TRUeQUE **by:** Alejo Duque

TRUeQUE is a word that in french will relate to what the meaning of the word 'troc' could express. Is an exchange of value be it material or inmaterial (services, trust, knowledge/know-how, etc.). A practice that has been the economical pilar for ancient communities mostly in the planetary South and elsewhere since bartering is intrinsic to humans for such link it becomes even more relevant to explore today, at the break of the so called "crisis of capitalism", when every economical alternative should be considered.

In the context of the current research and the experimental and often artistic practices involved is commonly known as a "stream" the moments of flux when and interchange happens accross the networks. Technically speaking and in a sucint way this means TCP/IP packets being sent through the different transport layers and communication protocols that put in place that what is known as the internet.
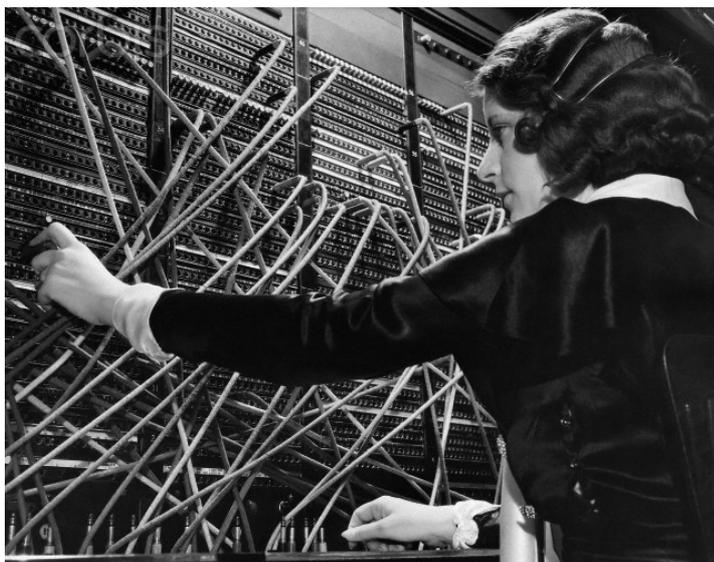
TRUeQUE takes place as a sound based stream project, the performer has the task that once belonged to the switchboard operator, his or her art is in the mix of real-time with dead-time (the archive) to create an alternate reality in the mix of online and offline flows.

At the core, **TRUeQUE** is builds an infraestructure for and alternative communication system. To be deployed as a game/workshop that starts very close to the ideas around the practice of sound-walking[1] but get entangled in a complex interplay with feeds that are not only local but come from elsewhere through the current mobile devices or low

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1 http://www.sfu.ca/~westerka/writings%20page/articles%20pages/soundwalking.html

tech radio based systems on what could be considered as physical case study for a hertzian droped timeline[2]. Radio waves are all around us, it only takes to monitor them on the specific wavelenghts, some come through us cyphered others are easy to decrypt. We have seen so many exploits based on "man in the middle[3]" type of attacks serving the purpose of "new" media art.[4] (Newstweak: http://www.newstweak.org/ and Bitnik's: http://chess.bitnik.org/about.html)

How can the so many different appear to us in a particular time meaninful? Is not this the babel tower of machines acknowleding each other through handshakes of interchange protocols? In 2010 as part of the workshops developed with the Locus Sonus Lab for the Schools of Art in Nice and Aix-en-Provence we had the chance to entertein a couple of workshops for the students on the topic of Elctromagnetic waves. It ranged from VLF 3khz (Very Low Frequency 3 kHz to 30 kHz and wavelengths from 10 to 100 kilometres), UHF (300 MHz and 3 GHz (3,000 MHz) to SHF 3.3ghz (Super High Freqcuency) 3 GHz and 30 GHz.

