CW skimmer - SDRPlay









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Introduction to Skimmer softwares

Two versions

One version with MMI :

- Provides on a bandmap a list of calls (following a CQ or not) or a plain text decoding on a frequency range.
- Provides a visual decoding of the signals (dot-dash)
- May provide with a list of spots (calls following a CQ or not, frequency, date time)
- It can be interfaced with an audio 3kHz output or an SDR IQ output.
- One server version running in background :
 - Provides a list of spots (calls following a CQ or not, frequency, date time) decoded on one or several amateur bands (up to 7). This version directly interfaces an SDR.

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Goal of Skimmer tests

Identify CW Skimmer advantages in a contest :

- in Search and Pounce mode (S&P)
- ▶ in Run mode with a 500 ou 250 Hz filter

CW Skimmer

Test configuration



Hi-Fi Cable Input configuration

The sampling rate is constrained by the soundcard

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| 🕅 Son | | | | × |
|-----------|---|-------------------------------------|------------------------------------|---------------------|
| Lecture E | inregistrement | Sons | Communications | |
| Sélectior | nez un périph | érique d | e lecture ci-dessous pour modifier | r ses paramètres : |
| 0 | Hi-Fi Cable 2- VB-Audio Prêt | I nput o Hi-Fi (| able | |
| 0 | Haut-parle Realtek(R) Périphériqu | urs Audio ue par d | éfaut | |
| | Haut-parle VB-Audio H Périphériqu | urs Ii-Fi Cab ue de co | le mmunications par défaut | |
| | CABLE Inpu VB-Audio V Prêt | ı t /irtual C | ible | |
| Confi | gurer | | Par défaut | ▼ Propriétés |
| | | | OK Ann | uler Appliquer |

× 🥺 Propriétés de : Hi-Fi Cable Input Général Niveaux Statistiques avancé Son spatial Format par défaut Sélectionnez le taux d'échantillonnactet la résolution à utiliser en mode partagé. 24 bits, 96000 Hz (Qualité studio) Tester \sim Mode exclusif Autoriser les applications à prendre le contrôle exclusif de ce périphérique Donner la priorité aux applications en mode exclusif rer les paramètres par OK Annuler Appliquer

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CW Skimmer with an IQ input

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SDRUno configuration - IQ







CW Skimmer - SDRPlay

CW Skimmer configuration – IQ(1) 11

To be checked for SDRPlay to synchronize the frequency display



| Settings × |
|---|
| Radio Audio CAT Misc. Operator Network Calls |
| © MME C WDM |
| Signal I/O Device |
| 02 Hi-Fi Cable Output (2-VB-Audio 🔽 |
| Audio I/O Device 01 Haut-parleurs (Realtek(R) Audio |
| Audio Volume Channels C Left/Right = I / Q Image: Construction of the second |
| Shift Right Channel Data by C -1 sample |
| OK Cancel |

HiFi VAC ouput

CW Skimmer configuration – IQ (2)

| | | | Omni-rig |
|-----------------|----------------|---------------|--------------|
| | | | configuratio |
| Settings | | × | |
| Radio Audio CAT | Misc. Operator | Net ofk Calls | |
| CAT Interface | | | |
| Use Radio 1 | FT-1000 MP | | |
| C Use Radio 2 | NONE | | |
| Configure | | | 그 김 부모님 동생 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | OK | Cancel | |
| | | | |

Spots broadcast activation

| Settings × | |
|--|---|
| Radio A o CAT Misc. Operator Network Calls | 1 |
| | |
| Port: 7300 | |
| Require Password | |
| Password: | |
| Do not send callsigns without "CQ" | |
| Allow SKIMMER commands | |
| Only to/from this User: | |
| | |
| 🔲 Send Spectrum via UDP | |
| Source Name CW Skimmer | |
| Destination Address 127.0.0.1 | |
| Destination Port 13064 | |
| | |
| OK Cancel | |

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Can be used by the N1MM+ Spectrum window



