Java Pskmail Client/Server/iGate/RadioMsg V3.1.2 Quick Start Guide by VK2ETA. Nov 7th 2022.

1. Screens familiarization:

1.1 Application Screen

The main user interface is divided into several sections (Tabs), the sections have different main purpose and they are as follows:

Main Menu

Buttons for important functions on the selected tab.

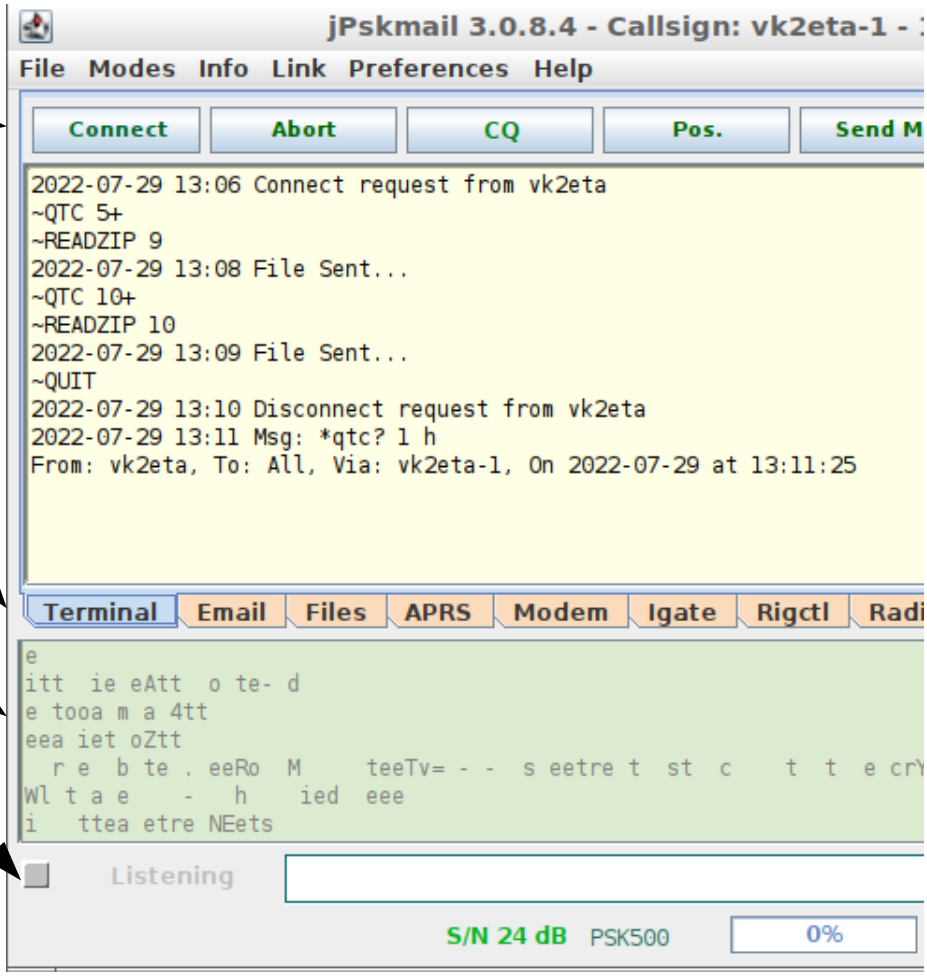
Tab area, contents depend upon selected tab

Grouping tabs

Fldigi raw data area, always visible (Blue is received, Red is sent)

Application status, outgoing text, Server selector etc..

The main tabs and their purpose are:



•**Terminal**, shows the data exchanged with other stations and important information.

•**Email**, where you can send and receive emails.

•**Files**, where you can upload and download files to a server or to a client.

•**APRS**, the center of the APRS action including positions, messages, beacons etc.

•**Modem**, shows S/N, mode and lots of modem statistics, also includes statistics on what servers can be used.

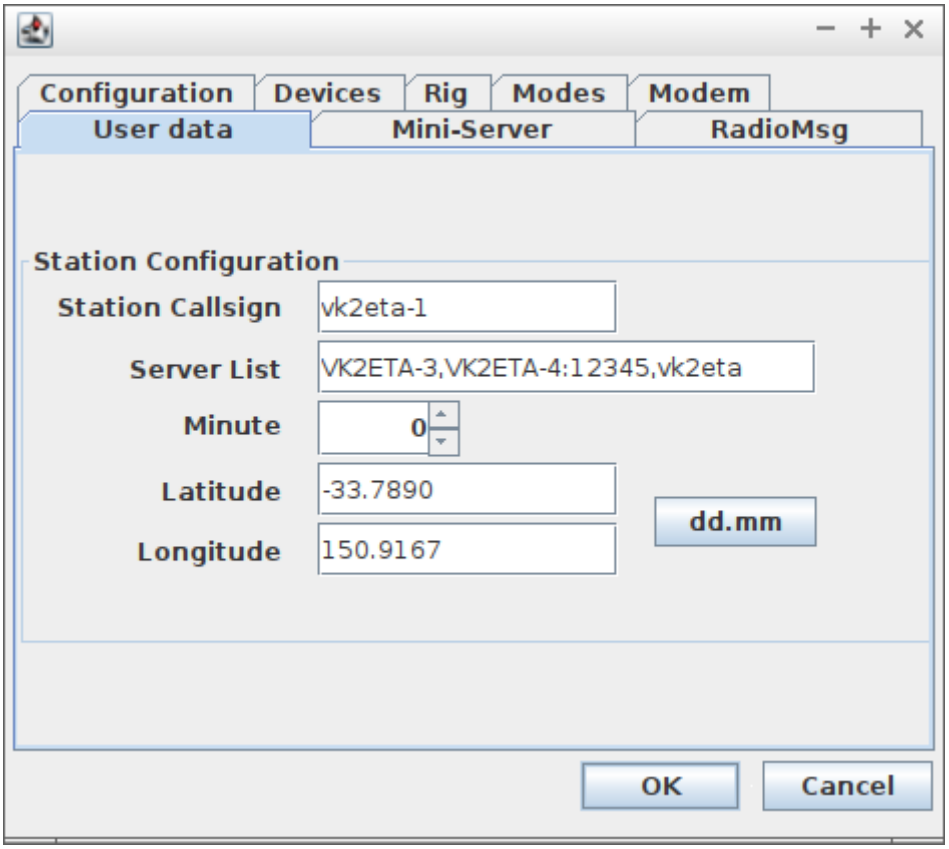
•**iGate**, shows the APRS beacons and messages received by this station that are forwarded to, or the data received from, the APRS network.

•**RigCtrl**, shows the current and scanning frequencies. Enable/disable scanning too.

•**Radio Msg**, shows the short messages and sending options for exchanges **to and from** other stations/emails/cellular SMSs (150 characters maximum).

1.2 Preferences Screen

Show this window by clicking in the Main Menu section on the “Preferences”, then select “Edit”.



Several Tabs allow to set the preferences for different aspects of the application.

We describe the Tab and the name of the critical preferences in each reference sheet below.

1.3 Changes in versions 3.1.X

Please refer to the changelog.txt file in the download section of the Bitbucket repository at: https://bitbucket.org/VK2ETA/javapskmailserver/downloads/

In a nutshell:
- “Wizard” for Email to SMS/TEXT providers setup (see the section sending SMS messages below).
- UTF-8 character set in RX and TX allowing most worldwide alphabets and emojis to be exchanged.
- Acknowledgment beep sequences when multiple stations participate as a group, or for allowing a relay station to signal the proper reception of a message to be passed on.
- Virtual mailboxes for RadioMsg and Pskmail emails and SMS/TEXT: makes the single server’s email address look like a private address by remembering past exchanges and re-directing replies accordingly.
- Other minor improvements and bug fixes.

2. What can this application do?

2.1 In short, here are some of the usages:

1. Send a short message to another station OR to an email address OR to a cellular telephone as an SMS (150 characters maximum).

Automatically forward replies from Email or Cellular SMS recipients over RF. This does NOT require to have a connected session to a server.

2. Send an APRS position (beacon) or APRS message to another station for forwarding to the APRS network.

3. Receive APRS messages for my client's call-sign. This is done by "Linking" (registering) to a server.

4. Establish a one on one session with another station (a server, connected to the internet) for:

- 4.1 Checking emails headers, downloading selected emails, sending emails, deleting emails.
- 4.2 Retrieving the text of a user specified web page.
- 4.3 Retrieving prepackaged information like Solar HF conditions, GRIB weather files, past APRS messages, Tide Information, APRS stations near me.
- 4.4 Uploading or downloading text or binary files to/from the server.

This application is packaged as a complete set (a bit like a Swiss army knife) and each function can be accessed without changing application (just get the appropriate tool out).

This application can be used as a Pskmail client, a Pskmail server, an RF iGate to APRS, a Radio Message client or a Radio Message relay.

It is compatible with the Android RadioMsg and AndPskmail applications for ultra portable operations.

It is NOT compatible with the old Pskmail PERL server (currently at version 2.4) and older versions of jPskmail (E.g. V1.8.6) must be used to access the old PERL servers.

