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*This document describes the functionality of the «Software Defined Connectors» (abbreviated «SDC») software.* 

Overview of features of the program:

- "**ProFile Manager**". Working with the profiles for 5MContest and ExpertSDR2 programs.

- "**COM Spider**". Creates any connections between COM ports. Transferring a COM port over the network to a remote computer. Transmits the CW signal (DTR / RTS) to the remote computer, keeping the switching intervals.

- "**RIG Sync**". Synchronization of receivers, transceivers and programs of all types. Uses its own polling system to allow fast synchronization. You can sync with OmniRig and SDR client programs that support ExpertSync protocol over TCP connections or TCI interface.

- "**Telnet Server**". Creates a telnet server to collect data from multiple spot sources and transmit it over a single port. It can automatically start SKM server and connect it to transfer points. Summarizes and transfers spots to the ExpertSDR2 panorama. Integration with 5MContest, N1MM, LogHX logs.

- "SKM Server". Creates CW, RTTY and PSK skimmers. Has direct integration with ExpertSDR2 via TCI interface, SmartSDR via audio and telnet connection, Afedri, etc. All kinds of skimmers have a high spot sending speed.

- "Digi Server". Digital module for connecting to external logs and offline work. It has built-in modulators / demodulators for RTTY45.75, BPSK31-125. Only TCI is used for its operation. To connect logs, each module has built-in Telnet Server.

*- "Macros Server".* Buttons panels for transmitting macros in CW, DIGI, SSB via TCI.

- "**Remote Audio & COM port:**". Creates remote connections for audio streaming and COM ports.

- "Audio Mixer:" Creates any audio stream connections. Split stereo to mono and vice versa. Separate volume controls for each audio stream.

- "Audio Scope:" Creates windows for monitoring the spectrum and waveform of audio signals.

- "**PA Control**". Power amplifier control. Uses data from client TCI or RIG Sync. Generates a PTT signal. Works with amplifiers that support the KENWOOD, ICOM, ELECRAFT protocol.



- **"OTRSP:"** Transceiver Sound Management via OTRSP Protocol.

- **"TCI Client:**" Creates a connection to the transceiver via the TCI interface. Has a built-in "FocusHelper" function for working with contest logs. The "CAT" section contains a port separator for programs and devices via COM ports.

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## Creating a "truncated" profiles

To save the current settings for their quick restoration in the future, the ExpertSDR2 program uses a system of profiles. The profile file includes all settings for all systems in the program. This is not always convenient, since it often becomes necessary to save and restore only a part of the settings, for example, only the settings of virtual audio cables. Let's consider this option as an example.

After all settings are entered into the ExpertSDR2 program, create a profile with the name, for example, "vac\_digi":



Then we launch the SDC program and in the first tab open this file with the [File 1] button:

税 Utilites F	xpertSDR2 [C:/U	lsers/Yuriy/LwSo	ft/comspider.ini]			- 🗆 ×
ProFile Manager	COM Spider	Telnet Server	Audio,COM-port Server	Setup		
File 1		As File2 <	File 2 Use as a templa	te	Create	Save
F	🕅 Открытие					
	< → × 1	► 📑 > Yuriy	> ExpertSDR2 > profiles		ٽ ~	Поиск: profiles
	Упорядочить	• Создать	папку			== -
	📌 Панель б	быстрогс	Имя .		Дата изменен	ния Тип
	📃 Рабочи	й сто. 🖈	Line Out Off.prfl		15.04.2016 15:	56 Файл "PRFL"
	👆 Загрузк	и 🖈 и	Line Out On.prfl		15.04.2016 15:	57 Файл "PRFL"
	🔮 Докуме	нты 🖈	Minitest.prfl		16.01.2016 16:	:50 Файл "PRFL"
	📰 Изобра		📄 vac_digi.prfl 🛛 🦯		30.04.2016 14:	35 Файл "PRFL"
		× <				
		Имя фай	ла: vac_digi.prfl		~	Pro Files(*.prfl)
						Открыть О
-						
Set All	Clea	ar All	Set All	Clear All	For	Program ExpertSDR2

After opening the file, we will see the profile tree, where we look for VAC settings and check the boxes in each VAC-related branch, or check the boxes on the main branches:

剐 Utilites For Ex	pertSDR2 [C:/	Users/Yuriy/Lws	Soft/comspider.ini]			-		$\times$
ProFile Manager	COM Spider	Telnet Serve	Audio,COM-port Serv	ver Setup				
File 1		As File2 <	File 2 Use as a to	emplate	Create		Save	
▼       ✓       SunSDR.         ✓       ∨ vac.r       ✓       ∨ vac.r         ✓       ∨ vac.r       ✓	ndow] ntrol] 2] 2_ MicPC] 2_VAC0] driver=0 x_name=@By x_a ampleRate=5 bufferSize=3 atency=0 x_gain=0 x_gain=0 x_gain=0 x_name=@By x_name=@By x_name=@By x_name=@By x_name=@By x_name=@By x_a atency=0 x_gain	teArray(. teArray(. teArray(. teArray(.		Clear All				
Set All		ear All	Set All	Clear All		For Program	ExpertSDR	- ala

If we do not want to save some settings, for example, delay settings, then the checkboxes must be removed in the corresponding branches. After that, press the [Create] button - a "tree" of the future profile is created, press the [Save] button and write the name of the future file, or select the same:

WU Utilites For ExpertSDR2 [C:/Users/	Yuriy/LwSoft/comspider.ini]	– – ×
ProFile Manager COM Spider Te	Inet Server Audio, COM-port Server Setup	
File 1 As Fi	le2 < File 2 Use as a template	Create Save
rs/Yuriy/ExpertSDR2/profiles/vac_dig	i.prfl 🔺	
		× SunSDR2_VAC0] vac driver=0
🔒 > Yuriy > ExpertSDR2 > profiles >	<ul><li>ひ</li><li>Поиск: profiles</li></ul>	Ac_unversor vac_rx_name=@ByteArray(Line 1 ( vac_tx_name=@ByteArray(Line 2 (
Создать папку	E== ▼	vac_rx=4 vac_tx=6
rporc / UMR	Дата изменения Тип 15.04.2016 16:00 Фаил "PKFL"	Pa3Me vac_sampleRate=5 vac_bufferSize=3
ro. 🖈 DX-UP_OFF.prfl	20.04.2016 15:55 Файл "PRFL"	vac_rx_gain=0 vac_tx_gain=0
DX-UP_ON.prfl	20.04.2016 15:48 Файл "PRFL"	vac_enable=false SunSDR2_VAC1]
a 🖈 📄 KVA.prfl	30.04.2016 13:40 Файл "PRFL"	vac_driver=0
и 🖈 📄 Line Out Off.prfl	15.04.2016 15:56 Файл "PRFL"	vac_rx_name=@ByteArray(Line 3 ( vac_tx_name=@ByteArray(Line 4 (
Line Out On.prfl	15.04.2016 15:57 Файл "PRFL"	vac_rx=8
Minitest.prfl	16.01.2016 16:50 Файл "PRFL"	vac_tx=4 vac sampleRate=5
📄 vac_digi.prfl	30.04.2016 14:35 Файл "PRFL"	vac_sampleKate=5
~ <		> vac_rx_gain=0
a: vac_digi.prfl		vac_tx_gain=0 vac_enable=false
a: Pro Files(*.prfl)		~
	Сохранить Отм	лена
SoundCard]		jelSereenstitte

Thus, we get a "shortened" profile, in which only the settings for audio cables will be registered.

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#### Create a profile from the two existing profiles

Based on the two available profiles, a third can be created with the selected settings. For example, from a new profile, you need to select the settings for the size of the program window and add the settings for the audio cables created in paragraph 1.1.

Create a new profile with the name, for example, "size\_vac", open it in the SDC program with the [File 1] button, open another profile ("vac\_digi") with the [File 2] button:

ProFile Manager	COM Spider	Telnet Serve	r Audio,CC	M-port Server Setup			
File 1		As File2 <	File 2	Use as a template	Create	Save	
sers/Yuriy/Expert  Comparison  Comparison	idow] htrol] ] _MicPC]		<ul> <li>▼ [SunS</li> <li>▼ [SunS</li> </ul>	pertSDR2/profiles/vac_digi.prfl DR2_VAC0] DR2_VAC1]	Isers/Yuriy/Expert: ImainWindow IsunSDR2_VA IsunSDR2_VA	C0]	gi.prfl
<ul> <li>[SunSDR2</li> <li>[SunSDR2</li> </ul>		🕅 Сохранение	2				
<ul> <li>[SoundCa</li> <li>[LineOut]</li> </ul>		$\leftarrow \rightarrow \sim \prime$	N Nur	riy > ExpertSDR2 > profiles	>	v Č ∏o	иск: рг
<ul> <li>[LineOut]</li> <li>[CAT_TS4]</li> </ul>	1] 80]	Упорядочить	• Созда	ать папку			
<ul> <li>[E-Coder1]</li> <li>[Features]</li> </ul>		📌 Панель (	быстрогс	Имя		Дата изменения	Ти
<ul> <li>[Manager</li> <li>[CwSkimr</li> </ul>		Рабочи	ій сто. 🖈	DX-UP_ON.prfl		20.04.2016 15:48	Фа
Receiver	0]	Загрузки	ал 💉	KVA.prfl		30.04.2016 13:40	Фа
[Receiver]	ני		менты 🖈	Line Out Off.prfl		15.04.2016 15:56	Фа
		📰 Изобра		Line Out On.prfl		15.04.2016 15:57	Фа
		6	ixenii y	Minitest.prfl		16.01.2016 16:50	Фа
				size_vac.prfl		30.04.2016 14:58	Фа
				vac_digi.prfl		30.04.2016 14:45	Фа
		Cabrillo	· · ·	<			
		Имя ф	айла: size_va	ac.prfl			
		Тип ф	айла: Pro Fil	es(*.prfl)			
		<ul> <li>Скрыть пап</li> </ul>	іки			(	Сохран

Using the [Create] button, create a new profile tree and save it. Thus, we took from the full profile only the settings for the program window sizes, added the settings for audio cables to them and got a combined profile.

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### Обновление профиля (As File2)

In the work, situations will often be created when it will be necessary to change an already created "shortened" profile. In order not to remember what settings are saved in it, there is a possibility of quick placement of marks for those settings that are in the [File 2] profile. For this, a new profile is created, it is opened in the SDC program with the [File 1] button, with the [File 2] button, the previously created shortened profile is opened and the [As File 2] button is pressed. As a result, the [File 1] profile will be marked for those settings that are in the [File 2] profile:



Then we press the button [Create], then save the profile button [Save].

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### **Update Profile (Use as template)**

This is an option to update a shortened profile when its old file is used as a sample. Open a new profile, open an old profile, check the "Use as a template" checkbox, press the [Create] button, then save. This method differs from the previous one in that if the original profile for some reason does not contain the settings that are in the "sample", they will be added from it when creating a new profile.

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#### Working with profiles 5MContest program

To switch the program to work in the profiles 5MContest program must specify it in the drop-down menu «For Program:»

	-	_	_		_
С	_	Е		1	
÷	7	L	J	U.	
	~				-

oFile Manager	COM Spider Telnet S	erver Audio,COM-port Server	Setup				
File 1	As File2 <	File 2         Use as a template	cetup	Create		Save	
						6	2
Set All	Clear All	Set All Clear A		Eas De	ogram	5MContest	-

Work with the program is no different from the profiles 5MContest with ExpertSDR2 program profiles.

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## **COM-Spider**

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#### **Creating connections COM ports**

«SDC» program will create all kinds of connections COM ports, both physical and virtual. For example, there is such task:

There is a real COM port COM3, which is connected to an amplifier OM-2500. There is a virtual port SOM10 (from a pair COM9-SOM10), which is connected to the system port COM9 CAT transceiver SunSDR2. There SOM12 port (from a pair SOM11-SOM12), which is connected to the port SOM11 contests log. The aim is to link these three systems into one. To the state of the radio broadcast settings in power, and in the log.

The data to be transmitted from the transceiver to the amplifier, and vice versa, and a log of the transceiver, and back. Status DTR / RTS lines (PTT control and CW) must be transmitted only on the log in the transceiver.

In the «SDC» program opens the "COM Spider" tab, click [+] open three ports: A, B, C. We put a mark that says that these ports will be used. Specify the names of ports, respectively, COM11, COM9, COM3, install (if necessary) the properties of the port (Baud rate, Data bits ...). In the "Send Data to" Spend SOM11 to put the check in front of the port SOM9. This indicates that the log data will be transmitted from only ExpertSDR2. In the "Send DTR / RTS to" port SOM11 note daw port SOM9 - this indicates that the log will transmit PTT / CW control only ExpertSDR2 program.

In the "Send Data to" put the port SOM10 jackdaws for SOM11 and COM3 ports - it says that the data will be transmitted in the log, and power.

In the "Send Data to" put the check port COM3 port SOM9 - data from the amplifier will be transferred to ExpertSDR2.

🕅 SDC (Software Defined Connectors	v 6.5) [C:/Users/Yuri/LwSoft/comspider.i	ini] — 🗆 X
ProFile Manager COM Spider Rigs	Sync Telnet Server Audio Client	Audio/COM Server Save Settings About
Start 🕂 🗕 Pro	file: Hard-OM.pspd 🔹 🗶	
✓ Port A	✓ Port B	✓ Port C
Port Property	Port Property	Port Property
Device N1MM	Device ExpertSDR2	Device OM-2500
Neal COM 👻	Neal COM -	Neal COM -
Port COM11 -	Port COM9 - 🐲	Port COM3 -
Filter	Filter	Filter
As Server	As Server	As Server
View Log	View Log	View Log
Send Data to	Send Data to	Send Data to
ExpertSDR2	✓ N1MM	N1MM
OM-2500	✓ OM-2500	ExpertSDR2
Send DTR/RTS to	Send DTR/RTS to	Send DTR/RTS to
✓ ExpertSDR2	N1MM	N1MM
OM-2500	OM-2500	ExpertSDR2
		jetSereenship

It is necessary to press the [Start] button.

The work may have many variants port connections. Therefore introduced a system of profiles. Those, the current state of the connection, you can save in a profile. To do this, enter its name in the field near the [Add] button and press the [Add] button. After that, the profile name appears in the list:

🕅 Utilities For ExpertSDR2 (v4.0) [C:/Users/Yuriy/LwSoft/comspider.ini]								
ProFile Manager	COM Spider	Telnet Server	Audio Channels	Setup				Save Settings
+ -	Start	Prof	ile: Для PA OM.ps	pd 🔻	🗶 Upd		R_OM	Add
✓ Port A		√	Port B			✓ Port C		
Port Property		Po	ort Property			Port Property		
Device	N1MM		Device ES	DR2		Device	OM-2500	

To save changes to an existing profile, there is a button [Upd], for the removal of the profile - the button [X].

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### **Connection COM port - Network - COM port**

Sometimes you need to create a connection to the COM ports located on different computers via a computer network. For example, our amplifier (OM-2500) turned out to be connected to another computer to the COM port COM3. To do this on a remote computer, you must install the program «SDC» and use the label "SDC Server" - is the server to create remote connections COM, audio ports and skimmers. In this embodiment, the connection will look like this:

On our computer in «SDC» program makes the following changes:

SDC

🛱 SDC (Softw	vare Defined Connecto	ors v	6.5) [C:/Users	/Yuri/LwSoft/comspide	r.ini	]	- 🗆 X	
ProFile Manage	r COM Spider R	igSyı	nc Telnet S	erver Audio Client	Au	idio/COM Sei	rver Save Settings About	
Start	<b>+ -</b>	Profile	e: Hard-OM.ps	pd 🔹 🗶				
✓ Port A			✓ Port B			Port C		
Port Property			Port Property			Port Property	ý	
Device	N1MM		Device	ExpertSDR2		Device	OM-2500	
<b>*</b>	Real COM	•	€	Real COM -		<b>*</b>	Remote 🔹	
Port	COM11 •	200	Port	СОМ9 🔹 🎡		Host:	7351	
Filter			Filter		<u> </u>	Port:	MAC-N	
As Server			As Server			Latency	0	
	View Lo	g		View Log		Filter		
Send Data to			Send Data to			As Serv		
✓ Expert	SDR2		✓ N1MM	I		Send Data to	View Log	
OM-25	500		✓ OM-2500			■ N1MM		
Send DTR/RTS	to		Send DTR/RTS	; to				
						Send DTR/R	TS to	
▼ ExpertSDR2			NIMM		N1MM		1M	
OM-2500			OM-2500			Exp	ertSDR2	
							jelSareenstio	

On the remote computer, run the program "SDC" and in the tab «Audio / COM Server", put the check «LAN-COM interface 1" indicating the COM port to which the amplifier is connected (in this case COM3), network port number (choose on their own, such as 7101) and press the [Start] button. The server is turned on and is waiting for the connection.

Attention! When choosing the type of port with TCP connections will appear field «Latency». This is the value you want to delay the transfer of the manipulation of lines RTS and DTR. The server will create a temporary buffer to withstand the time between switching states of these lines is the same as it was on the client side. Thus CW manipulation will be independent of changes in the data rate over the network. The worse the network, the more value «Latency» must be installed. Usually 50-200 ms.

유미 SDC (Software	e Defined Conn	ectors v 6.5	) [C:/Users/Yuri/L	wSoft/comspide	er.ini]	- 🗆	×
ProFile Manager	COM Spider	RigSync	Telnet Server	Audio Client	Audio/COM Server	Save Settings	About
Profile: 1 Skimme	r.psrv 👻						
Audio Server 1							
Audio Server Sta	rt Server Closed.			Port: 7343			
Output:	Driver:		Add Bl	ock: 3 🗘			
Device:	Переназн	ачение звук	овых устр Outpu	ut 👻 Mono 👻			
✓ Input Device:	Driver:		MME	•			
Device:	Microph	one (Realtek	High Defini	• Mono •			
Sample: 44100	•	Size: 16 🔹	Bu	ffer: 2048 🔹			
For CW Skimn	ner						
	-f 1			-			
✓ LAN-COM Inte							
Start TCP Port	Server Closed						
Port:	My TCP port 7351						
To COM Port 🔇			-				
Foot Switch to	Current		- 0 ‡				
CW by CAT	Carrent						
View Log							
							areensiiit

Thus, we have put together two virtual ports of your computer to the real COM port on a remote computer through the network.

Ability to create a "network" connections COM ports can be used when working with two jobs in one transceiver SunSDR2 (PRO). CAT second receiver can be transmitted through the network to the second computer to connect to the log-program installed thereon.

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#### Port «as Server».

If the port setting mark «as Server» is not set, the port will send a message to all the ports that are listed in the «Send data to» section. For example, if the port "B" received a request from the "A" port, then the answer will be sent to all.

If you set a mark «as Server», the port will send the answers to the port that sent the request. This port ( «as Server») allows for connection of multiple logs to a single CAT port transceiver.

Additionally, set the parameter «Timeout», which regulates the response time from the transceiver. Selected experimentally, the goal - to exclude requests a buffer overflow through to get a response from a slow COM port. In case of an overflow near a mark «as Server» appears «OVF!». You can connect a plurality of hardware devices, and magazines, which are a survey SAT transceiver ports.

Example of connection to a single port transceiver CAT two log programs:

ProFile Manager	COM Spider	RigSyn	c Telnet Server	Audio Client	Au	dio/COM Serve	er Setup	Save	Abou
Start	+ -	Profile:	Log-590-Colibri.	ospd 👻	× (	3			
✓ Port A			✓ Port B			✓ Port C			
Port Property			Port Property			Port Property	,		
Device Lo	ogHX		Device TS	-590		Device	5MContest		
🍇 R	eal COM	-	Ne Re	al COM	-	<b>*</b>	Real COM		•
Port C	COM5 -	<u></u>	Port CC	M12 -	٢	Port	COM14	•	٢
Filter			Filtor			Filter			
As Server			✓ As Server	Timeout 10	÷	As Serve	er		
	Vie	w Log		view	LOG			View	Log
Send Data to			Send Data to			Send Data to			
✓ TS-590	-		✓ LogHX			Log	нх		
5MConte	st		✓ 5MContest	-		✓ TS-5	590		
Send DTR/RTS to	)		Send DTR/RTS to			Send DTR/RT	rS to		
✓ TS-590			LogHX			Log	ΗX		
5MConte	st		5MContest			✓ TS-5	590		

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## Field "Filter"

To solve complicated situations sophisticated query / filter command is provided, coming on connections «COMSpider».

"True" Expressions. Lines that will be allowed into the port. For example: FA | FB means that only commands containing «FA» phrases, or «FB» will be passed through the port.

"False" Expressions. These phrases should start on the exclamation mark. For example: !FA |! FB means that commands that contain «FA» phrases or «FB» will NOT be passed to the port.

Expressions can be written in HEX format, for example, &FDFE - to pass on the command port containing FD FE bytes.

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## Synchronization protocols CAT using the COM ports.

Consider the example of synchronizing transceiver TS-590 and SDR receiver that is running SDRuno program or any other program that supports CAT protocol.

SDC (Sc	oftware Define	ed Co	onnector	rs v 12.25	05x64)	[C:/Users/Yu	ri/LwS	oft/com	nspider.i	ini]					×
ProFile Mgr	RigSync	Te	elnet Serv	er SKN	1 Server	RMT Serv	ver	PA	TCI	Setup	)			Save	
Start	Profile:	1sou	und.psnc			r 🗶 🗹									<b></b>
✓ Sync Char	nnel 1												Setup		
+ -	✓ Ctrl					VFC	A √	VFOB	✓ Mod	de 🗸	Split 🗸 RIT	✓ XIT ✓ TX mode	VFO	Latency	
VFOA	✓ Rig Control	ol 1				✓ Rig Contr	ol 2				✔ Rig Control 3		400		\$
VFOB	Device Name					Device Name	9				Device Name				
Mode	Type Port		COM-Po	ort	•	Type Port		TCI-Clie	ent	•	Type Port	RIG-Emulator 🔻			
	RIG Protocol		User: TS	S-590	•										
Split	Port	Ø	COM6		•	TCI Client	Ø	TCI Clie	ent 1	•	RIG Protocol	TS-480 💌			
Rit	Poll Time	200	<b>‡</b> T	imeout 2	\$ 00	Receiver		Receive	r 1	•	Port Ø	COM14 💌 🎡			
Xit	Offset		0		\$	Offset		0		\$	Offset	0			
TX	✓ Poll Cmd			Log	Ctrl					Ctrl	Send Status	Lo Ctrl			
Sync Char	nel 2														
+ -	Ctrl					VFC	DA 🗸	VFOB	✓ Mod	de 🗌	Split RIT	XIT TX mode			
													-		
													On	nniRig	
													Ex	pertSDR2	Server
													L.A	PERIODINZ	JUITE

As you can see, only one active channel synchronization (Sync Channel 1). It activated two «Rig Control» - one for the TS-590, the second - for SDR receiver.

Device Name - the device name (informative).

RIG Protocol - the drop-down list, select the device.

Port - the drop-down list, select the COM port to which the device is attached.

Poll Time - the time between surveys port.

Timeout - waiting for the response.

Poll cmd - producing device interrogation.

Offset - frequency offset. For example, if you specify 1000, then 1 kHz will be added to the frequency of this device.

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## Synchronization protocols CAT with ports open to COM Spider

What if the COM port for the primary transceiver (receiver) is already connected to the hardware log. To do this, there are two modes - "listening" mode and with an independent survey of the transceiver port.

SDC

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## "listening" mode

In this case, data on the frequency and status main trasnivera "listen" from the radio exchange - a log. To do this, the COM port hardware and log COM port transceiver connected to the tab COM Spider:

👫 SDC (Softw	vare Defined Conn	ectors v 6.5	) [C:/Users/Yuri/L	wSoft/comspid	er.ini]		
ProFile Manage	r COM Spider	RigSync	Telnet Server	Audio Client	Audio/COM Server	Setup	Save About
Start	+ -	Profile:	590-SDRuno RigSy	nc.pspd 👻 🕽			
✓ Port A				✓ Port B			
Port Property				Port Property			
Device	Logger			Device	TS-590		
*	Real COM		•	*	Real COM		•
Port	COM5		•	Port	COM13		-
Filter				Filter			
As Server			N/ and a second	As Serve	r		
			View Log				View Log
Send Data to				Send Data to			
<b></b>				▶			
✓ TS-59	0			✓ Logg	ler		
Send DTR/RTS	; to			Send DTR/RT	'S to		
TS-59	0			Logg	ler		
							(O)
							ietSanzansfillt

Tab settings RigSync such:

🙀 SDC (Software Defined Connectors v 6.5) [C:/Users/Yuri/LwSoft/comspider.ini] Save About COM Spider RigSync Telnet Server ProFile Manager Audio Client Audio/COM Server Setup -0 Start Profile: 2TS-590-to 2RX\_ESDR2.psnc 👻 💥 ✓ Sync Channel 1 OmniRig OmniRig Control + -✓ VFOA ✓ VFOB ✓ Mode Split RIT XIT TX mode ✓ Rig Control 1 ✓ Rig Control 2 Device Name TS-590 Device Name SDRUno **RIG** Protocol TS-590 **RIG Protocol** TS-480\_v2 Port \$5 COM Spider(TS-590) \* Port **COM10** - 0 Poll Time 10 Timeout 200 Poll Time 10 ÷ Timeout 100 Poll cmd View Log ✓ Poll cmd View Log Sync Channel 2 ExpertSDR2 Server Port: ✓ VFOA ✓ VFOB ✓ Mode Split RIT XIT TX mode + -40000

You must specify the port of the tab «COM Spider» drop-down «Port» list. If the device was not on the menu, then click the update list and get it:

帛品 SDC (Software [	COM4 COM5	) [C:/Users/Yuri/Lv	vSoft/comspide	er.ini]	
ProFile Manager	COM6	Telnet Server	Audio Client	Audio/COM Server	Se
Start Pr	COM7 COM8	DR2.psnc 👻 🗶			
✓ Sync Channel 1	COM9				Or
+ -	COM10	✓ Mode Spli	it RIT	XIT TX mode	
	COM11				
✓ Rig Control 1	COM12	✓ Rig Control 2			
Device Name	COM13	Device Name	SDRUno		
RIG Protocol	COM14 COM Spider(Logger)	RIG Protocol	TS-480_v2	-	
Port 🖸	COM Spider(TS-590)	Port 🕻	COM10	- 👻	
Poll Time 10	♣ Timeout 200 ♣	Poll Time 10	‡ Ti	meout 100 🌲	
Poll cmd	View Log	✓ Poll cmd		View Log	
					REAL PR

Sync this installation will occur only when connected to the hardware log, because His program will query the COM port of the main transceiver, the program «RigSync» will "listen" this exchange and transfer it to the second device (SDRuno). In addition, the devices sync speed will depend on the speed survey aparatno magazine.

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#### Polling mode transceiver main port

For this mode, the log connection is not necessary, because program «RigSync» itself will query the COM port of the main transceiver. For this purpose, it is transferred to port «as Server» mode:

SDC

👫 SDC (Softw	are Defined Conn	ectors v 6.5	) [C:/Users/Yuri/	LwSoft/comspic	ler.ini]			$\times$
ProFile Manager	COM Spider	RigSync	Telnet Server	Audio Client	Audio/COM Server	Setup	Save	About
Start	+ -	Profile:	590-SDRuno RigS	ync.pspd 🔹 🕻				
✓ Port A				✓ Port B				
Port Property				Port Property				
Device	Logger			Device	TS-590			
٠	Real COM		-	٠	Real COM			-
Port	COM5		- 🎡	Port	COM13		-	÷
Filter				Filter				
As Server				✓ As Server		Tim	eout 10	\$
			View Log				View	Log
Send Data to				Send Data to				

and «RigSync» include a survey of the port:

🛱 SDC (Software	e Defined Conn	ectors v 6.5	) [C:/Users/Yuri	i/LwSo	oft/comsp	oider.ini]				$\times$
ProFile Manager	COM Spider	RigSync	Telnet Server	A	Audio Clien	t Audio	O/COM Server	Setup	Save	About
Start	Profile: 2TS-59	0-to 2RX_ES	DR2.psnc 🔹	×						
Sync Channel 1								OmniRi	g	
+ -	VFOA	✓ VFOB	✓ Mode	Split	RIT	TIX	TX mode	Omnil	Rig Conti	rol
✓ Rig Control 1			✓ Rig Control	2						
Device Name	TS-590		Device Name		SDRUno					
RIG Protocol	TS-590	-	RIG Protocol		TS-480_	/2	•			
Port 🖸	COM Spider(T	S-590) 🔹	Port	Ø	COM10		-			
Poll Time 10	‡ Timeou	it 200 🗘	Poll Time	10	*	Timeout	100 🌻			
Poll cmd	Vie	w Log	✓ Poll cmd			View	Log			
$\smile$										ansenends

In this mode, the main port of the port transceiver will in turn respond to requests from the hardware log, and synchronization of the program. Herself Sync will work quickly (the speed is set in the Poll Time) and will not be interrupted if you disable the hardware log.

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## Using client OmniRig

If logger operates through OmniRig, it is possible to greatly simplify the synchronization. You do not need to use the «COM Spider» enough in «RigSync» tab, specify the device and synchronized to put a checkbox «OmniRig»:

위대 SDC (Software	e Defined Conn	ectors v 6.5	5) [C:/Users/Yuri/L	wSoft/comspid	er.ini]			
ProFile Manager	COM Spider	RigSync	Telnet Server	Audio Client	Audio/COM Serve	r Setup	Save	About
Start	Profile: 2TS-59	0-to 2RX_E	SDR2.psnc 👻 🎽		$\sim$	<u> </u>		
✓ Sync Channel 1					✓ OmniR	ig )		
+ - v	FOA VFOB	✓ Mode	Split RIT		K mode	OmniRig C	ontrol	
✓ Rig Control 1								
Device Name	SDRuno							
RIG Protocol	TS-480_v2		*					
Port 🖸	COM10	•	<b>*</b>					
Poll Time 10	‡ Tim	eout 200	÷					
✓ Poll cmd		View Log						
							(C) juli:	ansanshok

In this case, the synchronization will be run at the main polling transceiver port program «OmniRig».