N1MM+ configuration

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Cluster selection

| Telnet | | – 🗆 X |
|---|--|--------|
| Type: F6CZV | Reconnect | ▲ ▼ |
| localport Clusters Bands/Modes Filters Spot Comment PurdPlans | | |
| Select from live Cluster List on website | Options Logon with F6CZV Automatically Logon Format for DXSpider Cluster Show Telnet Buttons Cluster Keep Alive Interval (minutes) | |
| Selected Cluster Connect to localport | | |
| | | |







| Callsigns | | | |
|-----------|----------|--------|---|
| Freq | Utc | Call 🔺 | |
| 3528.0 | 16:26:03 | DJ3RA | ^ |
| 3518.7 | 16:28:23 | DJ6TK | |
| 3516.7 | 16:27:05 | DL1A | |
| 3523.5 | 16:26:32 | DL1DQ | |
| 3530.1 | 16:29:39 | DL1DQJ | |
| 3515.7 | 16:26:46 | DL1T | |
| 3515.7 | 16:25:54 | DL2J | |
| 3519.2 | 16:25:46 | DL2LRT | |
| 3524.1 | 16:28:20 | DL2RVL | |
| 3514.4 | 16:28:33 | DL5DSB | |
| 3521.0 | 16:26:45 | DLSJSO | |
| 3527.0 | 16:26:30 | DL9NO | |
| 3520.2 | 16:28:19 | DM4CW | |
| 3520.8 | 16:27:55 | DM5AA | |
| 3514.4 | 16:27:31 | DO9PMA | |
| 3526.0 | 16:27:44 | IK2PFL | |
| 3515.6 | 16:27:38 | LY2TS | |
| 3518.5 | 16:29:24 | N5NN | |
| 3520.3 | 16:28:25 | OK1DSZ | |
| 3521.9 | 16:27:18 | OK1KKI | |
| 3526.8 | 16:28:27 | OK2BOB | |
| 3529.1 | 16:25:44 | OK6N | |
| 3522.8 | 16:26:22 | OL4W | |
| 3518.6 | 16:27:37 | OZOB | |
| 3517.6 | 16:27:36 | OZ1AAR | |
| 3529.4 | 16:25:54 | SE5E | |
| 3524.0 | 16:26:14 | SO30 | |
| 3520.9 | 16:28:05 | SP1GZF | |
| 3523.4 | 16:25:58 | SP2AEK | |
| 3515.0 | 16:28:06 | SP2HMT | ~ |
| | Calls | : 35 | |
| | | | |

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CW Skimmer - SDRPlay

CW Skimmer with a 3 kHz input

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CW Skimmer - SDRPlay

SDRUno configuration – 3 kHz

Bandwidth

| SETT. RDSW | EXW SDRuno | CONTROL | | RSYN | MCTR | TCTR | 1-88 | - × |
|-------------------------|-------------|---------|------|---------|---------|--------|----------------|-----------|
| DEEM 50u STEP: 10 Hz | 7.0 | 28.9 | 10 1 | 91,2 im | RMS | .1.1.1 | 7.9 +2 | 0 +40 +60 |
| MODE AM | SAM FM CV | N DSB | LSB | USB | DIGITAL | | Bands | MHz |
| VFO - QM | FM MODE CW | OP FILT | TER | NB | NOTCH | 7 | 8 | 9 |
| VFO A A > B | NFM MFM CW | PK 150 | 25 | NBW | NCH1 | 2200 | 630 | 160 |
| VFO B B > A | WFM SWFM ZA | VP 500 | 750 | NBN | NCH2 | 4 80 | 5 60 | 6 40 |
| QMS QMR | CW | AFC | NR | NBOFF | NCH3 | | | |
| MUTE | -113 dBm | | AGC | | NCH4 | 1 30 | 2 20 | 3 17 |
| SQLC | | | OFF | FAST | NCHL | | | |
| | | | MED | SLOW | | 15 | Clear | Enter |
| | | | | | | | | |

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CW Skimmer configuration - 3 kHz (1)



Radio pitch to synchronize the frequency display

| Radio Audio CAT Misc. Operator Network Calls |
|---|
| © MME C WDM |
| Signal I/O Device |
| 02 Hi-Fi Cable Output (2-VB-Audio |
| Audio I/O Device |
| Audio Volume Channels C Left/Right = 1 / Q C Left/Right = Q / 1 |
| Shift Right Channel Data by |
| C -1 sample |
| |
| OK Cancel |

HiFi VAC ouput

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 \times

```
CW Skimmer - SDRPlay
```

Settings

CW Skimmer configuration 3 kHz (2)

ition

| | | | Omni-rig |
|-----------------|----------------|---------------|-----------|
| | | | contiguro |
| Settings | | × | |
| Radio Audio CAT | Misc. Operator | Net ofk Calls | |
| CAT Interface | | | |
| Use Radio 1 | FT-1000 MP | | |
| C Use Radio 2 | NONE | | |
| Configure | | | . 에 날씨님 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | OK | Cancel | |
| | | | |

