.



# Video

## VPE input/output mappings for different codecs

Log	Input/Output	C90	C60	C40	C20	EX90	EX60	MX200
VPE0	Input	HDMI 3 DVI-I 3 SD-HDI 3	HDMI 1	HDMI 1	DVI-I 2	HDMI 1	DVI-I 1 Internal Vp	DVI-I 1 Internal Vp
	Output	HDMI 1	HDMI 1	HDMI 1	HDMI 2	HDMI 1	LCD 1	LCD 1
VPE1	Input	HDMI 4 SD-HDI 4	HDMI 2 DVI-I 2	HDMI 2	HDMI 1 Internal Vp	DVI-I 2 Internal Vp	Camera 2	Camera 2
	Output	DVI 2	DVI 2	DVI 2	HDMI 1	LCD 1		
VPE2	Input	HDMI 1 YPrPb 1 SD-HDI 1	DVI-I 3 S-Video 3 Composite 3	DVI-I 3 S-Video 3 Composite 3		Camera 3		
	Output	HDMI 3	Composite 3	Composite 3(internal)				
VPE3	Input	HDMI 2 YPrPb 2 SD-HDI 2						
	Output	DVI 4						
VPE4	Input	DVI-I 5 S-Video 5 Composite 5						
	Output	Composite 5						

# Video

## How to connect to a VPE (snippet of EX90 DVI input on VPE1)

From admin shell do sys-con followed by VPE number

**sys-con vpe1**

\*\*\*\*\* Welcome to SYSTEM\_VPE1 \*\*\*\*\*

Use 'quit' to end connection

OK

Connected

**vpe-info all**

driver: vpe1 (Falcon rev K/ ), uptime: 0d 2h 35m 9s, no GHz ARM  
videorx: source DVI-I-2 (152) on primary input, enabled, not encrypted  
videorx: local input detection: 1920x1200@59.80  
videorx: DVI-A detected 18656 hsyncs  
videorx: DVI-D cable detect, 5V present, DVI-D cable not present

ad9388a: input DVI-A, drive strength 3  
ad9388a: no HDMI signal, no DVI-D signal, analog signal  
ad9388a: analog has lock, deglitch filter is off, AGC is on  
ad9388a: CSC mode: auto. Detected color space: auto. Coefficient preset selected: 0  
ad9388a: selected analog video format 1920x1200@59 calculated CVT, reduced blanking  
ad9388a: frame size 2080x1235, front porch h=48 v=3, sync h=32 v=6, pix\_freq=154.00 Mhz

lcd: falcon\_rev\_d

lcd: logic power on, backlight off, lvds enabled

lcd: brightness 50



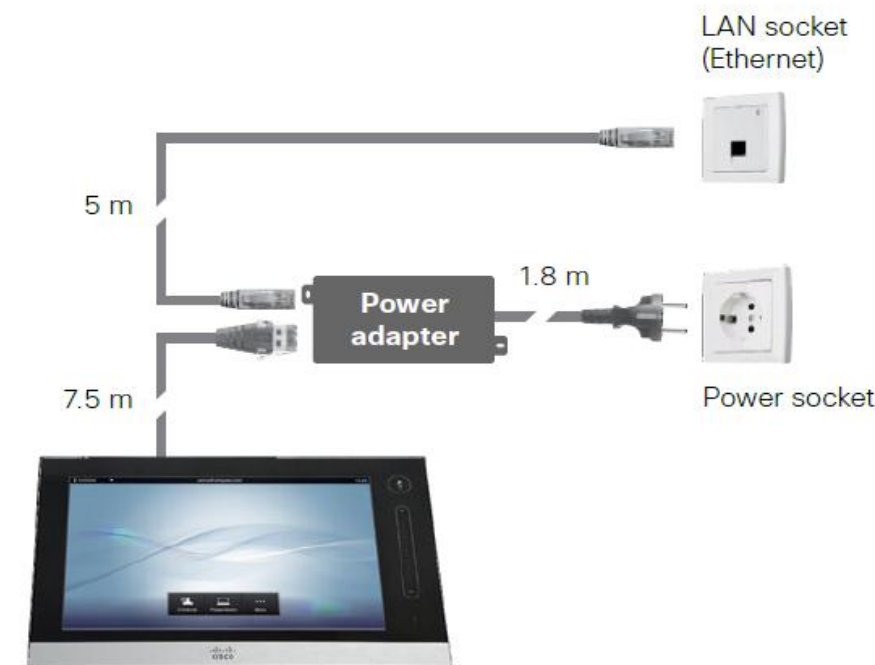
Touch Panel



# Touch pairing models

## Directly paired versus paired over a LAN

- Pairing is the process of the touch being able to “talk” to a codec
- There are 2 pairing modes
  - Direct pairing where touch is physically connected to the codec
  - Pairing over a LAN, where touch is connected to a power brick (PSU-DVC-POE13V) which provides the special connector to plug in the touch and an RJ45 connector to connect to a LAN

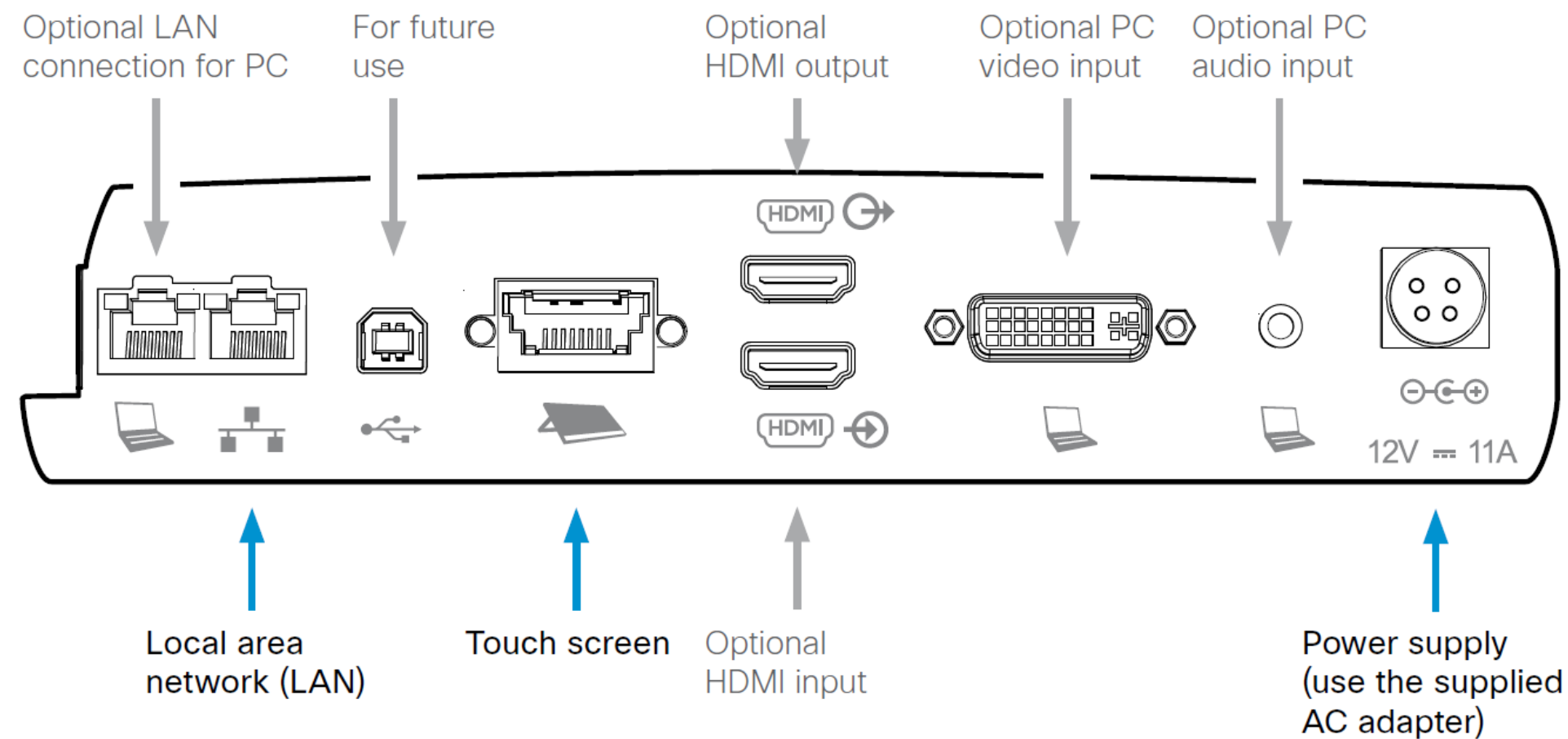




# Direct pairing

## EX-Series physical connector (example shown is EX90)

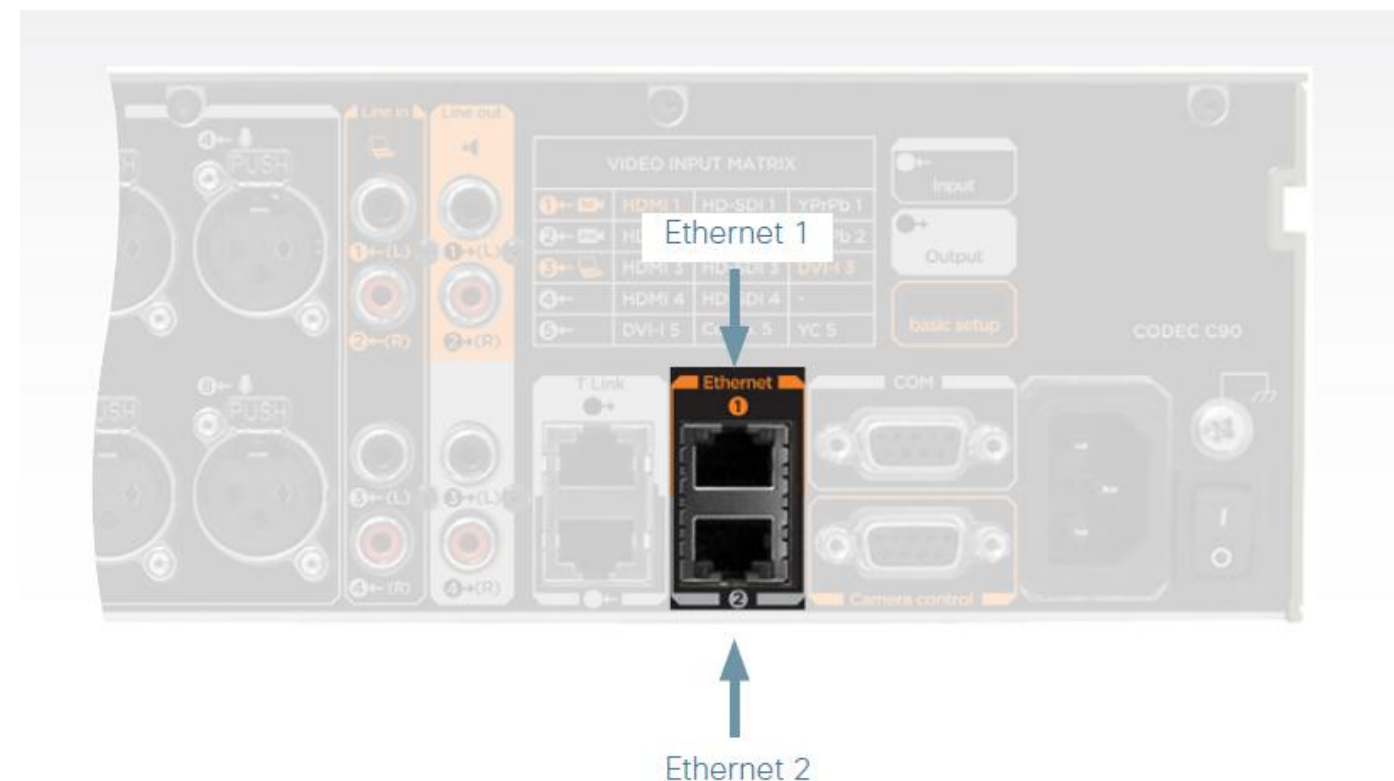
- EX-Series have special connector at the back to plug in touch panel



# Direct pairing

## C-Series physical connector (example shown is C90)

- C90/C60/C40 codecs have a 2<sup>nd</sup> network port where a touch panel can be connected using the power brick where the RJ45 LAN is plugged directly into codec. Check Cisco Telepresence Touch installation guide [here](#).
- On the codec, you must enable the 2<sup>nd</sup> port for directly paired touch
  - xconfiguration NetworkPort 2 Mode:DirectPairing (reboot of codec is required !)



