

Mohamed Azzouni

SENIOR SOFTWARE ENGINEER · LINUX/YOCTO - STB/DRM/OTT - JAVA/KOTLIN/SPRING - JAVASCRIPT/NODEJS/ANGULAR - JENKINS/DEVOPS

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Skills

Programming	C, C++, JAVA, KOTLIN, BASH, PYTHON, PERL, SHELL , Makefiles, HTML, PHP, XML, Javascript
Tools & CI	SVN, Git, Github, Gitlab, Bitbucket, Jenkins, JIRA, Confluence
Web & OTT	nodejs, dashjs, reactjs, expressjs, angular, shaka player, Packet Video, GUPNP, Lib Platinum, REST
J2ee & DB	Java Jersey Rest, J2ee, Spring, Rest, PostgreSQL, Mongo db, Hbase
Embedded	Android: NDK/SDK/JNI, STB:Middleware & Drivers, OpenEmbedded:Yocto & sBitbacke
Networking	HDCP, MPEGDASH, HLS , VOD, OTT, Playready, UPNP, IPV4, TCPIP, Serial, ..
Languages	Arabic, French, English

Education

ENSI(National School of Computer Sciences of Tunis)

Tunis, Tunisia

ENGINEERING DEGREE IN COMPUTER SCIENCE

2004 - 2007

speciality in open systems and networks

Experience

WABTEC

Hybrid: Tours , France

YOCTO EXPERT

Juin. 2023 - Present

- Migrate svn yocto repository from svn to gitlab
- Setup CI using KAS and gitlab pipelines for complete yocto configuration
- Migrate Yocto dunfell to yocto kirkstone for all Sama5 platforms
- **Environment** : SAMA5, SVN, Gitlab, Linux, Yocto , Device Tree, Uboot, yocto dunfell , yocto kirkstone, kernel, modules kernel

WABTEC

Hybrid: Tours , France

YOCTO EXPERT

December. 2022 - December. 2023

- Build yocto Linux distribution for HW with bitbus serial connection
- develop kernel module that manage a network interface and make the link with the serial bitbus connection
- **Environment** : SAMA5, SVN, Linux, Yocto , Device Tree, Uboot, yocto dunfell , yocto kirkstone, kernel, modules kernel

ELEKTROBIT

Carrières-sur-Seine , France

SAFE API DEVOPS DEVELOPER

September. 2021 - February 2023

- In project Safe Linux for EB, I'm responsible of packages builds as well as documents Builds
- Setting up a Poc for CI Framework as a python package
- Setting a Cmake build system for documents builds
- **Environment** : Linux, Suse Open Build Service, GITHUB , Jenkins, Python, Cmake, docbook, docker

ELEKTROBIT

Carrières-sur-Seine , France

EBLINUX-3 ARCHITECTE

September. 2020 - February 2023

- Architect: EBLinux-3 is a safe Linux Automotive distribution for EB, based on SUSE Open Build Service and Suse Kernel
- This new Version is no more based on yocto, here we deliver rpm packages using OBS
- Responsible for setting test environment:
 - adding needed repository , and packages
 - Setting up EBS packages definitions
 - setting up Building environment
 - setting up needed scripts to run qemu
 - setting up needed scripts to install image on Hardware Targets IntelDenver and make available for all team
- Responsible for setting coverage tests.
- **Environment** : Linux, Suse Open Build Service, Intel Denver , code coverage, obj coverage CI, Jenkins

EBLINUX ARCHITECTE

- Architecte on EB-Linux: EB-Linux is an Automotive Linux distribution for EB, based on Yocto Open-embedded tools
- This Linux distribution will manage containers to run user applications
- This Linux distribution support RCAR H3/M3 and Intel on bare Metal or on A Hypervisor based on L4 (Fiasco) Microkernel
- My intervention :
 - Support on Requirements definitions and redaction
 - Technical tickets creation on JIRA based on Functional or Client Requirements.
 - Recipes implementations and maintaining related to network area
 - Client Project task force support on bitbake and recipes hot fixes:
 - * removing openssl
 - * enabling SMACK Mandatory ACCESS Control Kernel
 - * ..
- **Environment** : Linux,Yocto, Renesas ,L4 Microkernel, CI, Jenkins, RobotFramework, LTP, BASH, C/C++

EBLINUX CI TEAM TECHNIQUAL LEAD

- Techniquial Responsible for Continous Integration Team: plan, support team and follow activity
- The team is made up of six engineers based in Croatia
- Team goals was to setup testing unit testing , integrations .. Merging verifications on nightly and weekly frequency
- Tests are setup on Jenkins Server's and robot frameworks tests for LTP tests on Yocto Framework
- Tests are run on Qemu and Hardware targets using tools and scripts created within the team and results are saved in Github
- CI is based on Github and Jenkins using Merging Trigger on Pull Requests
- **Environment** : Linux,Yocto, python, xml, CI, Jenkins, RobotFramework, BASH, C/C++

