

This document is a capture into Acrobat PDF (Portable Document File) of VE5DGD's website documenting the APRSplus program.

http://www.qsl.net/ve5dgd/aprs/html/Site_Welcome.html

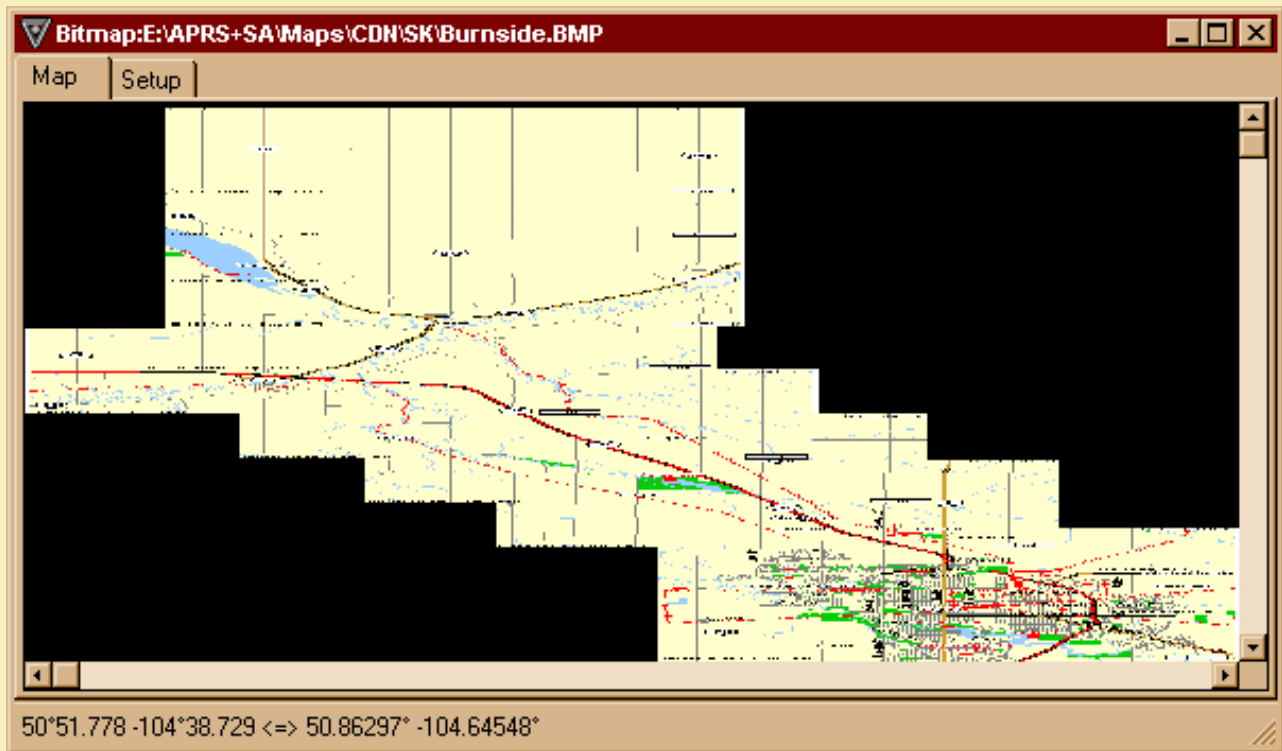
Site captured and converted to PDF format by
WA8LMF @ aol.com 7 January 2002

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APRS+SA HTML Doc Search Engine

Please use this applet to search my site for information. Enter a search word or phrase and then press the "Search" button. This search engine will search every page. If any matches are found they will be displayed. Double click on a match to jump to the page. Please note that there is no PopUp menu on this page.

Sorry but the search applet requires a java aware browser.



APRS stands for Automatic Position Report System and was developed by [Bob Bruninga, WB4APR](#) . In Bob's own words ...

APRS is different from regular packet in four ways. First by adding maps and other data displays, second by doing all communications using a one-to-many protocol so that everyone is updated in real time, third by using generic digipeating so that prior knowledge of the network is not required, and fourth, since 1997, a worldwide transparent Internet backbone, linking everyone worldwide. APRS turns packet radio into a real-time tactical communications and display system for emergencies and public service applications (and global communications). Normal packet radio has only shown usefulness in passing bulk message traffic (Email) from point to point. It has been difficult to apply conventional packet to real time events where information has a very short life time.

Although the recent interfaces to the Internet make APRS a global communications system for live real-time traffic, this is not the primary objective. But like all of our other radios, how we use APRS in an emergency of special event is what drives the design of the APRS protocol. Although APRS is used 99% of the time over great distances, the protocol will always be optimized for short distance real-time crisis operations.

APRS provides universal connectivity to all stations by avoiding the complexity and limitations of a connected network. It permits any number of stations to exchange data just like voice users would on a voice net. Any station that has information to contribute simply sends it, and all stations receive it and log it. Secondly, APRS recognizes that one of the greatest real-time needs at any special event or emergency is the tracking of key assets. Where is the Event Leader? Where are the emergency vehicles? What's the Weather at various points in the County? To answer these questions, APRS is a full featured automatic vehicle location and status reporting system too. It can be used over any 2-way radio system including HAM, CB, Marine Band, and Cellular Phone.

Bob Bruninga, WB4APR

A home APRS station consists of a radio, tnc and a computer (GPS not required). A mobile APRS station consists of a radio, tnc, GPS or may consist of a radio, tnc, GPS and a laptop. APRS transmissions have been used in high

altitude balloon launches, MIR experiments, civic events, Search and Rescue and emergencies. Various flavors of APRS programs are on the market today and consist of dosAPRS, winAPRS, APRS+SA, javAPRS and palmAPRS. You can even connect your APRS station to the Internet and send/receive messages from/at your home station to/from another APRS station in your area, another city, province/state, country or continent.

This website is one of many that discuss APRS and is designed to assist those who have selected APRS+SA as their primary APRS application. The APRS maps shown above were created using information supplied by www.mapblast.com. You are looking at the maps in their Zoomed out view, which is why they are coarse in appearance. When zoomed in to their 1:1 ratio, the maps are perfectly clear. You are viewing an animated gif of the maps I use with APRS+SA. Since there are no affordable CDROM mapping packages in Canada, I had to create maps for my own use. The bitmaps that I created for use in APRS+SA can be downloaded from our ARES Regina web site, located at www.qsl.net/ve5dgd, under APRS in Regina.

If you would like to see packages like Street Atlas USA and AAA Map 'n' Go, with full Canadian content, please contact Delorme, makers of Street Atlas USA and AAA Map 'n' Go. The more suggestions they get, may convince them that producing such a product would be a viable options for them. Please contact their suggestion department at suggest@delorme.com. Thank you.

To find out how to use bitmaps images with APRS+SA, check [Using Bitmaps](#) in this website. Recent changes in the APRS+SA program now allow for APRS icons to be displayed on the maps generated by Map n' Go and Street Atlas USA.

You do not need a radio, tnc and a gps to use APRS. With the aid of the Internet, you can join the APRS band wagon with just software. The APRS software you select, must have the ability to connect to an APRS server. These servers gather information from connected APRS users and distribute the information onto other APRS users and other APRS servers.

Running your software without a radio creates a "TCP/IP Connection" and all information you enter is picked up by the server you are connect to. Any information the server has to offer will be sent to your system for display in your software.

Running your software with a radio, TNC and a TCP/IP connection, creates a "gate" which will allow local, mobile or portable APRS user information and messages to pass thru your computer system, onto the Internet and on to an APRS server for processing. Messages send to a local user will also make it back to your system and out your radio to the specified user.

APRS messages may consist of one line of information or multiple lines of information. Each line is sent as a single transmission and when received by the destination station, they will see the entire message in proper reading order.

So why use APRS? Here is a real life story of APRS in use:

I was at work the other day for a football game and I had left my APRS+SA station running at home, connected to the APRSd server in Calgary. My "auto answer" text had the following:

I'm not at the keyboard. Call 789-7222, 566-4201 or try 147.12+, 147.06- or 146.88-

As it turns out, VA3DRV-9 was closing in on Regina and saw my station report. He sent me a message which promptly sent back the "auto answer" text. He called the first number and my wife told him to call 566-4201. He did, and we talked. He was in town for about 2 hours and had stopped at the Husky truck stop for lunch.

Since I was at work and did not have access to a radio and tnc, I simply ran APRS+SA at work, connected to the APRSd server in Calgary where I saw my station in Regina along with VA3DRV-9 and VE3APR-3 (his APRS HT).

I did not have my maps for Regina on my work computer so I connected to my site ARES at www.qsl.net and downloaded the Regina map. I unzipped them and loaded them back into APRS+SA without ever leaving the program. I then looked at the Regina map and there was VE3APR-3 (a runner) and VA3DRV-9 (a truck) at the Husky truck stop just as he said.

I then sent a message from work to VA3DRV-9. This message went from my work computer, to Calgary, to Regina, into my home computer and out my radio to VA3DRV-9. His reply took the reverse path.

David Dunster, VE5DGD

Give APRS a try ... I'm sure you will enjoy it!

05-Mar-01 1400CST



[About_APRS.html](#)

Callsign	Latitude	Longitude	Text	Date/Time Heard
VE5BL	N50°27.560'	W104°39.000'	-/= WinAPRS -233<530>	1999/12/21 20:37:41
VE5DGD	N50°27.440'	W104°37.600'	&/=PHG2130 Dave in Regina SK Canada - APRS+SA Doc Author	1999/12/21 20:11:57
VE6OLD-15	N52°16.289'	W113°48.728'	v/\$RMC:212009A SPD=0.0 TRK=050.3	1999/12/21 20:11:56
VE6PWJ	N51°03.700'	W114°02.930'	-/=PHG3130/WinAPRS 2.4.0 -240<520>	1999/12/21 20:11:56
VE6DKS	N53°32.905'	W113°30.235'	i/\$RMC:212007A SPD=0.0 TRK=330.0	1999/12/21 20:11:56
VE6DJJ-14	N52°17.179'	W113°48.559'	w/\$RMC:212006A SPD=0.0 TRK=231.7	1999/12/21 20:11:56
VE6EMU	N53°02.120'	W112°40.920'	#NIPHG2930/East of Camrose -DO33pa	1999/12/21 20:11:56
VE6JY	N53°44.510'	W112°49.810'	#NIPHG4440/DO330R LAMONT APRS DIGI	1999/12/21 20:11:55
VE6MY	N53°30.100'	W113°37.500'	#NIPHG4430/DO333EN-EDMONTON APRS DIGI	1999/12/21 20:11:55
VE6WRD	N50°12.520'	W114°27.480'	#NIPHG2930/DO205F-Hailstone Butte	1999/12/21 20:11:55
VE6DJJ	N51°00.980'	W113°59.230'	_/=PHG3230/WinAPRS 2.2.8 -ABCANCALGARY -228<530>	1999/12/21 20:11:55
VE6SBR	N53°32.700'	W113°29.650'	#NIPHG6560/Edmonton - DO33GN	1999/12/21 20:11:55
VE6GAB	N51°25.500'	W115°04.300'	#NIPHG2810/DO21LK - MockingBird LkOut	1999/12/21 20:11:55
VE6OTR	N51°03.850'	W114°02.210'	#NIPHG3230/NE Calgary Digi WRT	1999/12/21 20:11:55
VE6BCA	N53°33.110'	W113°36.110'	-/=PHG2100/ -233<530>	1999/12/21 19:59:48
VE6PAW	N53°21.230'	W113°24.700'	-/PHG2190/ BEAUMONT AB.	1999/12/21 19:58:43
VE6PWT	N51°03.030'	W114°09.650'	-/PHG2230/DO21WB, SW Calgary	1999/12/21 19:57:21

APRS+SA is one of many APRS (**A**utomatic **P**osition **R**eport **S**ystem) programs currently available for use by amateur radio operators. The program is designed to work in Windows 95/98/NT only and will not run in any earlier versions of windows such as 3.11 or 3.1. APRS+SA is compatible with all other APRS programs on the market.

APRS+SA is written by Brent Hildebrand. You can access his web site at the following address:

<http://www.tapr.org/~kh2z/aprplus/>

APRS+SA is designed to work with a program called Street Atlas USA (ver. 4, 5, and 6) and will also work with Map N' Go USA (ver. 4), both are available from Delorme at www.delorme.com. For we unfortunate Canadian folks there is no version available of Street Atlas or Map N' Go that is full feature Canadian in content. Although not viewed by myself, Map N' Go USA does have some Canadian content but very limited in detail for our city streets.

Do you need Street Atlas USA or Map N' Go to use APRS+SA? No you do not, but you do need some type of maps to use in APRS+SA. The latest version of the software has support for bitmap files. The files can be scanned maps or maps downloaded from a map service agency. Once loaded into APRS+SA you will need to calibrate them (set latitude and longitude coordinates). Calibration for bitmaps is built into APRS+SA package.

APRS+SA allows you to view one bitmap at a time and the maps do not move automatically if you are tracking yourself. I have used maps from www.mapblast.com and www.mapquest.com, as well as scanned topographic maps that have UTM grids. Both types of maps worked very well with APRS+SA.

APRS+SA is available for download from www.tapr.org ftp site. The actual location at time of this writing is the ftp site of tapr located at:

www.tapr.org/aprssig/winstuff/APRSPLUS

Check [Installation](#) for information on how to install the program.

SIGs (special interest group) are gathering places for APRS users in general. APRS+SA has its own SIG. Anything you want to know about APRS+SA can be answered in these SIGs. I recommend that you consider signing up for the APRS+SA SIG as well as the APRS SIG.

To be able to receive these APRS SIGs, you will need to subscribe to them.

Here is what you need to do:

To subscribe to the APRS SIG:

send email to: listserv@tapr.org
subject line: leave blank
message: subscribe aprssig YourFirstName YourLastName

To unsubscribe from the APRS SIG:

send email to: listserv@tapr.org
subject line: leave blank
message: unsubscribe aprssig YourFirstName YourLastName

To subscribe to the APRSplus SIG:

send email to: majordomo@k8sn.org
subject line: leave blank
message: subscribe aprsplus

To unsubscribe from the APRSplus SIG:

send email to: majordomo@k8sn.org
subject line: leave blank
message: unsubscribe aprsplus

You will be notified by email if your request to subscribe / unsubscribe from either SIG was successful.

APRS+SA comes as a single winzip file. The naming convention of the file identifies the version of the software. Example: APRSPLUS199YH. The code "199YH" is the version number. The current version of APRSPLUS can be downloaded from:

<ftp://www.tapr.org/aprssig/winstuff/APRSPLUS>

When you click on the file you will have the option to either "open" or "save" the file. It is recommended that you save the file in a temporary directory before you attempt to open it.

You may need to download WINZIP. [WINZIP](#) is a pack/unpack program that allows any software writer to squeeze a larger program of many parts into a smaller package of only one part (packing or compressing). This same program also allows you to take this smaller package and return it to its normal size (unpacking or decompressing).

After you have downloaded the file, disconnect from the Internet, close all applications and then use Explorer to view the directory where you saved the APRSplus program. Open the zipped file by clicking on it. You will be asked for a location to extract the file to. I recommend that you use the directory of "C:\APRS+SA". If the directory does not exist, it will create it for you automatically.

The next step you need to do is to initialize APRS+SA. Using Windows Explorer, go to the APRS+SA directory. In that directory you will see a file called "SETUP". Double click the file. A DOS window will appear with nothing in it, a black hole you might say. The SETUP program you activated is initializing APRS+SA by creating appropriate icons, configuration files and sub directories. When completed, the DOS window will disappear and a notification that APRS+SA is ready to use will appear. You may also see a shortcut on your desktop called APRS+SA. Shortcuts are a quick way to loading a Windows program and can save you several steps, hence the term "Shortcut".

If you are going to use AAA Map 'n' Go software with APRS+SA, you must install a patch to the program so that it knows how to activate the mapping software. This file is available for download from this site and is called [MapNGo.P199](#). This file must be placed in the directory you installed APRS+SA in. The next time you load APRS+SA, this file will be "patched" into the program automatically.

Patches can be applied to the program by reloading the APRS+SA program or can be applied while the program is active by using the "**Load Patch Files**" option on the File Menu.

Before you can use APRS+SA you need to setup some information. If APRS+SA is not loaded, double click the shortcut. In a few seconds a message will appear telling you that you have an unregistered version. All flavors of APRS must be registered if you want to have them load up automatically. A registration fee is required to allow the program to save your setup information. If you do not register these packages, you will need to re-enter all of your information each time the application is run.

Registration of APRS+SA is about \$60 US and payable to the author, Brent Hildebrand. If you are sending money from Canada for registration, please ensure that you send a postal money order. This is the best way to get funds to people in the states.

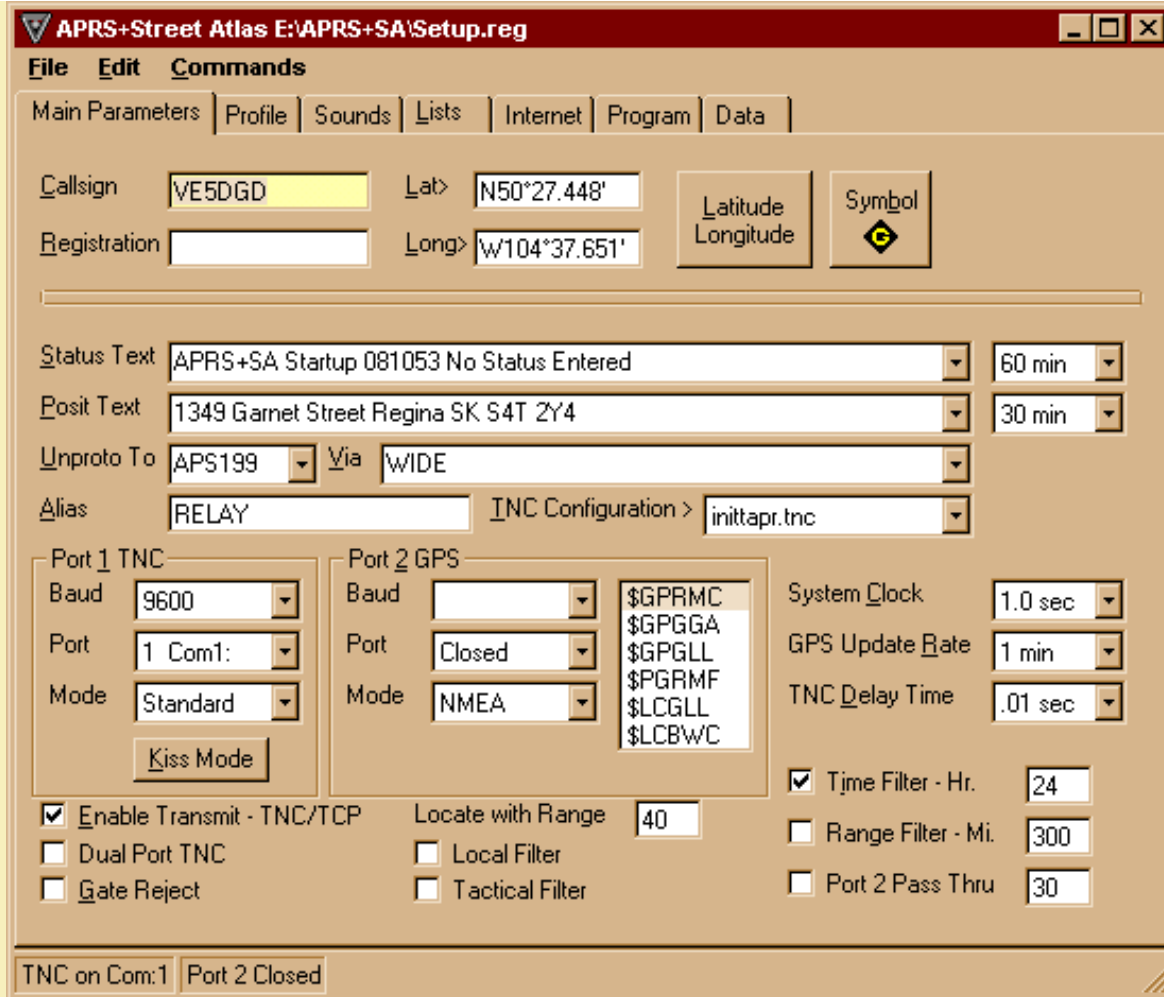
Once APRS+SA is loaded you will see a screen similar to the following:



There are actually two menus on APRS+SA. The top line that begins with "File" is the Main Menu. The line that begins with Positions, is the Tab Menu.

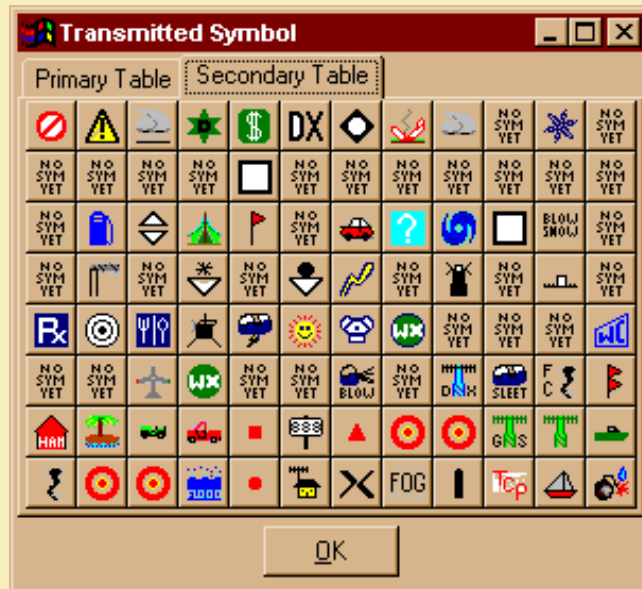
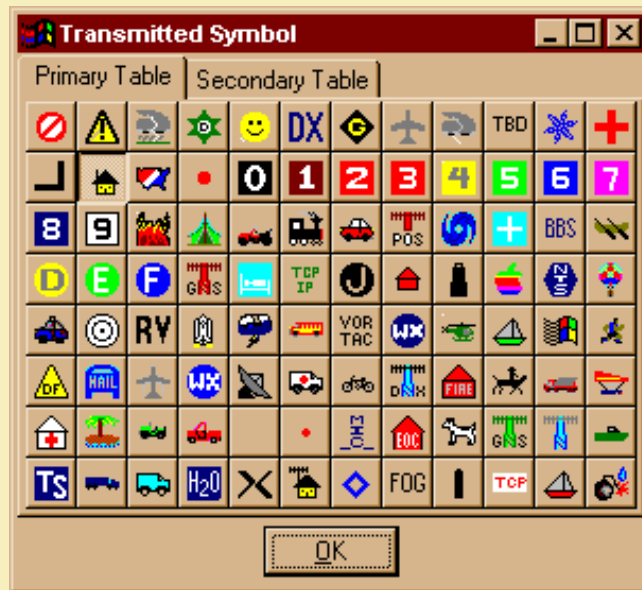
You can see that APRS+SA has a great deal of information and it is configured in an easy to use format. There are several **POP-UP** menus available in APRS+SA and they are all accessible through these various main menu options. A list of them, along with their activation keys, can be found in [PopUp Menus and their activation keys](#).

