RCKskimmer

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N2QT

Skimming goes Digital!

What is a Skimmer?

- An automated way of finding and reporting stations on the air
- CW Skimmer by VE3NEA was first introduced in 2008
- Had provisions for integration into packet cluster network
- The Reverse Beacon Network (**RBN**) soon followed, integrating many CW Skimmers world-wide
- CW contesting was changed forever!

But then only rumors of a RTTY version

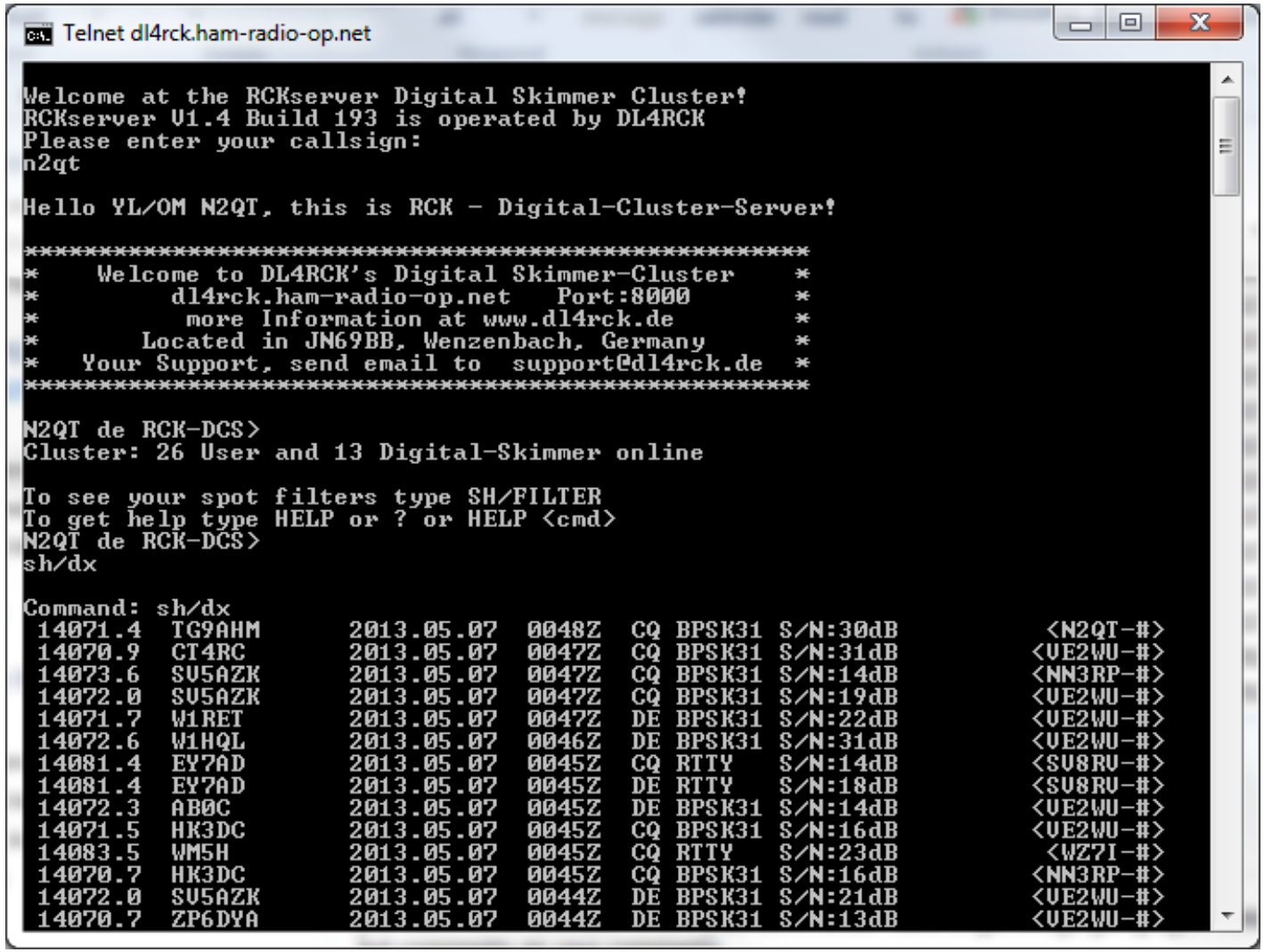
RCKskimmer Announced

- With a short announcement before 2012 SARTG, Walter DL4RCK announced a beta test for RCKskimmer
- Based on JE3HHT's MMVARI engine, multi-mode, (RTTY, PSK31, PSK63 etc.) Skimming was now possible!
- Could connect to the RBN as well as to the new RCK Digital Cluster System
- Upwards of a couple dozen Skimmers are now providing digital spots!
- RBN enhanced to better handle these new spots