The following pages are set as Reference Sheets, each addressing one of the selected usages.

2.2: Typical applications:

1. Keeping in contact with other HAMs or with family and friends where cellular networks are not available:

> 1.1 You are going camping/trekking and you want just to send a status information or a meeting point to others who may or may not have a Ham license.
>
> Setup a station (could be at home, in your car or in the bush) which has access to a cellular network and use it as a Radio Message relay or Pskmail server. Send and receive either short messages as emails or SMSs or alternatively full emails or APRS messages via that relay/server station. You could use HF or VHF/UHF depending on the path to the relay station.
>
> Preliminary tests of the new Raspberry Pi Zero 2W indicate that it can run Fldigi and the jPskmail application easily, together with a 3G/4G USB modem, thereby providing a low power consumption station for this purpose.
>
> 1.2 You are traveling to a remote area without cellular network and need access to web based information like weather forecasts, flooding or bush fire information in your area.

Please note that it is your responsibility to adhere to the rules regarding modulation types, frequency bands and third party traffic rules in your area of operation.

Acknowledgments and notes:

A bit of history if you are interested: Pskmail was created by Rein (PA0R) in 2005 using the Perl language. Pär (SM0RWO) and Roberto (IS0GRB) joined the group later on and work started on a cross-platform Pskmail Java client.

Without the work of these OMs and others I would not have been able to develop this current application. I have maintained their license terms in this application.

Since Java is one of the main languages used in Android development it made sense for me to port the client to Android as it maximized code re-use, hence the AndPskmail client running on these device.

A few years ago I developed a Radio Message application for Android (the short message section of this PC application) and decided to port these features to the PC version, while also integrating most of the Perl Pskmail server functions. Hence the “Swiss-Army-Knife” aspect of this application.

The Fldigi application is used as a modem as I have ported a number of its modes to Android (see AndPskmail in the download section and AndFlmsg or Tivar on the W1HKJ web site).

Since these above developments took place new modes like JS8 came into existence and may be looked at for future developments.

The Android RadioMsg application is now available for short messages passing. This means that all traffic can also be done from an Android device to/from this PC application.

Again not having to trans-code from Java into another language was of great benefit for porting these developments from one platform to another.

3.1 Reference Sheet 1 - Installation:

3.1.1 Installing the Java jPskmail application:

Ensure you have Java version 1.7 (not 17, really 1.7) or above installed. Java version 1.8 or later is preferred.

Java installers can be downloaded from https://www.java.com/en/download/

Download the jPskmail Java installer from:

https://bitbucket.org/VK2ETA/javapskmailserver/downloads/

Launch the installer and follow the prompts.

Launch either from a File browser by double clicking or in a terminal console (cmd in Windows) and type: java -jar jPskmail-V3.1.2-install.jar

The installer has been tested on Ubuntu and two versions of Windows (XP and Win 10) and is independent of the machine architecture (it will work on 32 bits and 64 bits machines equally).

In the shortcut screen one can decide to put the shortcuts on the desktop and/ or on the start menu.

The full source code and the Quick Start Guide can be downloaded from the Bitbucket site above.

3.1.2 Installing and configuring the Fldigi modem application:

For Windows, download from http://www.w1hkj.com/ and run the installer.

For Linux, install with the package installer.

Versions 4.X of Fldigi are highly recommended and has been tested with jPskmail version 3.X.

Launch Fldigi and open the “Config dialog” and ensure the following settings:

Found in Tab	**Sub-Section**	**Name and value**
IDs	RsID	1. Un-tick all boxes and only tick “Disable Alert Dialog” 2. “Allow Errors” set to “High”
Misc	Sweet Spot	1. “Always start new modems at these frequencies” Ticked 2. “Psk et al.” set to your desired audio frequency (typically 1000 or 1500 Hz). If controlling the rig frequency in Pskmail, this should be the same as the “Offset Hz” in the RIG tab of the jPskmail preferences.
Web	Pskmail	1. “Reset to Carrier” Un-Ticked 2. “Report ARQ Frames average S/N” Ticked
UI	General	1. “Confirm Exit” Un-Ticked. 2. “Prompt to save configuration” Un-Ticked This allows jPskmail to close and restart the modem when a fault is discovered.
Rig Control	As desired	Only used when setting up a scanning server.

3.2 Reference Sheet 2 – Exchanging Short Messages between two or more stations:

3.2.1 Preferences required:

Found in Tab	Name	Usage	Examples
User Data	Station Callsign	Your messages will be sent as coming from this call sign and received “To” this call sign.	VK2ETA, vk2eta-9, vk2eta/p (**MUST** be unique to each station)
Modem	Fldigi Path	The complete path for launching Fldigi. If blank, the user is responsible for launching Fldigi manually, and there is no monitoring of the status of Fldigi. Enclose in quotes on Windows.	*usr/local/*bin/ fldigi OR “C:\Program Files (x86)\ Fldigi-4.1.19\ fldigi.exe”
Optional preferences:			
RadioMsg	Acknowledgment Position	Zero = none. 1 to 8 to acknowledge message reception through a series of up to three DIT and DAH beeps. Differentiates which station received the message ok.	1 or 2 or 3 or 4 (if we have 4 stations in the group)
RadioMsg	Max. Ack. Position in Group	If multiple stations are expected to acknowledge messages reception, what is the highest number, so that we wait for all acks to be heard before transmitting.	4, if 4 stations are participating and are expected to send ack beeps
User Data	Latitude & Longitude	For sending GPS coordinates entered manually	-30.2500 & 150.7500
Devices	All GPS settings	Acquires GPS data either from an NMEA GPS on the selected port OR from the gpsd deamon	

3.2.2 How to send messages directly to other stations:

Select the RadioMsg tab.

The messages are displayed in a “Phone SMS or TEXT” like fashion with the received messages aligned to the left and the transmitted messages indented to the right.

By default the “To Station” is set to All (un-directed message) and the “Via Relay” is set to “Direct”, I.e No relay.

To send a short text message to all listening stations, simply type a message at

the bottom of the screen and press enter or click on the “SMS” button.

‘The station’s GPS position can be sent by pressing the “Send Pos” button.

To direct a message to a specific station, add the station by using the “Contacts” button and adding the destination station (enter Ham or Other call sign, plus tick the **lower** box in line with the call signs line, in front of the Password field).
Then select the station in the “To” list and proceed as above.

Note that callsigns are **not case sensitive**.
The current GPS position can be requested from a selected “To” station by pressing the “Req. Pos” button. We can’t request positions from All stations.

Request a repeat of the last message (again from a selected To station) by pressing the “Resend L.” button (= Resend Last Message).

For requesting multiple messages or from specific sources use the “Resend” button and select the request list of messages.

To choose a different digital mode, from the drop down menu, select “modes” then “Monitor” first, then again select “Modes” and the desired digital mode.

3.2.3 How to send messages via a relay station:

To send messages via a relay station, add the station by using the “Contacts” button and adding the relay station (enter Ham or Other call sign, plus tick the **upper** box in line with the call signs line, in front of the Password field).

Select the station in the “Via” list and proceed as above.

The selected Via call-sign must match the relay station’s “Station’s Callsign” in the preferences. The call signs are **not** case sensitive.

The relay station will transmit the relayed message in the same mode as it received it.

Only one hop relaying is permitted as in practice the HF bands are a poor medium for multi-hop routing of messages in my experience.

Preferences required *at the Relay Station*:

Found in Tab	**Name**	**Usage**	**Examples**
RadioMsg	Relay Over Radio	Must be ticked.	
Optional preferences:			
Server	Password	Leave blank for access to all. Requires the matching password to be set in the contact list of the sending station.	

3.3 Reference Sheet 3 – Exchanging Short Messages between a station and an internet email recipient:

This requires two stations: a) the sender (client) and a relay station (server) connected to the internet.