To help get you onto the APRS network quickly, click SETUP on the Main Menu, then click the [Main Parameters](#) tab. The following information will appear:



You must fill in certain information on this screen before APRS+SA will communicate with your TNC and the APRS network in your local area. For starters, you must fill in the following:

<i>Heading</i>	<i>Description</i>
Callsign:	enter you official CALLSIGN here, i.e. VE5DGD
Registration:	if you have registered APRS+SA, enter the number here
Lat>:	if you know your latitude enter it here. NOTE: this is decimal degrees.
Long>:	if you know your longitude enter it here. NOTE: this is decimal degrees.
<i>Heading</i>	<i>Description</i>
Symbol:	click this box to set the icon you want for your location. you have a choice of using any of the following icons. to select and icon just click it and then click the OK button.



Status text: place what you want in here, i.e. Your Name and software Version/Type

Posit Text: enter your street address and phone number if you like

These are the basic setup requirements that will provide information to the other APRS users in your APRS network. Both "Status Text" and "Posit Text" are transmitted to your TNC and out your radio at preset intervals. These intervals are set on the right hand side of each box. Check with the local APRS community to see how often you should send your Posit and Status text. It may vary from APRS network to APRS network, depending on how much activity there is on APRS in your area.

For the time being, do not change any of the settings for:

Unproto to, Alias, Via, System Clock, GPS Update Rate and TNC Delay Time

From this point on I will describe how to setup APRS+SA to work with an MFJ 1274 TNC. I cannot describe the setup for each type of TNC, there are just too many of them. If you have something other than an MFJ 1274 TNC, check with the APRSplus SIG about what you should be using for your TNC initialization file. You will need to create an INIT file for the MFJ 1274.

To get your TNC to work with APRS+SA, set the following:

<i>Heading</i>	<i>Description</i>
<i>TNC Configuration:</i>	I used the one I created for my MFJ 1274 instead of the default INITVHF or INITTAPR It has the basic settings for the MFJ.
<i>PORT 1 TNC:</i>	This is where you tell APRS+SA what comport the TNC is attached to. I use COM2 and have the TNC set to communicate between the TNC and computer at 9600 baud. To set your comport and baud rate, click the box with the arrow. A drop down menu will appear. Select the proper setting for your TNC-CPU baud rate and then select the port the TNC is on. Mode should be left at "standard"
<i>PORT 2 GPS:</i>	If you have a GPS attached, then set this as well. In most cases, non-moving stations do not have a GPS attached.
<i>Enable/Transmit:</i>	If your TNC is hooked up, radio is on, TNC is on, then click the check box to begin communications between your TNC, CPU and APRS+SA.

Here are some important things to remember.

- **You cannot successfully share a comport with two serial devices.** If you have an internal modem attached to COM1, you cannot use your external COM1 for APRS+SA.
- **IRQs should not be shared.** Each device used in your computer should have their own IRQ.
- Be sure to set your baud rate for the COM port to the baud rate your TNC is set to for "TNC to Computer" communications. An MFJ1274 TNC talks over the air at 1200 baud but your computer can talk to an MFJ1274 at 1200, 4800 or 9600 baud. The baud rate for Port 1 is the "TNC to Computer" baud rate, not the "over the air baud rate".

Leave the balance of the options as they are. Click the "X" in the top right corner of the SETUP menu.

If you have a registered version of APRS+SA, click FILE and then SAVE. If you have not registered APRS+SA, you will not be able to save your configuration and you will have to re-enter the information each time you load APRS+SA. This is the exact same thing you would have to do in the unregistered versions of APRSDos and WinAPRS.

Once you have clicked the Enable/Transmit TNC/TCP check box, your system is ready to become part of the APRS network. What actually happens is this:

- **Your Radio will listen for APRS activity, usually on 144.39 Mhz in Canada / USA.**
- **The TNC will talk to your computer when it hears APRS activity from the radio.**
- **Your computer will then talk to APRS+SA.**
- **APRS+SA will then display APRS information on your screen.**

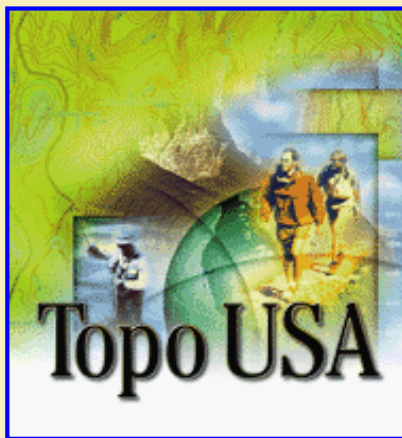
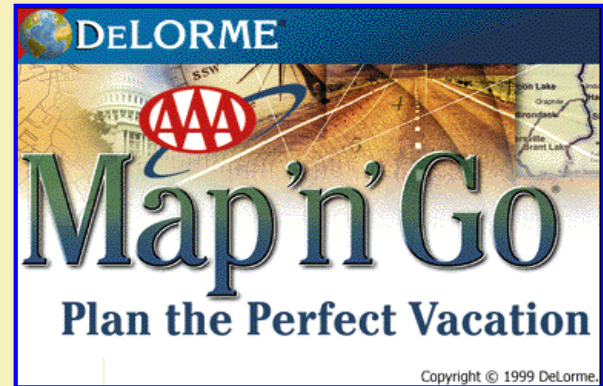
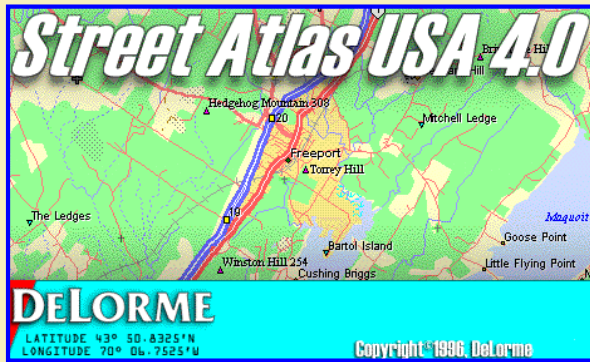
When you activate a command in APRS+SA from your keyboard or by clicking on a menu option the reverse happens.

- **APRS+SA will talk to your computer.**
- **The computer will then talk to your TNC.**
- **The TNC will then talk to your radio.**
- **Your radio will then transmit to the APRS network.**

APRS+SA has some built in hot key capabilities. To send out your position text, you can press "CTRL-P". To send out your status text, press "CTRL-S". To see that everything is working, press "CTRL-P" once and watch the PTT light on your TNC. In a split second, the light should come on and your radio should transmit. If nothing happens, then check your configuration setup for COM Port and baud rate. You may have selected the wrong COM Port or used the wrong baud rate.

APRS+SA, unregistered, will always remember what settings you defined after startup. It will only forget those settings if you should completely exit APRS+SA. The only way for APRS+SA to remember these settings each time you load the program, is to register the program. Support the author, there is a great deal of work done on APRS+SA and many long hours of programming. APRS+SA is worth a lot more than what the author is asking for.

You will not find all of your answers in this site. As I become more familiar with the program and as information is supplied by others, the appropriate areas will be updated. To obtain further assistance on a matter not discussed here, I highly recommend that you subscribe to the APRSPLUS SIG.



DOSAP

by Bill Vodall

Add On software adds greater flexibility to APRS+SA. The four package mentioned above are currently supported, in one way or another, by APRS+SA.

Street Atlas USA, AAA Map 'n' Go and Topo USA are from **Delorme Mapping**. You can find more information about these packages on their site at www.delorme.com.

DOSAP is a dos application, **written by Bill Vodall**, that provides external control of an APRS+SA system from within dos or by issuing special messages via radio from a remote location.

To learn more about these packages, just click on their logos. Topo USA is not available to me at this time and therefore I cannot provide information on it other than by going to Delorme's site.

This page will be used to define the various types of hardware that can be attached to APRS+SA. Such hardware includes the following:

Full Function Handheld GPS units

Black box GPS units

TNCs - Terminal Node Controllers

[HSP - Hardware Single Port adapter](#)

APRS Compatible Handhelds (is there more than one?)

APRS Compatible Mobile Radios

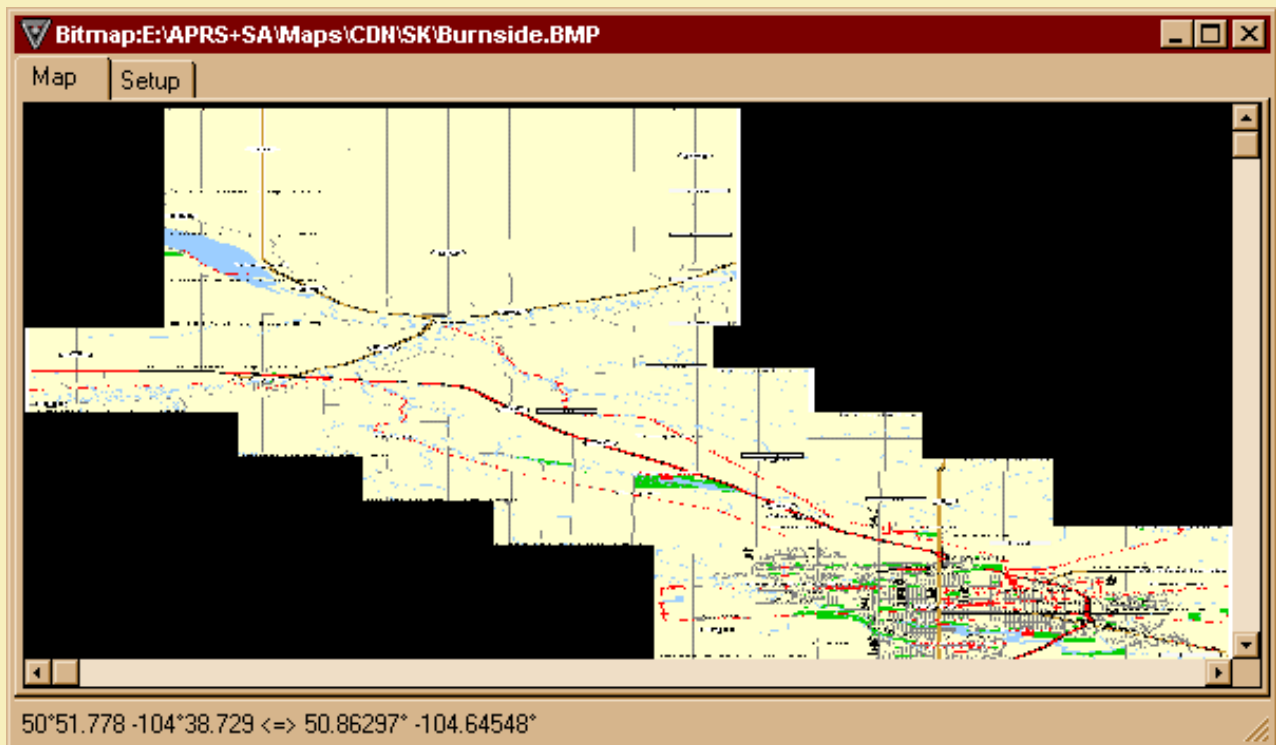
Peet Bros. Weather Stations

It would be nice to own at least one each of the above items but this is financially impossible. Therefore I request from the APRS+SA community information on how to interface these devices to APRS+SA.

Here is your chance to get your name on the Web. Articles should be supplied in plain text format with attached image files. Images file must not be larger than 600 pixels wide and can be either gif or jpeg. If you want to contribute to this section of the APRS+SA HTML Documentation, then click the page title in the lower right corner and send me your info.

Thank you.





APRS+SA is one of two APRS packages that allows you to use bitmap images for maps. The other package is WinAPRS. Bitmaps provide a quick means of creating maps for use in both packages. APRS+SA supports the Windows BMP format of bitmaps while WinAPRS uses both GIF and BMP format image files.

There are several places on the Internet today that give you the ability to download maps that are properly scaled. One place in particular that I would recommend you check out is Mapblast at www.mapblast.com. You can get almost any map, from any country, from any altitude, from anywhere in the World. This site has allowed APRS+SA to be a forerunner in Canada.

Before you can use any type of bitmap in APRS+SA, you must be sure that the map is scaled correctly. Points on the map must be true. Mapblast.com provides maps in GIF format and these maps are true to scale. Before you can use these maps, they must be converted into BMP format. There are many types of packages on the market that can convert GIF files into BMP files. I recommend using Paint Shop Pro. This package, available from www.jasc.com, provides batch file processing for image conversion. When I created the maps for Regina City, I had about 14 GIF files that make up the entire city map. I had to find a package that would allow me to "stitch" these patches together to form one solid map. Paint Shop Pro handled this task with no problem. I recommend that you do not exceed a map size of 3000 x 3000 pixels.

You do not need to download maps from the Internet to use in APRS+SA. If you have a hand scanner or full page scanner, you can take a map, such as the topographic maps available from your local government, scan it and save it as a bitmap file. We had a need to obtain a map for a Search and Rescue exercise, I scanned a 1:50,000 map of the training area. This map had UTM grids on it and allowed me to calibrate the map quickly and accurately once it was loaded into APRS+SA.

Before you attempt to calibrate a bitmap in APRS+SA, you must know the latitude and longitude of two points on your map. It is recommended that you use the most top left and the most bottom right corner of the map. You can obtain these coordinates by using your GPS and doing a field trip, or www.mapblast.com will give them to you.

If you are going to scan a map, scan at no greater than 100 dpi. A larger scan will only create a much bigger map that will consume valuable memory. When you place your map in the scanner, make sure that it is square with the side of the scanner, otherwise you will have problems when using the map after calibration. The best type of map for scanning is a 1:50,000 topographic map. Topo maps have UTM grid lines. These lines which run north to south, known as Eastings, and lines that run east to west, known as Northings. Where the grid lines intersect is a perfect spot for calibrating a scanned map.

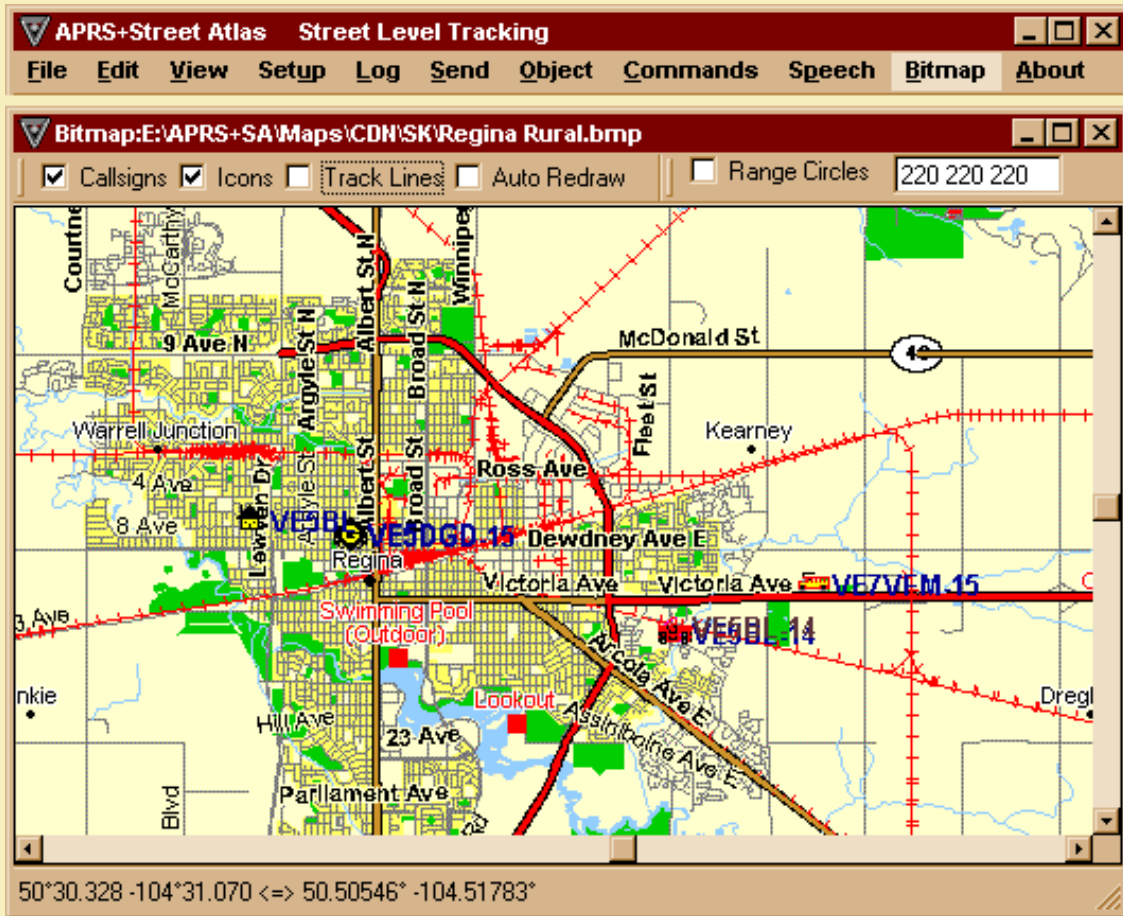
APRS+SA allows you to enter coordinates in several ways. They are:

<i>Coordinate type</i>	<i>Latitude</i> + is north - is south of equator	<i>Longitude</i> + is east of Greenwich - is west of Greenwich
<i>Decimal degrees</i>	50.4575	-104.62667
<i>Degree minutes</i>	50 27.45	-104 37.6002
<i>Degree minutes seconds</i>	50 27 27	-104 37 36
<i>UTM</i>	526501	5589566

A coordinate conversion entry screen is built into APRS+SA. To enter coordinates, click on the "Commands" title of the Main Menu and then select "Coordinates Conversion". The following screen appears:

Coordinates that are located south of the equator and west of Greenwich need to be entered as negative numbers. If you have entered your coordinates at Decimal Degrees, you can change them to Deg. / Min. or Deg. / Min. / Sec. or UTM by pressing the appropriate button. If you only have the UTM coordinates you can enter those, click the "UTM > LL" and APRS+SA will convert your UTM coordinates to the equivalent Latitude/Longitude.

Save the scanned map in the APRS+SA directory. You do not need to reload the program if you added a new map. On the Main Menu bar you will see a title called "Bitmap", click it now.



In the middle of the bitmap screen, click your right mouse button. A popup menu will appear. Select "Open Bitmap". A "File Open" box appears and asks you for the name of the bitmap you want to load. Select the appropriate directory and file name, then click "OK". If your bitmap is in the proper format and you have sufficient memory to load it, it will appear. Maximize the Bitmap box as you would any other Windows application. You now have a zoomed out view of your bitmap.

APRS+SA offers five levels of view on bitmaps. These are:

<i>Option</i>	<i>What happens</i>
<i>Zoom Window</i>	Full view of entire bitmap
<i>Zoom 1</i>	3/4 view of your bitmap
<i>Zoom 2</i>	1 to 1 view of your bitmap
<i>Zoom 3</i>	1.5 times view of your bitmap
<i>Zoom 4</i>	2 times view of your bitmap

What governs the Zoom level you can use depends on you much memory you have and how detailed you map is. To calibrate your work of art, use zoom level 1. Click you left mouse button anywhere on the map. The mouse cursor will change to a multi pointed cursor. While holding the mouse button down, move your mouse. The map moves with you. Slid the map to the coordinate point you are going to use at the top left of your map. When the coordinate point is in full view, let go of the mouse. The cross hair cursor appears. Slide the mouse until the cross hair is positioned over top of the coordinate you are going to define. Be sure that the cross point of the cursor is

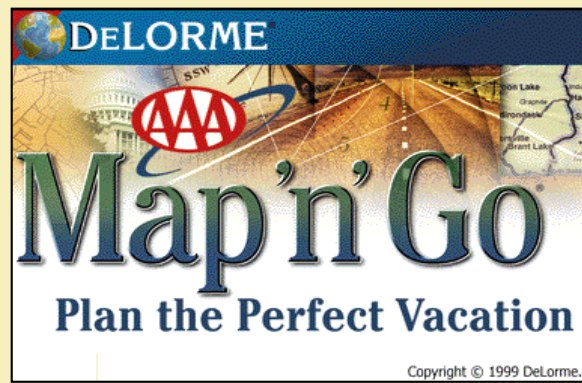
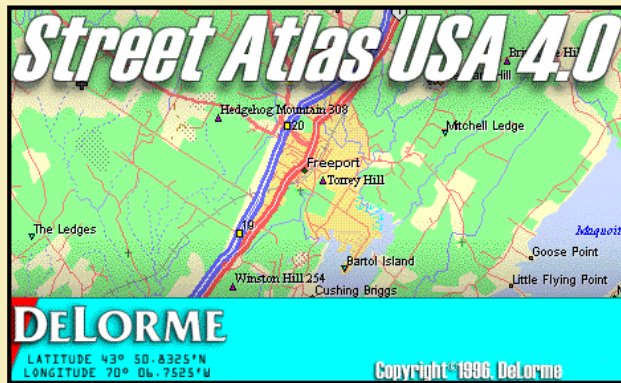
over top of the coordinate. Click your right mouse button. The popup menu appears. Either press the letter "A" or click "Calibration Point A". The following box appears:

Coordinate Conversion and Map Capture				
Hide	Deg*	Min'	Sec"	Capture
Latitude	0			Reset
Longitude	0			OK
	Zone	Easting	Northing	> Map
LL > UTM	31N	166021	0	UTM > LL
Datum	WGS84			Datum
Decimal Degrees*				

Enter into this box the coordinate for "Point A". No matter what type of coordinate you enter, APRS+SA will convert it to Decimal Degrees. Once you have "Point A" entered, click the "OK" button. Click on the map again with your left mouse button. With the map in view, click and hold the left mouse button down and drag your map until you see the spot you are going to use for the second coordinate. When you have it in view, let go of the left button, center the cross hair cursor over the coordinate and then click the right mouse button. This time select "Calibration Point B". APRS+SA will always remember the last coordinate you entered. Click the "Reset" button to erase the existing data and then type in your coordinates for "Point B". Once you have "Point B" entered click the "OK" button.

