



TRX Krzysztof Kryński

Digital recorders KSRC series

CTI integration  
TRX call recorders  
with KENWOOD NEXEDGE  
Radio Systems

Version 1.0 November 2013  
© Copyright TRX

TRX  
ul. Garibaldiego 4  
04-078 Warsaw  
POLAND  
Phone +48 22 871 33 33  
Fax +48 22 871 57 30  
[www.trx.com.pl](http://www.trx.com.pl)

**Index:**

<b><u>1:</u></b>	<b><u>DESCRIPTION.....</u></b>	<b><u>3</u></b>
1.1	KENWOOD NEXEDGE.....	3
1.2	TRX KSRC .....	3
1.3	DESCRIPTION OF THE INTEGRATION .....	3
<b><u>2:</u></b>	<b><u>HANDLING OF TRX KSRC CALL RECORDER.....</u></b>	<b><u>5</u></b>
2.1	VIRTUAL CHANNELS CONFIGURATION.....	5
2.2	CHANNELS MONITORING.....	6
2.3	PLAYBACK.....	7

# 1: Description

This document provides information about CTI (Computer Telephony Integration) integration TRX KSRC call recorders with Kenwood NEXEDGE radio systems.

## 1.1 Kenwood NEXEDGE

Kenwood NEXEDGE is advanced digital radio technology that supports both FM analog and new digital fleets. System type conversion or expansion only requires software options and/or additional base station units, i.e., no “major” upgrading.

## 1.2 TRX KSRC

KSRC series call recorders are professional stand-alone devices adapted for continuously (24 hours a day) operating. It has been designed for recording calls from a variety of phone lines, two-way radios and other devices.

By using CTI integration TRX recorders are able to exchange call related information with the systems being recorded.

The same TRX solutions can simultaneously record analog, ISDN, digital, and VoIP telephones conventionally.

## 1.3 Description of the integration

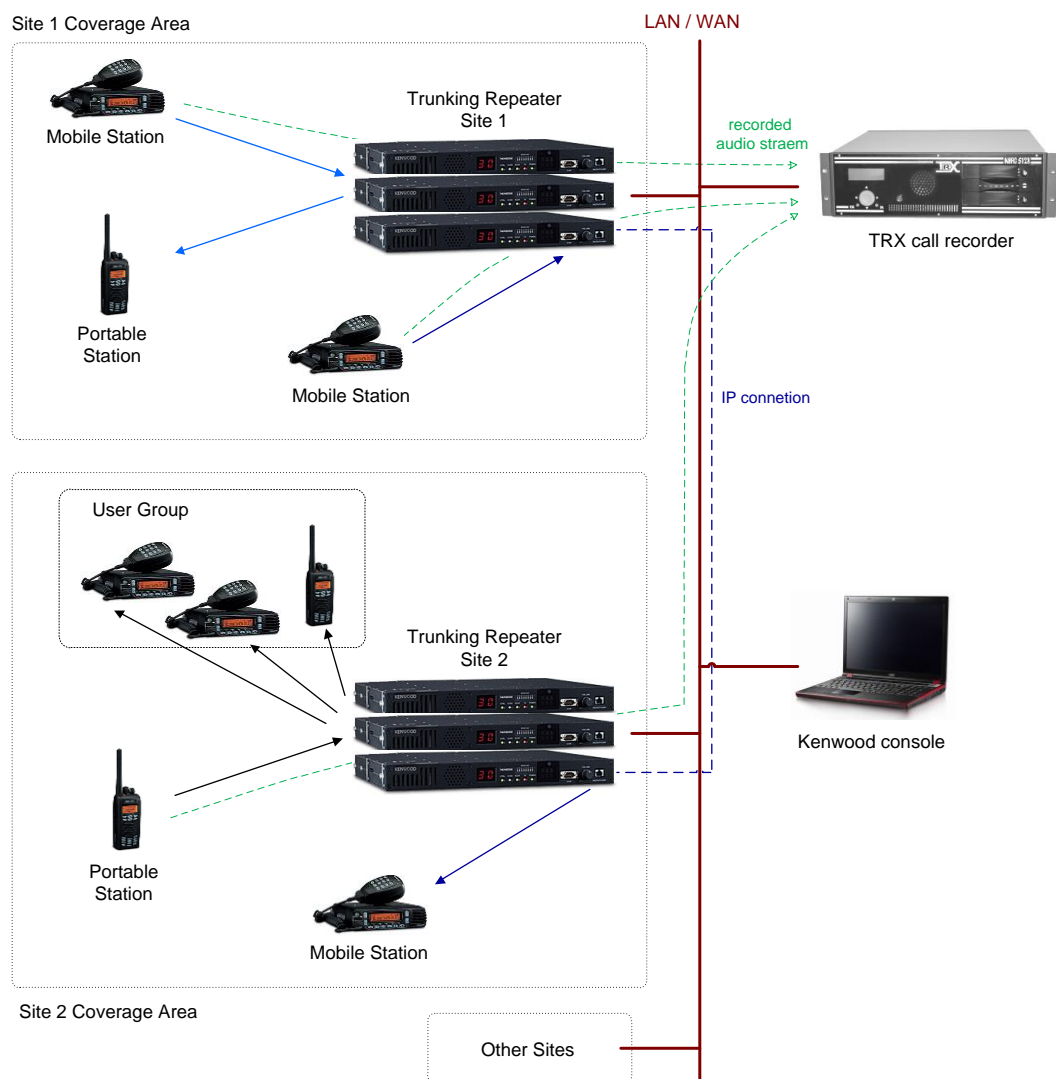
In case of recording two-way radios calls in traditional way, the audio stream (as analogue signal) is retrieved directly from recorded radiotelephones. The accessory connectors or accumulated (by means of summing interfaces) microphone and speaker signal are usually used for this purpose.