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#### Synchronization ExpertSDR2 Device

To synchronize devices running ExpertSDR2 program, provided «ExpertSDR2 Server». For example, in order to synchronize the transceiver SunSDR2 and Colibri receiver enough in the tab «RigSync» tick «ExpertSDR2 Server» and specify the port that will connect these devices. In the settings it is necessary to guide-ExpertSDR2 this port and press the «Connect»:

	R궈 SDC (Software De	efined Connectors	v 6.5) [C:/Users/Yuri/	LwSoft/comspi	der.ini]		_		×
	ProFile Manager C	COM Spider RigS	nc Telnet Server	Audio Client	Audio/	COM Server	Setup	Save	About
	Start Pro	ofile: 2TS-590-to 2R	K_ESDR2.psnc 🔹 🕽	۰ 🗹 🏾					] 🤷
	✓ Sync Channel 1					OmniRig			
	+ - 🗸 VFOA	VFOB V Mo	de Split RIT	XIT	TX mode	0	mniRig Co	ntrol	
Options			_		×				
		חחח		_					
Device Sound card Display CAT Panel Fea	atures Manager CW Skimmer S	hortcuts							
Server address: 127.0 .0 .1 Port: 400	000 🗘 Connect					✓ ExpertSDI	R2 Server		
✓ Sync RX1 ✓ Sync RX2					de	Port:			
						40000			÷
Sync filter						Start! Connect!			
						connect			
									) emstill

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#### ExpertSDR2 Device Synchronization with other transceivers / receivers

To synchronize with a transceiver that works with the log through OmniRig enough to add a mark «OmniRig»:

🖬 SDC (Softwar	e Defined Conn	ectors v 6.5	) [C:/Users/Yuri/Lv	wSoft/comspid	er.ini]			$\Box$ ×
ProFile Manager	COM Spider	RigSync	Telnet Server	Audio Client	Audio/0	COM Server	Setup	Save About
Start	Profile: 2TS-59	0-to 2RX_ES	DR2.psnc 👻 🔀					
Sync Channel 1					$\mathcal{C}$	✓ OmniRig		
<b>+ − ∨</b> ∨	FOA 🗸 VFOB	✓ Mode	Split RIT		X mode	0	maiRig Co	ntrol
Sync Channel 2					1	✓ ExpertSDF	R2 Server	
+ - v	FOA 🗸 VFOB	✓ Mode	Split RIT		X mode	Port:		
						40000		\$
						Start! Connect!		
						Disconnect! Stop!		
						Stopi		JelSareensfield

Similarly, we can arrange sync with transceivers operating through the COM ports in the above modes (wiretap, direct questioning, etc ... ..).

For example, synchronization Colibri receiver with a transceiver TS-590 Direct survey ports and connecting hardware magazine through the COM port:

 R1
 SDC (Software Defined Connectors v 6.5) [C:/Users/Yuri/LwSoft/comspider.ini]

 ProFile Manager
 COM Spider
 RigSync
 Telnet Server
 Audio Client
 Audio/CC

 Start
 Drofile:
 2TS:500-to 2PX
 ESDP2 proc.
 Yes
 Yes

ProFile Manager	COM Spider	RigSync	Telnet Server	Audio Client	Audio/	COM Server	Setup	Jave About
Start	Profile: 2TS-59	0-to 2RX_ES	DR2.psnc 🔹 🕻					
✓ Sync Channel 1						OmniRig		
+ - v	FOA 🗸 VFOB	✓ Mode	Split RIT	XIT TIX	X mode		OmniRig C	ontrol
✓ Rig Control 1								
Device Name	TS-590							
RIG Protocol	TS-590	•						
Port 🖸	COM Spider(T	S-590) 🔹						
Poll Time 10	Timeou	t 200 🗘						
✓ Poll cmd	Vie	w Log						
Sync Channel 2						✓ ExpertSDI	R2 Server	
+ - V	FOA 🗸 VFOB	✓ Mode	Split RIT		X mode	Port:		
						40000		÷
						Start! Connect!		
						Disconnect! Stop!		
								(IN)
								jdSereensfiel

Synchronizing two Colibri receivers with two TS-590 for the SO2R mode:

SDC (Software Defined Connectors v 6.5) [C:/Users/Yuri/LwSoft/comspider.ini]				
ProFile Manager COM Spider RigSync Telnet Server Audio Client Audio	lio/COM Server	Setup	Save	About
Start Profile: 2TS-590-to 2RX_ESDR2.psnc 🔹 🔀				] 🔮
Sync Channel 1	OmniRig			
+ - VFOA VFOB V Mode Split RIT XIT TX mode	e	OmniRig C	ontrol	
✓ Rig Control 1				
Device Name TS-590-1				
RIG Protocol TS-590 -				
Port COM Spider(TS-590) -				
Poll Time 10 C Timeout 200 C				
✓ Poll cmd View Log				
✓ Sync Channel 2	✓ ExpertSDF	R2 Server		
+ - VFOA VFOB V Mode Split RIT XIT XIT X mode	e Port:			
	40000			÷
✓ Rig Control 1 Device Name TS-590-2	Start! Connect!			
RIG Protocol TS-590	Disconnect!			
	Stop!			
Port COM Spider(TS-590-2) -				
Poll Time 100 C Timeout 200 C				
✓ Poll cmd View Log				
			jelSan	)) Tanahiri

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## **Possible synchronization devices**

Problem: need to synchronize the transceiver TS-590 with SDR receiver to work with the program in 5MContest SO2V mode. At the same time during the transmission of VFOA, synchronization log should work with SDR receiver to go on the spot to bendmape for VFOb. Those. TS-590 transceiver operates at CQ, but this time we listen VFOb station. To do this, and TS-590 and SDR are connected to ports COM Spider in «as Server» mode:

帛贴 SDC (Softw	are Defined Conne	ectors v (	5.5) [C:/Users/Y	/uri/LwSoft/comspid	ler.ini]				$\times$
ProFile Manager	COM Spider	RigSyno	Telnet Ser	ver Audio Client	Aud	io/COM Server	Setup	Save	About
Start	+ -	Profile:	590-SDRuno I	RigSync.pspd 🔹	× 🛛	1			
✓ Port A			✓ Port B			✓ Port C			
Port Property			Port Property			Port Property			
Device	Logger		Device	TS-590		Device	SDRuno		
<b>*</b>	Real COM	•	€	Real COM	•	<b>*</b>	Real COM	1	•
Port	COM5	- 🕸	Port	COM13 -	<b>*</b>	Port	COM10	-	٢
Filter			Filter			Filter !FR !FT !	FA; !FB; !I	F;	
As Server			✓ As Server	Timeout 10	)	✓ As Server		Timeout 10	*
	Vie	ew Log		Viev	v Log			View	Log
Send Data to			Send Data to			Send Data to			
✓ TS-590			✓ Logge			✓ Logge TS-59			
Send DTR/RTS			Sand DTR/RTS			Sand DTR/RTS		jelSeren	

To survey, going from log not knocked synchronization, the receiver port set filter: ! FR | FT | FA;!! | FB;! | IF!;

This means that the receiver will not respond to inquiries and log commands except FB000XXXX team ;, which will set the frequency on the receiver VFOB log.

In the tab «RigSync» settings are as follows:

ProFile Manager	COM Spider	RigSync	Telnet Server	Audic	Client	Audio/COM	Sorvor	Setup	Save	Abo
					Client	Audio/COM	Jeivei	Setup		
Start	Profile: 2TS-59	90-10 ZKX_ES	DR2.psnc •	× 2						
Sync Channel 1							On	nniRig		
+ -	VFOA V	VFOB 🗸 M	1ode Split	RIT	XIT	TX mode		OmniR	ig Control	
✓ Rig Control 1			✓ Rig Control	2						
Device Name	TS-590		Device Name	SD	RUno					
RIG Protocol	TS-590	•	RIG Protocol	TS	480_v2	•				
Port 5	COM Spider(	rs-590) 🔹	Port	CO CO	M Spider(Sl	DRuno) 🔹				
Poll Time 10	Timeo	ut 200 🗘	Poll Time	10 🗘	Timeou	100 🌻				
✓ Poll cmd	Vie	ew Log	✓ Poll cmd		Viev	v Log				
Sync Channel 2							Ex	pertSDR2 S	erver	
+ -	VFOA V	VFOB VFOB	1ode Split	RIT	TIX	TX mode	Port:			
							4000	0		OT ?

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## Synchronization FT-1000+ExpertSDR2+N1MM

In the COM Spider window, we enter two ports - one is connected to N1MM, the second - to the transceiver FT-1000.

The transceiver port is declared as a server. It will alternately respond to requests from the N1MM program and the synchronization program.

0	٦.	г	~	1	_
2	5	L	J	U.	
-	~	-	-		-

SDC (Soft	ware Defined C	onnectors v	10.33) [C:/Users	s/Yuri/LwSoft/co	omspi	der.ini]		- 🗆 X
ProFile Mgr	COM Spider	RigSync	Telnet Server	SKM Server	PA	TCI	Setup	Save 🔀 🔰
Start	+ -	Profile	: Com3-Com14	.pspd 💌				
✓ Port A					v	Port B		
Port Property					P	ort Prope	erty	
Device	N1MM					Device	FT-1000	
*	Real COM			•		2	Real COM	•
Port	COM5			•	•	Port	COM1	▼ 🔮
Filter					F	ilter		
As Server						✓ As Se	erver	Timeout 40 🌲
				View Lo	3			View Log
Send Data to					S	end Data	a to	
▼ FT-10	000					✓ N	IIMM	
Send DTR/RTS	S to				S	end DTR	/RTS to	
✓ FT-10	000					N	11MM	

In the RigSync window, enter two synchronization devices: ESDR - Specify the name of the TCI client and the number of the receiver. FT-1000 - specify the port from the COM Spider tab.

SDC (Soft	ware	Defined C	onnectors	s v 10.33) [C:/l	Jsers/	Yuri/LwSoft,	/comspic	ler.ini]				-		×
ProFile Mgr	CO	M Spider	RigSync	Telnet Ser	/er	SKM Server	PA	TCI	Setup				Save	
Start	P	Profile: 1so	ound.psnc	-	•	3								
Sync Chann	el 1								OmniR	ig				
	VF	OA 🗸 V	FOB 🗸	Mode Split	:	RIT 🗌 XIT	тх	mode			OmniRig Control			
✓ Rig Contro	1			✓ Rig Control	12				Rig1 (	Ctrl	Rig2 (	Ctrl		
Device Name		ESDR		Device Name		FT-1000								
Type Port		TCI-Clien	t 💌	Type Port		COM-Port		-						
				RIG Protocol		FT-1000 MF	2	-						
TCI Client	Ø	TCI Clien	t1 🔻	Port	Ø	COM Spider	r(FT-1000	) -						
Receiver		Receiver	1 🔻	Poll Time	200	Tim	eout 100							
			Ctrl	✓ Poll cmd			Log	Ctrl						
Sync Chann	el 2								Expert	SDR2 Server				
+ -	VF	OA 🗸 V	FOB 🗸	Mode Split	:	RIT 📃 XIT	- 🗌 тх	mode	Port:					
									50040					-
									RX1 C	itrl	RX2 C	trl		
													jelsa	reenshiel

It may be necessary to choose the waiting time for the transceiver in the windows of COM Spider and RIG Sync.

In the settings of the SDC program, we specify automatic start of the programs COM Spider and RIG Sync:

SDC (Soft	ware Defined C	onnectors v	10.33	3) [C:,	/Users	s/Yuri/LwS	oft/co	omspid	ler.ini]		
ProFile Mgr	COM Spider	RigSync	Telr	net Se	rver	SKM Ser	ver	PA	TCI	Setup	
Style Fusio	n		-	-		Set Fo	nt				R
	S	et no-kill win	dow	/							
Move	e to SysTray on S	tart or Minim	ized 🕔	/							
	Use	e ProFile Mana	ager 🕔	/					_		
		Use COM Sp	ider 🕔	/ /	Auto	Start COM	Spide	r			
		Use Rig S	Sync 🕔	/ /	Auto	Start RigS	ync				
	l	Jse Telnet Se	rver	/ /	Auto	Start Telne	et Serv	ver			
		Use SKM Se	rver		Auto	Start SKM	Server				
	Use Aud	io Channel C	ient		Auto	Connect A	udio C	Channels	6		
	U	se Remote Se	rver		Auto	Start Rem	ote Se	rver			
		Use Audio M				Start Mixe					
		Use PA Cor			Auto	Start PA C	ontrol				
		Use	TCI								
											(O) tSareensfiit

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## Adding your ini files to your devices

INI files are written to the "Rigs" folder. when installing the program. If you want to add your files, you can add their user folder "C:\User\...user\_name...\LwSoft\Rigs\". Files added in this way will be shown in the list of devices with the "User:

SDC (Software Defined Connectors v 12.18b18	x64) [	[C:/Users/Yuri/LwSoft/comspider.ini] —	
ProFile Mgr COM Spider RigSync Telnet Server SK	M Ser	rver PA TCI Setup	Save 🚼 🚺
II Start Profile: 1sound.psnc 🔻 😫			<b></b>
Sync Channel 1		Setup	
	⊻ V		atency 400 🗘
Rig Control 1     Device Name		Rig Control 2	niRig
Type Port COM-Port	Ţ		nniRig Control
RIG Protocol User: TS-590		Rig Protocol User: TS-590	Ctrl 🗌 Rig2 Ctrl
Port O SmartSDR		Port © COM13	
Poll Time 100 TenTec Jupiter		Poll Time 100 C Timeout 200 C	
Offset TenTec Jupiter TenTec Omni VI_plus TenTec Omni VII		Offset 0	
Poll cmd TenTec Orion TenTec Paragon II		✓ Poll cmd     └og     Ctrl	
TenTec RX-350 TH-F6A			
TH-F7E			
Sync Channel 2 – TS-2000 TS-440 TS-480	v	VFOA 🗸 VFOB 🗸 Mode 🗌 Split 🗌 RIT 🔤 XIT 🔲 TX mode	
TS-590 TS-590		Port:	ertSDR2 Server
TS-870 TS-930			×
ZS-1 User: TS-590			Ctrl 🛛 RX2 Ctrl

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## **RIG-Emulator**

In the version of the SDC in section 12.20 RigSync a new port type - "RIG-Emulator". This port is for connecting a program. For example, so looks sync K3 transceiver, panorama NaP3, JTDX programs and log LogHX program.

SDC (Software Defined Connectors v 12	21b32x64) [C:/Users/Yuri/LwSoft/comspider.	ini]	
ProFile Mgr RigSync Telnet Server SKM Se	rver Audio Client RMT Server Mixer Aud	io Scope PA SWR TCI Setup	
Profile: K3+NaP3+JTD	K+LogHX.psnc 🔻 🞇 📝		
Sync Channel 1		VFOA 🗹 VFOB 🗹 M	ode 🗹 Split 💟 RIT 💟 XIT 💟 TX mode
Rig Control 1	Rig Control 2	Rig Control 3	✓ Rig Control 4         40
Device Name K3	Device Name NaP3	Device Name JTDX	Device Name LogHX
Type Port COM-Port	Type Port RIG-Emulator 🔻	Type Port RIG-Emulator 🔻	Type Port RIG-Emulator 🔻
RIG Protocol TS-480			
Port 🍏 COM3 🔻 🔅	RIG Protocol TS-480	RIG Protocol TS-480	RIG Protocol TS-480
Poll Time 100 📫 Timeout 200	Port 💋 COM5 🔻 🗱	Port 🍏 COM7 🔻 🗱	Port 🚺 COM9 🔻 🗱
Offset 0	Offset 0 .	Offset 0 +	Offset 0
Poll Cmd 🗌 Log 🗌 Ctrl	Send Status	Send Status Ld Ctrl	Send Status Ld Ctrl
Sync Channel 2			
+ =		VFOA VFOB M	ode Split RIT XIT TX mode

This will completely eliminate the use of various splitters and OmniRig COM ports.

What are the advantages of this approach to synchronization (via the new SDC - RIGSync) compared with any COM-splitters, or COM Spider:

- we are not limited in the number of plug-ins. All of them are connected to its ports RIGSync and do not interfere with each other.

- we are not limited in the number of devices, they are also connected each to its port and do not interfere with each other.

- we can use devices that support different SAT protocol processing. For example, instead of K3 can connect Icom and specify the protocol. For COM-splitter is essentially an impossible situation. The same NaP3 does not support synchronization with Ike, but it can easily make SDC-RIGSync, because he does not care what the transceiver is connected to it - you simply choose from the list of synchronized devices. - synchronized parameters, e.g., VFO frequency, protected from the "bumpiness" (when the frequency is changed, it can jump up / down) is often observed when using COM splitters.

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### Synchronization examples

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#### Transceiver + ColibriNano

1. Connect SDC to Colibri:

SDC (So	ftware De	efined Connecto	ors v 15.1904)	x64) * [	C:/Users	/ut4lw/Lv	vSoft	/com	spider.ir	ni]	
ProFile Mgr	RigSync	Telnet Server	SKM Server	DIGI	Macro	RMT Ser	ver	TCI	Setup		
<b>+ -</b>											Profile:
TCI Client 1						Stop					
Name	ТСІ	Client 1						Log			
Host	Loca	alhost				Port	400	01	•		
Callbac	k TCP-Cor	nnect mode. P	ort:			-‱	400	000	•		
Callbad	k UDP-Cor	nnect mode. F	Port:			P	440	)44	•		
	control EC nulator —	Coder VFOA/B									
Focus I	Helper —										
CW Ke	y Helper -										

2. In Rig Sync, connect Rig Control to Colibri and to the transceiver, for example, TS-590:

	fined Connecto	_	Y			<u>~</u>		_					_	— S
ProFile Mgr Start		SKM Server			MT Server TC	I Setu Enter N								
Sync Cha	Ctrl						VFOA	VFOB	🖊 Mode 🔽	Split	🖌 RIT 💽	🗸 XIT 🔽	] TX mode	Setup VFO L
	Rig Contro		əlibri	-/	Rig Conti Device Name		Trasceiver							400
VFOB Mode	Type Port	TC	I-Client		Type Port		COM-Port							
Split	] TCI Client	🌀 то	I Client 1	- 	RIG Protoco	6	ТS-590 СОМЗ							
Rit	Receiver		ceiver 1		Poll Time	100	÷	Timeout	200	8				
Xit	Offset	0		Ctrl	Offset		0	Log	Ctrl					
Sync Cha	Ctrl						VFOA	VFOB	🖊 Mode 🗸					

3. Check the operation of synchronization.

4. Add to the synchronization the program contest log. To do this, we will need a pair of COM ports, for example, COM5-COM6. In Rig Sync, we specify the COM5, in the log program - COM6. N1MM is connected to RIG-SYNC, as the TS-480 transceiver.

SDC (So	oftware Defined Connectors v 15	.1904x64) * [C:/Users,	/ut4lw/LwSoft/comsp	pider.ini]		
ProFile Mgr	RigSync Telnet Server SKM Se	erver DIGI Macro	RMT Server TCI	Setup		
Start	Profile: 🚺 K3+Nai	P3+JTDX+LogHX.psnc	🔻 🔀 🚺 Ent	er Name		
Sync Cha	annel 1 Ctrl			VFOA 🗹 VFOB	🕑 Mode 🗹 Split 🖳	RIT 🗹 XIT 🗹 TX mode
	Rig Control 1		Rig Control 2		Rig Control 3	
	Device Name	Colibri	Device Name	Trasceiver	Device Name	N1MM
	Type Port	TCI-Client 🔻	Type Port	COM-Port 🔻	Type Port	RIG-Emulator
Mode			RIG Protocol	TS-590		
Split	TCI Client 🚺	TCI Client 1	Port 🚺	Сомз 🔻 🗱	RIG Protocol	TS-480
Rit	Receiver	Receiver 1	Poll Time 100	* Timeout 200 *	Port 🝏	СОМ5 🔻 🗱
Xit	Offset	0 .	Offset	0 .	Offset	0
Тх		Ctrl	✔ Poll Cmd	🗌 Log 🗌 Ctrl	Send Status	🗌 Log 🗌 Ctrl

You can add here any number of programs and devices. For example:

File Mgr RigSyn	C Telnet Server SKM	Server DIGI 1	Macro			ietup											
Start	Profile: 🍏 K3+1	laP3+JTDX+LogH)	(.psnc	<b>•</b> 😫 🛃													
Sync Channel 1	Ctrl											VFC	DA 🗹 VFOB	Mode 🗹 S	plit 🗹	RIT 🗹 XIT	✓ TX mod
OA	Rig Control 1			Rig Contro				Rig Control 3 –			Rig Contro			Rig Contro	l 5 —		
=OB	Device Name	Colibri		Device Name		Trasceiver		Device Name	N1MM		Device Name	LogHX		Device Name		HDSDR	
	Type Port	TCI-Client		Type Port		COM-Port		Type Port	RIG-Emulator	•	Type Port	RIG-Emulat	x 🔻	Type Port		COM-Port	•
de				RIG Protocol		TS-590	•							RIG Protocol		TS-480	
it	TCI Client 🥳	TCI Client 1	┓	Port	Ø	СОМЗ		RIG Protocol	TS-480		RIG Protocol	TS-480		Port	Ø	COM9	
	Receiver	Receiver 1		Poll Time	100	Timeout	200	Port 🥳	сом5		Port	(6) СОМ7		Poll Time	100	Timeout	200 📜
	Offset			Offset				Offset			Offset			Offset			
			Ctrl	V Poll Cmd		Log	Ctrl	Send Status	Lo	g 🗌 Ctrl	Send Stat	tus 🗌	Log 🗌 Ctrl	V Poli Cmd		Log	Ctrl

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# TCI

Expert Electronics developed and implemented a new protocol in ExpertSDR2 software for managing and receiving data from the transceiver. It allows you to realize the transmission and reception of data over one connection, which will greatly simplify the configuration of external software and increase the reliability of the complex as a whole.

ProFile Mgr	COM Spider	RigSync	Telnet S	Gerver	SKM Server	PA	TCI
+ -							
TCI Client 1							
Connect	<b>2</b>		Stop				
Name	TCI Client	1					
Host	127.0.0.1		Port	40001	\$		
Logical co	ntrol ECoder VF	DA <b>/</b> B		Log			
Callback T	CI-Connect mod	le. Port:	<b>\$</b>	40000	\$		
CAT Port	Emulator						
Focus Hel	per						

The connection via the TCI protocol is described in the "TCI" tab.

To add / remove a TCI client, use the +/- buttons. If you plan to work with two or more transceivers (receivers), create an appropriate number of TCI clients.

Specify the name of the connection (it will be used later in other sections of the SDC), address and port.

!! The "Connect" button should only be used to check the connection to the transceiver. Leaving it

#### pressed is not necessary

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## CallBack Mode

In order for the SDC program to connect to the TCI transceiver server, it is necessary that the first program somehow learn that the second program is ready for connection. There are two ways for this:

- The SDC program constantly checks the presence of the TCI server in the transceiver program.

- The transceiver program informs the SDC program that it is turned on and the SDC program starts connecting to the TCI server of the transceiver.

The first option works, but a permanent scan of the port can be interpreted by the protection system as malicious, with subsequent blocking.

Therefore, for a more reliable connection with the transceiver program, a callback mode is introduced.



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#### **Callback TCP-Connect mode**

How it works:

When connected to the port specified in the "Port", the TCI client from the SDC program starts an automatic connection to the TCI server of the transceiver program.

To do this, in the ExpertSDR2 program, you must specify a dummy client that will connect to the "Callback" port, for example:

Options	-	
Device Sound card Display	CAT       Danel       Equation       ExpertSync       CW Skimmer       Shortcuts       IQ Recorder       TCI       Spot settings	
Spot settings Lifetime: 5 min 🗘 Default color:	Enable Server: server.com:port Callsign: UT4LW Color: Add  Servers list	
	1 localhost:40000	connecting
		f@f jetScreenshift

When the ExpertSDR2 program is launched, its connection to the "Callback" port of the SDC program will be created. This will signal that the transceiver program is on and you can start the connection with the TCI server.

After starting the SDC program, it will attempt to connect to the TCI server. If it is not successful, the SDC program will go into CallBack mode and wait for connection to the CallBack port.

The transceiver program starts. It automatically connects to the SDC CallBack port. If the connection is successful, the procedure for connecting to the TCI server is started in the SDC program. After turning off the transceiver program, the SDC will retry the connection attempt to the TCI server. If it is not successful, the SDC will again switch to CallBack mode.

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#### **Callback UCP-Connect mode**

The "Callback UDP-Connect Mode" system is better suited for the new Expertsdr3 program.

SDC (Soft)	ware Defined Cor	nnectors v	15.151	9x64) [	C:/Users/	Yuri/Lw	Soft/
ProFile Mgr	Telnet Server	SKM Serv	/er	DIGI	Macro	PA	тс
+-			Pro	ofile:	۵ îtrx	.ptci	
TCI Client 1							
Connect	t 🙀		Stop.				
Name	TCI Client 1		]		og		
Host	Localhost		Port	4000	01 🇘		
Callback T	CP-Connect mode.	. Port:	-	4000	00		
Callback U	JDP-Connect mode	. Port:	1	4404	14 🗘		
✓ Logical co	ntrol ECoder VFOA	/В					

After unsuccessful attempts to connect to the TCI, the SDC-TCI Client transceiver server switches to the alert standby mode over the UDP port specified in the setting.

ExpertSDR3 SunSDR2DX EED06121000450 ധ PA 0 dB RX2 B.M XVTR Volume • Mon TUNE MUTE Break.In TΧ -100 -80 -60 -40 -20 0 150.0 dBm **S**1 S3 S9 +20 **S**0 S5 S7 +40 +60 RIT Step: 10 Hz AGC: FAST XIT Broadcast data Enable 44044,45045 

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## **CAT Port Emulator**

CAT Port Emulator is a system that allows you to create CAT ports to connect log programs or devices to them. CAT ports created by it fully emulate the operation of the CAT port of the transceiver program. You can create multiple ports to connect programs or devices simultaneously.

To make the CAT Port Emulator available, check "CAT Port Emulator." Press the + button to add a port.

SDC

+ -		
TCI Client 1		
Connect		Stop
Name	TCI Client 1	
Host	127.0.0.1	Port 40001
Logical contro	l ECoder VFOA/B	Log
Callback TCI-	Connect mode. Port:	<b>40000</b>
+     −       Type:     CAT	For: Rx 1 🔻 <->	C) N/A ▼ Log
Focus Helper		

After adding the port, specify its type: CAT, PTT, Foot Switch. Select the destination to which the port will be connected, specify the COM name of the port.

Types of ports:

CAT - Creates a COM port that operates on the TS-480 transceiver protocol. On the same port, you can specify a PTT pin (DTR/RTS).

PTT - to connect external PTT sources from other programs or devices.

Foot - to connect the pedal.

In CAT mode, PTT mode and SSB modulation mode, a VAC input (virtual audio cable) will be connected to the transmitter. In mode Foot - microphone.

To enter the port COM parameters, select the pin for PTT and CW Keying, press the gear next to the port name:

TCI Client 1 — Connect	Work						
Name	TCI Client 1			IQ	🗌 Log	)	
Host	Localhost			Port	4000	1 .	
✓ Callback T(	CP-Connect mo	ode. Port:		<u></u>	40000	0	
Callback UI	OP-Connect mo	ode. Port:		7	44044	4 -	
	trol ECoder VF	OA/B					
RIG-Emu	lator ———						
Type: CAT	▼ Rx: Rx 1 ▼	) 🖌	70	COM5	-	] Lo	g
Type: CAT	▼ Rx: Rx 2 ▼	Set CC	M Port			]	$\times$
Focus He	lper ———		1000				
		Baud Rate	4800		)ata Bits		
CW Key Helper		Parity	None	_▼ S	itop Bit	1	
		Set DTR	Low	₹ S	et RTS	Low	▼
		РТТ	RTS	K	(ey	DTR	
		FR Control	Enable	•			

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#### **CAT command**

To execute a command in TCI format, you can use the TC command: command;

where command is the text that will be sent to the TCI server of the transceiver. If the TCI command format contains a receiver number, use the argument "% 1" instead, which will indicate the receiver number to which the CAT program is connected.

For example, you can send CW macros from the N1MM program:

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### **VAC Emulator**

To connect digital programs that do not have the TCI interface, you can use the VAC - Emulator.

SDC (Software Defined Connectors v 15.2106x64) * [C:/Users/ut4lw/LwSoft/com —										
ProFile Mgr	Telnet Server	SKM Server	DIGI	Macro	Audio Scope	PAS	WR	TCI	Setup	
<b>F</b>			Profile:	<b>()</b>	trx.ptci		•		Enter I	Name
TCI Client 1							Wo	rk ('	V-1.7)	
Name	TCI Client 1						IQ		Log	
Host	Localhost						Port		0001	*
Callback	TCP-Connect m	ode. Port:					۴		0000	*
Callback	UDP-Connect m	node. Port					<b>_</b>	44	1044	*
	ontrol ECoder V	/FOA/B								
RIG-Er	nulator ———									
Type: CA	T 🔻 Rx: Rx 1	•			💉 🚺 Сом	15		•	💌 🗆 I	Log
	Stop									
Driver:	Windows WDM	-KS 🔻								
Rate:	24000 🔻						Buffe		1024	
RX 1:										
TX 1:	Mic 2 (Virtual Cable 2)									
RX 2:	None							•	0,00	•
TX 2:	None							•	0,00	•

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# **Focus Helper**

TCI Client 1 Connect ŝ CallBack Status... TCI Client 1 Name 40001 ÷ 127.0.0.1 Port Host Logical control ECoder VFOA/B Log \$ ✓ Callback TCI-Connect mode. تگ 40000 Port: CAT Port Emulator Focus Helper Start Stop Also SDC Windows Synchronize work with TCP Server Program Type: Ŧ Window Name Window Title for VFOA: Radio 1 Stop Window Title for VFOB: Radio 2 Stop \$ Delay (ms) 500

The Focus Helper system is located in the TCI section and works directly with the TCI client. To make the system available, check "Focus Helper"

It is designed to automatically return the focus to the QSO input window of the log program.