3.3.1 Preferences required at the sender (client). As in 3.2.

3.3.2 Preferences required at the relay (server):

Found in Tab	Name	Usage	Examples
RadioMsg	Relay E-mails	Must be ticked	
RadioMsg	Relay Immediately When Received	Tick if replies from the email recipient are to be forwarded immediately when received from the internet.	
Server	Days to Keep Links to Callsigns Valid For	To allow the email replies to be directed to the right callsign, a link is maintained for that specified period between the sender and the email address.	90 (90 Days)
Server	Imap and smtp security protocol and ports		IMAP: SSL/TLS, 993 SMTP: STARTTLS, 587
Server	Imap and smtp host	Tested with Hotmail/Outlook/Office365, GMX, Yahoo, AOL.	imap.gmx.com & smtp.gmx.com
Server	E-Mail address, username and password	To access the email account	gateway.mycall@gmx.com in email and username fields
Optional preferences:			
Server	Password	Leave blank for access to all. Otherwise requires the matching password to be set in the contact list of the sending station.	
RadioMsg	Acknowledgment Position	Zero = none. 1 to 8 to acknowledge message reception through a series of up to three DIT and DAH beeps. Differentiates which station received the message ok.	1 or 2 or 3 or 4 (if we have 4 stations in the group)

RadioMsg	Max. Ack. Position in Group	If multiple stations are expected to acknowledge messages reception, what is the highest number, so that we wait for all acks to be heard before transmitting.	4, if 4 stations are participating and are expected to send ack beeps
Rig	Scan	Tick the box to enable the 5 x 1 minute scanning cycle	
Rig	Use rigctl	Required if scanning is enabled	
Rig	Channel Frequencies	The 5 signal center frequencies in Hertz	10148500
Rig	Offset	The audio offset in Hz. The radio dial frequency will be: channel freq - Offset	1500 (This will set the radio dial to 10,147,000Hz)

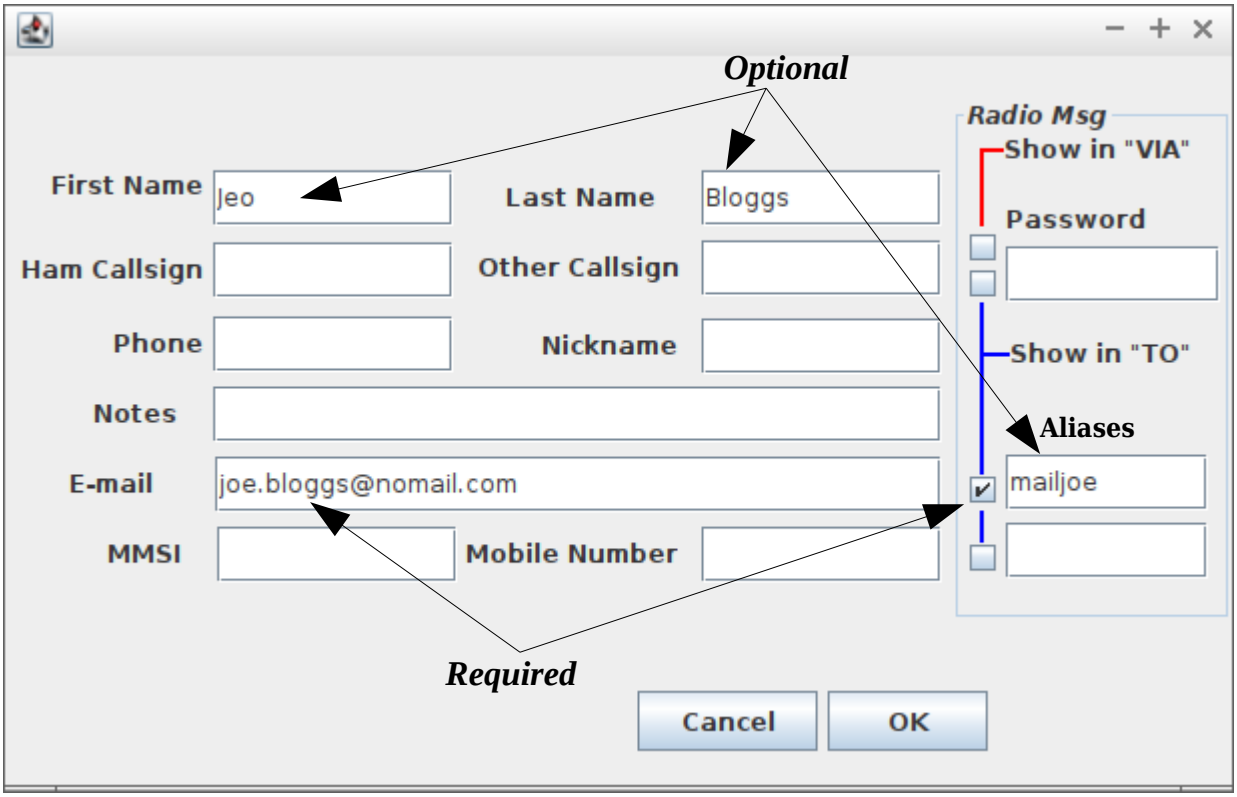
3.3.4 How to send short E-mail messages (max 150 characters):

To reduce the time to send long email addresses and to prevent spamming, the relay station connected to the internet handles “Aliases”. The address is then hidden after the first exchange and the alias permits a much shorter message length.

This also reduces the chances of the message of being damaged and therefore rejected by the relay station.

Aliases are optional but highly recommended.

In the RadioMsg tab, click “Contacts”. Add/edit contact as per this example:



The first time a message is sent to the email recipient, select the “Alias and Full Details” radio button.

Select the email recipient in the “To Station” list.

Add the relay station as per 3.2.2 above and select the relay station (the server) in the “Via” list.

Type a message in the text field at the bottom of the screen and press return or press the “SMS” button.

If the relay station received the message correctly, a beep sequence of up to three short and long beeps will be heard, otherwise a series of 5 beeps will be sent back if received with errors, or none at all if no message can be decoded. In that case just send the message again, maybe selecting a slower, more robust mode.

The subsequent messages should then be sent with the “Alias Only” radio button selected.
The relay station will remember the full address details as sent previously.

If the email recipient responds, and if the “Relay Immediately When Received” is set in the preferences, it will transmit the message back to the station that sent the message to that address.

To query email replies, ensure the “Via” is set to the relay station and use the “Resend” button. Choose “All since last query” plus “Emails and SMSs”.

You are responsible for following the third party traffic rules in your country.

3.4 Reference Sheet 4 – Exchanging Short Messages between a station and a cellular phone as SMSs:

This requires two stations: a) the sender (client) and a relay station (server) connected to the internet.

An account with an email-to-SMS gateway provider may be required if your cellular network provider does not offer this service.

3.4.1 Preferences required at the sender (client). As in 3.2.

3.4.2 Preferences required at the relay (server). As in 3.2, plus:

Found in Tab	Name	Usage	Examples
RadioMsg	Relay SMSs	Must be ticked	
RadioMsg	Relay Immediately When Received (SMSs section)	Tick if replies from the phone recipient are to be forwarded immediately when received from the phone.	
Server	Days to Keep Links to Callsigns Valid for	To allow the SMSs replies to be directed to the right callsign, a link is maintained for that period between the sender and the phone number.	90 (in days = about 3 months)
SMS Gateway Configuration	Select Provider to pre-fill options	Pre-fills the next 6 options based on the selected provider. Currently 3 providers, two of which have “worldwide” services	“Clicksend”. Select once and press OK.
SMS Gateway Configuration	SMS E-mail Gateway Domain	The address to send the messages to which will in turn forward them to the cellular network.	sms.clicksend.com
SMS Gateway Config.	Send Using: Local Number, or international number with or withour “+” prefix	Select if the email-to-SMS gateway only recognises local numbers (E.g 0412345678 instead of +61412345678). Some gateways use the international format but without the “+”.	Int’l Number With “+” prefix
SMS Gateway Configuration	ISO Country Code	The two letters ISO country code to convert local numbers into international format for internal storage	AU, US, FR etc...
SMS Gateway Config.	Delete Reply text up to	When a cellular reply comes back to the relay station, some leading text in the reply may need to be discarded	“You've received a reply from”

SMS Gateway Config.	Delete the whole line: yes/ no	Should the whole line referenced above be discarded, or just up to the text specified above	Selected
SMS Gateway Config.	Delete Reply Text From	When a cellular reply comes back to the relay station, some trailing text may need to be discarded	“Original Message”
Server	Imap and smtp security protocol and ports		IMAP: SSL/TLS, 993 SMTP: STARTTLS, 587
Server	Imap and smtp host	Tested with Hotmail/Outlook/Office365, GMX, Yahoo, AOL.	imap.gmx.com & smtp.gmx.com
Server	E-Mail address, username and password	To access the email account	gateway.mycall@gmx.com in email and username fields
Optional preferences:			
Server	Password	Leave blank for access to all. Requires the matching password to be set in the contact list of the sending station.	
RadioMsg	Acknowledgment Position	Zero = none. 1 to 8 to acknowledge message reception through a series of up to three DIT and DAH beeps. Differentiates which station received the message ok.	1 or 2 or 3 or 4 (if we have 4 stations in the group)
RadioMsg	Max. Ack. Position in Group	If multiple stations are expected to acknowledge messages reception, what is the highest number, so that we wait for all acks to be heard before transmitting.	4, if 4 stations are participating and are expected to send ack beeps
Rig	Scan	Tick the box to enable the 5 x 1 minute scanning cycle	
Rig	Use rigctl	Required if scanning is enabled	
Rig	Channel Frequencies	The 5 signal center frequencies in Hertz	10148500
Rig	Offset	The audio offset in Hz. The radio dial frequency will be: channel freq - Offset	1500 (This will set the radio dial to 10,147,000Hz)

3.4.3 How to setup the email to SMS gateway provider (in this example Clicksend.com):

Create an account with the provider Clicksend.com (other providers tested to work are SMSGlobal.com and SMSBroadcast.com.au for Australia).

Login into the account, the dashboard is shown.

From there in the top right corner where your username is click on the down-arrow, and select “Messaging Settings”.

In the new page, select the Tab “SMS & MMS”, then select the Sub-Tab “General”.