# Direct pairing

## IP connectivity

- Directly paired touch panel receives its IP address from the codec which acts as a DHCP server
- Special IP address gets assigned to touch : 169.254.1.30
- Once touch receives its IP address it opens 2 tcp sessions to the codec, one to drive the touch panel menu and one to control mute/volume

### Show command on EX90

```
[dderidde-ex90-home:~] $ netstat tcp | grep endeavour
tcp 0 0 169.254.1.1:65009 endeavour.localnet:50393 ESTABLISHED
tcp 0 0 169.254.1.1:65008 endeavour.localnet:37404 ESTABLISHED
[dderidde-ex90-home:~] $
```

### Show command on touch panel

```
[cisco:~] $ netstat -pn tcp
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address Foreign Address State PID/Program name
tcp 0 0 169.254.1.30:57941 169.254.1.1:65008 ESTABLISHED 1348/main.bin
tcp 0 0 169.254.1.30:38681 169.254.1.1:65009 ESTABLISHED 1126/touchmenu
udp 0 0 169.254.1.30:57056 169.254.1.1:514 ESTABLISHED 1342/syslog-ng
```

# Direct pairing

## Log files

- Both the main and the touchmenu applications are logging information in `/var/log/eventlog/endeavour.log` and `/var/log/endeavour-system.log`

### `/var/log/eventlog/endeavour.log`

```
[dderidde-ex90-home:/var/log/eventlog] $ cat endeavour.log
Dec 24 08:16:22 endeavour main: TT3.1.6.298270Beta1
Dec 24 08:16:22 endeavour main: SW Release Date: 2012-12-17
Dec 24 08:16:22 endeavour main: Product information
Dec 24 08:16:22 endeavour main: Endeavour
Dec 24 08:16:22 endeavour main: Main board: F
Dec 24 08:16:22 endeavour main: Using server ip: 169.254.1.1, and port: 65008
Dec 24 08:16:22 endeavour main: Connected to tshell
Dec 24 08:16:27 endeavour main: found cradle
[dderidde-ex90-home:/var/log/eventlog] $
```

### `/var/log/endeavour-system.log`

```
Dec 24 08:16:22 endeavour syslog-ng[1359]: Syslog connection established; fd='7',
server='AF_INET(169.254.1.1:514)', local='AF_INET(0.0.0.0:0)'
Dec 24 08:16:22 endeavour syslog-ng[1359]: syslog-ng starting up; version='3.0.4'
Dec 24 08:16:22 endeavour logger: syslog-ng started
Dec 24 08:16:23 endeavour ntpd[1271]: ntpd exiting on signal 15
Dec 24 08:16:29 endeavour ntpd[1393]: ntpd 4.2.6p4@1.2324 Tue Sep 11 14:01:38 UTC 2012 (1)
Dec 24 08:16:29 endeavour ntpd[1394]: proto: precision = 30.516 usec
```

# LAN pairing

## Codec discovery and pairing

- A LAN paired touch panel can either have static or IP address obtained via DHCP. It is recommended to have touch and codec on same LAN segment for discovery reasons
- Codec acts as UPnP server the first 10 minutes it has booted. Touch will receive the announcements so it can build a codec list from which user can select the one it wants to pair with
- Once a codec is selected, the touch opens 2 ssh (tcp port 22) sessions to the codec, one to drive the touch panel menu and one to control mute/volume

```
[C60:/etc/init.d] $ netstat -pn tcp | grep admin
tcp 0 0 10.60.142.199:22 10.60.142.200:36755 ESTABLISHED 8806/sshd: admin@no
tcp 0 0 10.60.142.199:22 10.60.142.200:36756 ESTABLISHED 8810/sshd: admin@no
```

# LAN pairing

## ssh sessions towards codec

### SSH sessions as seen on touch panel

```
[tandberg:~] $ pgrep -l pairing.bin
1924 pairing.bin
1947 pairing.bin
[tandberg:~] $
```

```
[tandberg:~] $ ps fax -p $(pidof touchmenu)
 PID TTY STAT TIME COMMAND
<Snip>
1902 ttyO2 S 0:00 /bin/sh //touchmenu/runtouchmenu
1904 ? Ss 0:06 _ /touchmenu/qtopia/bin/touchmenu --auto
1924 ? S 0:00 _ pairing.bin -k /config/pairing/key -s 10.60.1
1942 ? Ss 0:00 main.bin
1947 ? S 0:00 _ pairing.bin -k /config/pairing/key -s 10.60.142.1
1975 ? Ss 0:00 ntpd -p /var/run/ntpd.pid -c /etc/ntp.conf -g
[tandberg:~] $
```

**This data was captured using special console cable on the touch panel. Touch cannot be accessed via ssh or telnet!**

# Touch not pairing in direct mode

## DHCP Server on codec : dhcpcd logged in /var/log/messages.log

- By default, the touch gets its IP address from the codec via DHCP

```
Apr 3 11:19:35 (none) dhcpcd: DHCPREQUEST for 169.254.1.30 from 00:50:60:05:f9:1c via eth1.4090
```

```
Apr 3 11:19:35 (none) dhcpcd: DHCPACK on 169.254.1.30 to 00:50:60:05:f9:1c (tandberg) via eth1.4090
```

```
[dderidde-ex90-office:/var/log] $ cat /var/state/dhcp/dhcpcd.leases
```

```
The format of this file is documented in the dhcpcd.leases(5) manual page.
```

```
This lease file was written by isc-dhcp-4.1.1
```

```
lease 169.254.1.30 {
```

```
 starts 2 2012/04/03 11:19:35;
```

```
 ends 3 2012/04/04 11:19:35;
```

```
 cltt 2 2012/04/03 11:19:35;
```

```
 binding state active;
```

```
 next binding state free;
```

```
 hardware ethernet 00:50:60:05:f9:1c;
```

```
 client-hostname "tandberg";
```

```
}
```



# Touch not pairing in direct mode

## DHCP Server on codec : tcpdump Tracing

```
[dderidde-ex90-office:/var/log] $ tcpdump -i eth1.4090 udp port 68 -vv
```

```
tcpdump: listening on eth1.4090, link-type EN10MB (Ethernet), capture size 65535 bytes
```

```
11:19:35.099024 IP (tos 0x10, ttl 128, id 0, offset 0, flags [none], proto UDP (17), length 328)
```

```
0.0.0.0.68 > 255.255.255.255.67: [udp sum ok] BOOTP/DHCP, Request from 00:50:60:05:f9:1c (oui Unknown), length 300, xid 0x16fad453, Flags [none] (0x0000)
```

```
Client-Ethernet-Address 00:50:60:05:f9:1c (oui Unknown)
```

```
Vendor-rfc1048 Extensions
```

```
Magic Cookie 0x63825363
```

```
DHCP-Message Option 53, length 1: Request
```

```
Requested-IP Option 50, length 4: endeavour.localnet
```

```
Hostname Option 12, length 8: "tandberg"
```

```
Parameter-Request Option 55, length 11:
```

```
Subnet-Mask, BR, Default-Gateway, Domain-Name
```

```
Domain-Name-Server, Hostname, NTP, Option 242
```

```
Option 120, TFTP, Vendor-Option
```

# Touch not pairing in direct mode

## Checking internal switch statistics on EX90

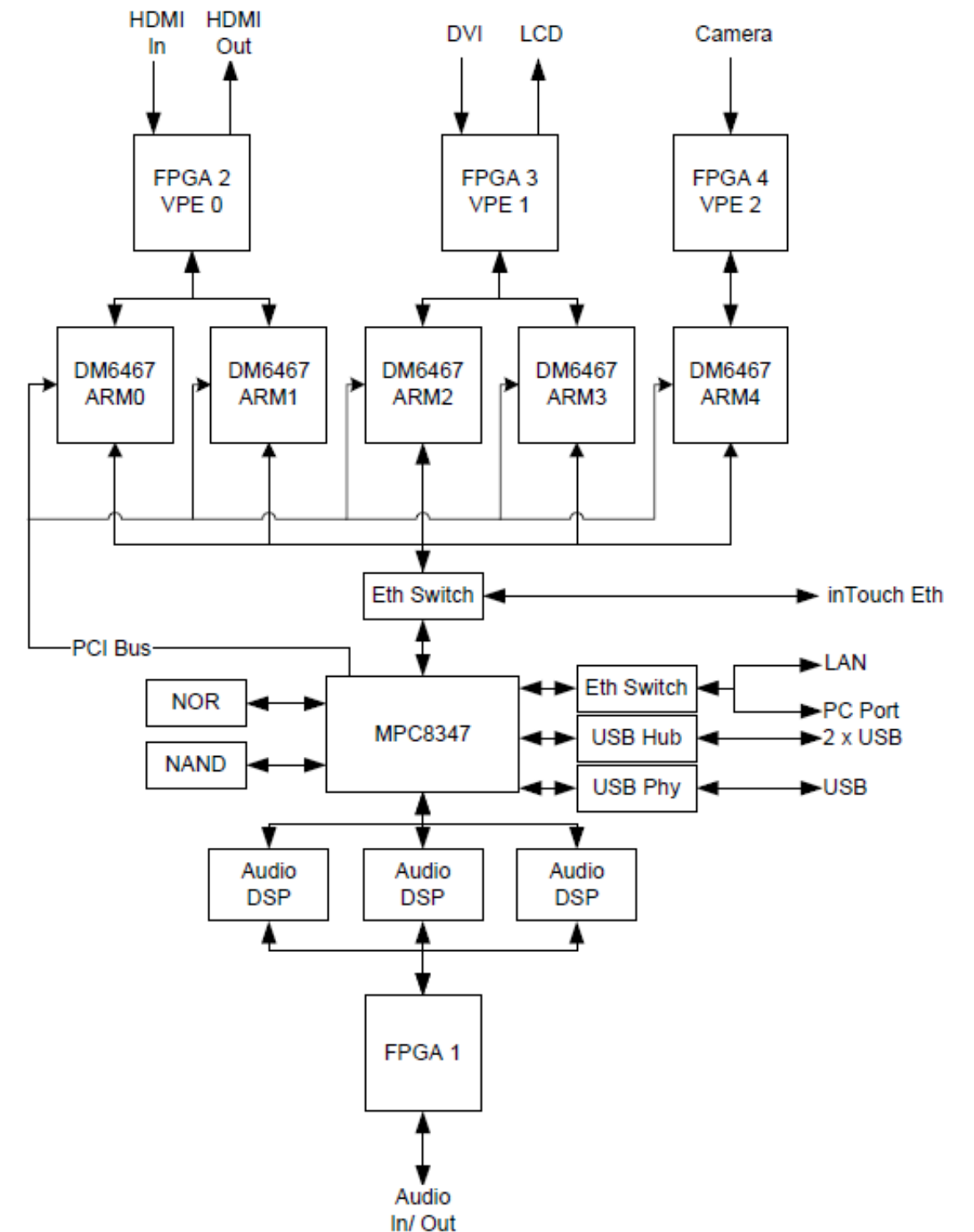
```
[dderidde-ex90-home:~] $ pstat int 5
Internal switch, port 5

Incoming: Outgoing:

Octets low: 474940 Octets low: 1201263
Octets high: 0 Octets high: 0
Bad octets: 1778 Late: 0
Unicast: 5195 Unicast: 3873
Broadcast: 7 Broadcast: 4
Multicast: 131 Multicast: 9
Pause: 86 Pause: 0
Undersized: 0 Excessive: 0
Fragments: 0 Collisions: 0
Oversized: 0 Deferred: 0
Jabber: 0 Single: 0
RX error: 0 Multiple: 0
FCS error: 2 FCS error: 0

Received frames histogram:

64 octets frames: 93
65 to 127 octets frames: 5549
128 to 255 octets frames: 3212
256 to 511 octets frames: 32
512 to 1023 octets frames: 42
1024 to max octets frames: 379
[dderidde-ex90-home:~] $
```