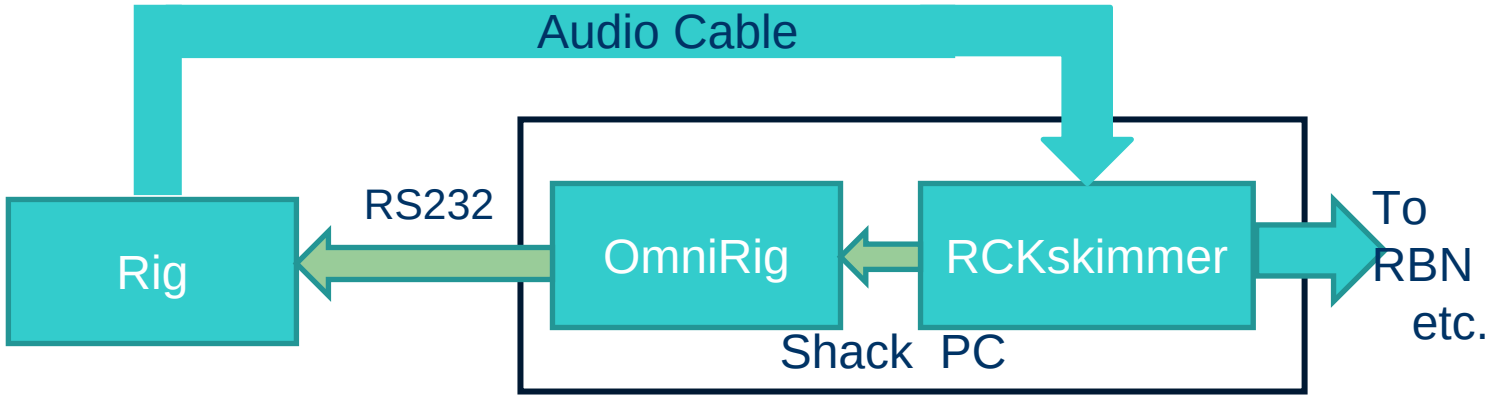
RCK Digital Cluster System

- Besides RCKskimmer spots, also includes ‘human spots’ gleaned from the World Wide DX Cluster system
- Digital modes only
- Easily integrates with contesting or logging software
- Telnet address is :
  dl4rck.ham-radio-op.net on Port 8000
- Type help for commands

