UI Messenger

A UI Frame Client for the Cybiko

Version 0.4.0

by

Alex Krist

Preface

Thank you for your interest in this product. I developed this product because I wanted to have the capability to transmit and receive messages with my current tracker without adding something as bulky as a laptop computer, or something as expensive as PDA. In my quest for alternatives I stumbled onto this PDA targeted toward teenagers, called the Cybiko. The Cybiko is an attractive platform because it contains all the components needed to develop the capabilities I needed. It has a graphical LCD screen, a keyboard and a serial port. In addition to these features it also contains a RF transceiver, which can be utilized to create a small wireless network.

The software is mainly developed for use within the Amateur Radio Service, and I assume that the reader is familiar with certain common terms used within the service.

This manual describes how to use the UI Messenger Software. Since I'm still developing this product, this manual will continue to be a work in progress. I hope this manual will answer some of the questions you may have.

If you notice any discrepancies with the actual product, errors or have comments, suggestions or questions, please don't hesitate to email me at **kr1st@amsat.org**

The latest versions of the software and manuals can be found on my web site at:

http://www.kr1st.com

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1 Overview

UI Messenger allows you to send and receive messages and it is also capable of showing the position of stations on a map. Emphasis has been put on one hand operation. With UI Messenger you are able to send predefined messages, which are user defined, or compose messages. Messages can be sent to an individual or to a group. You can use the maps delivered with the basic installation, or you can make your own maps. In order to take full advantage of thee capabilities there are some hardware and software requirements that need to be met and you will need to know how to navigate through the software.

1.1 Hardware requirements

For a basic installation you need at least the following:

- An FM radio capable of receiving and transmitting on your local network frequency (144.390 MHz in North America, 144.800 MHz throughout most of Europe)
- A TNC which supports the KISS mode
- A null modem adapter
- A Cybiko Classic

The radio can be a simple handheld radio, or a base unit. Use whatever is most convenient for you and will interface with the TNC you want to use.

UI Messenger communicates with the TNC using the KISS protocol. This means that the TNC you use with UI Messenger must have KISS mode capabilities. Most commercially available TNC do have this capability. I have successfully used the Kantronics KPC3 and the PIC TNC described in the November 2000 issue of QST.

Because the Cybiko really expects another computer on the other end of the serial cable and not a modem device, you will need a null modem adapter. For some TNC you also may need a gender changer or a DB9 to DB25 converter, or both.

Of course you'll also need a Cybiko to run the software on. This needs to be the Classic Cybiko. Unfortunately, they are out of production, but since Cybiko Inc. introduced a new model one should be able to find cheap used models. The software runs on the new Xtreme model, however, the current TNCs only have serial ports and the Xtreme only has a USB port. If you plan on getting two Cybikos, then one of them could be an Xtreme. See the UI Gate manual for details on this.

In order to hook up a GPS you probably need a null modem adapter and also a gender changer. If you wish to build a mobile tracking setup you will need two Cybiko Classics. One will be connected to a radio with a TNC running the UI Gate software, and the other Classic will have the GPS attached and run UI Messenger.

1.2 Software requirements

To ensure proper operation of the UI Messenger software you need to have System Pack 57 installed on your Cybiko. You can check what System Pack your Cybiko is running by pressing the question mark button while on the desktop. When you hit this button you will see all kinds of system information. The third item on the list will show you the System Pack version that is loaded on your Cybiko. If it shows 57 or higher then everything is ok. If it is a lower number, the software may work just fine but it is not tested with that System Pack. Hit the escape key to exit this screen.

To install the latest System Pack you will need Cyberload. You can download this at http://www.cybiko.com/download/CyInstallInstruction.asp. When you start Cyberload with the Cybiko hooked up to your PC and turned on, it will automatically detect if you are not running the latest System Pack and it gives you the option to upgrade. There is also a button on the Cyberload screen, which allows you to upgrade to the latest System Pack.

If your Cybiko already has System Pack 57 or later installed, then you still have to install Cyberload to install the UI Messenger software.

Before you install UI Messenger, make sure you have at least 100kb available on the flash disk. You can check this also on the system information screen (hit question mark button while on the desktop). The fifth item on the list shows you how much space is available on the flash disk. If this is less than 100,000 bytes then delete some files (games that you don't play for instance) with the Uploader & File Manager application in the application menu.

1.3 Navigating through the software

The user interface of UI Messenger looks very much like Motif. It uses buttons, a console screen, lists and forms.

To go from one item to the next press the <tab> key. The currently active item is always highlighted. To activate a button, press the <enter> key.

You can scroll through the text on a console screen by using the <up> and <down> arrow keys. Console screens, like the one that shows raw packets, can

hold more text than is actually shown. When you press the <up> arrow key it will scroll back through the text, or as in this case, previously received packets.

The same goes for lists. Use the <up> and <down> arrow keys to move the highlighted bar in a list and hit the <enter> key to select that item from the list.

In items on a form where you can fill out text, you can use the <left> and <right> arrow keys to move the cursor through the text. If you press the <Fn> key first before you press the <right> arrow key then the cursor will advance to the end of the text. Pressing <Fn> before you hit the <left> arrow key will advance the cursor to the start of the text. You can use the <backspace> key to delete a character and if you would like to delete everything in an item, press <Fn> before you hit the <backspace> key.

2 Installation

The installation process consists of three steps. First you will have to download the necessary files from the web site. Then you will have to install the files on your Cybiko. And finally, you will have to run the installation program on your Cybiko.