# Touch not pairing in direct mode

## Checking VLAN traffic 4090 ( eth1 on EX90 / eth0 on C-Series)

```
[dderidde-ex90-home:/proc] $ cat /proc/net/vlan/eth1.4090
eth1.4090 VID: 4090 REORDER_HDR: 1 dev->priv_flags: 1
 total frames received 6745
 total bytes received 465865
Broadcast/Multicast Rcvd 0

 total frames transmitted 4913
 total bytes transmitted 1364655
Device: eth1
INGRESS priority mappings: 0:0 1:0 2:0 3:0 4:0 5:0 6:0 7:0
EGRESS priority mappings:

[DGM2-2-Eridanus:/etc] $ cat /proc/net/vlan/eth0.4090
eth0.4090 VID: 4090 REORDER_HDR: 1 dev->priv_flags: 1
 total frames received 5645492
 total bytes received 384996247
Broadcast/Multicast Rcvd 4

 total frames transmitted 5809427
 total bytes transmitted 4044049353
 total headroom inc 0
 total encap on xmit 5809431
Device: eth0
INGRESS priority mappings: 0:0 1:0 2:0 3:0 4:0 5:0 6:0 7:0
EGRESS priority mappings:
[DGM2-2-Eridanus:/etc] $
```

# Touch not pairing in LAN mode

## Check IP connectivity and logfiles

- Use [touch panel settings](#) to check its acquired IP address
- Verify connectivity touch (10.60.142.202) <-> codec (10.60.142.199)

```
[C60:/var/log/eventlog] $ ping 10.60.142.202
```

```
PING 10.60.142.202 (10.60.142.202) 56(84) bytes of data.
```

```
64 bytes from 10.60.142.202: icmp_seq=1 ttl=64 time=1.21 ms
```

- Check both ssh sessions

```
[C60:/var/log/eventlog] $ netstat -np | grep 10.60.142.202
```

```
tcp 0 0 10.60.142.199:22 10.60.142.202:54627 ESTABLISHED 5254/sshd: admin@no
```

```
tcp 0 0 10.60.142.199:22 10.60.142.202:54628 ESTABLISHED 5258/sshd: admin@no
```

```
[C60:/var/log/eventlog] $
```

- Check `/var/log/eventlog/touchdevice.log`

# Touch Not Upgrading

## Field Notice

- Some Touch Units may remain stuck in upgrade state or become unresponsive after software upgrade - Upgrade program is available. Please check [Field Notice FN63448](#) and [CSCtr75206](#).
- Field notices regarding EX-Series TelePresence are located at [here](#).



# Touch Freezing

## Read Failures from Flash

- Having upgraded TC software on codec, the touch gets upgraded too. We noticed some touch panels froze after having been upgraded. Check [CSCtw86018](#) – Touch Control Device freezes and becomes unusable. The root cause were read failures from flash. This is fixed in TC5.1.0.





# Touch ddtS-es

## Other known defects

- [CSCua05967](#) - Touch is stuck in upgrading software (fixed in TC6.0.0)
- [CSCua08205](#) - Cisco TelePresence touch panel may not respond properly
- [CSCuc41657](#) - Volume and mic freeze but touch screen still working (fixed in TC5.1.5)
- [CSCtx37351](#) - Broken ethernet port connecting to Touch [hardware]
- [CSCtw61408](#) - Touch Control Device does not pair with codec
- [CSCub15405](#) - Touch Panel erratic behavior caused by electrical interference
  - There's a new touch panel (next generation touch) which is less prone to Electro Magnetic Interference (EMI)
- [CSCuc68224](#) - Touch loses connection and does not retry when network is restored after (static IP)



# Touch ddts-es continued

## Other known defects

- [CSCtq75037](#) - Network failure on touch panel

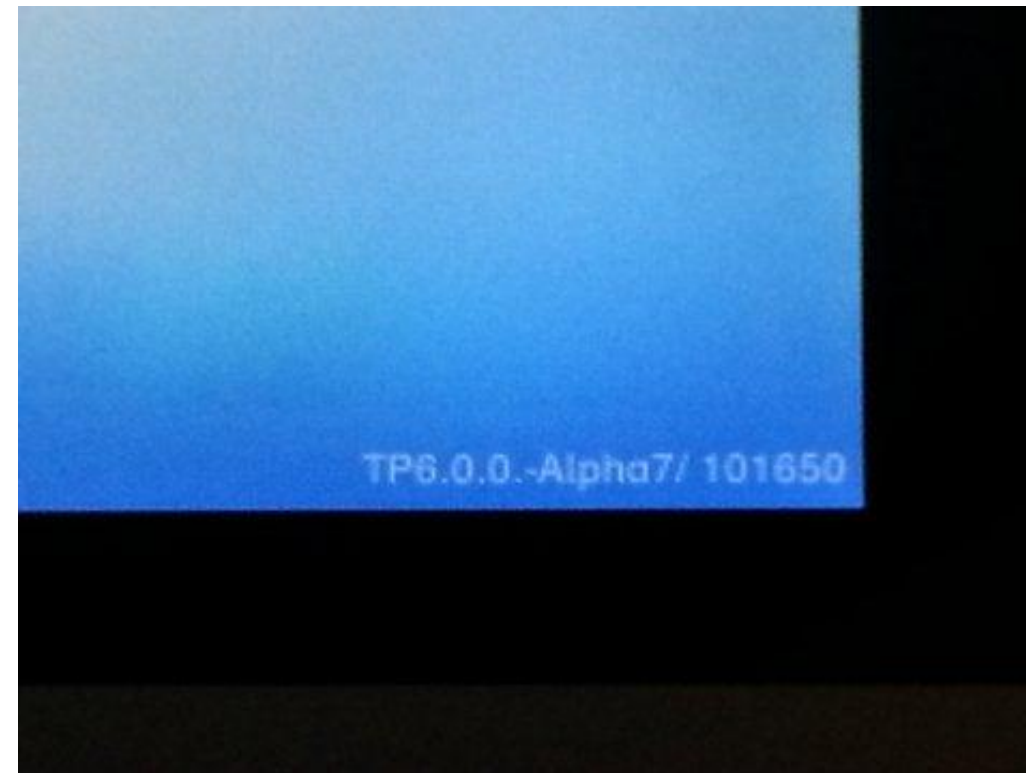
CT Touch panels for C-Series Codecs can lose the network link because the Ethernet transceiver in the device may be damaged by Power over Ethernet (PoE) voltage spikes. CT Touch is damaged and it must be replaced. Engineering has now released an improved version that will withstand such spikes. This improvement is available in main board version 800-35343-04 and onwards.



# Newer touch hardware

## Software/hardware compatibility

- Newer touch panel requires release TC5.1.4 or later on the codec. This hardware/software dependency is described in the release notes found [here](#).
- [CSCub20808](#) - Show unit info for 5 sec during boot. This will help user to determine the hardware revision level of the touch at boottime.





## Newer touch hardware

In case of touch/codec incompatibility, error message is displayed.



# How to Factory Reset Touch

Use factory reset as the last resource to see if it fixes your issue(s)

- If all the troubleshooting explained on the previous slides did not provide a solution, one can perform a factory reset on the touch panel. Cisco's supportforum has a [movi clip](#) showing how to perform the reset. Pairing and other configuration data will be erased so touch will boot without any previous configuration history, e.g. leases it might have obtained are deleted, pairing info is reset, etc...
- A touch, similar to the codec(s), can hold 2 images : image1 and image2. Should the touch not boot due to a corrupted image, the new message indicator will be lit and nothing else works ("!" is lit). To try and select the other image, reboot the touch panel and hold the "!" key until the volume LEDs start flashing. Then press the "mute" button twice. Touch will now reboot with the 2<sup>nd</sup> image.



# Network Connectivity





# Network Connectivity

## Misconfiguration(s)

- It's really easy to misconfigure an ip address, mask, or gateway. These have to make sense or they won't "take". Since these are entered by the touch panel, those mistakes can be hard to spot for a human. We opened dds to perform sanity checks when user enters data. [CSCtx12854](#) - It is too easy to make mistakes with IP address configuration
- Although we recommend people to configure the ethernet port for auto, it is possible to go on the web interface or xconfig and configure something else. In at least one case it was noticed a Cisco switch reporting the interface as down/down after this is done, which is odd. The touch panel reports "No LAN". The fact the interface worked with auto negotiation strongly implies some incompatibility NOT a hardware problem.
- [CSCtr24575](#) - EX60 shows 'No LAN' if cable is connected to PC port (not to LAN port)

# Network Connectivity

## dhclient Messages

- Not getting IP address. Check connectivity to the DHCP server or trace the traffic on the LAN segment to find out why unit does not obtain a lease. Can be done using tcpdump on the unit if one has root access. Also, the `/var/log/messages.log` contains output from the dhclient.

Apr 3 07:29:38 (none) dhclient: DHCPDISCOVER on eth0 to 255.255.255.255 port 67 interval 7

Apr 3 07:29:38 (none) dhclient: DHCPOFFER from 10.48.2.3

Apr 3 07:29:43 (none) dhclient: DHCPREQUEST on eth0 to 255.255.255.255 port 67

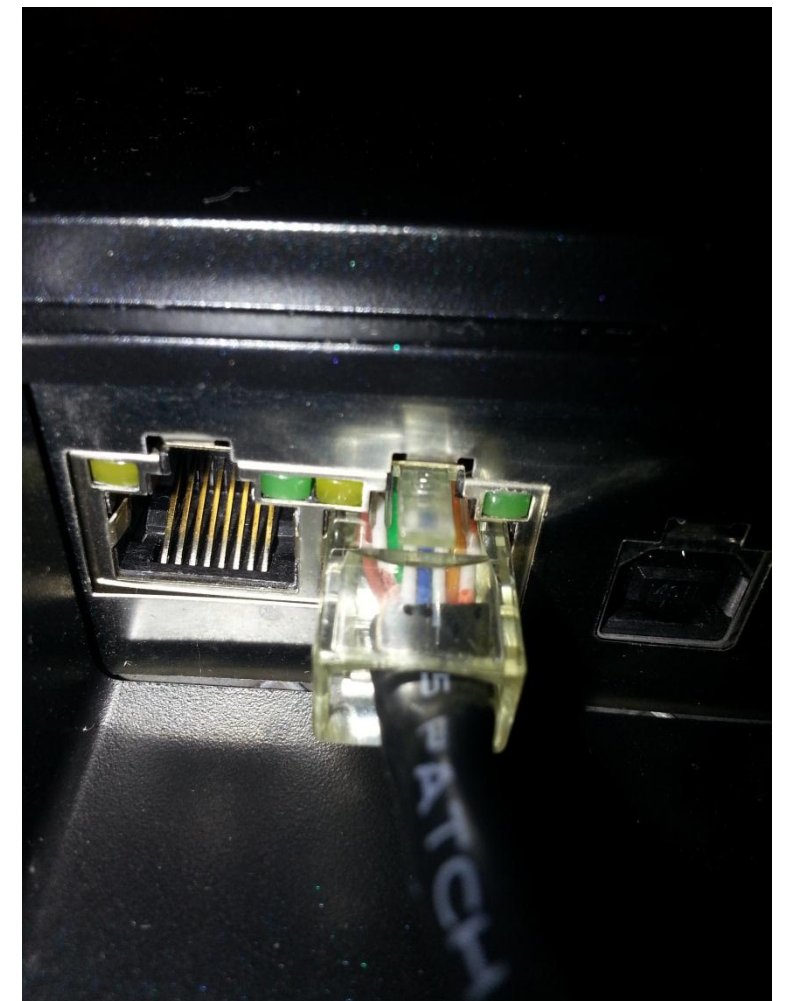
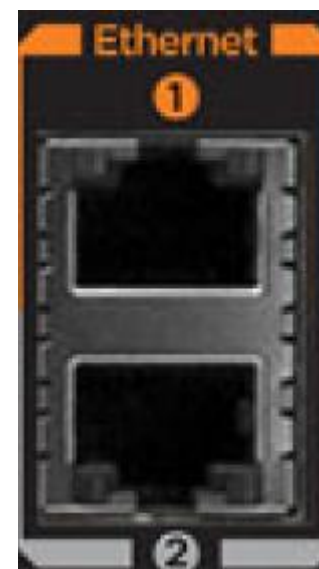
Apr 3 07:29:43 (none) dhclient: DHCPACK from 10.48.2.2

### xstatus Network 1

\*s Network 1 IPv4 Address: "10.48.2.78"

\*s Network 1 IPv4 SubnetMask: "255.255.254.0"

\*s Network 1 IPv4 Gateway: "10.48.2.1"





