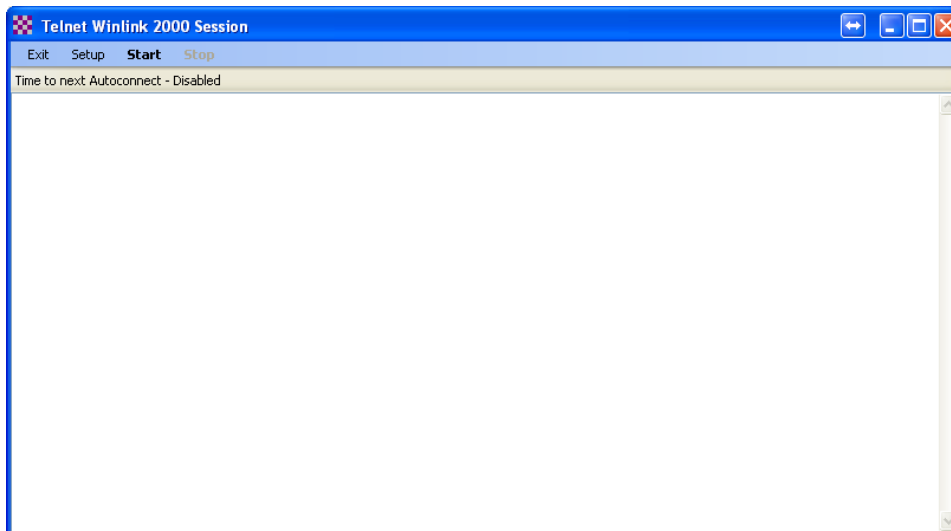
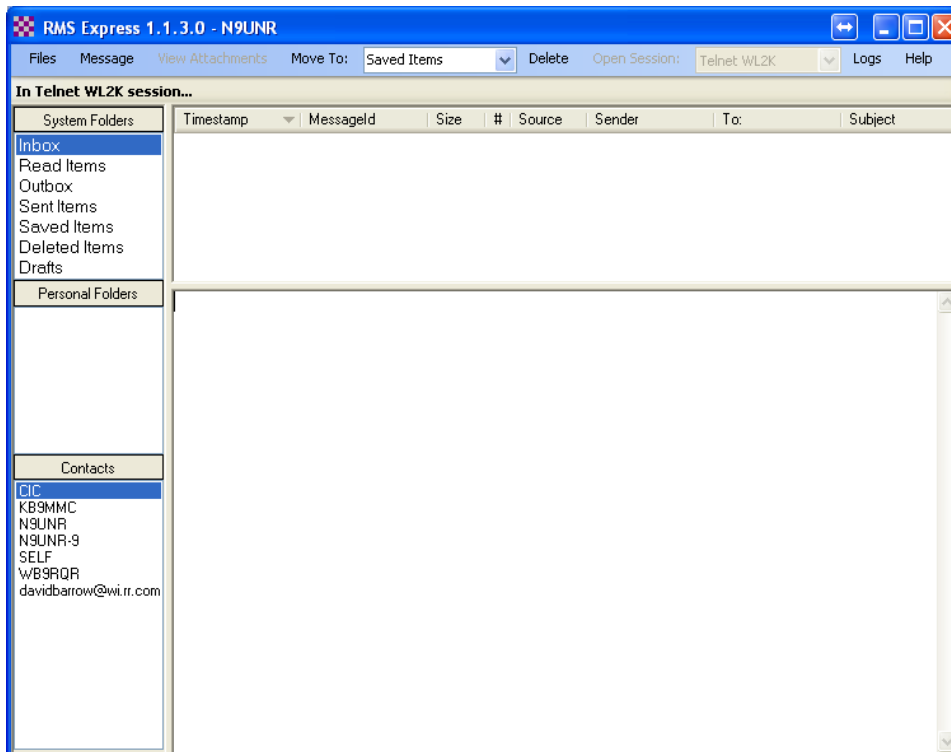


RMS EXPRESS TUTORIAL

An Introduction To Winlink2000's Program.



**By David W. Barrow III, N9UNR
(With suggestions and help from many other hams)**

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I. Introduction.

Winlink provides a great opportunity for amateur radio to contribute to emergency communications (EmComm). It allows the exchange of somewhat secure information without misunderstanding, with automatic logging. VHF Winlink should be available at every hospital, health department, shelter and emergency operations center (EOC). Each EOC should have HF Winlink capability for “When all else fails ...”

There are at least five ways to send email using amateur radio. Let's start with the easiest and least expensive. This tutorial will only cover setting up RMS Express to use telnet (direct to the internet). Because there are countless ways to connect the various computers to the various TNCs to the various radios this document does not attempt to cover any of them. Hopefully other hams will share their specific connection arrangements.

This tutorial is written this on the most basic level as there are some who need that. It is written with the premises that it is better to provide too much information than not enough.

II. RMS Express Overview.

RMS Express is a [Winlink 2000](#) (WL2K) radio email client. It is intended to be used in applications that need to support only a single user and call sign but it may also be used to access one or two preset tactical addresses or alternate call signs. RMS Express includes support for other methods including direct telnet to WL2K Common Message Servers (CMS).

A. Why Winlink?

It allows a ham to send email from any location within contact range of an RMS Hub.

B. Why email?

Because, in today's world, almost everybody seems to know how to write an email message. It allows the receiver to get the message EXACTLY as the sender intended. There is no mispronunciation, no misinterpretation, no mistakes that frequently happen with voice messages. (There's also that old adage, “If it ain't on paper – it never happened!”) You can send email to ANY valid email address, @xxx.com, @xxx.net, @xxx.gov, @co.ozaukee.wi.us.