Synchronize work with TCP Server — synchronize the launch of this system with a connection to the Telnet Server (see the Telnet Server tab).

Also SDC Windows - return focus to the log window if the focus is transferred to some SDC.

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SDC

#### N1MM

Focus Helper		
Start	Stop	
✓ Synchronize work	with TCP Server	
Program Type:	N1MM	-
Broadcast N1MM Port:	12061 🗘 🛃	Stop
Delay (ms)	200	Log
		() jeSercerstill

To work with N1MM.

It indicates the broadcast port in the N1MM program that broadcasts the program data. His number is listed here:
Configurer					×
Hardware Function Keys Digital I	Modes Other Winkey Mod	e Control Antenna	s Score Reporting	Broadcast Data	Audio
Use 127.0.0.1 for the local ma	sh to broadcast, and the the IP / chine. Use 12060 as the port u broadcast to your current subn	nless the receiving a			
Type of data	IP Addr:Port IP Addr:Port				
Application Info	127.0.0.1:12061				]
Radio	127.0.0.1:12061				]
Contacts 🗹 All Computers	127.0.0.1:12060				]
Spots	127.0.0.1:12062				]
Rotor	127.0.0.1:12041 127.0.0.1:12	040			]
Score	127.0.0.1:12060				]
External Callsign Lookup	127.0.0.1:12060				1
	12110101112000				]
WSJT and JTAlert connection se must match each programs setti	-	Enable	IP Address U	DP Port	
from each program into N1MM.	nga. Allowa di cot logging	Enable 12	7.0.0.1 233	3	
Sets the IP Address and port that	it an external program can	Enable		CP Port	
connect to N1MM+ via TCP Port	for logging purposes. (JTDX)	Enable 12	7.0.0.1 520	01	
	OK Onnet		Hala		
	OK Cancel		Help	jelSt	<b>O</b> areanshibt

To monitor the correctness of the connection with the N1MM, check "Log". From the program N1MM should periodically receive the following information:

Focus Helper			
Start	Work		
✓ Synchronize work	with TCP Server		
Program Type:	N1MM	<b>v</b>	
Broadcast N1MM Port:	12061 🗘 🗗	Ok!	
Delay (ms)	200	✓ Log	
		S N1MMLog:	×
		<b> X</b>	
		Stop log	Clear
		<pre>&lt; <?xml version="1.0" encoding=" <RadioInfo></pre>	> > (Freq> — all> unning>
		FocusEntry> <antenna>-1<th></th></antenna>	
		<rotors>-1</rotors>	
		<pre><focusradionr>1<!-- FocusRadioNr--></focusradionr></pre>	

Delay (ms) - indicates the delay in transferring the focus to the N1MM log window.

If the information from the N1MM log is received, the message "Ok" lights up:

Focus Helper		
Start	Work	
Synchronize work	with TCP Server	
Program Type:	N1MM	·
Broadcast N1MM Port:	12061 🗘 🗗	Ok
Delay (ms)	200	Log
		@)j=Bercenshijj

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### **Window Name**

Focus Helper		
Start	Stop	
✓ Synchronize work wi	th TCP Server	
Program Type:	Window Name	-
Window Title for VFOA:	Radio 1	Stop
Window Title for VFOB:	Radio 2	Stop
Delay (ms)	200	
	2	@jsSecostil

To work the "Focus Helper" system with other programs, select the type of work: Window Name.

Window Title for VFOA, VFOB - specifies the title of the QSO input window for VFOA, VFOB (if there is one). You can enter the beginning of its name, for example, "Radio 1".

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# **CW Key Helper**

CW KEY HELPER solves two problems with the telegraph key:

1. Creating a telegraph signal delay after issuing a PTT signal. This is especially true for the operation of the transceiver with the amplifier.

2. Ability to work in Breakin mode for the 2nd receiver.

SDC (Software Defined Connectors v 15.04x64) [C:/Users/Yuri/LwSoft/comspider.ini] SKM Server DIGI Macro Audio Client PA TCI Setup **ProFile Mgr** RigSync **Telnet Server** + TCI Client 1 8 Connect Name TCI Client 1 Host Port Logical control ECoder VFOA/B 🗌 Log 8 ✓ Callback TCI-Connect mode. Port: RIG-Emulator Focus Helper CW Key Helper – Start Stop 10 : Delay Key->PTT Delay PTT->RX 300 🔻 🌞 0 CW Key Port COM16 RX1 Additional Key Port COM4 Ŧ \* G RX2 Additional Key Port COM6 Ŧ ð **RX1 PTT Port** COM12 ¥ -

The key manipulation signals are accepted through the COM port, processed in the SDC-CW KEY HELPER program and are served in the ExpertSDR2 program. Scheme of work:

Ŧ

۲

¢

COM14

**RX2 PTT Port** 



The lack of such a scheme is that some potential will be present on the key housing. Therefore, it is desirable to introduce photocoupler into the scheme.



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## **SKM Server**

The SDC program has a built-in skimmer-server for connecting and working with transceivers and receivers

running under ExpertSDR2. Connection and management of skimmers occurs in an automatic mode, synchronous with the operation of receivers.

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# **Main Window**



Control Panel:

Start SKM Server Profile: Ø 4k-CW-DIGI.pskm 📝 🛛 Enter Name -+ =

[Start SKM Server] – To manually start all skimmers. When working with Telnet Server, you do not need to click this button; This will happen automatically.

[+] [-] –Add, remove skimmer.

Profile: Select, delete, overwrite, create a profile.



SDC

<u>Only Test</u> - spots will be issued only for those stations that transmit the words TEST, WSEM.

<u>Only Test Abbr</u> - spots will be issued only for those stations that transmit a special test abbreviation. You can specify several options separated by commas, semicolons, or spaces. For example, by specifying "MM", you will receive spots only for those stations that add the letters MM to the call: CQ MM ..., TEST MM ...

<u>Add Sign Test</u> - additional words indicating that the station is working in the test. For example, not all stations working in the test transmit the word TEST, but only transmit the abbreviation of the test. For example, the station transmits: UT4LW UT4LW LZ. In this case, the skimmer must know that LZ is the same as the word TEST. To do this, enter LZ in the Add Sign Test field.



### **Global Setup**

The SKM Server global settings window is divided into four tabs.

ync	Telnet Server	SKM Server	DIGI	Macro	Audio Scope	PA	SWR	TCI	Setup		Save	<u>× (                                   </u>
Star	t SKM Server	+ -		Profile: 0	4k-CW-DIG	.pskm	-	×	🖌 Ente	r Name		
5		Only Test > C	nly Test Ab	br:		Add	Sign Test	:				-
imme	er 1 (RTTY45)		_	_	Skimmer	2 (RTT)	′45)		-	_		
St	art Wait TCI	RTTY S	SDC Skin	nmer Globa	al Setup		-		×		-1	0
		Ma	aster.dta / \	/erify Ba	and Plan Fu	inctions	Misc				4040	
		Ma	ster.DTA Fi	le Location:								
		C:,	/Program Fi	les/LwSoft/S	SDCx64/MASTE	R.DTA	Set Fil	e <b>(</b> 3300	85)			
		Int	ernet Down	load Page:								
		htt	p://superch	eckpartial.co	om/MASTER.SC	P	Do	ownload				
		Ad	d File: C:/U	lsers/ut4lw/l	_wSoft/add_dta	.TXT	Set	File (19	)			
		Bla	ck list: : <mark>:/</mark> U	sers/ut4lw/L	wSoft/BlackList	.TXT	Set	File (13	)	Ē		
			Special Ca	lls Format	RegExp	• }) (L	Z0[A-Z]{1	,2}) 2	\$			
			Special Bla	ckList Form	at WildCard	· I*						
			Filter Calls	Format	RegExp	,/]{2,	}) (U[A-I	][\w,/]{	2,})			
		Ch	eck Callsign	:			Ch	eck Call				
		Ver	ify Call:									
		Str	ong signal a	and Call in D	ATO		1		-	E		
		Lev	el/Weak sig	and Call	in DTA	15	1		\$			
		Cal	l not found	in DTA			2			E		
		Wit	hout CQ (0	-never)			0		-			
		Mir	imum sign	al/noise leve	l for spotting (	dB)	-10		•			
		Int	erval:							Ē		
		Res	ending spo	t after (secs	)		300		\$			
		Res	ending spo	t after pause	e (secs)		100		\$	Ē		
		Del	ete call afte				600		\$	- E -		

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### Master.dta/Verify

SDC Skimmer Glol	oal Setup				×		
Master.dta / Verify	Naster.dta / Verify Band Plan Functions						
Master.DTA File Location	:						
C:/Program Files/LwSof	/SDCx64/M	ASTER	.DTA	Set File	e (330085)		
Internet Download Page	:						
http://supercheckpartial	com/MAST	ER.SCP		Do	wnload		
Add File: C:/Users/ut4lw	ı/LwSoft/ad	d_dta.T	XT 🛃	Set	File (19)		
Black list: :/Users/ut4lw	/LwSoft/Bla	ckList.T	XT 🗹	Set	File (13)		
Special Calls Format	RegEx	xp 💌	})(LZ0	)[A-Z]{1,	,2}) 2 🗘		
Special BlackList For	mat WildC	ard 💌	] [ <b>I</b> *				
Filter Calls Format	RegEx	ф 🔹	,/]{2,}]	) <b> (</b> U[A-I]	(U[A-I][\w,/]{2,})		
Check Callsign:				Che	eck Call		
Verify Call:							
Strong signal and Call in	DTA			1	•		
Level/Weak signal and C	all in DTA		15 🌲	1	-		
Call not found in DTA				2	-		
Without CQ (0-never)				0	-		
Minimum signal/noise level for spotting (dB) -10							
Interval:							
Resending spot after (secs) 300							
Resending spot after pau	Resending spot after pause (secs) 100						
Delete call after last deco	de (secs)			600	-		

Master.DTA File Location: set the location and name of the file with the callsign.

Internet Download Page: set the page on the Internet where the file is available for download.

<u>Add File</u>: set an additional file with callsigns. This is necessary for fast decoding of callsigns that are not included in Master.dta. You can create such a file, and edit it.

<u>Black List</u>: set the file with the list of callsigns that will not be decoded by the skimmer is indicated. You can create such a file, and edit it.

<u>Special Calls Format</u>: Specifies the format of special callsigns that are one-time in nature and are not included in the Master.dta files. For example, in the competition for temporary participants, temporary call signs will be issued. Their format is necessary to enter and specify the number of decoding before the spotting of the spot. For example, at face-to-face competitions, temporary callsigns will be issued in the format R31A / P ... R37Z / P. These call signs are not in the Master.DTA directory, but their verification can be accelerated by specifying the format of these callsigns. In this case, the format looks like this:

R3 [1-7]? / P, where [1-7] - a number from 1 to 7 is possible. ? - any sign.

It would be more correct to indicate this format: R3[1-7][A-Z]/P

*Filter Calls Format:* introduce a regular expression to Drop callsigns that meet the filter condition. For example, the expression:

 $(R[w,/]{2,})|(U[A-I][w,/]{2,})$ will select only the Russian call sign.

If the format is entered incorrectly, an error message will appear:

DIGUN HIST. C. JUSCIS/ TUTI/LWOULY		3001110
Special Calls Format(Error)	Y9[1,2,3,4,6,7,9?	2

<u>Check Callsign</u>: to check the callsign in Master.dta File, Add File and Special Calls Format. Enter the call and click "Check Call" window. A window appears:

SDC Skimmer Global Setup			×		x64 Sun
Master.dta / Verify Band Plan	Functions Misc				
Master.DTA File Location:					
C:/Program Files/LwSoft/SDCx64/	MASTER.DTA	Set File (30	04118)		
Internet Download Page:					
http://supercheckpartial.com/MAS	STER.SCP	Downlo	bad		
Add File: C:/Users/Yuri/LwSoft/ad	dd_dta.txt 🔪 🛃	Set Fi	S Callsign info: UT4LW		×
Black list: C:/Users/Yuri/LwSoft/b	lacklist.txt	Set R			
✓ Special Calls Format (Ok)	R3[0-9][A-Z]	2	In DTA File: In Add DTA File:	Found Not Found	Add Callsign into Add DTA File
✓ Special BlackList Format (Ok)	U[T,S,W,Z,X]		In BlackList File:	Found	Remove Callsign from BlackList
✓ Filter Calls Format (Ok)	(R[\w,/]{2,})(U[A-I][\		In Special Format:	Not Found	
Check Callsign:	UT4LW	L neg	In Special BlackList Format:		
Verify Call:			Filter Calls:	Not Passed	
Strong signal and Call in DTA		1	•		
Level/Weak signal and Call in DTA	15 🗘	2	•		
Call not found in DTA		2	•		
Without CQ (0-never)		0	•		
Sending interval:					
Resending spot after (secs)		300	\$		
Resending spot after pause (secs)		100	\$		

Section «Setup». Verify Call. Here you configure the validation of the call sign:

<u>Strong signal and Call in DTA</u> – For powerful signals and callsigns, which are included in the Master.DTA directory. If set to 1, then it is enough to decode this one once to send a spot.

<u>Weak signal and Call in DTA</u> – For weak signals and callsigns, which are included in the Master.DTA directory. <u>Call not in DTA</u> – For stations that are not included in the Master.DTA directory.

For example, if the last item is set to 3, then only after a three-time decoding of the callsign of the Master.DTA not listed in the directory will a spot be generated.

*Without CQ* (*0-newer*) – Indicates the number of repeated decodings to send a spot to stations that do not indicate the abbreviation CQ, TEST, WSEM in the call.

<u>Minimum signal/noise level for spotting (dB)</u> - The minimum volume of the station is to issue a spot. For example, if you do not want to have SPOT for stations weaker than 12 dB, specify 12. To disable this feature, enter - 10.

Resending spot after (secs) - repeat the spot issue after N seconds. Detect receiver Setup. Installations of the detector of a telegraph signal. Resending spot after (secs) - repeat the spot issue after N seconds. Resending spot after pause: - ,

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### Files "add\_dta.txt" and "blacklist.txt"

If the call is not in the file "Master.DTA", you can make it in "add\_dta.txt" file. You can create such a file with a text editor and enter it using the "Set File" button. You can press the record button on the file. If the filename is not specified, "add\_dta.txt" file will be automatically created in the user directory:

SDC Skimmer G	lobal Setup				×					
Master.dta / Verify	Band Plan	Functions	Misc			/Users/Y	uri/LwS	Soft/co	mspide	er.ini]
Master.DTA File Loca	tion:					[ Mad	ro	PA	OTRSP	TCI
C:/Program Files/LwS	Soft/SDCx64/M	ASTER.DTA		Set File (	304118)	<u> </u>				
Internet Download Pa	age:					3k-Tes	_	pskm		
http://supercheckpa	rtial.com/MAST	ER.SCP		Dowr	load	breviatio	··	mer 2 (	CW)	
Add File: C:/Users/Y	uri/LwSoft/add	_dta.txt		Set Fil	e (16)	0		Sta	_	Wait Star
Black list: C:/Users/	/uri/LwSoft/bla	cklist.txt		Set Fil	e (28)					
✓ Special Calls Form	nat (Ok)	R3[0-9][A-Z]	9	SDC	•				×	
✓ Special BlackList F	ormat (Ok)	U[T,S,W,Z,X]		4LW						
✔ Filter Calls Forma	t (Ok)	(R[\w,/]{2,}) (	_							
Check Callsign:	l	JT4LW								
Verify Call:										
Strong signal and Cal	in DTA									
Level/Weak signal an	d Call in DTA	(	1							
Call not found in DTA									_	
Without CQ (0-never)	)								Ť	
Sending interval:										
Resending spot after	(secs)			300	\$					
Resending spot after	pause (secs)			100	\$					

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#### **Band Plan**

**Band Plan** – Frequency plan for ranges. The table shows the frequency intervals in which the CW stations will be decoded and the spots generated.

It is possible to create a set of frequency plans and save them to profiles.

Sun each line, you can specify the modulation type. ALL - all kinds, CW, RTTY, PSK. Band Plan can be prepared for all types of modulation, for example:

Band P	Plan ———			
Profi	le: Test-CW-	RTTY-PSK.	pplan '	• 😫 🛃
	From Freq	To Freq	Mode	
1	1830	1850	RTTY	•
2	1830	1850	PSK	•
3	1810	1840	CW	•
4	3570	3620	RTTY	•
5	3570	3610	PSK	•
6	3500	3570	CW	•
7	3573	3577	BSF	•
8	3580	3583	BSF	▼
9	7035	7120	RTTY	▼
10	7035	7060	PSK	•
11	7000	7050	CW	•
12	7047	7050	BSF	•
13	7074	7077	BSF	
14	14065	14155	RTTV	
		BSF	Apply	/ Band Plan

To select areas in which you do not need to search for stations, a modulation type has been developed - BSF (Band Stop Filter). For example, the 7th line indicates the section 3573 - 3577, where stations with other types of modulation are constantly operating. Press the [BSF] button to activate these filters.

			der	RigSync	Telnet 9	Server	SKM Server	DIGI	Macro
				Start SKM	Server	+	Profile:	<b>5</b> 3k-	Test_Nev
						Only T	est Stations / T	est Abbrevia	ation:
			s	kimmer 1 RTT	Y45				Ski
SDC:	Skimmer Glo	hal Setun			×	art	RTTY4 💌		) (
	ta / Verify	Band Plan	Functions	Misc		12	<u>=14</u> 082		
ſ				'iisc		11	14081		
Profile:	C Test-C	W-RTTY-PSK.p	pplan		• ×		-		
	🛃 Enter N	Name					14080		
	From Freq	To Fre	eq I	Mode			Ē		
13 7074		7077	BSF	•			<u>14</u> 079		
14 1406	5	14155	RTTY	•			E		
15 1406	5	14100	PSK	•			<u>14</u> 078		
16 1400	0	14070	CW	•			14077		
17 1407	4	14077	BOF						
18 1408	0	14083	BSP	•			<u>14</u> 076		
19 2106	0	21155	RTTY						
20 2106	5	21100	PSK	•			14075		
21 2100	0	21070	CW	•					
22 2107	4	21077	BSF	•			14074		
23 2806	0	28200	RTTY	-			14073		
24 2806	5	28095	PSK	-					
25 2800	0	28070	CW	-			<u>14</u> 072		
26 3990	-	40100	ALL	•					

26	39900	40100	ALL	•	
27	700000	700400	CW	-	
28	21074	21077	BCE		
	<b>X</b>	BSF	Default	Apply	
					I - a button to add a row, delete a

Ŧ

Ŧ

Apply

Ŧ

CW

BSF

Default

enabled BSF, creat Default band plan, to apply the changes made.

700400

21077

BSF

27 700000

×

28

row,

<u>14</u>071

TCI Client 1/Receiver 1

9

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### **Functions**

SDC Skimmer Gl	obal Setup				×
Master.dta / Verify	Band Plan	Functions	Misc		
599 Function:					
Send RST 599 to F	Panorama:		PileUp W	idth,kHz:	16 🌲
<ul> <li>Only When Split is</li> </ul>	On				
Spotting Only Pile	-Up				
✓ Marker New RST			0	\$ 599	
✓ Marker Old RST			8711	<b>\$</b>	
✓ Auto CW Macros S	Speed (TCI Only	y) [	Default:		36 🌲
✓ Add technical info	rmation into Sp	ot			
Check the primacy	of the Skimme	r Spot (!!)			
Color Callsigns in E	BandMap				
CW Decoder Setup:					
Decode Russian le	tters:				
Remove Noise Let	ters (E,I)				
Active Decoder Filter	Width	(	50	*	

#### Send RST 599 to Panorama.

PileUp Width, kHz -width of the file in which the search for reports is going on 599. Marker New RST - display the last report marker. Marker Old RTS - display the marker of the previous report.

Select a marker type:

- ASCII - ASCII character code to be displayed as a token.

- If the value of the ASCII code is zero, you can specify a text expression for the marker.

Work with function 599 \_\_\_\_\_

<u>Auto CW Macros Speed (TCI only)</u>: Enables automatic control of the CW transmission speed when tuning the transceiver to this station. It works only with transceivers working through the TCI protocol. <u>Default</u> - speed by default.

Add technical information into Spot - add technical information in the comment to the spot. F - callsign found in

the directory, the number of decodes, etc.

<u>Check the primacy of the Skimmer Spot</u> - check the primacy of the skimmer spot with respect to other spotters. If the skimmer has defined the callsign earlier than all the other spotters, then the comment to the spot will start with two "!!" signs.

Start Skimmers Only in CW Mode:

"CW".

<u>Color Callsing in BandMap</u>: Enable the function of coloring call signs on BandMap. She will work with logs that transmit to the SDC program information about the type of callsign: 5MContest, LogHX, N1MM. If such a log is connected, then the following icons will appear on BandMap:



Decoder Setup. Telegraph Detector Settings.

<u>Decode Russian letters</u>: - Enable decoding of Russian letters. <u>Remove noise Letters (E, I)</u> - delete characters decoded from the noise. <u>Active decoder Filter Width</u> - The width of the decoder filter, which displays the text in the decoder window.

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**Misc** 

TCP Broadcast Data is a server for sending texts of active decoders of skimmers.



# **Window of Skimmer**

Skimmer 1 (CW) Ô Start Work .... CW • 7014 Ē7013 7<u>012</u> R8FF/8 <u>=7011</u> =7010 --7009 =7008 والمراجعة المتعاد =7007 37006 37005 A: R8FF/8 JBK > DBK > E > QSLUR599 > EU73 E > B: TE 7HET ITR EE > E E E E E E ZDPSE K > 73X > CQ R8FF/8 > RV6A E IC5NN >TU R8FF/8 >E >CQ R8FF 192kHz/Auto 1/42 TCI Client 1/Receiver 1

**Start** –to start the skimmer manually. When working with the Telnet Server, the skimmer will start automatically.

**Status** – skimmer status window.

1 - the number of decoded callsigns.

42 - the number of active decoders at a given time.

192kHz / Auto - IQ channel bandwidth - 192 kHz. Auto detect enabled.

TCI / Receiver 1 - IQ channel source.

- Button to open the skimmer settings window.

To the right of the waterfall there is a frequency scale with a marker for the current tuning. Under the waterfall there is a window with decoded text on the tuning frequency.

Calling the waterfall settings is made by pressing the right mouse button on the waterfall:

			0.01.0			Save 🔀 🚺
roFile Mgr	RigSync	Telnet Server	SKM Server	PA TCI	Setup	Jave
Start SKM	Server	+ - Pro	file: 4k-2Skm_TC	I.pskm 🔹	🗙 🛃 📃	
	Only Te	st Stations / Test	Abbreviation:			S 🕸
kimmer 1 (C	W)					
Start	Work		CW	<b>▼</b> 20 <b>▼</b>		<u></u>
					7014 7013 7012	— R8FF/8
77.011225	<u>hrenaza</u>			S Waterfall Fore Color Back Color		
				Contrast Waterfall Spee Vertical Size Horizontal Siz		
A: RSFF/8		>E >TU R8FF/8 E >E >E >TU R	>E AB			

<u>Fore Color, Back color</u> - the colors of the waterfall. <u>Contrast</u> - the contrast of the waterfall. <u>Waterfall Speed</u> - the speed of drawing a waterfall. <u>Vertical size</u> - the size of one step vertical. <u>Horizontal size</u> - the size of one step of the brush horizontally.

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# Selecting the type of modulation

SDC Skimmer decodes and spot the station with views modulation CW, RTTY, PSK

Only 1050 5000015		20 20
Skimmer 1 (CW)		
Start Work	CW -	-
	-/	114
	<u>= 70</u>	013
	$\frac{1}{2}$	
·····		)12 (@))#Serrensfill}



If the "Start Skimmer Only Mode of Transceiver" checkbox is not checked in the skimmer settings:

12.24	103x64	) [C:/Users/Yuri/LwSoft/comspi	der.ini] -	- 🗆	$\times$
SK	(M Ser	Setup Skimmer 1			×
Profil	e: 3k	In External Window		Stays On To	p
s/ Te	est Ab	Control type	TCI Only		-
		TCI Client	Ø	TCI Client 1	-
-		Receiver		Receiver 1	-
036	DJ4N	Start Skimmer Only Mode of 1	Transceiver		
	DL5J	Signal/Noise stations detect (dB):	3 🗘		
35		Offset for spot frequency (Hz):	0	(CW)	
034	PA3D	Spotter Name:	LW1-#		
201		TCP Server			
033	- OK21	Enabled Lo=		-	
	UKZ	Port: 0			,
202	DJ10	External Text Decoder Window:			-
	SD6F	<ul> <li>Enable Click Function</li> </ul>			
231	500	<ul> <li>Separate windows for VFOA</li> </ul>	and VFOB		
030		Decode only VFOA			
230		✓ IQ - Band Plan control			- 1
029		Sample Rate	✓ Auto	96000	
		Spectrum via UDP	Speed:		2
228		Host/Port	127.0.0.1	13064	•
		Name:	ExpertSDR		
CI Clie	ent 1/	Pile-Up Mode	kHz Up:	20	\$

you can control the modulation directly from the decoder window:

 1 million and the second secon	
	<u>&gt;0-&gt;F &gt;</u>
CW	
RTTY45	
BPSK31	
BPSK63	
BPSK125	