Choose the following settings:

- From Options
Show the 'Your Number' option on the dashboard: ***NO***
Show the 'Business Name' option on the dashboard: ***NO***

- Character Limit
Max number of message parts:
3 = 459 characters

- Unicode
Select Unicode SMS: ***Autodetect***

- Default Country Code: ***<Your Country>***

- Number Pool Code
Select Sender ID: ***Use a Fixed Number***

Don’t forget to Click “Save” at the bottom of each section you change.

Now select Sub-Tab “Email SMS”.

In that page, leave all options as default, but in the section “Allowed Addresses”, click on the “ADD” button and enter the email address you have selected in the “Server” Tab of the jPskmail settings.

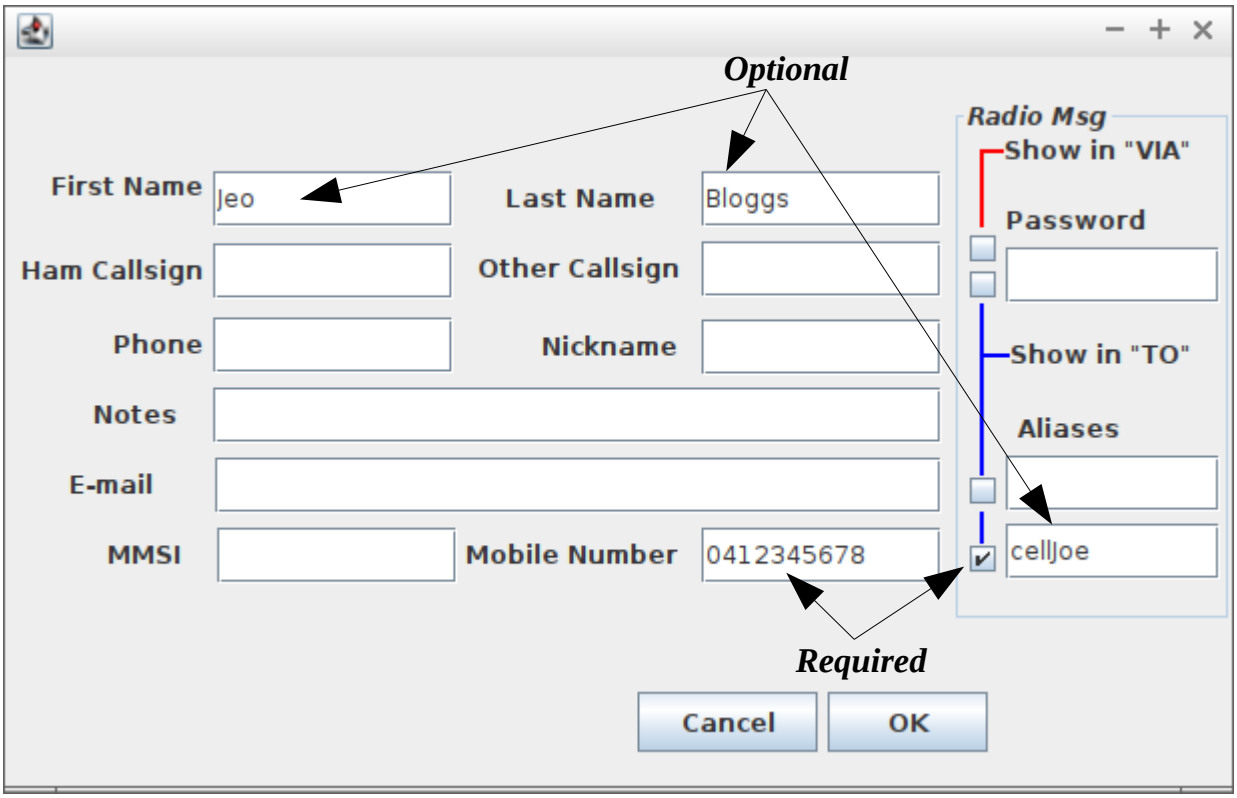
Again, **don’t forget to Click “Save”** at the bottom of each section you change.

3.4.4 How to send SMS messages:

Aliases are also available for cellular numbers to prevent spamming and reduce message size.

Aliases are optional but recommended.

In the RadioMsg tab, click “Contacts”. Add/edit contact as per this example:



The first time a message is sent to a cellular recipient, select the “Alias and Full Details” radio button.

Select the cellular recipient in the “To Station” list.

Add the relay station as per 3.2.2 above and select the relay station (the server) in the “Via” list.

Type a message in the text field at the bottom of the screen and press return or click the “SMS” button.

If the relay station received the message correctly, a beep sequence of up to three short and long beeps will be heard, otherwise a series of 5 beeps will be sent back if received with errors, or none at all if no message can be decoded. In that case just send the message again, maybe selecting a slower, more robust mode.

The subsequent messages should be sent with the “Alias Only” radio button selected.

The relay station will remember the full cellular details as sent previously.

If the cellular recipient responds to the SMS, and if the “Relay Immediately When Received” is set in the preferences, it will transmit the message back to the station that sent the message to that cellular number **provided that the station was heard in the last hour.**

This is to avoid sending data when the station has long since stopped communicating with the relay.

To query SMS replies we may have missed (stored messages), ensure the “Via” is set to the relay station and use the “Resend” button. Choose “All since last query” or “Last X messages” plus the “Emails and SMSs” option.

You are responsible for following the third party traffic rules in your country.

3.5 Reference Sheet 5 – Sending GPS locations (Beacons) and Messages to the APRS network:

This requires two stations: a) the sender (client) and a server station connected to the internet.

3.5.1 Preferences required at the sender (client) as in 3.2.

3.5.2 Preferences required at the server:

Found in Tab	Name	Usage	Examples
User Data	Station Callsign	Will be sent to the APRS network as the iGate station	VK2ETA-1
Optional preferences:			
Rig	Scan	Tick the box to enable the 5 x 1 minute scanning cycle	
Rig	Use rigctl	Required if scanning is enabled	
Rig	Channel Frequencies	The 5 signal center frequencies in Hertz	10148000
Rig	Offset	The audio offset in Hz. The radio dial frequency will be: channel freq - Offset	1000 (This will set the radio dial to 10147000)

3.5.3 How to setup the server:

Select the tab “iGate”, select the APRS network node in your geographical area (E.g. sydney.aprs2.net) then ensure that the box after “Status” is ticked. After a few seconds, provided a connection is possible, the box will be labeled “ON” and the name of the connected APRS node will be displayed to the right of the box.

Optional: tick the box labeled “Show APRS-IS” to show all messages send by servers to the station id “PSKAPR” which denotates APRS information between servers.

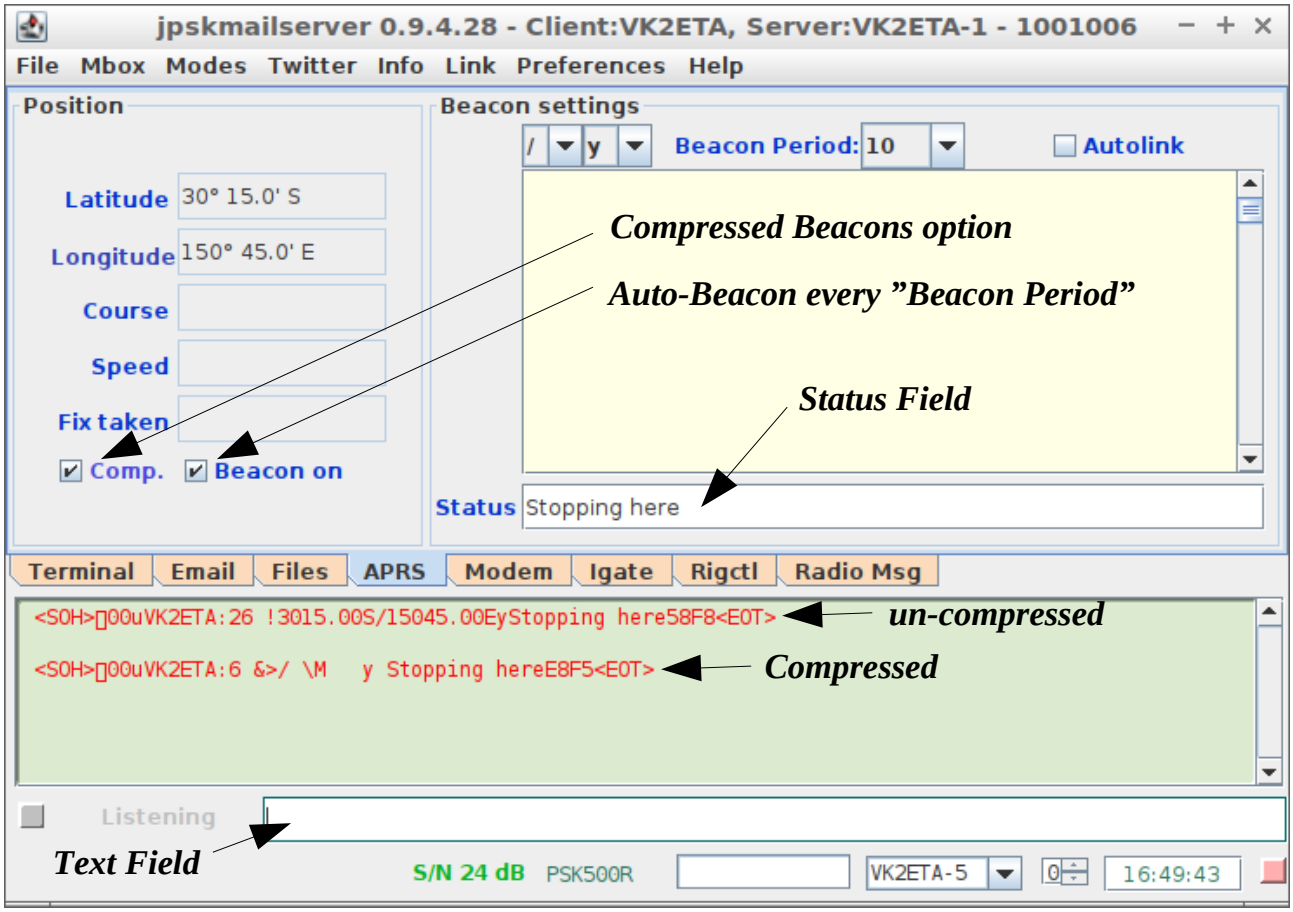
In the “Rigctl” tab, the scanning can be enabled and disabled by clicking on the scan box.