C. Security?

It is relatively secure. The Federal Communications Commission (FCC) does not permit encryption on amateur radio frequencies. On the other hand, Winlink uses a compression technique that doesn't allow the frequency watcher to read the message – it looks like garbage. (The local Winlink guru has, for years, offered a substantial prize to anyone who could intercept and read a message – no one has claimed it.)

D. Why RMS Express?

III. Conventions Used.

In order to save some space “screen shots” have been edited to eliminate non-essential portions. The deletions are marked with an ellipsis (...). The screen shots for version 1.1.3.0 are essentially the same as version 1.1.2.0.

IV. Object of This Tutorial

The object of this document is to give you a “cookbook” to set up RMS Express for your email.

This tutorial will take you up to the point that you can send email over your internet connection. The reason that it stops there is that there are countless ways to get to the RF side and there is no way that it can cover all of them. There are many other versions of email over amateur radio but they are for other articles. Check the Winlink.org web site.

V. Inventory:

Let's start by doing an inventory of what we already have available.

- A. License.
You must have an amateur radio license of any class to complete this tutorial. If you intend to use HF frequencies you must have an appropriate license.
- B. Computer.
You need a computer (laptop, netbook or desktop):
 - 1. running any modern 32 or 64 bit Windows OS (Windows XP, Windows Vista, Windows 7 or Windows 2003 Server).
 - 2. Having built-in Wi-Fi is very helpful but not required.
- C. Internet access.
You will need Internet access to get the software and find some necessary information. If you don't have that available at home – park in a WI-FI hot spot to get what you need.
- D. Update Windows.
 - 1. RMS Express WILL NOT WORK unless your Windows software (and particularly the .NET Framework) is up to date!

VI. Get information:

Next let's do a little research.

- A. About Winlink.
First we need to find out a little more about what we are going to do. Go to <http://www.winlink.org/> and read the first page. On the right side of the page (at the time this was written) the third item was:
Just getting started?
How to get a Winlink RADIO e-mail account.
Left-click on that link.
- B. Get a Winlink Radio Account.
Read over the Getting Started page a couple of times to make sure that you understand what they are saying. Let's re-review together:
 - 1. The first section should be obvious and I assume that you already have an amateur radio license so let's go to the next section.
 - a. The first bullet is a broad brush overview of what we are going to go through in detail.
 - b. The next two bullets are about HF which are not addressed in this document.
 - c. The fourth bullet in this section is about a video. It is worth watching but we will cover – in great detail – the same territory.
 - d. The next bullet recommends an on-line course which they describe as “Winlink for the Digitally Challenged”. We all know that it is easier to edit than it is to originate and whoever wrote that course made, and continues to make, a Herculean effort. The goal of this tutorial is to get you into Winlink (specifically RMS Express) with as little “pain” as possible.

- e. This tutorial does not cover MARS operations.
 - f. Read the next section and remember where it is for future reference.
- C. Find Your Grid Square
1. You can find your grid square under the detail tab on QRZ.COM – but it is a lot more fun to use the web site
<http://f6fvy.free.fr/qthLocator/fullScreen.php>
 2. Here again you are going to have to manipulate the map to YOUR location.
 3. I ended up with:

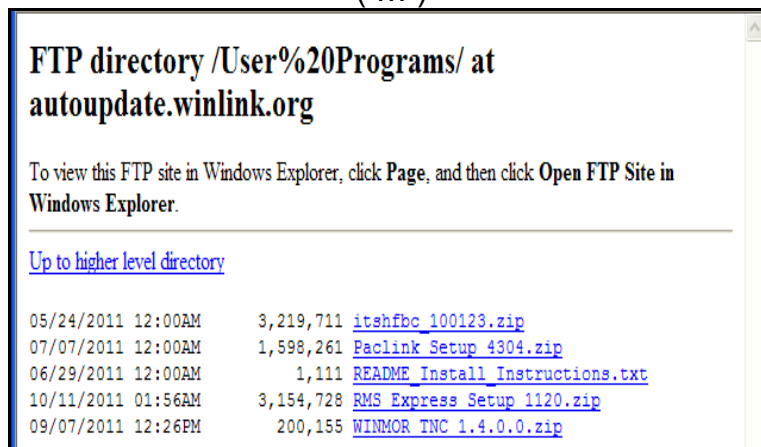


4. What we know as a grid square is shown here as QTH locator, in my case EN53XI.
5. Make a note of this data because you are going to need it to set up your RMS Express software..

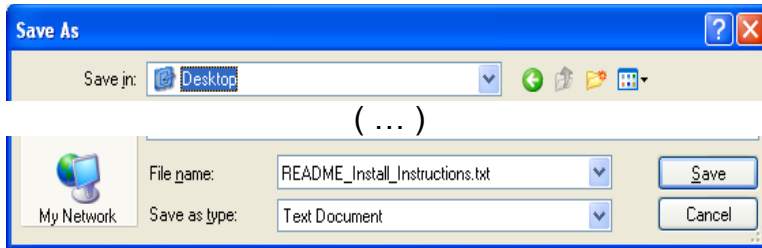
VII. Getting the RMS Express program

- A. Download Software
1. Go to <http://www.winlink.org/ClientSoftware>
 2. The last paragraph of the first section reads:
 “Please go to the [Winlink FTP site](#) to download the latest version (...)”
 3. Left-click on the link