EXPWAY**LINUX/ANDROID DEVELOPMENT ENGINEER**

- Development of Solution for Public Gateway EMBMS Live Services WIFI multicast
- LTE eMBMS (evolved Multimedia Broadcast Multicast Service) are used to drive live multicast service to end userphones.
- An LTE Outdoor unit is connected to a Gateway, the soft to be developed will be deployed on PG to activate dash live services and forward multicast packet to WIFI.
- based on Expway Library a service will be developped and installed as daemon onBroadcom based public Gateway
- **Environment** : Modem AT-Command, Broadcom ,Gateway, WIFI, Multicast, dash, EXPWAY Middleware , redmine , C, C++, Android

SFR-Numericable**SOFTWARE DRM/HDPC ENGINEER**

- Integration of Netflix nrd 4.3 within new 4K STB .
- Concept and develop a library HDCPmanager that provides interface to manage hdcp link in 1.X and 2.x protocole versions.
- Concept and develop a library DrmManager that provides interfaces to manager Playready 2.5 and eventually Widevine for SFR new Box used for VOD playing
- Concept and develop a library that will install provisioning Data on STB : On factory for SFR new Box (data : Nagra, HDCP, DRM and SFR keys)
- Integration of STMicroelectronics PlayReady SDK in SFR Set Top Boxes products
- Developing a library interface of STM PlayReady SDK , to be used by SFR Middleware on Set Top Box .
- **Environment** : STB, STM, Broadcom , Middleware WYPLAY, MW SFR , C, C++, PlayReady 1.2/2.5,TEE, Gentoo, mercurial, Git
- **References** : Sbastien Keller(SFR), François Delavaud , Anouar Chelbia (SFR), Vishal Sharma (Netflix)

NETFLIX INTEGRATION

- Integration of Netflix Partner Client Code in Middleware code on Set Top Box Based on 7105 Chip of STM.
- Porting some parts of Netflix client code (audio and video driver and some Direct FB code) to work on 7105 based Set Top Box
- Realization of automatic Netflix tests and certification
- Monitoring with Netflix partner via weekly conferences calls between team in US and France and daily coordination integration
- **Environment** : STM, MW SFR , C, C++, PlayReady 1.2, DirectFb ,TEE, Gentoo, mercurial, Git
- **References** : François Delavaud , Anouar Chelbia (SFR), Vishal Sharma (Netflix)

Bouygues télécom

Vélizy-villacoublay, France

SOFTWARE INTEGRATION & DEVELOPPING ENGINEER

Feb. 2014 - Jun. 2014

- Development of software module that use a cloud client (based on PogoPug Fuse solution); So the user could connect , mount and use his pogo cloud files on her STB
- Development and integration of Media Center new features on Middleware.
- **Environment :** STB, Middleware Sagem ,Product Bouygues Sensation Box, C, C++, Linux, UPNP, DLNA, POGOCLOUD Cloud, Fuse File system, PacketVideo
- **References :** Sandrine Figard (Bouygues telecom), Majed Jabri (Bouygues telecom)

ARCHITECTE STB FOR PVR SHARING SERVICE

Jun. 2013 - Jan. 2014

- Writing of SSA (Software Specification Architecture) of service STB PVR sharing (PVR: Personnel Video Recording) : secured solution based on Protocol HLS to play STB recorded movies on LAN and WAN devices ; records will be transcoded , segmented , encrypted and served to clients).
- Writing of STS (Software tests Specifications) of PVR Sharing service on STB part of Service.
- **Environment :** STB, Middleware Sagem, LibPlatinum, C, C++, Linux, UPNP, HTTP, HTTPS,SSL
- **References :** Nicolas Gaude (Bouygues telecom), Jabri Majed(Bouygues telecom)

SOFTWARE ENGINEER

Sep. 2011 - May. 2013

- Develop Web Services STB Export module that will export multiple STB features (Remote Control, Pairing, PVR, EPG ..) via HTTP Rest and UPNP.
- Develop STB DMR : module proposing DLNA DMR service UPNP and HTTP Rest.
- Develop MediaPlayer : module STB, for mixed playlist media managements
- Develop Receiver Expo STB : module that serves as a asynchronous full duplex communication library between the Middleware and Web Services Export Binary
- Develop PfsProxy : module on multiple platforms (STB, Android and IOS) of for connection and communication with Bouygues plat-forms (EPG, PVR, OAuth, Smartvision ..) with automatic authentication tokens management.
- Develop DMC : module on multiple platforms (STB, Android and IOS) it's a UPnP control point
- Development of a Native Middleware on Android (NDK / C / C ++ / JNI / JAVA and JAVASCRIPT) composed from DMC, DMS and PF-SPROXY : JNI , JAVA and JavaScript Layers for each library ..
- **Environment :** Middleware Sagem, STB, C, C++, Java, JNI, JavaScript, Android, Linux, UPNP,DLNA, SOAP, REST, LibPlatinum...
- **References :** Nicolas Gaude (Bouygues telecom), Jabri Majed(Bouygues telecom), Pascal Souveaux(Bouygues telecom), Joël Motoumassy (Bouygues telecom)

