

From manual analogical recording to RadioCo

@cuacfm | <https://cuacfm.org/> | tecnologia@cuacfm.org

José María Casanova ([@txenoo](https://twitter.com/txenoo))

Fernando Souto ([@ficiverson](https://twitter.com/ficiverson))



CUAC FM 1st studio - 1996

Our History in 2 minutes

CUAC Association

CUAC FM  103.4

- Founded in 1996
- Community Radio
- +430 shows
- +1000 members in 19 years.
- Volunteer management



Our Technological milestones

CUAC FM  103.4

- 2004 - Streaming
- 2011 - Mobile Apps
- 2015 - RadioCo



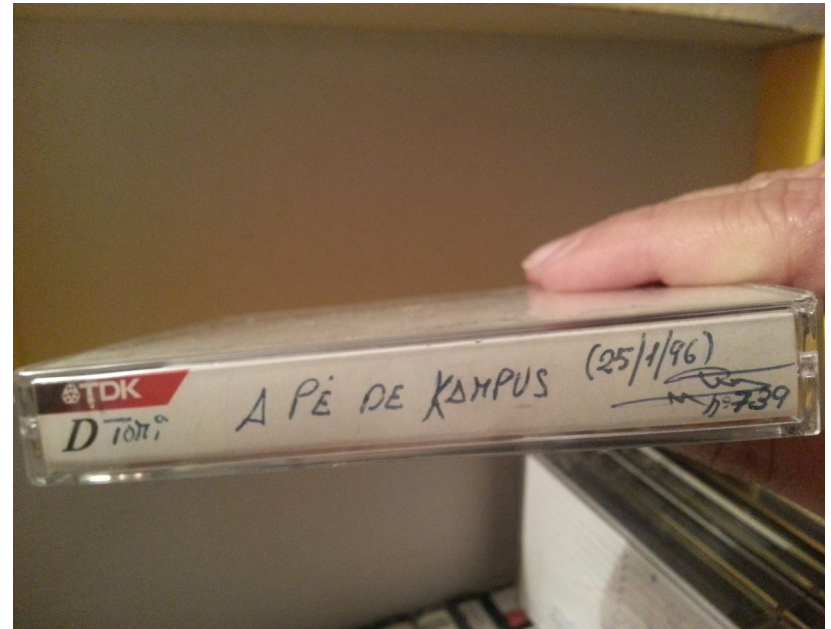
EVERYBODY NEEDS SOMEBODY TO LOVE -
(VERSION 1)
DREAM YOUR DREAM,
YOU CAN'T BRING ME
HEART OF STONE - WHAT A SHAME
(I WISH YOU WERE DEAR)
DOWN THE ROAD SPARE
OFF THE WHEEL
WALK IN MY HEART (VERSION 1)
(I WISH YOU WERE HOT A GOOD THING GOES) (VERSION)
LITTLE RED ROOSTER
SURPRISE, SURPRISE
UNDER MY SKIN
* GET OFF OF MY SHOULDERS
* LADY JANE - SHEY TAKE CARE
* YOU NEED SOMEBODY YOU TOO LONG (DO STOP
NOW)
* FORTUNE TELLER - THE LAST TIME
* WITH MESSYUS DISCHORDION
* TIME IS ON MY SIDE
* I'M PURSUIT
* HAVE YOU SEEN YOUR MOTHER, SISTER,
* SPENDING IN THE SHADOWS!
* (I CAN'T GET NO) SATISFACTION



From analogical to digital (1996-2004)

The old times: radio taping

- No community recording protocol.
- Every show recorded on tape at home using an FM receiver.
- Where are those tapes?