We gathered sound recordings from Natural Radio phenomena, EVP (electromagentic phenomena), Soundscapes, ATC (Air Traffic Control), Satellite Pirates in the UHF band and other radio recordings that included archive material. Each of this sounds brings about a context that perhaps has never been overlayed but the main interest is not to put together the unmatched, but to be able to elaborate with such varied material, mostly all happening real-time and parallel to our lifes, a way to dwelve into the nature of our mediated world. Sound appears then as the obvious path to take in the enterpise of telling a story that can trace linearity out of non-linearity at least for a short time gap. This is then a premise that needs to be proved, it requires development of a particular communication system that integrates radio to chat to internet streams and out into the physical space of sound again where we all coincide.
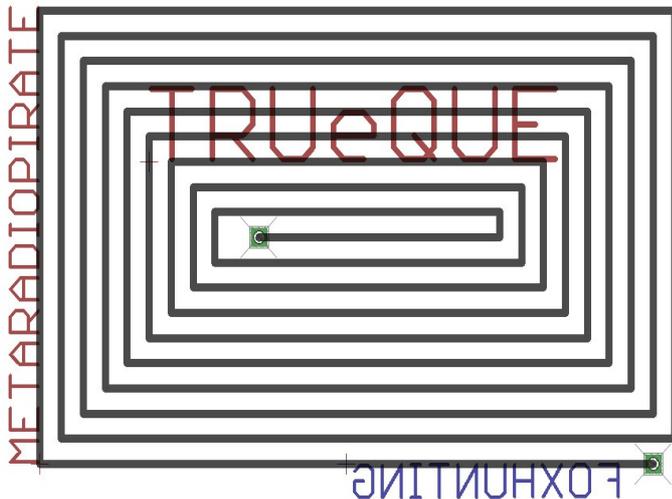
Laberynth Antenna

TRUeQUE stands then for TranscommRoutes for UnExpected Queued Events.
A first instantiation will be site specific sound performance making audible the spectral landscape and the sounds that dwell the electromagnetic spectrum[5]: The precise

2 http://colinkarpfinger.com/blog/2010/the-dropouts-guide-to-antenna-design/print/
3 http://en.wikipedia.org/wiki/Man-in-the-middle_attack
4 Bitnik.org or Julian Oliver and Danja Vasilev have been internationaly recognized today.
5 http://www.burtonmackenzie.com/2007/05/poor-mans-spectrum-analyzer.html

choreography composed by satellites sending us telemetry data, ionosphere activity (natural radio[6]), E.V.P, shortwave radio.

Waves of sound and radioelectric oscillating between the queer, the subverted and uncanny while opening doors for the Other to chime in. Be that psychoanalisis, pataphysics, shamanic transmissions or crude crytoanalysis[7].

Built through **IRC** (Internet Relay Chat) channels, **MUD's[8]** (Multi User Dungeons) and the non-localized-street. (Some records are kept undisclosed for your safety). Some of the channels that will feed the narration will be: #hearsat, #wunlub, #telecomix #otp22.
Each will provide "voices" and activity.

What follows is a dialogue that serves as an example of what happens, it was taken from a chat that took place by 2 persons who never met before and were unaware of being part of this project:

*23:22 < voice1> Is **TRUeQUE** confirmed as an ARG[9] or no?*
23:23 < voice2> depends on what you want it to be.
23:23 < voice2> probably it's an ARG tying to look like real operation...
23:23 < voice2> but since it is done good it is imposible to prove that things mentioned here aren't real.
23:24 < voice2> being intense, tricking players to believe that they are part of some spy, military, government conspiricy or operation
23:24 < voice2> i think that you can understand what i mean.

Fictocritiscism[10]: When the fictional comes to serve as the critcal approach to media and the social-technologies.

It was stated before that the main scope for this project is not to simply match and make audoble the "unmatched", no one could tell when the different waves get in sync or coincide. The main motivation goes out in the search to apprehend, for a moment at least, the so many different undercurrents being fed to and across our bodies. Invisible and oderless but never deviod of incidence in/to our lifes. It's been said that overexposure to radioelectric waves can be a source for many human and non-human maladies but there's no current intention to go into ecological concerns but to point out that just cause we don't see or feel this waves that are around us, it doesn't mean they don't affect us. The goal is to make the invisible audible while we play at and with it.