If scanning is enabled, the server will instruct Fldigi to change the Rig’s frequency every minute, on the minute, according to this schedule:
- Minute “zero” (E.g. at 11:00:00, 11:05:00, ...): first channel’s frequency.
- Minute “one” (E.g. at 11:01:00, 11:06:00, ...): second channel’s frequency.
- Minute “two” (E.g. at 11:02:00, 11:07:00, ...): third channel’s frequency.
- Minute “three” (E.g. at 11:03:00, 11:08:00, ...): fourth channel’s frequency.
- Minute “four” (E.g. at 11:04:00, 11:09:00, ...): fifth channel’s frequency.

The client needs to transmit the beacon or message in that minute.

3.5.4 How to send an APRS beacon:

Select the APRS tab:



Tick the "Comp" box (recommended as beacons are then compressed and more likely to arrive undamaged at the server).

To add a status message to the beacon, fill-in the Status field.

To send a single beacon, from the pull-down menu select "Link", then "Beacon".

So send beacons at regular intervals, select the "Beacon Period" at the top of the screen, then click "Beacon On".

The Icon, as displayed on web pages like at www.aprs.fi, can be changed using the primary or secondary set (the "/" or "\"), then the icon letter/symbol. Please refer to http://www.aprs.org/symbols.html for the list of symbols.

If one wants dynamic statuses sent with the beacon, like telemetry data for example, just type "<statustext>" in the Status field above. From now on each beacon will search for a file named "statustext" (no extension) in the .pskmail folder and append its content as the comments of the beacon. If the file contains multiple lines, they are just added one after another in a single line, separated by a space. The maximum length is 100 characters.

3.5.5 How to send an APRS Message:

Select the APRS tab, then in the text field type the destination station, a space, and the message.
E.g: VK2ETA-5 This is my message
The program will automatically add an auto-incremented message number at the end like “{01”, “{02”, “{03” etc...to prevent duplicates.

3.5.6 How to link (register) to a server to receive APRS Messages as they are sent to me:

Select the APRS tab, then select “Autolink” to send regular (max 30 minutes) intervals a Link request to the selected server.

Alternatively from the main menu, select the “Link” menu then the “Link” item for a one-off linking request.

Linking requests expire after 30 minutes at the server and need to be refreshed at least that often.

Once linked, the server will automatically forward APRS messages destine to the client over the air.

3.5.7 Sending APRS messages and beacons (GPS locations) to the APRS network can also be done from the Android AndPskmail application.

The iGate setup is as above. For the portable app setup please refer to the AndPskmail application quick start guide.

3.6 Reference Sheet 6 – Connecting to a server to receive or send (full size) emails, or to get Web pages and other information.

This requires two stations: a) the sender (client) and a server station connected to the internet.

As opposed to the Radio Messages that can also send and receive emails, the email length here is not limited to 150 characters and can contain attachments.

In this mode of operation the client initiates a one-on-one session with the server and multiple data sets can be sent and received during that session.

During the session the server will change the digital mode used based on the conditions of the channel.

When all transactions are completed, the session is terminated with the server.

3.6.1 Preferences required at the client:

Found in Tab	Name	Usage	Examples
User Data	Station Callsign	Your messages will be sent as coming from this call sign. Callsigns are **not case sensitive** and can contain prefixes or suffixes.	VK2ETA, VK2ETA-11, vk2eta/p, fk8/vk2eta/p
User Data	Server List	List of servers separated by a comma. If any server requires a password, use the following format: “server:password”.	vk2eta-1:mypasswd, VK2ETA-9 (No password for VK2ETA-9)
Modem	Fldigi Path	The complete path for launching Fldigi. If blank, the user is responsible for launching Fldigi manually, and there is no monitoring of the status of Fldigi.	*usr/local/*bin/fldigi OR C:\Program Files (x86)\Fldigi-4.1.19\fldigi
Modes	Modes	Tick the modes you want the session to use. E.g. list for good conditions PSK500, PSK500R, PSK250R, MFSK32, OR PSK250, PSK250R, MFSK32, THOR22 for modes < 300 bauds;	list for difficult conditions: MFSK32, THOR22, MFSK16, THOR8.
Modes	Default Mode	The initial mode for starting the session. The server will shift modes up or down as required.	MFSK32
Optional preferences:			

Configuration	Compressed Data	Tick the box if over the air exchanges are to be in the compressed format. Recommended.	
Configuration	Tx Delay	The extra time before responding. If there is a “tail” in the transmission, or a Tx to Rx delay. Avoids “talk-overs”.	1 second is typically sufficient for HF. Repeaters may require longer delays.

3.6.2 Preferences required at the server:

Found in Tab	**Name**	**Usage**	**Examples**
User Data	Station Callsign	The server will respond only if addressed as this call-sign.	VK2ETA-1, vk2eta/vk4
Server	Enable Mini-Pskmail server	To enable access to emails	Ticked
Server	Use Virtual Email Accounts	The server maintains a table of “which stations sent emails to who” to limit the visibility of email replies to the right station. If the server is used by a close group or an individual only, untick to allow visibility of all email replies.	Ticked
Server	Days to Keep Links to Callsigns Valid for	If Virtual Email Accounts is selected, this is the duration the link between the sender and the email address is kept for.	336 (in hours = 2 weeks)
Server	Imap and smtp security protocol and ports		SSL/TLS and 993
Server	Imap and smtp host	Tested with Hotmail/Outlook/Office365, GMX, Yahoo, AOL.	imap.gmx.com & smtp.gmx.com
Server	E-Mail address, username and password	To access the email account	gateway.mycall@gmx.com in email and username fields
Optional preferences:			
Server	Password	Leave blank for access to all. Otherwise requires the matching password to be set in the “Server List” of the “User Data” tab of the preferences.	

Rig	Scan	Tick the box to enable the 5 x 1 minute scanning cycle	
Rig	Use rigctl	Required if scanning is enabled	
Rig	Channel Frequencies	The 5 signal center frequencies in Hertz	10148000
Rig	Offset	The audio offset in Hz. The radio dial frequency will be: channel freq - Offset	1000 (This will set the radio dial to 10147000)
Configuration	Tx Delay	The extra time before responding. If there is a “tail” in the transmission, or a Tx to Rx delay. Avoids “talk-overs”.	1 second is typically sufficient for HF. Repeaters may require longer delays.

3.6.3 How to setup the server:

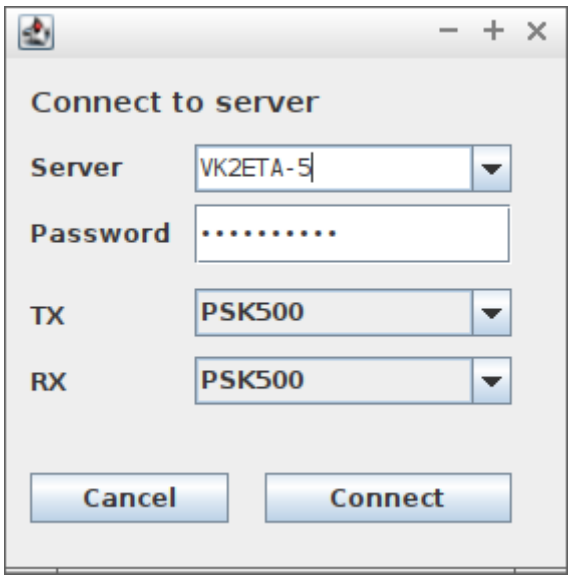
In the “Rigctl” tab, the scanning can be enabled and disabled by clicking on the scan box.