# Network Connectivity

## tcpdump Trace for bootp udp Port 68

```
[dderidde-ex90-office:/var/log] $ tcpdump udp port 68 -vv
```

```
tcpdump: listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
```

```
10:36:20.438340 IP (tos 0x0, ttl 64, id 0, offset 0, flags [DF], proto UDP (17), length 328)
```

```
dhcp-10-48-2-78.cisco.com.68 > dhcp-bru1-1-l.cisco.com.67: [udp sum ok] BOOTP/DHCP, Request from 00:50:60:05:52:ba (oui Unknown), length 300, xid 0x2a9c2b22, Flags [none] (0x0000)
```

```
Client-IP dhcp-10-48-2-78.cisco.com
```

```
Client-Ethernet-Address 00:50:60:05:52:ba (oui Unknown)
```

```
Vendor-rfc1048 Extensions
```

```
Magic Cookie 0x63825363
```

```
DHCP-Message Option 53, length 1: Release
```

```
Server-ID Option 54, length 4: dhcp-bru1-1-l.cisco.com
```

```
Hostname Option 12, length 20: "dderidde-ex90-office"
```

```
Vendor-Class Option 60, length 18: "TANDBERG:Codec:1.0"
```

# Network Connectivity

## Stats on EX-Series

- EX90 uses external ethernet switch which provides statistics

```
[dderidde-ex90-home:/var/log/eventlog] $ pstat ext 3
External switch, port 3

Incoming: Outgoing:

Octets low: 2589252 Octets low: 2214844
Octets high: 0 Octets high: 0
Bad octets: 0 Late: 0
Unicast: 8660 Unicast: 10520
Broadcast: 3 Broadcast: 548
Multicast: 944 Multicast: 10653
Pause: 0 Pause: 0
Undersized: 0 Excessive: 0
Fragments: 0 Collisions: 0
Oversized: 0 Deferred: 0
Jabber: 0 Single: 0
RX error: 0 Multiple: 0
FCS error: 0 FCS error: 0

Received frames histogram:

64 octets frames: 11719
65 to 127 octets frames: 9478
128 to 255 octets frames: 7654
256 to 511 octets frames: 649
512 to 1023 octets frames: 1101
1024 to max octets frames: 409
[dderidde-ex90-home:/var/log/eventlog] $
```

# Network Connectivity

## Stats on EX/MX/SX/C-Series

- Use ethtool or ifconfig

```
[C60-in-TP-lab-CUCM-controlled:~] $ ifconfig -a eth0
eth0 Link encap:Ethernet HWaddr 00:50:60:83:69:B3
 inet addr:10.48.55.249 Bcast:0.0.0.0 Mask:255.255.255.128
 inet6 addr: fe80::250:60ff:fe83:69b3/64 Scope:Link
 UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
 RX packets:21064 errors:0 dropped:0 overruns:0 frame:0
 TX packets:4466 errors:0 dropped:0 overruns:0 carrier:0
 collisions:0 txqueuelen:1000
 RX bytes:1646527 (1.5 Mb) TX bytes:629065 (614.3 Kb)
```

```
[C60-in-TP-lab-CUCM-controlled:~] $ ethtool -S eth0
NIC statistics:
 rx-dropped-by-kernel: 2
 rx-large-frame-errors: 0
 rx-short-frame-errors: 0
 rx-non-octet-errors: 0
 rx-crc-errors: 0
 rx-overrun-errors: 0
 rx-busy-errors: 0
 rx-babbling-errors: 0
 rx-truncated-frames: 0
 ethernet-bus-error: 0
```

<Snip>

# Network Connectivity

## Status on Touch

No LAN





# Call Signaling Issues : SIP or H323



# Call Signaling Issues

## Tcpdump to Generate File Be Analyzed Via Wireshark

- tcpdump is a handy command to capture/trace data on the codec from root. Can be used to analyze both H.323 or SIP via wireshark

# Turn off encryption to make captured data readable. De-select auto and select for example UDP.

**xConfiguration SIP Profile [1..1] DefaultTransport: <TCP/UDP/Tls/Auto>**

# Run tcpdump and capture data to a file. Not port 22 filter will avoid capturing your ssh session to the codec.

```
[dderidde-ex90-office:~] $ tcpdump -s 0 -U not port 22 -w /tmp/capture.pcap
```

# stop capture using <CNTRL> <C>

3 packets captured

3 packets received by filter

0 packets dropped by kernel

```
[dderidde-ex90-office:~] $
```

# Move file to your PC/MAC and analyze via wireshark . Also, remove file from /tmp directory.

```
$ scp root@10.48.2.78:/tmp/capture.pcap .
```

Password:

```
capture.pcap 100% 260 0.3KB/s 00:00
```

```
dderidde@dderidde-WS ~
```

# Call Signaling Issues

## Tandberg Shell Debug

usage: **log COMMAND [PARAMETER]...**

Commands to filter session output:

level LEVEL                      Output messages of this and higher levels

Commands to control message production:

ctx [CTX]+ debug N              Enable debug level N (1..9) for the context CTX

Other commands:

list                              Lists registered contexts

output <on/off>                 Output log to this console.

help                             This help text

Parameter:

LEVEL                            <off|debug <level>|info|notice|warning|error>

CTX                               context name (as can be seen from "log list")

**log list**

'APPL\_ConfCtrl' (debug 0)

'APPL\_EventMonitor' (debug 0)

<Snip>



# Call Signaling Issues

## SIP Example

```
[dderidde-ex90-home:/tmp] $ tsh
```

```
Welcome to dderidde.ex90.home
```

```
TANDBERG Codec Release TE6.0.1.47c1258
```

```
SW Release Date: 2013-01-08
```

```
OK
```

```
log ctx sippacket sipcall debug 9
```

```
log output on (apart from sending debug to logfiles, we also send output to screen)
```

```
17320.92 SipCall I: ==== makeOutgoingCall appld=2, stackId=na
```

```
17320.92 SipCall sourceName=
```

```
17320.92 SipCall source=sip:dderidde.ex90.office@cisco.com
```

```
17320.92 SipCall destination=dderidde@cisco.com
```

```
<Snip>
```

```
log ctx sippacket sipcall debug off
```

```
log output off
```



Maintenance shell Introduced in  
TC5.1.0



# Maintenance Shell

## Endpoints Presents Shell Accessible by Admin Via ssh/Telnet

- If the codec fails during the startup process, we will now enter a maintenance shell rather than rebooting. This means that we will no longer cyclic reboot. [requires TC5.1.5]
- If the codec does not start up properly, try to ssh into the codec. One needs to know the IP address of the unit to be able to connect. We are aware of the fact that current releases do not show the IP address anywhere. Subsequent releases will improve the maintenance shell to include this information and provide WEB interface to maintenance too.
- It is good practice to keep track of an endpoint's IP address when it is statically set or to be able to access the DHCP server and check the lease obtained by the unit. Normally there's a binding MAC-address <-> obtained leased.

# Maintenance Shell

## Available Commands in Maintenance Mode

- Below is a sample screen of the shell showing the available commands

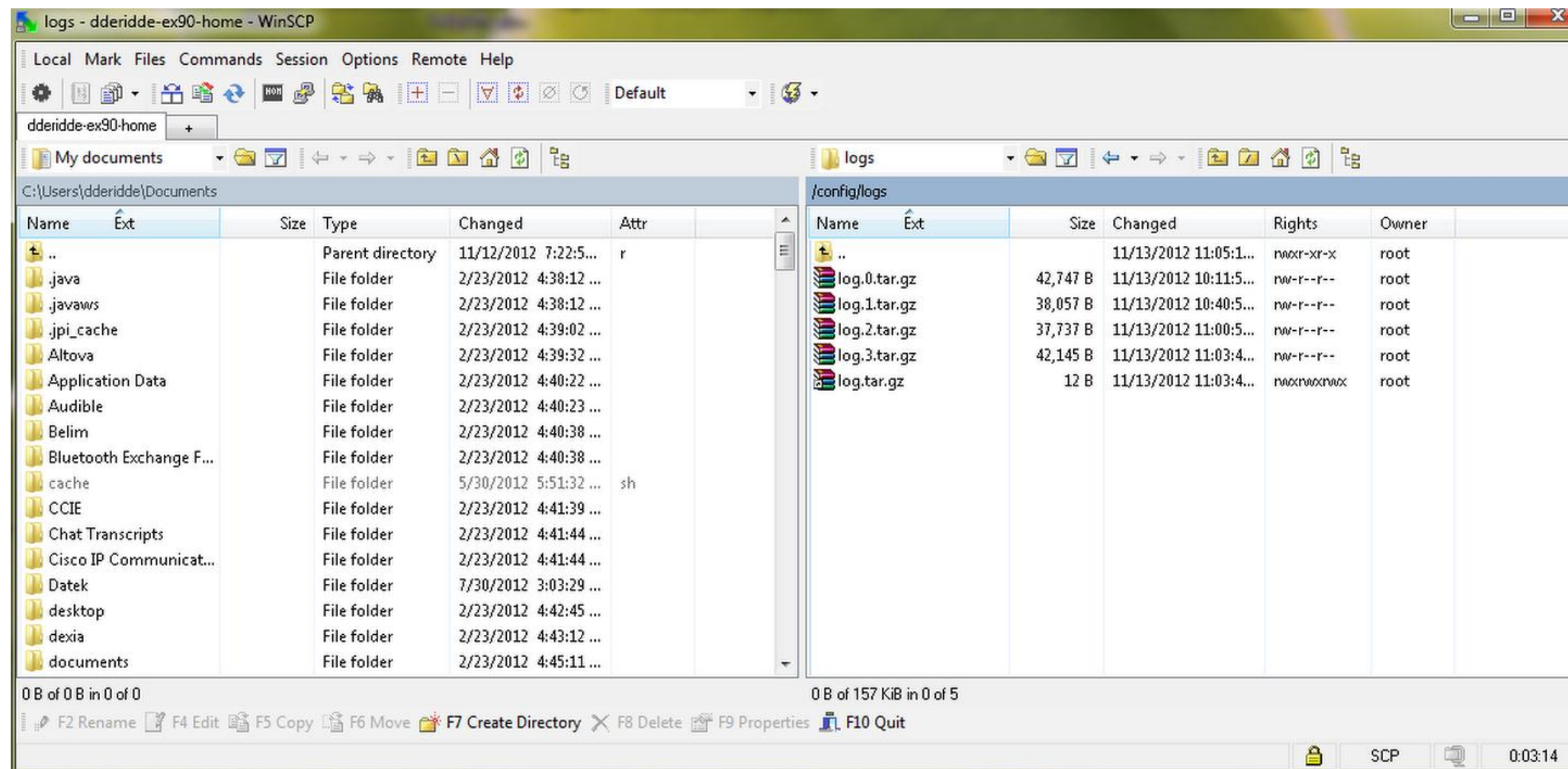
```
Welcome to the Cisco Telepresence maintenance shell.
Type 'help' or '?' for help.
help
 - User Commands -
help factoryreset pkgverify selectsw reboot version
rootsettings log
```

- `pkgverify` : verifies that the current software image is OK.
- `version` : prints the version of the current software.
- `selectsw` : can be used to switch to another image (if present).
- `log` : prints all logfiles to screen. Use screen logging to write to a file!
- `reboot` : reboots the unit.
- `factoryreset` : performs factory reset. Only perform this as a "last resort".
- `rootsettings` : (same as `systemtools` command)

# Maintenance Shell

Retrieve logfiles using winscp on PC/MAC. Root access is required!