Through sound we propose a sort of 'ritual' to breakthrough. Spanning from the realm of radio-electric waves we go deep into the invisible void, between physical and immaterial, visible and non-tactile. From what we sense to what our devices register. Intra to extra corporeal distances that relate to time, distance and scales. Be them local, site specific, tele transported, meditated and/or meditated.

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6 http://abelian.org/vlf/
7 http://www.cs.tau.ac.il/~tromer/acoustic/
8 http://dorkbot.org/dorkbotmde/trueque/?mud
9 http://en.wikipedia.org/wiki/Alternate_reality_game
10 http://en.wikipedia.org/wiki/Fictocriticism

TRUeQUE is inspired in Oedipa Maas, a Thomas Pynchon's character from the novel "The Crying of Lot 49". Her drive was lead by the thrill to discover and underground postal service. Putting together notions of subverted networks with alternative pre-colombian economies of exchange. Participants/Players will take part sending their own encrypted messages, hiding dead-drops[11], suggesting their own platforms[12], trace map vectors and define hideouts. All out to do some hunting to kick start the "game". (not a simple oneliner game).

Hardware development:

TRUeQUE is based on free software. Documentation[13] is found online on forums and code repositories[14]. On the first layer it uses Morse code. A way to transmit over a long distance with very little power. This is known as QRP to know how to operate a radio in such a way could be considered more than a survival skill. It has been used as a way to save peoples lifes in dissaster areas.

"A morse code generator & decoder for audio data transmission in morse code. The ATtiny85 microcontroller messures up to 3 sensors (light, temperature, presence, air quality ...) and broadcasts its finds by morse code. It listens also for morse code in the air and could control up to 3 actuators (lights, motors, sound devices ...) " Tobbias Hoffman

The portability offered by a small 'dispositive', easy to carry in one hand, the autonomy in terms of low energy consumption (works with portable batteries) makes it possible to produce few and trace a map with HiddenDevices that agents/players/hunters would be able to go in&out the 'game'. With this low-cost system allows the use of sensors to the boards, use this data to be transformed into morse code to be transmitted either by directly audible sound waves or via radioelectric waves to be decoded only by the

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11 http://en.wikipedia.org/wiki/Dead_drop
12 http://infiniteplatformer.com
13 http://wiki.sgmk-ssam.ch/index.php/SGMKmorseAttack

person with a **TRUeQUE** receiver. "Players" will locate signals (As in ARDF[15] aka Foxhunting[16]). In a concurrent event. Finds, collected as evidence, be them sounds, images or videos are shared online via different platforms: piratepads, 4chan, pastebins, multiplayer-platformers. This way the game will extend it's reach and will dive into non-linearity. At start and [IRC] channel or a [MUD] will serve to host -realtime-chat concerning the exchanges that take place and to coordinate potential actions.

No puppet masters control the timeline of events. All of the above can be presented as a "workshop" as a way common place to start unrolling and unforseen/unexpected narrative.

Radio waves have been used as carriers for all sort of encrypted messages since the non-linear histories or better 'timelines' of war. We will listen to spook recordings (number stations among others) and study their reporting logs and protocols. Incorporating different feeds, like the ones collected by satellite observation and listening. Our intention: Understand the way data is sent and encoded via new and old algorythms (FSK, PSK, Reed Solomon RS[17] or goppa[18] methods).

A system to log the now.

