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- LGI - Dawn

# History

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| --- | --- | --- | --- | --- |
| Version | Status | Date | Author | Description |
| 0.1 | Proposal | 1-11-2013 | Pierre Wielders | Initial creation |

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# References

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# Abbreviations

|  |  |
| --- | --- |
| NAF | Nucleus Application Framework |
|  |  |
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|  |  |
|  |  |
|  |  |

# Introduction

Metrological is involved in the Dawn project for supplying the Browser. This document describes the environment in which the browser is running and how it interacts with all other components in the system.

# Hardware overview

The current hardware layout is depicted in the following picture:

Figure 1 Hardware layout

Video Processor

Cable Modem / Network Processor

USB

ETH0

ETH1

ETH0

UART

UART

HFC (Cable)

WiFi Processor

UART

SWITCH 0

SWITCH 1

Ethernet

PL5005

PL9301

As of SW R8:

The Video processor will create 2 VLANS:

VLAN 0: 192.168.0.0/24 Default traffic. Non tagged traffic. Customer network.

VLAN 2: 192.168.1.0/24 MoCa network

VLAN 3: 192.168.17.0/24 UPC internal service network.

# Video Processor Software stack

5FV2

UPC HFC Cable network

Server Broadcom/ MediaWare

[mwserver]

API

Browser

[QT/WebKit]

User Interface

JavaScript

NAF

RDK OCAP-R1 [mpeos\_main]

JVM

JNI

DirectFB

![](data:None;base64,)

libnexus.so

ref\_swserver

libnexus.so

KERNEL (nexus.ko)

The dashed lines indicate containers with their own processes for security reasons.

USER SPACE

SH\_SYS (mem/cpu)

KERNEL SPACE

BROWSER QT/WEBKIT

DLNA DMS

DLNA

DMP & DMR

Server BroadCom /MediaWare [mwserver]

SeaChange MPeos-main

AXIROS TR069 AGENT

FAN

SYS\_INFO

DOWNLOAD MANAGER

CONDITIONAL ACCESS SYSTEM

MOCA

STORAGE DEVICE MANAGER

NETWORK INTERFACE MANAGER

REF SW SERVER

BSECK controller

Pace NAND

SECURITY STRING

SDIF

TBSL controller

SH\_SDM

DEMUX

SH\_NIM

FUT controller

LINUX KERNEL SPACE

SH\_SYS

FAN

DOWNLOAD

FUTSYS

METROLOGICAL

SEACHANGE

PACE

BROADCOM

NAGRA

AXIROS

Function call

Pace IPC

Broadcom IPC

DBUS IPC

SeaChange IPC

# Test & Integration tips and tricks:

***The bootloader of the CFE is MAC specific. Make sure the right binary (containing the boxes MAC address) is flashed.***

## Update bootloader:

***- Put file (MAC specific) on FAT partation of the USB disk***

***- insert stick.***

***- flash -noheader usbdisk0:<flash image name> flash1.full***

***flashing take +/- 1 minute***

## Update kernel

***- Put file (kernel image) on FAT partition of the USB disk***

***- insert stick***

***- flash -noheader usbdisk0:<kernel image name> nandflash0.dapp***

***dapp extension, used to be pace, changed as of 3.53.20***

## Startup commands:

***- ifconfig eth0 -auto;boot -z -elf 192.168.0.200:vmlinuz 'root=/dev/nfs nfsroot=192.168.0.200:/mnt/dawn/ rw ip=:::::eth0:dhcp'***

***- boot -z -elf usbdisk0:vmlinuz 'ip=:::::eth0:dhcp rw root=/dev/nfs nfsroot=192.168.0.200:/mnt/dawn'***

***- boot -z -elf usbdisk0:vmlinuz 'root=/dev/sda2 ip=:::::eth0:dhcp rw'***

***- boot -z -elf usbdisk:vmlinuz 'root=/dev/sda2 rw'***

***- boot -z -elf nandflash0.pace: 'ip=:::::eth2:dhcp root=/dev/nfs rw nfsroot=[Your NFS server IP address]:/mnt/rootfs'***

***- boot -z -elf usbdisk0:vmlinuz 'ip=:::::eth0:dhcp root=/dev/nfs rw nfsroot=192.168.0.11:/usr/src/build/Dawn/SDK/SEACHANGE\_1.3.1/build/DMC7000KLG\_CADB\_MW\_SDK\_DEBUG'***

***USB disk is always enumared first and thus will end up as SDA. Internal harddisk of the STB will end up as sdb.***

## Usefull commands in bootstrap environment:

***- help***

***- show devices (also shows flash map)***

***- printenv***

***- ifconfig -auto <ifname>***

***- netstat -anr***

***- setenv -p STARTUP "<startup command>"***

## Usefull commands in linux:

***- ip route del default (deletes the default GW)***

***- ip route add default via 192.168.0.200***

## Currently required hacks:

***FR8: Due to interupt issue on broadcom firmware, extraction of large disk images fails. Lower the priority of the IO processing using:***

***ionice -C 3 <command to execute>***

## Turning of the DHCP server of the Cable Modem/Network Processor:

Please enter the following commands in the CM console:

cd CM/NonVol/eRouter/IPv4/Residential Gateway NonVol>

\* lan\_feature\_config dhcp\_server false

\* write

\* /reset

## Partitioning STB harddisk:

***1: Startup partition***

***2: Swap space***

***3: Database and other data (will move to tha flash in due time)***

***4: Data (recordings will be stored here)***

## Cable modem / network processor commands:

! ? REM call cd

dir find\_command help history instances

ls man pwd sleep syntax

system\_time usage

----

con\_high cpuLoad cpuUtilization emta\_console exit

mbufShow memShow mutex\_debug ping read\_memory

reset routeShow run\_app shell socket\_debug

stackShow taskDelete taskInfo taskPrioritySet taskResume

taskShow taskSuspend taskSuspendAll taskTrace usfsShow

version write\_memory zone

----

[Console] [HeapManager] [HostDqm] [avs] [cablemedea] [cm\_hal] [docsis\_ctl]

[dtp] [eRouter] [embedded\_target] [emta] [enet\_hal] [estb] [event\_log] [fam]

[flash] [forwarder] [ftpLite] [ip\_hal] [msgLog] [non-vol] [pingHelper]

[power] [snmp] [snoop] [spectrum\_analyzer] [tr69]