If scanning is enabled, the server will instruct Fldigi to change the Rig’s frequency every minute, on the minute, according to this schedule:
- Minute “zero” (E.g. at 11:00:00, 11:05:00, ...): first channel’s frequency.
- Minute “one” (E.g. at 11:01:00, 11:06:00, ...): second channel’s frequency.
- Minute “two” (E.g. at 11:02:00, 11:07:00, ...): third channel’s frequency.
- Minute “three” (E.g. at 11:03:00, 11:08:00, ...): fourth channel’s frequency.
- Minute “four” (E.g. at 11:04:00, 11:09:00, ...): fifth channel’s frequency.

The client needs to transmit the connect command in that minute. Once the session is started the server will maintain that frequency until the session is terminated, and restart scanning afterwards.

3.6.4 How to get the email headers (summary list of emails) and request emails to be downloaded:

Select the Terminal tab and click on the Connect button and select the server to connect to and the start-up modes.



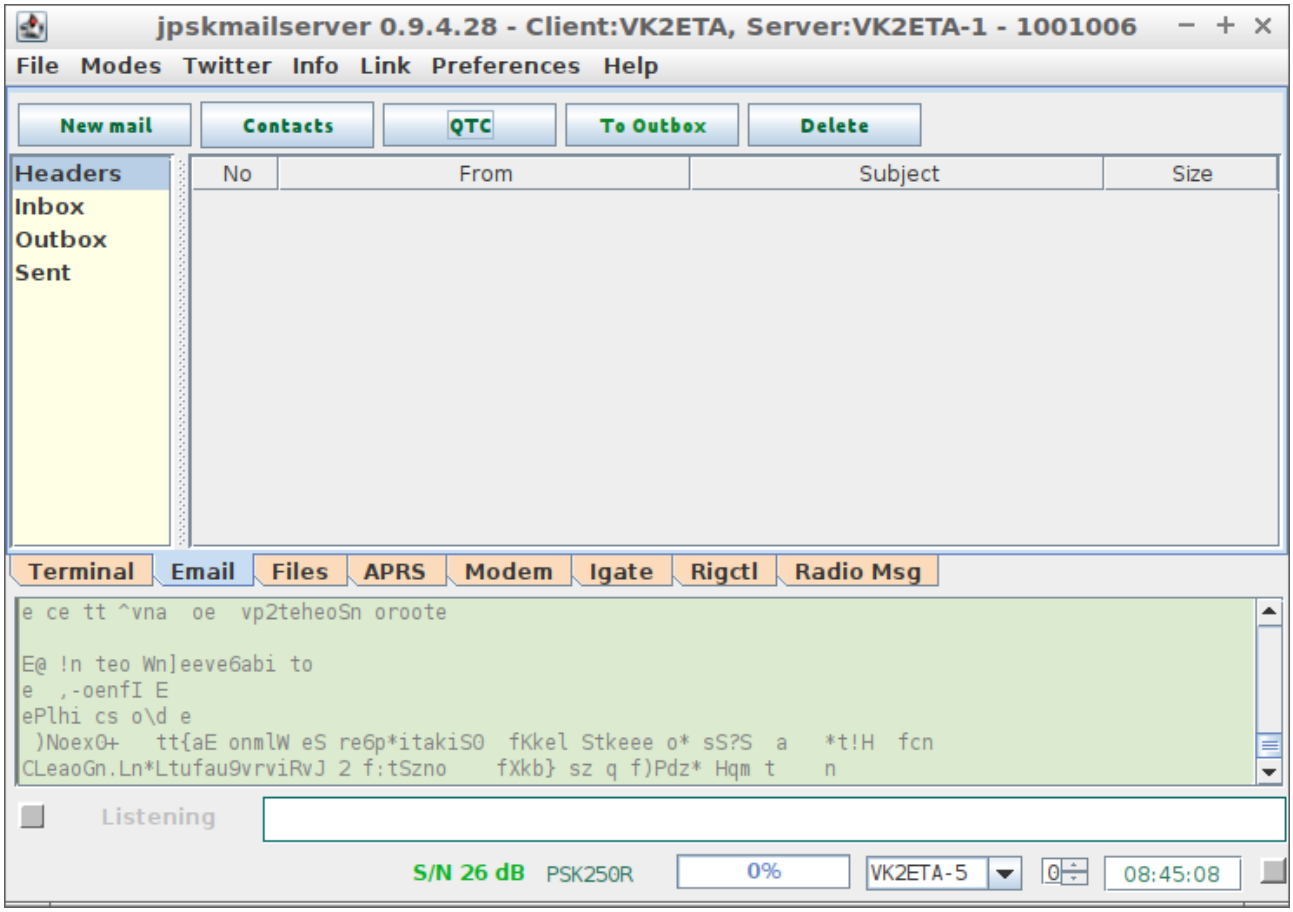
The Password is pre-filled with the value from the server list in the preferences. It can be changed if required.

Choose the initial modes rather on the robust side for the RF link to ensure connection. Then click Connect.

When the connection is established a welcome message is received, e.g. “VK2ETA-5 V3.0.10.3, Hi”.

Select the “Email” tab.

In the left window you can select the summary list (Headers), the downloaded emails list (Inbox), the emails waiting to be send (Outbox) or the Sent emails list.



Press the “QTC” button to request an update of the header’s list.

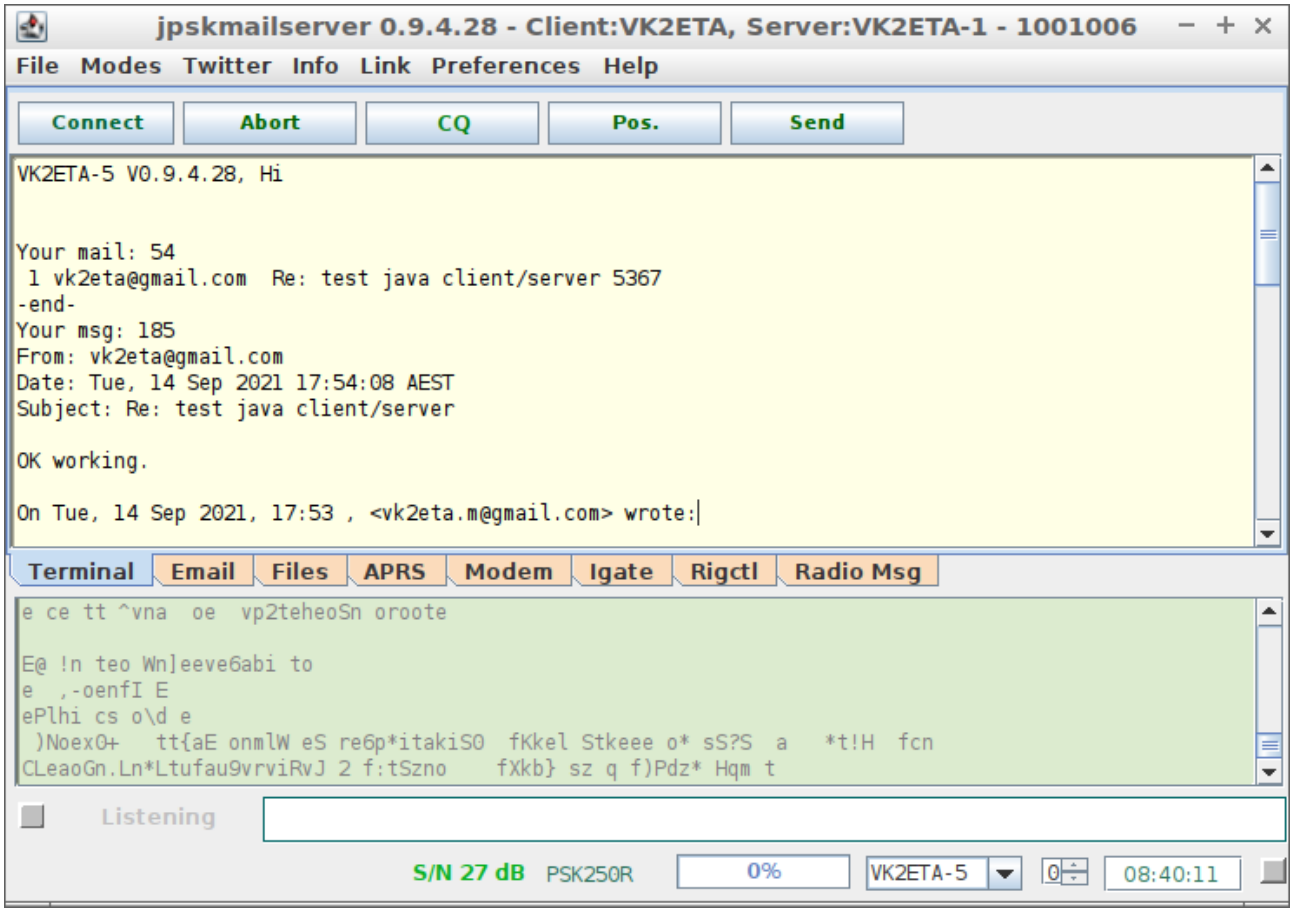
Note that the request is only for any additional emails after the ones displayed here. So if some emails have been deleted, a complete refresh of the list is required.

To clear the headers list, in the main menu select “File” then “Clear” then “Headers”. The next QTC request will then be for all emails’ headers.