RCK Digital Cluster System

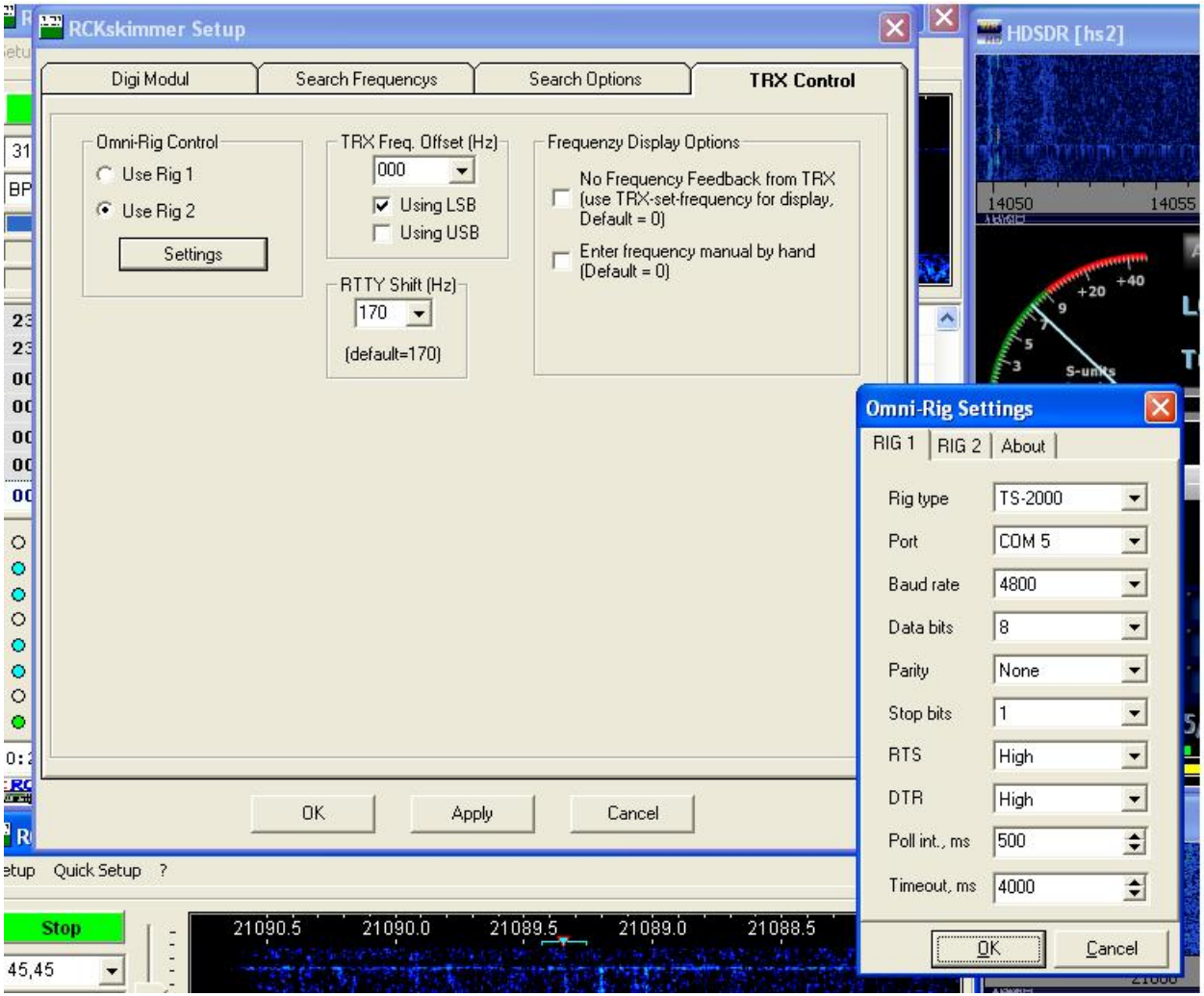


So How Does It Work?



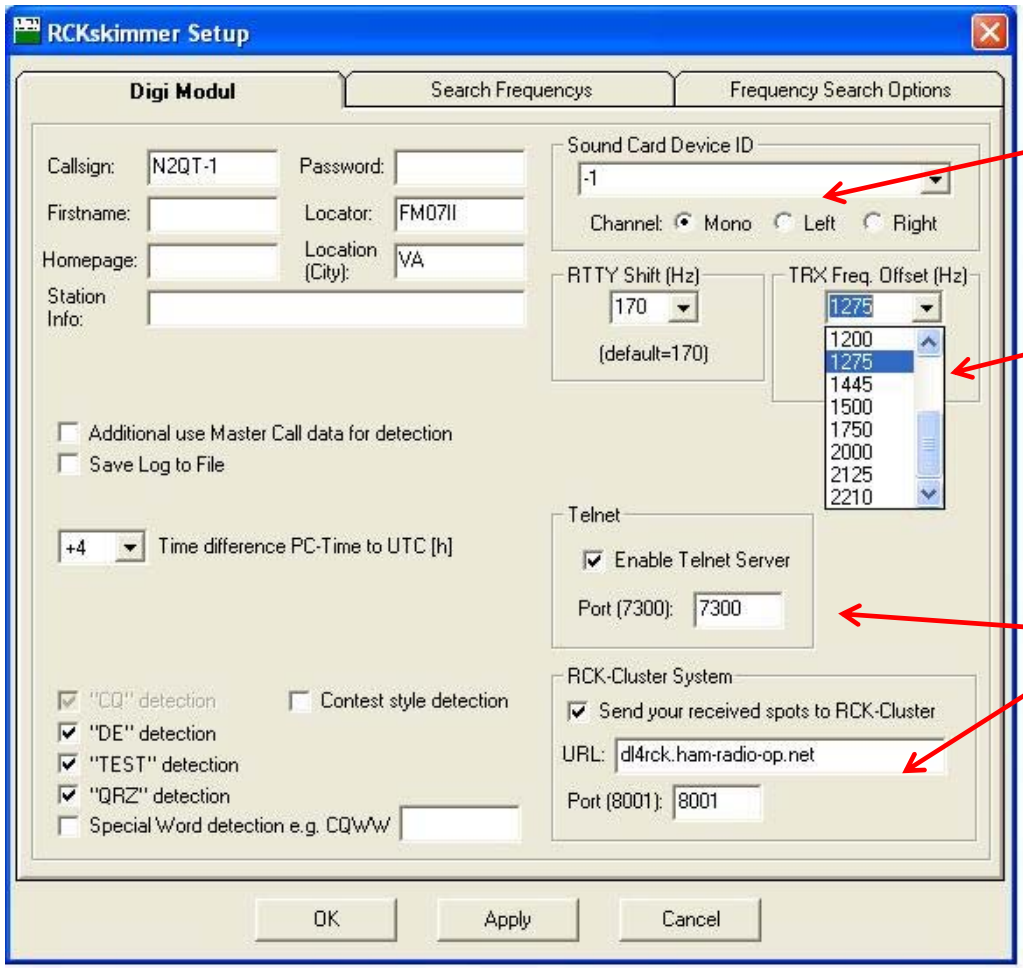
- At the most basic level, only a RS232 controlled radio, providing RX audio to a soundcard is needed.
- No SDR I/Q or high capability sound card needed.
- Decodes ~2.5 Khz of spectrum at a time, and moves on