2.1 Downloading

From the web site you have to download 2 compressed files from the download page. The names of these files are `files.zip` and `install.zip`. Place these file in a directory on your PC and unzip these. You will now find the files `files.app` and `install.app` in the directory. These two files will have to be installed on your Cybiko.

2.2 Installing the files on the Cybiko

When Cyberload was installed on your computer it made an association of the Cyberload application with files having the .app extension. The files that were extracted in the previous step will have the Cybiko logo as an icon next to it when you look at these files with Windows Explorer. Now hook up the Cybiko to your PC and start it. When you see the desktop on the Cybiko, double click on the `files.app` file. This will start Cyberload and it will install the file on your Cybiko. When Cyberload is finished, double click on the `install.app` file to install it on the Cybiko. Now you are ready to run the installation program on your Cybiko.

2.3 Running the installation program

Go to the Application menu on your Cybiko. Somewhere in that menu you should see the icon of the installer program that looks like:

If you don't see it then you may have to reboot your Cybiko.

Start the installer program by hitting the <enter> key while you're on the icon. The installer will first determine if there is enough space on the flash disk. If there is not enough space it will notify you and it will abort. You can then delete some files and then restart the installer program.
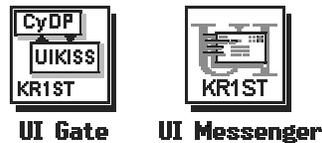
The installer will now install all necessary files on your Cybiko. If the installation is actually an upgrade of the UI Messenger software you will see that it first removes the old files before it installs the new files. When the installer is finished it will pop up a message reminding you to reboot after you exit the installer program. To exit the installer program simply hit the <esc> key. You will see that the installer icon has changed to this:

This is normal. The installer program has deleted itself including the container file (files.app).

You can reboot the Cybiko by either resetting it or holding down the <esc> key until you see the "Power Off" message. Then hit the <esc> key again to start the Cybiko.

When the Cybiko is rebooted go to the Applications menu. You will see that the installer icon has disappeared and that two new icons appeared:

The UI Gate icon will start the UI Gate application. UI Gate will allow you to set up your own wireless network and will act as a gateway between your local wireless network and the national network. See the UI Gate manual for details.

The icon on the right will start the UI Messenger application. You are now ready to start UI Messenger for the first time.
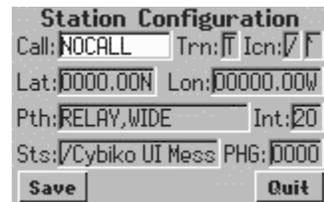
3 Running UI Messenger for the first time

When you start UI Messenger for the first time it will
show you the station configuration screen. On this
screen you will have to enter a valid call sign that UI
Messenger will use in its transmissions. If you do not
enter a valid call sign on this screen, it will keep popping
up every time you start UI Messenger.

3.1 Changing the call sign

Start UI Messenger by pressing the <enter> key on the icon. The screen to the
right will pop up reminding you that you need to change the station configuration.

Press the <enter> key and you'll be presented with the
station configuration screen.

Change the call sign "NOCALL" into your own call sign.
If you want you can change all other station settings on
this page, too, but that is not necessary at this time. For
information on the other parameters on this screen, please see chapter 4.

After changing the call sign press the <tab> key several
times until the "save" button is highlighted. Now hit the
<enter> key and UI Messenger will inform you that the
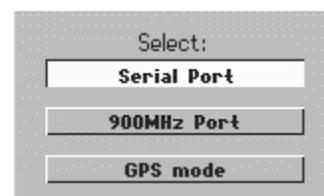settings have been saved.

Press the <enter> key and you will be presented with a screen that allows you
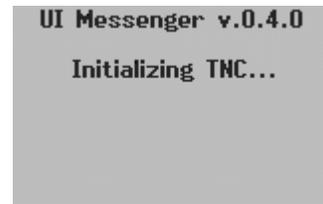choose which port you would like to use.

3.2 Selecting a port

UI Messenger can receive packets from either the serial port or the 900 MHz RF
transceiver port. When the serial port is selected it will assume a TNC in KISS
mode is attached to the serial port. If you would like to communicate through UI
Gate running on a different Cybiko, then you will have to choose the 900 MHz
port. Selecting GPS Mode will put UI Messenger in GPS Mode and assumes that
a GPS receiver is attached to the serial port.

Every time you start UI Messenger it will present you
with a screen asking you which port you would like to
use.

When you select the 900 MHz port or GPS Mode, UI
Messenger will present you immediately with the main
screen. If the Serial Port is selected, it will initialize the
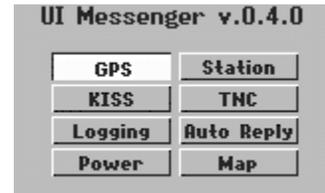TNC.

The main screen will now appear.

To learn more on how to use UI Messenger, please read chapter 5.

Now is a good time to configure UI Messenger to your personal preferences,
check the KISS parameter settings, and configure UI Messenger to work with
your TNC.

4 Configuration

Within UI Messenger you can configure your station preferences, the KISS parameters and TNC specific settings. Every time you install a new version of UI Messenger you will have to re-enter the settings. It is a good idea to write these settings down after you have set up UI Messenger.
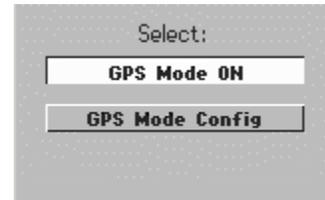
You can access the settings menu from the main screen by pressing the "Set" button on the main screen. The settings menu contains several buttons that bring you to various setting screens.