Spots broadcast activation No interest with a 3kHz bandwidth

| Settings | | | × |
|--------------------------------------|-----------------|---------|-------|
| Radio A o CAT | Misc. Operator | Network | Calls |
| ☐ Enable Telnet Serv Port: 7300 🚖 | el | | |
| 🔲 Require Password | | | |
| Password: | | | |
| 🔲 Do not send callsig | ns without "CQ" | | |
| Allow SKIMMER co | mmands | | |
| 🔲 Only to/from th | nis User: | | |
| | | | |
| 🔲 Send Spectrum via | UDP | | |
| Source Name | CW Skimmer | | |
| Destination Address | 127.0.0.1 | | |
| Destination Port | 13064 | \$ | |
| | | | |
| | ОК | Can | cel |

Can be used by the N1MM+ Spectrum window No interest with a 3kHz bandwidth

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CW Skimmer windows - 3 kHz



 Freq
 Utc
 Call ▲

 7030.2
 10:56:25
 DF5DW

 7029.0
 10:56:16
 DL1A

 7029.0
 10:56:10
 DL1AVK

 7029.0
 10:52:51
 EE2A

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Calls: 4

Contest use



Scarcely decodes a pile-up in a 250/500 Hz bandwidth (Run mode)

Ease the work either by the callsign decoding / plain text or by the visual decoding (dots / dashes) in the window. (there more and more stations sending CQ or reports at 35/40 wpm ^(B))

Supplies the band spots which are heard at the station and not in another country (+ for the S&P mode)

Skimmer Server

Test configuration







Skimmer Server – SDRPlay Interface

Download SDRPlayIntf from Dxatlas-SkimServer

- Download and install "API/HW Driver" if not already done (from the SDRPlay site)
- Place SDRPlayIntf.dll in the same folder as SkimSrv.exe. Any other DLL's in that folder must be removed.

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Skimmer Server configuration



F6CZV

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Spots in N1MM+

| Telnet | | | | – 🗆 X |
|---|---|---|-----------|---------|
| Type: F6CZV | | | Reconnect | - |
| localport Clusters Bands/Modes Filters Spot Comment | BandPlans | | | |
| 3559.6 SN1T 17-oct2020 1636Z 8 3525.4 SN1T 17-oct2020 1635Z 9 3539.3 SN6A 17-oct2020 1635Z 15 3557.1 SN6A 17-oct2020 1652Z 15 3557.1 SN6A 17-oct2020 1640Z 13 3522.9 SN6A 17-oct2020 1637Z 14 3557.0 SP2AEK 17-oct2020 164ZZ 7 F6CZV/P de SKIMMER 2020-10-17 16:53Z CwSkimmu DX de F6CZV-#: 3529.8 S53BV 7 0 DX de F6CZV-#: 3528.4 DL3TU 8 0 DX de F6CZV-#: 3538.4 DL3UB 22 0 DX de F6CZV-#: 3535.4 DL3UB 22 0 DX de F6CZV-#: 3528.3 DL3ANK 7 0 | dB 26 WPM CQ dB 26 WPM CQ dB 28 WPM CQ dB 27 WPM CQ dB 27 WPM CQ dB 27 WPM CQ dB 22 WPM CQ dB 25 WPM CQ dB 28 WPM CQ dB 28 WPM CQ dB 28 WPM CQ dB 26 WPM CQ | <f6czv-#> <f6czv-#> <f6czv-#> <f6czv-#> <f6czv-#> <f6czv-#> 16532 16532 16542 16542 16552</f6czv-#></f6czv-#></f6czv-#></f6czv-#></f6czv-#></f6czv-#> | | ^ |
| DX de F6C2V-#: 5551.6 DL510 151 | ub zo whiti CQ | 10002 | | × |
| BYE CONN | DVN | SH/DX | USERS | WWV |
| Clear NE Yes DX | NE only | No DX | No VHF | F6CZV/P |



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Contest use

Unusefull for the Run mode

- Supplies the spots heard at the station (S&P mode)
- Nota : If several bands are analysed allows to see the openings. That configuration was not tested due to the FT-1000 Field – SDRPlay interface



CW Skimmer from Afreet Software Skimmer Server from Afreet Software Omni-rig from Afreet Software SDRUno from SDRPlay HiFi Virtual Audio Cable from VB-AUDIO Software **VSPE** from Eterlogic >N1MM+

References



- SDRplay: <u>https://www.sdrplay.com</u>
- Eterlogic : <u>https://www.eterlogic.com</u>
- CW Skimmer : <u>http://www.dxatlas.com/CwSkimmer /</u>
- CW Skimmer Server: <u>http://www.dxatlas.com/SkimServer/</u>
- HiFi VAC : <u>https://vb-audio.com/Cable/index.htm#DownloadASIOBridge</u>
- N1MM+ : <u>https://n1mmwp.hamdocs.com/</u>