Some Setup Required



Pick a Rig
Data Rate
Etc.

Some Setup Required

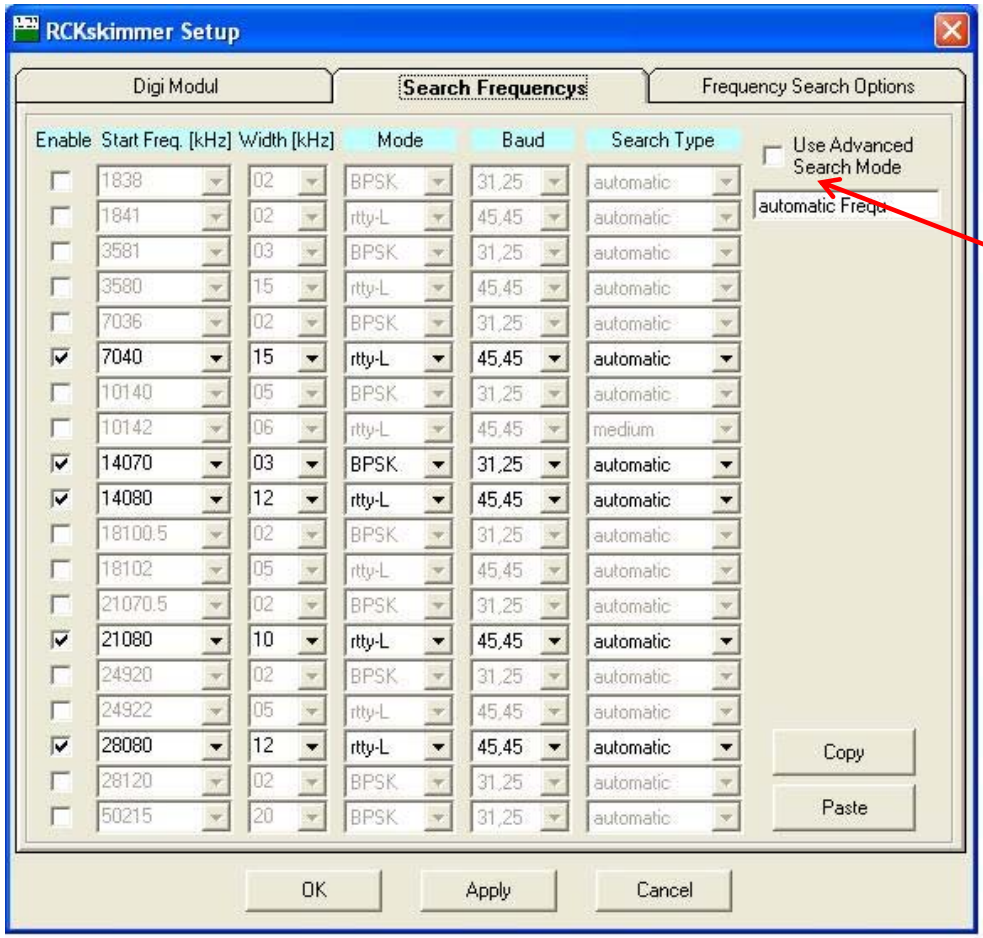


Split Left/Right Audio for two rigs

Verify your spots are on frequency *Please!*

External Connections

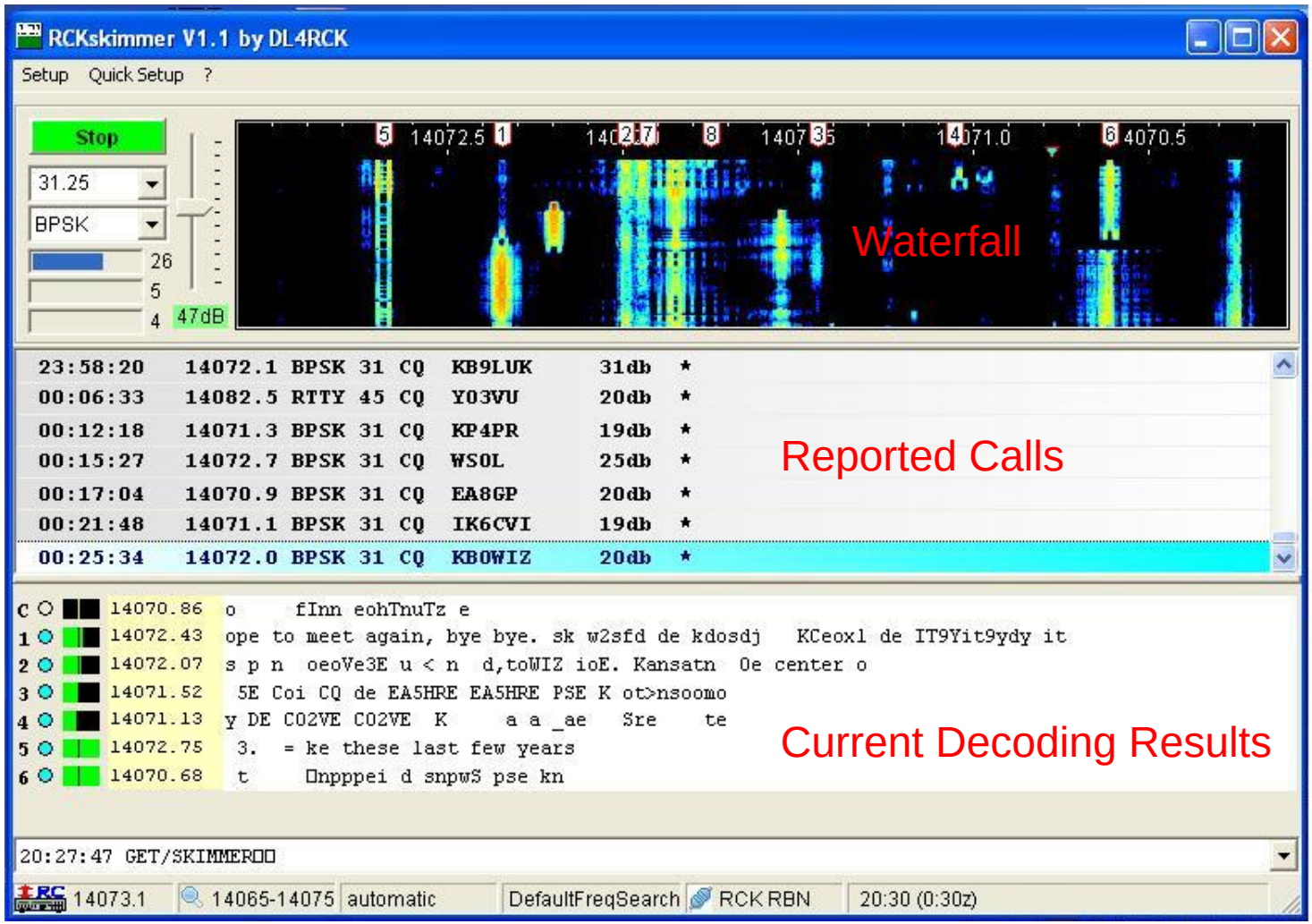
Some Setup Required



Search Frequencies can be specified by mode, frequency range and time of day

Important to get this right for best performance

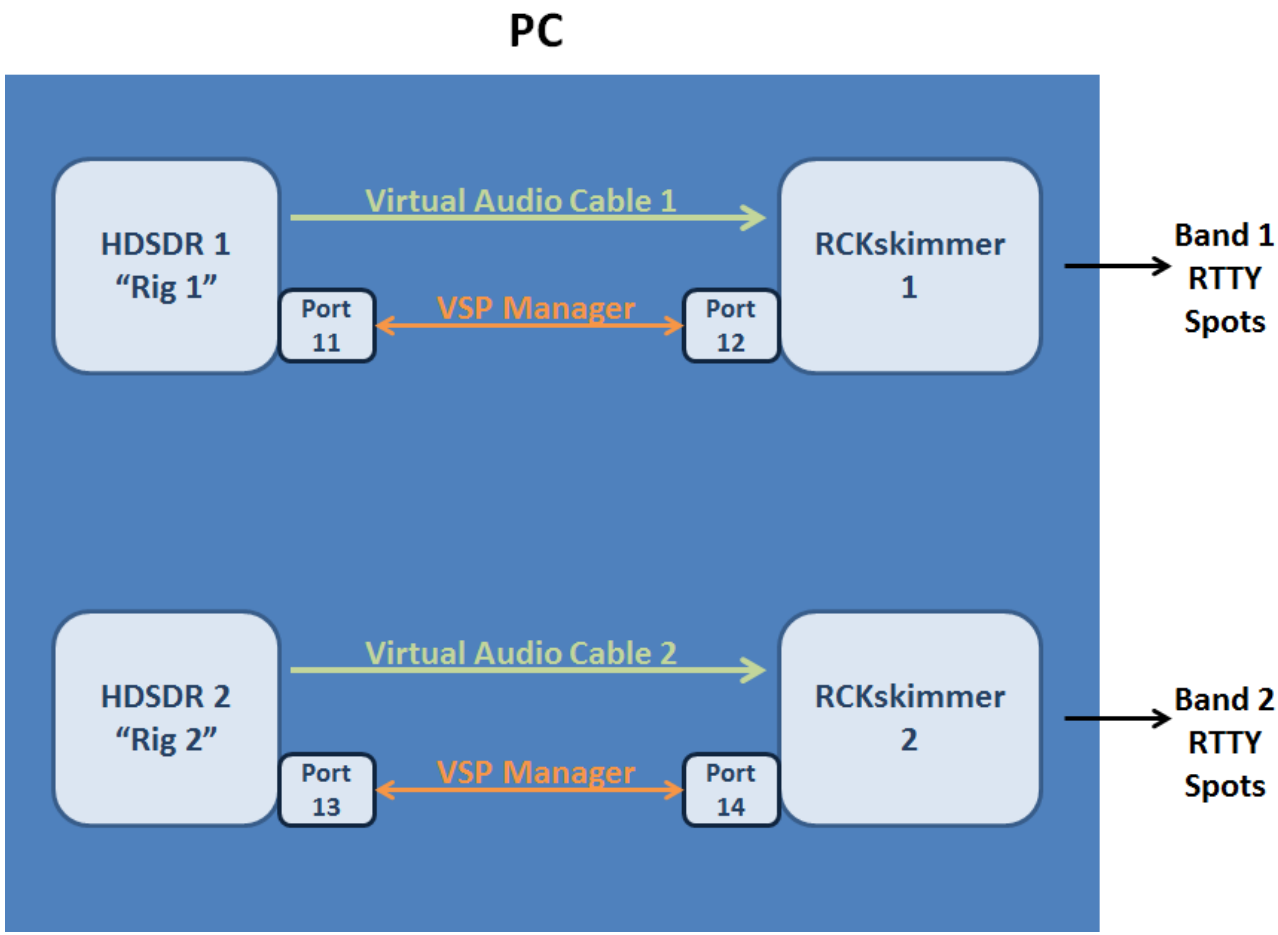
So How's It Look?



Enhancing Performance

- Using multiple receivers, even on the same band gives better coverage (helps overcome the narrow decode window)
- Dedicated hardware for RCKskimmer is better than trying to share the main rig
- One PC with two instances of RCKskimmer can control two radios, either hardware or SDR type
  - Doesn’t take much computing power ~Single Core P4
  - Long list of compatible rigs (any that OmniRig can control)
  - Can use low cost SDRs running HDSDR (but be careful)