You can also control the type of modulation from the "ActiSpot" window:



```
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```

# **Skimmer Setup**

SDC (Software Defined Connectors v 15.1 File Mgr RigSync Telnet Server SKM Ser		der.ini] — 🗆 Save)	; •
Start SKM Server	Profile: 🚺 3k-Test_New.pskm s Test Abbreviation:	Enter Name	
kimmer 1 (CW)			*
	14032		<u></u>
$\begin{array}{cccc} & & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ $	<ul> <li>Setup Skimmer 1</li> <li>In External Window</li> <li>Control type</li> <li>TCI Client</li> <li>Receiver</li> </ul>	TCI Only C) TCI Client 1 Receiver 1	MO > ZSN LZ
	Signal/Noise stations detect (dB), Dela Offset for spot frequency (Hz): AGC Level/Coefficient (0.3/0.03)	ay: (CW) 3 2 0 2 0 2 0,30 2 0,03 2	35E >
	Spotter Name: Creeping Lines TCP Server Enabled Lo= Port: 0 Fr=	LW1-# All Stations	Z >K
••••••••••••••••••••••••••••••••••••••	External Text Decoder Window: Enable Click Function Separate windows for VFOA and V Hide window VFOB in RX2 mode Decode only VFOA IQ - Band Plan control		)6F >
	Sample Rate	Auto 96000	
	Spectrum via UDP	Speed:	
96kHz/Auto	Host/Port	127.0.0.1 13064 ·	eiver 1
	Name:	ExpertSDR kHz Up: 20 +	

<u>In External Window</u> - When the skimmer is started, its window will be displayed separately from the main window of the SDC - for fans to observe the movement of CW signals.

<u>Control Type</u> – Selection of the method for controlling and transmitting the IQ stream.

TCI Only – Control and transmission of the IQ flow will be carried out via the TCI interface.

 $Audio + TCI - The \ control \ will \ be \ performed \ via \ the \ TCI \ interface, \ and \ the \ IQ \ stream \ will \ be \ transmitted \ via \ the \ audio \ device \ / \ VAC \ cable.$ 

The first method is more stable, does not require any audio cables and their settings.

The second method will reduce the load on the CPU, but will depend on the VAC cables, and the entire IQ stream flow setting.

TCI Client	Ø	TCI Client 1	•
Receiver		Receiver 1	Ŧ

TCI Client – The TCI client is specified, which is described in the TCI tab of the SDC program.

<u>Receiver</u> – Indicates the number of the receiver to which this skimmer is connected.

Control type	Audio + TCI 🔹
Driver	Windows WDM-KS 💌
Device In	Virtual Cable 1

If the Audio + TCI control type is selected, the type of the sound driver and the sound device through which the IQ flow will be delivered are indicated.

<u>Start Skimmer Only Mode of Transceiver</u>: If you set this jackdaw, the skimmer will be included in the job only if the modulation according to the views of the skimmer and the transceiver. For example, type CW Skimmer will only work if the transceiver selected view modelyatsii "CW"

<u>Signal/Noise stations detect</u>: S/N ratio at which the decoder will be switched. <u>Delay</u>: - Delayed decoder launch. This will reduce the effect of interference, but can distort the first transmission booth. <u>Offset for spor frequency.</u> To correct spot frequency select mode, and enter the value:

Signal/Noise stations detect (dB):	3
Offset for spot frequency (Hz):	

Spotter Name - specifies the name of the spot, which will be used when generating spots.

Creeping Lines – Display running lines of decoders in the skimmer window. See...

<u>TCP Server</u> - each skimmer can be declared a server, to which third-party programs for receiving spots will be connected. Specifies the port.

#### **External Text Decoder Window**

Settings for the window in which the decoded text is displayed.

**Enable Click Function:** If this function is enabled, then when clicking on the callsign in the decoding window, a string containing information about the click will be transferred to the contest log, for example: To ALL de SKIMMER <1353Z> : Clicked on "IZ2QDC" at 14013.32



Separate windows for VFOA and VFOB: Two decoding windows will be announced: separate for each VFO:



**Decode only VFOA:** If one decoder window is declared, only text from the VFOA will be output to it. If this checkbox is not set, then when switching the active VFOA / VFOB, the corresponding VFO text will be displayed in the window.

<u>*IQ*</u> - *Band Plan control*: Displays a window that displays the correspondence of the frequency plan and the width of the IQ stream processed by the skimmer:

1 IQ: Plan:	L	

Sample Rate: Set the width of the IQ channel.

<u>Auto</u> - available if the source type is set to "TCI Only". If set to "Auto", then the bandwidth will be set based on the receiver's pan band.

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#### **Spectrum via UDP**

SDC-Skimmer provides the ability to output a data stream in the format proposed by the N1MM via a UDP connection.

写 Setup Skimmer 1		×
In External Window		Stays On Top
Control type	TCI Only	-
TCI Client	\$	TCI Client 1 🔻
Receiver		Receiver 1 💌
Start Skimmer Only Mode	of Transceiver	
Signal/Noise stations deter	ct	3,00 \$
Spotter Name:	LW1-#	
Offset for CW	spot frequency (Hz):	0
TCP Server		
Enabled	Lo=	-
Port: 0	Fr=	Log
External Text Decoder Wir	ndow:	
✓ Enable Click Function		
✓ Separate windows for	VFOA and VFOB	
Decode only VFOA		
✓ IQ - Band Plan control		
Sample Rate	✓ Auto	96000 🔻
Spectrum via UDP	Speed:	
Host/Port	127.0.0.1	13064
Name:	ExpertSDR	
Pile-Up Mode	kHz Up:	20

**<u>Spectrum via UDP</u>** - Enables the sending of UDP packets.

<u>Host</u> - the recipient's address.
 <u>Port</u> - UDP port number of the connection.
 <u>Speed</u> - the frequency of issuing a UDP packet. The higher the value, the higher the speed.
 <u>Name</u> - the name for the title of the panorama window in the program that receives UDP data.
 <u>Pile-Up Mode</u> - for expeditions. Only a portion of the spectrum will be transmitted, starting from the VFOA frequency - 1 kHz to the border specified in the '<u>kHz Up</u>" field.null

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## **Decoder window**

By default, decoder windows are located in the skimmer window under the waterfall. You can detach them from the skimmer window and place them in any convenient place on the screen. To do this, click the mouse on the letter VFO (A :, B :) and move the window to another location:





To return the decoder window to the skimmer window, take it by the VFO letter and move it to the skimmer window.

The decoded text will be displayed in the decoder window. The callsigns will be highlighted in color. The last decoded call sign will be displayed near the decoder letter (S51DX). To open the decoder window settings, click the right mouse button:

A: CW EA4GOK 27 - C. MK EA4GOK CQ EA4GOK EA4GOK	-	
	🗐 Decoder Se	tup ×
	Fore Color	
	Back Color	
	Call Color	
	Underline Call	$\checkmark$
	Mode control	✓
	Speed CW	✓
	Age of Spot	✓
	Current Level	
	CQ Call Level	
	Tech Info	
	Window Opacity	
	Always On Top	
		<u>A</u>

In the settings window you can set basic colors, transparency, choose a font, and set up display of additional elements of the decoder window:

Underline Call - Underline font for Callsign.

<u>Mode Control</u> - displays the type of modulation. If the settings are not the skimmer ustanovdlena daw "Start Skimmer Only of Mode Transceiver", something straight out of the window of the decoder, you can change the appearance of the skimmer modulation (CW, RTYY, BPSK):



**Speed CW** - the speed of the station operation during callsign transmission will be displayed. **Age of Spot** - Turn on the clock that shows the time of the spot's life. **Current Level** - Display the current volume of the station operating at this frequency **CQ Call Level** - Displays the station volume during call sign transmission.

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### **Click Functions**

If click-functions are enabled in the skimmer's setting and your contest log supports the exchange with the skimmer, such skimmer-commands will be supported:

1. A click on the callsign will translate to the log the command: To ALL de SKIMMER <1353Z>: Clicked on "S51DX" at 14013.32



2. Highlighting text in the decoder window will copy this text into the text clipboard. Then by pressing Ctrl + V you can paste this text into any other program.



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# **IQ/Band Plan control**

This window displays the correspondence between the frequency plan of the range and the width of the IQ stream, which is processed by the skimmer.



- 1 Skimmer number.
- 2 Thermometer showing the number of working decoders.
- 3 IQ stream processed by a skimmer.
- 4 Frequency plan range.

This window allows you to ensure that the entire CW range is processed. If the frequency plan goes beyond the IQ flow, the red clip will flash.

The frequency plan is set in the global settings of the SKM-Server.

The width of the IQ stream depends on several settings:

1. From the Sample Rate value in the transceiver settings:

🖲 Op	otions					
Device	Sound	) card	Display	c	AT	Panel
Device:	unSDR2			-		
SDR Add	dress:	192.1	68.16 .200		Mic	VA
	Port: 50	0001		¢		
Sample	Rate: 7	8125		•		_
Sear	ch	:	SDR Info			er: M
Disable	e audio o	utput				ut: Li
Use wi	de RX filt	ter 🗹	Auto ena	ble	Ch	annel
Use VH	IF LNA				Buff	er size
Use ex	ternal ref	ferend	ce			
				ø,	tScreen	shot

2. From the Sample Rate value in the Skimmer settings:

-				
ら Setup Skimmer 1				$\times$
In External Window			Stays On T	ор
Control type	TCI Only			
TCI Client	()		TCI Client 1	
Receiver			Receiver 1	•
<ul> <li>Start Skimmer Only Mode of T</li> <li>Signal/Noise stations detect (dB):</li> <li>Offset for spot frequency (Hz):</li> </ul>	ransceiver	3 :	CW	
Spotter Name: TCP Server Enabled Lo=	LW1-#		-	
Port: 7701 + Fr=				g
<ul> <li>External Text Decoder Window:</li> <li>✓ Enable Click Function</li> <li>✓ Separate windows for VFOA and VFOB</li> <li>✓ Hide window VFOB in RX2 mode</li> <li>✓ Decode only VFOA</li> <li>✓ IQ - Band Plan control</li> </ul>				
Sample Rate	🗸 Auto		96000	
Spectrum via UDP	Speed:			_
Host/Port	127.0.0.1		13064	•
Name:	ExpertSDR			

3. From the position of the central frequency of the IQ stream relative to the frequency plan. In the case when the center will be greatly displaced, you will see the following picture:

		KF:	Drive:	i ur
NFM WFM SPEC DIGL	DIGU DRM 160M	80M 40M	30M 20M	17M 15M
A3 -		A TX 1		-123 
	R.EQ T.EQ BIN NR NB1 NB2 ANF APF	DSE		
20M	A: 14 019 090.0 Hz S1			
			<b>↓</b>	
	1 IQ: Plan:	1		
				f⊚t jetScreensi <sup>4</sup> 0t

This suggests that the IQ flow band is shifted lower in frequency relative to the frequency plan. In the

transceiver program, move the center frequency higher, you can do it with the right mouse button.

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### **Function 599**

Function 599 is designed to aid in working with DX-Up. She also can be used as a helper for the most DX. She turned on by pressing the "599" in ActiSpot window or in the global settings window skimmer.

Acti Spot		
Callsign	for search: UT4LW	
599 9 : Cws 37 ; Tes	t Abbr.	0
	ADDr.	
SDC Skimmer Global Setup	ADDr.	×
	Functions	
SDC Skimmer Global Setup	1	×
SDC Skimmer Global Setup Master.dta / Verify Band Plan	Functions	×
SDC Skimmer Global Setup Master.dta / Verify Band Plan 599 Function:	Functions	Misc
<ul> <li>SDC Skimmer Global Setup</li> <li>Master.dta / Verify Band Plan</li> <li>599 Function:</li> <li>✓ Send RST 599 to Panorama:</li> </ul>	Functions	Misc
<ul> <li>SDC Skimmer Global Setup</li> <li>Master.dta / Verify Band Plan</li> <li>599 Function:</li> <li>✓ Send RST 599 to Panorama:</li> <li>✓ Only When Split is On</li> </ul>	Functions	Misc

To run 599 must turn on "Split". If the function is activated, svtodiod in the button "599" in the window "ActiSpot" starts flashing.

If you want 599 to turn on without split, remove the mark:

SDC Skimmer Gl	obal Setup			×	
Master.dta / Verify	Band Plan	Functions	Misc		
599 Function:					
Send RST 599 to F	PileUp Width,kHz: 16 🌲				
Only When Split is					
Spotting Only Pile-Up					
✓ Marker New RST			0	\$ 599	
✓ Marker Old RST	8711	\$ <b>v</b>			

The skimmer box on the frequency scale will appear red clip that shows the boundaries of the function "599". The blue marker shows VFOA frequency red - VFOB.



Within these boundaries will display all decoded callsigns. But the spots for them will not be issued. In order to enable the issuance of spots for such stations must enable the checkbox "Spotting only Pile-Up" in the global settings window. In this mode, the spots for stations outside the Pile-Up boundaries will not be issued.

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## Information window callsign.

Click the right mouse button on poz vnomu in the skimmer boxes, Telnet Server - BandMap, in the skimmer box decoder cause the information window callsign:



In DTA File: Not Found - a message that this callsign in Master.DTA list found.

Buttons "Add Callsign into Add DTA File" and "Add Callsign into BlackList File" - to add / remove a callsign from the corresponding file. For example, if the call BlackList will be present in the list, you will be prompted to remove it from that file:

	- 🔴 TY1CX TU	>>E >>FF	E >>EARTYB EE >>EE >>E	>>R
<ve>*4*B RFBRAFAEL T</ve>	S Callsign info		×	>>E E /B >>E >>E
>>EE >>AG N >>E >>E >>	In DTA File:	Not Found		
			Add Callsign into Add DTA File	
	In BlackList File:	Found	Remove Callsign from BlackList	>

Callsign, which is present in the BlackList file will be displayed with strikethrough text. In the skimmer, in the decoder box, he will appear, but the spot will not be issued for it.

If the files "Add File", or "Black List" in global SETUP skimmers are not specified, they will be automatically created with the name "add\_dta.txt", or "blacklist.txt".

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### **Skimmer control via Telnet**

After<u>registering the SDC program</u>, you will be able to control skimmers through the TCP Server built into each skimmer:

SDC (Software Defined Connectors v 15.1901x64) \* [C:/Users/ut4lw/LwSoft/comspider.ini] Save 📩 📩 ProFile Mgr COM Spider RigSync Telnet Server SKM Server DIGI Macro RMT Server TCI Setup Start SKM Server +Profile: 🚺 1-Audio.pskm 2 🔲 c 🧐 Setup Skimmer 1 Ø Skimmer 1 (CW) Start Work... ¥ Control type È Driver . Device In IQ Swap Ŧ Source VFO: Telnet Server CW Signal/Noise stations detect (dB), Delay: Offset for spot frequency (Hz): 0 AGC Level/Coefficient (0.3/0.03) 0,30 0,03 Spotter Name: SKM1-# Ŧ Off Creeping Lines TCP Server Enabled Lo=7025935 Log Port: Fr=7040.735 External Text Decoder Window: Enable Click Function Separate windows for VFOA and VFOB Hide window VFOB in RX2 mode Decode only VFOA Sample Rate Spectrum via UDP

SDC

Pile-Up Mode kHz Up: 20 Using a special protocol developed by VE3NEA, commands are transmitted from the receiver to the skimmer, indicating the center frequency of the IQ stream and the VFOA settings.

Speed:

127.0.0.1

ExpertSDR

13064

ExpertSDR2, SmartSDR, Afedri programs work via TCP Server.

Host/Port

Name:

R5AU video connected to SmartSDR (Flex-6700).

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#### **Source VFO**

A

96kHz

The SDC skimmer can obtain VFO frequency data in two ways:

1. Telnet Server - VFOA frequency data is taken from the same server through which the skimmer is controlled.

2. RigSync Channel - the receiver tuning frequency is taken from the synchronization section.

Setup Skimmer 1	×			
In External Window	Stays On Top			
Control type	Audio + Telnet Server			
Driver	Windows WDM-KS			
Device In	Mic 5 (Virtual Cable 5)			
	IQ Swap			
ource VFO:	Telnet Server			
Signal/Noise stations detect (dB), Delay:	Telnet Server       RigSync Channel			
Offset for spot frequency (Hz):	0			
AGC Level/Coefficient (0.3/0.03)	0,30 🗘 0,03 🗘			
Spotter Name:	SKM1-#			
Creeping Lines	Off 🔍			
TCP Server				
Enabled Lo=70259	35 1			
Port: 7701 Fr=7040.7	'35 🗌 Log			
External Text Decoder Window:				

The Rigsync Channel method is interesting because you can use two window decoders - for VFOA, and for VFOB.

s Setup Skimmer 1		×
In External Window		Stays On Top
Control type	Audio + Telnet Server	
Driver	Windows WDM-KS	
Device In	Mic 5 (Virtual Cable 5)	•
Source VFO:	RigSync Channel	Channel 1
Signal/Noise stations detect (dB), Delay	: (CW) 3 .	0.
Offset for spot frequency (Hz):	0 .	
AGC Level/Coefficient (0.3/0.03)	0,30	0,03 🗼

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# Skimmer control via RIG Sync

After <u>registering the SDC program</u>, you will be able to control skimmers through the SDC subsystem - RIG Sync. The current VFOA / VFOB frequency data will be taken from the RIG Sync tab:
Setup Skimmer 1		×
In External Window		Stays On Top
Control type	Audio + RigSync	•
Driver	Windows WDM-KS 🔹	
Device In	Mic 1 (Virtual Cable 1)	•
Sync Channel	Sync Channel 1 🔹	VFOA 👻
Split Frequency (Hz)	0	IQ Swap
Signal/Noise stations detect		3,00 🖨
Spotter Name:	SKM1-#	
Offset for RTTY4	5 spot frequency (Hz):	-85 🌲
TCP Server		
Enabled	Lo=0	-
Port: 7701	Fr=0	Log
External Text Decoder Wind	ow:	
<ul> <li>Enable Click Function</li> </ul>		
Separate windows for V	FOA and VFOB	
Decode only VFOA		
IQ - Band Plan control		
Sample Rate		96000 👻
Spectrum via UDP	Speed:	
Host/Port	127.0.0.1	13064
Name:	ExpertSDR	
Pile-Up Mode	kHz Up:	20

In the RIG Sync contribution, you must set up synchronization in any way. After that In the skimmer, you specify the synchronization channel, VFO, and, if necessary, the offset frequency. In this way, you can connect the skimmer to any receiver program that has an IQ channel output and a CAT system.

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## Manual control of the skimmer

After <u>registering the program SDC</u> You can manage skimmers using manual input center frequency. Data on VFOA / VFOB current frequency decoders will be taken from the RIG Sync tab:

SDC (Software De	efined Connectors v 12.25	505x64	l) [C:/Users/Yuri/Lw	/Soft/comspi	der —			
	t Server SKM Server	RMT S			[	Save 🔀 🔌		
Start SKM Server	+ - Profile: 1-Aud	lio.pskn	n	-	* 🗹			
	Only Test Stations / Test /	Abbrevi	iation:			S 🔮		
Skimmer 1 (CW)								
Start Start	CW	•	LC	D: 14027000	\$	۲		
					<u>=14</u> 029			
	Setup Skimmer 1					×		
	In External Window				Stays On To	qq		
	Control type		Audio + RigSync +	Manual LO		•		
	Driver		Windows WDM-KS	•				
	Device In		Mic 5 (Virtual Cable	e 5)		•		
	Sync Channel		Sync Channel 1					
					IQ Swap			
	Signal/Noise stations detec	ct (dB):		3 🜲	6			
	Signal/Noise stations detec Offset for spot frequency (			3 <b>\$</b> 0 <b>\$</b>	C			
			SKM1-#		C			
	Offset for spot frequency (				C			
	Offset for spot frequency ( Spotter Name:				(			
	Offset for spot frequency ( Spotter Name: TCP Server	(Hz):			(			
• A:	Offset for spot frequency ( Spotter Name: TCP Server Enabled	(Hz):			(	0		
• A:	Offset for spot frequency ( Spotter Name: TCP Server Enabled Port: 7701	(Hz):				0		
• A:	Offset for spot frequency ( Spotter Name: TCP Server Enabled Port: 7701 External Text Decoder Win	(Hz): Lo=0 Fr=0	SKM1-#			0		
	Offset for spot frequency ( Spotter Name: TCP Server Enabled Port: 7701 ↓ External Text Decoder Win ✓ Enable Click Function Separate windows for Decode only VFOA	(Hz): Lo=0 Fr=0 ndow: VFOA a	SKM1-#			0		
• A: 96kHz	Offset for spot frequency ( Spotter Name: ☐ TCP Server ☐ Enabled Port: 7701 ♀ External Text Decoder Win ✔ Enable Click Function ☐ Separate windows for	(Hz): Lo=0 Fr=0 ndow: VFOA a	SKM1-#			0		
	Offset for spot frequency ( Spotter Name: TCP Server Enabled Port: 7701 ↓ External Text Decoder Win ✓ Enable Click Function Separate windows for Decode only VFOA	(Hz): Lo=0 Fr=0 ndow: VFOA a	SKM1-#		96000	0		
	Offset for spot frequency ( Spotter Name: ☐ TCP Server ☐ Enabled Port: 7701 ♀ External Text Decoder Win ✔ Enable Click Function ☐ Separate windows for ☐ Decode only VFOA ☐ IQ - Band Plan control	(Hz): Lo=0 Fr=0 ndow: VFOA a	SKM1-#			0 		
	Offset for spot frequency ( Spotter Name: TCP Server Enabled Port: 7701 ↓ External Text Decoder Win ✓ Enable Click Function Separate windows for Decode only VFOA IQ - Band Plan control Sample Rate	(Hz): Lo=0 Fr=0 ndow: VFOA a	SKM1-#			0		
	Offset for spot frequency (         Spotter Name:         TCP Server         Enabled         Port:       7701 ♀         External Text Decoder Win         ✓       Enable Click Function         Separate windows for         Decode only VFOA         IQ - Band Plan control         Sample Rate         Spectrum via UDP	(Hz): Lo=0 Fr=0 ndow: VFOA a	SKM1-#		96000	0 		

You must enter the center frequency of the IQ stream in the "LO" field. The entered value will be accepted only after pressing the Enter key, or when the cursor leaves the "LO" field.

If you need to control decoders, then in the RIG Sync tab you must configure the synchronization in any way. After that In the skimmer, you specify the synchronization channel.

In this way, you can connect the skimmer to any receiver program that has an IQ channel output and a CAT system.

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## **Creeping Lines**

Creeping lines of decoders are displayed to the right of the callsign panel. In order to open the creeping lines section, use special splitters:



😂 Setup Skimmer 1	:									
In External Window	Stays On Top									
Control type	Audio + Telnet Server									
Driver	Windows WDM-KS									
Device In	Mic 5 (Virtual Cable 5)									
	IQ Swap									
Signal/Noise stations detect (dB	): <u>3</u> (CW)									
Offset for spot frequency (Hz):	0									
AGC Level/Coefficient (0.3/0.03	0,30 0,03									
Spotter Name:	SKM1-#									
Creeping Lines	All Stations									
TCP Server										
🗹 Enabled 🛛 🛛 🗠	1 1									
Port: 7701	=0 🗌 Log									
External Text Decoder Window:   Enable Click Function  Separate windows for VFOA and VFOB  Hide window VFOB in RX2 mode  Decode only VFOA  IQ - Band Plan control										
Sample Rate	96000									
Spectrum via UDP	Speed:									
Host/Port	127.0.0.1 13064									
Name:	ExpertSDR									

Choose one of the modes:

Off - the creeping lines display mode is disabled. Verifued Call Only - only lines for verified callsigns will be displayed. All Station - strings for all decoders will be displayed.

Do not forget that you can change the vertical scale by holding and moving the right mouse button along the frequency scale:



single source

# 599 in Creeping Lines

If the 599 function is enabled, then the string in which the word "599" will be found will be marked:



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# **DIGI Server**

VOX BreakIn 🔻 PROC 🕶 🕞	00 8				
	RF:	Drive:	Tune:	Mic 1	-
SB USB CW NFM	DIGL DIGU WFM DRM	160M 80M 60M 40	DM 30M 20M	17M 15M 12M	10M 6M GE
		10.705 2	-89.8dBm -120 S6 S1	-100 -80 -60 S3 S5 S7 S9 +2	-40 -20 0 0 +40 +60
▼ Step: 5 Hz 👻	R.EQ NB1 NB2	2 NF NF+	/lodem-1 [BPSK63]	Receiver 1 VFO A	Х 5К Ц
	A: 14 070 705.0 Hz S6		C 1614 : RES	NET	BPSK63 🔻
		*I3AF ===	RG* *I3ARG* *I3ARG RU3FM RU3F	* PSE KN	
moulywykawaanaan	where we want	Munnyahn 1300	1400 1500	1600 1700	1800 1900 ↑ ∎
14.068 14.069	14.070 14.071	14.072 14.(	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~
				- B	
	å 📘				
	, t			J.	

In version 14.01, Digi Server is entered into the SDC program. This is a set of modems for receiving and transmitting signals in the modulation of RTTY, BPSK. Modems work only through the TCI interface and do not require audio connections.

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## Setup Modem

Start + =		Profile:	🗘 One.pdig	gi	
Modem 1 Stop Wait Start AFC 1601 NET I	RES Align dfsdfsdfswefewr wer s	BPSK31 serwer gwe ge			
1400 1500 1	SDC SDC			×	
	<ul> <li>In External Wind</li> <li>Show AFC Panel</li> </ul>		□ Stays On <sup>-</sup> ✓ Show TX F		
	TCI Client	CI Clie	nt 1	Ţ	
	Receiver:	Receiver 1	Channel:	VFO A	
	Default Offset	1601 :			
	TX Delay	0 :	TX Level, dB	1,10 +	
-	PSK AFC Method	FIR Method		•	
	Spectr scale	Linear		•	
	Sync Width Wate	erfall with RX fi	ilter band		
	Use TCP Server				
	Port:	40100	♣	🗌 Log	
				OSC	

To add a modem, click "+". To configure it, click the button with the gear. Modem Setup:

<u>In External Window</u> - When you start the modem, display it in a separate window. <u>Stays on top</u> - Show window in the foreground.

Show AFC Panel - where the AFC control panel will be displayed in the SDC window, or in an external window.

**Show TX Panel** - where the TX control panel will be displayed in the SDC window, or in an external window.

Show Log Panel - Display the log window in an external window.

TCI Client - the TCI client to which the modem will be connected.

**<u>Receiver Channel</u>** - Receiver and VFO, to which the modem will be connected.

DEFAULT OFFSET - Offset of the receive band. Must match the setting of the transceiver. For instance:

Options	- 0	×
Device Sound card VAC Display	CAT Panel Features ExpertSync CW Skimmer Shortcuts IQ Recorder TCI Spot settings	
Device: SunSDR2  SDR Address: 192.168.16 .200 SDR Port: 50001	VOX DSP TX CW Ext Ctrl Expert	
Sample Rate: 78125  Discover SDR Info SISable audio output	SSB         DIGL         DIGU         Tone           Low: 30 Hz         Low: 1449 Hz         Low: 1430 Hz         Enable           High: 3000 Hz         High: 1769 Hz         High: 1750 Hz         Frequency 1: 1000 Hz	
Use wide RX filter 🗹 Auto enable Use VHF LNA Use external reference	AM/DSB     Offset:     1600 Hz     Offset:     1600 Hz     Tone 2       High:     6000 Hz     Sync with RX     Sync with RX     Frequency 2:     1200 Hz       NFM     Voice recorder     TX Filter Taps	
	Deviation:         12500 Hz            High:         8500 Hz              PA control         AM/NFM:	
	PTT switching delay Monitoring in PC	
	Rx to Tx       0 ms       Image: Comparison of the co	
	Global Default Apply O	к

<u>**TX Delay</u>** - signal transmit delay after PTT is turned on. <u>**TX Level, dB**</u> - Adjusting the level of transmit signal in DB. **Spectr Scale** - is a vertical spectrum scale. Linear, or logarithmic.</u>