The header’s list is then updated. To request an email to be downloaded, double-click on the header, or right-click and select “Download”.

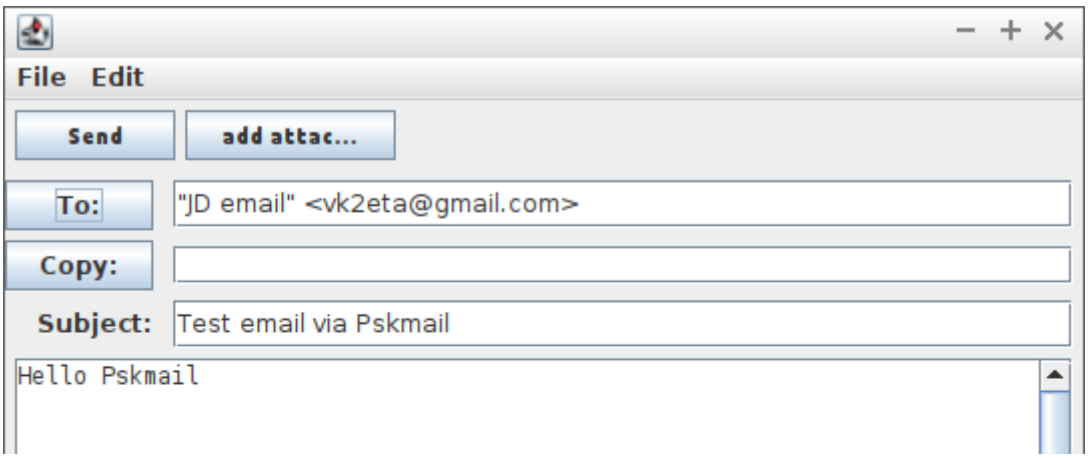
After download, the email(s) will be visible in the Inbox list. To display the full email and attachment, double-click on the email in the Inbox list.

The terminal screen provides updates as to the progress of the data exchange:



3.6.5 How to compose and send an email (full size):

Select the Email tab, then press the “New Mail” button. Type in the email addresses OR press the “To” or “Copy” buttons to bring the contact list and select from that list.



The contact list is maintained by pressing the “Contacts” button in the Email tab.

Pressing the Send button in that window DOES NOT immediately send the email, it places it in the Outbox. This permits the creation of emails “off-line” as well as during a session.

To send the email(s) to the server, ensure you are connected to the server, return to the “Terminal” tab and press the “Send” button to send all emails listed in the Outbox.

The Terminal window shows the progress of the email uploads to the server.

3.6.6 How to get the text of a web page

Web pages often contain a lot of data that is not necessarily relevant to us, like links to further web pages, and that can make the transmission of the wanted information simply too long.

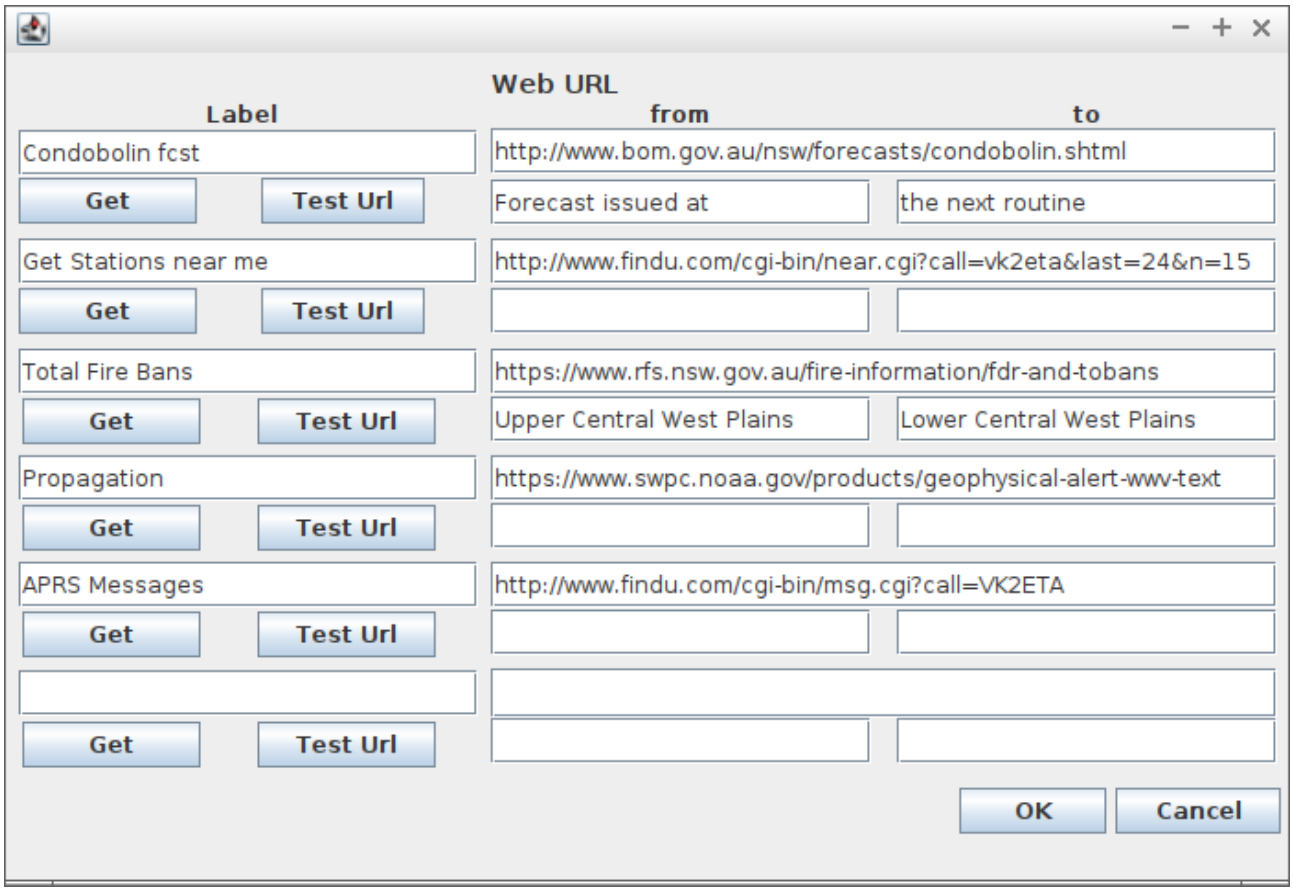
The desired web page information can be extracted by specifying a start and a stop text sequence.
Anything before the start sequence is ignored and everything after the stop sequence is ignored.

An example would be a weather forecast, for example using the web page http://www.bom.gov.au/nsw/forecasts/condobolin.shtml, the raw size of this page's text is (today) 8,685 characters.

But when we set the "Start" as "Forecast issued at" and the "End" at "The next routine" we bring the character count to 3,545 and receive only (mostly) useful data, representing a 59% reduction in data to receiuve.

The "Start" and "End' sequences are **Not** case sensitive.

Once connected to a server, from the main menu, select "Info" then "Get web pages".



Enter/update the web page information then press the desired "URL x" button.

Important: selecting the option “Compressed Data” in the Preferences (Configuration section) reduces the transmission size significantly.

In the example above it further shrinks the transmission to 1296 characters or by 73%, and when used with the Start and End sequences above represents a total 85% reduction of the raw full page characters. i.e. We transmit 15% of the raw page.

To test a ULR and start/stop sequences, enter the information in the URL and the start stop sequences and press the “Test URL” button. The result will be displayed in the terminal window, even if the station is not connected to a server. This is useful for preparing a set of web pages to be fetched in the field.

Labels are just for information to help identify the requests.

3.6.7 How to get the other prepackaged information:

The server implements a significant subset of the Perl server: get APRS messages, get APRS stations near me, get Tide Stations, get Tides (for a given station), get WWV solar conditions and “Get GRIB data” for weather forecasts maps.

For weather maps, when connected, select “Info” in the main menu and then “Get Grib file”. This results in a short email being send immediately to query@saildocs.com requesting weather data, with the map centered on the current GPS position.

After a minute or so, a reply email containing the Grib file attachment is received. Perform a QTC to retrieve the email header and download the email, save the “.grb” file attachement. The “.grb” file can be displayed using a variety of Grib file clients on PCs or Android devices.

Important: again, select the option “Compressed Data” in the Preferences (Configuration section) to reduces the transmission size significantly.

For getting a tide station data, type the station number in the text field at the bottom, then request the “Get Tide (###)” information.

Some other requests make use of the client’s last beacon position as received by the APRS network (get stations near me for example). Therefore ensure you have send a position beacon with a close by position before requesting this information.

3.7 Reference Sheet 7 – Miscellaneous features and functions

3.7.1 Controlling the behavior of a server/RadioMsg relay station

When the RadioMsg tab of the Main windows is selected, there is a button labeled “Commands”. It opens a pop-up window with the following commands for the server:

A. Time Sync: Allows the client to synchronize it’s Pskmail application clock to the server with 1 second accuracy. This is of value for long portable operations where time synchronization is not possible either with a GPS unit or cellular network.