Now that you have entered both coordinates, most top left corner and most bottom right corner, you are ready to calibrate the map. Click the right mouse button. You will see an option on the popup menu called "Calibrate". Click this option now. APRS+SA will do some quick calculations to calibrate your map based on the information you provided. The process is very quick. Once you have calibrated the map you must now save the calibration. Click your right mouse button on the map and then select "Save Calibration". This command will create a file in the same directory as your map. The name of the file is the same name you gave your map but it will have an extension of ".CAL" added to it. This is a standard text file and it contains the name of your bitmap along with the new coordinates that define the top left corner of your map and the lowest right corner of your map.

Your map is now calibrated and ready for use. Each time you load a calibrated map, APRS+SA will check the appropriate ".CAL" file and set your map.



Available from DeLorme at www.delorme.com

In Canada, you will need to use Map 'n' Go since it has highway coverage of our major and secondary roads. If you travel to or in the US you may want to consider Street Atlas USA. Map 'n' Go does have Canadian coverage of our cities, but with limited detail. Major streets and points of interest are shown but residential streets are not.

To use either package with APRS+SA, you need to install them first. Follow the instruction that come with the CDROM. Do not attempt to install them in the APRS+SA directory, this is not necessary. Use the default directory as defined by the installation program or simply use, as I did, "\\SA4" for Street Atlas and "\\MnG" for Map 'n' Go. APRS+SA does not care where they are and they do not have to reside on the same hard drive.

If you are going to use AAA Map 'n' Go, then you will need the following file: [MapNGo.P199](#). Place this file in the directory you installed APRS+SA in. This file will be "**patched**" into the program when you rerun APRS+SA.

Street Atlas USA can be automatically activated by APRS+SA. Map 'n' Go requires that you manually run the program from the Start Menu. Once the program has been loaded, you need to connect it to APRS+SA. To get the maps updated, you must set a time in APRS+SA. This is done on the Setup - Maps screen.



There are nine possible maps that can be activated by APRS+SA. The interval, or how often the maps are updated, is indicated in the box that shows "Every Minute". You can control the value of this interval by selecting from the pull down menu. You can also turn it off so that no map redraws occur.

To try this out, run APRS+SA. Once it is loaded, access this screen by clicking the Maps tab from the Main Menu screen (see [Tab Pages - Maps](#)). Be sure that you have an interval timer set, say every two minute for now, and that you have selected a map by clicking "Select Maps". Once set, you are now ready to run Street Atlas USA or Map 'n' Go.

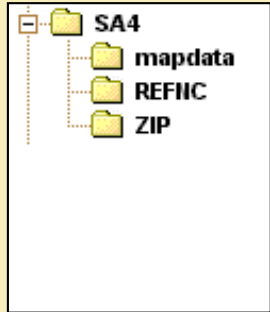
If you are going to using Street Atlas USA, press CTRL-SHIFT-A (auto runs Street Atlas) otherwise manually activate Map 'n' Go by selecting "Start Menu-Programs-DeLorme-AAA Map 'n' Go". When your software loads you must go to the File Menu and select Open. From this point a file name box will appear. Go to the hard drive and directory where you installed APRS+SA and select the MAPS folder.

- *If you are using Street Atlas USA 4, make sure that the "File Type" box shows "Street Atlas 4 (*.SA4)".*
- *If you are using Map 'n' Go 3, make sure that the "File Type" box shows "Street Atlas 4 (*.SA4)".*

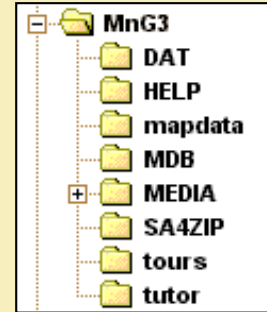
You should see at least two files with the prefix "Map1+A" and "Map1+B". These file are written by APRS+SA and contain instructions for your map software. Select "Map1+A" and click OK. Your mapping software should then automatically display the appropriate information as contained in the "Map1+A" file. When your map redraw timer reaches zero, APRS+SA writes new information in "Map1+B" and then instructs your software to redraw based on the information contained in "Map1+B". This cycle repeats so that your mapping software will use "Map1+A", then "Map1+B", then "Map1+A" etc.

You can also control how information appears on the maps. By using the [Commands-Map Feature](#) option of APRS+SA you can set specific information that will control the displaying of the maps.

It is not necessary to use the CD with either package. If you have a large enough hard drive, you can copy additional folders from the CD to the directory you installed the program in. Use the following table to indentify the directories you need to copy from the CD:

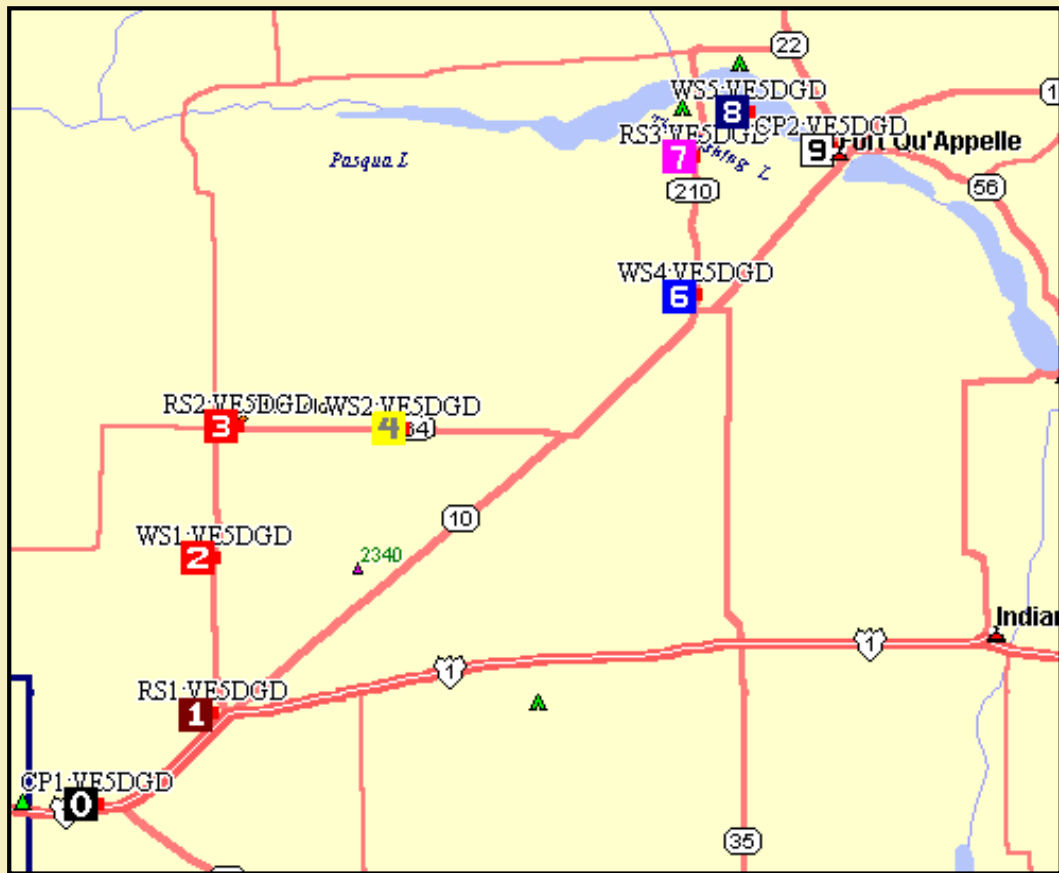


The installation of SA will give you the option to store all files on the hard drive so that the CD is not required. You should have the three subfolders in your SA folder after installation.

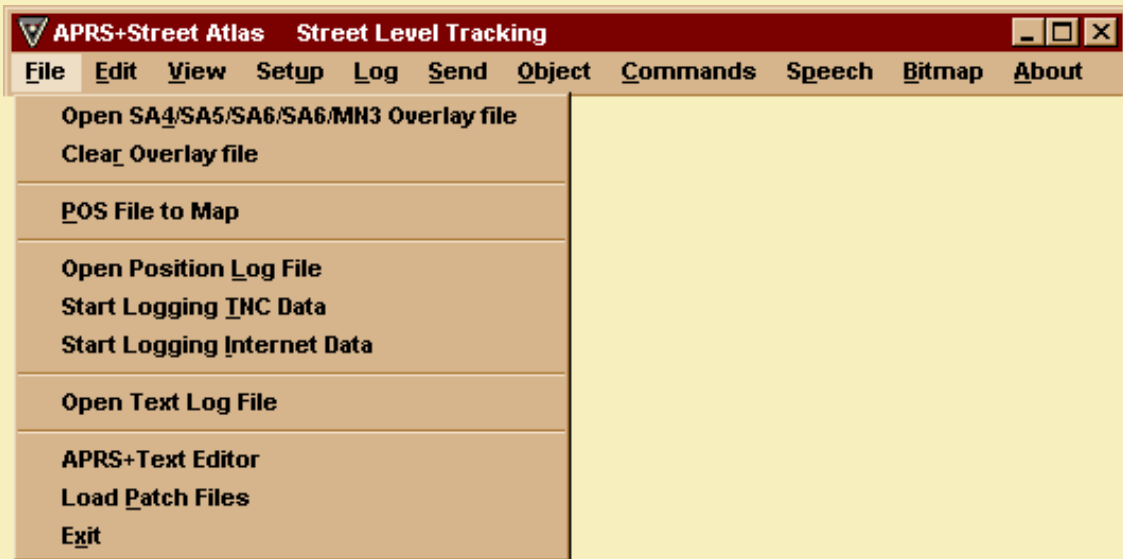


The installation of MnG does not give you the option to store all files on the hard drive so that the CD is not required. If you are missing any of the folders listed above, simply copy them from the AAA Map 'n' Go CD to your hard drive. Once the folders are copied over, run the Map 'n' Go shortcut without the CD in the drive. Map 'n' Go will ask you to insert the CD and try again. Click CANCEL. You are then asked if you want to look at a different drive for the CD. Click OK. You are then asked "Which drive". Type in the drive letter of the drive the software is installed on, followed by a "\" and then the name of the directory. In my case, I entered: "E:\MnG3".

APRS+SA, version GSP199XK or higher, has the ability to display APRS icons on Street Atlas USA or AAA Map 'n' Go maps. To get the icons to appear on these maps, you need to have at least one printer defined in Windows. APRS+SA should be minimized and your SA or MnG software should be in the foreground. As APRS+SA redraws the map, the APRS icons will automatically appear on the map. If you should move the map, resize it, or open a program over top of the map, the icons will disappear. This is not a problem with APRS+SA or the mapping software, just leave SA or MnG visible at all times for the icons to be visible after each redraw. The following map was copied from AAA Map 'n' Go and shows the numbered "Squares" from the APRS icon set of APRS+SA.



As with anything we do in Amateur Radio, experimentation is a must. If you have any questions about using these packages with APRS+SA, ask first on the APRSPPLUS sig or you can email me directly at ve5dgd@rac.ca.



<i>Function</i>	<i>Action Taken</i>
<p><i>Open SA4/SA5/SA6/SA7/MN3 Overlay File</i></p> <p>ALT F 4</p>	<p>▲ used to connect APRS+SA to Street Atlas or Map 'n' Go.</p>
<p><i>Clear Overlay File</i></p> <p>ALT F R</p>	<p>▲ data to follow</p>
<p><i>POS File to Map</i></p> <p>ALT F P</p>	<p>▲ A <i>POS File</i> is a position file. It contains the names and lat. / long.. coordinates of objects. When you load this file, APRS+SA will place all of the objects, listed in the file, onto the map used by Street Atlas or Map 'n' Go. It does not place any objects on the bitmap image file. These objects are not added to the object windows of APRS+SA. An example POS File is listed after this table.</p>
<p><i>Open Position Log File</i></p> <p>ALT F L</p>	<p>▲ Gives you the ability to log all position reports to a text file. A file dialogue box will appear asking you to supply a filename for the program to write to.</p>
<p><i>Start Logging TNC Data</i></p> <p>ALT F T</p>	<p>▲ Gives you the ability to log all TNC data to a text file. A file dialogue box will appear asking you to supply a filename for the program to write to.</p>
<p><i>Start Logging Internet Data</i></p> <p>ALT F I</p>	<p>▲ Gives you the ability to log all Internet data to a text file. A file dialogue box will appear asking you to supply a filename for the program to write to.</p>

Open Text Log File

▲ data to follow

ALT F

APRS+SA Text Editor

▲ Clicking this activates the APRS+SA Text Editor. You can use this editor to modify the lines of information contained in the text files used by APRS+SA. There are at least four files you should be concerned with. They are *PositText.txt*, *StatusText.txt*, *AutoAnswer.txt* and *Views.txt*. These files contain information that you can modify and get access to, when using the pulldown tab on the boxes labeled Status Text, Posit Text and Auto Answer.

ALT F

Load Patch Files

▲ data to follow

ALT F P

Exit

▲ When you click this line, APRS+SA will ask you if you want to shut down the program. Click CANCEL to keep the program running, or click OK to terminate. APRS+SA will send one last packet out to the network to tell the other stations you are QRT.

ALT F X

Example POS file

▲ **SKVOICE.pos**

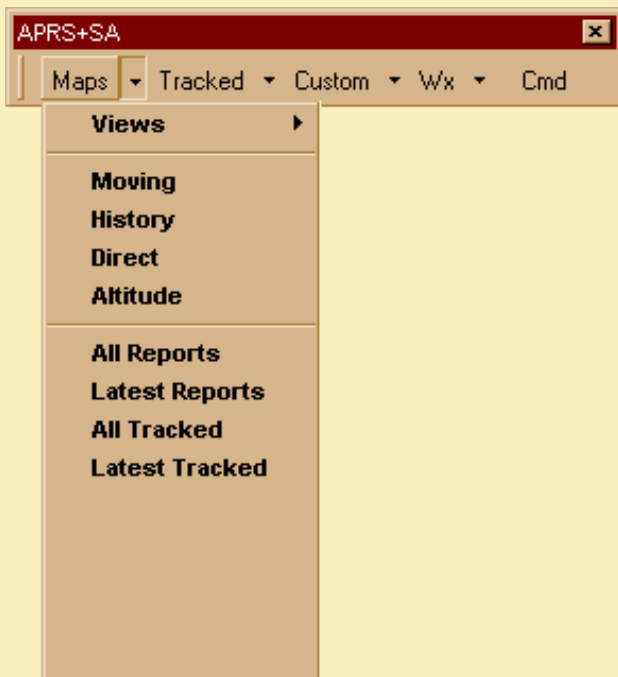
```
*
*VHF voice repeaters Saskatchewan, Canada. -- sample data
*
145.980!5206.05N/10639.98WrPHG5760 VE5FUN Saskatoon (IN) &
145.29(OUT)
146.07-!5311.78N/10544.56WrPHG5760 VE5PA Prince Albert
146.88-!5246.40N/10817.22WrPHG5760 VE5BRC North Battleford
146.88-!5251.40N/10436.21WrPHG5760 VE5MFT Melfort
*
*UHF voice repeaters Saskatchewan, Canada. -- sample data
*
444.15-!4957.65N/10502.42WrPHG5760 VE5ARG Avonlea
444.25-!5026.70N/10435.74WrPHG5760 VE5UHF Regina
447.25+!5029.04N/10439.05WrPHG5760 VE5BBZ Regina
448.00+!5208.78N/10642.26WrPHG5760 VE5FS Saskatoon
```



To activate the floating toolbar, click **View** on the **Main Menu** and then select Floating Toolbar. This toolbar is called a floating toolbar because it "floats" above any program that is running in the foreground of Windows. This toolbar allows you to access some of the map functions and commands in APRS+SA when you have either Street Atlas USA or AAA Map 'n' Go software active.

The menu bar contains five functions. These function are Maps, Tracked, Custom, Wx (Weather) and CMD (Commands). Four of the function have a pull down menu. CMD gives you access to the same pull down menu as [Commands](#).

To view the pull down menus, move the mouse tail over the top of the pull down menu and press your left mouse button. To activate the options under each heading, move the mouse tail over the top of the words and press your left mouse button.



When you click "**Maps**", the Map Features window appears where you can define several options for the map that will be drawn. See [Commands - Map Features](#) for additional information. When you click the pull down menu, a pop up screen appears.

Moving will draw the map displaying the current location of all callsigns shown on your Position screen that are moving.

History will draw the map displaying all callsigns that are listed in the History screen. If there is a callsign listed more than once, only the most recent position is shown.

Direct will draw the map displaying all callsigns that you heard *directly* as in, not Digipeated or Gated..

Altitude - data to follow.

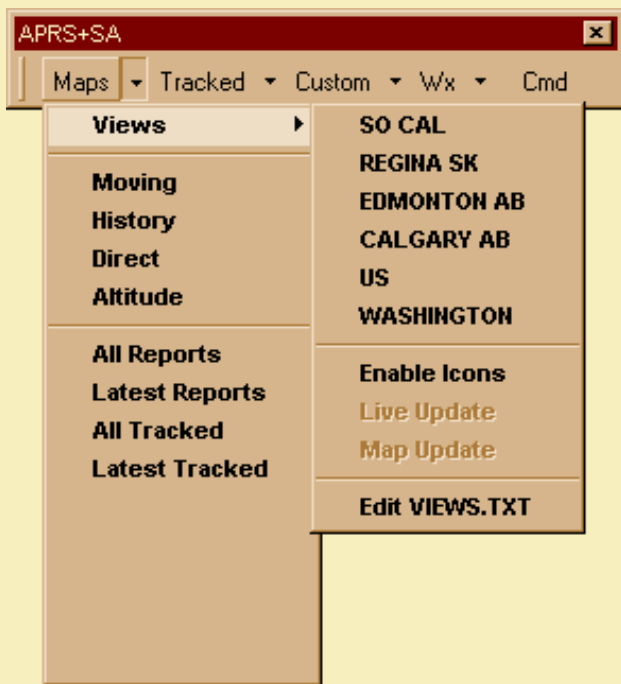
All Reports will display all callsigns you have listed on your History screen. If there is a callsign listed more than once, all positions are shown.

Latest Reports will display the

most current report of all callsigns you have listed on your History screen.

All Tracked will display all reports of all callsigns you have listed in the Track list of Tracking.

Latest Tracked will display the most recent report of all callsigns you have listed in Track List of Tracking.



NOTE: for these functions to work properly, you must have defined at least one printer in Windows.

Clicking **Views** allows you to select a pre-defined map location. This location becomes the new map center. In the list on the left there are locations for South California, US, Washington and Regina SK. The location of these spots is entered into a file called VIEWS.TXT. To edit this file, just click **Edit VIEWS.TXT**. The file contains one line for each entry. Each line contains 4 elements, each separated by a comma. These elements are name, lat, lon and mag.

name Enter a name for the location. DO NOT use commas. REGINA SK is okay but REGINA, SK is not.

lat The latitude can be entered as degrees, degree minutes, degree minutes seconds or you can use the N/S E/W designators.

lon The longitude can be entered as degrees, degree minutes, degree minutes seconds or you can use the N/S E/W designators.

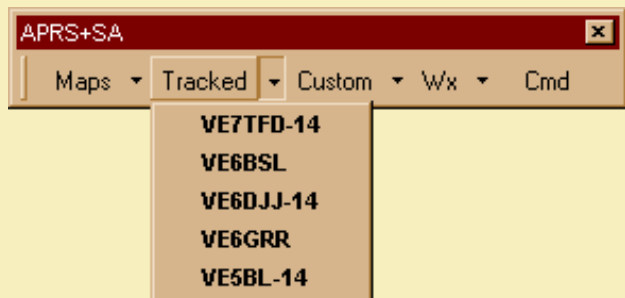
mag The magnitude is the zoom level you want for the map area you defined.

Enable Icons instructs APRS+SA to display real APRS icons on the SA or MnG maps. This is an on/off selection. When you select Enable Icons, the wording changes to Disable Icons. Icons must be enabled for Live Update

and Map Update to be selectable.

Live Update will place new position reports directly onto the map WITHOUT redrawing the map.

Map Update will refresh the map with every position reported but will leave the map at the position defined.



Clicking **Tracked** will display the current position report of all callsigns you have listed in Tracked List of Track. The pull down menu will list each callsign you have in the Traced List. You can then select anyone of these callsigns to get a current location for the selected callsign. For the pull down menu to list any callsigns, you must have callsigns in the Tracked List of Track.



data to follow



Clicking **Wx** or the pull down menu allows you to display either Temperature, Winds, Pressure or Humidity of ALL stations classified as Weather stations.