CTI integration TRX recorders with Kenwood NEXEDGE radio systems allows for recording audio as digital stream supplied by NXR-700/800 repeaters via IP network environment.

The solution with CTI integration has ability to record the following kind of connections:

- group and individual
- inner-site and inter-sites
- unencrypted and with scramble encryption

The call recording process is supervised by Kenwood NEXEDGE systems (NXR-700/800 repeaters). A set of rules stored in recorder configuration (virtual channels) definitively determines whether the call will be saved on hard disk or not.



Call recording features:

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>- audio capture method:</li> <li>- audio format supported:</li> <li>- metadata captured:</li> </ul> | <ul style="list-style-type: none"> <li>recording of IP-audio and metadata feeds from repeaters</li> <li>NXDN-standard AMBE+2 Vocoder</li> <li>Radio ID and Called ID or Group ID</li> </ul> |
|--|---|

## 2: Handling of TRX KSRC call recorder

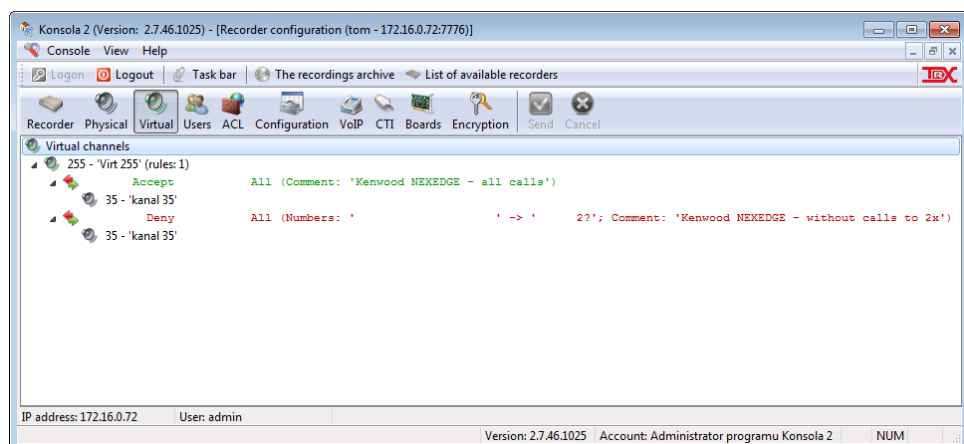
### 2.1 Virtual channels configuration

Virtual channels have been created to gain a better access control to the recorded calls. It allows the user to control access to the recordings on different levels (incoming/outgoing calls phone numbers, and so on).

Virtual channels are based on existing physical channels and the defined rules. Each recording rule for the specific virtual channel consists of a few parameters. The first parameter distinguishes, if the rule is call recording permission or a prohibition. Other recording parameters defining the rules are:

- number (or pattern for numbers) **Who** (the party initiating the call),
- number (or pattern for numbers) **Whom to** (party receiving a call),
- direction of the connection (*All*, *Incoming*, *Outgoing*),
- comment (description field, may contain information describing the rule).