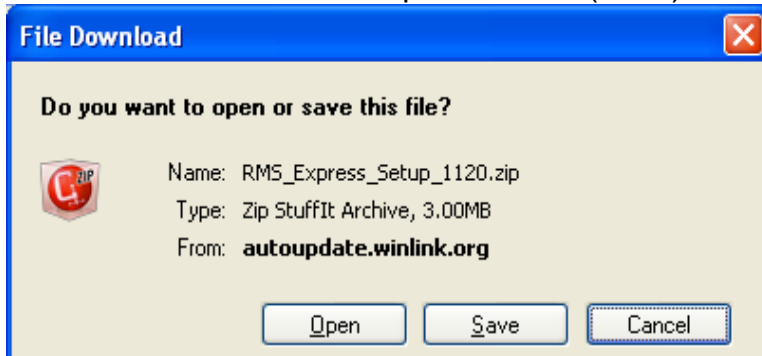
(...)



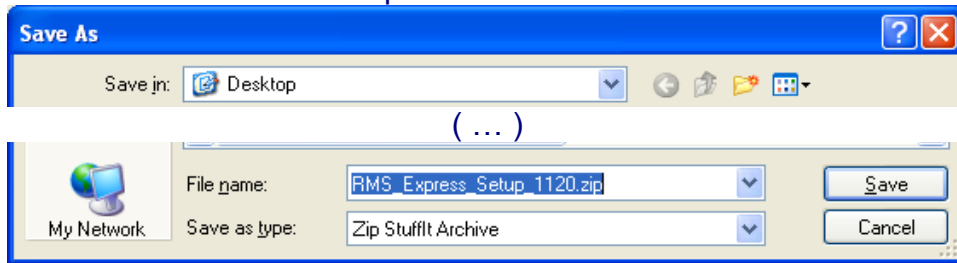
- B. Get the Install Instructions.
1. Right-click on README Install Instructions.
 2. Left-click on the Save Target As option.



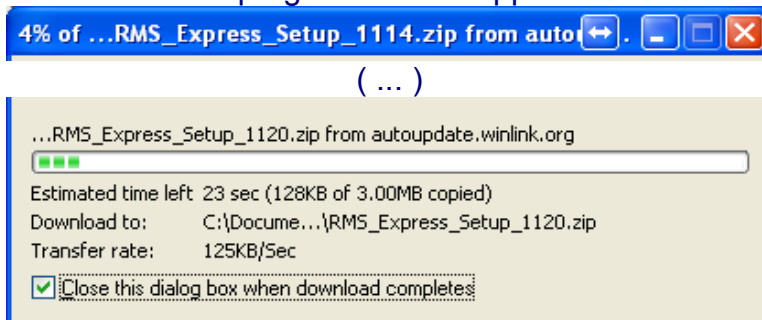
3. If you left-click on the down-arrow at the right end of the Save As box you should be able to select Desktop. (You DID want to find it later didn't you?)
 4. Left-click on the save button
- C. Get the RMS Express Install package.
1. Left-click on RMS Express Setup 1120.zip. This number will change as the geniuses on the Winlink Development Team (WDT) release new versions.



2. Left-click on the Save button.
3. Save this to the Desktop too.

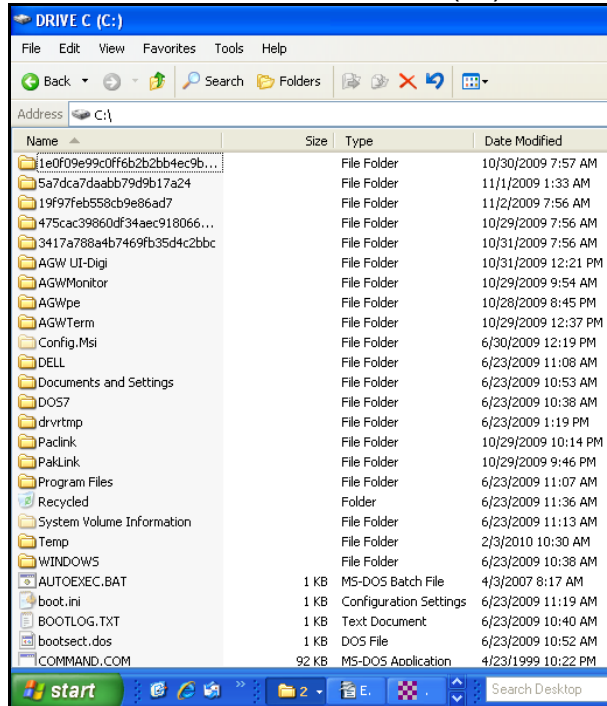


4. Then the download progress screen appears.



5. When that is complete you can close your browser.
- D. Read Installation Instructions.
1. Double-left-click on the READ ME Install Instructions.txt on your desktop.
 2. Read that and then close it.
- E. Move the RMS Express Software into a folder:
1. Create a new folder on your computer.