If dogs, fish and pigeons carry electronic tags so do humans (with their "phones" and similar electronic location-aware devices). **TRUeQUE** could be considered a biotag consisting not only on a transmitter but integrating also receiver capabilities. Each device will be part of a mesh network to share data. The different registers should sense particular enviromental conditions that could eventually serve to map human emotions enacting through fictional spaces the basic communication principle of sent and acknowledged packets taking place across undernets and alternets. Preferably leaving no database records behind since the basic plot will be based on notions of annonimity, obscurity, timezon drift and network lag. Filesharing will leak our fears, dreams and ideals for the sake of a dislocated co-elaboration.

"… The computer literally numbers the world processually —closer to a mathematical Fourier analysis of physical wave events (sound, light, heat, electromagnetic fields) than to any metaphysical kosmos."[19]

Machines. Feedback Systems. Statistics and Algorythms are taking over our registers to 'enframe' us within a 'complex' we used to calle 'world'. Hijacked perception. Obfuscated phenomenology.

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14 http://code.google.com/p/morse-endecoder/

15 http://ardfe.web.fc2.com/pj-80e.htm

16 http://en.wikipedia.org/wiki/Amateur_radio_direction_finding

17 http://en.wikipedia.org/wiki/Reed%E2%80%93Solomon_error_correction
18 http://www.scivee.tv/node/11302
19 Between analog and digital. Wolfgang Ernst. Media Archeology.

.... . .-. . / .. ... / -. --- / ... --- ..- -. -.. / .. -. / ... .--. .- -.-. .

Dots and dashes representing the phrase: THERE'S NO SOUND IN "SPACE" in Morse code
#Terracentrismo #Architectural #Rims #Datamines #Auditoriums #Oyerismos[20]
#Networkcentrism

Thinking is first and foremost a survival skill. Thinking is a way to appropriate the world, to share experience and to anticipate forms of control. http://dorkbot.org/dorkbotmde/trueque/?sataware

Pass the T.A.Z (Temporary Autonomous Zone) and driven by escalating discontent. Reclaiming not a square but the will. A field of operations that melds the acampadas (Spain's continuation of what we saw taking place in Egypt later on tagged as the #occupy movement) through online infrastructures. lorea.org for one. A case on "how-to" approach the vital free information infrastructure from within. Be it pirated satellite transponders, p2p undernets or even getting hold of the fiberoptic cables as is the case of guifi.net. To jam, infect or decode. To bring about, re-create and communicate. All of it taken place now. How could it be reachbale, is it possible to explored in terms of arquitectures? while at the same time, as artsits, reclaim our radical dystopias? Today it seems there's no other option left, the system calls for a push Reset!

The current 'networks' have us in the middle of a plethora of feeds, think again on the switchboard operator patching signals from one end to the other or on how Egypt adopted technologies (from the fax machine to twitter). Feeds for passing on the discontent while resonanting thought the networks all around the globe.

Protocols to patch such connections are what needs to be sorted out in realtime, a task in the hands of hackers. They conform our only option on the battlegrounds of code and electronic warfare fighting from the commandline the epic battles of software/hardware to reconquer the current world from becoming walled. That's the auditorium where action takes place today (2012). It's made up of submarine cables and datacenters owned by companies and goverments that snoop 24/7/365 all traffic that goes through.

Grassroot protocols like p2p, strong encrpytion algorythms, proxy onion layering like Tor hidden services. Behind them there's a world wide network of interconected hackers: Riseup, no-log, lorea, indymedia, anillosur developing alternative systems for encryption and anonymity. Subgroups that should be recognized for their mithical achievements in this short history of the networks.

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20 #oyerismo as in "ecouter-ism" coming from voyeurism, or in English "listen-ism"(?)

So why do we limit our thinking on connectivity to only mobile devices when we could have more fun bouncing messages over hacked satellites? Even the moon "our" natural satellite could serve the case.

The interconnected world is producing doses of TCP/IP packets for the escalating number of junklies. Supeflous connections with holliwoodesque illusions as payloads.

Galileo destroyed geocentricism, but it got reconstructed by an unstoppable ambition for connectivity, command and control represented today by the 'saturnesque' ring of artificial geostationary satellites (and space junk). And so Earth became –once again– an immobile object in the centre of a medial universe.