PSK AFC Method - AFC method.

FIR Method - precise phase tuning in a narrow range. FIR + FFT Method - precise phase tuning with wider bandwidth capture.

FFT Method - Search station in a wide frequency band

<u>Sync Width Waterfall with RX filter band</u> - automatic synchronization of the width of the waterfall with the bandwidth in the transceiver.

		— [
MEM         Volume:         ◀))           QO         ♀	S Modem-1 [BPSK31] Receiver 1 VFO A	
RF: DIGL DIGU WFM DRM 1600		BPSK31 ▼ c 1 ▼ 1 6M 40
TX HF A3 SAVE SET R.EQ NB1 NB2 NF	RA3VAM de OZ1QX sk e Sergey CUAGN ** sk rYw4RXX YO4RXX DE DK70D#cC DK70DARC PSE	
A: 14 071 S4 L: 1 430 H H: 1 750 H O: 146 HZ		1700
mander were have and the	Mary Jam Mary Mary Mary Mary	m m h
.070	14.072 14.073 14.0	)74 14.075

Management of text box and spectrum height is performed by moving separators between them:



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#### Setting the RTTY transmit signal

These settings will help you configure the RTTY transmitter signal.

AFC 16	ait Start 01 📜 🚺 NET RES	3 Align	RTTY45						
TX 5555	SDC (S)			×					
1400	✓ In External Wind ✓ Show AFC Panel		□ Stays On <sup>-</sup> ✓ Show TX I						
	TCI Client	<b>5</b> TCI Client	1	•					
	Receiver:	Receiver 1	Channel:	VFO A					
	Default Offset TX Delay	1601 : 0 :	TX Level, dB	1,10 +					
	RTTY TX Type	Amplitude 🔻	Ramp	5					
	🗹 TX Filter 🛛 Wi	idth/Taps:	300 🗘	90					
	Spectr scale Sync Width Wate	Spectr scale     Linear       ✓ Sync Width Waterfall with RX filter band							
	Use TCP Server Port:	40100	*	🗌 Log					

<u>Sharp Phase</u> is a simple phase formator RTTY signal. Has high stability of peak levels. The disadvantage is a high level of interference in the near zone.

PA	Tune: 30M 20M 17M 15 Fower: 0.0W SWk: 1.2 2	About           Mic 1         ✓           Mic 1         ✓           M         12M           10M         6M           40         60           3         5           2.2K         2.5K           2.7K         2.9K           3.0K         3.3K
A: 14 087 150.0 Hz S2	S SDC ✓ In External Window ✓ Show AFC Panel	│ Stays On Top ☑ Show TX Panel
	Receiver: Receiv Default Offset 1601	
4 14.085 14.086 14.082 14.088	TX Delay 0 RTTY TX Type Sharp Spectr scale Linear	TX Level, dB 1,10
	Sync Width Waterfall wi Use TCP Server	th RX filter band
37.0 °C	Port: 40100	🔶 🔹 🖂 Log 5

<u>Soft Phase -</u> is a shaper with a soft change in the signal phase.

PA	•	MEM	Volu	me:			<b>(</b> )	Mon:			MON 🔻		XA	Op	otions	About
0C 🔻	¢	8	<b>Ģ</b> ∕													
		RF:				Drive:			Tune:				Mic 1 🔻			
NFM		L DI	igu wi		DRM				30M 20M	17						G
	RX HF TX HF		LOCK SAVE SET V				50 2		SDC	er: 0.0	₩ <u>40</u>		60	80	10	$\sim$
				K.EQ		2 NF N A: 14 087 S2	IF+ 150.0 H:	z	✓ In External ✓ Show AFC				<ul><li>□ Stays</li><li>✓ Show</li></ul>			
						ſ			TCI Client		<b>(</b> ) TCI	Client				•
				-1	/``				Receiver:		Receiver 1	L	Channel:		VFO A	
					_/	L.			Default Offset		1601 :					
				_	all a start a s				TX Delay		0.		TX Level,	dB	1,10	•
						) N			RTTY TX Тур	e	Soft Phase	e 🔻	Ramp		5	•
									TX Filter	Wi	dth/Taps:		300	•	90	•
									Spectr scale		Linear					•
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		and the second	WA'''			and which the	~~	🗹 Sync Width	Wate	erfall with R	X filte	r band			
	14.08	5	14.08	6	14.08	z	14.088		🗌 Use TCP S	erver						
							1.200		Port:		40100	*	♣		🗌 Log	

Ramp - the number of samples during which the phase / amplitude change occurs.

RF:	Drive:	Tune:		Mic 1 🔻	
M DIGL DIGU WFM DRM		30M 20M 17M		10M 6M	2M GEN
RX HF A3 TX HF A3 X HF A3	87. 150 🕺	Flower: 0.0	)W 40	60 80	$\times$ 1
R.EQ NB1 N	B2 NF NF+ A: 14 087 150.0 Hz S2	<ul> <li>✓ In External Wind</li> <li>✓ Show AFC Panel</li> </ul>		□ Stays On T ☑ Show TX P	
		TCI Client	ប TCI Client		•
		Receiver:	Receiver 1	Channel:	VFO A
	Part	Default Offset	1601 :		
		TX Delay	0 :	TX Level, dB	-1,80
		RTTY TX Type	Amplitude 🔻	Ramp	6
		TX Filter Wi	idth/Taps:	300 🛟	90 🗜
		Spectr scale	Linear		•
		Sync Width Wate	erfall with RX filte	r band	
14.085 14.086 14.08	7 14.088	Use TCP Server			3
		Port:	40100	<b>*</b>	Log

<u>Amplitude</u> - is an amplitude method of forming a RTTY signal.

To reduce the level of interference, you can enable an additional filter:

ROC 🔻	G	90	<b>Ģ</b> ∕													,		
		RF:				Drive:				Tune:					Mic 1 🔻			
NFM		DI	GU							20M	17M				10M		2M	G
	RX HF		LOCK SAVE SET		<u> '-  [</u>	187	. 150	A TX 2	SD SD		er: 0.0	W	40		60	80	100	$\times$
	R.EQ NB1 NB2 NF NF+								xternal w AFC F		ow			☐ Stays On Top ✓ Show TX Panel				
									TCI Cli	ent		O T	CI Cli					V
						μγ{			Receive	er:		Receiv	ver 1		Channel:		VFO A	▼
									Default	Offset		1601	•					
									TX Dela	ау		0	•		TX Level	, dB [	-1,80	•
									RTTY 1	ГХ Туре		Ampli	tude	•	Ramp		6	•
									🗹 TX F	ilter	Wie	dth/Tap	os:		300	•	90	•
					$\mathcal{N}^{1}$		1 <sub>0.</sub>		Spectr :	scale		Linear						•
					<u>ات ا</u>	Y	۳Ŋ		🗹 Syno	c Width	Wate	rfall wi	th RX	filte	r band			
	14.08	5	14.	086	14.	0. <u>877</u>	14.088		🗌 Use	TCP Se	rver							
					3000	888 A			Port:			40100	)	•	*		🗌 Log	

# Adjusting a narrow filter with a large order will significantly reduce the level of interference, but the level of useful output power will decrease.

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## Waterfall



- 1 contrast.
- 2 demodulator sensitivity threshold.
- 3 signal level.
- 4 sync arrow.
- 5 Float of the receiver.
- 6 Float of the transmitter.

If the synchronization of the width of the waterfall with the width of the receiver bandwidth is disabled, then positioning and width of the waterfall is performed using the mouse:

- Left button and move left / right positioning the waterfall.
- Right button and move left / right the width of the waterfall.

S Modem-1 [RTTY45] Receiver 1 VF ×	SDC SDC			$\times$
CQ RM5F RM5F TEST	✓ In External Win □ Show AFC Panel		✓ Stays On ○ Show TX	
1300 1400 1500 1600 1700 1800 1900	TCI Client	<b>ດ</b> TCI Clie	ent 1	V
	Receiver:	Receiver 1	Channel: Vf	O A 🔻
	Default Offset	1600 📜		
	Spectr scale	Linear		▼
	🗌 Sync Width Wa	terfall with RX f	filter band	
· · · · · · · · · · · · · · · · · · ·	Use TCP Server	r		
	Port:	40100	*	Log

To quickly tune to a station, you can use a click on the waterfall, or the rotation of the mouse wheel.



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## **TCP Server**

To control the Modem from the log program, check the box "Use TCP Server"

SDC (S)			×
<ul> <li>✓ In External Wind</li> <li>□ Show AFC Panel</li> <li>□ Show Log Panel</li> </ul>	low	✓ Stays On To ○ Show TX Parents	·
TCI Client	6 TCI Clier	nt 1	•
Receiver:	Receiver 1	Channel: VFO	A
Default Offset	1600 :		
PSK AFC Method	FIR Method		•
🗌 🗆 Sync Width Wate	erfall with RX fi	lter band	
✓ Use TCP Server			
Port:	40100 ÷	🔩 🗌 Lo	g

The modem will start working only after connecting the log to the TCP server.

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# Modem Management Protocol via TCP Server

SET_CHANNEL	Channel Assignment for DIGI	Arguments
Туре	Read/write	ARG1 - Receiver number (0 - RX1,1
Command and arguments	SET_CHANNEL: arg1, arg2, arg3;	ARG2 - VFO number (0 - VFO A, 1 - Arg3 - Title
Example	RX_CHAR: 0, 1, Radio 1;	

RX_CHAR	Reading the received symbol	Arguments
Туре	Read	Arg1 - Accepted Character Code Syml
Command and arguments	<b>RX_CHAR</b> : arg1, arg2, arg3;	arg2 - signal-to-noise ratio in dB Arg3 - Offset (Hz)
Example	<b>RX_CHAR</b> : 48,17,1503;	

TX_CHAR	Reading the transmitted symbol	Arguments
Туре	Read	Arg1 - Transmitted Character Code Sy
Command and arguments	TX_CHAR: arg1;	

Example	<b>TX_CHAR</b> : 48;	
Example		

TX_EMPTY	Message Before transmit the last symbol in terminal mode	Arguments
Туре	Read	
Command and arguments	TX_EMPTY;	
Example	TX_EMPTY;	

DIGI MODE	Mode	Arguments
Type	Read/write	Arg1 – Mode : RTTY45;
Command and arguments	DIGI_MODE: arg1;	RTTY75; BPSK31; BPSK63; BPSK124
Example	DIGI_MODE: RTTY45; RTTY75; BPSK31; BPSK63; BPSK125;	

TX_STATUS	Transmitting status	Arguments
Туре	Read	Arg1 – 0 RX, 1 TX
Command and arguments	TX_STATUS: arg1;	
Example	TX_STATUS: 1;	

DX_TX	Correspondent: Start / ending transmission.	Arguments
	Read	Arg1 – 1 start, 0 - end
Command and arguments	DX_TX:arg1;	
Example	<b>DX_TX</b> : 1; DX_TX:0;	

DIGI_MSG	Text for transmitted	Arguments
Туре	Write	Arg1 - text for transmit
Command and arguments	DIGI_MSG: arg1;	TX turns on automatically with the issu
		is completed - enters the reception wit
Example	DIGI_MSG: «CQ TEST»;	

TX_STOP	Stop transmitted	Arguments
Туре	Write	Stop transmit
Command and arguments	TX_STOP;	

Example	TX_STOP;	
AFC	Enable AFC	Arguments
Туре	Read/write	Arg1 - 0 off, 1 On.
Command and arguments	AFC: arg1;	
Example	AFC: 1;	

		-
NET	Set offset TX=RX	Arguments
Туре	Read/write	Arg1 - 0 off, 1 On.
Command and arguments	NET: arg1;	
		1
Example	NET: 1;	

OFFSET	Set offset	Arguments
Туре	Read/write	Arg1 – Offset.
Command and arguments	OFFSET: arg1;	
Example	OFFSET: 1600;	

RX_SN	Reading offset	Arguments
Туре	Read	Arg1 – Level dB.
Command and arguments	RX_SN: arg1;	
Example	RX_SN: 15;	

TERMINAL	Enable terminal	Arguments
Туре	write	Arg1 - 0 off, 1 On.
Command and arguments	TERMINAL: arg1;	
Example	TERMINAL: 1;	

SET_TXDELAY	Set transmit delay	Arguments
Туре	Read/write	Arg1 – delay, ms.
Command and arguments	SET_TXDELAY: arg1;	1

Example

SET\_TXDELAY: 100;

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## Пример работы DIGI Server с 5MContest

See <u>here</u>.

<u>Video</u>

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## **Macros Server**

The "Macro" tab is used to create panel windows for transferring macros via TCI connection. For each receiver, you can create its own panel. The panel may not have a screen form and work through its TCP server. WAV file names can be transmitted through this server for playback via TCI connection. For example,

SDC (Software Defined Connectors v 15.01x64) [C:/Users/Yuri/LwSoft/co − □ ×					
ProFile Mgr Telnet Server SKM Server DIGI Macro	D Mixer PA TCI Setup				
Start 🕂 🛑 Profile:					
Macro 1	Macro 2				
Stop	Stop				
TCI Client 🧭 TCI Client 1 🔻	TCI Client 1				
Receiver: Receiver 1 🔻	Receiver: Receiver 2 🔻				
🗹 External Window 🛛 🗹 Stays On Top	External Window Stays On Top				
🗹 Hook key F1-F12 🛛 +Ctrl 🗌 +Shift	Hook key F1-F12 +Ctrl +Shift +Shift				
☑ Use In CW	☑ Use In CW				
✓ Use In DIGI Ø Modem 1	✓ Use In DIGI 🚺 Modem 2 🔻				
✓ Use In SSB	✓ Use In SSB				
Audio Level:	Audio Level:				
Use TCP Server	Use TCP Server				
Port: 40301 🗘 🎭 🗌 Log	Port: 40302 🗘 🎭 🗌 Log				

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#### **Panel sets**

Macro 1 Start Stop		
TCI Client	TCI Client 1	
Receiver:	Receiver 1	
External Window	V Stays On Top	Min/Close button
Hook key F1-F12	2 🗌 +Ctrl	+Shift
✔ Use In CW		
🛃 Use In DIGI	Modem 1	▼
🛃 Use In SSB		
Audio Level:		
Use TCP Server		
Port:	40300	Log

TCI Client - The TCI client is selected from the "TCI" tab.

Receiver - receiver number.

External Window - an external panel of function buttons will be created.

Stays on Top - the panel will be displayed in the foreground.

Min / Close Button - Display the minimization and closing buttons of the window.

Hook key F1-F12 - interception of F1-F12, ESC buttons if the focus is in another application. Windows only!

+ Ctrl - pressing the function keys on the keyboard must be performed together with the Ctrl coavish.

+ Shift - keystrokes on the keyboard must be performed in conjunction with the Shift coavish.

Use in CW - use an external window with the CW modulation view.

**Use in DIGI** - use an external window with the DIGI modulation view. You must specify through which modem (DIGI tab) macros will be transmitted.

Use in SSB - use external window with SSB modulation view.

Audio Level - the volume of playing WAV files.

**Use TCP Server** - the panel will have its own TCP server through which an external log program can control the transmit of audio files.

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#### **External Window**

An external window with functional buttons is displayed if the macro panel is active and "External Window" is specified in its settings.



**CW** - type of modulation. To move the window across the screen, press the left mouse button and move it. **WPM** - CW baud rate.

Esc - the button to cancel the transfer.

Hook - intercepts F1-F12 and ESC button presses from other applications.

Slim - enable Slim mode.

F1-F12 - macro buttons.

 $\ensuremath{\textbf{Send}}$  - send the entered text.

Clear - clear the protocol of transmitted texts.

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#### Slim

CW		34 WPM	ESC H	ook 🗹 S	ilim 🙋
F1-CQ	F2-CALL	F3-	F4-	F5-	F6-
F7-	F8-	F9-	F10-	F11-	F12-

#### To enable this mode, check "Slim"

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#### **Macros setup**

To call the macro settings window, press the button:



Macro input window:

	CW — 34 WPM ESC Hook Slim 🔅				
	F1-CQ F2-CALL	F3- F4- F5- F6-			
	F7- F8-	F9- F10- F11- F12-			
G	SDC	— п <b>/</b> х			
	500				
	Label	Macro Text/File Mode: CW 🔻 Apply			
F1	CQ	CQ UT4LW UT4LW			
F2	CALL	UT4LW			
F3					
F4					
F5					
F6					
F7					
F8					
F9					
F10					
F11					
F12					

After making changes, click the "Apply" button.

Enter file names for SSB macros:

SDC (S)		- 🗆 X	
Label	Macro Text/File	Mode: SSB 🔻 App	ly
F1 CQ Ru	D:/5MContest/Sound/UT7MA_U	JT7MA_rus.wav	
F2 CQ2	D:/5MContest/Sound/UT7MA.w	vav 🗌 .	
F3 59	D:/5MContest/Sound/YOU_ARI	E_59_rus.wav	
F4			
F5			
F6			
F7			
F8			
F9			
F10		] [	
F11			
F12			
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# **Telnet server**

This utility is used to combine the spots coming from different sources into one stream with its own server, which in turn is used to connect the logs to it. Consider, for example, the creation of a server for combining spots with two skimmers and RBN.

SDC (Software Defined Connection)	tors v 15.1519x6:	4) [C:/Users/	Yuri/LwSoft/cor	nspider.ini]	- 🗆 X
ProFile Mgr Telnet Server SK	M Server DIG	I Macro	PA OTRSF	TCI	Setup Save 🙀 🔰
Telnet Server [2]	✓ Spots -> Par	norama ult and Bypas	s Mode Color	40	Additional Windows and Programs
Stop	• •	_	ewCty Color		
	Ne		ewBnd Color		
<u> </u>	Nc		otCfm Color Dupe Color	<b>□ 4</b> ≫	Use BandMap for RX2
Port: 7373 🗘 Log	N1MM 12	7.0.0.1	44044 \$	🧬 🗌 Log	3 <a>Spot lifeTime (minute)</a>
Default Profile:	Profile: 🚺	3k-TCI+HR	D.ptcp 🔻	× 🖬	Enter Name
Special Profile For 5MContes	t: Profile: 🚺	3k.ptcp5	•	× 🖌	Enter Name
Stop Spotters 📑 🕂	-				Callsign: UT4LW
✓ Spotter A					
Connect 💋					20 to Srv to Pan
Host: TELNET.REVERSEBEACON.NE	T				: 7000
Send:					Log
Connection Connect! > Please enter your call: < UT4LW >					
Local users = 260					
Current spot rate is 9900 per hour					
UT4LW de SK1MMR-3 02-Sep-202:	1 13:21Z >				

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# **Telnet Server**

ら SDC (Soft	ware Defined C	onnectors
ProFile Mgr	Telnet Server	SKM Se
Telnet Server	[2]	V
	Stop	1
	<b>8</b>	
Port: 7373	÷ L	.og 🔲 🗌

This is the server to which logs will be directly connected. [Start] - the server start button. The button should be constantly pressed.

Icons of programs that have connected to the server will appear under the Start button.

Port: - port number of the server. Log - to view the log exchange protocol.null

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## Spots -> Panorama

The section is designed to control the process of spotting the panorama of the ExpertSDR2 program in conjunction with the work of the 5MContest log-log, or any other log that can control the operation of the skimmer.

✓ Spots -> Panorama	
► Default and B	Bypass Mode Color
Mult	✓ NewCty Color
New Bnd	✓ NewBnd Color
Not Cfm	✓ NotCfm Color
Dupe	Dupe Color

New, Mult, Dupe - indicate which callsigns will be displayed on the panorama. To the right of them there are buttons that you can set the color to which these callsigns will be displayed. If the repeats (Dupe) are not marked, then these callsigns will automatically disappear from the panorama after communication with them.

The SDC-Telnet Server program itself determines the log, which it connected to. If the log program does not report the status of the callsign (Mult, New, ..Dupe), the blue arrow indicates that the spot color on the transceiver's pan will be selected "Defaul and Bypass Mode Color".

If a log that connects the spot type (5MContest, LogHX) is connected then the color of the callsign will be defined as follows:



To the right there is a row of buttons for sending messages in the system tray. For example, if there is a sound signal when a multiplier station appears and a message appears in the system tray, mark the speaker opposite to "Mult":



The upper button turns on / off all messages.

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#### N1MM Log

SDC allows you to send spots from the N1MM program.

To do this, you must specify the address and port of the N1MM program server and check the N1MM checkbox:

SDC (Soft	ware Defined C	onnect	ors v 10.6	71x64) [C:/l	Jsers/Yuri	/LwSoft/	/comspider.	ini]	—		×
ProFile Mgr	COM Spider	Telne	t Server	SKM Server	r PA	TCI	Setup			Save	
Telnet Server	[0]		✓ Spots	-> Panorama				Additio	onal Windows	s and Progr	ams
			► D	efault and By	pass Mode	Color	<b>(</b> )	✓ Connect and Start SKM Server			rver
				Mult 🗸	NewCty	● ✓ Use ActiSpot					
Stop				New Bnd	NewBnd	Color	<	✓ Use BandMap for RX1			
				Not Cfm	NotCfm	<b>√</b> U:	se BandMap f	or RX2			
				Dupe	Dupe C	5 🖨	Spot lifeTi	me (minute	.)		
Port: 7373	L	.og	✓ N1MM	1	1	2062 🜲	🗗 Log		opermen		.,
Default Pro	ofile:	4	łk-TCI+HR	D.ptcp 💌							
Special Dre	file For 5MConte	act 🖌 🖌	IK+TCI+RE	RN ntcn 💌	۹ 🚺 ۱	2				let je	Garcenshilt

Attention!!!

With version 10.68, the checkbox "N1MM" can not be removed. If the SDC does not receive parcels from the N1MM within 30 seconds, it will automatically switch to the color bypass mode. When the parcels from the N1MM appear, the program automatically switches to the color processing mode.

N1MM config:

l	M	Config	urer											×
												n Decede		
ŀ	Har	dware	Function Keys	Digital M	odes	Other	Winkey	Mode Cor	trol Ar	ntennas	Score Repo	rting Broadca	ast Data	Audio
		Use	t the type of data 127.0.0.1 for the n the low order o	local mac	hine. l	Jse 1206	50 as the p	port unless						
	Ţ	ype of (	data		IP Addi	r:Port IP)	Addr:Port.							
	$\mathbf{\nabla}$	Appli	cation Info		127.0	.0.1:120	61							]
	_	-												,
	Ľ	Radio	)		127.0	.0.1:120	61							J
1	Ŀ	Conta	acts 🗹 All Com	puters	127.0	.0.1:120	60							]
		Spots	3		127.0	.0.1:120	62 127.0.0	).1:12063						
	Ļ													
		Rotor			127.0	.0.1:120	41 127.0.0	0.1:12040						]
	$\mathbf{\nabla}$	Score	e		127.0	.0.1:120	60							
			and JTAlert conne atch each progra						Enable	IP	Address	UDP Port		
- C DI			ach program into		90. / lik		iot iogging		Enable	127.0	.0.1	2333	]	
10	[	Sets th	e IP Address and	I port that	an ext	ernal pro	ogram can		Enable		Address	TCP Port	1	
		connec	ct to N1MM+ via T	CP Port fo	or loggi	ing purp	oses. (JTD	)X)	Enable	127.0	.0.1	52001	]	
F				(	ок		Cancel				Help			
													jeisi	O) arcanshibt

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## **Add Windows**

Add	ditional Windows and Programs
✓	Connect and Start SKM Server
	Use ActiSpot
√	Use BandMap for RX1
	Use BandMap for RX2
1	Spot lifeTime (minute)
	loj jeSercenskilk

Connect and Start SKM Server - when you start the spotter, or when the log program is connected to the Telnet Server port, skimmers will be automatically connected and enabled from the SKM Server tab.

ActiSpot - a window in which the spots of your station are displayed (usually RBN cluster spots are used).

Use BandMap for RX1 - open the map window for the 1st receiver. Use BandMap for RX2 - open the map window for the 2nd receiver.null

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#### Acti Spot

The Acti Spot window is designed to quickly visually monitor and control certain functions.



1 - the field where the spots of your station will be displayed. For example:

SPOT!	SM6FMB-#: GW8IZR-#:	7009.1 7009.0		
555	EA5WU-#:	7009.0	11 dB	

2 - Callsign for search. By default, the callsign specified in the spotter settings is searched. But you can assign the task to search for another call sign if you enter it in this field.

3 - Spotters connection status to Telten Server. In this case, they display three columns: an RBN server and two skimmers. The second skimmer is not active in this case.

4 - Tremometers, showing the activity of spotters. The more spots on it arrive, the faster the thermometer gauges run.

5 - Thermometers showing the number of working decoders in the corresponding skimmer.

6 - Quick access to the settings of the "Spots -> Panorama" window, allowing you to quickly control the flow of spot to the panorama. In this case, it is indicated that the panorama will display station multipliers, new stations on the band, just new stations, but repetitions will not be displayed.

7 - The speaker includes an audio alert about the appearance of the station. "599" - enables the "599" function for operation in Pile-Up, 5 - Pile-Up width in kHz.

8 - The field where the abbreviations of the test are entered. This field duplicates the "With Abbreviation Test Only" field in the SKM-Server window.

9 - Skimmer restart button. The decoded callsigns table will be cleared and spots will be issued without waiting for the end of the spot issue interval.



#### Controls added in new versions:

1. Quick-enable Checkbox / Skimmer (Cluster) 2. Fast change of the type of modulation of the skimmer. 3. Quick access to enable the "599" function

ら Acti Spot	_
C	Callsign for search:
	1
S/N min: -10 🜲	2
CWS 37	Test Abbr.

<u>1. Setting the minimum station volume threshold to issue a spot skimmers. Signal / noise ratio in DB. Default value = -10.</u>

2. Enables automatic control of the CW transmission rate when adjusting the transceiver to this station. It works only with transceivers working through the TCI protocol.

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#### **Band Map**

BandMap for RX1, RX2 – Bandmaps that display the state of the band near the tuning frequency.



If the transceiver is operating in SO2V mode, Band Map2 displays VFOB frequency data. In SO2R mode, Band Map 2 displays data for the second receiver.

You can click on the Band Band, or on a specific callsign.

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## **Spot settings**

Spotter A	
Connect ጷ	to Srv to Pan
Host: spider.ham-radio-deluxe.com	: 8000
Send:	Log
Connection Connect! > Welcome to the WA9PIE-2 Global DX Spotting Network running on DXSpid > === > This is the recommended DX cluster system for Ham Radio Deluxe, but everyone is welcome. > === ++ ! This system may only be accessed by Radio Amateurs using their own !	er
<pre>! callsigns and in accordance with their country's licensing ! ! regulations. All connections to this system are recorded. ! ++ &lt; UT4LW &gt; === login: &lt; UT4LW &gt; UT4LW Hello Yuri, this is WA9PIE-2 in Prosper, TX</pre>	
running DXSpider V1.55 build 0.181 ===	jets arcens Not

to Srv - send spots to Telnet Server for distribution to customers.

to Pan - send spots to the panorama of the transceiver connected via the TCI port. If you check the checkbox, you can set the color for spots on the panorama:

to Srv ✔ to Pan	Color
: 8000	\$

Attention, if a log is connected, which informs the status of the callsign, then the color setting is ignored.

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# **Spot Manager Settings**

Default Profile:	4k-TCI+HRD.ptcp	- 🖌 🗶	
Special Profile For 5MContest 🗸	4k+TCI+RBN.ptcp	- 🛛 🗙	
Start Spotters 🛃 🕂 💻			Callsign: UT4LW

**<u>Profile:</u>** - Profile, which will be loaded when connecting the log, which does not correspond to the statuses of callsigns.

– Delete the selected profile.	
- Overwrite the selected profile.	
	Enter the name of the profile and save it.

Special profile For 5MContest - specifies the profile that will be loaded when connecting to the 5MContest contest.

**[Start Spotters]** – Manual start of all spotters, which are marked with jackdaws. The button is "pressed" automatically when the log is connected to "Telnet Server".

[+] – Add a spotter window to the right.

[-] – Remove the far right window of the spotter.

Auto Start SKM Server – Automatically run SKM Server when launching Telnet Server spotters.

 $\label{eq:callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-callsign-$ 

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## Creating a network of audio channels

SDC allows you to create audio streaming over a network. Each channel allows transmission and reception in both directions.

Let's consider an example of creating one sound transmission channel.

SDC is installed on two computers. On the first computer, in the "RMT Server" tab, create "Audio Server 1", on the second, in the "Audio Client" tab, create "Audio Channel 1":

😑 SDC (S	oftware Def	ined Connectors v	r 12.2302x64) [r	C:/Users/Yuri/Lv	wSoft/comspid	er.ini]		>	( 1	SDC (Softwa	are Defined Connectors	v 12.2302x32) [C	:/Users/Yuri/LwS	oft/comspider.ini]		- 🗆 X
roFile Mgr	RigSync	Telnet Server	SKM Server	Audio Client	RMT Server	PA	TCI 🔹 🕨	Save 👷 🐧	٦	ProFile Mgr	RigSync Telnet Server	SKM Server	Audio Client	RMT Server P	A TCI 4	🕨 Save 🔀 🐧
Profile: 1	Skimmer.psrv	- *								Start Audio Ch	annels 🕂	- Pro	ofile: 2 Channel.p	aud 🔻 🗙		
+-								Audio Remote Serve	s	Audio Chann	nel 1					
Audio S	Server 1									Start						
<b></b>	itart 🤹	:		Port:	7341 🗘				-	Type:	Remote Channel 🔻	Host: AS-NADY	Port	: 7341	\$	
Out	out: M	/E ▼	Add Block:	2 🗘						Input:	MME *		Leve	si: 🗆 ————		
Device:	Mi	crosoft Sound Mapp	er - Output	Ŧ	Mono 🔻					Device:	Microsoft Sound Mapp	er - Input		* Mono	•	