4.1 GPS Mode

By pressing the "GPS" button you enter the GPS Mode menu.

This menu allows you to turn on and off the GPS Mode or you can select to to go the GPS Mode Configuration screen.

The GPS Mode button reflects the current status of this mode.

If it displays "GPS Mode ON" then you know that the GPS Mode is in the off status and that hitting the <enter> key will put UI Messenger in GPS Mode.
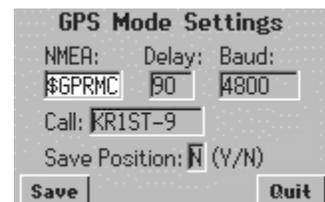
When the button reads "GPS Mode OFF" then UI Messenger will be taken out of GPS Mode when you hit the <enter> key.

Selecting "GPS Mode Config" from the GPS menu brings you to the configuration screen.

The NMEA field indicates which NMEA sentence from the GPS receiver is used by UI Messenger to extract its position. You can either choose $GPRMC or $GPGGA.

The Delay field allows you to enter the time in seconds between transmissions of its position. Default is 90 seconds, but the value can range from 10 to 1000 seconds.

You can enter the baud rate at which UI Messenger will communicate with the GPS receiver in the Baud field. Usually that is 4800bd, which is the default, but any valid baud rate can be entered.

Enter a callsign in the Call field. This call will be used when transmitting positions in GPS mode. Since UI Messenger behaves as a NMEA tracker, the icon displayed by other applications will be determined by the SSID of your callsign according to the following table:

SSID	Icon
-0	No Icon
-1	Ambulance
-2	Bus
-3	Fire Truck
-4	Bicycle
-5	Yacht
-6	Helicopter
-7	Small Aircraft
-8	Ship (power boat)
-9	Car
-10	Motorcycle
-11	Balloon
-12	Jeep
-13	Recreational Vehicle
-14	Truck
-15	Van

The Save Position field indicates whether or not you want UI Messenger to save (and use) the last position it receives from the GPS receiver when you exit UI Messenger. This way UI Messenger will have the last received position available next time it's started.

4.2 Station Configuration

To change the station configuration, activate the "Station" on the menu shown above. The station configuration screen allows you to enter basic information about your station. All information entered on this screen takes effect immediately. You do not have to restart UI Messenger for any changes to take effect.

You already entered your call sign in "Call:" field when you started UI Messenger or the first time. If you didn't, then please do so now. This field is 9 characters long. You can enter a tactical call sign if you wish, but if you choose to do so, then enter your actual call sign in the status field ("Sts:").

The "Trn:" field is actually quite unique. This field accepts 2 values. "T" or "N". Entering "T" in this field means that UI Messenger will operate in Transparency Mode. This means that messages sent to your call sign will pop up even if the sender did not enter the correct SSID. This is especially handy if you run several stations and would like to receive all messages sent to any of your other stations as well. When you enter "N" (Normal) in this field, then UI Messenger will only react to messages sent to your call sign with the SSID you specified.

The "Icn:" fields determine what icon is used to show your station on the display of other stations. The first field accepts the "/" or '\' character and it determines from which table an icon chosen. The next field accepts any character and it determines which icon from within that table is chosen. See Appendix 2, "The APRS Symbol Tables", page 104, from the document "APRS Protocol Reference", Version 1.0.1. You can download this document in PDF format from: http://www.tapr.org

The coordinates need to be specified in the "Lat:" and "Lon:" fields. The latitude is specified in DDMM.MMN or DDMM.MMS (Degrees Minutes . Hundredths of Minutes (N)orth or (S)outh) and longitude should specified as DDDMM.MMW or DDDMM.MME (Degrees Minutes . Hundredths of Minutes (W)est or (E)ast).

The PTH field specifies the Unproto Path. Please be considerate and limit your path to what you actually need. Specifying a WIDE7-7 path when you only want to go 1 hop creates a lot of unnecessary traffic (QRM). For stationary use, try to find out which digi can hear you directly and specify that one first, then add whatever you need separated by commas.

You can specify the interval rate at which your position is transmitted in the "Int:" field. This is the number of minutes between position reports and can be anything between 0 and 100 minutes. This field allows you to turn of position beaconing by simply entering a 0.

The status information can be entered in the "Sts:" field. This field is 43 characters long and will be sent along with your position report. If you want to make sure that the status is correctly displayed on a Kenwood TH-D7A/E(G) radio, then you have to start the status with a "/" character.

The "PHG:" field specifies the station Power, the effective antenna Height above average terrain, antenna Gain and antenna directivity according to the following table:
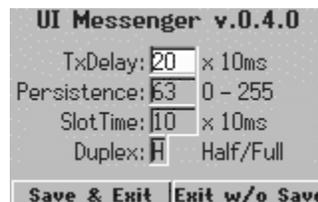
PHG Code:	0	1	2	3	4	5	6	7	8	9	Units
Power:	0	1	4	9	16	25	36	49	64	81	Watts
Height:	10	20	40	80	160	320	640	1280	2560	5120	Feet
Gain:	0	1	2	3	4	5	6	7	8	9	dB
Directivity:	Omni	45 NE	90 E	135 SE	180 S	225 SW	270 W	315 NW	360 N		Degrees

When you are done you can press the "Save" button to save these values. A message will pop up informing you that the settings have been saved. The settings are saved in a ASCII file, called "uimsg.dat" on the flash disk. The changes will become active immediately. If the interval setting is something other than 0 minutes, UI Messenger will immediately transmit a position packet with the new data. Pressing the "Quit" button or hitting the <esc> key will exit this screen immediately and no changes are saved.