Where is that listening place? Today, on a wider scope (read that as: laboratory spectogram). Who is listening?

The infrastructure is the "message"
What could be the acoustic of a datacenter?

We are inmersed on #tech-#no-#logic-#al conventions. An Abbrev.iated World of technicalities.

SWL stands for Short Wave Listening:

"The hobby of listening to shortwave radio broadcasts located on frequencies between 1700 kHz and 30 MHz. In some developing countries, shortwave listening enables remote communities to obtain regional programming traditionally provided by local medium wave broadcasters. Some estimates have placed the number of shortwave listeners worldwide in the millions."

Short Wave Listening extends as a practice to monitor many other radio bands, it all depends on the radio receiver, the antenna and the interest of the listener. For example one can listen to Number stations on HF or Satellities on UHF.

Interactions, reactions -> Responsibility (occupations)

Another approach to reclaiming control is the one enacted in full civil disobedience by the Brazilian truck drives that hijack an old North American military satellite (fltsatcom-8) for their daily use. This geostationary satellite covers a big are of the planet opening the opportunity for others to replicate. Provided with the right radio and antenna one can do recordings.

http://dorkbot.org/dorkbotmde/trueque/?sataware
And some of the **AERIAL instruments are here:**
http://dorkbot.org/dorkbotmde/trueque/?antenukas

To close the presentation I've done a realtime demo tunning in the Brazilian satellite pirates from the rood of the School of Architectre in Nantes. Here a short video clip:
http://vimeo.com/39352352

"I am comforted by the hope that your generation will lay the HighFrequency fiber-optic cables and crack the secret world war algorythms" Friedrich Kittler (1943-2001). A su memoria.

Hardware research

An easy to deploy plug-n-play stream machine running PureData (pd) and running on cheap, silent and reliable hardware (Alix computer).

During the last batch of streamboxes we manage to fine tune many different things to achive a noticeable degree of stability. Namely running a forced file system (fsck) check at every new boot of the device. This way we manage to secure a system that was often times getting corrupt cause of unexpected power disconects.

Under the hood we also changed the operative system to run a kernel compiled in the machine by the way of the Gentoo Linux distribution. Nonthless after our last years debugging and optimizing the system in relation to the hardware, while shipping few more streamboxes, we have hit a "bug".

In computer slang this is often considered as a failure or malfunction, in the Locus Sonus streambox project it is a bootleneck that is in my view neither hardware or software related.

It has become more demanding to motivate the communit of streamers (participants wiling to set up a device that streams permanently from a particular location). Many of the long time streambox hosts have either changed their habits and connectivity conditions, others might have lost interest

and what is more worrying is that many of the new comers haven't been alble to keep up with the compromise of setting up a stream after receiving the box. (The causes for each might vary and it becomes untrackable to determine each particular cause after hundreds of emails sent, something that becomes clearly unsustainable cause one thing is developement the other is motivational).

Is clear that the technical set-up needs to be updated to recent times, with this I mean is crucial that we find new ways to feed the soundmap[21] with sources that could perhaps be online on less "long-term" basis.

This Alix boards (see picture above) that have served well their purpose over the last years with their limited computing power have caused a sort of dead-end with participants that will be confused unable to provide them with 5 basic things:

-Electric Power
-Network connection to the internet via cable (Ethernet)
-A good location
-A good microphone
-Stability

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21 http://locusonus.org/soundmap/034/

If any of the above fails, the system will end up stored. We have worked hard setting up many of the streamboxes, helping whoever decided to adopt one on their set up, but when they end up being located thousands of kilometers far away and to be operated by persons with little expertise in computer technology then we risk to loose on having more active sources. It is crucial that either the profiling of whoever is to receive a streambox assures that they will manage to provide the 5 points above or we radically change the system to something even easier to deploy. This has been part of my research during the current year. Theres is an alternative is called Oggstreamer[22] it's price is higher by 50 euros more of the current Alix board price.