🗸 Inpu	it: M	∕E ₹					1		e	<ul> <li>Output:</li> </ul>	MME *	Add Block	: 4	\$		
Device:	М	crophone (Realtek H	High Defini	•	Mono 💌		-			Device:	Speakers (Realtek Hig	n Definiti		* Mono	•	
Sample:	46	000 -							-	Sample:	44100 *					
Buffer:	40	96 👻							0	Buffer:	4096 💌	]				

A microphone will be connected on the server and transferred to the second computer. Add Block is the number of additional buffer blocks. Their number depends on the quality

of the network. The more latency in the network, the more blocks need to be reserved. Optimal value for MME driver: Buffer = 4096, add Block = 2.

If you plan to transmit audio streams in both directions, the settings will look something like this:

SDC (Soft	ware Defined Connectors		- 0	×	SDC (Software Defined Connectors v 12.2302x32) [C:/Users/Yuri/LwSoft/comspider.in											
ProFile Mgr F	RigSync Telnet Server	SKM Server	Audio Client	RMT Server	PA	TCI 🔸	Save	× 🔰	ProFile Mgr	RigSync	Telnet Server	SKM Server	Audio Client	RMT Server	PA	TCI
Profile: 1 Skim	nmer.psrv 🔻 🗙								Start Audio	Channels	+ -	• Pro	file: 2 Channel.	paud 🔻 🕽	•	
+-							Audio Remot	e Servers	✔ Audio Cha	annel 1						
✓ Audio Serv	ver 1								Start	- 🙀						
Star	t 🙀		Port:	7341 \$					Туре:	Remo	te Channel 🔻	Host: AS-NADY	Por	t: 7341		•
V Output:	: MME *	Add Block:	2 \$			-		-	✓ Input:	MME	•		Lev	el:		-
Device:	Microsoft Sound Map	per - Output	•	Mono 🔻					Device:	Micros	oft Sound Mapper	- Input		▼ Mono	*	·
✓ Input:	MME	•							V Output:	MME	•	Add Block:	4	\$		
Device:	Microphone (Realtek	High Defini	•	Mono 🔻					Device:	Speak	ers (Realtek High D	Definiti		▼ Mono	Ŧ	
Sample:	48000	•							Sample:	44100	•					
Buffer:	4096	•							Buffer:	4096	•					

For example, we need to transfer the sound from the output of «SC» a computer program ExpertSDR2 1 (K1) on the computer speaker 2 (K2). To do this, the program is set to K1 server and «SC» exit the program connects to the audio cable 9 (for example):

🧧 Opt	Coptions														
	<b>(</b> )		ł	0	Ţ										
Device	Sound card	Display	CAT	Panel	Features	Manager	CW Skimmer	Shortcuts							
				Sou	nd card										
	inable														
Driv	er: MME				-										
Outp	out: Line 9 (Vi	rtual Audi	o Cable)		-										
			1												
C	hannels: 2		Sample	rate: 48	000 🔻										
Bu	ffer size: 512		Late	ency: 0	\$										
							I⊙t jet5	creenshot							

The cable also specify the device «Input» SDCS:

- 🗶 🛃	1	<b>—</b>
		Save Settings
Audio Channel 2		
Audio Server Start	Gerver Closed	Port: 7342
Output: Driver:	ASIO 👻	Add Block: 3 🌻
Device:	ASIO4ALL v2	▼ Mono ▼
Input Device:	Driver:	MME 👻
Device: Lir	ne 9 (Virtual Audio Cable)	▼ Mono ▼
Sample: 48000 🔻	Size: 16 🔻	Buffer: 1024 🔻
For CW Skimmer		(0) jestereenski

The server assigns the port, such as 7342.

The program of SDC, installed on your computer 2 customizable audio channel:

🙀 SDC (Software		-		×					
ProFile Manager	COM Spider	Telnet Server	Audio Channels	Setup			Save Se	ttings	About
Start Audio Chan	nels		Profile: 2 Char	nnel.paud	- 🗙 🛃				
	✓ Au	idio Channel 1							
	C	onnect 🛛 🔩							
						-			
	Host:	localhost			Port: 7342				
	Input	Driver:	м	IME		·			
	🗌 Ir	nput: Line 8	B (Virtual Audio Cable	e)	- Mono	-			
	Outpu	ut Driver: MME	•	Add Blo	ock: 2 🌲				
	✓ 0	utput:	Динамик	и (Cirrus Logic (	CS 🔻 Mono 🔹	-			
	Samp	le: 44100 🔻	Buffer: 102	24 💌	CW Force: 8	·			
	C	W Key					Ø.	ja@arc	enenels

Specifies the host name and port.

*Tip: if at the same time to the transfer of audio channels to configure and transfer of COM port CAT system, it becomes possible to use the program on a computer log 2.* 

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## **Connecting a telegraph key**

 $\label{eq:program SDC + SDCS allows you to transfer to the remote computer manipulation of the telegraph. This will create an intermediate buffer, which will then be played on the remote computer.$ 

Section «CW Key» attached to the audio channel as refers their combined use. For example:

le Mgr RigS	nc Telnet Server	SKM Server	Audio Client	RMT Server	PA	TCI	4 >	Sa	ve 🔀 🚺	3	COM Spider	Telnet Server	SKM Server	Audio Client	RMT Server	PA	TCI	Setup
ofile: 1 Skimmer	psrv 👻 🗙			-							Start Audio Cha	nnels	+ -	Profile:	2 Channel.paud	•	* 🗹	
-								Audio R	temote Serve	rs	✓ Audio Channe							
Audio Server 1											Start	-						_
Start	*	P	ort:	7341 🗘				/			Type:	Remote Char	nnel 🔻 Host:	AS-NADY	Port:	7341		\$
V Output:	MME *	Add Block:	2 \$								Input:	MME	-		Level:	0		-
evice:	Microsoft Sound Mapp	er - Output	•	Mono 💌			/				Device:	Microsoft Sou	und Mapper - Inpi	ut	Ŧ	Mono		-
/ Input:	MME -	]									✓ Output:	MME	-	Add Block:	4 🗘			
evice:	Microphone (Realtek H		•	Mono 🔻							Device:	Speakers (Re	ealtek High Definit	i	*	Mono		-
ample:	48000 -	7									Sample:	44100	-					_
uffer:	4096 *									1	Buffer:	4096	-	$\mathbf{X}$				
											CW Key							
											Speed			— Volume 🔶		0-		-
													CW Pitch 600				ith 50 🇘	
							CON	M Port R	lemote Serve	rs .			ay PTT-CW 20		Type Key Dot-			
LAN-COM Inte	face 1										*	COM Port Key	COM4 *	🕼 to S	pider: to Remot	e 847	- Ø	
	È.																	
	7351		•															
M Port 💭	COM4	vi 🗆	ew Log															

The telegraph key is connected to the COM4 port. The manipulation is transmitted to COM Spider to the "to Remote 847" port, which is connected via a network to LAN-COM Interface 1 on the first computer.

🕒 SDC (Software Defined Connectors v 12.2302x64) [C:/Users/Yuri/LwSoft/comspider.ini] — 🛛 🛛 🗙									vare Defined Con			/Yuri/LwSoft/c	omspider.		- 🗆 X
ProFile Mgr Ri	gSync Telnet Server	SKM Server	Audio Client	RMT Server	PA TO	1 <b>+ &gt;</b>	Save 🙀 🚺	COM Spider	Telnet Server	SKM Server	Audio Client	RMT Server	PA 1	TCI Setup 4 🕨	Save 🙀 🚺
Profile: 1 Skimr	ner.psrv 🔻 🎽							Start	+	-	Profile: CONTE	ST.pspd	-	× 🖬 🛛	<b></b>
+-						A	Audio Remote Servers	Port A				V Port B			
✓ Audio Serve	er 1							Port Property				Port Propert	/		
Start			Port:	7341 🗘				Device				Device	Remote	e 847	
	•••	<ul> <li>Add Block:</li> </ul>						- %	Real COM		-	*	Remot		•
✓ Output:								Port	COM10		•	Host:	AS-NAE	DY	
Device:	Microsoft Sound Ma	pper - Output	•	Mono 🔻				Filter				Port:	7351		
✓ Input:	MME	•						As Server				Latency	0		
Device:	Microphone (Realte	k High Defini	-	Mono 🔻							View Log	Filter As Serv	or		
Sample:	48000	~						Send Data to							View Log
Buffer:	4096	Ŧ										Send Data to	,		
+-						сом	Port Remote Servers	v Ren	note 847			0	DM 10		
✓ LAN-COM I	nterface 1							Send DTR/RTS	i to						
Start												Send DTR/R	'S to		
Port: COM Port	7351 COM4		View Log					<b>√</b> Rer	note 847			_ o	DM 10		

At the same time you can connect CW + PTT keying from the contest log program:
SDC (Software Defined Connectors v 12.2302x64) [C:/Users/Yuri/LwSoft/comspider.ini]	- 🗆 X	SDC (Software Defined Cor	nnectors v 12.2302x32) [C:/Users	s/Yuri/LwSoft/comspider.in	ni] — □ >
ProFile Mgr RigSync Telnet Server SKM Server Audio Client RMT Server PA TCI	Save 👷 💟	COM Spider Telnet Server	SKM Server Audio Client	RMT Server PA TO	CI Setup ( ) Save 🔀
Profile: 1 Skimmer.psrv 💌 🗱	<b></b>	Start +	Profile: CONTE	ST.pspd 💌	× 🖬 🛛 🗧
+-	Audio Remote Servers	V Port A		V Port B	
V Audio Server 1		Port Property		Port Property	
Start 🍇 Port: 7341 🗘	1	Device N1MM		Device Remote	847
		ka Real COM	-	Remote	•
✓ Output: MME ▼ Add Block: 2 ♀		Port COM10	-	Host: AS-NADY	(
Device: Microsoft Sound Mapper - Output		Filter		Port: 7351	
✓ Input: MME ▼	1	As Server		Latency 0	* *
			View Log	Filter	
Device: Microphone (Realtek High Defini		Send Data to		As Server	
Sample: 48000 -		Selid Data to			View Log
Buffer: 4096 -				Send Data to	
		Remote 847			
				N 1MM	
				IN TWIN	
+ - cc	OM Port Remote Servers				
✓ LAN-COM Interface 1		Send DTR/RTS to			
Start 🍇				Send DTR/RTS to	
Port: 7351					
COM Port 🚺 COM4 👻 😨					
View Log		✓ Remote 847		N 1MM	
				LA TAIN	

With this setting, you can transfer manipulation from the contest log and telegraph key to the remote computer. In this case, self-control will be output to the audio device specified in "Audio Client" -> Output.

burrer:	- OEOF	
CW Key		
Speed	Volume	
	CW Pitch 600 🗘	Ramp 4 🗢 Width 50 🗢
✔ BreakIn	100 <a>Delay PTT-CW</a> 20 <a></a>	Type Key Dot-RTS, Dach-DTR 🔻
-	COM Port Key COM4 🔻 🎡	to Spider: to Remote 847 🔹 📢

**Speed** - is the speed at which the key works.

Volume - listening volume of CW manipulation.

BreakIn - sets the BreakIn mode and the delay time for switching to reception after the last digit.

**Delay PTT-CW** - the time for which CW signal transmission will be delayed after PTT is turned on. That's when all the telegraphic packages will move. There will be no shortening of the first parcel.

**CW Pitch** - listening tone height CW.

**Ramp** - is the speed of CW rising fronts.

Width - correction of the dot/tyre length ratio.

Type Key - indicates the polarity of the CW key, or its type.

COM Port Key - specifies the physical COM port for connecting the CW key.



SDC

To Spider – port of COM Spider section, to which CW+PTT manipulation will be transmitted.

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# Create a remote channel with CW self-monitoring for key and contest log

At the same time you can connect CW + PTT keying from the contest log program:

9	SDC (Software Defined Connectors v 12.2302x64) [C:/Users/Yuri/LwSoft/comspider.ini] – E					- 🗆 🗙	SDC (Softw	are Defined Con	nectors v 12.23	02x32) [C:/Users	/Yuri/LwSoft/c	omspider.i	ni]			>		
ProFile	Mgr RigSy	nc Telnet Server	SKM Server	Audio Client	RMT Server	PA	TCI 🔹 🕨	Save 🙀 🚺	COM Spider	Telnet Server	SKM Server	Audio Client	RMT Server	PA 1	TCI Setup	• •	Save	
Prof	le: 1 Skimmer	.psrv 👻 🕽						<b></b>	Start	•	-	Profile: CONTES	ST.pspd	•	*			
+	-							Audio Remote Servers	V Port A				✓ Port B					
	Audio Server 1								Port Property				Port Property	у				
	Start	<b>4</b>		Port:	7341 \$				Device	N 1MM			Device	Remote	847			
									*	Real COM		*		Remote				*
	Output:	MME	<ul> <li>Add Block:</li> </ul>						Port	COM10		- 🔹	Host:	AS-NAE	Y			
D 	evice:	Microsoft Sound M	apper - Output	*	Mono *				Filter				Port:	7351				
	Input:	MME	*						As Server				Latency	0				÷
D	evice:	Microphone (Realt	ek High Defini	*	Mono 🔻							View Log	Filter As Serve	or .				
Si	mple:	48000	Ŧ						Send Data to				As Servi				Vie	w Log
В	iffer:	4096	*										Send Data to	)				
									Ren	ote 847								
														1MM				
_																		
	AN-COM Inter	face 1		1			CON	1 Port Remote Servers										
									Send DTR/RTS	to			Send DTR/RT	rs to				
Por		<b>%</b> 7351		\$									Jenu DTR/KI	5.0				
co	1Port Ø	COM4		-														
				View Log					✓ Ren	ote 847			N					
													N.	D-8-1				

With this setting, you can transfer manipulation from the contest log and telegraph key to the remote computer. In this case, self-control will be output to the audio device specified in "Audio Client" -> Output.

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### **Audio Mixer**

This utility is used to solve problems with the audio channels. For example, the conditions of competition stipulated that, if used SO2R mode, the audio recording of communications shall be made in a single file in stereo mode, the RX1 - left channel, RX2 - Right.

In the «Input Device» add two audio devices, which are connected to transceivers. In the «Output Device» introduce the device to which you want to record. In «Sliders» section, we introduce the so-called sliders that establishes a connection and volume levels:

🕅 SDC (Software	e Defined Conn	ectors v 7.0	0) [C:/Users/Yuri,	/LwSoft/comspi	der.ini]			-		×
ProFile Manager	COM Spider	RigSync	Telnet Server	Audio Client	Audio/COM Se	rver Mixer	Setup		Save	
Start	Profile: 1ss.pr	mix 🔹 🗙								
Sample Rate: 22	050 - Buff	fer Size: 51	2 -							
Input Device			Sliders		O	utput Device				
+ -			+ -	•		+ -				
In 1			In 1-(M)		Out 1-(L) - 0	ut 1				
Driver MME	✓ Mon	10	• In 2-(M)	-	Out 1-(R) 🔹 🛛	oriver MME		<ul> <li>Stered</li> </ul>	)	•
Device Line 1 (Vir	tual Audio Cable)	)	-			Device Speakers	(Realtek Hi	gh Defini	ti	•
In 2										
Driver MME	✓ Mon	10	-							
Device Line 2 (Vir	tual Audio Cable)	)	-							

If the transceiver (or program) have different audio channels for playback and self-acceptance, it is necessary to write them to combine and transfer to the appropriate channels at the output:



The slider section has a setting "AGC". It automatically reduces the levels of incoming Sinhalese, if their total exceeds the maximum level.

ProFile Manager	COM Spider	RigSync	Telnet Server	Audio Client	Audio/COM	Server Mixe	er Setup		Save 🔀
Start Sample Rate: 220	Profile: 1ss.pr	mix 🔹 🗙 fer Size: 51							
Input Device In 1 Driver MME Device Microphon In 2 Driver MME Device Переназна	• Mon	Defini 10	Sliders In 1-(L) In 1-(R) In 2-(M) In 2-(M)		✓ AGC Out 1-(L) ▼ Out 1-(R) ▼ Out 1-(L) ▼ Out 1-(L) ▼	Output Device		▼  Stereo gh Definit	

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# **Audio Scope**

Audio Scope is designed to monitor the spectrum and oscillograms of low-frequency signals.

SDC (Software Defined	Connectors v 11.0	0x64) [C:/Users/	Yuri/LwSot	ft/comspider.i	ni] —	D X
ProFile Mgr Telnet Serve	er SKM Server	Audio Scope	PA T	CI Setup	Sav	/e 🔀 🚺
+ -						
✓ Audio Scope 1						
Start	Stop					
✓ Sync Work with TCI	TCI Client 1			-	Ø	
Control:	Both Horisontal			-	In External V	Window
Driver/Device:	MME		▼ Line 8	3 (Virtual Audio	Cable)	•
Channel:	Mono 🔻	Sample Rate	e: 11025	•	FFT Size:	1024 🔻
SpectroScope: Avg				)	Pea	ak Level
OscilloScope: Type:	Full Refresh			*	Update (ms)	13 🗘
-40 -60 -80					je	
	- buttons to add,	or delete the	last Audic	Scope.		
Sync Work with TC	I TCI Client 1				-	<u>ن</u>
synchronize the launch or rotocol. TCI client is sele			ch of the t	ransceiver co	onnected via	the TCI

Start	SpectroScope	
	OscilloScope	
Sync Work with TCI	Both Vertical	\$
Control:	Both' Iorisontal	In External Window

- window type. SpectroScope - display only the spectrum, OscilloScope - display only the waveform, Both Vertical, Horisontal - both windows.

In External Window - display graphics window in a separate window on the monitor screen.

Driver/Device:	MME		<ul> <li>Line 8 (Virtual Audio Cable)</li> </ul>					
Channel:	Mono 🔻	Sample Rate:	11025 👻	FFT Size:	1024	-		

- select the type of driver device. To build the spectrum setup Channel, Sample Rate and FFT Size.

SpectroScope: Avg 📃		With Max Level
a dell'i su al la stilla da fan iba a	a set a construction of the set o	

- additional settings for the spectrum: averaging and displaying maximum peak levels.

OscilloScope: Type:	Full Refresh	Update (ms)	5	-
	50% Refresh			
	Scrolling			

- advanced settings for OscilloScope. Selects the shift mode of the old sweep and the frequency of updating the waveform.

If both graphic windows are displayed, their ratio can be changed with a separator:



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# Set Gain & Scale

SpectroScope.

To adjust the dB scale and the width of the frequency section, click the right mouse button and move it leftright, up-down.

To pozionirovaniya area of the spectrum, click the left mouse button and move it left-right, up and down. The rotation of the mouse wheel additionally adjusts the dB scale.



OscilloScope.

To change sensitivity, rotate the mouse wheel, or press the right button and move the mouse up / down.



To change the speed, press the right mouse button and move it horizontally.

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The PA tab is designed to control power amplifiers. The frequency of the active VFO tuning is monitored by the SDC PA software and transmitted to the amplifier via the COM port.

SDC (Software Defined C	onnectors v 11.00x64) [C:/Users/Yu	ıri/LwSoft/comspider.ini]	- 🗆 ×
ProFile Mgr Telnet Server	SKM Server Audio Scope	PA TCI Setup	Save 🔀 🔌
Start PA Server	Profile: kxpa100.ppa		
✓ PA Control 1			
Stop >>>	Work	26,5	
Device Name	KXPA100		
Device Type	Elecraft KXPA 100 + Tuner		•
Data Source	TCI Client		-
TCI Client	TCI Client 1		-
Receiver	Both		-
COM Port 🕥	COM1	-	<u>.</u>
Ptt Pin	RTS 🔻	Latency: 10	\$
Elecraft KXPA 100 +Tuner: Attenuator Always ON Antenna: 1 & 2	✓ Polling Band: All Bands ▼	Erase Memo	bry
✓ Log			
<pre>&gt; ^TM0269; &lt; ^TM; &gt; ^TM0266; &lt; ^TM; &gt; ^TM0266; &lt; ^TM; &gt; ^TM0266; &lt; ^TM; &gt; ^TM0264; &lt; ^TM; &gt; ^TM0265;</pre>			

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# **Device Type**

Version SDC 10.23 allows you to control amplifiers that support CAT protocols from KENWOOD, ICOM, Elecraft, RF-Kit PA

Start PA Server PA Control 1 Start >>> **Device Name** KXPA100 Device Type Elecraft KXPA100+Tuner Elecraft KXPA100+Tuner Data Source Elecraft KXPA100 Kenwood CAT TCI Client Kenwood CAT (IF) Icom CAT Receiver Elecraft KAT500 Tuner RF-Kit PA COM Port ^ ▼ RTS 🔻 Latency: 10 Ptt Pin PTT on Tune Elecraft KXPA100+Tuner: Attenuator Always ON 🗌 Polling Antenna: 1 & 2 🔻 Band: All Bands Ŧ Erase Memory 🗹 Log

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# **Data Source**

To determine the active frequency, you can use the data from the RigSync tab, or from the TCI tab.

If you select Rig Sync as the data source, you must specify this channel:

SDC

SDC (Software Defined Connectors v 10.23) [C:/Users/Yuri/LwSoft/comspider.ini]									
ProFile Mgr RigSy	/nc	Telnet Server	SKM Server	PA	TCI	Setup			
+									
✓ PA Control 1									
Start >	>> [	Stop							
Device Name									
Device Type	I	Elecraft+Tuner				•			
Data Source	I	RIG Sync Channel				•			
RIG Sync Cnannel		Sync Channel 1					1		
COM Port	5	Sync Channel 2							
Ptt Pin		N/A 🔻			Latenc	y: 0			
Elecraft+Tuner:									
Attenuator Always ON									
Antenna: 1 & 2 🔻		Band: A	ll Bands 💌		Eras	e Memory			
Log							jelSereenstiilt		

If TCI is selected, the TCI client and the receiver to which this amplifier will be connected are indicated:

SDC (Software I	Defined Connectors v 10.23) [C:/Users/Yuri/LwSoft/co	mspider.ini]
ProFile Mgr RigS	Sync Telnet Server SKM Server PA TCI	Setup
+		
✓ PA Control 1		
Start >>>	Stop	
Device Name		
Device Type	Elecraft+Tuner	•
Data Source	TCI Client	•
TCI Client	TCI Client 1	-
Receiver	Both	
COM Port 5	Receiver 1	
Ptt Pin	Receiver 2 N/A  Latency: 0	
Elecraft+Tuner:		
Attenuator Alwa	ays ON	
Antenna: 1 & 2	▼ Band: All Bands ▼ Erase Mem	lory
Log		jetSereensfiit
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# PTT

If the TCI client is selected as the data source, you can implement PTT control for the amplifier using the RTS signal, or DTR of this COM port:

SDC (Software	Defined Connectors v 10.23) [C:/Users/Yuri/LwSoft/comspider.ini]
ProFile Mgr Rig	Sync Telnet Server SKM Server PA TCI Setup
+ -	
✓ PA Control 1	
Start >>>	Stop
Device Name	
Device Type	Elecraft+Tuner
Data Source	TCI Client
TCI Client 5	TCI Client 1
Receiver	Both
COM Port 🚺	N/A 🔹
Ptt Pin	N/A Latency: 0
Elecraft+Tuner:	RTS
Attenuator Alwa	DTR ys ON
Antenna: 1 & 2	Band: All Bands   Erase Memory
Log	iel Sercenstia

In addition, you can set the delay for the PTT signal activation after sending the VFO setting "Latency" to the new frequency amplifier. This delay will not be used if the VFO frequency does not change at the time of the PTT signal.

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# Electraft

If you use an Elecraft amplifier, the following items will be available:

SDC (Software [	Defined Connectors v	10.23) [C:/Users	s/Yuri/L	wSoft/co	omspide	r.ini]
ProFile Mgr RigS	ync Telnet Server	SKM Server	PA	TCI	Setup	
+ -						
✓ PA Control 1						
Start >>>	Stop					
Device Name						
Device Type	Elecraft+Tuner				-	
Data Source	TCI Client				-	
TCI Client	TCI Client 1				•	
Receiver	Both				-	
COM Port 🚺	N/A				-	
Ptt Pin	RTS 🔻		Lat	ency: 0	-	
Elecraft+Tuner:						
Attenuator Alway	ys ON					
Antenna: 1 & 2 💌	Band: All I	Bands 💌	E	rase Mer	nory	
Log						
						jetSareensfiilt

Attenuator - When connected to the amplifier, the internal attenuator will automatically turn on.

Antenna, Band, Erase - the antenna is selected, the range is selected, the "Erase" button is pressed to clear tuner settings.

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# **KENWOOD**, Icom

If you use an amplifier that supports CAT of KEWOOD firms, or Icom? the following items will be available:

Start	>>>	Stop
Device Name		SPE
Device Type		Kenwood CAT 👻
Data Source		TCI Client 💌
TCI Client	Ø	TCI Client 1 👻
Receiver		Both 💌
RIG Sync Cnannel		Sync Channel 1
COM Port	Ø	COM1 👻
Ptt Pin		N/A   Latency: 0
Kenwood CAT:		
Time Poll 100	\$ Тур	e Poll Only Cyclic Control
Log		
		() jeSercenski

Time Poll - the time at which the VFO frequency will be transferred to the amplifier.

Type Poll:

Only Cyclic Control - the VFO frequency will be transmitted periodically.

Send Changes & Cyclic Control - VFO frequency changes will be sent instantly and repeated after a time poll.

Send Changes & Polling - VFO frequency changes will be sent instantly and device readiness will be done through time poll.

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### Interfases

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SDC-OTRSP is an intermediary program between the log and a transversier that runs running Expertsdr2. It accepts commands through the COM port and controls the levels of louds of sound channels and their balance.

Based on these commands, controls the E-Coder control panel.

The protocol is described here.

**OTRSP** 



Depending on the command received through the COM and the type of transceiver (SO2V / SO2R), the corresponding volume and balance setting is activated. For example, when receiving the RX2S command, settings from the RX2 STEREO section will be transferred to the transceiver.

COM Port - COM port for receiving commands from the log..

TCI For RX1 - TCI client for the 1st transceiver.

<u>TCI For RX2</u> - <u>TCI client</u> for the 2st transceiver. If one transceiver is used, then the client name must be the same.

Auto Control E-Coder - control the VFO and RX1 / RX2 E-Coder panels.

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# **Supported Commands**

RX1 - 1st receiver in mono mode is active.
RX1S - 1st receiver in stereo mode is active.
RX2 - is an active 2nd receiver in mono mode.
RX2S - is an active 2nd receiver in stereo mode.
VFOA, VFO1 - is active VFOA 1st receiver in mono mode.
VFOAS VFO1S - VFOA active 1st receiver in stereo mode.
VFOB, VFO2 - is an active VFOB of the 1st receiver in mono mode.
VFOBS, VFO2S - is an active VFOB 1st receiver in stereo mode.

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# SWR Meter

The SWR tab is designed to plot the antenna SWR. Use the Tune mode of transceivers running the ESDR2 program at least version 1.3.0 beta 3. For normal operation of the SWR meter, ensure that the Tune controller provides at least 3 W at the transmitter output.



Select the band (Band), step (Step), frequency boundaries (Start-Stop) and click "Start":

🜖 SDC (Soft	ware Defined Co	onnectors v 12.0	02x64) [C	:/Users/Yur	i/LwSoft/com	ispider.ini]		– 🗆 X
ProFile Mgr	Telnet Server	SKM Server	PA	SWR TO	CI Setup			Save 🔀 🔰
Band 7 MH	z 🔻 Start 7	7000 \$	Hist	tory:			TCI:	
Step 25	▼ Stop 7	200 \$	19	0704-2031		] 🛃	Client	🗘 TCI Client 1 🔻
Start	t C	lear		190703	-181224.7 🔻	+	Receiver	Receiver 1 🔻
190704	-2031	-			-		-	
3.0								
2.0								
1.0								
7000		7050			7100		7150	jelSarcenshi

After scanning the range, you can save the results of this measurement to a file. To do this, in the History section, specify the file name and click the "Save" button. The default is a file name consisting of date and time.

. 1210	0231017	[07/03013	, ran, er	10010/0011	spinetining					
rver	PA	SWR	TCI	Setup						
)	н	listory:								
190704-2031										
¥ 190704-2031.7 • +										

You can combine up to 4 dimensions in one diagram.

ProFile Mgr     Telnet Server     SKM Server     PA     SWR     TCI     Setup     Save       Band     7 MHz     Start     7000     History:     TCI:       Step     25     Stop     7200     190704-2037     Client     Image: Client 1       Start     Clear     190704-2031.7     +     Receiver     Receiver 1       -     190704-2031     -     190704-2037     -	ら SDC (Sofi	tware Defined Co	onnectors v 12.0	02x64) [C:/User	s/Yuri/LwSoft/con	nspider.ini]		- 🗆 X
Step 25 • Stop 7200 •       190704-2037       Image: Client for the second seco	ProFile Mgr	Telnet Server	SKM Server	PA SWR	TCI Setup			Save 👷 🚺
Start       Clear       ¥       190704-2031.7       Receiver       Receiver 1         190704-2031       190704-2037       -         3.0       -       -       -       -         190704-2031       -       -       -       -         3.0       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -       -         -       -       -       -       -       -       -       -         -       -       -       -       -       -       -       -       -         -       -       -       -       -       -       -       -	Band 7 MH	iz 🔻 Start 🕽	7000 \$	History:			TCI:	
	Step 25	▼ Stop 7	7200 🗘	190704-2	037		Client	5 TCI Client 1 🔻
	Star	t C	lear	<b>×</b> 19	90704-2031.7 🔹	+	Receiver	Receiver 1 💌
	190704	-2031	<b>—</b> 190704	H2037	-			
	3.0							
	2.0							
1.0	1.0							
7000 7050 7100 7150 97200	7000		7050		7100		7150	

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# **Example of using the program with 5MContest**

Program «SDC» can be used as an alternative 5MTelnetServer subroutine, which is part of 5MContest. The process of launching «SDC» included the launch 5MContest.

Настройки 5MContest							
Общие 📔 📰 Установки СW		34 RTTY/PSK	🕼 Устанс	овки SSB	🐺 MMTTY	MMV	ARI
🖶 GRITTY 🔤 Радио - Omni-	i   🚦 Fl	digi					
Первое радио Второе радио							
Radio 1: TS-480 - On-line		reaB	¬				
TV Sati DV Sati -		1026510 🍨 Set	РТТ чер	рез САТ ме AFSK испол	ΠP	NEM CW_L ~	
AM Set FregA		itOFFSet	ј 🔄 в режи		DEPE/	AHA SSB_U 🗸	
FM Set 1402427	70 🚖 Set 0	🔹 Set		rtty-L (fixed) rtty-U (fixed	)	йка -900	