Clicking **Cmd** will bring up the Commands menu. See [Main Menu - Commands](#) for further details.

How to Calibrate a Map

To have APRS Icons display properly on a map, you must first define a map view area. This map view area can be at any location you desire. The map must be calibrated and the information stored in the Views.txt file.

There are two ways to calibrate a map. The first way is to open SA or MnG and select the area you want to view. Do a right click and bring up the Lat/Long of the area under the mouse pointer. Record this information, along with the magnification level, on a piece of paper. The second way is to just open the Views.txt file and enter a name, lat/long and magnitude. Either way is acceptable. These calibration points become map center.

How to enter data into Views.txt

Activate the Floating Toolbar by selecting Floating Toolbar from the **View** menu. Open up the Views.txt file by selecting the pulldown menu beside "**Maps**". Highlight **Views** then select **Edit Views.txt**. Enter a name for the map area along with the latitude, longitude and magnification level that you recorded earlier. Here is a sample of map view areas I have defined in my Views.txt file:

```
;Canada  
;Name,Lat,Long,Mag  
Regina SK, N50 26.0, W104 35.0,12  
Edmonton AB, N53 31.0,W113 30.0,12  
Calgary AB, N51 03.54, W114 06.29,12
```

Feel free to copy these if you like and paste them into your Views.txt file. Save and Close the Views.txt file.

How to use Map View

On the floating toolbar click on the pulldown menu and move the mouse over top of Views. You should see a list of all the map areas you defined. Select any one of the names shown. SA or MnG will redraw and display the selected location on the screen. APRS Icons will appear if you have selected **Enable Icons**.

You cannot select Live Update or Update Map, unless you have selected **Enable Icons**. Icons have been enabled if "**Disable Icons**" is visible. To manually update the map with current data, select "**Map Update**". Only stations within the range of the viewable map area will appear on the map with the appropriate APRS icons.


NOTE: If you redraw or minimize the map, the APRS icons will disappear. If you should bring any other application to the foreground while Live Update is checked, you will get APRS Icons showing up in that application.



Function

Description

Scrolling On/Off

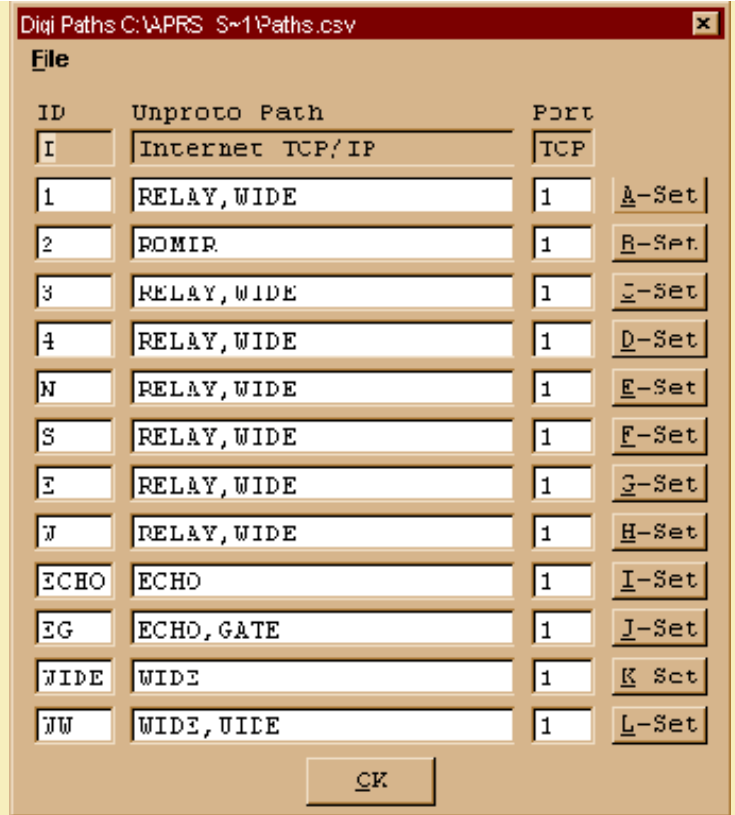
 data to follow

CTRL SHIFT P

Unproto Paths



CTRL SHIFT U or
ALT C U



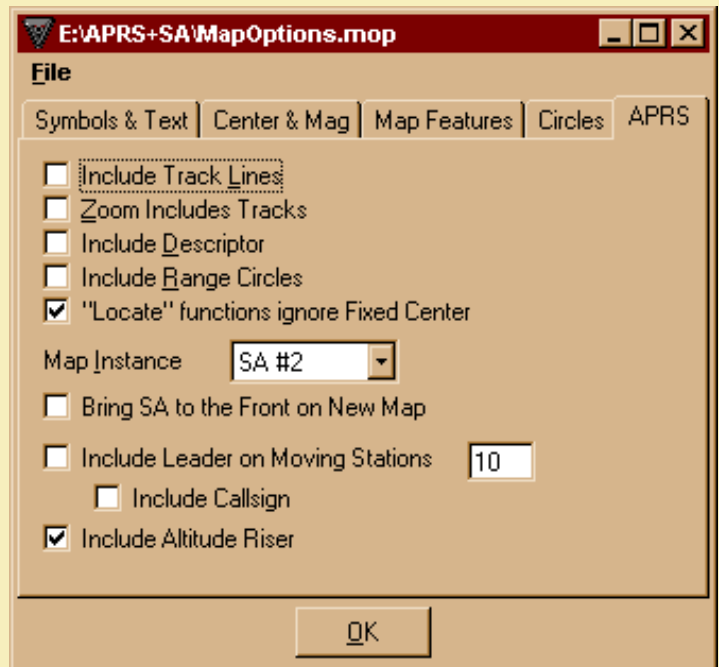
All **Unproto Paths** are changeable. These paths are then applied in the [Main Menu - Setup - Parameters](#) screen.

Map Features

CTRL SHIFT M or
ALT C F

*Map Features is used exclusively with Street Atlas USA or
AAA Map 'n' Go software.*

They do not work with bitmap files.



This group of screens controls how APRS+SA and SA or MnG work together. Several options are available and you will need to experiment with them to see what effect they have on the maps. Each screen is explained below.

Symbols & Text Rd

The dialog box is titled "Symbols & Text". It has several sections:

- Symbol:** Size: Very Small (dropdown), Color: Black (dropdown), Orientation: NW, N, NE.
- Text:** Size: Small (dropdown), Color: Black (dropdown), Orientation: W, E.
- Track Lines:** Width: Thin (dropdown), Style: Solid (dropdown), Grid Lines.

Symbol and Text can be defined in different sizes and color. To change them, select the size or color box and pull down the menu. **Track Lines** can be defined by thickness and style. Track lines are drawn on a map for tracked stations only.

Compass points define where you want the location of the callsign placed that identifies a station or object.

Grid lines, if selected, will appear on the map. These grid lines are latitude and longitude lines only.

Center & Mag Rd

The dialog box is titled "Center & Mag". It contains the following controls:

- Fixed map center (with a dotted border)
- Center Tracks Me
- Latitude: 50.44585 (text input)
- Longitude: 104.6161167 (text input)
- Range (with an empty text input)
- 16 Maximum Mag (spinner)
- 2 Minimum Mag (spinner)
- 13 Fixed Magnitude (spinner)
- Fixed Magnitude
- Zoom Tweak: 0 (spinner)
- Latitude / Longitude (button)

Fixed map center requires you to provide a latitude/longitude value. When the map redraws, it will always be centered at this point. To define a fixed map center, you need to know the latitude and longitude for the point to center the map on. These values are entered as decimal degrees.

Center Tracks Me place the center of the map on your icon at all times. APRS+SA will use your position report coordinates. **Range** is distance in miles. If you check the Range option, then the map will show stations in that range from map center. **Maximum Mag** defines how far into the map you can zoom. It can not be less than the value defined in minimum mag. **Minimum Mag** defines how far out you can you can zoom the map.


Fixed Magnitude limits the map to a specific zoom level. You must check the box to enforce this value.

Zoom Tweak is a value between -3 and 3. It is applied to your fixed magnitude, minimum magnitude and maximum magnitude, if checked.

Latitude/Longitude button allows you to enter coordinates in the form of decimal degrees, degree minutes, degree minutes seconds or UTM and then convert to decimal degrees. The value returned is

automatically placed in the appropriate box.

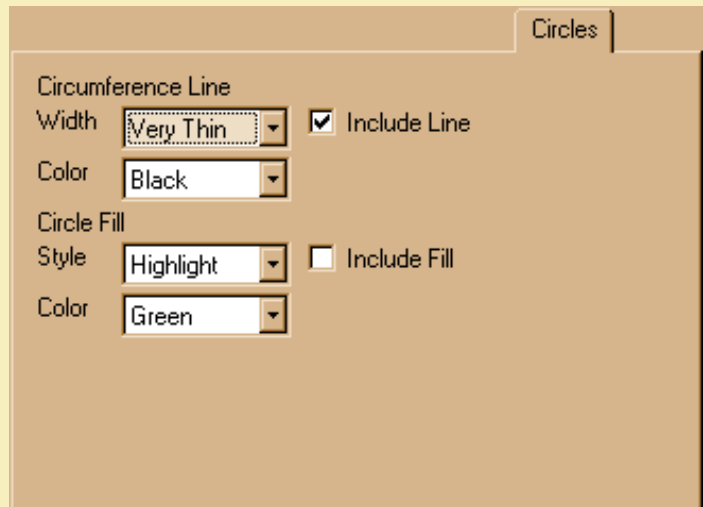
Map Features



Roads	Place names	Water	Other
<input checked="" type="checkbox"/> Major	<input type="checkbox"/> Major	<input checked="" type="checkbox"/> Major	<input checked="" type="checkbox"/> Railroads
<input checked="" type="checkbox"/> Minor	<input type="checkbox"/> Minor	<input checked="" type="checkbox"/> Minor	<input type="checkbox"/> Boundaries
<input type="checkbox"/> Names		<input checked="" type="checkbox"/> Names	<input checked="" type="checkbox"/> Tints
<input type="checkbox"/> Symbols			<input type="checkbox"/> Zipcodes

You can set which additional items are displayed on the map. Any box that is checked will cause that feature to be visible on the map. If you want to turn on all features, click the "All" button. Clicking "None" button will turn off all map features.

Circles



Circumference Line

Width: Include Line

Color:

Circle Fill

Style: Include Fill

Color:

Circles are used when a station reports a PHG (Power Height Gain) value.

Circumference Line identifies the outer edge of a circle. It should be included if you want to see where coverage overlaps. You can select the width and color of the line.

Circle Fill allows you to select the style and color of the fill for the circle.

APRS

<input type="checkbox"/>	I <u>n</u> clude Track Lines
<input type="checkbox"/>	Z <u>o</u> om Includes Tracks
<input type="checkbox"/>	I <u>n</u> clude D <u>e</u> scriptor
<input type="checkbox"/>	I <u>n</u> clude R <u>a</u> nge Circles
<input type="checkbox"/>	"Locate" functions ignore Fixed Center
Map I <u>n</u> stance	SA #1

Include Track Lines draws a path for all tracked stations.

Zoom Includes Tracks, if checked, will include track lines if you zoom in or out on the map.

Include Descriptor will append the descriptor text of a position report to the end of the callsign when it draws the map.

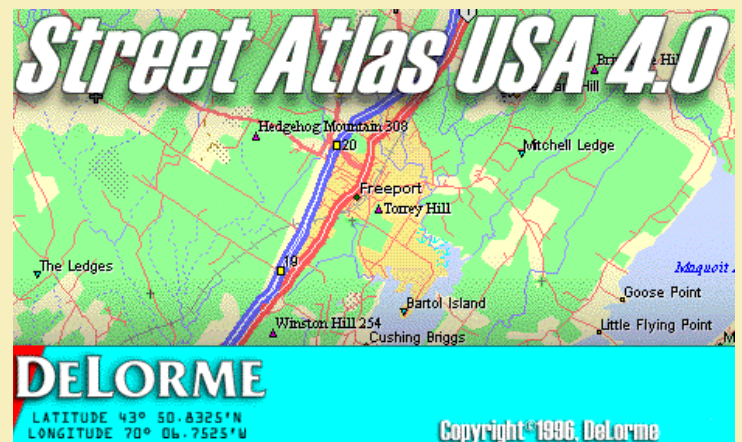
Include Range Circles must be checked if you want PHG circles to appear on the map.

Locate functions ignore Fixed Center to be defined.

Map Instance defines which one of the maps these values will be applied to.

Start Street Atlas

CTRL SHIFT A or
ALT C



If you have Street Atlas USA, you can link activity on your local or Internet APRS network with the maps used in Street Atlas USA. More information on this feature can be found in [AddOns - Street Atlas USA](#).

Coordinate Conversion

CTRL SHIFT C or
ALT C O



Coordinate Conversion and Map Capture				
Hide	D <u>e</u> g°	M <u>i</u> n'	S <u>e</u> c"	C <u>a</u> pture
Latitude	0			R <u>e</u> set
Longitude	0			O <u>K</u>
	Z <u>o</u> ne	E <u>a</u> sting	N <u>o</u> rthing	> M <u>a</u> p
LL > UTM	31N	166021	0	U <u>T</u> M > LL
D <u>a</u> tum	WGS84			D <u>a</u> tum
Decimal Degrees*				

TNC Commands



TNC Port 1	Ctrl+Shift+1
TNC Port 2	Ctrl+Shift+2
Send Ctrl-C to TNC	Ctrl-C
Send 3 Ctrl-C's to TNC	Ctrl-R
Pico Position Text	Ctrl-E
<u>G</u> armin Handheld Receivers	
<u>T</u> ripmate	▶
Flow Control Debugging - HSP	

ALT C N

Tripmate

ASTRAL to <u>T</u> NC Port
ASTRAL to <u>G</u> PS Port

?APRS?



data to follow

CTRL Q

Time Filter



<u>O</u> ff
<u>0</u> .5 Hour
<u>1</u> Hour
<u>2</u> Hours
<u>3</u> Hours
<u>4</u> Hours
<u>6</u> Hours
<u>8</u> Hours
<u>12</u> Hours
<u>24</u> Hours

ALT C T

Range Filter



<u>O</u> ff
<u>3</u> Miles
<u>5</u> Miles
<u>10</u> Miles
<u>20</u> Miles
<u>40</u> Miles
<u>80</u> Miles
<u>160</u> Miles
<u>320</u> Miles
<u>640</u> Miles
<u>1280</u> Miles
<u>2560</u> Miles

ALT C R

Maps



Locate yourself on the map	Ctrl+L
Draw Map <u>1</u>	Ctrl+1
Draw Map <u>2</u>	Ctrl+2
Draw Map <u>3</u>	Ctrl+3
Draw Map <u>4</u>	Ctrl+4
Draw Map <u>5</u>	Ctrl+5
Draw Map <u>6</u>	Ctrl+6
Draw Map <u>7</u>	Ctrl+7
Draw Map <u>8</u>	Ctrl+8
Draw Map <u>9</u>	Ctrl+9
Draw Next Map <u>0</u>	Ctrl+0

ALT C M

Summary Window



data to follow

Calculator



data to follow

CTRL ALT SHIFT A

Clear



C lear A ll
C lear P osition D ata
K eep M ost R ecent
K eep S tation within R ange
R emove Lat/Long = 0 90 180
C lear I NC Window
C lear T CP/IP Window

ALT C C

Speak Last Status Text



If you have any of the sound agents installed you can have that sound agent "speak" the last piece of text information displayed in the Status Bar.

CTRL SHIFT T or
ALT C S

Internet Connect or
Internet Disconnect



This function will connect to your ISP and create a connection between your APRS+SA software and an APRS server on the Internet. It will use the APRS server defined in [Main Menu - SETUP - Internet](#). This command works like a switch. If you are connected to the Internet, it will read Internet Disconnect. If you are not connected to the Internet, it will read Internet Connect.

ALT C I or
ALT C D

Callsign Lookup on the Internet



This function will open a Telnet session and connect to a special callsign server. You enter the callsign and the server will respond with information about that callsign

ALT C L

Calendar



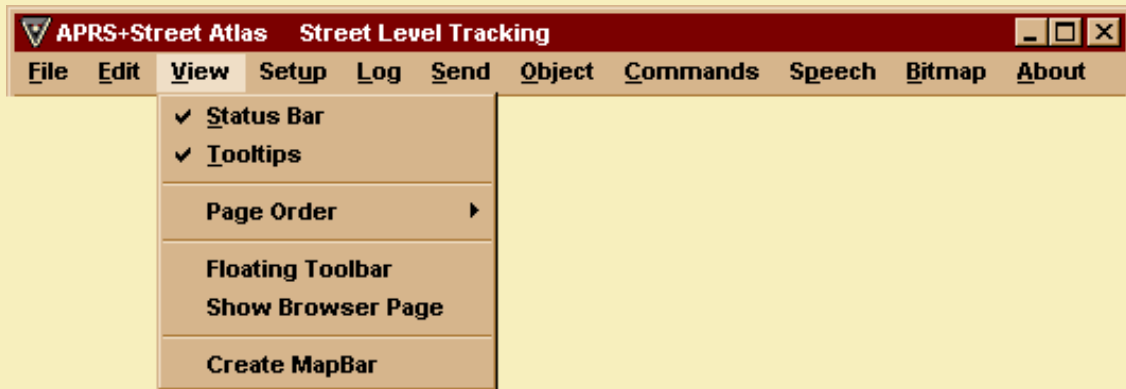
displays a four month Calendar, starting with the current month, with the current date circled.

CTRL ALT SHIFT C or
ALT C D D



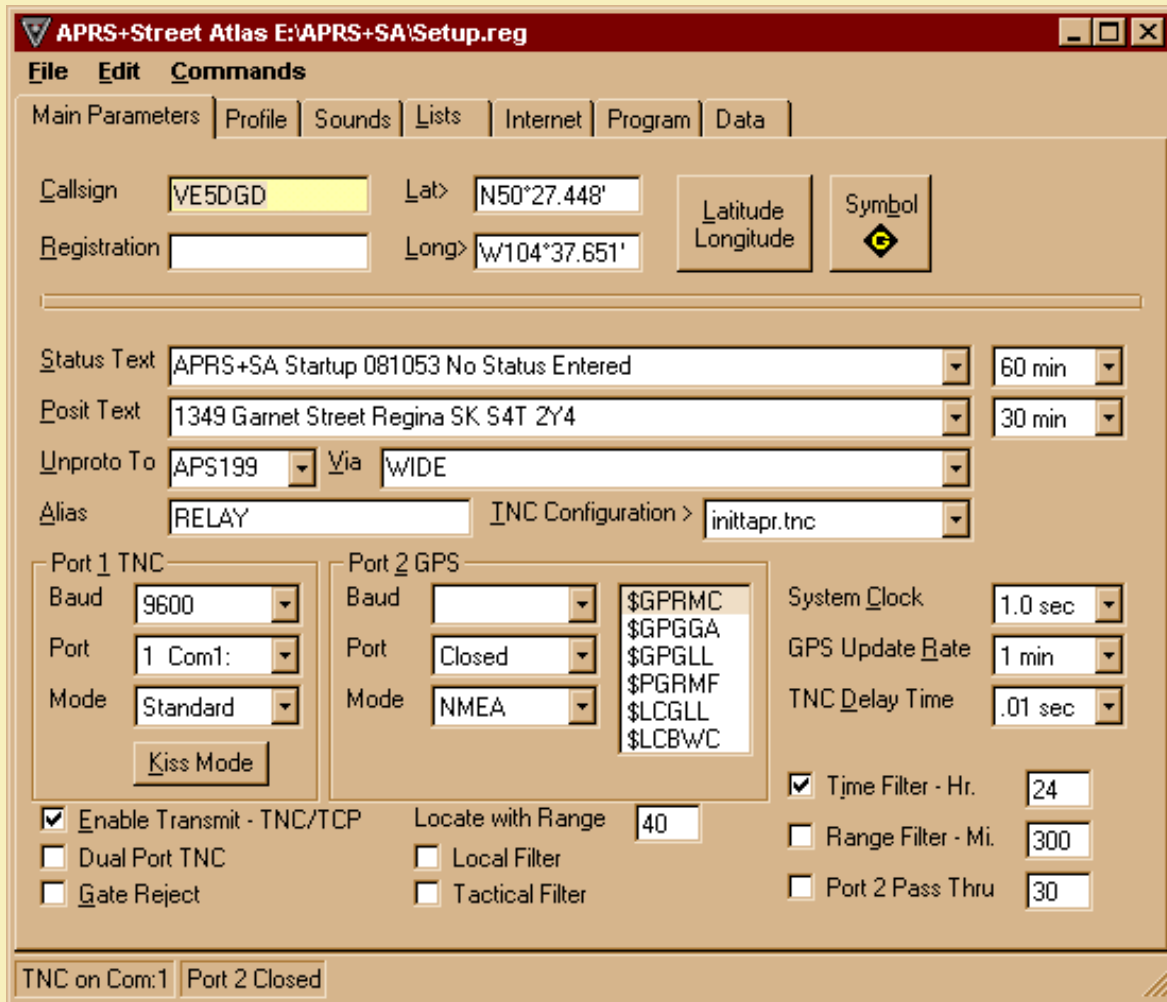


<i>Function</i>	<i>Description</i>
Cut CTRL X or ALT E T	<p>▲ This is the standard windows Cut function. You must first select information with your mouse. Selecting is accomplished by on the information or highlighting the information by holding down your left mouse button and then sliding your mouse to the right. Anything you copy is placed on the Windows clipboard replacing the previous copied or cut information.</p>
Copy CTRL C or ALT E C	<p>▲ This is the standard windows Copy function. You must first select information with your mouse. Selecting is accomplished by on the information or highlighting the information by holding down your left mouse button and then sliding your mouse to the right. Anything you copy is placed on the Windows clipboard replacing the previous copied or cut information.</p>
Paste CTRL V or ALT E P	<p>▲ This is the standard windows Paste function. It will take the information you cut or copied onto the clipboard and paste it as many times as you like. Before you can do a paste, you need to have information on the Windows clipboard.</p>
Find ALT E F	<p>▲ Find allows you to search for a defined value within any of the information that you have selected.</p>
Popup ALT E U	<p>▲ Popup displays a secondary menu of selectable items depending on what form you are working with. Popup works with the Positions, History and Objects forms.</p>



View provides you with the option for turning on displays or turning off displays in APRS+SA. You can also change the order of the tab pages. When your mouse advances over top of an input box or title, APRS+SA display a small description. This description is called a Tooltip. APRS+SA also allows you to run a mini-Internet Explorer as a tab page.

