RADCTRL:
A Computer Software Application to Remotely Change Channels of Radios

Version 2.2
January 23, 2009

Introduction

The Raytheon RADCTRL extends radio channel changing capability across an IP (Internet protocol) network. Traditionally, a user who wanted to change a radio's channel had to be located at the radio and change it manually. Clearly, a remote method that prevents an operator from having to go to a radio installation site (such as at the radio room of a remote tower site) would be beneficial in terms of time and convenience. RADCTRL was developed for situations such as these; it allows an operator to change the Channel or Zone of a remote radio using a PC linked to the radio site via an IP network. To be able to use RADCTRL, a network-capable communications device (an NXU-2A network extension unit or DSP-2 module in an ACU-1000 chassis – see NOTE below) must be used as the interface to the radio. The DSP or NXU-2A will provide the necessary RS-232 communication protocol to the radio in order to change channels or zones. Use of RADCTL does not affect the operation of the ACU-1000 in any way. See the System Block Diagram below as well as the Application Note (included in your Remote Channel Change Kit) for your specific radio.

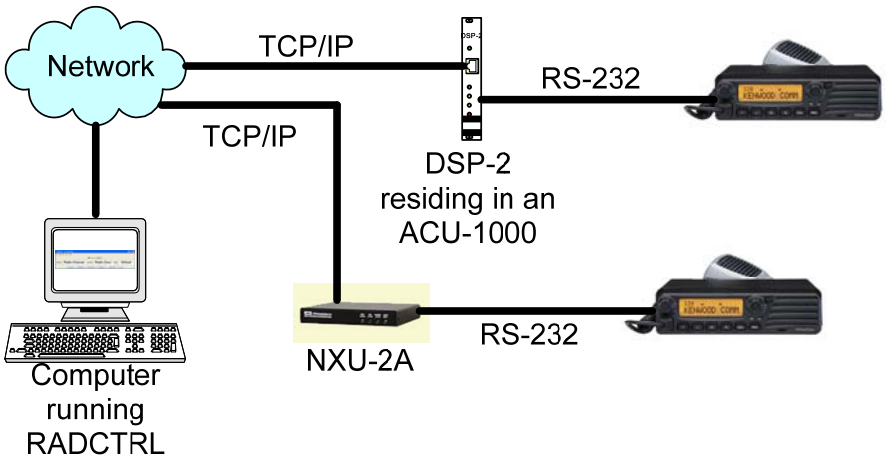

Figure 1 – System Block Diagram

NOTE: RADCTRL will only work with DSP-2's that reside in an ACU-1000 and NXU-2A devices. RADCTRL will not work with a DSP-2 that is in an ACU-T, nor will it work with the ACU-M, since neither of these devices have the capability to get the RS-232 signals into or out of the enclosures. In addition, RADCTRL is not compatible with the NXU-2.

Radios Supported

Currently, RADCTRL can be used with:

Radio		Application Note
Kenwood TK-5710/5810		5961-291317-APP
Kenwood TK-7150/8150		5961-291317-APP
Kenwood TK-7180/8180		5961-291317-APP
Kenwood TK-780		5961-291315-APP

Supporting Firmware

Interface Module	Version of Firmware
DSP-2	Version 3.01 or higher
NXU-2A	Version 1.02 or higher

RADCTRL connects to a DSP-2 or NXU-2A via IP. RADCTRL then presents commands (as directed by the program operator) to the DSP or NXU-2A device. The DSP or NXU-2A device then passes the RS-232 commands to the connected radio, which in turn causes the radio to execute the command. Commands available are:

- Channel up
- Channel down
- Zone (Group) up
- Zone (Group) down
- Read channel

Figure 2 shows the RADCTRL running under Windows. The RADCTRL has been tested on Windows and Linux, but should work on any platform that supports Java 1.4.2 or higher.

Figure 2 - RADCTRL

Using RADCTRL

Before the initial use of RADCTRL on any computer, you must create one or more radio profiles. A radio profile describes all the settings needed to connect and control a particular radio. To create a profile, click on the* Select Radio *menu and select* Manage Radios *to open the RADCTRL Profile Manager.

Figure 3 shows the Profile Manager dialog.