VHF transverter			CW via		wood protocol		
116000,00 🔶 MHz				criti (criti) tici	inteed protocol	,	
<u></u>							
Показывать время после QSO		Spot MODE map					
<ul> <li>5 min</li> <li>10 min</li> <li>15 min</li> <li>Закрыть после устаревания</li> </ul>	20 min	HF WARC	VHF	DIG 150%	DTO 50%	-	
		50 MHz	cw u v	SSB U V	DIG-FSK	PHONE	
			_	_	DIG_U ~	SSB_U V	
CWSkimm Telnet server Port		144 MHz	CW_U ~	SSB_U ~	DIG_U ~	SSB_U ~	
127.0.0.1 7373 AB	тозапуск	432 MHz	CW_U ~	SSB_U ~	DIG_U 🗸	SSB_U 🗸	
"C:\Program Files (x86)\LwSoft\EsdrUtil\SDC	C.exe" 🛃	1296 MHz	cw_u $ \sim $	$\rm SSB\_U_{\rm i} \sim$	DIG_U 🗸	SSB_U 🖂	
Автоматически запускать приемник		2400 MHz	cw_u $ \sim $	$\rm SSB\_U_{\rm i} \sim$	$\rm dig\_u~\sim$	SSB_U 🖂	
		5650 MHz	cw_u $ \sim $	$\rm SSB\_U~ \sim$	$\rm dig\_u~\sim$	SSB_U 🖂	
Обрабатывать SP станции		10.0 GHz	cw_u $ \sim $	$\rm SSB\_U~ \sim$	$\rm dig\_u~\sim$	$\rm SSB\_U~~{\scriptstyle \sim}$	
							~
	- 1		1				
Применить	Закрыть	🕐 Помощь	·			jegaraan	Siek

In the "Radio - Omni-Rig" settings, we specify the "SDC" program launch file and its server port, put the "Autorun" checkbox. Now, when you run the 5MContest program, the "SDC" program will automatically start. If the SDC program is already running on the computer, then it will be ignored.

The 5MContest program has a call color management feature on the CWSkimmer waterfall. To do this, call the DXCluster window and in the CWSkimmer box, select the "Allow SKIMMER commands" checkbox:

Файлы [	Графики	Создание отчето	в Управление	Кластер	Сеть	HF Propagatio	n Окна	External Programm	Помощь	Language
Hoboe QSO	🔻 Пред.	QSO Позывные	<ul> <li>Список QSO</li> </ul>	Стат. Теста	DXCluste	ег Стат. Множ.		BandMap_R1 BandMa	ap_R2	ralw

Спи	сок свя	язей	(Ctrl+L)							Telnet DXCluster ( 0 spots in the queue) x
	Date	$\nabla$	Time	Callsign	Band	Freque	Mode	Send	Rcvd	Установки Фильтры Cwekimmer
5&P	19.08.20	016	13:45:40	GB1CFL	20	14029	CW	007	023	Churted inte - Review
58 P	19.08.20	016	13:45:49	VU2TS	20	14006,8	CW	800	043	Запустить программу
58 P	19.08.20	016	14:15:56	F8DGY	20	14015	CW	009	023	Servers CW Skimmer Начать прием
5&P	19.08.20	016	14:16:05	ON6VL	20	14007,2	CW	010	003	Остановить прием
5&P	19.08.20	016	14:16:42	RT9X	20	14011,9	CW	011	075	
58 P	19.08.20	016	14:31:16	EA6NB	20	14016	CW	012	012	SKIMMER/STATUS QZ2; Put on BandMap Only CQ stations
5&P	19.08.20	016	14:33:28	UR5TG	20	14019,4	CW	013	001	Allow SKIMMER commands
5&P	19.08.20	016	14:33:48	F5JLQ	20	14019,55	CW	014	001	17:05:13
58 P	19.08.20	016	14:34:48	TF3CW	20	14008,79	CW	015	076	✓ /@2.1±13=====5100
. 2. 0	10.09.20	016	44-20-27	DI 6507	20	14006.0	C14/	016	002	

Attention! Do not mark "Put on BandMap Only CQ stations"! After that, the DXCluster window can be closed.

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### **5MContest**

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#### **CAT interface**

Setting up connection to ExpertSDR2 in the TCI1 tab.

5MContest Settings			
General   ☴ CW settings   ፮ RTTY/PSK Set	ttings 🛛 🕸 SSB/AM/FM settings 🗍	MMTTY MMVARI	SDC DIGI Server
📾 CAT Interface	QTC	Cluster :	settings
Radio Settings 🛡 Omni-Rig RIG1 🖲 TCI 1 🐺 Om	nni-Rig RIG2 🖲 TCI 2		
SUNSDR2 ; ESDR,1.4         Address       SDR Port         127.0.0.1       40001 -         Spots colors       AutoConnect         CQ-Freq       AutoConnect         MARK       Send Internal Spots         DUPE       Pass 5MTelnetSrver Spot:         Only current band       Display Rejected spots         MULT       Auto control	RIT 0 XIT 0 Mode CW		Set Set Set Set

2. Tab "RADIO SETTINGS":

5MContest Settings								
	V settings   CAT Interface	RTTY/PSK Se	ttings 🛛 📣	SSB/AM QT	I/FM settings   C	₩ MMTTY	MMVARI	SDC DIGI Server settings
Radio Setti   O Window 1 DEVICE Om RX • RX 1 OR RX 1 - Mixer settin VFO A Volume: 0 Balance: 0 VFO B Volume: - Balance: 0	niRig 1 On X 2 VFO qs MUTE 0 dB 60 dB	RX 2 - Mixer se VFO	CI 1 ○ TCI A ○ VFO ettings ☑ ML ne: 0 dB ce: 0 dB ce: -60 dB	© TCI : 2 B JTE	2   Window2 DEVICE RX	VFO RX 2 VFO ttings MUTE a: -60 dB	OmniRig 2  VFO VFO VFO RX 2 - Mixer VFO A Volu Bala VFO B Volu Bala	TCI 1 $\bigcirc$ TCI 2 O A $\bigcirc$ VFO B settings $\checkmark$ MUTE Ime: 0 dB Ime: -60 dB Ime: -60 dB Ime: 0 dB
						🗹 Auto turn	SO2V <-> SO2F	2
C	Created wit	h the Perso	nal Edition	n of He	elpNDoc: N	/rite eBooks	for the Kin	dle

**Connect to SDC Telnet Server** 

5MContest Settings General 🛛 ☵ CW settings 🛛 💈 RTTY/PSK Settings 🖾 SSB/AM/FM settings 🛛 ↔ MMTTY 🛛 🖓 MMVARI 🖉 SDC DIGI Server Cluster settings CAT Interface QTC Frequency filter Continent filter Fonts and colors DXCC filter Settings Other 🚝 Shot MODE manning HF WARC VHF CW DIG-AFSK DIG-FSK PHONE CWSkimm Telnet server Port 127.0.0.1 7373 CW\_L ~  $\text{SSB}_L \, \sim \,$ DIG\_L ~ SSB\_L Disconnect 160m ✓ AutoRur 80m CW\_L ~ SSB\_L DIG\_L SSB\_L "C:\Program Files\LwSoft\SDCx64\SDC.exe" ŝ DIG L 40m CW L SSB L SSB L Automatically start the receiver DIG U 🗸 SSB U ~ 20m CW\_U 🗸 SSB U  $\sim$ Pass SP callsigr  $\text{SSB}_{\rm U} \, \smallsetminus \,$ DIG\_U SSB\_U 15m 10m CW\_U SSB\_U DIG\_U SSB\_U Show time after QSC 5 mir 10 mir 🔵 15 mir 20 mir Close after time limit

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### **QSO recording**

If you use the SUNSDR2 (Pro, DX, MB1) Expertsdr3 transceiver, the QSO record can be made without using audio devices:

Настройки 5МСс	ontest				
SD(	C DIGI Server		CAT Interface	Q	тс
Общие	Установки С	W 📔 😤 RT	TTY/PSK Settings	SSB/AM/FN	M settings 🛛 🙀 MMTT
<ul> <li>Загрузить *.</li> <li>Загрузить *.</li> </ul>	ata yann	MASTER.DTA		новки времени то <sup>©</sup> Manual Чась	ы(+/-) -2 🌩 Минуты О
Dupe Sheet (R.1 Map settings Радио 1 ( Mults lists	s Externa	program ка раундов	EDI Settings Rotator Control Радио 2 Стад keds Запись q:	1	FootSwitch R1 settings VHF transverter d settings RF POWER Ba Статистика множителе
WAV-формат фай РСМ 8.000 kHz, 1		Устройств С SoundCa	о записи звука ard Line 8 (Virtual	Audio Cable)	1
<ul> <li>Отключить за</li> <li>Запись ESM</li> </ul>	апись		Default record dura	tion (sec) 50	START
С Непрерывная	запись		о вооспроизведени чение звуковых уст		SAVE
Croated	with the Dereonal	Edition of Holp	NDoc: Eroo ERo	ok and document	ation concrator

### **SDC**

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#### Setup

In the Setup window:

<b>S</b>	SDC (Sof	tware Define	d Conr	nectors	s v 14	.01x64)	[C:/Users/Y
Telne	et Server	SKM Server	DIGI S	Server	TCI	Setup	
Style:	Night St	yle	•		S	et Font	
	Se	et no-kill wind	ow 🗹				
	Move to	SysTray on St	art 🗹				
	Use	ProFile Mana	ger 🗌				[
		Use COM Spie					
		Use Rig Sy				<u> </u>	
	ι	Jse Telnet Ser Use SKM Ser		_			
		Use DIGI Sen					
	Use Aud	io Channel Cli					
	Us	e Remote Ser	ver 🗌 🛛	Auto	Start	Remote	Server
		Use Audio Mi	xer 🗌 🛛	🗌 Auto	Start	Mixer	
	l	Use Audio Sco	ope 🗌 🛛	🗌 Auto	Start	Audio S	соре
		Use PA Cont	rol 🗌 🛛	🗌 Auto	Start	PA Cont	rol
		Use SWR Me	ter 🗌				
		Use 1	TCI 🗹				

"Move to SysTray on AutoStart" - when you start to show the program window, immediately move its icon to the tray.

"Set no-kill window" - sets the program's "inability" when the cross is pressed in the upper right corner.

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#### **Telnet Server**

For example, we plan to use two skimmers and an RBN server to track the spots of your callsign.

SDC (Software Defined Conne	ctors v 14.01x64) [C:/Users/Yuri/LwSoft/comspider.	ini] — 🗆 X				
Telnet Server SKM Server DIGI Se	rver PA TCI Setup	Save 🖈 🔪				
Telnet Server [1]	Spots -> Panorama     Default and Bypass Mode Color     Mult NewCty Color     Mult NewBnd Color     New Bnd NewBnd Color     Not Cfm NotCfm Color     Dupe Dupe Color	Additional Windows and Programs Connect and Start SKM Server Use ActiSpot Use BandMap for RX1 Use BandMap for RX2 Spot lifeTime (minute)				
Port: 7373 📮 Log 🗌	□ N1MM 127.0.0.1 12060 ‡ 🗗 Log					
Default Profile:	ForDIGI.ptcp	<u> </u>				
Special Profile For 5MContest	4k+TCI+RBN.ptcp 🔻 🗹 🗶					
Stop Spotters 🚽 🕂 🗕		Callsign: UT4LW				
Spotter A		19140 🗆 to Srv 🗌 to Pan				
Host: TELNET.REVERSEBEACON.N		: 7000				
Send:		🗆 Log				
<ul> <li>U14LW</li> <li>&gt;</li> </ul>						
Local users = 222						
Current spot rate is 33012 per hou		•				

After entering all the settings, enter the name (for example, 4k + TCI + RBN) in the input field and click the Create new profile button.

After that, select this profile from the list and set the "Use a special profile when 5MContest connected" checkbox. Now, when the 5MContest program is connected to Telnet Server, the settings from the previously saved profile will be automatically selected.

Stop 🌍	► New Bnd □ NewBnd Color □ →	✓ Use BandMap for RX2				
	► Not Cfm □ NotCfm Color □ <					
	► Dupe □ Dupe Color	3 ÷ Spot lifeTime (minute)				
Port: 7373 🔹 Log 🗆	□ N1MM 127.0.0.1 12060 C					
Default Profile:	ForDIGI.ptcp 🔻 🗹 🗶					
Special Profile For 5MContest	4k+TCI+RBN.ptcp 🗸 🛃 🗙					
Stop Spotters + - Callsign: UT4LW						
Spotter A		19522 🗆 to Srv 🗌 to Pan				
Host: TELNET.REVERSEBEACON.N	ET	: 7000				
Send:		Log				

Attention! When you connect the 5MContest program in the "Telnet Server" section, a shortcut will appear for this program:

SDC (Sof	tware Define	d Connectors	١
Telnet Server	SKM Server	DIGI Server	ŀ
Telnet Server	r [1]		S
Stop			
Port: 7373			N

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#### **SKM Server**

In the SKM Server tab, enter two skimmers with approximately the following settings:

9	SDC (Software Defined Connec	tors v 14.01x64) [C	/Users/Yuri/LwSo	ft/c	comspider.ini] —		
ProF	ile Mgr Telnet Server SKM Serv	ver DIGI Server PA	TCI Setup			Save ★ 🔌	
	Only Test S mmer 1 CW Start Stop	rofile: 3k-Test_New.pr Stations / Test Abbrev	viation: Skimmer 2 (		₽ ₩ ₫ p (₩ ₽		
	Setup Skimmer 1		$\times$		Setup Skimmer 2		$\times$
	In External Window Control type TCI Client Receiver	TCI Only	Stays On Top		In External Window Control type TCI Client Receiver	TCI Only	Stays On Top
	☐ Start Skimmer Only Mode of <sup>¬</sup> Signal/Noise stations detect (dB) Offset for spot frequency (Hz):		(CW)		☐ Start Skimmer Only Mode of <sup>↑</sup> Signal/Noise stations detect (dB) Offset for spot frequency (Hz):		
	Spotter Name: TCP Server Enabled Port: 0   Fr=	LW1-#			Spotter Name: TCP Server Enabled Port: 0 + Fr=	LW2-#	
96	External Text Decoder Window: Enable Click Function Separate windows for VFOA a Decode only VFOA IQ - Band Plan control	nd VFOB		D	External Text Decoder Window: External Text Decoder Window: Enable Click Function Separate windows for VFOA a Decode only VFOA IQ - Band Plan control	and VFOB	
	Sample Rate	✓ Auto	96000 🔻		Sample Rate	🖌 Auto	96000 🔻
	Spectrum via UDP	Speed:			Spectrum via UDP	Speed:	
	Host/Port	127.0.0.1	13064		Host/Port	127.0.0.1	13064 🛟
	Name:	ExpertSDR	20		Name:	ExpertSDR	
	Pile-Up Mode	kHz Up:	20		Pile-Up Mode	kHz Up:	20

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### TCI

SDC (So	oftware Define	d Connector	s v 14.(	)1x64)	[C:/l	Jsers,	/Yuri/Lw	/Soft/c	omspie	der.ini]
ProFile Mgr	Telnet Server	SKM Server	DIGI S	erver	PA	TCI	Setup			
<b>=</b>										
TCI Client 1	<u> </u>		Work							
Name	TCI Client 1									
Host	127.0.0.1		Port	4000	)1	* *				
🗌 Logical d	control ECoder \	/FOA/B		🗌 Lo	g					
✓ Callback	TCI-Connect m	ode. Port:	-‰	4000	)0	*				
RIG-E	mulator ———									
Focus	Helper ———									
										l i

If you want the cursor to automatically be returned to the 5MContest program window, then configure TCI-Focus Helper:

写 SDC (Software Defined Connectors v 14.01x64) [C:/Users/Yuri/LwSoft/comspide ProFile Mgr Telnet Server SKM Server DIGI Server PA TCI Setup + TCI Client 1 Connect ø TCI Client 1 Name \* • Host Port Logical control ECoder VFOA/B 🗌 Log Callback TCI-Connect mode. Port: -**RIG-Emulator** Focus Helper-~ Start Work Also SDC Windows Synchronize work with TCP Server ¥ Program Type: Window Title for VFOA: Radio 1 Ok Window Title for VFOB: Radio 2 Ok Delay (ms) 500 Created with the Personal Edition of HelpNDoc: Free Kindle producer

# Settings in ExpertSDR2

In the ExpertSDR2 program settings, only the TCI interface port number must be coordinated and the checkbox "Enable" must be set:

SDC

 Image: Control Interface

 Image: C

With these settings, no action is required to start the SDC routines.

When you start the 5MContest program, in the SDC program in Telnet Server, the corresponding profile will be automatically downloaded, the connection to ExpertSDR2, the start of skimmers, connection to RBN will occur.

For the TCI-CallBack system, we enter the source of spots into the "Spot Setting" section:



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# DIGI

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#### **5MContest**

Open two windows for DIGI.

SDC

<u> </u>	VVII	ndows External Programm	Help Language	-					
a		NewQSO	•	R1	BandMap_	R2 🛞			
Ē		Calls	•				-		
		Dupe Sheet	+					UTC	
Ca D	~	QSO list			Mutt OK-	Points 3	^		10
þ	-	Previous QSO			PA-	3		IU	JO
J	<b>.</b> (	Contest statistic		39	UR-	1			
þ		Mults statistic			PA-	6		Log calls	s & m
_,	�[	DIGI		E N	/MVARI				
		DX Cluster			/MTTY Tone				
		BandMap	•	65	DC DIGI Se	erver	F	Radio1	
	5	Cluster Lists 5MTelnetServer	•				F	Radio2	
		PT Antenna Switch						Страна: DXCC:	
		QSO records		L .					
		CW Self-control						0	

Windowsz External Programm Help Language

Place windows on the screen. For instance:

	CQ_FreqR1 7019,62 Run Frequer CQ	FreqR1 7019,62 Run Freque
QSO List		
Date         C Time         Callegn         Date         Frequency         Note         Rend         Nat         Peeter         A           C0         10.11.2020         14:07:27         OK5MIM         20         14070.81         RTTY001         001         OK-         3	08.16.31 URUKUNG*2220N 143/18.78°1.118	
9 10.11.2020 14:07:48 PA2SD 20 14070.81 RTTY002 023 PA- 3	08:16:31	
69 10.11.2020 14:09:30 UR5LAM 20 14070,81 RTTY003 KN89 UR- 1		8 · · · · · · · · · · · · · · · · · · ·
12.11.2020     18:10:30     PA4KK     40     7047,89     RTTY004     011     PA-     6     12.11     2020     18:10:48     LASPP     40     7047,89     RTTY005     012     LA-     6	Log calls & master.dta	
	Radio 1; Op. UT4LW CW- 34 WPM; VFO; 7026,05	-28 -26 -24 -22 -20 -18 -16 -14 -12 -10 -8 -6 -4 -2 0
	Страна: DXCC: Глав.преф. Конт. CQ ITU <u>Л. Л. Л.</u>	Mnutes
	P CQ 146/5	Radio 2: Op. UT4LW CW- 34 WPM: VFO: 7052,79 ×
	21.11.2020 08:16:31 CW 40 5	Country:
	La 1690 40 20 15 10	DXCC: Main Prefix Cont. CQ ITU
		CW U 40 U 4
	507	Br 4. 1660 40 20 15 10
	Mark Spot it •	
	006 Sove Clear fields	006
	© CW Auto OFF ©	🖬 🖌 M Spot -
		© CW Auto OFF ©
	[F1] CQ test [F2] CALL ? [F3] CAII 5NN001 [F4] UT4LW [F5] 5NN NUM [F6] TU DE UT4LW 5NN NUM	master.dta [F1] CQ test [F2] CALL ? (F3) Call 5NN001
	[F7] NUM NUM [F8] TU [F9] UT4LW	[F4] UT4LW [F5] SNN NUM TU DE UT4LW SNN I
	(P(A) A (P(A) ARVARA (P(A) ARVARA)	(F7) NUM NUM (F8) TU (F9) UT4LW
	A: RTTY45	, Bi-
Previous QSO	1 IQ: RTV45:	
Date The Status Callege Eard Send Rovid Built Points	S Radio(1) - SDC DIGI Server: Online: — 🗆 🗙	S Radio(2) - SDC D/GI Server; Civiline; — 🗆 🗙
	File View Settings Terminal Online Help	File View Settings Terminal Online Help
	APC NET HAM     FOXDPNBZWG	AFC NET HAM
	^	<u>^</u>
	· · · · · · · · · · · · · · · · · · ·	
Brern OSO - 0	RTTY45 SN: 2 Offset: 1 Connected with: 127.0.0.1:40100	RTTY45 SN: 9 Offset: 1/ Connected with: 127.0.0.1:40101

In the Radio window (1) / (2) - SDC Digi Server, call the Settings-> Global Setup menu. You need to specify the SDC-DIGI Server ports ports. The number of the receiver and VFO are also selected. For instance:

5MContest Settings
📾 CAT Interface QTC 🔤 Cluster settings
General 📰 CW settings 💈 RTTY/PSK Settings 🐗 SSB/AM/FM settings 🖟 MMTTY 🕅 MMVARI 😑 SDC DIGI Server
Window 1 Window 2
Connection settings Addr 127.0.0.1 Port 40100 7. Receiver: Receiver 1
Default Offset 1600 1/2 SDC RXWindow Captior SDC R1
RX Window Color Settings
Mult Usual Dupe My Special Calls
Font v 14 v

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# SDC

In SDC-Digi Server, open two modem and set them up.



Press the "Start" button in the SDC-DIGI Server. Two windows with waterfalls will appear, place them on the screen. For instance:



Create a profile in SDC-DIGI Server, save the sets.

<u>(</u>	SDC (Sof	tware Define	d Cor	nectors	5 v 14	4.01x6	54) [C:/U	sers/Yu
Telne	t Server	SKM Server	DIGI	Server	PA	TCI	Setup	
Style:	Night St	yle			9	Set For	nt	
	Se	et no-kill wind	ow 🗹					
	Move to	SysTray on St	art 🗹					
	Use	ProFile Manag	ger 🗌					
		Use COM Spic						
		Use Rig Sy						
	ι	Jse Telnet Sen						
		Use SKM Sen						
		Use DIGI Sen	ver 🗹	Auto	Start	DIGI	Server	
	Use Audi	io Channel Cli	ent 🗔	🗌 Auto	Conr	nect Ai	udio Chai	nels
	Us	e Remote Ser	ver 🗌	🗌 Auto	Start	Remo	ote Servei	r
		Use Audio Mix	xer 🗌	🗌 Auto	Start	Mixer		
	l	Use Audio Sco	pe 🗌	🗌 Auto	Start	Audio	Scope	
		Use PA Cont	rol 🗹	🗹 Auto	Start	PA Co	ontrol	
		Use SWR Me	ter 🗌					
		Use T	CI 🗹					

Waterfall windows will automatically appear on the screen if the Digi modulation type is set to the TCP modem servers connected the log program.

If the windows have not appeared, open the SDC-DIGI Server, you will see the reason:

SDC (Software Defined Connectors v 14.01x64) [C:/Users/Yuri/LwSoft/comspider.ini] Sav SKM Server DIGI Server PA TCI Setup Telnet Server - × 🗹 Start + Profile: 4k.pdigi 🖌 Modem 1 Modem 2 ۵ ø Stop Wait DIGI Mode... Stop Wait DIGI Mode... AFC 1640 🕂 RES 🚺 NET 🛛 RTTY45 🔻 AFC 1560 - RES NET RTTY45 -TΧ TΧ -200 -100 100 -200 -100 0 100 Ó 200 200

#### <u>Video</u>

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#### SSB

For SSB operation, SDC provides for the transfer of sound files via TCI. This does not require any audio connections. SDC-Macro gets the name of the file and transforms it into the IQ stream and transfers it to the transceiver via the TCI interface. To work in two-receiver mode in SDC-Macro, create two Macro panels with the following settings:

SDC

SDC (Software Defined Connectors v 15.19x64) *	[C:/Users/ut4lw/LwSoft/comspider.ini] —	
ProFile Mgr COM Spider Telnet Server SKM Server [	IGI Macro RMT Server TCI Setup	Save \star 🔌
Start 🕂 📼	Profile: 💋 5M.pmacro 🔻 😫 🖬 Enter Name	
✓ Macro 1         Start       Stop         TCI Client       ✓         TCI Client 1          Receiver:       Receiver 1         External Window       Stays On Top       Min/Close but         Hook key F1-F12       +Ctrl       +Shift         TX Delay in Terminal mode       1000 ÷	✓ Macro 2         Start       Stop         TCI Client       ✓ TCI Client 1         Receiver:       Receiver 1         Image: Constraint of the start of	
□ Use In CW         □ Use In DIGI          Modem 1          ☑ Use In SSB         Audio Level:         ☑ Use TCP Server         Port:          40300         ✓         ✓         ✓	□ Use In CW         □ Use In DIGI       Modem 1         □ Use In SSB         □ Use TCP Server         Port:       40301	

Do not forget to note that SDC-MARCO will be used in SSB modulation.

#### 5MConest:

Настройки 5MContest									
SDC DIGI Server	CAT Interface	QTC	Cluster settings						
Общие 📰 Установки	CW 😤 RTTY/PSK Settings 📫	SSB/AM/FM settings	🗰 MMTTY 📑 MMVARI						
Use ESM Mode in contest									
CQ CQ-ESM-Phone SP SP-ESM-Phone									
Enable CQ-ESM-Phone CQ F1 V	Report TU B4	AGN							
Work #DUPE#	🔽 Clear Call								
Move cursor in NUM after report	Set RIT_0 after TU								
Repeat ~[Call] in TU macros if ca	allsign change								
Tune step, Hz 200	OutPut sound device								
BandMap reaction (+/-) Hz	R1         Переназначение звуковых устр.           R2         Переназначение звуковых устр.	<u>•</u>							
✓ Auto Local Spot by SPACE	SDC Macro server           R1         Addr         127.0.0.1         Port         403           R2         Addr         127.0.0.1         Port         403           PAUSE         300         1         ms								

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# Example of using the program with LogHX

The LogHX program, like the 5MContest program, can process received spots and respond with lines indicating the status of callsigns. The procedure for the transfer of the spot looks like this:

SDC skimmers will catch callsigns and send them for review in LogHX.

LogHX will respond to the telnet server of the SDC with indication of what this callsign is (new, new country, repeat)

SDC Telnet Server will transmit the callsign itself to the panorama of the transceiver.

Thus, only those callsigns that are decoded by skimmers, but which have been tested in LogHX, will be displayed on the panorama.

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### Settings in the LogHX program

In the Cluster - Localhost window, the settings are as follows: Specify the address and port of the SDC-Telnet Server

l	Cluster (filter (	on)		×
I	Споты Телнет	Телнет 2 Localhost	t Избранные споты Предупреждения Annour	•
	Try connect to [ Connected to Lo Welcome to SD Please enter you DX de LW1-#: DX de LW1-#: DX de LW1-#: DX de LW1-#: DX de LW1-#: DX de LW1-#: DX de LW1-#:	127.0.0.1] ocalhost C Telnet Server ur callsign: Server > 3525.05 YT1T 3540.50 HA8LTQ 3523.35 DL5YL 3526.35 G3PJT 3502.00 ER3MM 3540.45 HA8LTQ	Spot from       ×         Localhost address       Port number         127.0.0.1       7373         1F0CW       Log in promt         3-00W       Please enter your callsign:         1F0CW       Replay         1F0CW       UT 4LW         SDCSkimmer	
	DX de LW1-#: DX de LW1-#:	3502.00 ER3MM 3540.45 HA8LTQ	39FDC\Spot suffix (Max 3 letter) 3-00W	I
1			OK Cancel	势

If you want only spots from the SDC skimmers to be displayed on the transceiver's panorama, then in the LogHX-TCI setting, disconnect the callsign to the panorama directly from the log:

👯 Установки Радио CAT interface Use radio CW/PTT for OmniRig interface only Radio 1 ОНет 🔿 Radio 2 RadioPort CW/PTT port type: HXCat interface OmniRig interface TCI Setup TCI Address: localhost Port: 40001 \$ Show Spots on Waterwall Установки Spot colors Set Radio names CatHX1 CatHX Ra New country Not cfm band PTT line Not need CatHX Ra New band CatHX2 RTS  $\sim$ OmniRig1 OmniRig F ΟK Cancel OmniRig2 OmniRig Radio2 Time interval between 0 \$ Auto COM-ports list commands TCI TCI 0K Отменить @jelearcaneftiik

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# **Settings in SDC**

In the SDC - TelnetServer, the types of callsigns are marked, which are sent to the panorama of the transceiver and their color is indicated:

ら SDC (Softw	are Defined Co	onnectors	v 10.70x	32) [C:/Us	ers/Yuri/Lv	vSoft/comsp	oider.ini]					×
Telnet Server	SKM Server	TCI	Setup								Save	
Telnet Server [0]				-> Panora		da Calar	<b>(</b> )		onal Wind			
Stop			New Bnd 🗹 NewBnd Color			✓ �》 ✓ �》 ✓ �》	Use BandMap for RX1					
Port: 7373 🜲		Log	N1M	1		12062 🗘 💰	P Log				. ,	
Default Prof Special Prof	île: île For 5MContes		rci+hrd.f Tci+rbn.									
Start Spotters 🖉 🕂 💻 Callsign: UT4LW												
Spotter A												
Connect 🔩										✓ t	o Srv	to Pan
Host: spider.ha	am-radio-deluxe.	com							: 8000			-
Send:												Log

Check the LogHX connection to the SDC-Telnet Server. In the "Telnet Server" section the logo of the LogHX program should appear.

SDC
When LogHX is connected to the SDC-Telnet Server, the profile specified in the "Profile" will be selected.

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## Example of using the program with N1MM

SDC program operates a mediator between the SDR and the program N1MM.

Scheme of work



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## CAT+PTT+CW

CAT control, PTT, CW prepare for the two types of work: SO2V and SO2R.

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#### **Virtual COM ports**

To connect the CAT software systems need to create a minimum of four pairs of virtual COM ports. It is recommended to use com0com program:

https://code.google.com/archive/p/powersdr-iq/downloads

Create a pair: COM3-COM4, COM5-COM6, COM7-COM8, COM9-COM10.



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#### Settings in the N1MM

In the "Configurer" set the type of work "SO2R" and specify the following COM Ports:

SDC

	7028,19	OCW ExpertSDR Rad	lio 1		- 🗆	×
	File Ed	it View Tools	Config	Window Help		
	CW     PH       160     160       80     80       40     40       20     20       15     15       10     10	F1 CQ F7 Spare Esc: Stop Hdg 15° LP Call histor has been optimized	Chang Use Lo Mana Control Spot A Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Contr	gure Ports, Mode Control, Winkey, ge Your Station Data ogger+ Audio ge translations Sends Message (ESM mode) All S&P QSO's og Wipes the Call & Spots QSO in B Focus From Other Apps When Radio of Automatically Switch to Run on Non-Workable Spots and Dupes in RX Freq to TX when QSO is Logged	Ctrl+M andmap (S&P) io is Tuned CQ Frequency n Bandmap	
👷 Configurer	_		•	_		×
Hardware Function Keys	Digital Mode	s Other Winkey	Mode Control	Antennas Score Reporting Broad	dcast Data Audio WSJ	•••
Port Radii COM6 ~ Expe COM4 ~ None	o rtSDR ~ rtSDR ~	Digi CW/Other	Details Set Set Set Set Set Set Set Set Set		SO2V SO2R RTS=Always Off,Tx=1	
	ОК	Cancel		Help		

Press "Set" button and configure ports.

COM6, CAT system for the 1st Radio:

Kan Config	Jurer												×
Hardware	Functio	n Keys	Digital Mo	odes C	ther	Winkey	Mode Control	Antennas	Score Rep	orting	Broadcast (	Data Audio	wsj 💶
Port		Radio		Digi		V/Other	Details	Com6					
COM6	~	Expert	SDR	~		-	Set	Speed		Parity		DataBits	Stop Bits
COM4	~	None		<u> </u>		_	Set	38400	~	N	~	8 、	2 ~
COM8	~	Expert	SDR				Set	DTR (	pin 4) ∕sOff ∨	RTS (p	pin 7) ∕sOff ∨		Radio Nr
COM10 None	~	None			. –	_	Set	Aiwa	son v	Aiway			Left Window
None	~	None				-	Set			[			re & Software PT and SSB Mode
None	~	None				]	Set		ow ext inter	[ rupts [	=		and CW Mode and Digital Mode
None	~	None				]	Set				otSwitch (pir		and bight mode
LPT1						]	Set			No		~	
LPT2						]	Set	Radio	Polling Rate				
LPT3						]	Set	Norma	il ~				