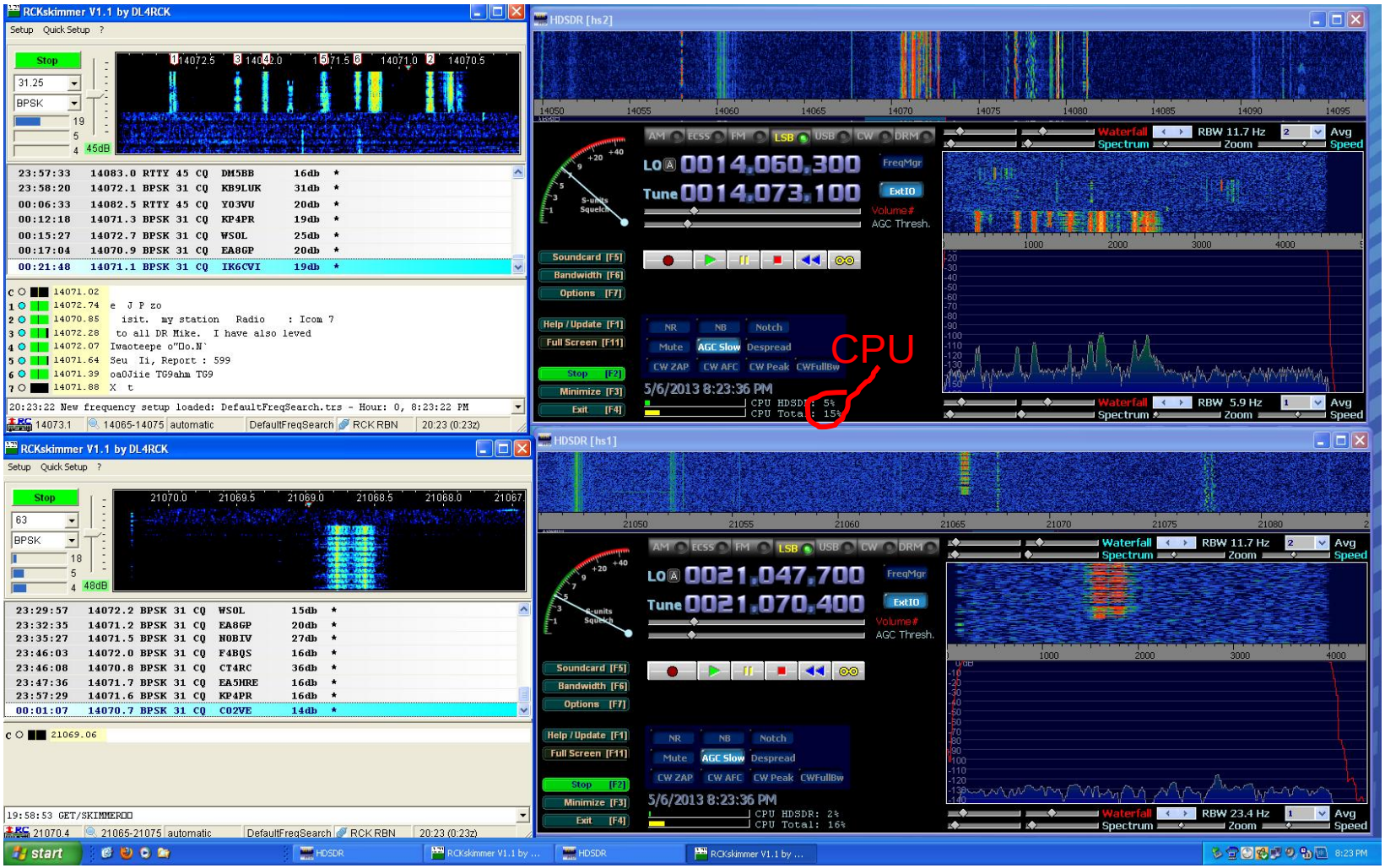
Using HDSDR


PC
HDSDR 1
“Rig 1”
Virtual Audio Cable 1
Port
11
VSP Manager
Port
12
RCKskimmer
1
Band 1
RTTY
Spots
HDSDR 2
“Rig 2”
Virtual Audio Cable 2
Port
13
VSP Manager
Port
14
RCKskimmer
2
Band 2
RTTY
Spots

Using HDSDR

- Needs one ‘reasonable’ quality sound card in addition to what may be needed for the SDR(s).
- Can use copper audio cables if you don’t have VAC
- VSP for control
- Beware of images and spurs
  - Especially with low end SDR’s like Softrock Ensembles and FiFi SDR
  - LO Radiation can be an issue on harmonically related bands