ALEGRIA de CUAC FM
 9/12/2003 n° 9
 TOMI

ALEGRIA de CUAC FM
 4° de 2° Tomada
 3/11/04
 TOMI

ALEGRIA de CUAC FM
 n° 34
 TOMI

ALEGRIA de CUAC FM
 n° 33 (92...)
 3° de 2° Tomada
 TOMI

TDK DOCTOR MUSIC FESTIVAL
 D Tomi 12-13-14 Yullo 96 n° 852

TDK DOCTOR MUSIC FESTIVAL
 D Tomi 12-13-14 Yullo 96 n° 853

PHOENIX
 TDK
 D Tomi

TDK FALTA PAIXON (H2)
 D Tomi 19/2/98 en CUAC FM [C13] n° 979

TDK MAQUETA PARA FALTA PAIXON
 D Tomi 28/01/98 Elephant band TAPASO n° 980

SONY BUGALÚ
 D Tomi 55/10/11 n° 2 [2.0] n° 1701

SONY BUGALÚ
 D Tomi 26/10/99 n° 3 n° 1672

TDK A EMPANADA MENTAL
 D Tomi de Tomi DESASTRE 6/4/99 n° 1056 n° 211

TDK A EMPANADA MENTAL [7]
 D Tomi 17/10/98 de Tomi Desastre n° 1036

TDK A EMPANADA MENTAL [8]
 D Tomi 24/10/98 de Tomi DESASTRE n° 1037

TDK A EMPANADA MENTAL [3]
 D Tomi 20/10/98 de Tomi DESASTRE n° 1032

TDK A EMPANADA MENTAL [4]
 D Tomi 27/10/98 de Tomi DESASTRE n° 1033

TDK BUGALÚ
 D Tomi 9/11/99 n° 5 [5.0] n° 1074

TDK BUGALÚ
 D Tomi 2/11/99 n° 4 [4.0] n° 1073

TDK A EMPANADA MENTAL
 D Tomi 9/3/99 de Tomi DESASTRE n° 1053

SONY FALTA PAIXON (H2)
 D Tomi 2/4/98 en CUAC FM [H2] n° 1003

Hundreds of tapes still in analogical format

SONY A EMPANADA MENTAL 18/5/99

SONY ALEGRIA

Second period: minidisc

- First digital resources.
- Recording was done at Radio Station on tape.
- Who has a minidisc nowadays ?

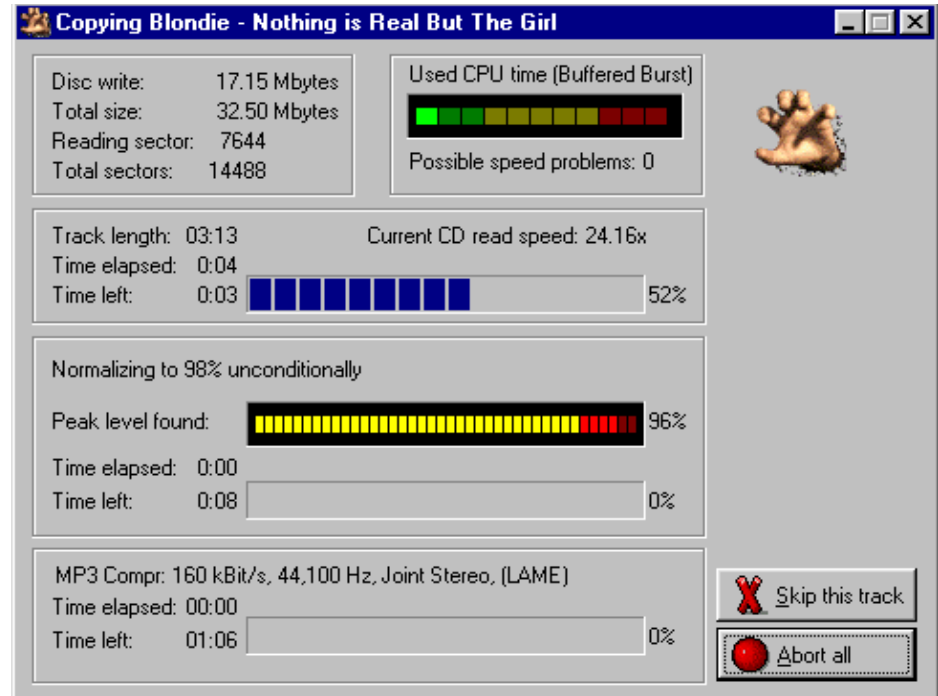




The first computer at CUAC FM (2004-2008)

The beginning of the digital era

- First audio streaming on the Internet. Legal recording 24h/7d
- Audiograbber for show recording :-)
- Storage issues.





100% digital strategy (2008-2014)

Digital Strategy: the challenges

- Shows were not puntual.
- We use ZaraRadio for broadcasting.
 - We wanted to re-broadcast recorded programs.
- How to start podcasting our radio shows?
- How to organize the audio files archive?
- How to deal with storage limits ?