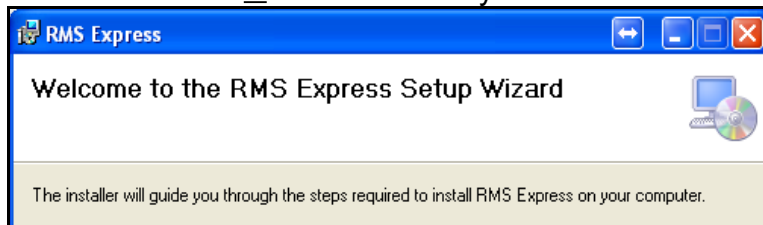
- a. Double-left-click on the My Computer icon on your desktop. If you don't have one there left-click the start button at the bottom left of your screen and look for one there.
- b. Double-left-click on the DRIVE C (C:) icon to get:



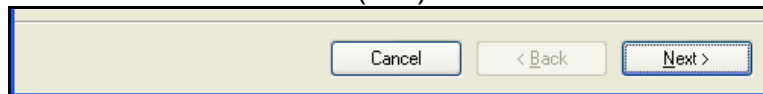
- c. Under the File drop-down menu select New and then Folder.
 - d. Name the folder RMS Express
2. Go back to the desktop
 - a. Right-click on the [RMS Express Setup xxx.zip icon](#)
 - b. Select the Cut option
 - c. Double-left-click on the DRIVE C (C:) icon
 - d. Double-left-click on RMS Express folder icon
 - e. Right-click on an empty area of the folder window
 - f. Select the Paste option
 - g. Right-click on the file icon
 - h. Select the Extract All Here option

You should now have two files in the folder. The new one should be:
RMS Express Setup.msi

3. Installing RMS Express.
 - a. Right-click on RMS Express Setup.msi and select the Install option
 - b. Left-click the Next button and you should see:

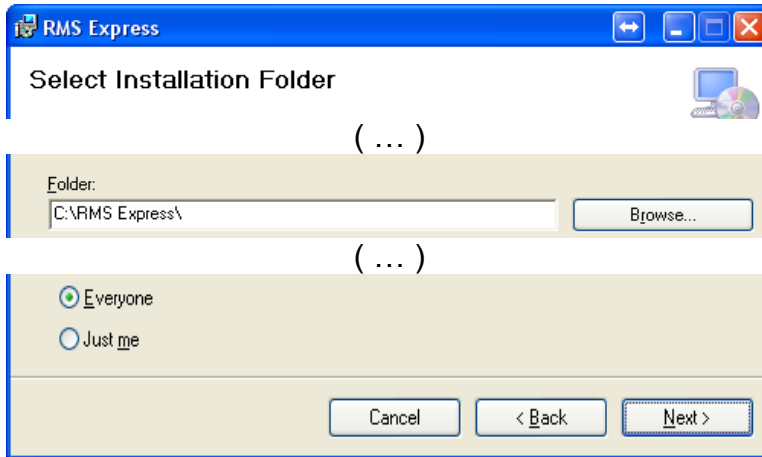


(...)



- c. Left-click on the Next button.

d. The next screen should look like:

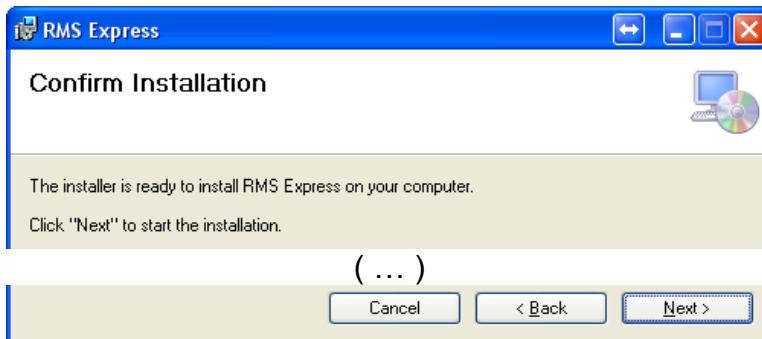


e. Make sure the folder is the one you just set up.

f. The radio button should be green dotted so that anyone using this computer can use RMS Express.

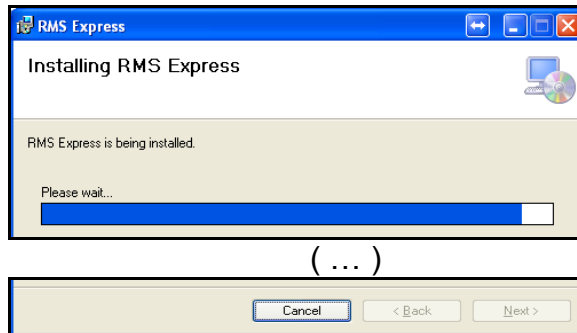
g. Left-click the Next> button

h. You should now see the Confirm Installation screen:

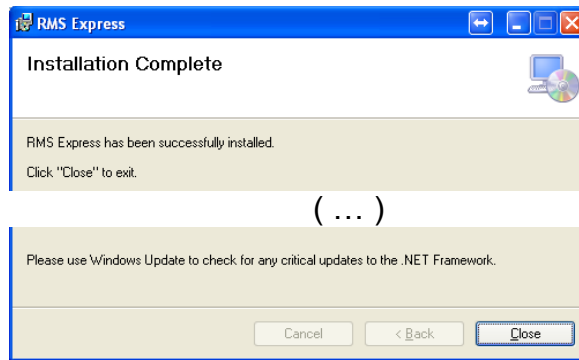


i. Confirm by left-clicking the Next> button

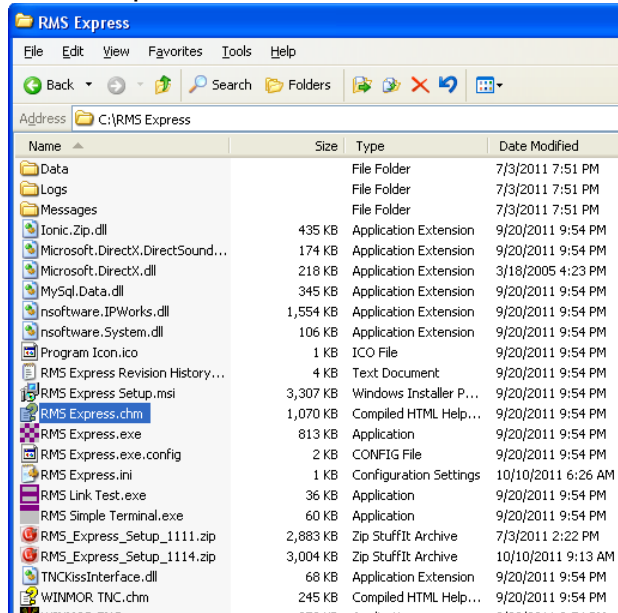
j. You should then see:



k. The next screen should show:



- l. BEFORE you close this screen read the line about Windows Update!
 - m. You can left-click the Close button
4. Now our RMS Express folder shows: **FIX THIS**

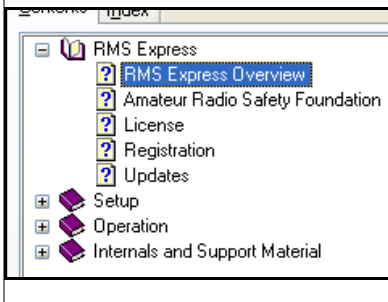


- a. Notice that most of the files are dated 9/20/2011.

VIII. Read the Help Files:

Double-left-click on the RMS Express.chm icon. This will bring up a copy of all of the help files so you can read them. Please do.

- A. The first section is basic information about Express:



1. The Overview explains what RMS Express is all about
2. The ARSF is the sponsoring organization. I really believe in the organization and its purposes and therefore contribute substantially every year.
3. Licenses are only requested for WinMor so don't worry about them.
4. Updates are semi-automatic so don't worry about them either. You will be asked for permission for updates.

B. The second section covers setting up Express:

- RMS Express
- Setup
 - ? Installation
 - ? Installing the ITSHF Propagation Pre
 - ? Basic Configuration
 - ? Secure Login
 - ? Station ID
 - ? Telnet Setup
 - ? Packet Setup
 - ? Pactor Setup
 - ? Robust Packet Setup
 - ? WINMOR Setup
 - ? WINMOR PTT Control
 - ? WINMOR Virtual TNC
 - ? Sound Card Selection
 - ? Windows Mixer Settings
 - ? Optimum Receiver Settings
 - ? Radio Control
 - ? Flex Radios
 - ? Icom 7200 and 7600 Radios
 - ? Icom CI-V Default Radio Addresses
 - ? USB to Serial Adapters
 - ? Option Message
 - ? Personal Message Folders
 - ? Updating Channel Data
- Operation
- Internals and Support Material

- 1** Installation – you need to read the Installation section.
- 2 Forget the next item – it is for WinMor only.
- 3 Basic Configuration - Read very carefully. We will cover it IN DETAIL in this manual.
- 4 Forget Secure login – NEVER use it.
- 5 Station ID. Only applies to HF.
- 6 Telnet Setup. New with 1.1.2.0, Auto-polling.
- 7 Read carefully Packet Setup. We will cover that in detail.
- 8 Obviously Pactor ... thru Icom CI-V ,, is beyond the scope here.
- 9 USB to Serial Adapters. Beyond the scope of this tutorial.
- 10 The Option Message is an advanced technique.
- 11** Personal Message Folders is a GOOD way to organize if you use the program for more than exercises.
- 12 Updating Channel Data. A really neat tool!

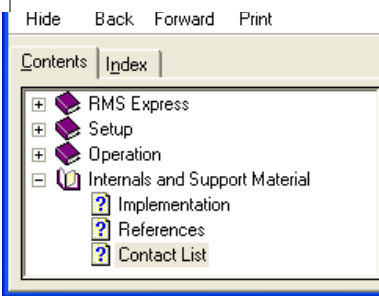
C. The Third Section Covers Operation:

- RMS Express
- Setup
- Operation
 - ? **Main Display**
 - ? Composing a Message
 - ? Message Templates
 - ? Message Addressing
 - ? Group Addresses
 - ? Viewing and Managing Messages
 - ? Importing and Exporting Contacts
 - ? Message Acknowledgements
 - ? Updating Channel Data
 - ? Personal Message Folders
 - ? Starting a Session
 - ? Making a Telnet Connection to a CMS
 - ? Making a Packet Connection to an RT
 - ? Making a Pactor Connection to an RT
 - ? Making a Robust Packet Connection
 - ? Making a WINMOR Connection to a v
 - ? Making a Peer-to-Peer Connection
 - ? Logs
 - ? Monitoring
 - ? Troubleshooting
 - ? WINMOR Connection Problems
- Internals and Support Material

This is a VERY important section. Read it over a couple of times.

1. From the Main Display through Making a Packet Connection – you need to know all of these details.
2. You can skip, for now, the rest of the Making ... items.
3. Logs are invaluable for troubleshooting and reconstructing what was sent and received and when.
4. Logs are great for problem solving.
5. Monitoring is for HF.
6. Troubleshooting is, unfortunately, necessary for most of us. Please read this too.
7. WINMOR is for HF.