Option	Function
Status Bar ALT-V S	▲ On the bottom of the APRS+SA screen is a status bar that displays additional information. The information displayed tells you whether you are connected to the TNC, Internet or your APRS+SA Web server is active. If you have a check mark beside Status Bar, then the Status Bar is visible. To stop the Status Bar from displaying, uncheck Status Bar by clicking on it with the left mouse button. This option acts as a switch, click once to turn it on, click again to turn it off.
Tooltips ALT-V T	▲ When your mouse advances over top of some of the input boxes or titles, an info box will appear. This is called a Tooltip. You can turn off all tooltips by unchecking this option. This option acts as a switch, click once to turn it on, click again to turn it off.
Page Order	▲ This option allows you to change the order in which the Tab pages are displayed. There are 15 tab pages in all. To move a tab page into a different location, first select the tab page by clicking on the appropriate tab. Then go to the View-Page Order. Select the number of the position you want the selected tab page to reside at. Order is from left - right (1 - 15).
Floating Toolbar	▲ Clicking this option will activate a floating toolbar. This toolbar will always be in the foreground or Windows, no matter what program you are running. It gives you direct access to some of the functions in APRS+SA. For additional information on this function, check Floating Toolbar .
Show Browser Page	▲ This option will add a tab page to your current session of APRS+SA. The new tab page is a mini-Internet Explorer that gives you access to your APRS+SA Web server or any site on the Internet.
Create MapBar	▲ data to follow

**Function****Description****Callsign**

- ▲ This is where you enter your personal assigned callsign. SSID is accepted here as well, i.e. VE5DGD or VE5DGD-15

Registration

- ▲ If you have registered the software, Brent will provide you with a key number. Enter that number here. When validated, you will be able to save all configuration information. The shareware version is 100% functional with the exception of saving your configuration.

Lat>

- ▲ Enter the latitude of your location in Decimal degrees. Use a negative value if you are south of the equator.

Long>

- ▲ Enter the longitude of your location in Decimal degrees. Use a negative value if your are west of Greenwich Meantime.

Latitude Longitude

- ▲ This option generates a screen that permits you to enter your location in one of many formats. The acceptable formats are Decimal degrees, Degree Minutes, Degree Minutes Seconds or UTM. You can convert values from any one type to Decimal degrees by selecting the appropriate button.
-

Symbol

- ▲ APRS has several symbols or icons that represent an APRS station. There are two tables in APRS+SA, one is the primary table and the second is the alternate table. Most symbols you will be using are on the primary table. Some symbols are designed for specific types of stations such as digipeaters and weather stations.
-

Status Text

- ▲ Enter information here that describes the status of your station. You can also set how often your station will transmit the status text. I would recommend setting this to about every 60 minutes. The information contained in the Status Text box can be selected from a pulldown menu. This pulldown menu displays information contained in a file called **StatusText.txt** and can be found in the APRS+SA main directory. The file can be edited using the **APRS+Text Editor**, selected under [File](#) of the Main Menu, or you can use the Notepad program.
-

Posit Text

- ▲ Enter information here that describes the location of your station. You could enter your street address or if mobile, a description of your vehicle and plate number. The Posit text is send in the BText of your TNC. You can also set how often your station sends the position text. I would recommend setting this to no less than 1 minute. Check with your local APRS community for a recommend posit text transmission rate. The information contained in the Posit Text box can be selected from a pulldown menu. This pulldown menu displays information contained in a file called **PositText.txt** and can be found in the APRS+SA main directory. The file can be edited using the **APRS+Text Editor**, selected under [File](#) of the Main Menu, or you can use the Notepad program.
-

Unproto To

- ▲ This is used to set the digipeat and destination address fields of packets sent by APRS systems. Most APRS stations use a "Unproto to" that identifies their station type, i.e. DOS, APRS+SA, WinAPRS or MacAPRS. Via indicates how the packet is handled by digipeaters in your listening area. APRS+SA allows you to define several different VIA statements. These can be changed by using the Unproto Paths defined in [Main Menu - Unproto Path](#).
-

Alias

- ▲ This option set the "MyAlias" of your TNC. Most APRS stations will use "Alias" as the Alias. If you have "Alias" set and another station has a "Unproto Via" of "Relay,Wide", your system will digipeat their posit if you have digipeat set to "On" for your TNC.
-

TNC Configuration

▲ There are some pre-defined TNC configuration files included with APRS+SA. Select the one that covers your TNC. "InitVHF" or "inittapr" may work with most modem. If you are having trouble getting your TNC to work, check with your local APRS network users first, or try the [APRSplus SIG](#) for assistance on getting the proper config file for your TNC or .

Port 1 TNC

▲ Do not confuse the "Port 1" as being COM1, they are different. APRS+SA assumes all devices attached to this port as being a TNC. You will need to configure the baud rate that your TNC talks to your computer at, the COM port it is attached to and what type of connection your TNC is using. i.e. Is it sharing the port with a [HSP device](#), is it a PICO tnc or just a standard connection. The port you select here must not be shared with any other communication device. For example: If you have a mouse on COM1, then you cannot have a TNC on COM1.

Port 2 GPS

▲ Your GPS connection is defined here. Indicate the speed your GPS is set to (most cases 4800 baud) , the COM port it is attached to and if the GPS is a Garmin, Tripmate or NMEA 0183 compatible. You am also specify which NMEA sentence to use. Most common is the \$GPRMC string which includes speed and direction. The port you select here must not be shared with any other communication device. For example: If you have a mouse on COM1, then you cannot have a TNC on COM1.

System Clock

▲ If you have the status bar on, a clock will be displayed in the lower right corner of the Main Menu screen. This clock is updated based on the time you set here. Two seconds is the suggested setting for the system clock update.

GPS Update Rate

▲ When using a GPS you can tell APRS+SA how often to check it for a position update. This does not affect how often you transmit your position.

TNC Delay Time

▲ This value tells the TNC how long to wait after keying up the transmitter before sending the packet. If you have chopped packets, set the delay to twice the current value and try again.

Enable Transmit TNC/TCP

▲ Before you can transmit over the APRS network or the Internet, you must check this box. If it is unchecked, nothing will transmit out the radio or over your Internet connection.

Dual Port TNC

▲ If you dual port TNC, i.e. VHF / HF, then check this box.

Gate Reject

▲ data to follow

Locate with Range

▲ data to follow

Local Filter

▲ data to follow

Tactical Filter

▲ data to follow

Time Filter - Hr.

▲ data to follow

Range Filter - Mi.

▲ data to follow

Operating a Weather Station with APRS+SA

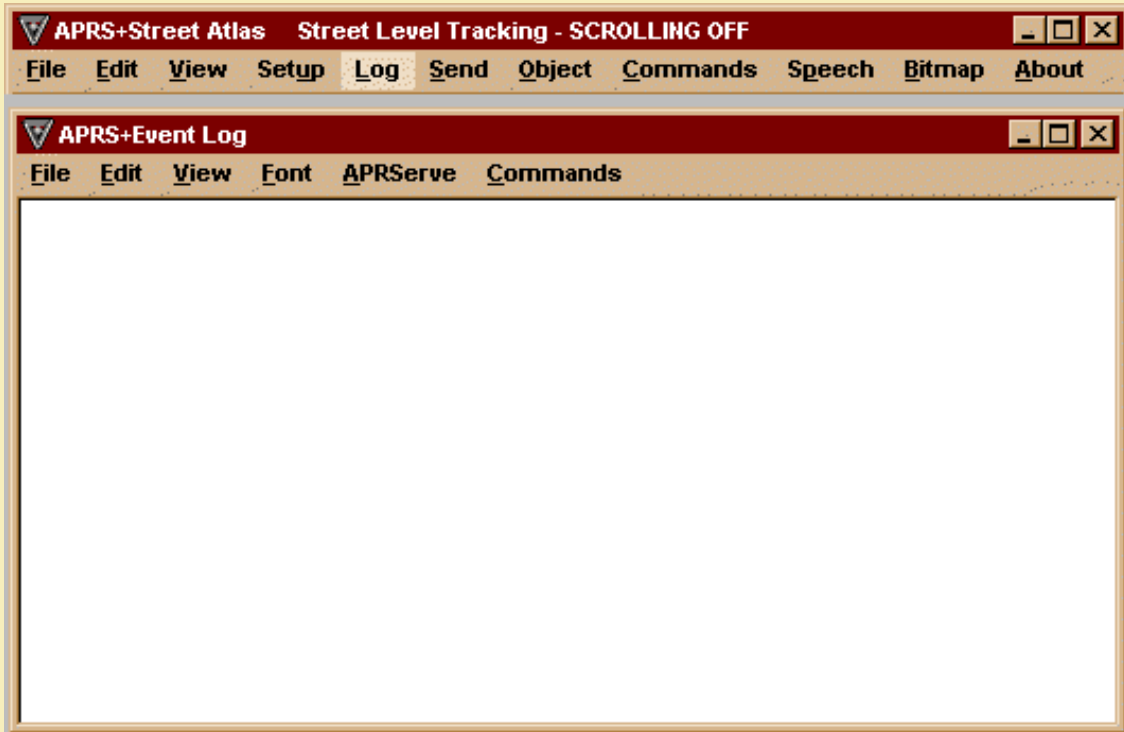
APRS+SA supports the Peet Bros. weather station only.

To hook up and operate a Peet Bros weather station do the following:

1. Connect the weather station to a com port.
2. Under Setup, in the Port 2 GPS box, set the port you have the weather station connect to.
3. Under Setup, in the Port 2 GPS box, set the baud rate you you have the weather station set at.
4. Under Setup, in the Port 2 GPS, set Mode to "Other".Check "Port 2 Pass Thru".
5. Set the interval at which you want weather transmissions to be sent.

NOTE: Interval is in seconds. So if you want weather transmissions every 10 minutes, set a value of 600.

At this time, APRS+SA does not have a weather history report system. Only the most current report is visible on the [Weather page](#).



CONSTRUCTION

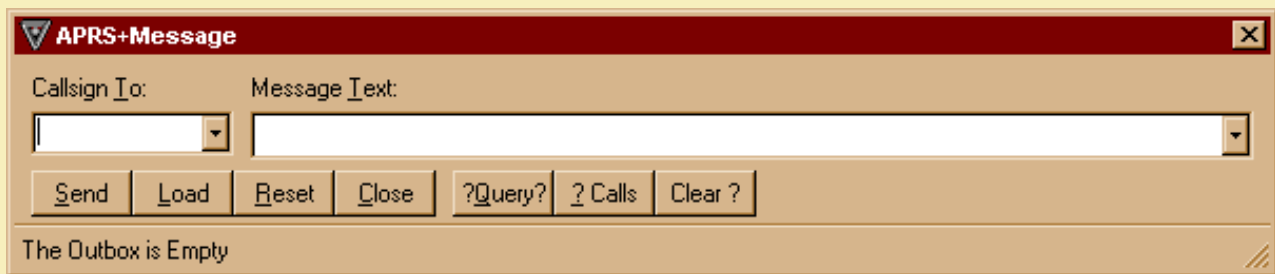


The Send menu allows you to manually send a message, bulletin, a weather report, re-transmit your position or status and send your tactical Callsign.

Here are some points to note about registered vs unregistered software:

1. Unregistered software can send a message, over the internet, to another internet station. Their message will not be gated to RF.
2. Unregistered software can originate a message on RF, have it picked up by a registered IGate station, and be forwarded over the internet and then be gated elsewhere.
3. Both "registered" and "unregistered" users can connect to an APRS Server to obtain information for the APRS software they are using.

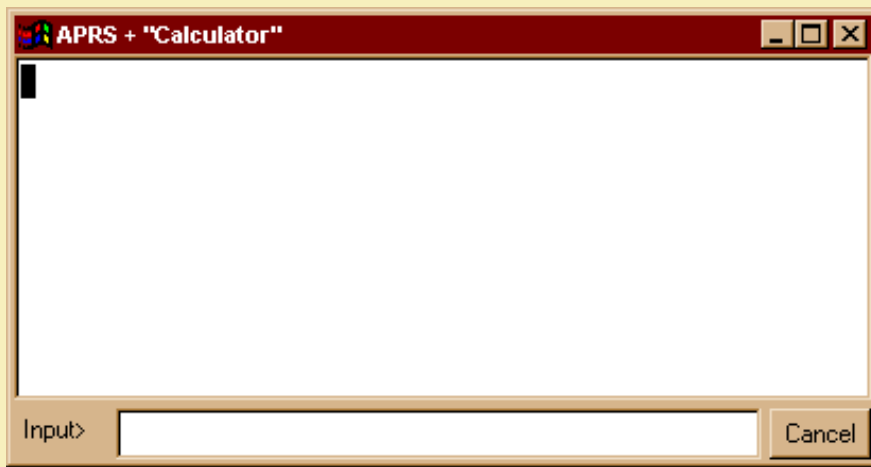
<i>Option</i>	<i>Description</i>
<p><i>Send Message</i></p> <p>CTRL M</p>	<p>▲ If you want to send a message to another APRS users, use CTRL-M or select this item. A message entry box will appear where you provide the callsign of the person you are sending the message to followed by the message. An APRS message may consist of a single line or a combination of lines that make up the entire message. See the message window at the bottom of this table regarding additional functions on this screen.</p>



In addition to sending a message you can also use APRS+Message to send a special email message, draw circles, lines or boxes and place labels on Street Atlas USA or AAA Map 'n' Go maps.

How to setup EMAIL:

To be able to send email you must set three variables in the APRS+SA program. The first variable is an email alias name, such as **AIRMAIL**, **EMAIL** or **APRSMAIL** or something unique to you. These three names are already taken and should not be used if you are connected to an APRS server. The alias name you wish to use must be added to the "CALLSIGN" box in Setup-Main Parameters. I use APRSMAIL:VE5DGD. Whatever you select must be entered with the alias first, then a ":" then your official callsign. The second and third variable you enter are done with the APRS+Calculator. This is done by clicking on [Commands](#) on the Main Menu bar, then **Calculator** or by pressing CTRL-ALT-SHIFT-A on your keyboard. If you did it right the following screen will appear:



The two variables that must be set are your ISP's send-to address and your email address. To enter them, type the following into the **Input>** box of the calculator:

```
EMAIL_HOST #is 'smtp.cableregina.com'  
EMAIL_RETURN #is 've5dgd@rac.ca'
```

EMAIL_HOST is the address of where you send your outbound email to and EMAIL_RETURN is your email address. Once you have them entered, you will not need to reenter them unless you change ISPs or you change your email address. Close the Calculator by clicking the "X" in the top right corner of the form.

How to use EMAIL:

APRS+Email is activated when you enter your alias call in the **Callsign To:** box of APRS+Message. Type your alias in and in the **Message Text:** box enter the following word: **HELP**. If everything is correctly set, you should see a reply message from APRS+Email that resembles the following:

```
VE5DGD [8]ALL CALL EM EMAP ETXT CLEAR HELP NAME
```

The APRS+Email has eight functions. They are **ALL**, **CALL**, **EM**, **EMAP**, **ETXT**, **CLEAR**, **HELP** and **NAME**.

Command

ALL	syntax	ALL email_address CALLSIGN
	example	ALL ve5dgd@rac.ca
	result	sends all of the messages in TRAFFIC to the email_address indicated
	example	ALL ve5dgd@rac.ca CALLSIGN
	result	sends all of the messages in TRAFFIC to the email_address indicated that were either from or to the indicated CALLSIGN
<hr/>		
CALL	syntax	CALL last_name first_name
	example	CALL dunster david
	result	returns a message to you that gives you my CALLSIGN. You must know the spelling of the person for this to work
<hr/>		
EM	syntax	EM email_address [subject]

example EM ve5dgd@rac.ca Test Message
result Sends ALL messages from the last issue of CLEAR to the email_address indicated supplying a subject title of "Test Message"

EMAP syntax EMAP email_address [[callsign] [subject]]
example EMAP ve5dgd@cableregina.com VE5BL Reports
result sends a .SA4 attachment to the indicated email address that can be read be Street Atlas USA or AAA Map 'n' Go to show the position of the station VE5BL

ETXT syntax ETXT email_address [[callsign] [subject]]
example ETXT ve5dgd@cableregina.com CALLSIGN Test
result email_address will receive a text attachment of all original packets for the indicated CALLSIGN.
NOTE: For this function to work you must have the "Store Original Packets with POSITs" checked on "[Setup-Program](#)".

CLEAR syntax CLEAR
example CLEAR
result Clears the EMAIL buffer

HELP syntax HELP or HELP command
example HELP
result sends a message to you showing all available commands
example HELP NAME
results shows the proper syntax use for the NAME command

NAME syntax NAME CALLSIGN
example NAME VE5DGD
result returns the first_name and last_name as well as location of indicated CALLSIGN. Street Address is not shown

Transmit Position ▲ When configuring APRS+SA you define how often you transmit your position report. Mobile stations should NEVER transmit their position report more than once a minute and stationary stations should transmit no more than once every 30 minutes. CTRL-P will force the transmit of your position.

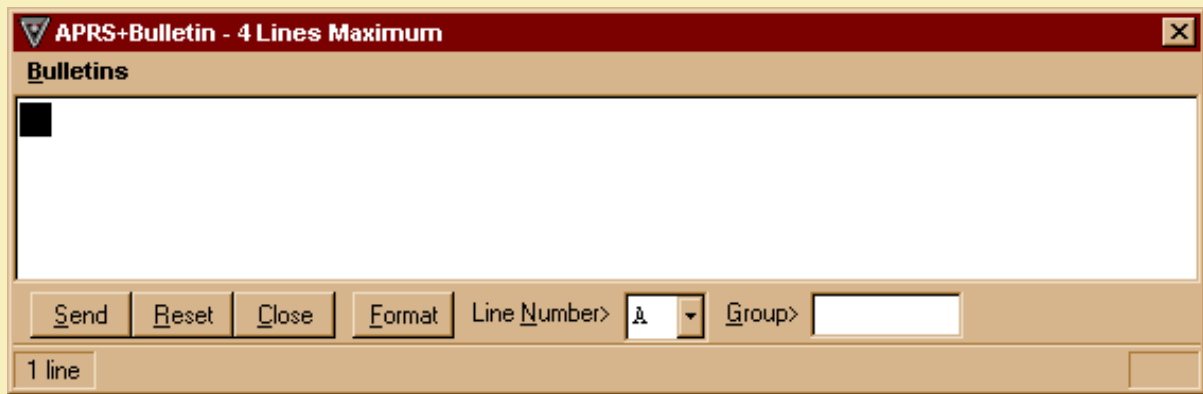
CTRL P

Transmit Status ▲ As with Position you define how often your status should be sent. In most situations, you would set his to once an hour.

CTRL S

Send Bulletin ▲ Bulletins are messages that announce points of interest that all APRS stations will see. These bulletins are transmitted on a pre-define cycle.

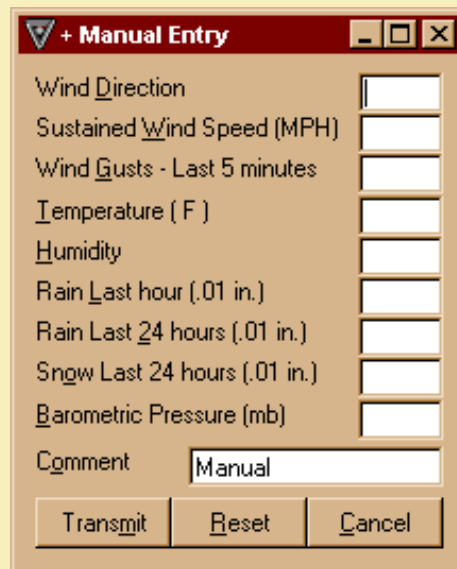
CTRL B



Send Weather Report ▲ If you want to send a manual weather report, you can use this option. When you select "Send Weather Report" a popup screen appears that asks for basic weather information. Don't be like the Weather man and send false reports, send only REAL weather conditions at all times.

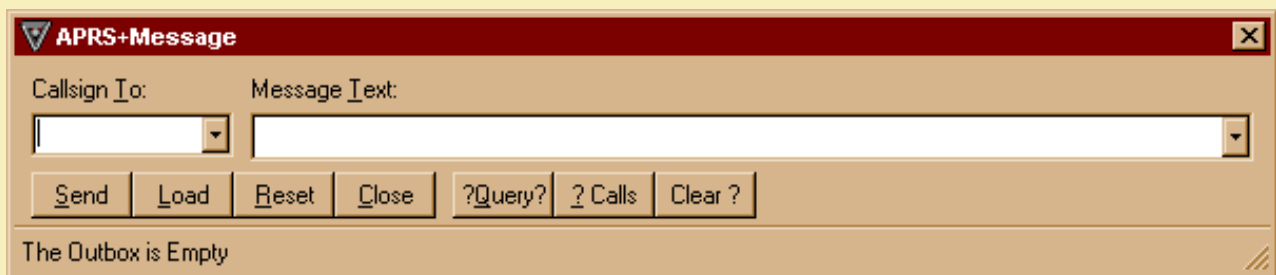
CTRL W

The manual weather data entry screen looks like this:



Send Tactical Callsign ▲ data to follow

When you activate the CTRL-M command, the following window appears:



Note: A message cannot be sent if there is nothing in the Message Text box. You cannot send a message to a callsign that is not listed in the pull down **Callsign To** box.