4.3 KISS Parameters

The KISS Parameters Screen will allow you to enter the usual KISS parameters. Changes will take effect immediately as soon as the settings are saved.

The table below describes the parameters that can be specified on this screen. It is taken from a paper titled "The KISS TNC: A simple Host-to-TNC communications protocol" by Mike Chepponis, K3MC and Phil Karn, KA9Q.

```
UI Messenger v.0.4.0
    TxDelay: 20   x 10ms
Persistence: 63   0 – 255
  SlotTime: 10   x 10ms
    Duplex: H    Half/Full

Save & Exit  Exit w/o Save
```

TxDelay:	This is the transmitter key up delay in 10 ms units. The default start-up value is 20 (i.e., 200 ms).
Persistence:	This is the persistence parameter, p, scaled to the range 0 - 255 with the following formula:

	$P = p * 256 - 1$ The default value is P = 63 (i.e., p = 0.25).
SlotTime:	The next byte is the time to hold up the TX after the FCS has been sent, in 10 ms units. This command is obsolete, and is included here only for compatibility with some existing implementations.
Duplex:	This is H for half duplex, F for full duplex. The default is H (i.e., half duplex).

4.4 TNC Configuration

The TNC Settings Screen allows you to enter strings that will be sent to the TNC to put it in KISS mode. You can specify up to four strings to be send to the TNC.

The first string consists of decimal values separated by commas. You can use this field to define a KISS command you'd like to have sent to the TNC upon startup. Most times you'll find here "192,255,192,13", which are the two KISS delimiters FEND (192), the exit command (255) and the <enter> command (13). This sent to ensure that the TNC is not in KISS mode before you send any of the following commands defined in field 2, 3 and 4. The 13 at the end is needed on some TNC to get a "cmd:" prompt. You can leave this field empty if you wish.

Fields 2, 3 and 4 can be used to enter text commands, which you need to send to the TNC to put it in KISS mode. The KISS driver will append a [CR] (ASCII 13) to each text string (2, 3, 4), so there's no need for you to add it.

The KISS OFF string will be sent upon exit of UI Messenger. The format of the string is the same as the first field of the KISS ON commands. Usually you'd put the KISS command (255) here, which will take the TNC out of KISS mode.

All the above-mentioned fields may be left empty. Nothing will be sent to the TNC in that case. You could do this for TNCs that only operate in KISS mode.

You can set the baud rate in the baud rate field. This is the speed between the Cybiko and the TNC, not the on the air speed.

When you are done, just hit the "Save & Exit" button to save the settings. You can hit the <esc> key or press the "Exit w/o Save" button to leave this screen without saving the changes. All changes take effect immediately when you save the settings.
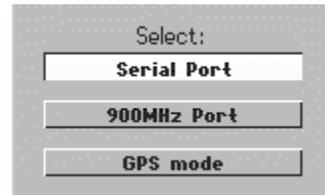
5 Using UI Messenger

Now that you fully configured UI Messenger you are ready to use it. This chapter will describe the wide range of features within UI Messenger and will explain them in great detail.
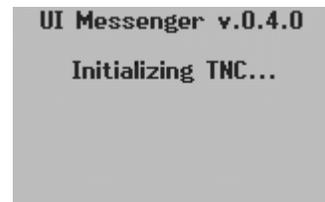
5.1 Starting UI Messenger

To start UI Messenger, select the UI Messenger icon from the desktop and hit <enter>.

UI Messenger will ask you on which port to start. Select the "900MHz Port" if you would like to use UI Gate or select "Serial Port" if the TNC is connected directly to your Cybiko and you would like to use that.
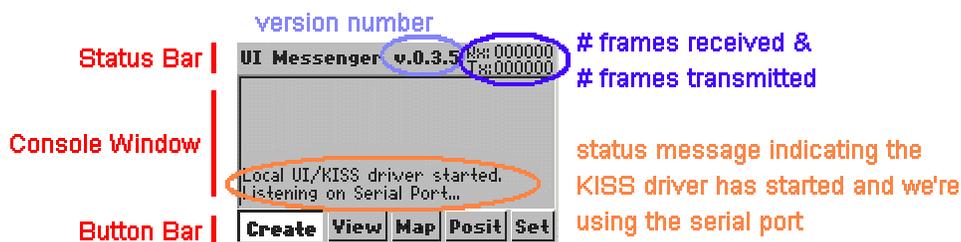
If you selected the serial port option, then UI Messenger will initialize the TNC with the strings as configured on the TNC configuration screen.

If you selected the 900MHz port, then UI Messenger will immediately display the main screen. In the console portion of the main screen it will indicate on which port UI Messenger is listening.

5.2 Main Screen Layout

The image below shows the main screen when you start UI Messenger.

The screen consists of three main areas, the Status Bar, the Console Window and the Button Bar.

The status bar shows the program title, version number and how many frames have been received and transmitted. The "Rx:" indicator gives you an indication on how busy your local network is.

The console window will display all received frames. It will also show status messages. For instance, it will display "Incorrectly formatted frame" if a bad frame has been received. The console window can hold more text than is shown. You can highlight it by pressing the <tab> key several times and then use the <up> and <down> arrow keys to scroll through the text.