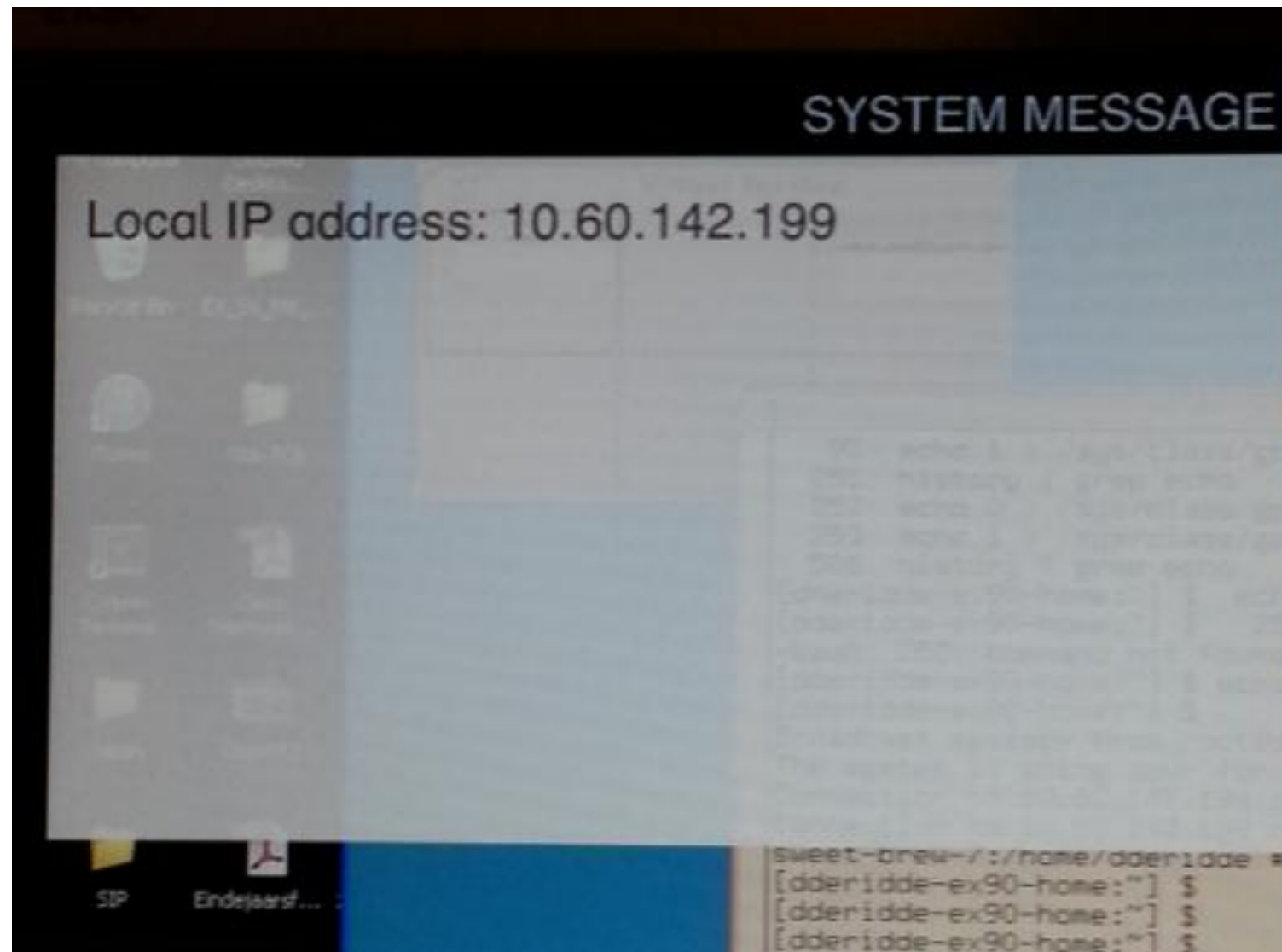
- When the system enters maintenance mode and one can access the unit via IP, it makes sense to reboot the codec so all files are bundled in a log.tar.gz which can then be run through ACR tool. Winscp via root!



# Maintenance Shell

New in TC5.1.5 : printing of IP address on screen

- Below is a sample screen on EX90 showing SYSTEM MESSAGE with IP address when system entered maintenance mode

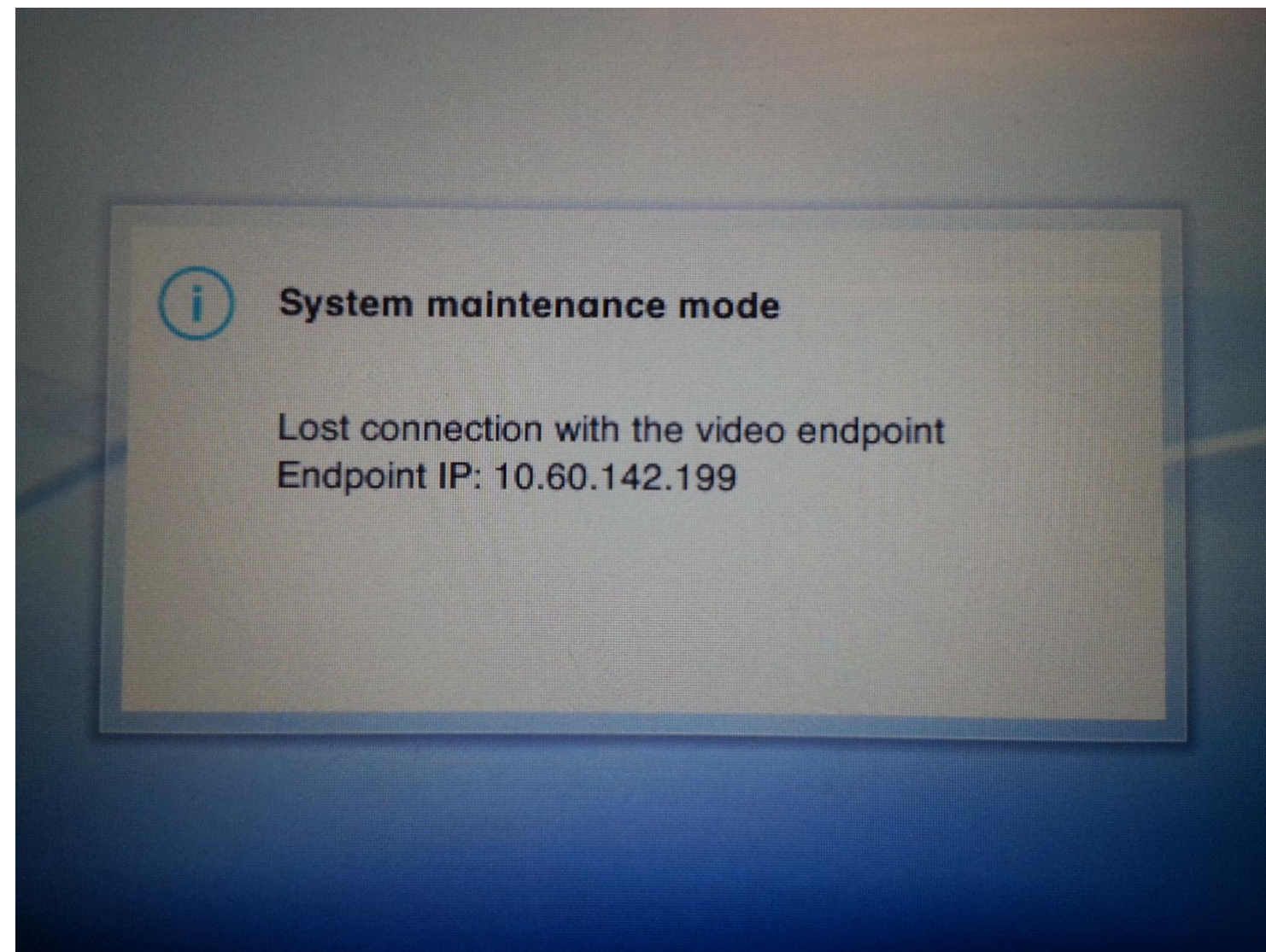




# Maintenance Shell

New in TC5.1.5 : printing of IP address on touch

- Below is a sample screen on EX90 showing IP address being printed on the touch panel (layout format may vary depending on release here TC6.1.0 beta)







# Recovering an Endpoint



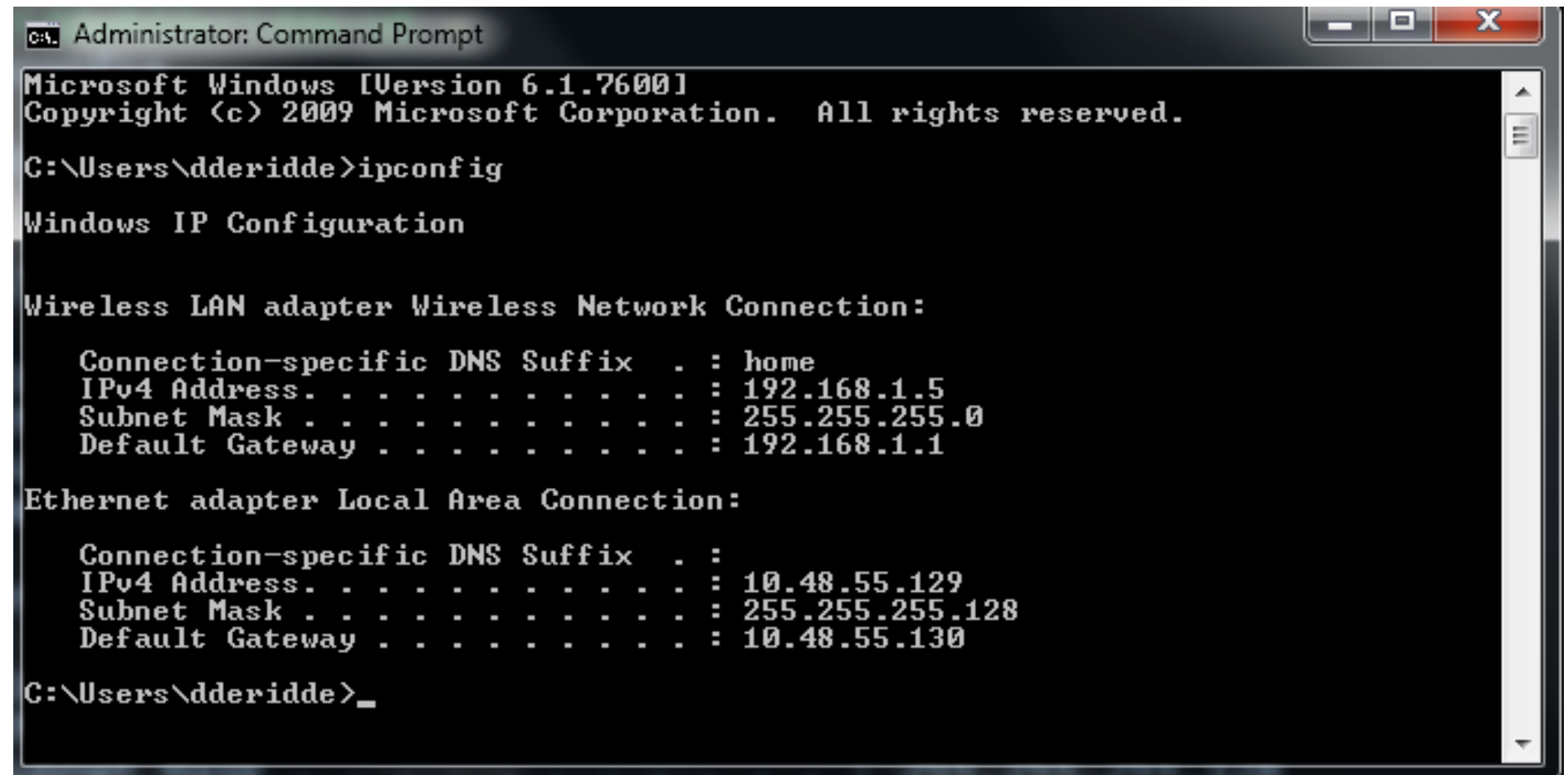
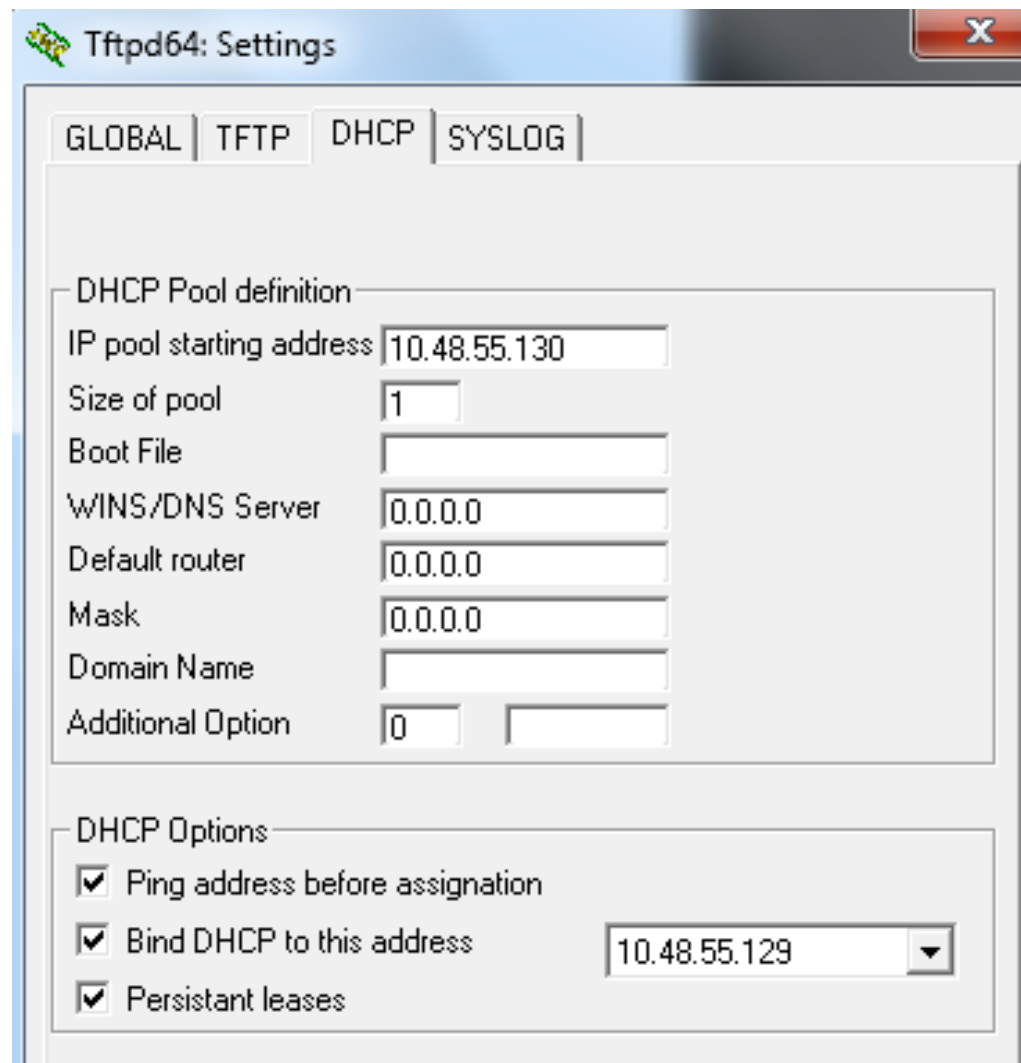
# Recovering an Endpoint