Time synchronization is of value for detecting duplicate Radio messages when a “Resend” request is sent to a server.

It will be of extra value when access passwords will be time based (future feature) to prevent hacking into a server.

There are no parameters when sending such a command. Upon receipt of the time information the client displays the difference of time and adjusts the internal application clock.

B. Stop Scanning: Stops the server scan function (the 5 frequencies in a 5 minutes cycle). Requires the length of time the server must stop scanning for. It typically is 5 or 10 minutes to allow multiple tries at establishing a connected session, 30 minutes or a couple of hours if in the middle of an exchange of short emails or SMSs.

Upon reception of the command, the server replies with a “Scan Stopped for x amount of time” and stays on the current frequency for that period.

On HF bands, too long periods can lead to “loosing” the link with the server due to propagation changes.

C. Start Scanning:

Upon reception of the command, the server restarts the scan sequence at the next turn of a minute. It does not wait for the timeout of the last “Stop Scanning” command.

D. Mute Auto-forward:

Upon reception of the command, the server stops auto-forwarding email and SMS replies. Replies are kept at the relay station for future queries (see the “Resend” button in the RadioMsg tab).

Requires a specified period for the mute to expire.

E. UnMute Auto-forward:

Re-allow auto-forwarding from this point onward. Does not automatically send replies received previously at the server/relay. see the “Resend” button in the RadioMsg tab).

F. Unsubscribe from emails/SMS:

When a station sends an email or sms via a server/relay station, the server/relay keeps a link between the station and the destination.

This allows for the replies to be routed (directed) to the proper originator’s station callsign and provides a “virtual mail box” for each station that uses the server/relay.

Example: station VK2ETA send an email message to joe.blogs@hismail.com. If joe blogs replies to this email, the reply will be sent to the station VK2ETA. The same for a cellular SMS message. Other stations will not “see” the joe blogs responses in their queries through this server/relay station.

This command breaks (deletes) that link made between the supplied station call-sign and the email address/SMS cellular number/Alias.

This can be of value to stop unwanted replies being forwarded from a specific email or cellular number.

If an Alias was used with the email address or cellular number, that alias can be used in place with the same effect.

3.7.2 Sending an APRS location or short email via Morse code to a server station

Assuming a Pskmail server station has been setup as above (see 3.5 for APRS positions and 3.3 for email messages), we can send essential messages through that server by simply using CW.

To enable that feature, tick the “Listen in CW mode” box in the Modes tab of the preferences.

The server will set Fldigi to listen in CW mode, so the CW Fldigi settings are important. Refer to the Fldigi documentation.

Connections and messages from other clients in other modes will still be possible as we always use an RSID before the first data frame.

Using CW we can send our position via APRS using the following format:

VVV--SM0RWO/JO89XA/MOORED/21Y
where:
VVV-- is the start sequence to trigger the listening. Note that -- is two dashes or minus signs.
SM0RW0 is the callsign (no SSID, that is without “/” or “-”)
JO89XA is the grid locator and it must be 6 characters long (+/-5KMs accuracy or better).
MOORED is the status appended to the APRS position
21 is the number of characters from the first letter of the callsign to the last “/” (the one just before that number)
Y is the symbol to use for the APRS station when displaying on maps (here “Y” = “Yacht icon”).

To get your grid locator use an app like HAM GPS for Android phones.

The APRS symbols to character conversion can be seen in the primary symbols column at http://www.aprs.net/vm/DOS/SYMBOLS.HTM

For sending a short email use the following format:

VVV—VK2DYZ/25/MYEMAIL/GMAIL/COM/MESSAGE/35NNNN
where:
VVV-- is the start sequence to trigger the listening. Note that -- is two dashes or minus signs.
VK2DYZ is the sending callsign (no SSID that is without “/” or “-”)
MYEMAIL is the email address part before the “@” sign
GMAIL is the first part after the “@” sign
COM is the second part after the “@” sign
MESSAGE is the full message. Must not contain a “/” nor a “VVV--” sequence.
36 is the number of characters from the first letter of the callsign to the last “/” (the one just before that number)

NNNN is the finishing sequence (4 or more “N”s).

The server will reply with either a “CALLSIGN RR” or a “CALLSIGN NN” for a positive, respectively negative, receipt of the data.

In case of a sending error made before the end of the sequence it is easy to restart afresh by simply restarting the message “VVV--……etc”.

After the sequence is sent, give the server 10 to 30 seconds to process the message and reply, especially for short emails.

If no answer is received from the server after 30 seconds it can be safely assumed that the message was damaged beyond recognition, and it needs to be resent.

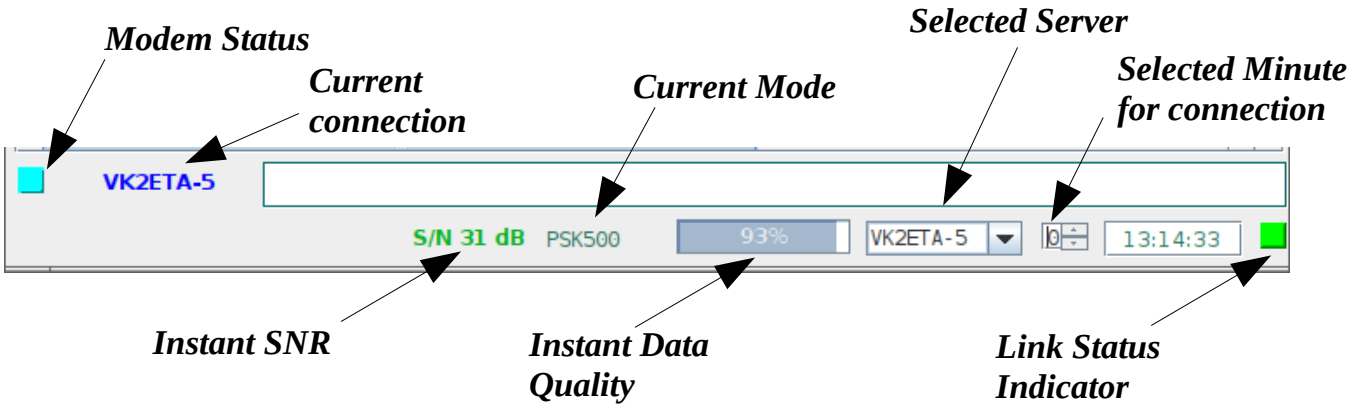
Note that the timing of the Morse code keying is critical as extra decoded spaces at the server will prevent the proper processing of the message.

Robust digital modes like THOR 22 or slower, or MFSK 32 or slower will almost always be more robust than CW as decoded by a machine.

But for “bare bones” operations this can be useful provided the sending is of good quality.

3.99 Reference Sheet 99 – Hints and Tips.

3.99.1 The activity and status indicators



The coloured software Modem Status indicator (Left hand side indicator) shows the status of the Modem:

Grey :	Idle, no data, listening
Blue:	Valid data in progress
Red:	Transmitting data

The coloured Link Status indicator (Right hand side indicator), blue on the picture above, shows the status of the Fldigi Modem:

Grey:	Idle, no session in progress
Green:	All data received error free in the last exchange
Yellow:	Some **received** data needs re-sending (damaged frames)
Blue:	Some **transmitted** data needs re-sending (damaged frames)

3.99.2 Using serial GPS devices:

(Based on jPskmail manual v 1.5.7)

jPSKmail needs a JAVA Communication API to communicate with a GPS via the serial line (RS232 or USB), that library is the rxtx package. These steps are only necessary if you intend to actually use a GPS and are not using the GPSD application.

Windows 98/NT/2000/XP: For installing the RXTX package you will find the necessary dll and jar files within the directory where you installed jPSKmail.

Installation procedure:

• copy rxtxSerial.dll to %JAVA_HOME%\bin, (%JAVA_HOME% is the folder where JRE is installed on your system; e.g. c:\Program Files\Java\ j2re1.4.1_01) • copy RXTXcomm.jar to %JAVA_HOME%\lib\ext

Note: on 64 bits systems, the directory names have changed accordingly.

If you are using Ubuntu you may very easily take care of that by installing “librxtx-java” using synaptic or from a terminal with “sudo apt-get install librxtx-java”.

This works also for the Raspberry Pi OS (tested and working on RPI 4 and Zero 2 W).

For other linux distributions the simple procedure that follows involves copying files from the folder where jPSKmail was installed.

Installation procedure:

- copy librxtxSerial.so to %JAVA_HOME%/jre/lib/i386, (%JAVA_HOME% is the folder where JRE is installed on your system; e.g. /usr/local/j2sdk1.4.1_01)
- copy RXTXcomm.jar to %JAVA_HOME%/jre/lib/ext

Note: on 64 bits systems, the directory names have changed accordingly.

3.99.3 More information and support on PSKmail:

http://pskmail.wikispaces.com

http://www.freelists.org/archive/outbackcomms

Or, for older versions of Pskmail:

http://www.freelists.org/archive/pskmail

Please note that the pskmail.org web site is unfortunately not maintained at present due to ill health of the owner. We wish him all the best in recovery.