5.3 Monitoring Traffic

All (frames) packets received by UI Messenger are displayed in the console window on the main screen. A received frame is divided in four fields and shown separately in the console window. The "From:" field shows the call sign of the originator of the frame and the "To:" field shows you the TOCALL call sign. You can see which path of the frame in the "Via:" field. If the frame has been digipeated by a digi in the path then an asterisks (*) will appear next to the call sign of that digi. The data portion of the frame is shown in the "Data:" field.

The console window always displays the latest received frames. If you would like to see previously received frames, then highlight the console window and use the <up> arrow key to scroll back. If a new frame is received while you are scrolling back then the console window will jump back to the bottom and show the newly received frame.
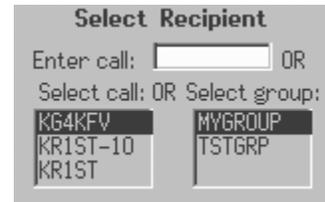
5.4 Creating Messages

There are two ways to create messages in UI Messenger. One is to use predefined messages and the other is to compose your own. Using predefined messages allows you to create message content ahead of time. If you need to create messages on the fly, use the compose option.

In addition to creating predefined messages and composing messages, UI Messenger allows you to create a list of recipients, create a list of predefined messages, and create message groups. You can enter the Create menu by selecting the "Create" button on the main screen.

5.4.1 Creating Predefined Messages

When you choose to create a message from a list of predefined messages, select the "Predefined" button in the Create menu. You will then be asked to enter the call sign of the recipient, select the call sign of the recipient from a (user defined) list or to select a name of a group from the (user defined) group list.

If you already were exchanging messages with some station before, then the call sign of that station will be displayed in the "Enter call:" field. This is convenient if you are exchanging a number of messages with a station. You don't have to enter that station's call sign every time. Just hit the <enter> key on this screen and UI Messenger assumes you want the next message to go to the same station.

After you entered or selected a recipient, you will have to select a message from the list of predefined messages. This list contains up to 10 user-defined messages. Use the <up> and <down> arrow keys to highlight the message you would like to send and then hit the <enter> key to select that message.

When you selected a message a confirmation screen will pop up showing you the message and the recipient. To confirm this message and to send it, hit the <enter> key. The message will be transmitted immediately and you will return to the main screen. If you changed your mind, you can press the "Quit" button to turn back to the main screen.
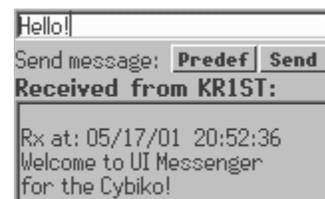
At any point during this process you can back out by hitting the <esc> key. You will then return to the main screen.

5.4.2 Composing Messages

If you prefer to type a message rather than selecting one from a list, select "Compose" from the Create menu.

You will first be asked to enter or select the call sign of the receiving station, as described above in 5.4.1 and then you are taken to the compose screen.

The top field on this screen is used to enter your message and the bottom part shows you all messages

you received from this station before. This bottom window is scrollable so you can highlight it by hitting the <tab> key several times and then use the <up> and <down> arrow keys to scroll through the messages you received from this station.

If you changed your mind and would like to send a predefined message, press the "Predef" button. This will take you to the list of predefined messages as shown in 5.4.1.

When you are done writing your message either hit the <enter> key or press the "Send" button.

A confirmation screen will pop up showing you the message, as it will be transmitted. Hit the <enter> key to transmit the message or press the "Quit" button to back out and return to the main menu.
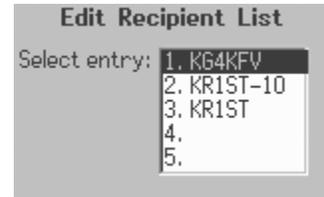
Confirm Message
To: KR1ST
Text: Hello1

| Ok | | Quit |

As with predefined messages, you can back out any time you wish by hitting the <esc> key. You will then be returned to the main screen.

5.5 Creating a List of Recipients

Sometimes it's convenient to select the call sign of the recipient from a user defined list rather then entering the call sign manually, especially if you exchange messages with the same stations a lot. UI Messenger provides a list of user defined call signs, which you can edit. Up to ten call signs can be stored in the list and the list is stored in the configuration file.

To edit the list of predefined call signs, select "Edit Recipients" from the Create menu. You'll be presented with the list of recipients currently available. Use the <up> and <down> arrow keys to highlight an entry in the list. Hit the <enter> key to select that entry.

Once you select a recipient from the list you can edit it on the next screen and save it by pressing the "Save" button. If you changed your mind, press the "Exit" button. UI Messenger will show you a message it successfully saved the call sign in the list.
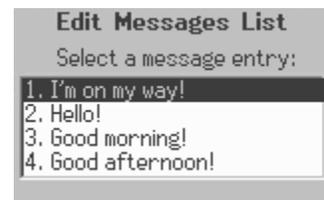
After you saved the recipient call or pressed the "Exit" button, you will be returned to the "Edit Recipient List" screen. To return to the main screen hit the <esc> key on that screen.

5.6 Creating a List of Predefined Messages

UI Messenger can store up to 10 predefined messages, which can be entered and edited by you. These predefined messages can make life a bit easier if you don't have the time to enter a message manually. In case of a special event one could fill the list with messages like "On station", "Emergency!", etc. These messages are stored on file for later retrieval.

To edit messages from the list select "Edit Messages" in the Create menu. You'll be presented with the list of currently available messages. Highlight the entry you would like to edit with the <up> and <down> arrow keys. Then select the message by hitting the <enter> key.