Digital Strategy: the solution (I)



- Automatic recording system v1.0
 - Automatic recording and uploading files to the radio station web server with FTP client.
 - Audio recording stops at 57' (we are punctual now!!!)
 - Filenames schema based on weekday and time.
 - Files are online just after the show.
 - Management of re-broadcasting using ZaraRadio.
 - Schedule configured in .txt files
 - Time synchronization among computers (NTP)

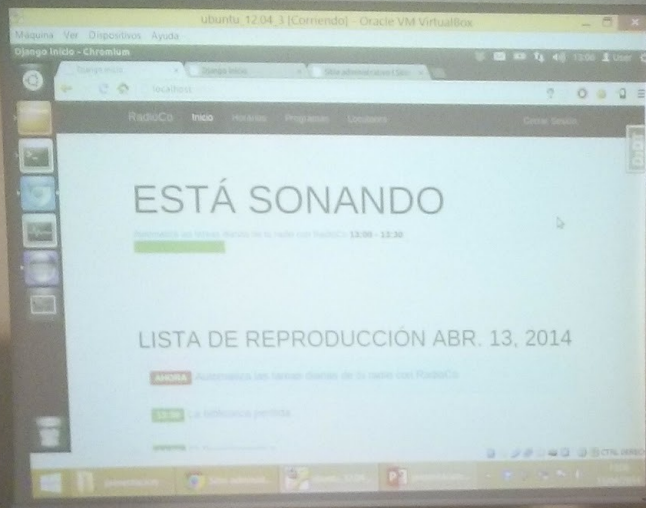
Digital strategy: the solution(II)

- CUAC FM has its first global strategy to store the audio files.
- Audio files are stored in a web server organized by day and time period.
- The recording system is isolated from the web. Podcast generation is not automatic. Podcast are uploaded by each show using external services. (Ivoox, Podomatic, iTunes)

Digital strategy: the solution (III)



- 2014 - Automatic recording system v2.0
 - CUAC FM migrated all its system to a new server with 6TB of RAID storage and a lot of CPU power.
 - We started to record the streaming in higher quality. (64kbps mono → 192kbps stereo)
 - We deployed a new system, that cuts the streaming file dumps backups at 57' when a live show is scheduled and clones the v1.0 system behaviour.
 - We manage to synchronize all our systems with NTP.



The Age of RadioCo (2015-)

RadioCo: Timeline



- 2013 - A Degree Thesis in Software Engineering at University of Coruña was proposed to develop a software to manage live shows recordings.
- 2014 - Iago Veloso developed RadioCo as his Degree Thesis in collaboration with CUACFM.
- 2015 - CUAC FM deploys RadioCo.

RadioCo: objectives

- We needed a software that:
 - makes easier the programming work. They update the schedule every month → web, apps, automation....
 - publish the information of the shows and the timetable of the radio broadcasting.
 - manages the show recordings and enables automatic podcasting (rss)
 - is Free Software and works fine in low cost hardware.
 - can be managed using a web browser.

RadioCo: on air now



RadioCo CUAC FM Home Schedules Programmes People Log In

NOW PLAYING

Falso Nueve 0:00 - 2:00



PLAYLIST JUNE 4, 2015

NOW Falso Nueve
2:00 Continuidade Nocturna
6:00 Música Local
7:00 Informativos Semana
8:00 Continuidade
9:00 La Resistance
10:00 Simplemente gente
11:00 Multiplex

Radioco website:

<http://radioco.org/>

Cuac FM RadioCo Deployment

<https://cuacfm.org/radioco/>

RadioCo is Free Software under GPLv3 license. You can use it, distribute it, modify it and share your modifications with the community.

Source code:

<https://github.com/iago1460/django-radio>

<https://github.com/iago1460/radioco>

RadioCo: weekly schedule



	8:00 - 9:00	9:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 1:00	1:00 - 2:00	2:00 - 3:00	3:00 - 4:00	4:00 - 5:00	5:00 - 6:00	6:00 - 7:00	7:00 - 8:00	8:00 - 9:00	9:00 - 10:00	10:00 - 11:00	11:00 - 12:00	
08:00	Manda carallo!	El Desinformativo	Alegria	Continuidade	Radiocassette	Semana 8:00 - 9:00 Cuac está a pasar	Semana 9:00 - 9:00 Xeración Bravú										
09:00	Expreso de Medianoche		Ábrete de orellas	La Resistance	Sin Etiquetas	Continuidade	Dentro de un orden										
10:00	Continuidade	Reversión	ninputaideal	10:00 - 11:00 Simplemente gente	10:00 - 11:00 Continuidade	10:00 - 11:00 Xeración Bravú											
11:00	Radio Prometea / Ondas do cárcere	Cuac está a pasar	Recendo	11:00 - 12:00 Multiplex	11:00 - 12:00 Benditos Jueves	11:00 - 12:00 Orión 2.1	11:00 - 12:00 La biblioteca perdida										
12:00	New Age	Carne Cruda	Azucar habanero	Carne Cruda	Crea nas Ondas	Ar de Coruña	Manda carallo!										
13:00	Folk in trio				1:00 - 2:00 Recendo		1:00 - 2:00 ninputaideal!										
14:00							2:00 - 3:00 Informativos Fin de Semana										
15:00	2:30 - Informativos Semana Baranda	2:30 - Informativos Semana Multiplex	2:30 - Informativos Semana Continuidade	2:30 - Informativos Semana Tranki-magazine	2:30 - Informativos Semana Continuidade	2:30 - Informativos Semana Continuidade	3:00 - 4:00 R que R										
16:00	4:00 - 5:00 High Street	4:00 - 5:00 Continuidade	4:00 - 5:00 Continuidade	4:00 - 5:00 Radioactiva	4:00 - 5:00 Folk in trio	4:00 - 5:00 Mar de fueguitos	4:00 - 5:00 Crea nas Ondas										
17:00	Xeración Bravú	Continuidade	Radio Prometea / Ondas do cárcere	Orión 2.1	Entre Apuntes	Continuidade	5:00 - 6:00 La Resistance										
18:00	Falso Nueve	Alegria	Baranda	Reversión	Proxecto Neo	Dentro de un orden	6:00 - 7:00 New Age										
19:00		7:00 - 8:00 Recendo	7:00 - 8:00 La Resistance	7:00 - 8:00 Cuac está a pasar	7:00 - 8:00 Multiplex		7:00 - 8:00 Planeta Espuni										
20:00	El Desinformativo	Frankly	Tranki-magazine	R que R	Radio Prometea / Ondas do cárcere	El Rinconcito	8:00 - 9:00 Alegria										
21:00		9:00 - 10:00 Continuidade	9:00 - 10:00 Simplemente gente	9:00 - 10:00 Benditos Jueves	9:00 - 10:00 Alegria	9:00 - 10:00 ninputaideal!	9:00 - 10:00 Continuidade										
22:00	10:00 - 11:00 Sin Etiquetas	10:00 - 11:00 Continuidade	10:00 - 11:00 Folk in trio	10:00 - 11:00 Manda carallo!	10:00 - 1:00 La parada de los monstruos	10:00 - 11:00 Crea nas Ondas	10:00 - 11:00 Luna hiena										
23:00	11:00 - 12:00 La Resistance	11:00 - 1:00 La enredadera	11:00 - 12:00 Radiocassette	11:00 - 1:00 Azucar habanero		11:00 - 12:00 Recendo	11:00 - 12:00 Expreso de Medianoche										

Manages:

- live shows
- re-broadcasting
- external shows

Show info and podcast available of previous shows

RadioCo: shows information



RadioCo CUAC FM Home Schedules Programmes People Log In



Azúcar habanero

Escucha todos los miércoles de 12:00 a 14:00 **tu programa de salsa** en Cuac FM, en el 103.4 del dial coruñés ...



Baranda

Baranda es un magazine cultural de CUAC FM en el que mostramos otra cara de A Coruña: la más amable. Charlamos con sus protagonistas ...



Benditos Jueves

Benditos Jueves' es un programa de humor y actualidad de la radio comunitaria coruñesa CUAC FM.

Comandado por **Israel Domínguez** y acompañado por **Antonio** ...



Café con gotas

Magazine musical y cultural presentado por **Pablo Rubén Fernández** y emitido desde los estudios José Couso de CUAC FM desde el año 2003.

- Each show updates their description and logo.
- Management can be delegated to different users with different roles in in RadioCo.
- The members of the show can update their personal information and their role in the program. We want to show who is involved in our community radio.

RadioCo Recorder: Low cost specs



- RadioCo recorder connects every hour to the web application services and downloads the schedule.
- It records live shows at the defined schedule.
- Encodes and compresses the audio in MP3 or OGG.
- Tags the audio based on the show information.
- Uploads the file to the web server.
- Notifies the server to link the new audio to the podcast RSS and updates the show information.

