

mAPRS user manual

LA3NMA

1 Introduction

mAPRS is primarily an APRS application for use with a cellphone and Bluetooth GPS to transmit positioning messages and short text messages into the APRS-IS network. This requires a valid ham call sign, and a passcode to be allowed to transmit. The communication between mAPRS and the APRS-IS servers consists mainly of simple text commands, making it easy to implement in your own back-end server independently of the APRS-IS system. In addition to sending position reports mAPRS can receive position reports from other stations in the APRS-IS network and play their position, range, and bearing from your own station on the cellphone. Short text messages may also be received from any other APRS station in the network.

To make the application more usable to non-hams mAPRS also supports posting position data through a web page. Finally, it can be set up to send position reports as sms messages, but due to security restrictions in Java MIDP implementations this requires you to confirmation of each text message sent.

2 First Run

When first running the program you will be faced with a setup screen. Here you must enter station callsign, login and password to use with the APRS server, and you may change any of the other variables on the screen, but it is not necessary. If you choose to use HTTP posting it is not necessary to enter login and password, but rather and to the address of the web script used for posting as the server address. Similarly, when using SMS posting you only need to enter a callsign and the phone number to post to in the server address field.

When everything is as you like it, press OK. The screen will change to a Bluetooth selection screen where the GPS receiver should appear after a few seconds if everything works as it should. During this you also get a box on the screen requesting permission to utilise the Internet connection, and possibly another box to specify which connection to use. When your GPS receiver has appeared on the screen, select it with the up/down keys so that the name appears in green. Once you have selected the correct GPS, press the left or right key to confirm the selection and exit the screen. You will now probably get a box requesting permission to use local connectivity to connect to the GPS receiver.

The application should now be running smoothly and transmitting a position as often as specified by the transmit interval in the first setup screen.

3 The Different Screens

Here follows a detailed overview of the different screens that mAPRS consists of.

3.1 The Main Screen, info

The main screen consists of a status field at the top indicating whether there is no GPS connection, and if the received data is valid or not. Below this there is a timer indicating the time since the last position was transmitted. Next are two fields indicating speed and direction of travel. Below this your own position is displayed in degrees and decimal minutes. At the bottom of the screen is another information field usually containing the first part of the last message received, but sometimes this is overwritten with debug information.

Menu items:

Messages Switch to the list of received messages

Buddylist Switch to the list of received stations

Transmit Now! Transmit position report using the current communication method

Send pos as SMS Sends the current position as SMS text message (Switches to SMS screen)

Check update Checks the web server for updated version, launches Web browser if newer version is available

Setup Switch to the setup screen

Setup SmartBeacon Switch to the SmartBeacon setup screen

Find GPS Switch to Bluetooth browser to register new GPS

debug Switch to general debug log

APRS debug Switch to APRS debug log

reset W Reset warning message at the bottom of the main screen

Exit Exit program

3.2 Buddy List (APRS only)

The buddy list is a list of stations received from the APRS-IS network which passed through the filter set up on the setup screen. At the top of the screen is the number of entries in the list, and you can move up and down in the list using the directional pad. Initially each entry consists of a callsign, and at the age of the callsign, i.e. the time since the station was last heard. Below this for each station is displayed distance and bearing from your own location (assuming you have a connected GPS receiver). By pressing left key this may be changed to display the position of each received station in degrees and decimal minutes. Toggling between these two display modes may be done by repeatedly pressing the left key. As you move upwards and downwards in the list

one entry is always marked green. By pressing the right directional key the highlighted station may be sent as a SMS text message to any number you specify. When this is done a new screen appears allowing you to enter the number, and select okay from the SoftKey menu. Note that it may take some time before the screen switches back after the text message is sent.

Key commands:

Left key Toggle display between range/bearing and position

Right key Send highlighted station as SMS text message (Switches to SMS screen)

Up/Down key Cycle through highlighted stations

Menu items:

info Return to main screen

3.3 Message screen

This screen displays the received messages from the APRS-IS system.

Key commands:

Up/Down key Cycle through highlighted messages

Menu items:

info Return to main screen

New Message Compose new message

Reply Compose new message to the sender of the highlighted message

3.4 Setup screen

Here follows a list of the fields in the setup screen and their significance:

Callsign The callsign of the station ending the position reports. Either a ham callsign for the APRS network, or anything when used privately.

Login Username (typically callsign) for logging into the APRS-IS network.

Password Password for logging in to the APRS-IS network.

TX Interval (sec) The time in seconds between each time a position report is transmitted (when using interval transmission).

APRS symbol in /-table The station symbol to use for this APRS station from the primary symbol table.

server:port The address of the APRS-IS server, for instance “rotate.aprs2.net:14580”, or the address of a web page for HTTP post (see below), or the phone number to send SMS text messages to when using SMS post (see below).

APRS comment Comments to be attached to the position report.

Filter Filter command to pass to the APRS-IS server, must start with a keyword filter, for instance “filter b/la3nma*”.

Services Check the different check boxes to enable APRS (position reporting in general) and GPS respectively.

Transmit.. Select the appropriate method for position transmission, either APRS-IS, HTTP post, or SMS post. The appropriate address must be set in the server:port field.

Powersave If checked every service is shot down between position transmissions, typically used with a long TX interval (not tested).

3.5 Setup SmartBeacon

Capi follows a list of the field in the smartBeacon setup screen:

Interval/SmartBeacon Switch between transmitting positions at specific intervals given by TX interval in the setup screen, or using SmartBeacon configured with the values of the field is below. SmartBeacon cannot be used with powersaving.

Low speed The low speed limit below which positions are transmitted at the low speed interval.

Low speed interval The number of seconds between each position report when the speed is below the low speed limit.

High speed The high the limit above which positions are transmitted at the high-speed interval.

High-speed interval The number of seconds between each position report when the speed is above the high-speed limit.

Minimum turn The minimum number of degrees direction of travel must shift before a position is transmitted when the speed is between the high and low speed limits.

Turn slope A figure determining the speed of the turn which must be reached before a position is transmitted.

Turn Time Another figure determining the speed of the turn in seconds.

For more information on SmartBeaconing we refer to <http://www.hamhud.net/hh2/smartbeacon.html>.

4 Some Notes on HTTP Post

HTTP post requires a Web address to be entered into the server:port field in the setup screen which points to a script able to accept several variables. The variables are hardcoded from the program and consists of all the values used in a position report. Low is the name of these values, and an example PHP script to accept and log the data.

```

/*
 * sp = speed (km/h)
 * co = course
 * lat = lattitude (ddmm.mmm)
 * latd = lattitude direction (N/S)
 * lon = longitude (dddmm.mmm)
 * lond = longitude direction (E/W)
 * a = altitude (Meters)
 * c = callsign
 */

<?php
$d=date("Y-m-d H:i:s");
$f=fopen("temp/aprspos.dat","a");
fwrite($f, "time=$d, callsign=$c, lat=$lat$latd,
lon=$lon$lond,alt=$a,speed=$sp, course=$co\n");
fclose($f);
?>

```

5 Issues and Other Interesting Things

Saving after setup takes a long time, so please be patient.

Send me an e-mail, maprs@stallfellen.com, with comments, questions, bug reports, and so forth.

I take no responsibility regarding what this application may do to you, your phone, your family, or anything or anyone else.

Enjoy!