Function

Description

Callsign To:

▲ Enter a callsign or click on the arrow to get a list of valid callsigns you can send a message to.

Message Text: ▲ Enter the message you want to send. APRS+SA auto wraps your message if it does not fit in the desired window length.

Send ▲ If you have a short message to send, you can select this button to send it when you want to. Pressing ENTER after you type in a message will also send that message.

Load ▲ data to follow

Reset ▲ Selecting this option will remove data from the Callsign To and Message Text entry boxes.

Close ▲ This will close the message window.

?Query? ▲ Selecting this button allows you to select which information you want to query for. As soon as you select one of the options, APRS+SA will send the message. If the other station supports queries, it will return with the response for the query requested.

Query options without Internet access

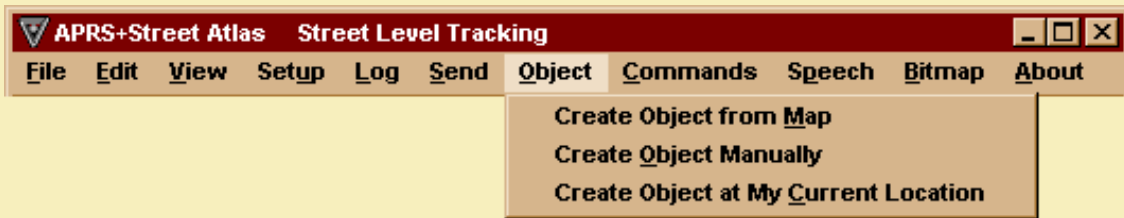
<u>A</u>PRS
<u>A</u>PRS<u>I</u>
<u>N</u>ame
<u>D</u>efault <u>L</u>ocation
<u>E</u>mail <u>A</u>ddress
<u>H</u>ome <u>W</u>eb <u>P</u>age
<u>T</u>actical <u>C</u>all
<u>P</u>rogram <u>V</u>ersion
<u>P</u>rofile
<u>D</u>ata

Query options with Internet access

Internet ▶	Internet - <u>Q</u>RZ
<u>A</u>PRS	Internet - <u>M</u>ap
<u>A</u>PRS<u>I</u>	HTML: Template1.htm
<u>N</u>ame	HTML: Template2.htm
<u>D</u>efault <u>L</u>ocation	HTML: Template3.htm
<u>E</u>mail <u>A</u>ddress	
<u>H</u>ome <u>W</u>eb <u>P</u>age	
<u>T</u>actical <u>C</u>all	
<u>P</u>rogram <u>V</u>ersion	
<u>P</u>rofile	
<u>D</u>ata	

?Calls ▲ If you have made any queries, this function will display all of the stations you queried since your last **Clear?** function.

Clear? ▲ If you have any calls listed when you issued the **?Calls** function, this function will remove them and empty the query list.



"*Main Menu - Object*" is used to create objects for APRS+SA. These objects can be created from a Map, created Manually or can be created using the coordinates of your current location.

<i>Function</i>	<i>Action Taken</i>
Create Object from <u>M</u>ap	▲ use this option to create an object from a map. when you select this option, APRS+SA is minimized exposing the map and an APRS+Object Editor box. (see below)
Create <u>O</u>bject Manually	▲ use this option to create an object that you know the coordinates for. Upon selecting this option, the APRS+Object Editor box will appear. (see below)
Create Object at My <u>C</u>urrent Location	▲ use this option to create an object, using your current coordinates. Upon selecting this option, the APRS+Object Editor box will appear. (see below)

Any objects you create are stored in a file called aprsplus.dat and can be modified or deleted by viewing the "[Objects](#)" screen from the Tab Pages.



<i>Function</i>	<i>Action Taken</i>
<u>N</u>ame	▲ Enter the name for the object. You can use up to 9 characters and spaces are not permitted. Letters (A-Z) and numbers (0-9) should be used. Upper case is suggested, although not mandatory.
<u>L</u>at	▲ If you know the latitude of the object, enter it here. <i>Use DECIMAL degrees.</i>
<u>L</u>ong	▲ If you know the longitude of the object, enter it here. <i>Use DECIMAL degrees.</i>

<u>DDHHMM</u>	▲ This is the date/time of creation. APRS+SA automatically enters the current date and time. The format is " DD = Date, entered as 01, 02 ... 31 ", " HH = Hour, entered as 01, 02 ... 23 " and " MM = Minutes, entered as 01, 02, ... 59 ". REMEMBER: <u>Time is ZULU time.</u>
<u>Speed</u>	▲ If you know the speed at which the object is travelling, enter it here. <i>Speed is in Miles per Hour.</i>
<u>Direction</u>	▲ If you know the direction the object is travelling, enter it here. <i>Direction is entered in degrees, from 0 to 359.</i>
<u>Lat/Long</u>	▲ If you do not know the lat/long in decimal degrees, select this button to bring forward the Coordinate Conversion window where you can enter coordinates as decimal degrees, degree minutes, degree minutes seconds, or UTM and have them converted to the format of your choice.
<u>Icon</u>	▲ Select this button to define the type of icon you want to use. APRS+SA defaults to the red dot for an object icon.
<u>Map</u>	▲ data to follow
<u>Expiry Date/Time</u>	▲ If the object has an expected life cycle, enter the date and time that the object will expiry on. When an Object expires, it stops transmitting.
<u>Text</u>	▲ Enter a description of the object, such as an address.
<u>OK</u>	▲ When you have the information correctly entered, click OK to save the object. The APRS+Object Editor will remain on the screen so you can enter another object.
<u>Reset</u>	▲ To clear out the data in each data entry window, click this button.
<u>Close</u>	▲ Closes the APRS+Object Editor window when selected.
<u>Expiration></u>	▲ Use this option to set a time when the object will expiry. This time is calculated from the moment the object is saved. If you enter 02:00, the object will stop transmitting in 2 hours. <u>Expiry Date/Time</u> will be modified to show the actual expiry date/time.



APRS+SA supports Text-to-Speech as provided by Microsoft's Agent. To enable text to speech, you need to obtain the proper files from Microsoft. Information on MS Agent for text-to-speech can be found at:

www.msdn.microsoft.com/workshop/imedia/agent/default.asp

There are three files that you must download, MS Agent, the Text-to-Speech engine and a character. Characters are pictorial views of an animated object that translates the text sentence into vocal response. The choices for a character can be downloaded from:

www.msdn.microsoft.com/workshop/imedia/agent/agentdl.asp

The most popular character appears to be Peedy the parrot who munchies on crackers and mellows to music (that you can't hear) on his headphones when he is not busy.

<i>Description</i>	<i>Filename</i>	<i>Size</i>
<i>MS Agent software</i>	MSAGENT.exe	401,144
<i>Text-to-Speech software</i>	TV_ENUA.exe	1,021,232
<i>Speech character</i>	PEEDY.exe	3,404,568
	ROBBY.exe	2,226,456
	MERLIN.exe	1,873,127
	GENIE.exe	1,627,928



Genie

Merlin

Robby

Peedy

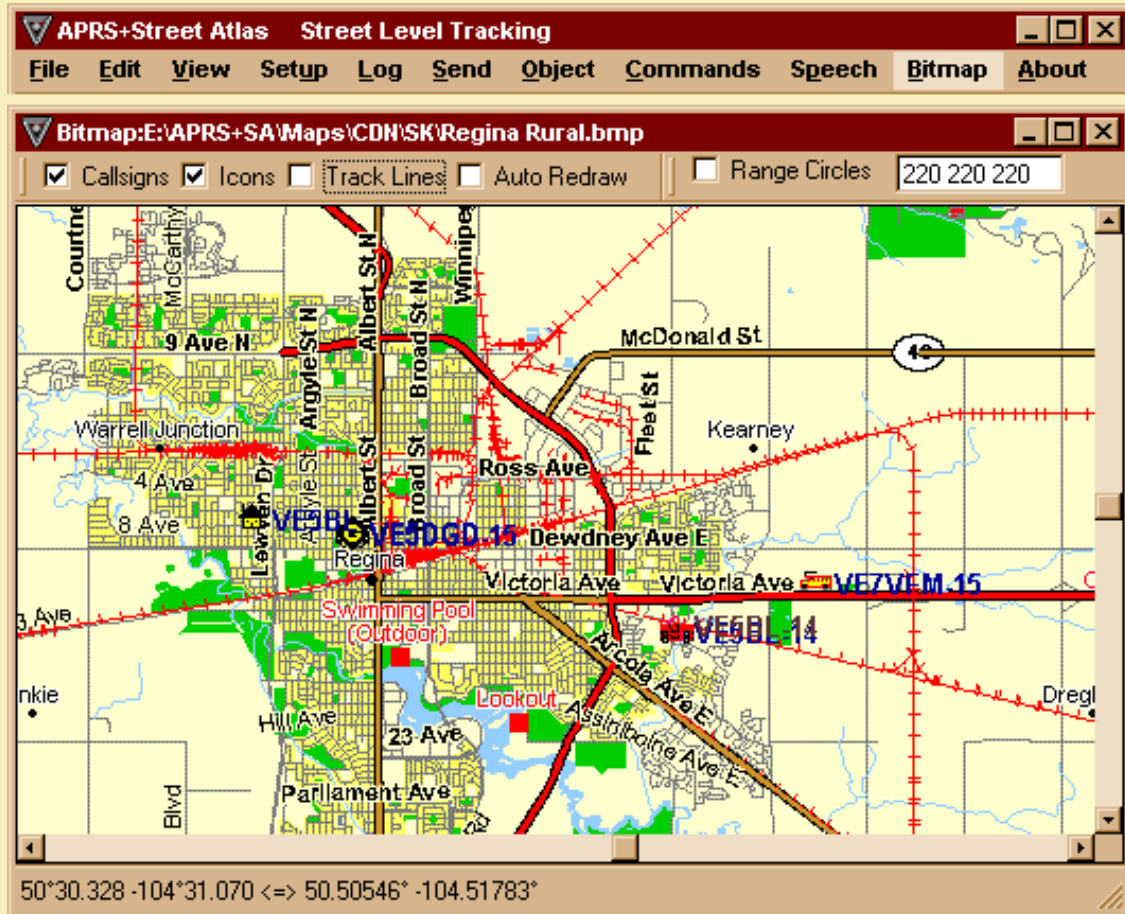
You only require one speech character for use with APRS+SA. Download them all if you like and install all of them. You can select the character you want to use in [Setup - Program](#). If you would like to hear what their voice sounds like before downloading them, click on the character. These characters can be requested to speak POSITs,

Bulletins and messages in [Setup - Sounds](#).

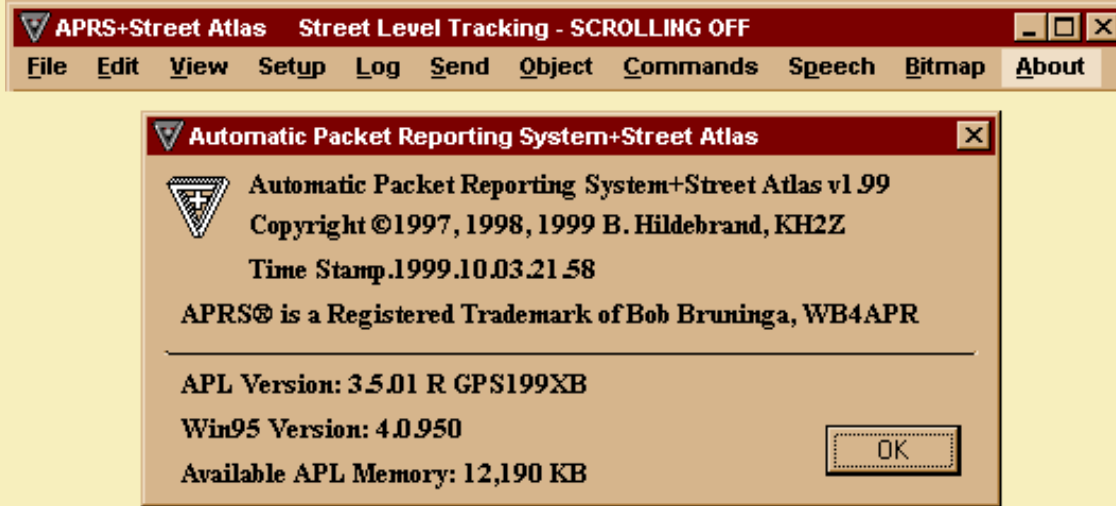
After you have download the files, I would recommend that you close all open applications. Using Explorer, goto the directory where you saved the files. Double click each file, in the order shown above, to install them. Not much will happen during the install, just make sure you do them in the above order. When the installation is completed, I would recommend that you restart your computer.

Once you have your APRS+SA software reloaded, goto the "Program" page and enter the name of the character you want to use. Enable the speech option by clicking "Speech" on the Main menu and select "Enable". The character you selected will either fly onto the screen, appear on your screen, come through a portal or just show up!





CONSTRUCTION



This is just an information screen. It provides you with the version number of the APRS+SA program you are running, the copyright information, program time stamp and additional program values.

If you are having problems running APRS+SA, check this screen and record the information it displays. Then contact Brent Hildebrand about your problem and provide him with this information. It can provide Brent with additional information help solve the problem you are having.

Callsign	Latitude	Longitude	Text	Date/Time Heard
VE6BCA	53.551833	-113.60167	-/PHG2100/-233<530>	1999/12/05 17:40:12
VE6DJJ-14	51.122467	-114.0112	u/\$RMC:051736,A SPD=0.0 TRK=307.6	1999/12/05 17:38:51
VE6DJJ	51.016333	-113.98717	_/_PHG3230/WinAPRS 2.2.8 -ABCANCALGARY -228<530>	1999/12/05 17:38:43
VE6GRR	51.01715	-113.99065	v/\$RMC:051736,A SPD=0.0 TRK=013.6	1999/12/05 17:38:21
WS2:VE5DGD	50.630833	-104.12483	4/*250147zWater Stop	1999/12/05 17:38:08
RS2:VE5DGD	50.631667	-104.25367	3/*250128zRest Stop	1999/12/05 17:38:01
WS1:VE5DGD	50.567333	-104.27183	2/*250144zWater Stop	1999/12/05 17:37:54
RS1:VE5DGD	50.490833	-104.274	1/*250126zRest Stop	1999/12/05 17:37:53
CP1:VE5DGD	50.4465	-104.362	0/*250126zWhite City Community Centre	1999/12/05 17:37:41
VE6PAW	53.353833	-113.41167	-/!PHG2190/ BEAUMONT AB.	1999/12/05 17:36:23
VE6MK	53.534667	-113.29717	_/_PHG2230/Sherwood Park - DO33im	1999/12/05 17:36:12
VE5DGD	50.457333	-104.62667	&/PHG2130 Dave in Regina SK Canada	1999/12/05 17:35:49
VE6JY	53.741833	-112.83017	#NIPHG4440/DO33OR LAMONT APRS DIGI	1999/12/05 17:32:40
VE6MY	53.501667	-113.625	#NIPHG4430/DO33EN-EDMONTON APRS DIGI	1999/12/05 17:31:32

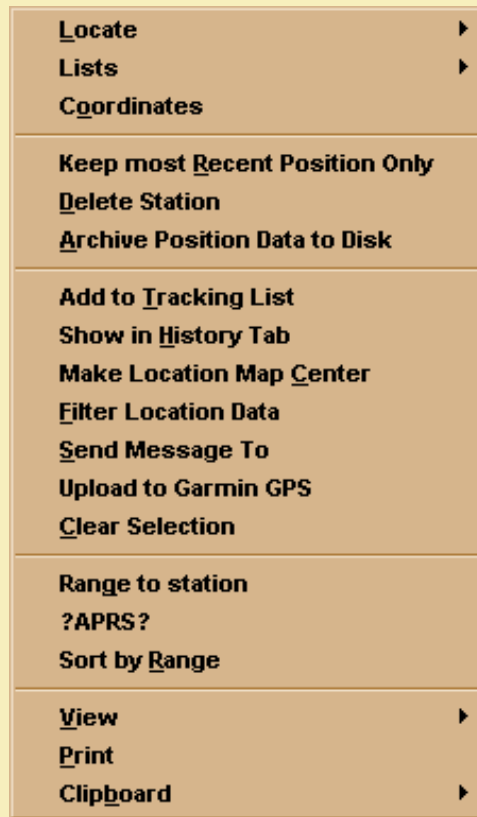
Show Moving Stations Only
 Single Screen Only
 Local RF Only

TNC TCP WWW 181945I:10 25 40 VE6DJJ I:APW228.TCPIP< IGATE MSG_CNT=12 12/05 17:40:23z

When APRS+SA receives a position report from a stationary, mobile or portable APRS station, the information is displayed on this page. On the example here you will see an icon that represents the station, the callsign of the station that sent the posit report, the latitude, the longitude, a descriptor, date/time heard, number of times a tracker posit was heard and the path of the sending station.

<i>Heading</i>	<i>Description</i>
<i>Callsign</i>	▲ Icons in APRS give a graphical representation of what the sending station actually is. In the screen above VE5DGD is represented as a house with a vertical antenna. I uses this icon because it represents a stationary APRS station and that it is using a vertical antenna.
<i>Latitude</i>	▲ Angular distance north or south from the earth's equator usually measured in degrees.
<i>Longitude</i>	▲ Angular distance due east or west from a meridian and especially from the meridian that runs between the north and south poles and passes through Greenwich, England usually measured in degrees.
<i>Descriptor</i>	▲ This is a line of text that gives a written definition of the station. "-/=" is the section processed by APRS that tells it what icon to use for the station. "PHG2130" is the antenna/transmitter information and the rest is a description I provided in my initial setup.
<i>Date/Time Heard</i>	▲ This is the time when the station was last heard at.
<i>#</i>	▲ The number of times a posit report from a mobile station had been heard is indicated here. When a station is mobile, it will transmit a different lat. / long. coordinate each time over a predefined interval. APRS+SA records the number of times it has heard this station. This will only update on tracked mobile stations.
<i>Path</i>	▲ It includes the "Unproto" setting used by the reporting station and the "VIA" path set by the station operator. In the case of VE5DGD the unproto is "AP0922" and the via is "WIDE".

Pop Up Menu Options when using MOUSE RIGHT CLICK on this screen



<i>Option</i>	<i>Action</i>	<i>Secondary Pop Up Menu</i>	<i>Options</i>
<u>Locate</u>	Use <u>Locate</u> when you want to find the current position of a selected station, stations within a given range of the station or the station closest to the selected station. Clicking "Locate", or pressing the letter "L", will activate the pop up screen on the right.		<u>C</u> urrent <u>P</u> osition will display only the selected station, or station, on the Street Atlas or AAA Map 'n' Go map. L ocate S tations i n R ange will display all stations that are within the distance specified in "Locate in Range" of Setup-Parameters. L ocate N earest S tation T o will display the station that is closest to the selected station. L ocate o n T USA - data to follow
<u>Lists</u>	Use <u>Lists</u> to automatically add the selected station or stations to the "Keep Recent Only List" or to the "Ignore List". Clicking "Lists" will activate the pop up screen on the right.		A dd to K eep R ecent O nly L ist will automatically add the selected callsigns to your "Keep Recent Only List" in Setup-Lists. A dd to I gnore L ist will automatically add the selected callsigns to your "Ignore List" in Setup-Lists preventing this station's information from being viewed on your system.
<u>Coordinates</u>	Displays the "Coordinate Conversion and Map Capture" screen. See Main Menu - Object for details on this screen.		

Keep most <u>R</u>ecent Position Only	data to follow
<u>D</u>elete Station	Clicking this option, or pressing "D", will remove the selected station or stations from this page.
<u>A</u>rchive Position Data to Disk	Archives the current information on the page to a file on the hard drive in the APRS+SA directory.
Add to <u>T</u>racking List	Clicking this option, or pressing "T", will add the selected station or stations to the Tracking List.
Show in <u>H</u>istory Tab	If the reporting station is not in the "History" page, clicking this option, or pressing the "H" key, will copy the data to the history page.
Make Location Map <u>C</u>enter	Takes the coordinates of the selected station and makes them the "Center Location" for any maps drawn in Street Atlas USA or AAA Map 'n' Go.
<u>F</u>ilter Location Data	data to follow
<u>S</u>end Message to	When you have a station selected, use this option to send a message. The "Message" box will appear with the selected callsign already in the "Call To" box. You can only do one callsign at a time.
Upload to Garmin GPS	If you have a Garmin GPS connected to your computer, you can upload the selected information into the GPS as waypoint data via the port specified in Setup - Parameters .
<u>C</u>lear Selection	After you have selected reports on the screen, displayed as highlighted data, use this option to cancel your selection and clear the screen.
Range to Station	Calculates the distance and direction the selected station is from your QTH.
?APRS?	Executes an APRS query on the selected station or stations.
Sort by <u>R</u>ange	Sorts the data shown on the screen and displays the list starting with the station closest to you and ending with the station that is the farthest away.

View Used to change the way information is viewed on the position screen.



Report Mode is the default mode for APRS+SA. This mode displays all detailed information on every position report received.

List Mode will display only the Icon and Callsign of the reporting station in a multicolumn screen.

Adjust Column Width will cause each column to be adjusted so that the least amount of space or the maximum amount of space is used to display the information under each column. Use this option before you print the screen.

Print

Sends the position information on the screen to your printer giving you a hardcopy of all information displayed.

Clipboard

Allows you to copy selected information from the position screen. This option will allow you to paste the copied information into other applications.

Copy Rows to Clipboard

Copy Callsign to Clipboard

Copy Text to Clipboard

Copy Rows to Clipboard copies the entire line of selected information. **Copy Callsign to Clipboard** copies just the selected callsigns to the clipboard. **Copy Text to Clipboard** copies only the position text to the clipboard.