**A radiotelephone call will be recorded if exists at least one permission rule, and doesn't exist any prohibition rule for this call. The deny rules have higher priority over the accept rules. This means that, if call meets any deny rule it will not be recorded, even if it meets a few accept rules.**

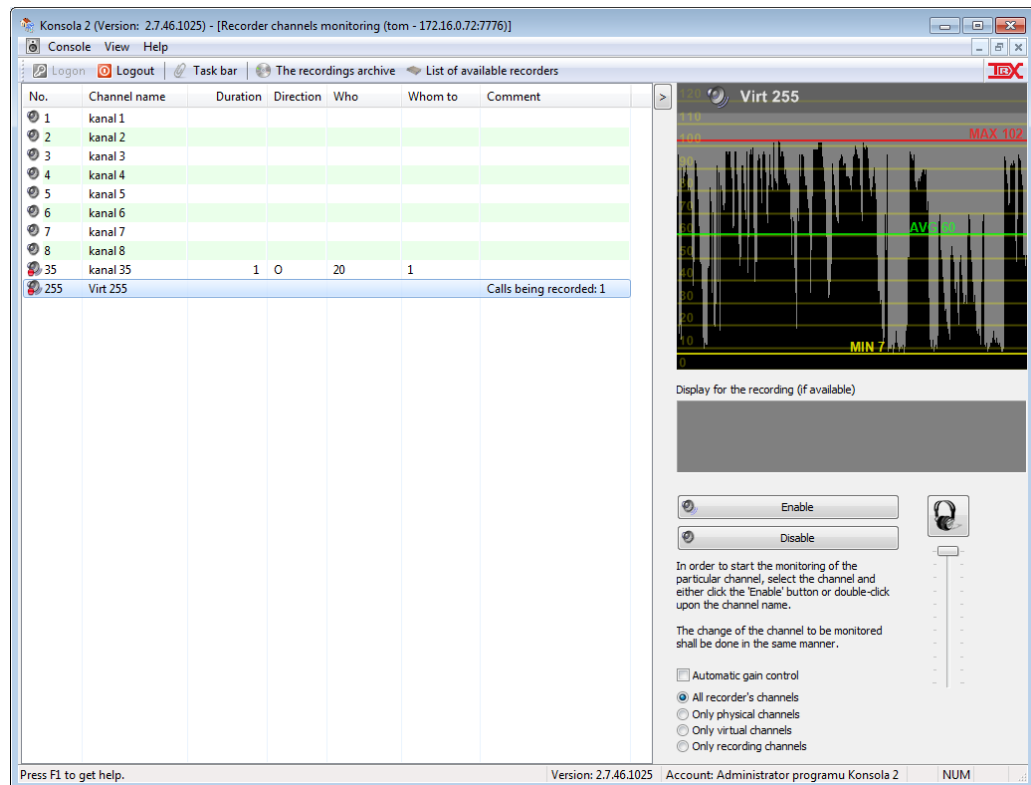


A detailed description of the virtual channels settings is included in the [User's Guide - Konsola 2](#) available at [www.trx.com.pl](http://www.trx.com.pl).

## 2.2 Channels monitoring

Recorder's channels status is presented right after the *Monitoring* module is launched. It can be read out directly from the channel list.

If there is a call being recorded on the particular channel, the icon representing the channel on the list will change its appearance. It will change from  to  (there will appear a red dot on the speaker symbol). Also, the duration of the recording appears on the list. The numbers that identify *Who* and *Whom to* is calling are presented too, if only recorder was able to obtain these data.



In order to enable monitoring a call on selected recorder's channel you should double click on the channel name or press the *Enable* button on the right side of the *Monitoring* module window. After a short time required for audio buffers to fulfill, the current conversation from the selected channel will be heard in the PC workstation sound system.

It is possible to simultaneously monitor the same or different channels of the recorder by several users logged on different workstations.

**All operations mentioned above are independent of the recording process on the recorder and do not affect its operation.**

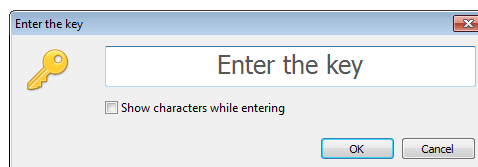
## 2.3 Playback

The *Playback* function provide browsing, filtering and playback of calls stored in TRX recorder's on your local PC workstation. The window furthermore allows for saving selected recordings either in common (*wav* or *mp3*) or TRX proprietary (*tra3*) archive format.