D. Fourth Section:



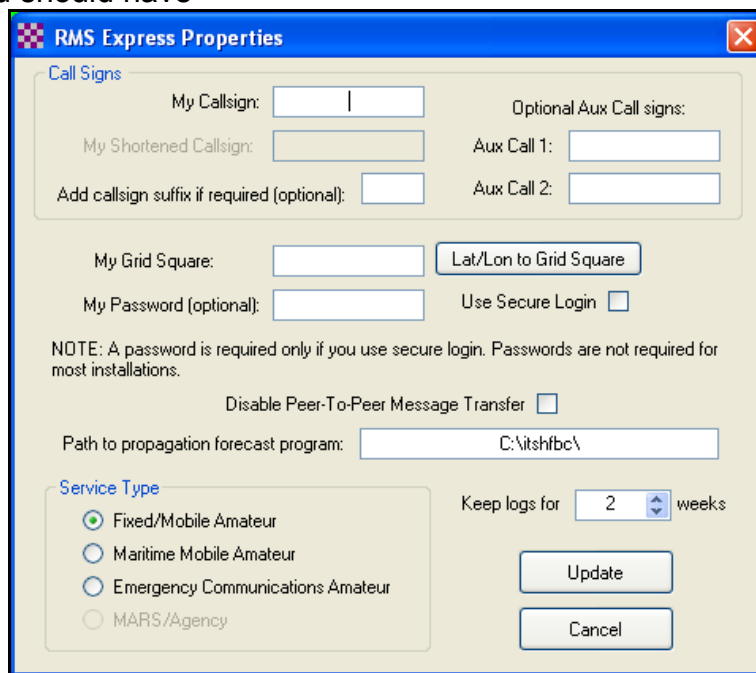
The last section is there – and sometime, when you have nothing else to do, you might read it.
The contact list is the only part that you can really use.

- E. Put a shortcut on the desktop.
 - 1. Right-click on the little checked icon of the RMS Express.exe file.
 - 2. Left-click on the Create Shortcut option.
 - 3. Either drag or cut and paste that shortcut to your desktop.
- F. You can close the C:\RMS Express folder.

IX. Setting up RMS Express

Now that you have absorbed the help files it is time to put that knowledge to use.

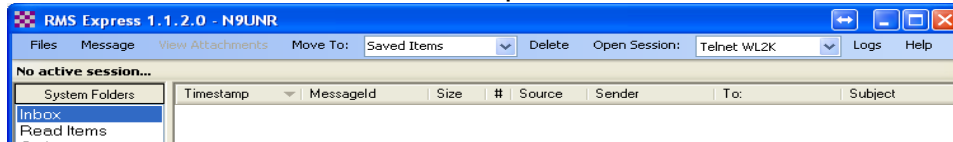
- 1. Do you see a red and white checkerboard on your desktop? That is the shortcut icon to RMS Express.
- 2. Double-left-click on it.
- B. Properties Screen.
 - 1. You should have



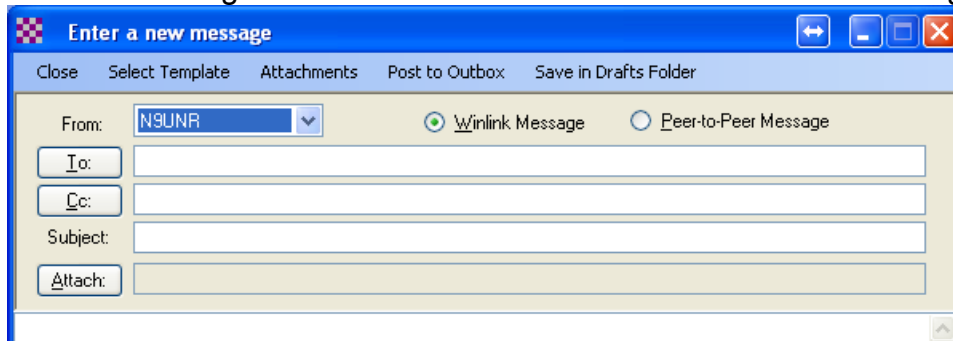
overlying the main screen. Since this is the first time you have run RMS Express the Properties screen opened automatically.

- 2. You should make the following entries:
 - a. Enter your callsign in the My Callsign box.
 - b. Drag out the note paper and enter those six characters in the My Grid Square box.

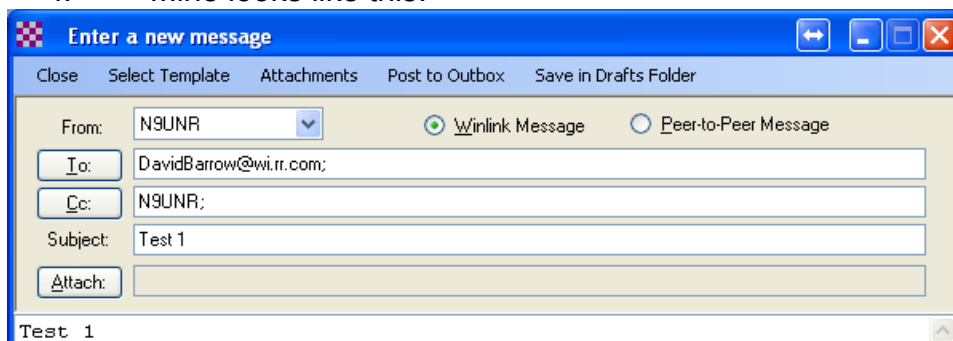
- c. In the Service Type left-click on the Fixed/Mobile Amateur radio button.
 - d. If you are the cautious type use the up arrow on the Keep logs for box to the maximum (52 weeks)!
 - e. LEAVE THE REST OF THE BOXES ALONE!!!!!!
3. Now left-click on the Update button.
- C. Main Screen.
1. We now have the main RMS Express screen:



2. Notice that on the top line we have the name and version of the program and my callsign.
- D. Test Message:
1. If you are connected to the Internet we can send a test message!
2. Take a look at the items in the Files drop-down menu. **Don't click on any of them yet!**
3. Left-click on the Message drop-down menu. The only item available is: New Message – so left-click on that.
4. New Message Screen. Voila! We have an Enter a New Message screen:



- a. Left-click in the TO: box. Not the button – that won't work YET!
- b. Enter your home email address (ex. DavidBarrow@wi.rr.com).
- c. In the Cc: box put the callsign and the @winlink.org that you see in the From: box to get a copy back. (ex. N9UNR@winlink.org).
- d. In the Subject: box type in TEST1.
- e. In the body of the message type in TEST1 again.
- f. Mine looks like this:



- g. Now left-click on the Post to Outbox menu.
5. Let's take a look at the main screen after composing the test message:

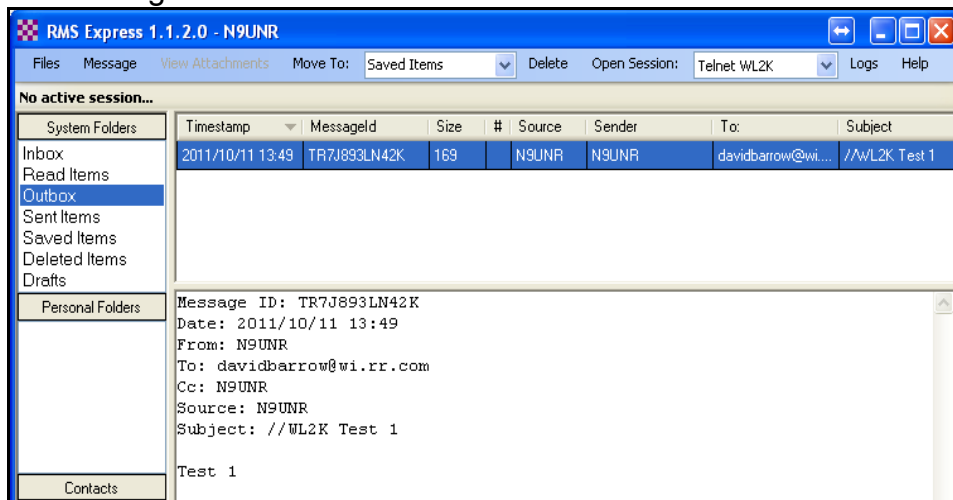


- a. Notice that there are now two Contacts – the two that were used for the test message. Notice also that the N9UNR address has no domain (@winlink.org) showing. HINT: You can initiate a new message by double-left-clicking on a contact.

E. Outbox

Now let's take a look at the Outbox.

1. Left-click on the Outbox option in the System Folders area and then on the message shown and we'll see:

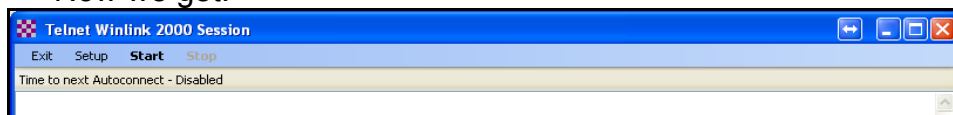


- a. The time is UTC
- b. MessageId – unique message identifier.
- c. Size – generated by the software.
- d. The # field is the number of attachments.
- e. The rest of the fields should be self-explanatory

F. Send a Message

Are you ready to try it?

1. Since we haven't set up the TNC and radio yet our only choice is Telnet WL2K so left-click on Open Session.
2. Now we get:



3. Left-click on the "bolded" Start.
 - a. Your screen will be different – this is an illustration:

```
Telnet Winlink 2000 Session
Exit  Setup  Start  Stop
Time to next Autoconnect - Disabled
**** Requesting connection to Perth
**** Connected to Perth
[WL2K-2.7.0.6-B2FwIHJM$]
;PQ: 29425522
Perth CMS >
[RMS Express-1.1.2.0-B2FHM$]
;PR: 92159582
;WL2K DE N9UNR (EN53X1)
FC EM TR7J893LN42K 162 147 0
F> BD
FS Y
**** Sending TR7J893LN42K...
FF
FQ
**** Disconnected
```

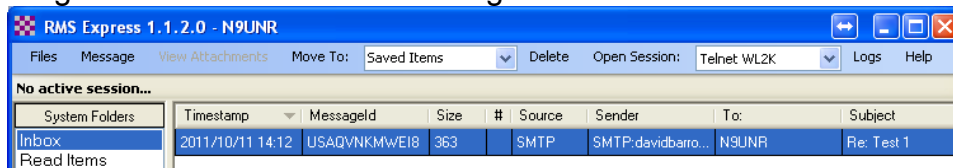
- b. Left-click on Exit to close the session.
4. Check your commercial email.
 - a. Wait ten minutes and then check your commercial email. If you don't see your test message wait another five minutes and then check again.
 - b. The reason for the delay is that the Winlink system has a lot to do. It needs to make sure the callsign is valid and then identify that call to the system. When you consider that the initialization has to travel all over the world (the connection above is to PERTH, AUSTRALIA!) it is amazing how quickly it is accomplished.
 - c. When you get the test message – send a reply.
 - d. Insert, at the beginning of the Subject line, the characters //WL2K and a space. Remember this little insert. Winlink has a whitelist and will only accept messages that come from stations that it has already sent messages to – unless – the Subject line begins with //WL2K Your commercial account email address should have been automatically entered into your whitelist – but – just in case.
5. Use RMS Express to read your reply.
 - a. Since we haven't set up the auto-polling feature yet you need to manually initiate a session.
 - b. On the Main screen left-click on Open Session (after you have made sure that the next block has Telnet WL2K in it.
 - c. Left-click on the Start.
 - d. Did the screen show “Receiving ...”

```

Telnet Winlink 2000 Session
Exit Setup Start Stop
Time to next Autoconnect - Disabled
**** Requesting connection to San Diego
**** Connected to San Diego
[WL2K-2.7.0.6-B2Fw/IHJM$]
;PQ: 57460092
SanDiego CMS >
[RMS Express-1.1.2.0-B2FHM$]
;PR: 95168659
;WL2K DE N9UNR (EN53XI)
FF
FC EM USAQVNMWEI8 459 331 0
F> 3C
FS Y
**** Receiving USAQVNMWEI8
**** USAQVNMWEI8 - 472/342 bytes received
FF
FQ
**** Disconnected