The three columns of information may contain the CALLSIGN of stations who are stationary, mobile and those of stations you have requested to track. Station VE5DGD is my home station ID and is considered stationary. If you see a station that has an SSID assigned, i.e. VE5DGD-14, you can bet this station is mobile and it will appear in the 'Moving' column. If you double click on a station in the 'Stationary' column or the 'Moving' column, that CALLSIGN will automatically be copied into the 'Tracking List' column.



The screenshot shows the 'APRS+Street Atlas Street Level Tracking' window. At the top, there is a menu bar with options: Positions, Track, History (selected), Maps, Status, Traffic, Messages, Bulletins, Objects, Weather, Telemetry, TNC, GPS, TCP, IGates. Below the menu bar is an 'Enter Callsign>' input field containing an asterisk (*). To the right of the input field are buttons for Map, Objects, Direct, Local, and Save. The main area is a table with the following columns: Callsign, Latitude, Longitude, Text, Date/Time Heard, and Path. The table contains 14 rows of data, each with a small icon to the left of the callsign. At the bottom of the window, there is a status bar showing 'TNC TCP WWW 181945 T.0', '25 40', '40 Reports', and '12/05 17:40:35z'.

Callsign	Latitude	Longitude	Text	Date/Time Heard	Path
VE6BCA	53.551833	~113.60167	-/PHG2100/ -233<530>	1999/12/05 17:40:12	I:APW233,TCPIP*
VE6DJJ-14	51.122467	~114.0112	u/\$RMC:051736,A SPD=0.0 TRK=307.6	1999/12/05 17:38:51	I:GPSLU
VE6DJJ	51.016333	~113.98717	_/=PHG3230/WinAPRS 2.2.8 -ABCANCALGA...	1999/12/05 17:38:43	I:APW228,TCPIP*
VE6GRR	51.01715	~113.99065	v/\$RMC:051736,A SPD=0.0 TRK=013.6	1999/12/05 17:38:21	I:GPSLV,WIDE3-2
WS2:VE5...	50.630833	~104.12483	4/*250147zWater Stop	1999/12/05 17:38:08	AP5199,WIDE
RS2:VE5...	50.631667	~104.25367	3/*250128zRest Stop	1999/12/05 17:38:01	AP5199,WIDE
WS1:VE5...	50.567333	~104.27183	2/*250144zWater Stop	1999/12/05 17:37:54	AP5199,WIDE
RS1:VE5...	50.490833	~104.274	1/*250126zRest Stop	1999/12/05 17:37:53	AP5199,WIDE
CP1:VE5...	50.4465	~104.362	0/*250126zWhite City Community Centre	1999/12/05 17:37:41	AP5199,WIDE
VE6PAW	53.353833	~113.41167	-/PHG2190/ BEAUMONT AB.	1999/12/05 17:36:23	I:APRS,WIDE3-2
VE6MK	53.534667	~113.29717	_/PHG2230/Sherwood Park - DO33im	1999/12/05 17:36:12	I:APRS,WIDE3-3
VE5DGD	50.457333	~104.62667	t/*PHG2130 Dave in Regina SK Canada	1999/12/05 17:35:49	AP5199,WIDE
VE6JY	53.741833	~112.83017	#NIPHG4440/DO33DR LAMONT APRS DIGI	1999/12/05 17:32:40	I:APRS,VE6SBR*

History tracks all information relating to a station. All position reports you hear will be displayed on this screen. If a station is mobile, or running as a tracker, every position report you hear for that station will be shown on this screen. APRS systems that are stationary will appear only once on this screen.

Several stations are shown on the above screen. In a busy network, or when you connect to an APRS server, this screen can become very cluttered with stations. In the white box beside "Enter Callsign", you see an asterisk. This asterisk is a wildcard key that will display all callsigns listed in the history window. If you would like to see a specific callsign such, as VE5DGD, you would enter the call VE5DGD into the white box in place of the asterisk. To view all callsign that begin with XYZ you would enter XYZ*.

Groups of callsigns with or with wildcard can be listed in this box as well. You must leave a space between each callsign group you enter. If all you want to see in the history window was VE5DGD, KE6QNK and KR4VH, then you would enter VE5DGD KE6QNK KR4VH into the white box. APRS+SA will only show history information for those three callsigns.

All callsigns and even objects will be listed when you use the asterisk. On the right side of the white box you see buttons called Objects, Direct and Local. If you click the Objects button then only objects will appear in the history page. Direct will display only those callsigns that were not heard through a digipeater. Local will display all non-object callsigns that are local to your station.

Pop Up Menu Options when using MOUSE RIGHT CLICK on this screen



<i>Option</i>	<i>Action</i>	<i>Secondary Pop Up Menu</i>	<i>Options</i>
Locate Position	Locates and displays the selected station on a map.		
Locate Position on TUSA	data to follow		
Locate Stations in Range	Displays ALL stations on a map that are within the range specified in "Locate with Range" in Setup-Parameters .		
Range	Displays the distance and direction, to the selected station, from your location, in the status bar.		
Coordinates	Displays the "Coordinate Conversion and Map Capture" screen. See Main Menu - Object for details on this screen.		
Delete Position Fix	Removes the selected line or lines of information from the History screen		
Send Message To	Opens the APRS+Message box and automatically enters the callsign of the selected station. You supply the message text and then click send to transmit your message.		
Upload to Garmin GPS	If you have a Garmin GPS attached to port 2, you can upload the position information as a waypoint to your GPS unit.		
Add to Tracking List	Automatically places the selected callsign or callsigns in the Tracking List of " Track ".		
Lists	Use <i>Lists</i> to automatically add the selected station or stations to the "Keep Recent Only List" or to the "Ignore List". Clicking "Lists" will activate the pop up screen on the right.		Add to Keep Recent Only List will automatically add the selected callsigns to your "Keep Recent Only List" in Setup-Lists. Add to Ignore List will automatically add the selected callsigns to your "Ignore List" in Setup-Lists preventing this station's information from being viewed on your system.

Filter Position Report data to follow

Adjust Column Width Will cause each column to be adjusted so that the least amount of space or the maximum amount of space is used to display the information under each column. Use this option before you print the screen.

Print Sends the position information on the screen to your printer giving you a hardcopy of all information displayed.

Copy rows to Clipboard Copies the entire line of selected information to the clipboard so you can paste it into another application.





This part of APRS+SA is used only in conjunction with Street Atlas USA or AAA Map 'n' Go software. Your Street Atlas USA or AAA Map 'n' Go software must be loaded and working before you can use these options.

<i>Function</i>	<i>Description</i>
1. All Reports	▲ Clicking this tab will display the current position of every single station based on the information provided on the HISTORY screen.
2. Latest Reports	▲ Clicking this tab will display the current position of every single station based on the information provided on the POSITIONS screen.
3. All - Tracked	▲ If you have any stations listed in the TRACKING LIST column of the TRACK screen, then all position reports by these stations will be displayed on your map. You must have at least one station in the Tracking List before this tab will process any information. Position report information for tracked stations is retrieved from the HISTORY screen.
4. Latest - Tracked	▲ If you have any stations listed in the TRACKING LIST column of the TRACK screen, their last know position report will be displayed on your map. You must have at least one station in the Tracking List before this tab will process any information. Position reports for tracked stations is retrieved from the POSITIONS screen.
Station List	▲ Clicking this tab will display the current position of only those stations that are listed in the CUSTOM LIST column of the TRACK screen.
All Stations	▲ Clicking this tab will display the current position of all station shown on the POSITION screen.
Zoom Proximity Alarm	▲ data to follow

Timer	▲ Defines how often APRS+SA will redraw the maps for Street Atlas USA or Map 'n' Go.
Select Maps	▲ Allow you to select which maps you want in the map queue. The map queue is read by the Timer cycle and displays the next map on the top of the list.
Draw Next Map	▲ Overrides the time and displays the next map automatically.
Clear List	▲ Clears all information from the map queue. No maps will be displayed unless at least one map is in the map queue.
Create Custom Map	▲ data to follow
Digipeaters	▲ Displays only Digipeaters on the selected map.
By Icons	▲ Displays only those positions that match the Icon shown.
Set Icons	▲ Used to define the type of Icon that is searched for.
Weather	▲ All stations that are setup to transmit weather information are displayed on the map showing the value of the selected item.
All Moving, All Fixed, History	▲ Clicking any one of these buttons will display either all moving stations, all fixed stations or all stations in the history screen.
POSIT Text	▲ Text entered into the box on the right will be scanned for and any stations that have that text present in their <i>POSIT</i> text will be displayed on the map.
STATUS Text	▲ Text entered into the box on the right will be scanned for and any stations that have that text present in their <i>STATUS</i> text will be displayed on the map.

Callsign	Time	Text	Path
VE5DGD	051131z	[199KL]Full Service IGate - Regina SK Canada	AP5199,WIDE
VE5BL	211857	Boris, Regina,Sk	APW233,RELAY,WIDE
VE6WRO		T#401,138,138,072,041,135,00110011	I:BEACON,WIDE3-3
VE6GAB		T#362,130,140,073,041,132,00110011	I:BEACON,VE6WRO
VE6NAV		DX de VE6NAV =146.94- -TalkRptr***VE6RPT IRLP Link ****...	I:RESORC
VE6OTR		T#436,139,157,080,045,123,00010011	I:BEACON,WIDE
VE6DJJ	051925	DAVID'S APRS GATEWAY IS ACTIVE	I:APW228,WIDE
VE6JY		APRS DIGIPEATER VE6JY	I:BEACON,VE6SBR*,TRACE3-2

Number of Status Reports: 8

TNC TCP WWW 181945.T.0 25 40 40 Reports 12/05 17:40:43z

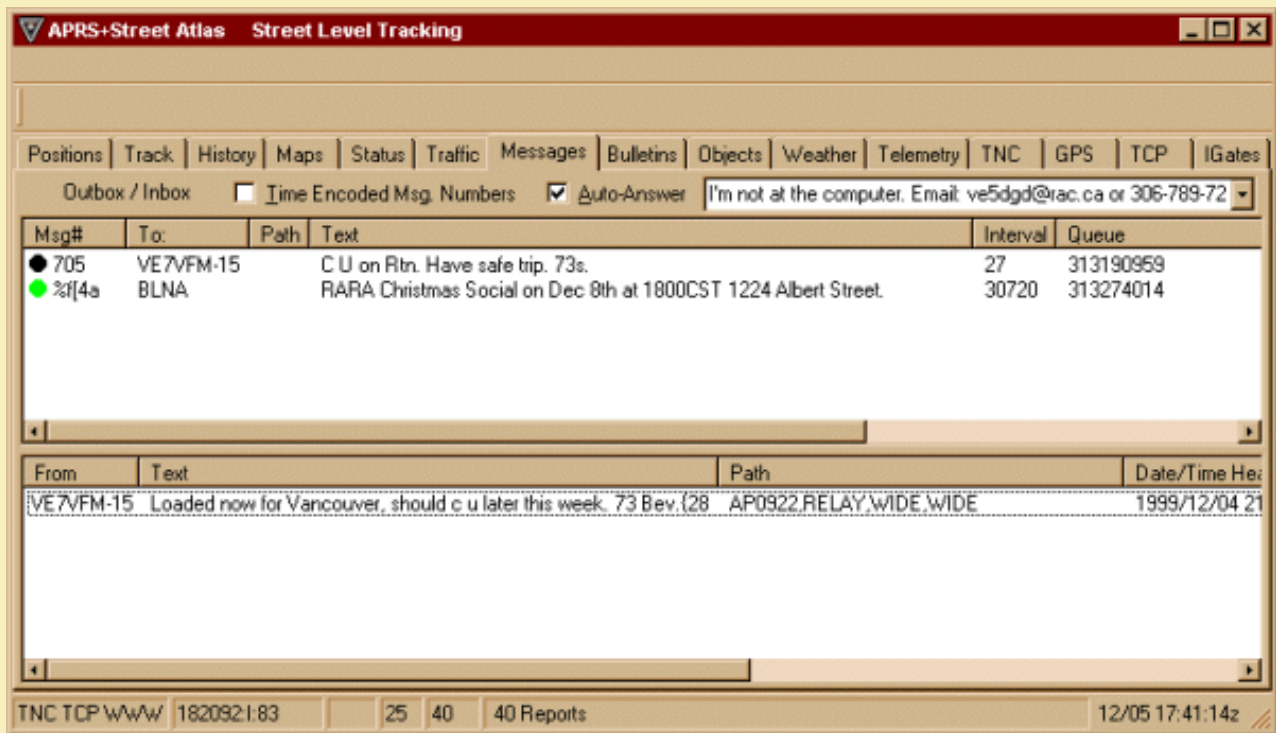
The status screen reports all status transmissions of every station in the APRS network. This screen shows the Callsign of the station, the date and time (Date/Time) when the status was first heard, the software version and status text, the path used by the sender and the date and time the status report was last heard.

The screenshot shows a software window titled "APRS+Street Atlas Street Level Tracking". The window has a menu bar with the following items: Positions, Track, History, Maps, Status, Traffic (highlighted), Messages, Bulletins, Objects, Weather, Telemetry, TNC, GPS, TCP, and IGates. Below the menu bar is a table of messages. The table has five columns: From, To, Text, Path, and Date/Time. The messages are as follows:

From	To	Text	Path	Date/Time
VE6SZR	VE7VFM-15	hello...traveller...{000	I:APW240,TCPIP*	1999/12/05
VE6SZR	VE7VFM-15	?ping?(001	I:APW240,TCPIP*	1999/12/05
VE6SZR	VE7VFM-15	greetings....{002	I:APW240,TCPIP*	1999/12/05
VE6SZR-7	VE7VFM-15	?PING?(4	I:APK,001,VE6NAV,VE60TR	1999/12/05
VE6SZR-7	VE7VFM-15	COPY?(5	I:APK,001,VE6NAV,VE60TR	1999/12/05
VE6SZR	VE7VFM-15	?ver?(003	I:APW240,TCPIP*	1999/12/05

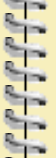
Below the table, there is a status bar that reads "Number of Messages:6". At the bottom of the window, there is a footer area containing the text "TNC TCP WWW 181954:10", a small red triangle icon, "25 40 40 Reports", and the time "12/05 17:40:45z".

When a station sends a message to another station in your APRS network it will appear here. There is no privacy in sending message. Here you can view who sent the message, to whom the message was sent to, what the message contained, the path it took and the Date/Time it was heard.



From this screen you can send messages and receive messages. Every message you send will appear in the box at the top and all messages addressed to your CALLSIGN will appear in the bottom box.

<i>Heading</i>	<i>Description</i>
Message #:	▲ Every message you send is assigned the next sequential number. This number is not used when sending a message but is used on this display so you can view your messages in the order you have sent them.
To:	▲ This is the CALLSIGN of the person the message was sent to.
Path:	▲ The path the message will take to get to its destination.
Text:	▲ The contents of the message you are sending.
Interval:	▲ data to follow
Queue:	▲ data to follow
From:	▲ The CALLSIGN of the station the message was from.
Text:	▲ What the sending station said in his message.
Path:	▲ The path the message took to get to your station.
Date/Time Heard:	▲ The Date and Time the message was received.



06-Dec-99 1900CST



[TabPages_Messages.html](#)

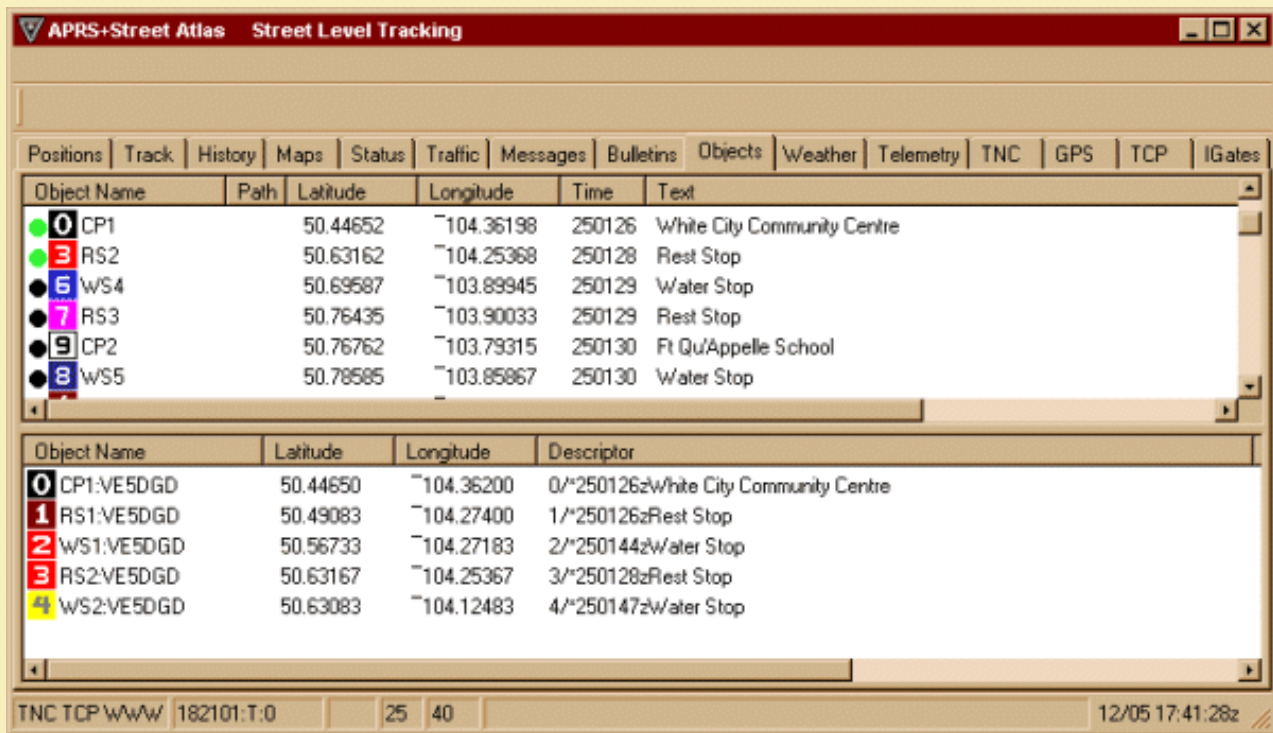


The screenshot shows a software window titled "APRS+Street Atlas Street Level Tracking". At the top, there is a menu bar with options: Positions, Track, History, Maps, Status, Traffic, Messages, Bulletins, Objects, Weather, Telemetry, TNC, GPS, TCP, and IGates. Below the menu bar is a "Group Names" search field containing an asterisk (*). The main area is a table with the following columns: Callsign, Number, Text, Path, and Date/Time Hear. A single bulletin is displayed:

Callsign	Number	Text	Path	Date/Time Hear
VE5DGD	BLNA	RARA Christmas Social on Dec 8th at 1800CST 1224 Albert Street (%f4a	APS199,WIDE	1999/12/05 17:...

At the bottom of the window, there is a status bar with the text "Number of Bulletins: 1" and a control mechanism for APRS+SA showing "TNC TCP WWW 182101:T.0" with buttons for "25" and "40", and a timestamp "12/05 17:41:24z".

Bulletins sent by any APRS station are viewed on this screen. The CALLSIGN of the sending station, the order of the bulletin, the path and date/time heard are shown. The information at the end of each line of text is a control mechanism for APRS+SA.



Objects can be created in APRS+SA. These objects, in turn, will appear on other APRS stations. Objects deleted from the bottom section of this page will also be deleted from the position page and any other APRS station that is connected to the network.

APRS+SA will save any objects you create in the top section of the screen. When you exit the registered version of APRS+SA, the objects you create are also saved. When you reload the program, your objects will reappear on the top of this screen. Objects that have been left active, i.e. Bottom section of screen, will also be shown. They will eventually be transmitted out to the APRS network and will appear on your position page.

Objects that were added using "[Main Menu - Object](#)", will appear on the top screen. You can open one of two pop up windows on this screen. Clicking the right mouse button in the top white portion will open a one pop up window while clicking the right mouse button on the bottom window will bring up a different pop up window. The two pop up windows allow you to manipulate the data after you have selected it in the associated window.