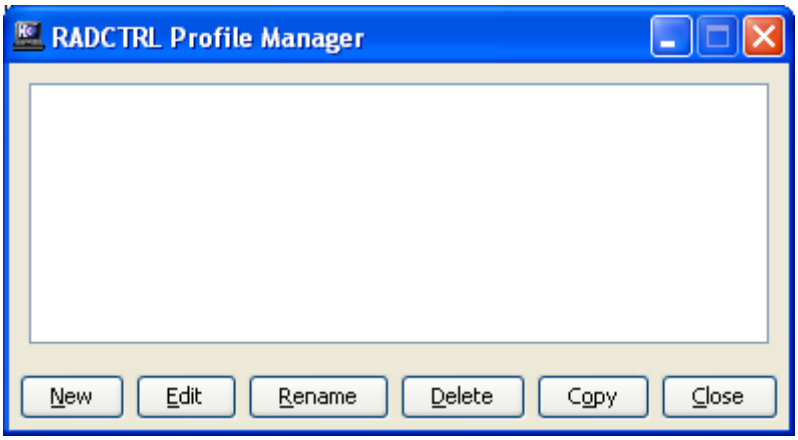

Figure 3 - RADCTRL Profile Manager

To create a new profile, click the *New* button. You will be prompted to enter the name that you want to give this profile. Once you have entered the name, press the *OK* button. You will then be presented with the Profile Properties dialog. Figure 4 shows the Profile Properties dialog for a radio profile called TK-7150.

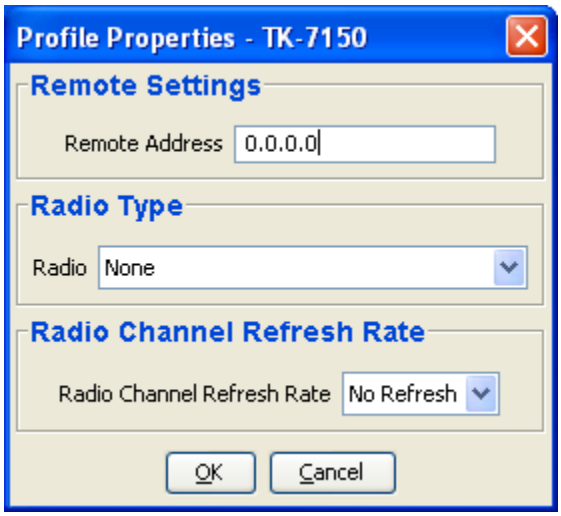

Figure 4 - Profile Properties

Enter the settings into the Profile Properties dialog for the DSP-2 (or NXU-2A) and the radio you wish to connect to. A description of each entry field follows:

Remote Settings – Enter the IP address for the remote DSP-2 or NXU-2A that is connected to the radio.

Radio Type – Use the drop-down box to select the radio that you are going to control.

Radio Channel Refresh Rate – Use the drop-down box to select the radio channel refresh rate. This will the cause *read the current channel command* to be continually sent to the radio at the selected refresh rate frequency. The purpose is to provide regular updates so that RADCTRL users will know if the radio channel has been manually changed.

Once the proper configuration has been set, click OK to save the radio profile. Using* Select Radio→Manage Radios*, you may also edit, rename, delete, and create copies of radio profiles.

Figure 5 shows the *Select Radio* menu option. From there, you can manage your radio profiles or select a radio profile for the radio you would like to control.

After the profiles are created, you can begin to use the program. Select the profile to use by clicking on the* Select Radio *menu, then select the desired radio profile from the menu (See

Figure 5.) This works similar to the "Bookmarks" or "Favorites" menus found in most web browsers. Once you have selected a profile, click the *Online* button to connect to the remote DSP-2 (or NXU-2A). The *Link Active* indicator should turn green, indicating a successful link with the DSP-2 (or NXU-2A). At this point you may utilize the buttons

available to change radio channels. Note: the *Online* button acts as a toggle- that is, if the link is currently inactive, clicking *Online* will attempt to create a link. If there is an active link, a click on *Online* will terminate the link.

To connect to a different radio, first click the *Online* button again to break the current connection. The *Link Active* indicator will change from green back to grey, indicating that the link has been disconnected. Now select the new radio to use from the *Select Radio* menu and click the *Online* button again.

Figure 5 – Select Radio / Manage Radios