As a reference on the hardware and how it works here is a video: http://vimeo.com/48150724 And below I paste one of the few conversations i have had recently with Oggstreamer's main developer.

There have appeared other cheaper alternatives but I personally don't think that for example the RaspberryPi is a big improvement over the Alix and will still be far to debug from the distance. Though as said earlier on this report the problem is more related to the host than to the hardware itself. With the RaspberryPi one ends up cluttered on cables having to use a separate card for sound (that also increases it's price). Experience has shown that we need to provide a clean solution to the end user so the only thing they will have to worry about is placing the box in a sound rich place and getting the approriate micrphone for capturing the scene. Since is all about sound. Thats is what resides at the core of this project.

I will be looking to get populated Oggstreamer boards that can be cheaper to buy than the finished box, this way we might save on resources and even find a way to package the box including a microphone solution that is also something the Locus Sonus Lab has been researching in paralell.

Future development goes the OPUS-CELT codec way. With <20ms Latencies they open a way to more AudioDSP projects coming up[23].

As a conclusion for the current year I will like to stress that both hardware and software have been explored and streched fairly well, if there are issues to solve now regarding the number of streams online this will then directly depend on selecting better the places and people who is to host a streambox.

All my notes to previous releases are here: http://nujus.net/~locusonus/wkdl/?page=StreamBox+Alix+v.0.1

Screen captures of the current 2012 streambox sending a live captured sound and the network control panel:

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22 http://oggstreamer.wordpress.com/
23http://www.vsdsp-forum.com/phpbb/viewtopic.php?f=7&t=798&sid=81c1c5e273b35a09932d31b4fbadd322
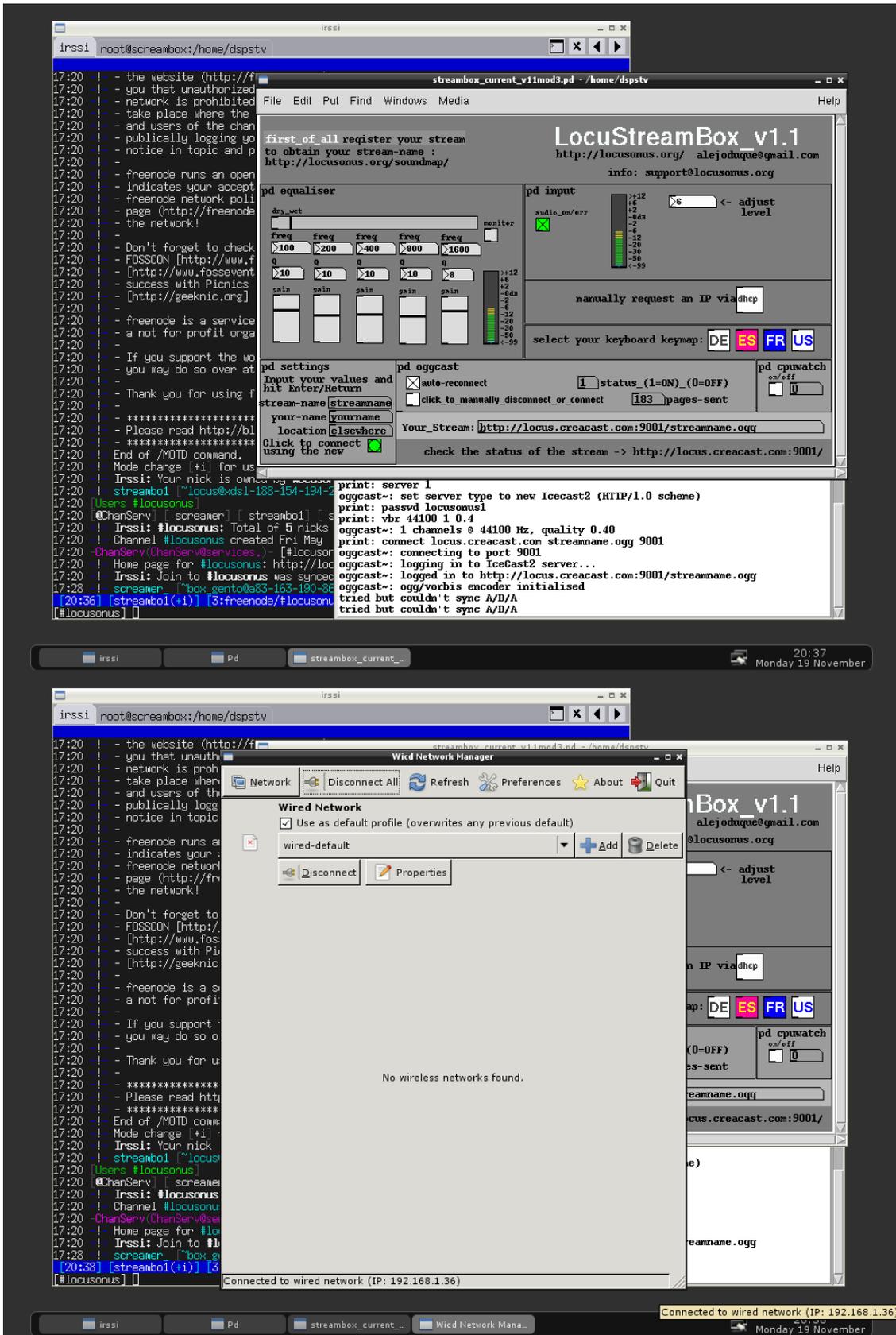
Do you want to buy an OggStreamer?