## When IP Address is Unknown : Connect to "local" DHCP Server

- Connect your PC [or MAC] via an ethernet crossover cable to the LAN port of the endpoint
- Configure fixed IP address on your PC with gateway and network mask
- Load DHCP server on the PC. E.g. : [tftpd32](#).
- Configure DHCP server to bind to correct LAN interface and configure address pool
- Endpoint should obtain IP address and can be accessed via ssh/GUI.

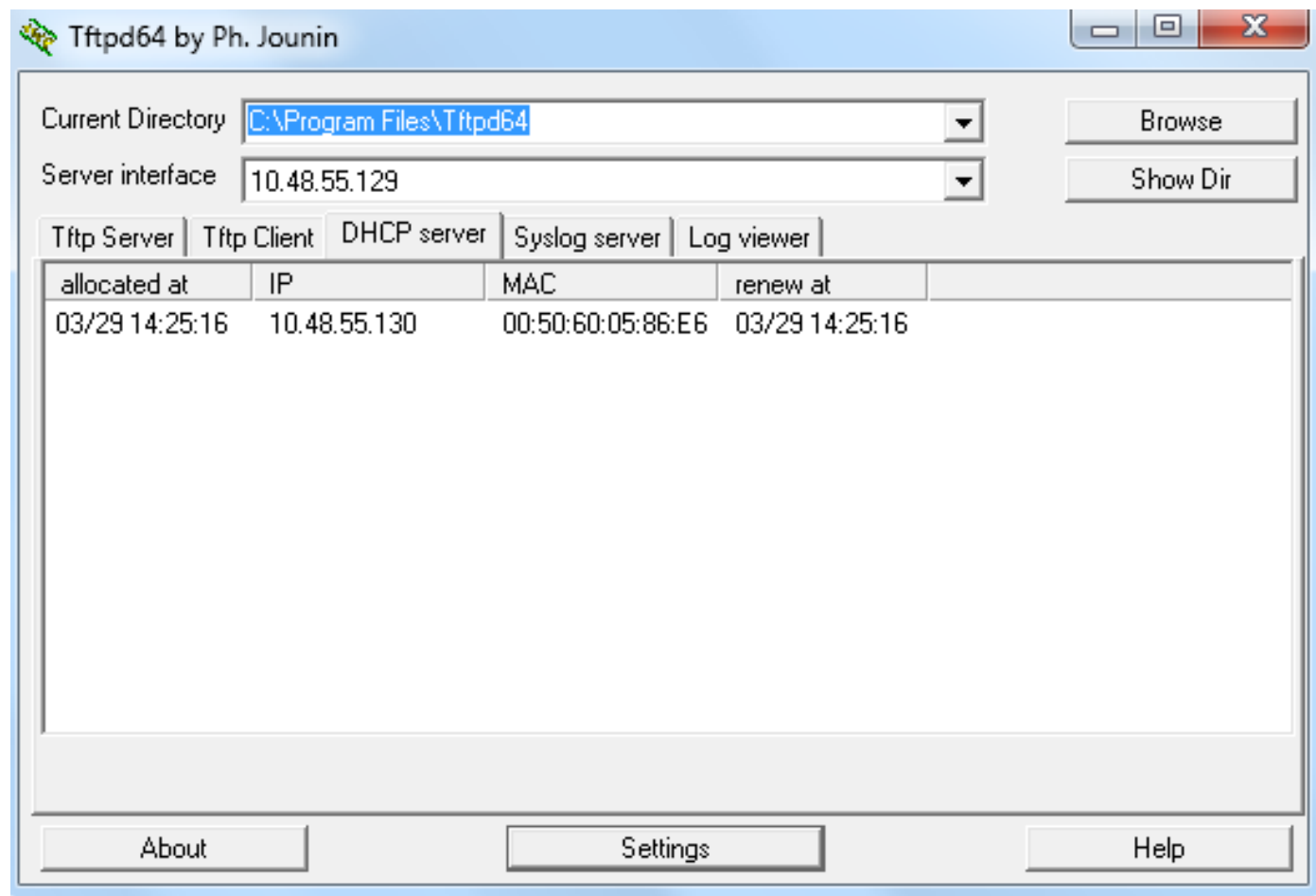
# Recovering an Endpoint

## Snapshots of DHCP Server Configuration and PC



# Recovering an Endpoint

## DHCP Server Log and Lease



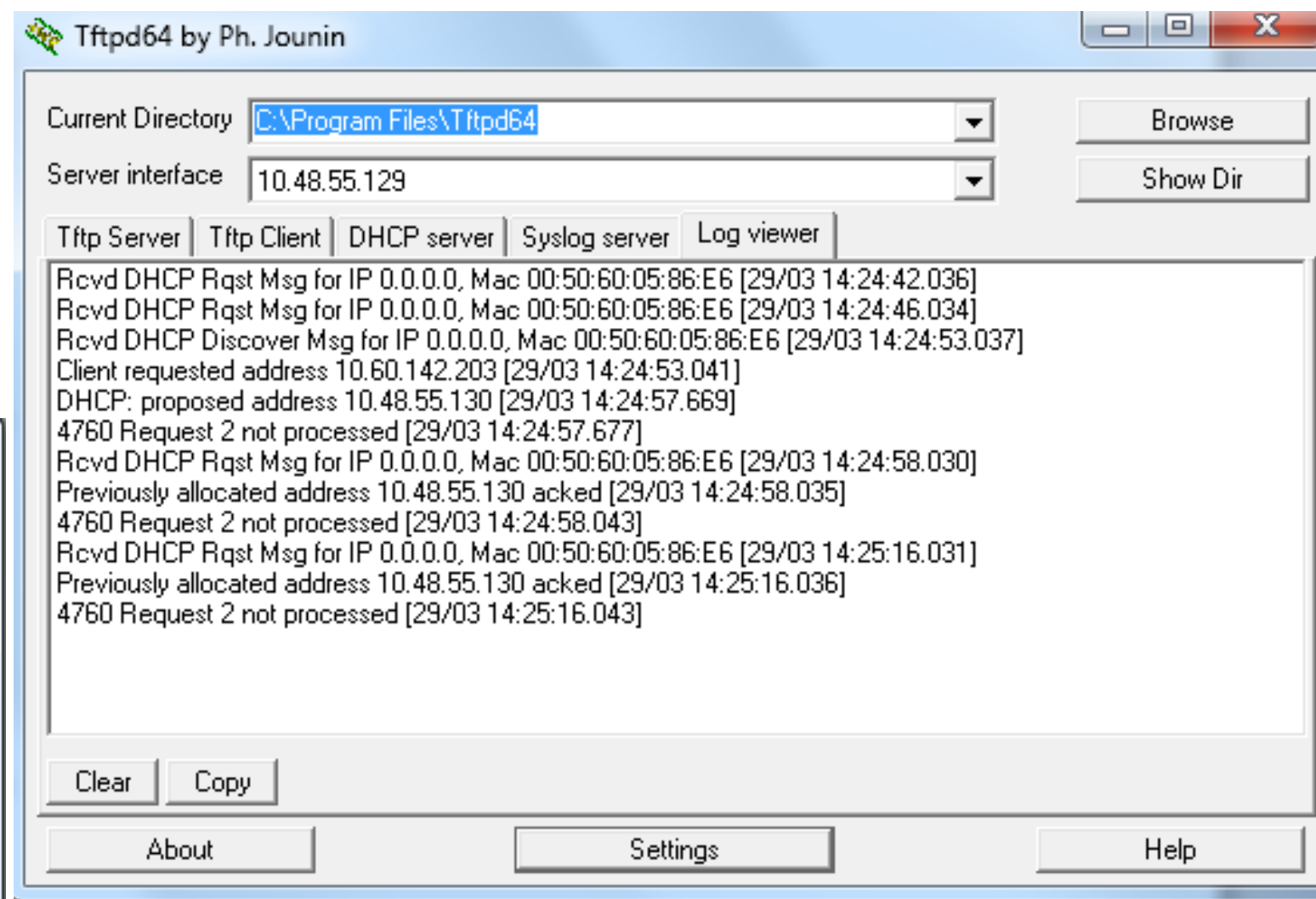
Tftpd64 by Ph. Jounin

Current Directory: C:\Program Files\Tftpd64  
Server interface: 10.48.55.129

Tftp Server | Tftp Client | **DHCP server** | Syslog server | Log viewer

allocated at	IP	MAC	renew at
03/29 14:25:16	10.48.55.130	00:50:60:05:86:E6	03/29 14:25:16

About Settings Help



Tftpd64 by Ph. Jounin

Current Directory: C:\Program Files\Tftpd64  
Server interface: 10.48.55.129

Tftp Server | Tftp Client | DHCP server | Syslog server | **Log viewer**

```
Rcvd DHCP Rqst Msg for IP 0.0.0.0, Mac 00:50:60:05:86:E6 [29/03 14:24:42.036]
Rcvd DHCP Rqst Msg for IP 0.0.0.0, Mac 00:50:60:05:86:E6 [29/03 14:24:46.034]
Rcvd DHCP Discover Msg for IP 0.0.0.0, Mac 00:50:60:05:86:E6 [29/03 14:24:53.037]
Client requested address 10.60.142.203 [29/03 14:24:53.041]
DHCP: proposed address 10.48.55.130 [29/03 14:24:57.669]
4760 Request 2 not processed [29/03 14:24:57.677]
Rcvd DHCP Rqst Msg for IP 0.0.0.0, Mac 00:50:60:05:86:E6 [29/03 14:24:58.030]
Previously allocated address 10.48.55.130 acked [29/03 14:24:58.035]
4760 Request 2 not processed [29/03 14:24:58.043]
Rcvd DHCP Rqst Msg for IP 0.0.0.0, Mac 00:50:60:05:86:E6 [29/03 14:25:16.031]
Previously allocated address 10.48.55.130 acked [29/03 14:25:16.036]
4760 Request 2 not processed [29/03 14:25:16.043]
```