Once you select a message from the list you can edit it and save it by pressing the "Save" button. If you don't want to save it, press the "Exit" button. UI Messenger will inform you with a pop up message if it successfully saved the message in the list.
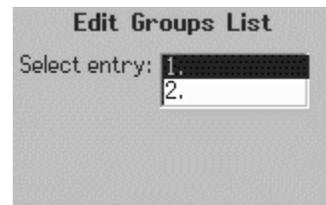
You will be returned to the "Edit Messages List" screen after you have saved the message so you can edit the next message. If you hit the <esc> key or press the "Exit" button you will also be returned to the "Edit Messages List" screen.
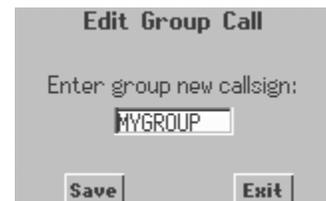
5.7 Creating Message Groups

For special events or experiments it might be convenient to set up message groups. UI Messenger allows you to you define up to 2 message groups. In addition to these groups, UI Messenger will also listen for messages sent to the message groups All, QST and CQ.

To edit the list of message groups, select "Edit Groups" from the Create menu. You'll be presented with the list of groups currently defined. Use the <up> and <down> arrow keys to highlight the entry you would like to edit and hit the <enter> key to select that entry from the list.

Once you select a group entry from the list you can edit it and save it by pressing on the "Save" button. A message will pop up if UI Messenger successfully saved the group name. If you changed your mind you can either hit the <esc> key or press the "Exit" button to return to the "Edit Groups List" screen.

On the "Edit Groups List" screen you can hit the <esc> key to return to the main screen.

5.8 Receiving Messages

Whenever a new message is received a window will pop up with the received message regardless of on what screen you are. UI Messenger will also vibrate and sound a two-tone signal to alert you that a message just arrived. It also gives you the opportunity to reply to the message immediately.

The bottom part of the screen displays the message you just received plus all
previous messages you received from this station. You
can scroll though the messages by hitting the <tab> key
several times until the bottom window is highlighted and
then use the <up> and <down> arrow keys. The most
recent message will be at the bottom.

 If you'd like to reply immediately with a predefined message, simply press the
"Predef" button. If you rather enter a reply manually, go to the message field at
the top and type your reply. A confirmation will be asked when you press the
"Send" button to transmit the reply.

When you hit the <esc> key you will be returned to whatever screen you were on
before this message popped up. If more messages arrive while this window is
popped up, UI Messenger will only beep and vibrate and not show that message.
You can always review all received messages through the "View" menu from the
main screen.

5.9 Viewing Messages

UI Messenger stores all received messages in memory for later retrieval. There
is no maximum number of messages that can be stored. To view previously
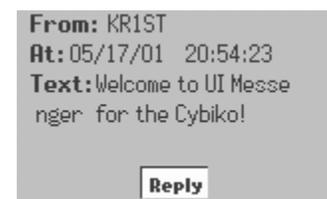received messages, press the "View" button on the main screen.

On the "View Messages" screen you can select if you
would like to see the messages sent directly to you or
messages that were sent to the message groups you
belong to.

When you select to view messages sent directly to you,
you'll be taken to a screen that displays the list of
messages sent to you. You can select a message from
this list by highlighting the message using the <up> and
<down> arrow keys and the hit the <enter> key to select
that message.

Once you select a message from the list, the complete
content will be shown and you get the opportunity to
reply to that message if you didn't do so already. To
reply, simply hit <enter> and you'll be taken to Compose
Message screen. See 5.4.2 for details.

If you choose to view messages sent to a message group you belong to, you will be presented with a list of from which you have to select a group. Once you select a group you will be taken to a screen showing you all the messages sent to that group. This is identical to what is described above for messages sent directly to you.

5.10 Maps

UI Messenger comes with a set of maps on which stations can be displayed. The default map is the U.S.A. map. You can download more maps from the web site or you can create your own if you wish.

5.10.1 The Map Screen

If you would like to see the positions of other stations on a map, then press the "Map" button on the main screen. If it is the first time you'll see the map of the U.S.A. The default installation comes with several maps you can choose from.

You can activate the map display by pressing the "Map" button on the main screen.

Stations are shown on the map as little square icons with their call sign to the right of it. The map is continuously refreshed, meaning that every time the position of a station is received it will be displayed immediately.
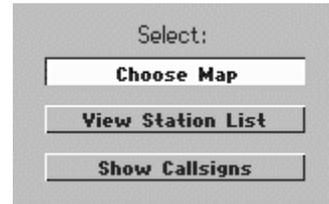
At the bottom right you see a counter showing you how many stations are received by UI Messenger. At this time UI Messenger stores the position data of up to 200 stations. When this number is reached and a new station is received which is not in the station list, UI Messenger will search the list for the station that it didn't receive position information from for the longest time and replaces that station with the new one.

You can leave the map display on all the time if you wish. If new messages are received they will still pop up. However, if you'd like to create messages you will have to return to the main screen by hitting the <esc> key.
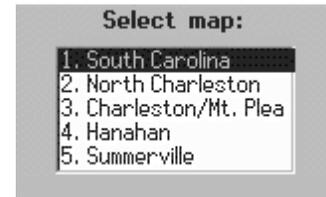
5.10.2 Map Menu

You can access the Map Menu by hitting the <tab> key
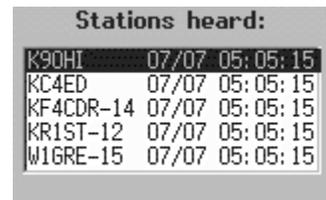on the map screen.

