RMK Problems

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Eric Hamilton

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[1]`$Header: d:/0rmk/RCS/RmkProbs.tex,v 1.1 2010-05-04 07:10:25-07 Hamilton Exp Hamilton $`
[4]`tocdepth = 4`

1 Problems with the effort to fix the RMK

At this point some of the hardware problems are understood well enough that methods of working around them exist. Although the hardware problems have not "gone away", at least we now know what to look for and can get the PC based RMK software to work.

The PC based RMK software has been fixed/improved in several areas. These areas are fixing some bugs, design over sites and opening the serial port correctly so that the port will work as expected. There are some additional areas that need improvement, but if we can "live with" the current state of the software, there is no immediate reason to fix/improve them.

1.1 Hardware Problems

The primary hardware problem is that the Spectra IV has a limited capability UART in it that services the RJ-45 port. The primary limitation of the RJ-45 port is that it does not work reliably with asynchronous data that has two stop bits per character. It does appear to work well with one stop bit per character.

The other hardware problem is getting a "working" USB/RS-232 adapter. Several different adapters, 12, have been tested and some have worked every time, others have never worked and still others work on one day and not the next.

1.2 Software Problems

1. In all versions of the RMK software there is a coding error in the PTZ logic (Figure 2, page 5) that generates partially invalid commands when movement is wanted in the upper left hand quadrant of the screen. This has been fixed for the PC version only.

2. Parity was always selected as "No" and the on screen selection was ignored. (Figure 1, page 4) This has been fixed.

3. The serial port was always opened with "2 stop bits". This was improved by opening it with "1 stop bit".

4. The error messages have been improveds by calling the MicroSoft error message decoder and displaying the MicroSoft error explanation. Some of the MicroSoft error descriptions are not clear, but they are better than before.

5. When communications is made in PTZ mode, if the communications are cut (the wire is unplugged) the software never detects this problem. This is in the original software and is still there.

   In working with the Arizona Department of Transportation, they use the PTZ mode of the Downloader to configure their Esprits. Their problem is that they run their Esprits with a non-Pelco head end that can not send preset 95 to access the menu system. Thus they only need the PTZ function.

6. When communications is made in Downloader mode, if the communications are cut (the wire is unplugged) the software puts out a small message saying "Done" and just sits there. This has not been fixed.

7. In the original software, when a COM port is opened, it was opened with a "CREATE_NEW" attribute. This resulted in a file being generated if the COM port requested did not exist. The opening attribute has been changed to "OPEN_EXISTING" which solved the problem. Now any COM port may be opened as long as its number is 9 or less. The software will not open COM ports 10 and above.

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[5]`$Header:  d:/0rmk/RCS/RmkProbs.inc,v 1.1 2010-05-04 07:10:21-07 Hamilton Exp Hamilton $`

8. The main display has an invalid baud rate of 28800 indicated. The invalid baud rate may not be selected, but it is still indicated as being there.

9. Auto-bauding for PTZ RS-422 port, always works with the Esprit, Spectra II, Spectra III and Mini Spectra.

   Auto-bauding does not work with the Spectra IV RS-422 port. However if the software is set to the baud rate that the Spectra IV is expecting to run at, then normal communications will be had.

   It should be noted that changing the baud rate is an integral part of doing a download through the RS-422 port. Having it also work for PTZ operation is a "nice" feature.

10. Auto-bauding for Download through the RJ port is not needed because the RJ port only works at 115200 baud, so that is automatically selected and can not be over ridden. Also 115200 is the default baud rate.

11. These default communications options are now automatically selected at start up.

    11.1 D Protocol

    11.2 Unit Address 1

    11.3 No Parity

    11.4 COM1

    11.5 115200 baud

12. When Auto-bauding, the baud rate being tested is now displayed on the screen. This is to let the user know that the software has not hung up, but that it is actually doing something useful. Displaying the current baud rate was done to make it be obvious.