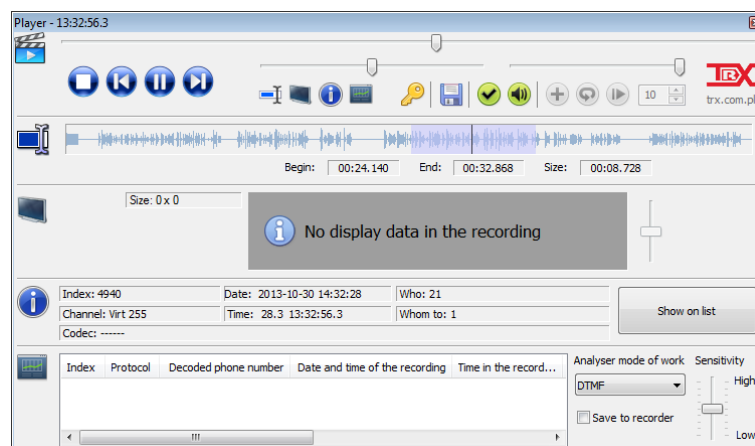
To play Kenwood NEXEDGE calls stored on TRX recorder's HDD you need USB dongle hardware key.

Index	Channel number	Date & time from	Time to	Length	Direction	Calling	Called	Key ID	Cipher Type	Comment
4 930	255	2013-10-28 11:55:30	11:55:45	15	O	20	1			
4 931	255	2013-10-28 11:59:24	11:59:33	9	O	20	1			
4 932	255	2013-10-28 11:59:39	11:59:40	1	O	20	1			
4 933	255	2013-10-28 11:59:55	12:00:03	8	O	20	1			unencrypted call
4 934	255	2013-10-28 16:04:48	16:04:53	5	O	21	1 01	00		call with scramble encryption
4 935	255	2013-10-28 16:04:58	16:05:04	6	O	21	1 01	00		
4 936	255	2013-10-28 16:05:30	16:05:33	3	O	21	1 01	00		
4 937	255	2013-10-30 14:29:17	14:29:18	1	O	21	1			
4 938	255	2013-10-30 14:31:11	14:31:36	25	O	21	1 01	01		
4 939	255	2013-10-30 14:31:48	14:32:13	25	O	21	1 01	00		
4 940	255	2013-10-30 14:32:28	14:33:16	48	O	21	1 01	00		
4 941	255	2013-10-30 14:51:57	14:52:05	8	O	20	1			
4 942	255	2013-10-30 14:52:21	14:52:29	8	O	20	1 01	00		32767
4 943	255	2013-10-30 14:52:34	14:52:45	11	O	21	1 01	00		32767
4 944	255	2013-10-30 14:54:15	14:54:21	6	O	20	21 01	00		32767
4 945	255	2013-10-31 11:19:42	11:19:58	16	O	1	20 01	00		32767
4 946	255	2013-10-31 14:39:43	14:39:55	12	O	1	20 01	00		32767
4 947	255	2013-10-31 14:47:32	14:47:35	3	O	20	1 01	00		
4 948	255	2013-10-31 14:48:36	14:48:40	4	O	1	20 01	00		32767
4 949	255	2013-10-31 14:49:50	14:49:51	1	O	20	1 01	00		
4 950	255	2013-10-31 14:50:37	14:50:39	2	O	21	20 01	00		
4 951	255	2013-10-31 14:51:06	14:51:12	6	O	1	20 01	00		32767
4 952	255	2013-10-31 14:51:18	14:51:24	6	O	1	20 01	00		32767

If you want to play calls with scramble encryption you should enter the cipher key additionally.



The separate *Player* window provides additional facilities during the playback.



For example is possible to playback or save to external file whole or a selected part of the recording.

The top slider indicates the part-listening position relating to the entire call duration, slider also enables playback the call from the marked point of time. The left bottom slider allows adjusting the speed of playback process (in the range -50% ... +50%). Position of this slider is remembered for all played recordings.

TRX  
ul. Garibaldiiego 4  
04-078 Warszawa  
POLAND  
tel. **+48 22 871 33 33**  
fax **+48 22 871 57 30**  
biuro@trx.com.pl



TRX Serwis  
ul. Międzyborska 48  
04-041 Warszawa  
POLAND  
tel. **+48 22 870 63 33**  
tel. **+48 22 871 33 34**  
serwis@trx.com.pl