5.10.2.1 Selecting Maps

If you would like to display a different map, then press
the "Choose Map" button. This will bring up a list of
available maps. Use the <up> and <down> arrow keys to
highlight the map you would like to see and hit the
<enter> key to select that map from the list. The new
map with stations will immediately be shown. The
selection is stored in the UI Messenger configuration file so that next time you
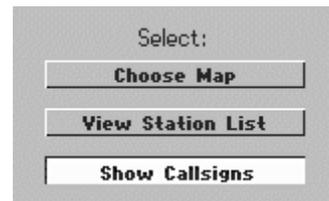start UI Messenger it will show this map when you press the "Map" button on the
main screen.

5.10.2.2 Viewing the Station List

To view the list of received stations, press the "View
Station List" button from the Map Menu. This will bring
up a list of call signs of the received stations including
the date and time the last position report has been
received from that station. You can scroll through the list
with the <up> and <down> arrow keys. Hit the <enter>
key or the <esc> key to return to the map.

5.10.2.3 Turning Call Signs On or Off
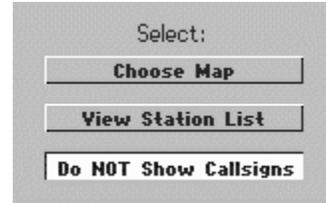
At times it may be convenient to see the position of the
stations on the map without their call sign next to it.
Especially if you are using which covers a large area,
the call signs can clutter the map tremendously.

The third button on the Map Menu can be used to toggle the display of call signs
on or off. If the button shows the text "Show Callsigns" then that means that the

call signs are not being displayed. If it reads "Do NOT
Show Callsigns" then the call signs are being displayed
and pressing this button will turn it off.

This setting is also dependent on what is set on the Map
settings screen which is accessible by pressing the "Set"
button on the main screen. Please see 5.11.4 for details.

5.10.3 Downloading Maps

Over time more and more maps will become available. To limit the download size
of the installation files fro UI Messenger only a limited number of maps will be
delivered. However, you can download other maps from the web site.

Once you downloaded a zip file with maps from the web site, unzip them and
load them onto your Cybiko using Cyberload. You will not have to make UI
Messenger aware that new maps are available, it will find them by itself and
include them in the list as shown in 5.9.2.1.

5.10.4 Rolling Your Own Maps

The maps used by UI Messenger are simple bitmaps. Each bitmap has an
associated*.inf, just like in UIView. In fact, you can use the same maps and info
files as the one you use for UIView if you wish. The name of the bitmap map and
the info file need to be the same, except for the extension. The extension for the
bitmap is .map.

The format of an INF file is as follows:

```
35.18.13N,83.59.02W
31.56.93N,77.41.43W
South Carolina
```

The first line contains the set of coordinates of the top left corner. The second
line contains the coordinates of the bottom right corner. These coordinates are
specified as dd.mm.hh, where dd = degrees, mm = minutes and hh = hundredths
of minutes (not seconds). The third line is the name of the map, as it will be
shown in the map list. This line can be up to 255 characters long.

Since the bitmap format is different for the Cybiko than used in Windows, you will
have to convert the bitmap using a utility provided by Cybiko called "Converter".
This utility is part of the "Cyberload" package or you can download the SDK and
use the one in that package.

To make the creation of maps a bit easier, you can use the Map Grabber available from Roger Barker's (G4IDE) site to generate maps from Street Atlas.

One of the big problems when you make your own maps is that if you shrink maps generated from say Street Atlas with Map Grabber, a lot of detail gets lost due to the difference of resolution. It is usually better to load the bitmap generated by Map Grabber into MS Paint and then edit the roads, borders etc. with much thicker lines. I also change the colors so that the map only consists of white, black and two gray values. That gives you the most control on how the map is going to look on the Cybiko. After you changed the map with MS Paint, load it in the converter program that comes with the Cybiko software and check how it looks.

You don't have to make the maps using Map Grabber, you can use program that generates bitmap (.bmp) files to make maps for UI Messenger.

Once you're satisfied how the map looks, change the extension of the bitmap from .pic to *.map and download the .map and the .inf file on your Cybiko to make it available to UI Messenger.

5.11 Transmitting your Position

There are two ways to transmit your position. One is by setting a time interval through the "Set/Station" menu or you can transmit your position immediately by pressing the "Posit" button. The position information is taken from whatever you have defined on the Station Settings screen.
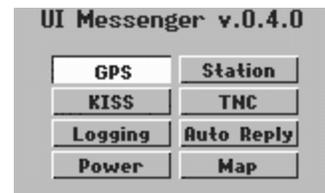
Once you press the "Posit" button, UI Messenger will immediately transmit your position and a confirmation screen will pop up. Just press <enter> to return to the main menu.

5.12 Settings

Everything that defines how UI Messenger operates is controlled from the Settings menu. You enter this menu by hitting the "Set" button.

From this menu you can select to change the station settings, change the KISS or TNC parameters, turn logging on or off, turn auto answer on or off, change the power setting or change the mapping display settings.

Chapter 4 already described how to change the station settings and how to change the KISS and TNC parameters. In this chapter we will only concentrate on the extra features on this screen.

5.12.1 Logging

UI Messenger allows you to log incoming packets for later analysis. When logging is enabled all received packets will be written to a specified file. After you're done logging traffic you can then download the file to a PC for further analysis.