```

- e. This time we got the San Diego CMS and we did receive a message ID#USA.....
- f. If it didn't - wait a few minutes and left-click Start again. Keep in mind that your reply may have traveled half way around the world. (Remember the day when AOL would take an hour to get a message?)
- g. If it did receive a message left-click on Exit to return to the Main screen.



- h. The MessageID is USA... so that is the one we just got.
- i. Left-click on the message.

```

Message ID: USAQVNMWEI8
Date: 2011/10/11 00:00
From: davidbarrow@wi.rr.com
To: N9UNR
Source: SMTP
Subject: Re: Test 1

Got it!

73 de Dave, N9UNR

-----
David W. Barrow III
Amateur Radio Station N9UNR
1894 Elm Drive - Town of Cedarburg
West Bend, WI 53095-9603
Phone: (262) 375-2152
Email: DavidBarrow@wi.rr.com
or N9UNR@winlink.org

On Oct 11, 2011, at 8:49 AM, N9UNR@Winlink.org wrote:

Test 1

```

- j. It is interesting to note that when you left-click on a message in your Inbox to read it, and then when you left-click on another to read that – the first is automatically moved to the Read Items folder.

X. Final Thoughts:

This tutorial should be more than sufficient to get you started. Rather than make it too long and involved I have decided to put the refinements and enhancements into Part II.

This, like all tutorials, is a continuously evolving document. There are a LOT of things I don't

know and there are always new products and techniques. I WELCOME suggestions, comments, additions and critiques. Contact me at DavidBarrow@wi.rr.com or N9UNR@winlink.org.

RMS Express is like all tools – it gets “rusty” if you don't use it frequently. It should be second nature.

How about a Winlink Net? In SE Wisconsin Stan Kaplan WB9RQR (can you figure out how to contact him?) runs the weekly net. On Monday he Winlinks a reminder message, On Tuesday we all Winlink a check-in message (call, first name, city and county) and answer the question he posed (if any) in Monday's message. On Wednesday, he sends out a complete list of all check ins.

Every ARES/RACES group should have a Simulated Emergency Test (SET) at least quarterly INCLUDING all the Winlink setups (Gotta keep those tactical calls active). An easy way to generate an ICS-213 or NTS form is to use QForms from <http://www.activeham.com/pmwiki.php?n=Main.Downloads>

Winlink is a totally volunteer program but even then it has expenses. Winlink is a function of the Amateur Radio Service and is approved by the Internal Revenue Service as a IRC Section 501(c)(3) charity so YOUR contributions are tax deductible on YOUR Federal Tax return to the extent allowed by law. I am convinced that this is a **VITAL** program so I contribute substantially every year.

**Winlink 2000 is an all-volunteer, non-profit project of the
[Amateur Radio Safety Foundation, Inc.](#)
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Glossary

XI. Glossary

CMS: The Common Message Servers (CMS) are the common coordinating engines at the heart of the Winlink 2000 "star" Network configuration. They coordinate the traffic between network radio server stations (RMS gateway stations), and provide the e-mail, telnet, bulletin and position reporting services. All this is done over the Internet using TCP/IP for speed, and to use the amateur radio spectrum efficiently. Winlink gets synergy of both the internet and radio spectrum without suffering connectivity failures or crowding the amateur bands. Each of the existing Common Message Servers is a mirror image of the other, providing continual redundancy should one of these servers become inoperative. The CMS Telnet server is compatible with AirMail, Paclink, Outpost, Windows Telpac, Telpac Node/Linux, Linux RMS Gateway, RMS Packet, and RMS Pactor gateway software. There can be up to five active CMS sites. The sites are geographically distributed worldwide, are synchronized, and any single site is capable of handling all traffic for the entire network.

ECC: Emergency Communications Center; usually a city, county or state government radio room.

EOC: Emergency Operation Center; usually a city, county or state government room where members of different agencies sit and work during medium to large emergency incidents.

PMBO: Packet (or Pactor) Mail Box Operator. Now obsolete.

RMS Gateway: Any RMS station connected to one or more CMS (Common Mail Server) in the "cloud". Or, it can refer to an HSMM or D-Star gateway connecting to any CMS using the Telnet protocol.

RMS Hub: Radio Mail Server Hub.

RMS Node: Radio Mail Server.

RMS Server: Radio Mail Server.

RMS Station: Radio Mail Server.

VHF: Very High Frequency. The range of frequencies from 30 to 300 MHz. They have short-range, near-line-of-sight propagation characteristics. The amateur radio portion is 144 – 148 MHz.

WINMOR stands for **WIN**link **M**essage **O**ver **R**adio and is a new HF radio transmission protocol by Rick Muething, KN6KB, of the Winlink Development Team.

Winlink:

WL2K: Abbreviation for Winlink 2000.