Using HDSDR


RCKskimmer V1.1 by DL4RCK
HDSDR [hs2]
HDSDR [hs1]
CPU
5/6/2013 8:23:36 PM
start

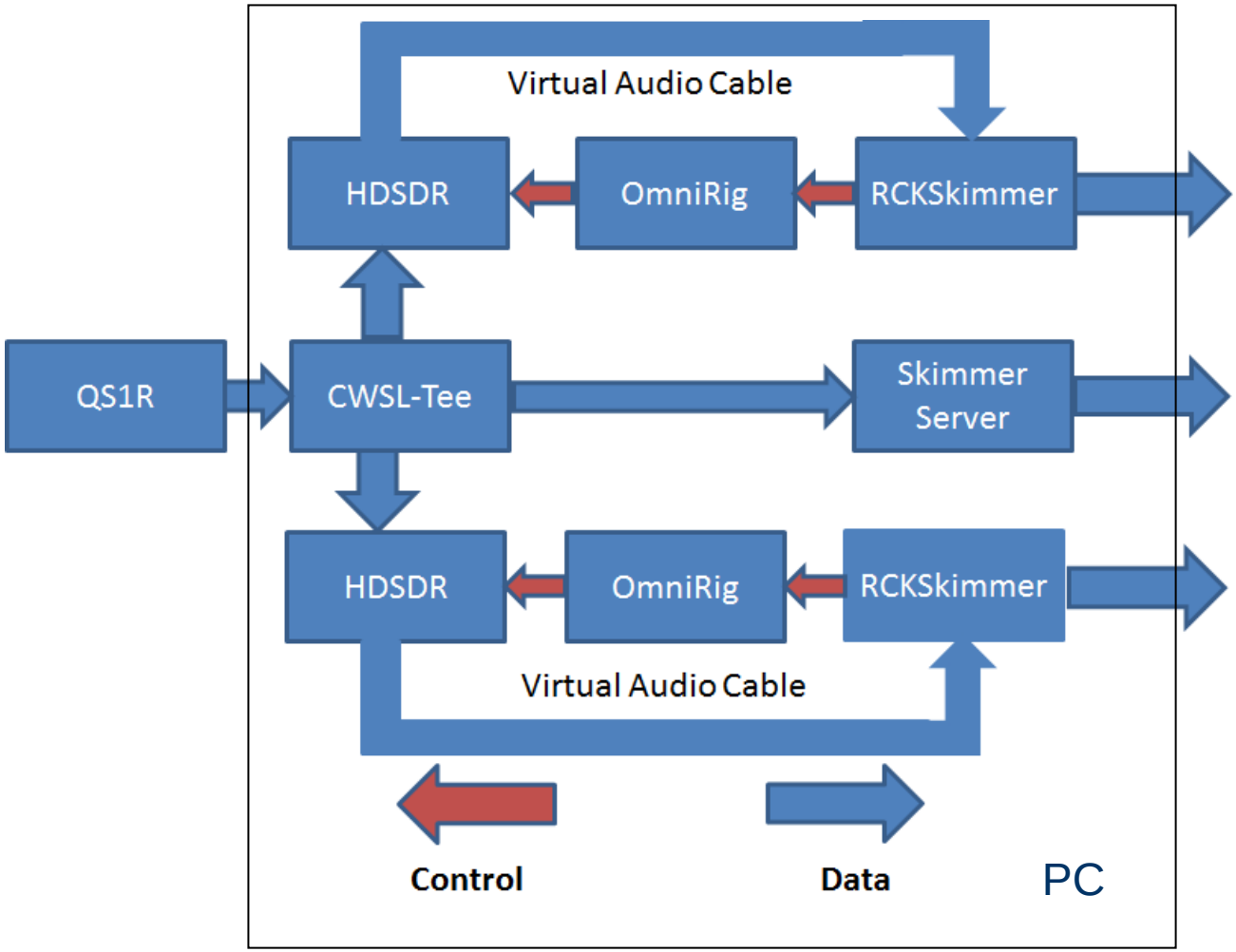
Enhancing Performance

- The ultimate is to integrate with an existing CW Skimmer Server operating on a QS1R
- A QS1R uses direct digital down conversion and avoids the image and spurious responses of simple SDRs
- In addition to decoding CW on up to 7 bands, can add 2 bands of digital mode decoding!
- Pioneered by Wes, WZ7I
- Great way to leverage the existing hardware investment made for CW Skimmer Server

CW Skimmer Server Integration

- Uses CWSL_TEE and HDSDR to create the audio streams needed by RCKskimmer, without impacting CW Skimmer operation
- Basically creates two virtual radios running with HDSDR and RCKskimmer
- Needs more computing power, especially during contests
  - Driven mainly by the CW decode bandwidth
    - Intel i7 Quad Core for 192Khz CW decode
    - Better Core™2 Duo for 96 Khz CW decode

CW Skimmer Server Integration



What's Next?

- Continue to expand with more RCKskimmers
- New features from DL4RCK
- Better on-frequency performance than typical 'human' spotting
- There are still rumors of a wide band many channel digital decoder (anybody here working on one?)
- Remember to use the correct entry class for any contest (although many digital contests allow assistance in all categories)

Resources

- DL4RCK Software including RCKskimmer http://www.walter-dallmeier.de/
- Reverse Beacon Network (check the blog for how-to info on CW Skimmer/RCKskimmer integration) http://www.reversebeacon.net
- CWSL_TEE http://ol5q.nagano.cz/soft.php?page=Software
- WZ7I Skimmer Information http://wz7i.com/cw-skimmer/rtty-skimmer.html
- AC0C's multi-band Softrock CW Skimmer Array http://ac0c.com/main/page_homebrew_cwskimmer_array.html