Georg Ottinger <georg@otelo.or.at>   Mon, Jun 4, 2012 at 2:58 PM
To: alejo d <alejoduque@gmail.com>

Hi Alejo,
I am currently assembling the last 6 devices from the first batch and I want check whether you are still want to buy
a device? best wishes, Georg

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alejo d <alejoduque@gmail.com>   Mon, Jun 4, 2012 at 4:09 PM
To: Georg Ottinger <georg@otelo.or.at>

Hola Georg,
I do will love to integrate the oggstreamer to our soundmap: http://locusonus.org/soundmap
I still send the alix boards with pd or darkice... BUT i dont have the 200Euros for a test board..
do you have any unassembled boxes, kind of a kit from the core encoder?
Warm regards,
/a

Georg Ottinger <georg@otelo.or.at>   Mon, Jun 4, 2012 at 4:26 PM
To: alejo d <alejoduque@gmail.com>

Hi Alejo,
I see ... Do you have access to standard SMD (mainly 0805) components? And would you like to soldier one by
yourself? best wishes, Georg

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alejo d <alejoduque@gmail.com>   Mon, Jun 4, 2012 at 4:31 PM
To: Georg Ottinger <georg@otelo.or.at>

ouch... no, unfortunately no SMD.. i was wishing/hoping you could just sell populated boards.

Georg Ottinger <georg@otelo.or.at>   Mon, Jun 4, 2012 at 4:37 PM
To: alejo d <alejoduque@gmail.com>

Hi Alejo,
That's a pitty - I can only send you a bare PCB without components - but in this case this doesn't make much
sense ... What kind of microphones do you usually hook up? best wishes, Georg

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alejo d <alejoduque@gmail.com>   Mon, Jun 4, 2012 at 4:44 PM
To: Georg Ottinger <georg@otelo.or.at>

On Mon, Jun 4, 2012 at 4:37 PM, Georg Ottinger <georg@otelo.or.at> wrote:

What kind of microphones do you usually hook up?
thats been also under research. we send the boxes to people that works on/with sound so they usually provide good
mics.. some other times i solder a panasonic electrect with a cap and a resistance.. they work.