13. The current Downloader screen is shown in Figure 1, page 4. Note some of the changes that were put in are visible in that the most likely to be use "radio button" options have been selected and the COM port has been set to 1. The address field has always been setup.

14. When looking at the image, note the shadow around the right hand side and the bottom have been "lost".
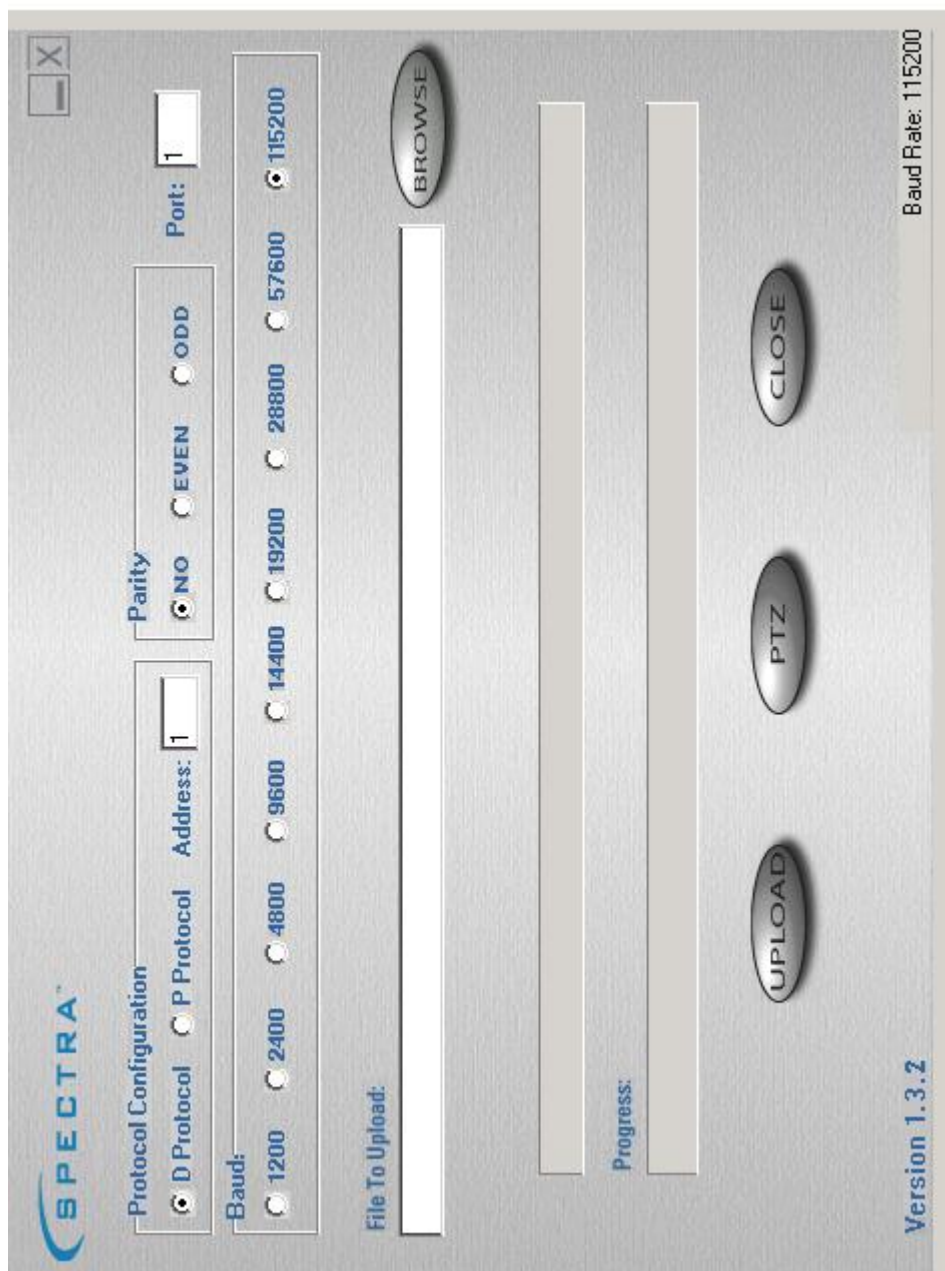
Figure 1: Main screen of the downloader for rev 1.3.2

Figure 2: PTZ screen of the downloader

A   USB/RS-232 Adapters Test Results

Adapters A → I were tested about four weeks ago. Last week I made an attempt to retest all adapters. The results are shown below.