RadioCo Recorder: Low cost specs

CUAC FM  103.4



- Sample hardware
- Raspberry Pi 2
- U-Control UCA 222
- Ethernet connection
- Less than 80€
- Low power (0.5W 1.5W)
- Runs on GNU/Linux

RadioCo: Demo



08:00	8:00 - 9:00 Manda carallo!	8:00 - 10:00 El Desinformativo	8:00 - 9:00 Alegria	8:00 - 9:00 Continuidade	8:00 - 9:00 Radiocassette	Semana 8:00 - 9:00 Cuac está a pasar	Semana 8:00 - 9:00 Xeración Bravú
09:00	9:00 - 10:00 Expreso de Medianoche		9:00 - 10:00 Ábrete de orellas	9:00 - 10:00 La Resistance	9:00 - 10:00 Sin Etiquetas	9:00 - 10:00 Continuidade	9:00 - 11:00 Dentro de un orden
10:00	10:00 - 11:00 Continuidade	10:00 - 11:00 Reversión	10:00 - 11:00 ninputaideal	10:00 - 11:00 Simplemente gente	10:00 - 11:00 Continuidade	10:00 - 11:00 Xeración Bravú	
11:00	11:00 - 12:00 Radio Prometea / Ondas do cárcere	11:00 - 12:00 Cuac está a pasar	11:00 - 12:00 Recendo	11:00 - 12:00 Multiplex	11:00 - 12:00 Benditos Jueves	11:00 - 12:00 Orión 2.1	11:00 - 12:00 La biblioteca perdida
12:00	12:00 - 1:00 New Age	12:00 - 2:00 Carne Cruda	12:00 - 2:00 Azucar habanero	12:00 - 2:00 Carne Cruda	12:00 - 1:00 Crea nas Ondas	12:00 - 2:00 Ar de Coruña	12:00 - 1:00 Manda carallo!
13:00	1:00 - 2:00 Folk in trio				1:00 - 2:00 Recendo		1:00 - 2:00 ninputaideal
14:00						2:00 - 3:00 Informativos Fin de Semana	2:00 - 3:00 Informativos Fin de Semana
15:00	3:00 - 4:00 Baranda	3:00 - 4:00 Multiplex	3:00 - 4:00 Continuidade	3:00 - 4:00 Tranki-magazine	3:00 - 4:00 Continuidade	3:00 - 4:00 Continuidade	3:00 - 4:00 R que R
16:00	4:00 - 5:00 High Street	4:00 - 5:00 Continuidade	4:00 - 5:00 Continuidade	4:00 - 5:00 Radioactiva	4:00 - 5:00 Folk in trio	4:00 - 5:00 Mar de fueguitos	4:00 - 5:00 Crea nas Ondas
17:00	5:00 - 6:00 Xeración Bravú	5:00 - 6:00 Continuidade	5:00 - 6:00 Radio Prometea / Ondas do cárcere	5:00 - 6:00 Orión 2.1	5:00 - 6:00 Entre Apuntes	5:00 - 6:00 Continuidade	5:00 - 6:00 La Resistance
18:00	6:00 - 8:00 Falso Nueve	6:00 - 7:00 Alegria	6:00 - 7:00 Baranda	6:00 - 7:00 Reversión	6:00 - 7:00 Proxecto Neo	6:00 - 8:00 Dentro de un orden	6:00 - 7:00 New Age
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20:00	8:00 - 10:00 El Desinformativo	8:00 - 9:00 Frankly	8:00 - 9:00 Tranki-magazine	8:00 - 9:00 R que R	8:00 - 9:00 Radio Prometea / Ondas do cárcere	8:00 - 9:00 El Rinconcito	8:00 - 9:00 Alegria
21:00		9:00 - 10:00 Continuidade	9:00 - 10:00 Simplemente gente	9:00 - 10:00 Benditos Jueves	9:00 - 10:00 Alegria	9:00 - 10:00 ninputaideal	9:00 - 10:00 Continuidade
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23:00	11:00 - 12:00 La Resistance	11:00 - 1:00 La enredadera	11:00 - 12:00 Radiocassette	11:00 - 1:00 Azucar habanero		11:00 - 12:00 Recendo	11:00 - 12:00 Expreso de Medianoche

Demo

Future projects

- Work in progress thanks to our collaboration with the University of a Coruña (Degree Thesis)
- System for statistics generation and analysis for an IceCast streaming server.
 - Digital jukebox for social radio station.
 - Internet radio automation software to make syndication easier. (recording audio streaming from internet)
 - Membership management for a Community Radio.

Questions ?

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