Clear Copy

About Settings Help



Load Image From u-boot



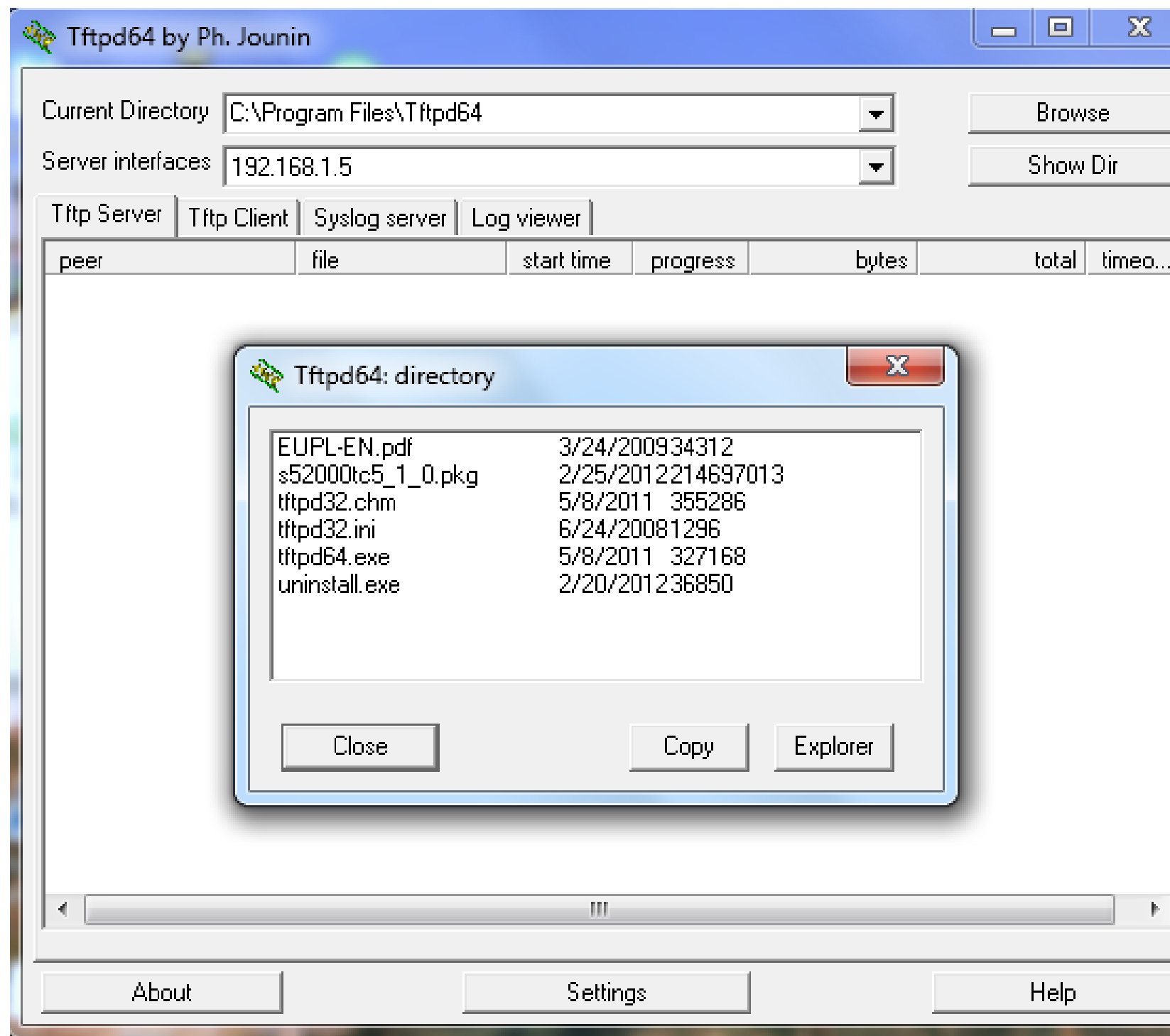
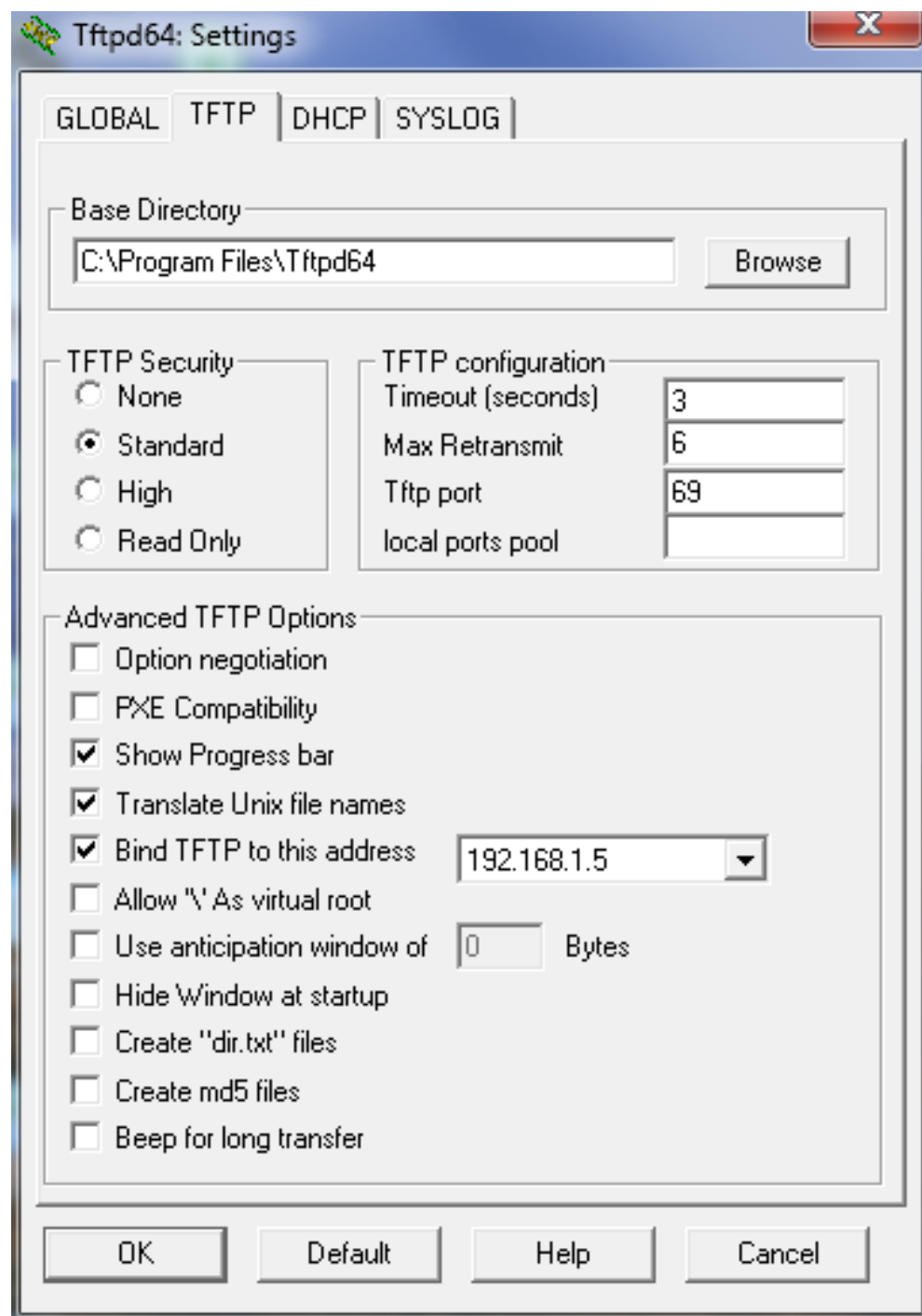
# Load Image From u-boot

## U-boot Environment, DHCP and TFTP

- Follow steps explained in recovering an endpoint
- Setup tftpd program to act as TFTP server and load pkg on it
- Connect to console and break into u-boot [type b followed by c]
- Set u-boot environment as follows :
  - ✓ **setenv serverip <TFTP\_address>** where TFTP\_address is the IP address of the TFTP server
  - ✓ **setenv tftp\_path FOLDER\_NAME** where FOLDER\_NAME is the name of the folder where the files are located
  - ✓ **setenv saturnpkg FILE\_NAME** where FILE\_NAME is the name of the pkg file, e.g.s52000tc5\_1\_0.pkg
- Execute command "run pkgex". When finished, issue "reset"
- Login as admin and configure release and option keys

# Load Image From u-boot

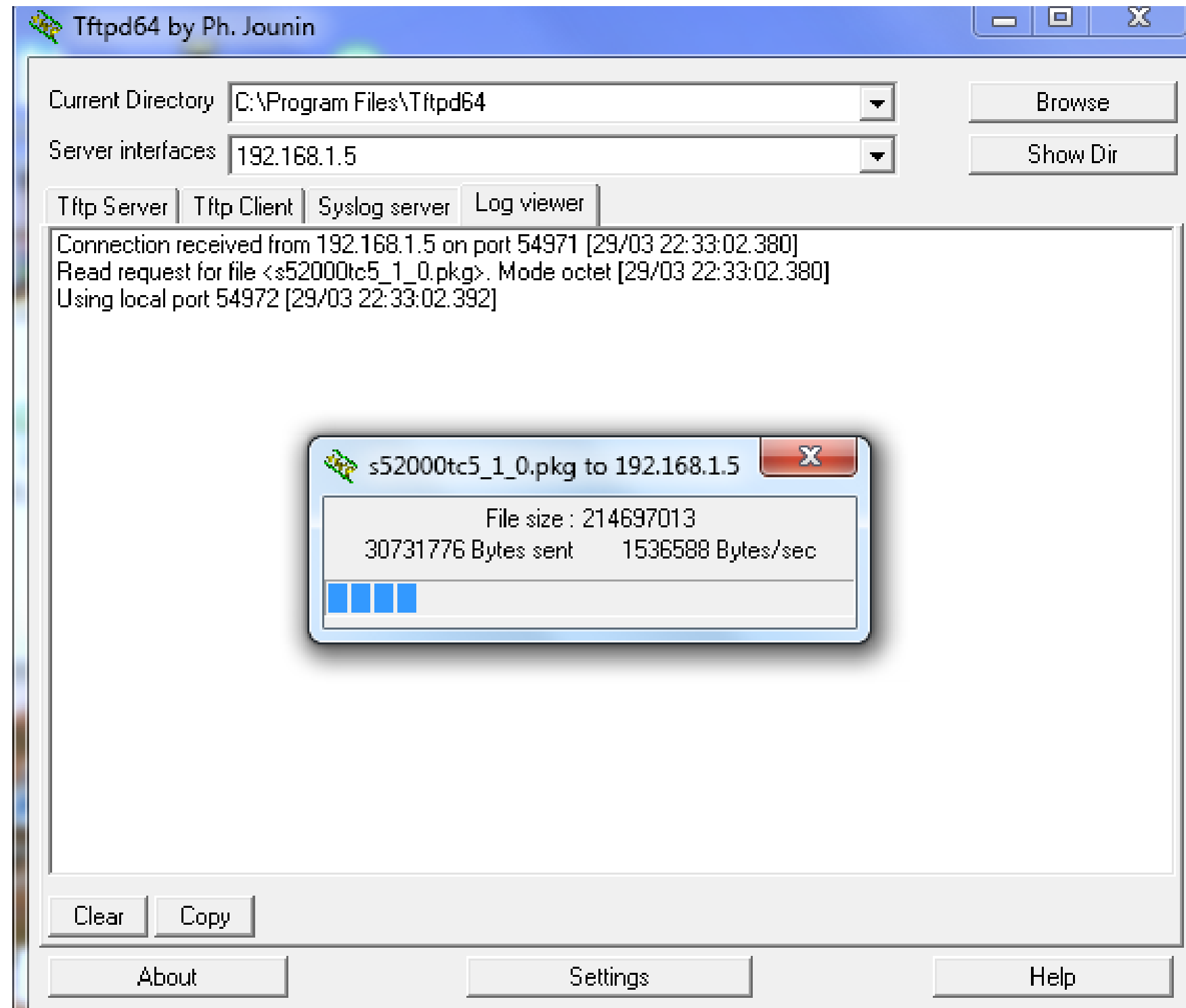
## TFTP Settings





# Load Image From u-boot

## Progress When Downloading File



# Load Image From u-boot

## U-boot Interaction on Console : Setting the Environment

<Snip>

MAC: 00:50:60:05:52:BA

Net: TSEC0, TSEC1

Hwmon: 43

Press 'b' to enter u-boot prompt

Press 'c' to stop autoboot: 5

FALCON>

FALCON> **setenv serverip 144.254.10.208**

FALCON> **setenv tftp\_path /**

FALCON> **setenv saturnpkg s52000tc5\_1\_0.pkg**

FALCON> dhcp

BOOTP broadcast 1

DHCP client bound to address 144.254.13.100

FALCON> ping 144.254.10.208

host 144.254.10.208 is alive

FALCON>

# Load Image From u-boot

## U-boot Interaction on Console : run pkgex

```
FALCON> run pkgex
```

```
BOOTP broadcast 1
```

```
DHCP client bound to address 144.254.13.100
```

```
NAND erase: device 0 whole chip
```

```
Skipping bad block at 0x01500000
```

```
Skipping bad block at 0x0b640000
```

```
Skipping bad block at 0x11500000
```

```
Skipping bad block at 0x3ea80000
```

```
Skipping bad block at 0x73b80000
```

```
Erasing at 0x7ffc0000 -- 100% complete.
```

```
OK
```

```
yaffs: Mounting /flash
```

```
Using TSEC0 device
```

```
TFTP from server 144.254.10.208; our IP address is 144.254.13.100; sending through gateway 144.254.13.1
```

```
Filename '//s52000tc5_1_0.pkg'.
```

```
Load address: 0x2000000
```

```
Loading: #####
```

# Load Image From u-boot

## U-boot Interaction on Console : setting tftpblocksize

Loading of image may result in fragmentation with default u-boot environment settings. Errors like the ones below are thrown out.