									ted Expert S N, 8, 1, DTR=			Always Off	or CW or PTT
								Hel	p			0	K Cancel
			ОК		С	ancel	]		Help				

COM4, PTT and CW control for the 1st Radio:

rdware	Functio	on Keys Digital	Modes	Other	Winkey	Mode Control	Antennas	Score Repo	orting E	Iroadcast Dat	ta Audio	WSJ 1
Port		Radio		Digi C	W/Other	Details		○ S01	v (	) so2v	S02F	Ł
COM6	~	ExpertSDR	$\sim$			Set	Com4					
COM4	~	None	$\sim$		2	Set						
COM8	~	ExpertSDR	$\sim$			Set						
COM10	~	None	~		2	Set	DTR (pin 4)	·	'S (pin 7)		F	Radio Nr
None	~	None	$\sim$			Set	CW	✓ PT	т	~	1	∼ eft Windo.
None	~	None	$\sim$			Set	PTT Delay 30	(msec)				Left Windu
None	~	None	~			Set	30					
None	~	None	~			Set	Allow e		S			
LPT1				C		Set	Two Radio		FootSw	itch (pin 6)		
LPT2				C		Set	None	~	Normal	~		
LPT3						Set						
							Help				ОК	Cance

COM8, CAT system for the 2nd Radio:

Config	urer														×
Hardware	Functio	on Keys	Digital Mod	es Ot	ther Winkey	Mode Contr	ol	Antennas	Score	Reporting	Broado	ast Data	Audio	WSJ	
Port		Radio		Digi	CW/Other	Details			0	S01V	⊖ so	02V	SO2	R	
COM6	$\sim$	Expert	SDR 🗸			Set	С	om8							×
COM4	$\sim$	None	~			Set		Speed		Parity		DataBit	s :	Stop Bits	s
COM8	~	Expert	SDR 🔍			Set		38400	~	N	~	8	~ :	2	~
COM10	~	None	~			Set		DTR (pin 4)	)	RTS (pin )	7)	Г		Radio	Nr
None	~	None	~			Set		Always Of	ff ~	Always 0	·		:	2	~
None	~	None	~			Set	Ľ				Enable E	Both Hard	iware &	Right W Softwa	lindow re PTT
None	~	None	~			Set	L					Radio Co			
None	~	None				Set	lı	Allowe	ext inter	. 😐		Radio Co Radio Co			
LPT1						Set	Ľ	_		_			initiana i	Jigitai ili	000
LPT2						Set	L			FootS	witch (pi				
LPT3						Set	L,	Dadia Dallia	- 0-4-	None		~			
						Jei	1.0	Radio Pollin Normal	g kate						
										DR Settings =Always O		Always	Off or C	N or PT	т
							L								
							L								
							H								
								Help				[	ОК	Car	ncel
			ок		Cancel		-		Help						1
			UK		Cancer				noip						

COM10, PTT and CW control for the 2nd Radio:

ł	🖞 Config	urer													×
ŀ	lardware	Functio	n Keys	Digital Mod	les (	Other	Winkey	Mode Contro	ol	Antennas	Score Report	ting	Broadcast Data	Audio	WSJ
	Port COM6 COM4 COM8 COM10 None None None LPT1 LPT2 LPT3		Radio Expert None None None None	SDR			V/Other ] ] ] ] ]	Details Set Set Set Set Set Set Set Set Set		Com10 DTR (pin 4 CW PTT Delay 30 Allow WinKe	4) RTS PTT (msec) ext interrupts ey o Protocol F	6 (pin 7		(	Radio Nr 2 Right Window
				ОК		C	ancel	]			Help				

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# Settings in ExpertSDR2

CAT for the 1st Radio:

Options	—		×
Device Sound card VAC Display CAT Panel Features ExpertSync CW Skimmer Shortcuts IQ Recorder TCI Spot settings			
Protocol: ECATV1 -			
RX 1 RX 2			
Enable CAT     Enable PTT     View log			
Port name: COM5   Port name: COM13			
Parity: None 🔹 DTR 🗹			
Data: 8 🔹 RTS 🗌			
Stop bit: 1 Enable Footswitch			
Baud rate: 38400   Port name: COM13			
PTT line: None   DTR			
Key line: None 💌 RTS 🗹			
Enable SubRX control (FR command)			
Antenna switch control			
Global volume control			
Global Default Ap	ply	ОК	
CAT for the 2nd Radio:			

CAT	IOL	the	zna	Radio:	
0.0					

(9) Options			– 🗆 X
📇 🜒 😅 🖳 🖷 🕞 🖳 🗍		88 🔊 🚱	
Device Sound card VAC Display CAT Panel Features ExpertSync	CW Skimmer Shortcuts	IQ Recorder TCI Spot setti	ngs
Protocol: ECATv1 💌			
RX 1 RX 2			
Enable CAT     Enable PTT	View log		
Port name: COM7   Port name: COM3			
Parity: None   DTR			
Data: 8 🔷 RTS 🗹			
Stop bit: 1 Enable Footswitch			
Baud rate: 38400    Port name: COM5			
PTT line: None DTR			
Key line: None 🔷 RTS 🗌			
Enable SubRX control (FR command)			
Global volume control			
		Global Default	Apply OK

PTT and CW control:

Options		- 🗆 ×
	CAT       Panel       Features       ExpertSync       CW Skimmer       Shortcuts       IQ Recorder       TCI       Spot settings         VOX       DSP       TX       CW       Ext Ctrl       Expert         Port name:       COM3       Enable Additional Key       Port name:       COM3       Port name:       CoM3	
	Global Default Apply	и ОК

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## **Connecting SDC to ExpertSDR2**

The procedure for connecting SDC to ExpertSDR2 described in the TCI section.

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## **Connecting N1MM to SDC-Telnet Server**

The SDC-Telnet Server program has an aggregator that will allow you to collect spots from several sources and transfer them to the N1MM program

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#### **Settings in SDC**



7373

"Start".

SDC-Teinet Server

SDC (Software Defined Connectors v 12	.2117x64) [C:/Users/Yuri/LwSoft/comspider.ini]	– 🗆 X
Telnet Server SKM Server TCI Setup		Save 📩 🚺
Telnet Server [0]	Spots -> Panorama     Default and Bypass Mode Color	Additional Windows and Programs
Stop	Mult     NewCty Color       New Bnd     NewBnd Color	Use ActiSpot Use BandMap for RX1 Use BandMap for RX2
Port: 7373	Not Cfm NotCfm Color	3 📫 Spot lifeTime (minute)

#### Settings in N1MM

From the N1MM Window menu, click Telnet. The "Telnet" settings window will appear. In the "Cluster" tab, click the "Edit List" button. In the free line, enter the name "SDC", and in the "URL" column - 127.0.0.1:7373, and click "OK".

Telnet			_	
Type:		Reco	nnect	<b>•</b>
LW Clusters Bands/Modes Filters Spot Comment BandPlans				
Select from live Cluster List on website		Options Logon with		
	only	UT4LW		
Enable live Cluster List access and opt-in to data collection				
- or -		Automatically Log	on	
Select from stored Cluster List on local disk		Format for DXSpic	der Cluster	
		Show Telnet Butto	ons	
LY2Z0-10 V Ed	t List			
- then -		3 🖨 Cluster Keep	Alive Interval (minutes)	
- Selected Cluster	🔛 Edit Telnet List			×
	File			
Connect to LY2ZO-10	Cluster Nam	e URL		<b>•</b>
	WU3V	WU3V	V.DYNIP.COM	
	XE2AU	XE2A	U.ORG	
	YV5LIX	YV5L	IX.ORG.VE:9000	
	ZL2AQY-10	ZL2A	QY.ATH.CX:9000	
	GB7DXG	GB7D	XG.SHACKNET.NU:7301	
	RK6EWX	217.1	06.86.202:7300	
	RK2FWA	212.4	4.71.130:8000	
	EA7URG-5	80.36	.72.248:8001	
	n4zr	24.12	6.38.27:7300	
	localport	127.0	.0.1:7300	
	RBN	telnet	reversebeacon.net:7000	
	load test	24.23	6.135.46:7373	
	NC7J		ic7j.com:23	
	SDC	127.0	.0.1:7373	
	•			×
	To delete a row, click (The * row is not a re		nn and press the delete ke	/. Ok Cancel

In the drop-down menu, select "SDC" and click "Connect to SDC":

Telnet	- 0	×
Type:	Reconnect	<b></b>
SDC Clusters Bands/Modes Filters Spot Comment BandPlans		
Select from live Cluster List on website	Options Logon with UT4LW Automatically Logon Format for DXSpider Cluster Show Telnet Buttons Cluster Keep Alive Interval (minutes)	

The connection protocol will appear in the "SDC" tab, and the number [1] will appear in the "SDC-Telnet Server" window - this is the number of connected programs.

M1 Telnet						- [		1 8° LP		
Туре:				Reconnec	t		<u>•</u>	1 HISC		
SDC Clusters Bands/Modes Filters Spot Comment BandPlans										
Connecting to: 127.0.0.1:7373> 127.0.0.1:7373										
Welcome to	SDC Telne	t Server								
Please enter your callsign: (S) SDC (Software Defined Connectors v 12.2117x64) [C:/Users/Yuri/LwSo										
UT4LW				Telnet Server SKM Server TCI	Setup					
UT4LW de SI			~	Telnet Server [1]		Spots	-> Panorama			
DX de SKM1	-#: 4550	83.8 XX9X				► .	Default and I	Bypass Mode		
								NewCty		
				Stop				NewBnd		
	Not Cfm									
<								Dupe (		
BYE	CONN	DI/N		Port: 7373	Log 📃		127.0.0.1			
Clear NE	Yes DX	NE only		Default Profile:	SK-TCL	HPD atca				

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### Adding external clusters in the SDC-Telnet Server

If necessary, add external clusters to the aggregator:

写 SDC (Software Defined Connectors v 12.2117x64) [C:/Users/Yuri/LwSoft/comspider.ini] Save 📩 🔌 Telnet Server SKM Server TCI Setup Telnet Server [0] Spots -> Panorama Additional Windows and Programs Connect and Start SKM Server Default and Bypass Mode Color Use ActiSpot NewCty Color Use BandMap for RX1 Start Use BandMap for RX2 NotCfm Color 3 🚦 Spot lifeTime (minute) P Port: 7373 Log N1MM.ptcp **T** N1MM -9 Default Profile: Special Profile For 5MContest 3kTCI+RBN.ptcp Ŧ 1 Callsign: UT4LW Start Spotters Spotter A 🛃 Spotter B 👽 to Srv 👽 to Pan Color 💽 to Srv 💽 to Pan Color Connect 🔩 Connect 🔩 Host: TELNET.REVERSEBEACON.NET : 7000 Host: spider.ham-radio-deluxe.com : 8000 🗌 Log Send: 🗌 Log Send:

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#### **Connecting to the SDC SKM Server**

In the SDC Telnet Server setup window, check the "Connect and Start SKM Server" checkbox. When N1MM connects to SDC, Telnet Server will automatically connect to SKM-Server skimmers and start them.

SDC (Software Defined Connectors v 12	.2117x64) [C:/Users/Yuri/LwSoft/comspider.ini]	- 🗆 X
Telnet Server SKM Server TCI Setup		Save 🐋 🔪
Telnet Server [0]	Spots -> Panorama  Default and Bypass Mode Color	Additional Windows and Programs
Stop	Mult NewCty Color	Use BandMap for RX1
Port: 7373 Log	Not Cfm NotCfm Color Dupe Dupe Color N1MM 127.0.0.1 12165	3 📜 Spot lifeTime (minute)
Port: 7373 Log		

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### **Configuring SDC SKM-Server**

In the SDC-SKM Server tab open ("+" button) two skimmers and configure them. Save the settings to the "N1MM" profile.

SDC (Software Defined Connectors v 12.2117x64) [C:/Users/Yuri/LwSoft/comspider.ini] − □ ×								
Telnet Server SKM Server TC	CI Setup					Save 🔶		
Start SKM Server	Profile: N1	1M.pskm			<b>F 😫 🧭</b> N1MM			
	Only Test Station	ıs / Test Abbreviatio	ו:			ø	۲	
Skimmer 1 CW			Skimm	er 2 CW				
Start Stop	CW 🔽	*	]   🛄	Start Stop	CW	_		
		<u>14</u> 106	_   🖸		<u>-</u> <u>-14</u> 10	16		
Setup Skimmer 1		×		😒 Setup Skimmer 2			$\times$	
In External Window		Stays On Top		In External Window		Stays O	n Top	
Control type	TCI Only	▼		Control type	TCI Only		•	
TCI Client	()	TCI Client 1 🔻		TCI Client	0	TCI Client 1	1	
Receiver		Receiver 1		Receiver		Receiver 2		
Start Skimmer Only Mode of	f Transceiver 📃			Start Skimmer Only Mode	of Transceiver 📄			
Signal/Noise stations detect	t	3,00 🔒		Signal/Noise stations dete	ct	3,0	0 +	
Spotter Name:	SKM1-#			Spotter Name:	SKM2-#			
Offset for CW	spot frequency (Hz)	0		Offset for CW	spot frequency (Hz)	: 0	•	
TCP Server — — —				TCP Server				
Enabled	Lo=			Enabled				
Port: 7701	Fr=			Port: 7702	Fr=			
External Text Decoder Wind	dow:			External Text Decoder Wi	ndow:			
Enable Click Function	VEOA and VEOB			Enable Click Function	VEOA and VEOB			
Decode only VFOA				Decode only VFOA				
IQ - Band Plan control				IQ - Band Plan contro				
Sample Rate	🗹 Auto	48000 🔻	L.	Sample Rate	🗹 Auto	48000	<b>_</b>	
Spectrum via UDP	Speed:			Spectrum via UDP	Speed:			
Host/Port	127.0.0.1	13064 .		Host/Port	127.0.0.1	13064	•	
Name:	ExpertSDR			Name:	ExpertSDR			
Pile-Up Mode	kHz Up:	1 *		Pile-Up Mode	kHz Up:	1	•	

Turn on the transceiver in single receiver mode and press the SDC-SKM Server -> [Start SKM Server] button. Make sure skimmer 1 is working, Tune in a station, CW broadcast text should appear in the "A:" decoder code.



Take the decoder by the letter A or B and place it in a place convenient for you.

A: <b>EXX</b> $\rightarrow$ SR T $\rightarrow$ SR $\rightarrow$ R $\rightarrow$ R RORTROGER R0 $\rightarrow$ R $\rightarrow$ RORTROGER R0 $\rightarrow$ RORTROGER R0 $\rightarrow$ R $\rightarrow$ RORTROGER R0 $\rightarrow$ RORTROGE	S ROT RT -> B: MN/FBGADE 9 >> 5 >> 59 V >> 1 >> C	NOMALEX, LIRENSTISSINI FERNIQT HISLIED			цио ници 6/49(37) тст
BS ANT - RX ANT - PA 🕠 MEM Volume:	(I) Mon:	MON 🔻			8
ite VOX BreakIn 🕶 PROC 🕶 🕞 💁 😵					
<b>д</b>		RF:	Drive:	Tune:	Speed
3B LSB USB CW NFM DIGL	DIGU WFM DRM	160M 80M 40M	30M 20M	17M 15M	12M 10M 6
RX	HF A3 V LOCK		-102.7dBm	-120 -100	-80 -60 -4
тх	HF A3 SAVE	18.998 1	<b>S4</b>	S1 S3 S5	S7 S9 +20
▼ Step: 10 Hz ▼	R.EQ T.EQ BIN NR NB1	NB2 APF NF NF+ DSE			50 100 250 400 500
RX 1X 18 990.0 Hz 5: 14 019 990.0 Hz 5: 5: 5: 5:					

Details of decoder window setting. Details about the SKM Server settings.

Do not forget that after changing the settings, you must save them in your profile.

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### Transfer of spots to the ExpertSDR2 panorama

First, make sure that "Show Spots" is checked in the ExpertSDR2 settings:

Image: Sound card       VAC       Display       CAT       Panel       Features       ExpertSync       CW Skimmer       Shortcuts       IQ Recorder       TCI         Main       Spectrum       Waterfall       Grid       Filter       Background       Indicators         FFT size:       16384       Image: Teal of the second sec
FFT size: 16384  Render mode Averaging type: Linear
Averaging type: Linear
Averaging num: 12 Update period: 17 ms Fill color: Fill transparency: Save limits for each band Save zoom for each band Zoom center follows VFOA Show cursor info Show the difference between VFOA and VFO Auto hide cursor Show stations from Memory panel Show spots Automatic split disable Show broadcast HE bands
Dependence       Providence

## Settings in N1MM

Open the N1MM settings window, the "Broadcast Data" tab, check the "Spots" checkbox:

Hardware Function Keys Digital Modes Other Winkey Mode Control Antennas Score Reporting Broadcast Data Audio WSJ 4 + Select the type of data you wish to broadcast, and the the IPAddress(es) and port(s) for the receiver(s) of the data. Use 127.0.0.1 for the local machine. Use 12060 as the port unless the receiving application requires a different port. 255 in the low order octet will broadcast to your current subnet. IP Addr:Port IP Addr:Port...

Application Info	127.0.0.1:12060
Radio	127.0.0.1:12061
Contacts All Computers	127.0.0.1:12060
☑ Spots	127.0.0.1:12063 127.0.0.1:12065
Rotor	127.0.0.1:12040
Score Score	127.0.0.1:12060
External Callsign Lookup	127.0.0.1:12060
ок	Cancel Help
U. C.	

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#### **Settings in SDC**

K Configurer

Type of data

There are two ways of transmitting spots to the ExpertSDR2 panorama.

1 - Mode without processing in N1MM (bypass). With this method, spots from skimmers, external clusters (marked "to Pan") will be collected in the "Spots -> Panorama" system and sent to the transceiver panorama. In this case, the color of the spots will correspond to the specified color in the spotter (cluster) setting.

SDC (Software Defined Connectors v 12.2117x64) [C:/Users/Yuri/LwSoft/comspider.ini] Save 📩 🚺 Telnet Server SKM Server TCI Setup Telnet Server [1] 🗹 Spots -> Panorama Additional Windows and Programs Connect and Start SKM Server Default and Bypass Mode Color Mult VewCty Cold Use BandMap for RX1 Stop d, New Bnd 🗹 Use BandMap for RX2 Not Cfm 🔽 NotCfm Color **1**) Dupe 🗹 🛛 Dupe Color 3 🕴 Spot lifeTime (minute) 🕂 🗗 🗌 Log Log N MM 127.0.0.1 12065 Port: 7373 2 2 × Default Profile: Special Profile For 5MContest 3k\_DIGI\_3x3.ptg × M Stop Spotters 📑 Callsign: UT4LW Spotter A 🛃 Spotter B 2404 🛃 to Srv 🛃 to Pan Color 🗹 to Srv 🗹 to Pan Color Connect 🚿 Connect 🚿 81 Host: TELNET.REVERSEBEACON.NET : 8000 Host: spider.ham-radio-deluxe.com 🗌 Log 🗌 Log Send: Send: al UX Spotting ive • UT4LW de SK1MMR-3 07-Sep-2020 10:54Z > Uptime: 20d 11h 50m UT4LW de WA9PIE-2 7-Sep-2020 1054Z dxspider > 

2 - Mode with processing in N1MM. To do this, you need the address and port number in N1MM and check the box "N1MM". If the parameters are correct and there are no restrictions on data transfer from N1MM in the computer settings, then this mode will turn on. In this case, 4 blue triangles will appear near the "Mult ... Dupe" marks - this is the main sign that the mode is working. If no data is received from N1MM for 30 seconds, the "bypass" mode will automatically turn on.

In the second mode, the colors of the spots in the panorama will depend on the settings in the SDC, which you can change. Also, by setting the checkboxes "Mult" ... "Dupe", you specify what types of spots will be displayed in the panorama. In this case, all types of spots will be displayed.

SDC (Software Defined Connectors v 12.2117x64) [C:/Users/Yuri/LwSoft/comspider.ini] Save 📩 🚺 Telnet Server SKM Server TCI Setup Telnet Server [1] 🗹 Spots -> Panorama Additional Windows and Programs Connect and Start SKM Server Default and Bypass Mode Color Mult 🗹 NewCty Colo Use BandMap for RX1 Stop J. New Bnd 🗹 Use BandMap for RX2 Not Cfm 🔽 NotCfm Color Dupe 🗹 Dupe Color 3 🕴 Spot lifeTime (minute) Port: 7373 Log V1MM 🚽 🗌 Log 2 × Default Profile: × Special Profile For 5MContest 3k\_DIGI\_3x3.ptcp 1 Ψ. Stop Spotters 📑 Callsign: UT4LW + 🗹 Spotter A -🛃 Spotter B 2956 🛃 to Srv 🛃 to Pan Color 🗹 to Srv 🗹 to Pan Color Connect 🚿 Connect 🚿 106 Host: TELNET.REVERSEBEACON.NET Host: spider.ham-radio-deluxe.com 🗌 Log 🗌 Log Send: Send: ut the wa al UX Spotting Net ⊢ UT4LW de SK1MMR-3 07-Sep-2020 10:54Z > Uptime: 20d 11h 50m UT4LW de WA9PIE-2 7-Sep-2020 1054Z dxspider >

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## **Focus Helper**

The Focus Helper system is designed to automatically return the input focus to the N1MM window if it is lost. <u>See TCI for a detailed description</u>

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# Example of using SKM Server without a log programnull

SDC can be used simply to decode CW stations and display callsigns on the transceiver's panorama.

Settings in SDC:

SDC (Software Defined Connectors v 10.32	1) [C:/Users/Yuri/LwSoft/comspid	er.ini] — 🗆 🗙
SKM Server TCI Setup		Save 🔀 🔰
Style Fusion	Set Font	Russian Help file 💌
Set no-kill window 🗸		
Move to SysTray on Start or Minimized 🗸		
Use ProFile Manager		
Use COM Spider	Auto Start COM Spider	
Use Rig Sync	Auto Start RigSync	
Use Telnet Server	Auto Start Telnet Server	
Use SKM Server 🗸	✓ Auto Start SKM Server	
Use Audio Channel Client	Auto Connect Audio Channels	
Use Remote Server	Auto Start Remote Server	
Use Audio Mixer	Auto Start Mixer	
Use PA Control	Auto Start PA Control	
Use TCI 🗸		

SDC (Software Defined Connectors v 10.321) [C:/Users/Yuri/LwSoft/comspider.ini] - [	⊐ ×
SKM Server TCI Setup Sav	e 🔀 🚺
TCI Client 1	
Connect 💋 Work	
Name TCI Client 1	
Host Localhost Port 40001	
✓ Log	
split_enable:0,false; split_enable:1,false; rit_offset:0,0; rit_offset:1,0; xit_offset:0,20; xit_offset:1,0; audio_stop:0; audio_stop:1; iq_samplerate:96000; iq_start:0;	
Callback TCI-Connect mode. Port: 🍇 40000 🖨	
	jetSereenshiit

SDC (Soft	ware Defined	Connectors	v 10.73x64) [C:	/Users/Yuri/Lw	/Soft/coms —	
ProFile Mgr	Telnet Serve	SKM Se	rver PA	TCI Setup		Save 🙀 🔌
Start SKM	Server 🕇	• — Pro	ofile: 4k-2Skm_T	CI.pskm	- 🗙 🛃	
	With Ab	breviation Te	est Only:			۵ 🕸
Skimmer 1						
Start			Status:	Stop		
<b></b>			ら Setup Skin	nmer 1	×	
			In External	Window	Stays On Top	)82
			Control type	TCI Only		)81
			TCI Client	Ø	TCI Client 1 💌	
			Receiver		Receiver 1 🔹	)80
			Spotter Name:	LW1-#		)79
			TCP Server			
			Enabled	Stop When	n Disconnect	)78
			Port:	7701	-	)77
	)76					
	<ul> <li>Enable Click Function</li> <li>Separate windows for VFOA and VFOB</li> </ul>					
	)75					
			<ul><li>Decode on</li><li>✓ IQ - Band I</li></ul>			)74
-					-	
						jelSereenshiil

Settings in the ExpertSDR2 program:



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# **Startup SDC program (Windows)**

Press Windows + R buttons, in the window "Run", type "shell: startup" and click Ok:

о 🖾 Выполни	оо 7.010 <sup>-129.6 и</sup> 7.020 ть Х
0	Введите имя программы, папки, документа или ресурса Интернета, которые требуется открыть.
<u>О</u> ткрыть:	shell:startup $\checkmark$
	ОК Отмена Обзор
	肩 💽 🗿 ອ 💾 💽 🚺

The Startup folder will open. Copy the SDC shortcut into it.



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# **Program settings**

SDC (Software Defined Connectors v 12.	21b32x64) [C:/U	sers/Yuri/LwSoft,	omspider.ini]		– 🗆 X
ProFile Mgr Telnet Server SKM Server	PA SWR	TCI Setup			Save 🔀 💟
Style Fusion	-	Set Font	Russian Help file 🔻		
Set no-kill window		Section	Russian neip nie		
Move to SysTray on Start or Minimized					
			SDC Site	SDC Group	J
Use ProFile Manager	r 🗸		Registration	UT4LW	
Use COM Spide	r 📃 📃 Auto Sta	art COM Spider			
Use Rig Synd	: 📃 📃 Auto Sta	art RigSync			
Use Telnet Server	🗸 🗸 Auto Sta	art Telnet Server			
Use SKM Server	r 🗸 🗸 Auto Sta	art SKM Server			
Use Audio Channel Clien	t 📃 📃 Auto Co	nnect Audio Chan	els		
Use Remote Server	r 📃 📃 Auto Sta	art Remote Server			
Use Audio Mixe	r 📃 📃 Auto Sta	art Mixer			
Use Audio Scope	Auto Sta	art Audio Scope			
Use PA Contro	l 🗸 🗸 Auto Sta	art PA Control			
Use SWR Meter	<b>v</b>				
Use TC	<b>V</b>				

Style - the display style.

Set no-kill window - the program will not close when clicking on the X-close of the window. The program window will be minimized in the tray icon.

Move to SysTray on AutoStart or Minimized - when starting, do not open the program window, do not show the icon in the taskbar. To open the program window and close it, there will be an icon in the tray. The remaining settings relate to showing the interface of the corresponding subsystems of the SDC program and automatically launching them.

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**Style** 

Fusion style selection:

SDC (Soft	ware Defined Co	nnectors v 10.	73x64)	[C:/User	s/Yuri/Lw	Soft/coms	—		×
ProFile Mgr	Telnet Server	SKM Server	РА	TCI	Setup			Save	
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	Set	no-kill window	✓						
Move	e to SysTray on Sta	art or Minimized	$\checkmark$						
	Use	ProFile Manager	<b>v</b>				Regis	tration	T4LW
	l	Jse COM Spider		Auto Sta	nt COM Sp	oider			
		Use Rig Sync		Auto Sta	nt RigSynd	2			
	Us	e Telnet Server	<b>v v</b>	Auto Sta	rt Telnet S	Server			
		Use SKM Server	<b>v v</b>	Auto Sta	nt SKM Se	rver			
	Use Audio	Channel Client		Auto Co	nnect Aud	io Channels			
	Use	Remote Server		Auto Sta	irt Remote	Server			
	U	Jse Audio Mixer		Auto Sta	nt Mixer			G	0
		Use PA Control	JJ	Auto Sta	nt PA Con	trol		jelSeri	aanahiik

The choice of style "Night":

SDC (	Software Define	d Connector	s v 1	0.73x	:64) [C:/I	Jsers/Yuri/LwSoft/	coms			×	
ProFile Mg	r Telnet Server	SKM Server	PA	TCI	Setup				Save		
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ſ	love to SysTray o	n Start or Mini	imizeo								
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		Use Remote	Serve	r 🗆 🛙	Auto S	Start Remote Server					
		Use Audio	Mixe	r 🗆 🛙	Auto S	Start Mixer					
		Use PA C	Contro		🕗 Auto S	Start PA Control					
		U	se TC	[					jet <b>s</b> i	(9) creenst	Höt

Created with the Personal Edition of HelpNDoc: Create HTML Help, DOC, PDF and print manuals from 1 single source Registration of the program is not a prerequisite for its use.

After registration, you will have the following opportunities:

- You can use SKM Server together with SDR radios that do not support TCI interface.
- You can automatically receive new program updates in manual and automatic mode.

Support the project on the <u>SDC website</u> with any amount available to you. <u>In the payment note, be sure</u> to include your callsign and e-mail address to which you will receive the registration key!

SDC (So	🕞 SDC (Software Defined Connectors v 12.2117x64) [C:/Users/Yuri/LwSoft/comspider.ini] — 🛛								
Telnet Serve	r SKM Server	TCI	Setup		Save 🔀 🚺				
					Russian Help file 🔻				
Style: Fusi	on	•		Set Font	SDC Site SDC Group				
	Set no-kill windo	w 🗸			Pok Callsign: UT4LW				
Move to SysTray on Start 🗸 Key:									
	Created with the Personal Edition of HelpNDoc: Full-featured Help generator								

## **Program updates**

New versions of the program are available on the <u>SDC website</u> in the Downloads section.

If your program is registered, you can receive and install program updates without visiting the site:

SDC 🗐	C (Softw	are Defined Co	nnecto	rs v 12.211	7x64) [C:/Us	ers/Yuri/Lw	/Sof	t/comspider.ini]			×
Telnet S	Server	SKM Server	TCI	Setup					Sa	ve 🙀	• 🚺
							[		Russian Help	file 🔻	]
Style:	Fusion		-		Set Font			SDC Site SDC Group			
		Set no-kill windo	w 🗸								
	Move t	o SysTray on Sta	rt 🗸					Pregistration Callsign: UT4LW			_
	U	se ProFile Manage	er 🗌					✔ Check for new version at startup SDC			
		Use COM Spide	er 🗌 [	Auto Sta	art COM Spide	er		✔ Check Beta Version			
		Use Rig Syr	nc 🗌 [	Auto Sta	art RigSync			😡 Check New Version			
		Use Telnet Serve	er 🗸 🛛	✓ Auto Sta	art Telnet Ser	ver		Latest version installation log:			
		Use SKM Serve	er 🗸 🛛	✓ Auto Sta	art SKM Serve	er -		New version not found!			
	Use Au	udio Channel Clier	nt 🗌 [	Auto Co	nnect Audio (	Channels					
	ι	Jse Remote Serve	er 🗌 [	Auto Sta	art Remote Se	erver					
		Use Audio Mixe	er 🗌 (	Auto Sta	art Mixer						
		Use Audio Scop	e 🗌 [	Auto Sta	art Audio Scop	be					
		Use PA Contr	ol 🗌 🛛	✓ Auto Sta	art PA Contro	I					
		Use SWR Met	er 🗌								
		Use T(	<b>V</b> I								

Updates will be downloaded to the user's LwSoft / Download folder and before installation you will receive a request for this procedure.

An example of a manual update request. Beta version 12.2118 detected:

SDC (Software Defined Connectors v 12.2117x64) [C:/Users/Yuri/LwSoft/comspider.ini] − □ ×							
ProFile Mgr     Telnet Server     SKM Server     PA     TCI     Setup       Style:     Fusion       Set Font	Save 🔀 💟 Russian Help file 🔻						
Set no-kill window ✔ Move to SysTray on Start ✔	Pregistration Callsign: UT4LW						
Use ProFile Manager Use COM Spider Auto Start COM Spider Use Rig Sync Auto Start RigSync Use Telnet Server Use SKM Server Use SKM Server Use Audio Channel Client Auto Start SKM Server Use Audio Channel Client Auto Connect Audio Channels Use Remote Server Auto Start Remote Server Use Audio Mixer Auto Start Mixer Use Audio Scope Auto Start Audio Scope Use PA Control Use SWR Meter Use TCI Use TCI	<ul> <li>✓ Check for new version at startup SDC</li> <li>✓ Check Beta Version</li> <li>SDC_12.21*64_setup.exe</li> <li>Latest version installation log:</li> <li>Date: 15:35 07/09/2020</li> <li>Beta: 12.2118 (01/09/2020)</li> <li>Details:</li> <li>Change CW Skimmer, RIG Sync and other system SDC</li> </ul>						
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