To turn on logging, select "Logging" from the Set menu. This will bring you to a screen on which you can specify a filename of the file the packets need to be stored on. If the file already exists, UI Messenger will simply overwrite it.
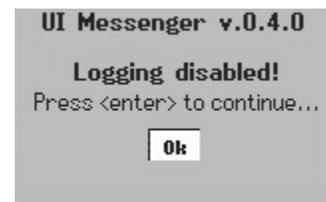
Hit the "Save" button to start logging, or hit "Exit" if you changed your mind. If you chose "Save" UI Messenger will pop up with a message informing you that logging has been enabled.

To stop the logging process select again Logging from the Set menu. You will be reminded that logging is enabled and you will be given a chance to either continue logging or to stop logging. If for some reason you are not sure if you turned on logging, you can always hit the "Logging" button on the Set menu to check if logging has been enabled.

If you hit the "Stop" button UI Messenger will stop logging incoming traffic and the file will be closed. Now you can download the file using Cyberload.

Every received packet will be logged in TAPR-2 format and is readable with any plain text editor. A time stamp precedes each packet. For example:

```
[01/23/02 20:06:16] KR1ST-12>APZ034,KF4CDR-3,WIDE2-2::W1GRE-1  :ack008
[01/23/02 20:06:17] KR1ST-12>APZ034,KF4CDR-3*,WIDE2-2::W1GRE-1  :ack008
```

5.12.2 Auto Reply

UI Messenger allows you to enter a text, which will be transmitted in reply to any messages sent to you. This is especially handy if you are operating your station unattended or are unable to reply to messages yourself for whatever reason.

To enter an auto answer or auto reply message, select "Auto Reply" from the Set menu.

In the text box enter the message that your would like UI Messenger to send. To activate Auto Answer make sure that enter "Y" in the "Auto Answer On" field. The message text and whether or not auto answer has been turned on will be stored on the configuration file.

You can always check to see if auto answer has been turned on or off by going to this screen and read the "Auto Answer On" field. It will always display the current value.

5.12.3 Power

One of the undocumented features of the Cybiko is it allows you to switch between two power levels, high and low. This feature is only accessible through software and not through any of the settings menu on the Cybiko. I have made this feature available on UI Messenger through the Set menu. Simply hit the "Power" button, which will bring you to the Power-setting screen.

This screen informs you what the current setting is and gives you the opportunity to change this. Select either the "High" or "Low" button to make the new setting active.
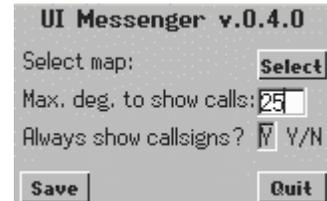
Switching the Power to the high setting means that the drain on the batteries increases about 10 to 15% and the signal strength will increase by about 10dB. Upon exit of UI Messenger, the software will return this setting to low.

5.12.4 Map Settings

The "Map" button on the Set menu gives you access to certain map settings. Most of these settings can also be changed on the map display (see 5.9). These settings are saved in the configuration file.

On this screen you can select which map UI Messenger should display. To do so simply hit the "Select" button and you will be presented with a list of maps you can chose from.

You can also define at which point UI Messenger should not display call signs on the map. Especially on a map that covers a large area, callsigns can clutter up the map severely. In the "Max. deg. To show calls" field you specify what the maximum number of degrees longitude a map can span for which UI Messenger will still show callsigns. If the map covers a larger area then specified, UI Messenger will only show station icons.

To override the above mentioned setting you can change the "Always show callsigns" field to "Y". This value will also change if you hit the "Do (NOT) show callsigns" button in the map menu (see 5.9.2.3).

5.13 GPS Mode

In order to utilize the GPS mode you need 2 Cybiko Classic computers and a GPS receiver. The GPS receiver should be capable of generating NMEA sentences though its serial port. Most GPS receivers currently on the market can do this.

One of the Classics will be connected to a TNC and radio and it will be running the UI Gate software (see the web site to download UI Gate and UI Gate documentation. The other Classic will be connected to the GPS receiver and runs the UI Messenger software. You may need a gender changer and/or a null modem adapter to connect the GPS correctly to the Cybiko. This setup creates an intelligent NMEA tracker.

Put UI Messenger in GPS mode either at startup or through the Set/GPS menu. If UI Messenger is configured correctly (see 4.1) then UI Messenger will be transmitting its position retrieved from the GPS receiver at specified intervals.

This rather unique setup allows you to use a single setup for your mobile and stationary use. For instance, one could build a Radio/TNC/Cybiko/UI Gate installation in the trunk of a car and only have a Cybiko with a GPS in the passenger cabin. Turn on the GPS mode while mobile, and turn GPS mode off

when you arrive at your destination. Disconnect the GPS and take the Cybiko with you when you get out of the car. The symbol (icon) and callsign will change to that what is defined on the Station Configuration screen. You will still be in touch with your local RF network through the UI Gate setup in the car.

When you need to go mobile again, simply hook up the Cybiko running UI Messenger to the GPS receiver and switch to GPS mode again. The symbol and callsign will change to what you have defined on the GPS Mode Configuration screen.

Your position will be shown and change on the map as you travel, and you will be able to send and receive messages.

5.14 Exiting UI Messenger

You can exit UI Messenger by pressing the <esc> key on the main screen. UI Messenger will ask you to confirm this before exiting. Press <enter> to exit or select the "No" button or hit the <esc> key if you changed your mind.

If you chose to exit then UI Messenger will send the "KISS OFF" string to put the TNC back in command mode. After this you will be returned to the desktop.