Ethernet ERROR: IP fragmentation

Check ethernet MTU on server

Workaround is to set the tftpblocksize in u-boot .

```
FALCON> setenv tftpblocksize 1000
```

```
FALCON>
```

```
FALCON> tftpboot s52000tc5_1_0.pkg
```

```
Using TSEC0 device
```

```
TFTP from server 10.61.65.170; our IP address is 144.254.13.43; sending through gateway 144.254.13.1
```

```
Filename 's52000tc5_1_0.pkg'.
```

```
Load address: 0x1000000
```

```
#####
```



# Tips and Tricks



# Tips and Tricks

## Copy New Image Using scp as Opposed to GUI

```
[dderidde-ex90-office:~] $ scp dderidde@drop:s52000tc5_1_0.pkg /upgrade/pkg
```

```
dderidde@drop's password:
```

```
s52000tc5_1_0.pkg 100% 205MB 2.4MB/s 01:25
```

```
[dderidde-ex90-office:~] $
```

```
[0] [*] Obtaining lock
[0] [**] Determining base directory
[0] [***] Determining install directory
[0] [****] Running early product-specific tasks
[7] [*****] Cleaning install directory
[7] [*****] Extracting software
[55] [*****] Verifying data integrity
[55] [*****] Copying user data
[57] [*****] Copying release key file
[57] [*****] Running product-specific tasks
[133] [*****] Running post-install hooks from installed package
[144] [*****] Switching default installation and upgrade boot sw
[146] [*****] Done
[147] [*****] Rebooting
```

# Tips and Tricks

## Upgrade/Downgrade : Hardware/Software Compatibility Matrix

Software Release	C Series					EX Series		MX Series		SX Quick Set	CT Touch	
	C20	C40	C60	C60 Rev 1	C90	EX60	EX90	MX200	MX300	SX20	CS	Gen 2
TC5.1.0 <a href="#">📄</a>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO
TC5.0.1 <a href="#">📄</a>	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	NO
TC5.0.0 <a href="#">📄</a>	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	NO
TC4.2.2 <a href="#">📄</a>	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO	YES	NO
TC4.2.0 <a href="#">📄</a>	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO	YES	NO
TC4.1.0 <a href="#">📄</a>	YES	YES	YES	YES	YES	YES	YES	NO	NO	NO	YES	NO
TC4.0.0 <a href="#">📄</a>	YES	YES	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO
TC3.1.4 <a href="#">📄</a>	YES	YES	YES	YES	YES	NO	YES	NO	NO	NO	NO	NO
TC3.1.3 <a href="#">📄</a>	YES	YES	YES	YES	YES	NO	YES	NO	NO	NO	NO	NO
TC3.1.2 <a href="#">📄</a>	YES	YES	YES	YES	YES	NO	YES	NO	NO	NO	NO	NO
TC3.1.1 <a href="#">📄</a>	YES	YES	YES	YES	YES	NO	YES	NO	NO	NO	NO	NO
TC3.0.0 <a href="#">📄</a>	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO	NO
TC2.1.2 <a href="#">📄</a>	YES	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO
TC2.1.1 <a href="#">📄</a>	YES	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO
TC2.1.0 <a href="#">📄</a>	YES	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO
TC2.0.1 <a href="#">📄</a>	YES	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO
TC2.0.0 <a href="#">📄</a>	YES	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO

- <sup>1</sup> - Endpoints having the new version of the NAND flash memory must run software TC3.1.5 or later.
- <sup>2</sup> - Endpoints having the new image sensor must run software TC4.2.3 or TC5.1.1 and later.
- <sup>3</sup> - C-Series endpoints having the New LCD requires to run TC5 or later.
- <sup>4</sup> - In order to downgrade latter TC to TC2.0.0, first it must downgrade to TC2.0.1 and then from TC2.0.1 ---> TC2.0.0



# Tips and Tricks

## Upgrade Failure

- [CSCtr56838](#) - Not possible to upgrade Cisco Telepresence EX90. Unit needs to be replaced under Umpire program. Contact TAC.

# Tips and Tricks

## Save Your config to a Server

```
[dderidde-ex90-office:/mnt/base/image1] $ selectsw
```

```
image1 [ACTIVE] [SELECTED]
```

```
image2
```

```
[dderidde-ex90-office:/mnt/base/image1] $ ls -l config.db
```

```
-rw-r--r-- 1 root root 3292 Apr 5 09:25 config.db
```

```
[dderidde-ex90-office:/mnt/base/image1] $ scp ./config.db dderidde@drop:config.backup.db
```

```
The authenticity of host 'drop (10.48.160.30)' can't be established.
```

```
RSA key fingerprint is 0f:37:5d:bb:c3:37:d2:ee:a3:f2:0c:39:32:da:33:22.
```

```
Are you sure you want to continue connecting (yes/no)? yes
```

```
Warning: Permanently added 'drop,10.48.160.30' (RSA) to the list of known hosts.
```

```
dderidde@drop's password:
```

```
config.db 100% 3292 3.2KB/s 00:00
```

```
[dderidde-ex90-office:/mnt/base/image1] $
```

```
dderidde@drop% ls -lrt config.backup.db
```

```
-rw-r--r-- 1 dderidde nsite 3292 Apr 5 12:02 config.backup.db
```

```
dderidde@drop%
```

# Tips and Tricks

## Factory Reset : Procedure Before TC5.1.0 Release

- A factory reset should only be performed as a "last resort" !
- Factory reset can be performed via API, Touch, GUI and power button. If one of the first 3 methods is accessible, I would not recommend to do factory reset at all but seek alternative methods to fix any issues at hand
- If unit is completely inaccessible via IP, Touch or lack of serial cable one should use the power button method :
  - Power off/on unit : the power LED next to the power button is lit
  - Within few seconds keep power button pressed : LED goes out. Keep pressed 'til it is lit again, then release the button
  - Now press the power button twice
- Factory reset deletes config, callogs, logs and non-active image

# Tips and Tricks

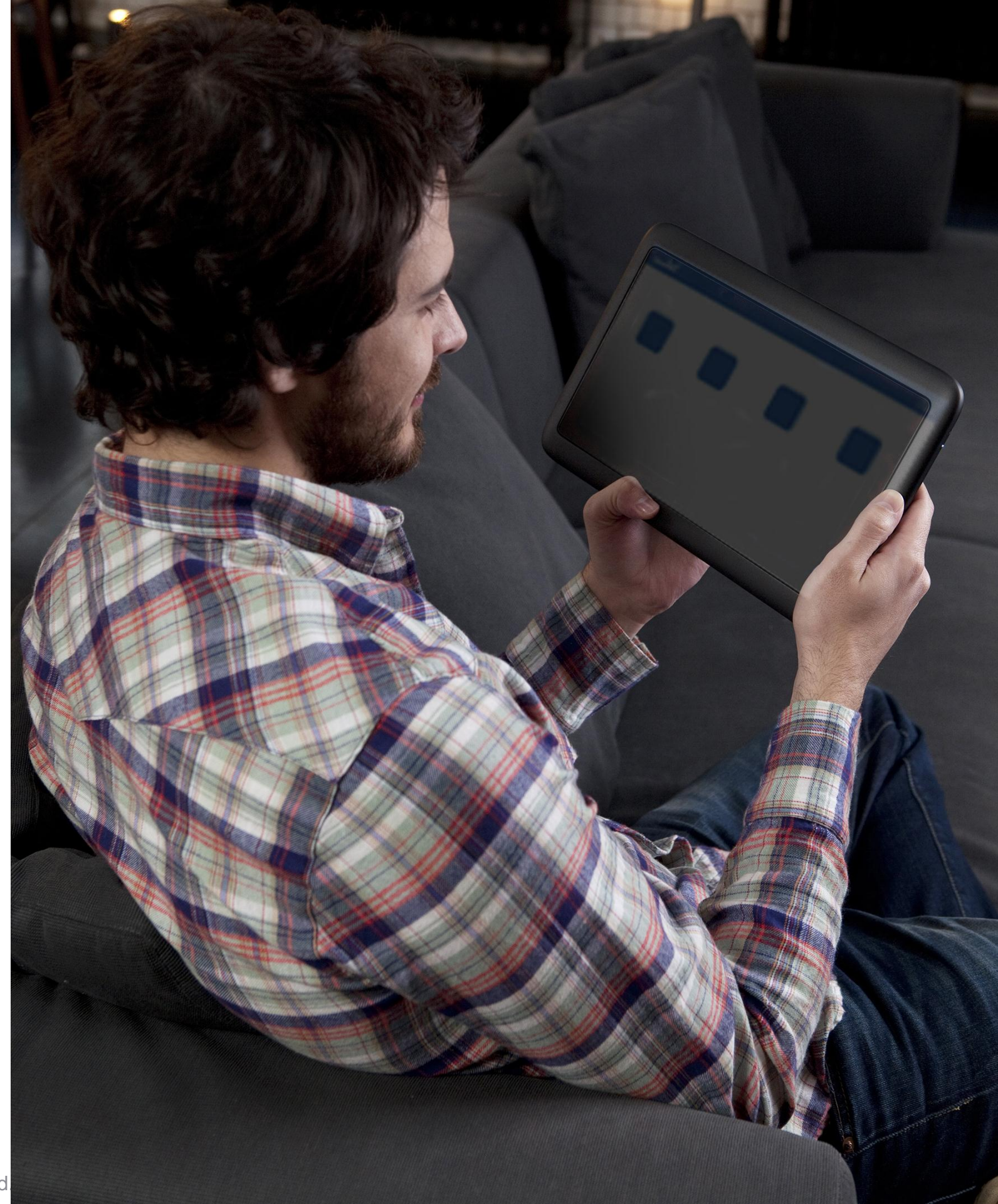
## Factory Reset : Changed Procedure Starting from TC5.1.0 Release

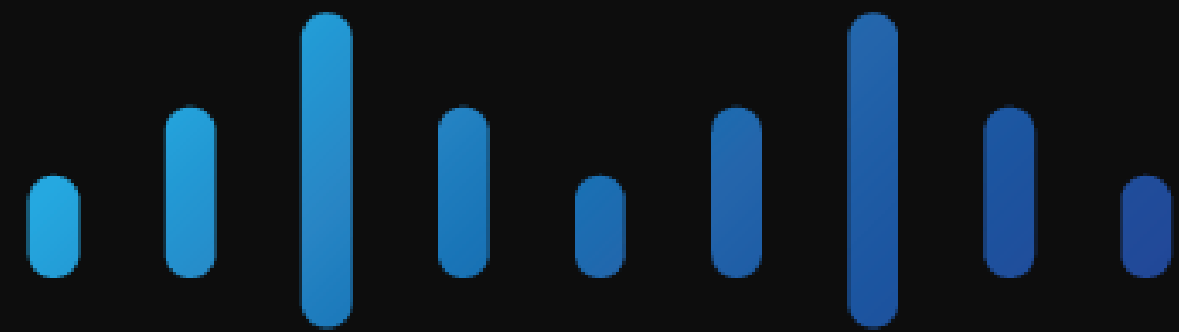
- If unit is completely inaccessible via IP, Touch or lack of serial cable one should use the power button method :
  - When the unit is off, press and hold the power button
  - Wait until the power LED goes dark and then light up again (approximately 10 seconds).
  - Then release the power button and press it twice.
  - The system will boot up and display a confirmation message on the video screen if the process was successful.
- Factory reset deletes config, callogs, logs and non-active image
- Check software release notes located [here](#).



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