NDS-CISCO

Issy les Moulineaux, France

CONSULTING ENGINEER

March 2010 - Aug. 2011

- Development and integration of a module within Middleware STB ; it's a MediaCenter module that allow the sharing and control of medias over networks via Upnp/Dlna Protocol.
- DMS (Digital Media Server) solution is Twonky from PacketVideo company
- Development of a module in C for control and management of the Twonky server via RPC and for sharing FTA PVR and media content from USB drives connected to the STB
- Development and JAVA JNI layer of the module to be exploited later by the UI in JAVA
- **Environment :**Middleware MHP de NDS-CISCO, languages C and JAVA, Shell, Makefiles, UPNP, PV Twonky API, PV Twonky Server.
- **References :** Hassen Taleb (NDS-CISCO) , Eric Delaunay (NDS-CISCO)

Sagem Défense

Massy-Palaiseau, France

SOFTWARE ENGINEER DEVELOPMENT

Dec. 2009 - Feb. 2010

- TMA : Third Maintenance Application of Network Server System on aircraft Airbus A380
- **Environment :** C, C++, Java, Perl, Python, SGBD MYSQL, Linux ..

Eurogiciel

Tunis, Tunisia

SOFTWARE ENGINEER

May. 2009 - Nov. 2009

- Design and implementation of an application that manage a Switch via i2C in the NSS (Network System Server) for the Airbus A380
- The PSM, interfaces with LDAP, VPN, an I2C interface to control the Switch and a Flight switches.
- Test are automatized in virtual environment using Perl scripting and shared memory C programs .
- **Environment :** C, tested and integrated under Linux FreeBSD 5.3. , perl ..

STMicroelectronics

Tunis, Tunisia

SET TOP BOX LOW LAYER DEVELOPMENT ENGINEER,

Out. 2007 – Apr. 2009

- Engineer in STAPI (ST-API) team : responsible for development, maintenance and support for VOUT (Video Output Stage) and HDMI (High Definition Multimedia Interface) drivers for STM socks.
- Bug fixing and support for various clients.
- Porting of drivers code on new chips and update documentation of drivers for new socks
- **Environment :** C, OS21, STLinux, Clear Case, socks: ST7100, ST7109, ST7200 et ST7105.

sbr-generator: Open source

[sbr-generator on Github](#)

OPEN SOURCE SPRING REST GENERATOR

- This is a rest server based on Spring Boot generator , first version it was an npm binary and current (v2) it's a complete python package.
- This python package provide a tools that will generate a rest spring server with multiple features from a simple yaml config file :
 - jwt token is ready to be used with authentication
 - can also enable and generate java tests files for created code
 - security can be enabled on role based restrictions
 - a generated database ,connection and models , ready to e used
 - dev and prod profiels with different database
 - ...

fjplayer: Open source

[fjplayer on Github](#)

FJPLAYER MPEG DASH/MP4 VIDEO PLAYER

Nov. 2012

- The FJPlayer Html 5 Js player based on Video Balise
- The FJPlayer also is based On Dashjs player
- Once we ask to play a media content on website , the player will ask the encryption key of the media presenting the web site AppID, then get the mpd and start streaming , decrypting and playing..

EKIOSK : Private Source

[BitBucket Project Link](#)

REALIZATION OF FJ STREAMING ENGINE

Jun. 2012 - Jan. 2017

- The EKIOSK is a yocto based project used to realize kiosk like images deployed on ARM raspberry pie, composed by :
 - meta-eck : yocto layer that define all needed recipes
 - include browser layers to run web kiosk application
 - packages source code : ..

Forja Streaming Engine: Private Source

[BitBucket Project Link](#)

REALIZATION OF EASIN SALES SERVER

Nov. 2018 - PRESENT

- The ESS is three part project, containing :
 - A J2ee rest spring java server with a PostgreSQL Database behind called ESServer
 - An Angular 7 Server based Angular Material UI called EBILL
 - A phone App still to come..
- ESServer :
 - The FJServer will save and manage invoices created by user from EBILL
 - manage also clients , company ..
 - It propose a Rest Api proteted by json Token mechanism.
- EBILL :
 - It's the Server Front END , A Web applications based on Anuglar 7 , and on Angular Matriel.
 - It will allow User to connect to ESServer
 - It will allow User to define invoices and manages saved invoices, export them in pdf ...

Easy Upnp: Private Source

[Google Play Link](#), [Github Link](#)

REALIZATION OF AN ANDROID APPLICATION

Nov. 2012 -Nov 2021

- The application is an upnp control point that allow to discover and control upnp devices on a lan network.
- This app was completly developpend with kotlin code (a old previous version was done using Java).
- This app also contains advertissment , it's done with google AdsMob..