There was an unexpected increase of the number of USB/RS-232 adapters that started to work. I think that this might be related to having power cycled the computer in the last few weeks.

Adapter	March Test Results	April Test Results
A	Did not work	Worked with no problems
B	Worked with no problems	Worked with no problems
C	PTZ OK, No Download	No PTZ, Starts Download and stops
D	Worked with no problems	Worked with no problems
E	Worked with no problems	Worked with no problems
F	Did not work	Could not access
G	Crashed the computer	Worked with no problems
H	Did not work	No PTZ, Starts Download and stops
I	Did not work	Could not access
J	—	Worked with no problems
K	—	No driver
L	—	No driver

Note

Could not access	The COM# was too high to access through the RMK software.
Crashed the computer	Computer died with a "blue screen of death".
Did not work	The RMK software could not get any results with this unit.
No Driver	Indicates that the install CD was missing and a driver could not be found to use with it.
No PTZ, Starts Download and stops	No PTZ functions, but when a download is attempted the Spectra IV goes into download mode and the RMK software hangs up.
PTZ OK, No Download	All PTZ options worked, but would not download the Spectra IV.
Worked with no problems	PTZ functions including auto-baud rate detection, parity choice and COM# selection worked.

B USB/RS-232 Adapters Tested

During this effort 12 USB/RS-232 adapters were used. All of the adapters, and all of the "stuff" that came with them, were marked with a letter from A → L.

Adapter	Description
A	A small USB/RS-232 converter with an install CD. Supplied by Steve Harris. The only model number is on the package and it is "ADL-USB-D9MS".
B	A similar to **A** USB/RS-232 converter with an install CD. This was found in Tess's old office. The only model number is on the package and it is "SBT-USC1M".
C	A Belkin USB/RS-232 converter with an install CD. It was found in Tess's office. The closest to a model number comes from the CD and it is "P73754-B F5U409-CU F5U109". The other model number might be "USB/Serial Portable Adapter".
D	A MicroInnovations USB/RS-232 converter, no CD or instructions. It was found in Tess's office. According to Steve Harris, it has the best reputation for being able to download with. No obvious model number is available. Steve Harris had borrowed it from another Pelco employee.
E	An unknown USB/RS-232 converter with no CD or instructions. It was fond in Tess's office. There is no indicated manufacturer or model number. Steve Harris had borrowed it from another Pelco employee.
F	An IO gear 2 port USB/RS-232 converter with an install CD. Eric brought this in from home. It is model number "GUC2322" and is made by "IO Gear". Craig Hannen used it with communicating to some hardware from Colorado. No other of our USB/RS-232 converters worked with the Colorado equipment.
G	A small USB/RS-232 converter with an install CD. Is very similar to **A**. Eric bought it some time ago from a "CompUSA" going out of business sale. Model number is "Item # 60466".
H	This is identical to item **C** above which Eric brought from home. It has an install CD. At one point Siva used it for working with Linux and Windows on his system. He said that none of the other units worked at all.
I	A small USB/RS-232 converter with an install CD. It is very similar to item **A** above. Eric brought it from home for this testing. It is made by "IO Gear", the same manufacturer as item **F**. It is model number "Model GUC232A".
J	Identical to unit A, above. This was found in the Dome Lab inside a filing cabinet during the week of 19 May and was not used in previous testing.
K	This unit was also found in the Dome Lab during the week of 19 May and was not used in previous testing. It was made by "USI, Ultimate Solutions, Inc, `WWW.ULTSOL.COM`" model #2105-2072.
L	This is identical to unit K above and found at the same time.

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