Upper Section Pop Up Window

Function

Action Taken

<u>T</u> ransmit Now	data to follow
<u>S</u> tate	data to follow
<u>T</u> ransmit <u>I</u> nterval	data to follow
<u>E</u> dit <u>O</u> bject	data to follow
<u>D</u> ele t e <u>O</u> bject(s)	data to follow
<u>C</u> reate <u>O</u> bject	data to follow
<u>R</u> ead SA <u>O</u> bject File	data to follow
<u>C</u> lear <u>P</u> age	data to follow
<u>L</u> ocate on <u>M</u> ap	data to follow
<u>L</u> ocate on <u>T</u> USA	data to follow

<u>T</u>ransmit Now
<u>S</u>tate ▶
<u>T</u>ransmit <u>I</u>nterval ▶
<u>E</u>dit <u>O</u>bject
<u>D</u>elete <u>O</u>bject(s)
<u>C</u>reate <u>O</u>bject ▶
<u>R</u>ead SA <u>O</u>bject <u>F</u>ile
<u>C</u>lear <u>P</u>age
<u>L</u>ocate on <u>M</u>ap
<u>L</u>ocate on <u>T</u>USA
<u>L</u>ocate <u>S</u>tations <u>I</u>n <u>R</u>ange
<u>L</u>ocate <u>N</u>earest <u>S</u>tation <u>T</u>o
<u>R</u>ange to <u>O</u>bject
<u>A</u>ddjust <u>C</u>olumn <u>W</u>idth
<u>P</u>rint
<u>C</u>opy to <u>C</u>lipboard

<u>L</u>ocate <u>S</u>tations <u>I</u>n <u>R</u>ange	data to follow
<u>L</u>ocate <u>N</u>earest <u>S</u>tation <u>T</u>o	data to follow
<u>R</u>ange to <u>O</u>bject	data to follow
<u>A</u>ddjust <u>C</u>olumn <u>W</u>idth	data to follow
<u>P</u>rint	data to follow
<u>C</u>opy to <u>C</u>lipboard	data to follow

Lower Section Pop Up Window

<u>L</u>ocate ▶
<u>L</u>ists ▶
<u>C</u>oordinates
<u>K</u>eep most <u>R</u>ecent <u>P</u>osition <u>O</u>nly
<u>D</u>elete <u>S</u>tation
<u>A</u>rchive <u>P</u>osition <u>D</u>ata to <u>D</u>isk
<u>A</u>dd to <u>T</u>racking <u>L</u>ist
<u>S</u>how in <u>H</u>istory <u>T</u>ab
<u>M</u>ake <u>L</u>ocation <u>M</u>ap <u>C</u>enter
<u>F</u>ilter <u>L</u>ocation <u>D</u>ata
<u>S</u>end <u>M</u>essage <u>T</u>o
<u>U</u>pload to <u>G</u>armin <u>G</u>PS
<u>C</u>lear <u>S</u>election
<u>R</u>ange to <u>s</u>tation
?<u>A</u>PRS?
<u>S</u>ort by <u>R</u>ange
<u>V</u>iew ▶
<u>P</u>rint
<u>C</u>lipboard ▶

Function

Action Taken

<u>L</u>ocate	data to follow
<u>L</u>ists	data to follow
<u>C</u>oordinates	data to follow
<u>K</u>eep most <u>R</u>ecent <u>P</u>osition <u>O</u>nly	data to follow
<u>D</u>elete <u>S</u>tation	data to follow
<u>A</u>rchive <u>P</u>osition <u>D</u>ata to <u>D</u>isk	data to follow
<u>A</u>dd to <u>T</u>racking <u>L</u>ist	data to follow
<u>S</u>how in <u>H</u>istory <u>T</u>ab	data to follow
<u>M</u>ake <u>L</u>ocation <u>M</u>ap <u>C</u>enter	data to follow
<u>F</u>ilter <u>L</u>ocation <u>D</u>ata	data to follow
<u>S</u>end <u>M</u>essage <u>T</u>o	data to follow
<u>U</u>pload to <u>G</u>armin <u>G</u>PS	data to follow
<u>C</u>lear <u>S</u>election	data to follow
<u>R</u>ange to <u>s</u>tation	data to follow
?<u>A</u>PRS?	data to follow
<u>S</u>ort by <u>R</u>ange	data to follow
<u>V</u>iew	data to follow
<u>P</u>rint	data to follow
<u>C</u>lipboard	data to follow



The screenshot shows a window titled "APRS+Street Atlas Street Level Tracking". It contains a table with columns for various data points. The table has two rows of data. Below the table, it says "Number of Weather Stations: 2". At the bottom, there are status indicators for TNC, TCP, WWW, and a timestamp.

Positions	Track	History	Maps	Status	Traffic	Messages	Bulletins	Objects	Weather	Telemetry	TNC	GPS	TCP	IGates
Callsign	Latitude	Longitude	D	S	T	R	P	BP	H	G	Time	Text	Path	
VE6DJ	51.01633	-113.98717	238	3	36	0	0	0885	44	4	12/05 17:31	wRSW	I:APW/228,TCPIP*	
VE6MK	53.53467	-113.29717	272	10	29.5	0	0	0.0	0		2 18:20	!! Peet Stand-alone	I:APRS,WIDE-3-2	

Number of Weather Stations: 2

TNC TCP WWW 182101:T.0 25 40 12/05 17:41:32z

You can operate your own weather station using APRS+SA. All you need is a weather station that is supported by APRS+SA. For information on this hardware addition, check [Setup-Main Parameters](#).

If there are any weather reports being transmitted by an APRS station, the information appears on this screen. There is a large amount of detail that can be viewed on this screen. First off, only one report per weather station is displayed here. Weather stations transmit data on a predefined interval but only the most recent received data is shown here. Here is a description of each entry:

<i>Heading</i>	<i>Description</i>
Callsign:	▲ Callsign of the station sending the weather report.
Latitude:	▲ Latitude coordinate of the sending station.
Longitude:	▲ Longitude coordinate of the sending station.
D:	▲ Wind direction, in degrees.
S:	▲ Wind speed, in mph.
T:	▲ Temperature in F°.
R:	▲ Rain fall in last hour in .01 inches.
P:	▲ Rain fall in last 24 hours in .01 inches.

BP: ▲ Barometric pressure in millibars (mb).

H: ▲ Relative Humidity (outside).

G: ▲ Wind gusts – last 5 minutes.

Time: ▲ Date and time report was heard.

Text: ▲ Brief description set by station operator.

Path: ▲ Path that the weather report is told to take.

Date/Time: ▲ Same as time, but more detail includes the year and month.

The screenshot shows a window titled "APRS+Street Atlas Street Level Tracking". It contains a menu bar with options: Positions, Track, History, Maps, Status, Traffic, Messages, Bulletins, Objects, Weather, Telemetry, TNC, GPS, TCP, IGates. Below the menu is a table with columns: Callsign, Latitude, Longitude, Count, #1, #2, #3, #4, #5, Binary, Text, Path, and Time. The table lists 21 reports for various callsigns including VE6GAB, VE6WRO, and VE60TR. At the bottom of the window, it says "Number of Telemetry Reports: 21" and shows status information: "TNC TCP WWW 182101.T.0 25 40 12/05 17:41:36z".

Callsign	Latitude	Longitude	Count	#1	#2	#3	#4	#5	Binary	Text	Path	Time
VE6GAB			356	127	140	073	042	129	00010010	KPC3+	I:BEACDN,VE6WRO	1999/12/05 13:49:2
VE6WRO			395	124	138	072	041	134	00110011	KPC3+	I:BEACDN,WIDE3-3	1999/12/05 13:58:0
VE60TR			429	139	157	080	044	126	00010011	KPC3+	I:BEACDN,WIDE	1999/12/05 14:03:3
VE6GAB			357	127	140	072	041	129	00010010	KPC3+	I:BEACDN,VE6WRO	1999/12/05 14:19:2
VE60TR			430	139	157	080	045	124	00010011	KPC3+	I:BEACDN,WIDE	1999/12/05 14:33:3
VE6GAB			358	127	140	073	041	129	00010010	KPC3+	I:BEACDN,VE6WRO	1999/12/05 14:49:2
VE60TR			431	139	157	080	045	125	00010011	KPC3+	I:BEACDN,WIDE	1999/12/05 15:03:3
VE6GAB			359	127	140	072	041	131	00010010	KPC3+	I:BEACDN,VE6WRO	1999/12/05 15:19:2
VE6WRO			398	124	138	072	041	134	00110011	KPC3+	I:BEACDN,WIDE3-3	1999/12/05 15:28:0
VE60TR			432	139	157	079	045	123	00010011	KPC3+	I:BEACDN,WIDE	1999/12/05 15:33:2
VE6GAB			360	127	140	073	041	129	00010010	KPC3+	I:BEACDN,VE6WRO	1999/12/05 15:49:2
VE6WRO			399	124	138	072	041	134	00110011	KPC3+	I:BEACDN,WIDE3-3	1999/12/05 15:58:0
VE60TR			433	139	157	080	045	125	00010011	KPC3+	I:BEACDN,WIDE	1999/12/05 16:03:2
VE6GAB			361	130	140	072	041	127	00010011	KPC3+	I:BEACDN,VE6WRO	1999/12/05 16:19:2
VE6WRO			400	131	138	072	041	134	00110011	KPC3+	I:BEACDN,WIDE3-3	1999/12/05 16:28:0
VE60TR			434	139	157	080	045	123	00010011	KPC3+	I:BEACDN,WIDE	1999/12/05 16:33:3
VE6GAB			362	130	140	073	041	132	00110011	KPC3+	I:BEACDN,VE6WRO	1999/12/05 16:49:2

To better understand the information shown on this page, please read the following information which was extracted from the readme files of APRSDos.

```

=====
Document version: 8.3.8
Document dated: 27 Mar 99
Author(s): Bob Bruninga, WB4APR

```

ABSTRACT

```

TELEMETRY.TXT: Using the Micro Interface Module (MIM) for APRS
telemetry. The MIM module is a complete telemetry
TNC on a chip.
=====

```

The MIM module is a complete telemetry TNC transmitter on a chip. It has a serial data port, 5 analog and 8 digital telemetry inputs. It outputs PTT and transmit audio AX.25 tones. The MIM was developed by Dr. Carl Wick, N3MIM, as a simple, light-weight, throw-away module for experimental balloons. WB4APR modified it for Mic-E operation and Dr. Will Clement refined it into a commercial product. It is now sold by APRS Engineering LLC at the address below. The only external components besides the sensors themselves, are a transmitter and optional GPS and battery.

EXTENDED LIFE: For extended operation (up to a year or more), the MIM can be turned on/off with an external timer between reports. A single set of AA Alkaline batteries could power the MIM and 1 watt transmitter for a YEAR at one report every 30 minutes.

MODULE	INPUTS	OUTPUTS
	Analog 1 --0 |	| 0--> PTT to XMTR
	Analog 2 --0 |	| 0--> Audio to XMTR

Analog 3	--0		0
Analog 4	--0	M.I.M	O<-- Rcvr Audio
Analog 5	--0		O<-- GPS NMEA data
Input bit 1	--0	Telemetry	0
input bit 2	--0		0
input bit 3	--0	Module	0
input bit 4	--0		0
input bit 5	--0		0
input bit 6	--0		0
input bit 7	--0		0
input bit 8	--0		0

MIM PACKETS: The mim can operate in either MIM mode or MIC mode. Here are the packets in each mode:

MIM MODE:	STATUS	packet transmitted every N seconds
	POSIT	packet transmitted every P seconds
	TELEMETRY	packet transmitted every T seconds
	CWID	transmitted every C seconds
Mic MODE:	POSIT	packet every P seconds
	STATUS	text appended to posit every P/S seconds
	TELEMETRY	telemetry appended every P/T seconds

MIM TELEMETRY: Each telemetry value is a decimal number between 000 and 255. The user can adjust his sensors to meaningful values, or the telemetry equations can be modified on receipt. The on-air packet telemetry format is as follows:

T#sss,111,222,333,444,555,xxxxxxx where sss is the serial number followed by the five 3 digit analog values and the eight binary values.

BATTERY VOLTAGE: Just a simple 10k and 2.4k resistor divider connected to channel 1 will give you a battery voltage reading in tenths of a volt. Thus, a reading of 138 would mean 13.8 volts. For precision, you might want to replace the 2.4K resistor with a pot to tweak the reading to an exact calibration.

TEMPERATURE MEASUREMENTS: Similarly, by proper selection of 2 resistor values and 2 diode voltage drops, you can easily make one of the Digi-Key \$2 thermistors read out temperature in degrees F. For details, run the MIC-TEMP.BAS program. It draws the schematic and allows you to select the proper resistor values. It is suggested that AD-2 be used for internal temperature just for consistency with the default APRS Telemetry Display.

TELEMETRY EQUATIONS: The real beauty of the APRS telemetry system is that you are not limited to specific calibrations as used above. APRS can display any other telemetry values according to any specific quadratic telemetry equation. For the ultimate in flexibility, APRS can receive on-air packets to define the Telemetry labels, units, and equations. Thus it does not need to be programmed for each application. These parameters may be transmitted to all APRS stations live via four one-line BULLETINS. The first one defines the telemetry labels, the second defines the units, the third defines the telemetry equations, and the fourth defines the project name and digital bit definitions.

LIST-TELEMETRY: To see telemetry data in APRSdos, hit the LIST-TELEMETRY command. Hitting this command causes APRS to scan the TRAFFIC page looking for telemetry equations, and then to scan the LIST-LOG page for any TELEMETRY values. The TELEMETRY samples are saved in the normal LOG files. A sketch of the APRS telemetry display is shown below:

APRS TELEMETRY FOR XYZ BALLOON LAUNCH

SER NUM	TIME	Battery volts	AirTemp deg.F	BTemp deg.F	Pres Mbars	Altud K ft	Camra BIT	Par BIT	Sun BIT	10m BIT	ATV BIT	5th BIT	6th BIT
101	1215	12.8	86	85	999	0	...	...	...	...	...	...	...
104	1218	12.4	84	80	980	4000	clik	...	on	on	hi	...	...
105	1219	12.3	80	76	900	8000	...	...	...	on	hi	...	...
106	1220	12.1	75	70	850	16000	...	...	on	on	...	...	...
107	1221	12.0	70	65	800	32000	clik	...	...	...	...	...	...
108	1222	12.0	65	60	730	64000	...	...	on	...	hi	...	...

To configure all APRS stations to properly decode the telemetry from a M.I.M module, one station transmits the proper parameter definition packets TO the CALLSIGN of the M.I.M module. For example of N3MIM's MIM:

To N3MIM:PARAM.Battery,BTemp,AirTemp,Pres,Altude,Camra,Chute,Sun,10m,ATV

To N3MIM:UNIT.Volts,deg.F,deg.F,Mbar,Kfeet,Clik,OPEN!,on,on,high

To N3MIM:EQNS.0,2.6,0,0,.53,-32,3,4.39,49,-32,3,18,1,2,3

To N3MIM:BITS.10110101,PROJECT TITLE...

The PARM format specifies the name of each of the 13 parameters. The UNIT format specifies what units are to be displayed, and what label is associated with the digital condition. The BITS format specifies whether a 1 or 0 indicates the indicated label and also the project Title. The EQNS format has three coefficients for each of the five analog channels.

$$\text{Final value} = A * X^2 + B * X + C \quad \text{Where X is the M.I.M transmitted value}$$

FORMAL SPECIFICATION: The specific format for the TITLE, PARM, UNIT, and EQNS message packets are shown below. They are entered as messages to the address of the MIM module:

PARAM.P1,P2,P3,P4,P5,B1,B2,B3,etc	Where Pn and Bn are the parameter names
UNIT,U1,U2,U3,U4,U5,L1,L2,L3,etc	Where Un are the units for analog ports and Ln are the labels for the bits
EQNS,A1,B1,C1,A2,B2,C2,A3,B3,C3,etc	Where the An,Bn,Cn are the coefficients for each of the five analog channels,
BITS.XXXXXXXXXX,Title-up-to-23-chars	The x's specify the state of the bits that match the BIT Labels.
T#sss,111,222,333,444,555,xxxxxxxx	This is the on-air format for the UI packet, where sss is the serial number followed by the five 3 digit analog values and the eight binary values.

PARAMETER NAMES: Due to the 80 character screen width in DOS, each parameter has a fixed NAME/UNITS length. The lengths for the 5 analog channels are 7, 6, 5, 5 and 4 characters. The lengths for the 8 digital bits are 5, 4, 3, 3, 3, 2, 2, and 2 characters respectively. So you may need to decide early on what channel to use for what purpose based on the number of characters available in the display...

DEFAULTS TO APRS Mic-ENCODER: Since the predominant application of the MIM module is in the APRS Mic-Encoder, the default telemetry parameters and units for the Mic-E are normally displayed. These will go away if any on-air parameters or equations are received...

APPLICATIONS:

- 1) Balloon payloads using only party balloons (not big ones)
- 2) Tracking wildlife or packages
- 3) Small stand-alone trackers
- 4) Model Aircraft
- 5) Keeping track of your kids.

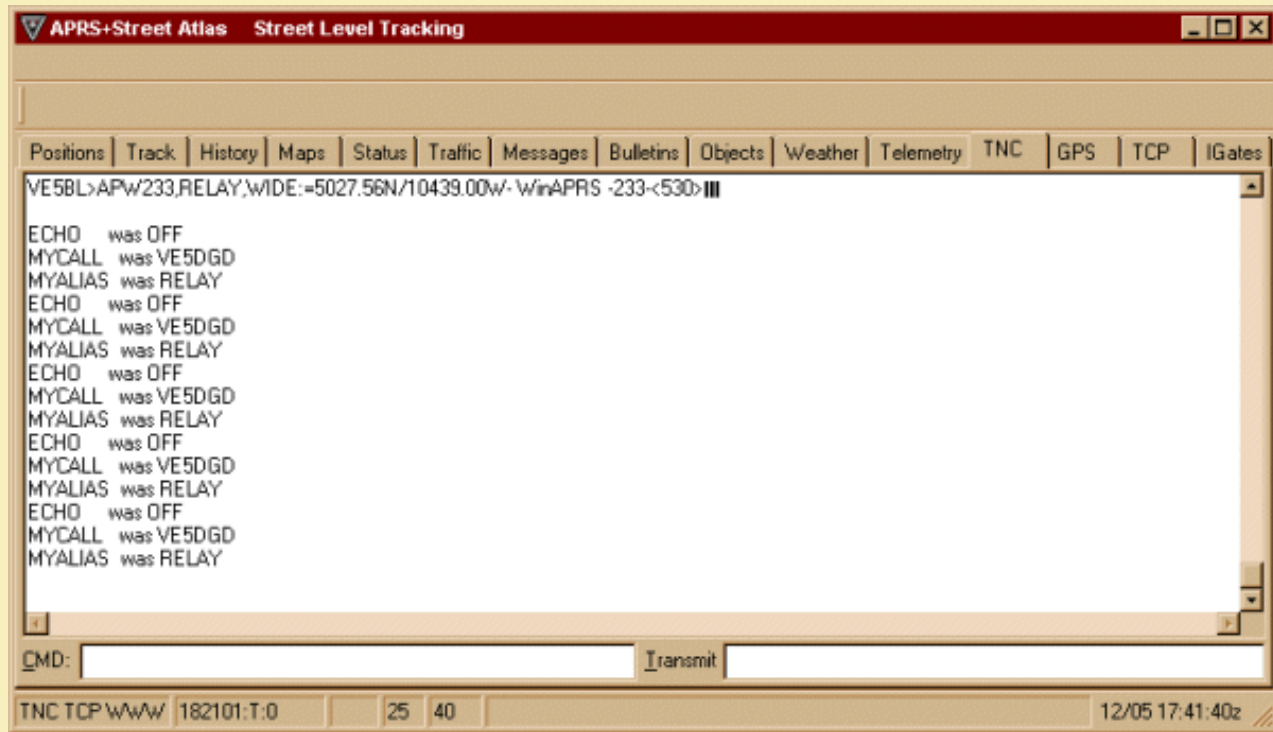
LOW POWER TELEMETRY TRANSMITTERS: To complement this less than ONE-CUBIC inch MIM telemetry system, Agrelo Engineering in NY makes a 1.5 x 0.5 x 0.25 inch 2 meter transmitter for \$99. It outputs 500 mW at 6 volts 140 ma and 120 mW at 3 volts 50 ma. A new 800 mw model is now out!

ORDERING YOUR MIM:

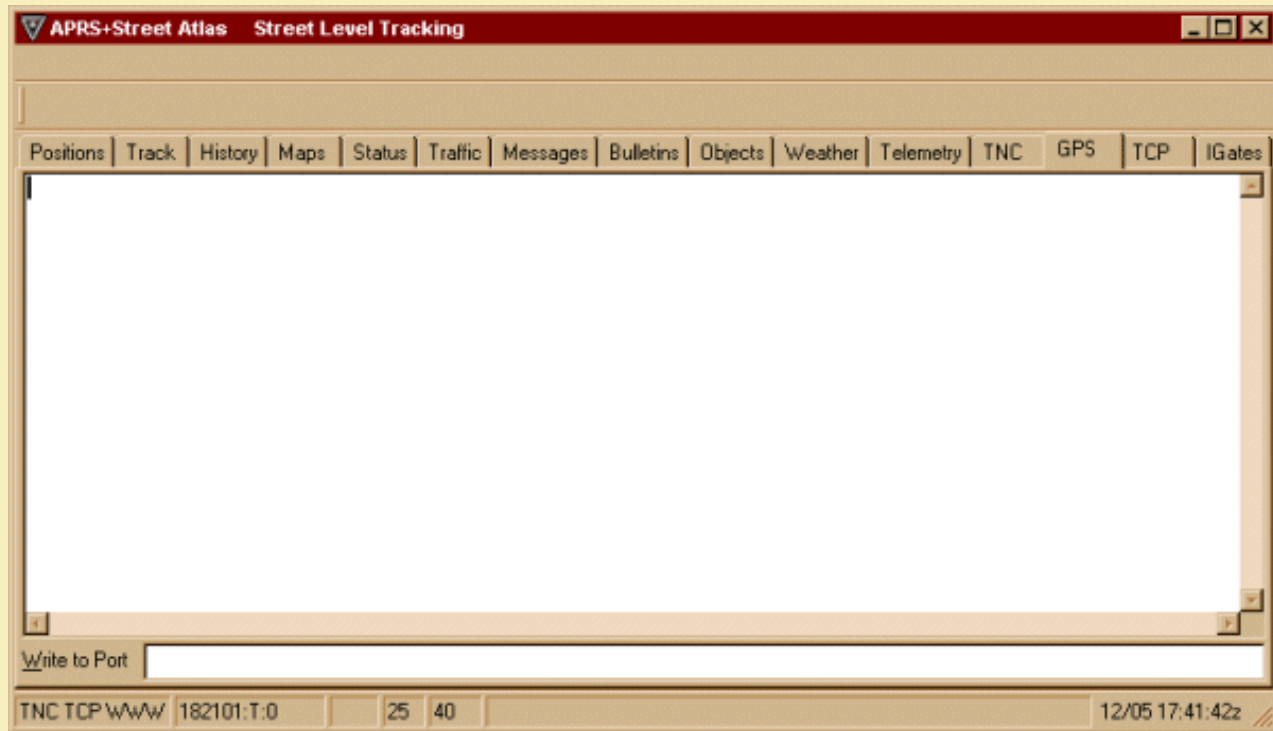
Order the MIM from

APRS Engineering LLC
115 Old Farm Ct
Glen Burnie, MD, 21060

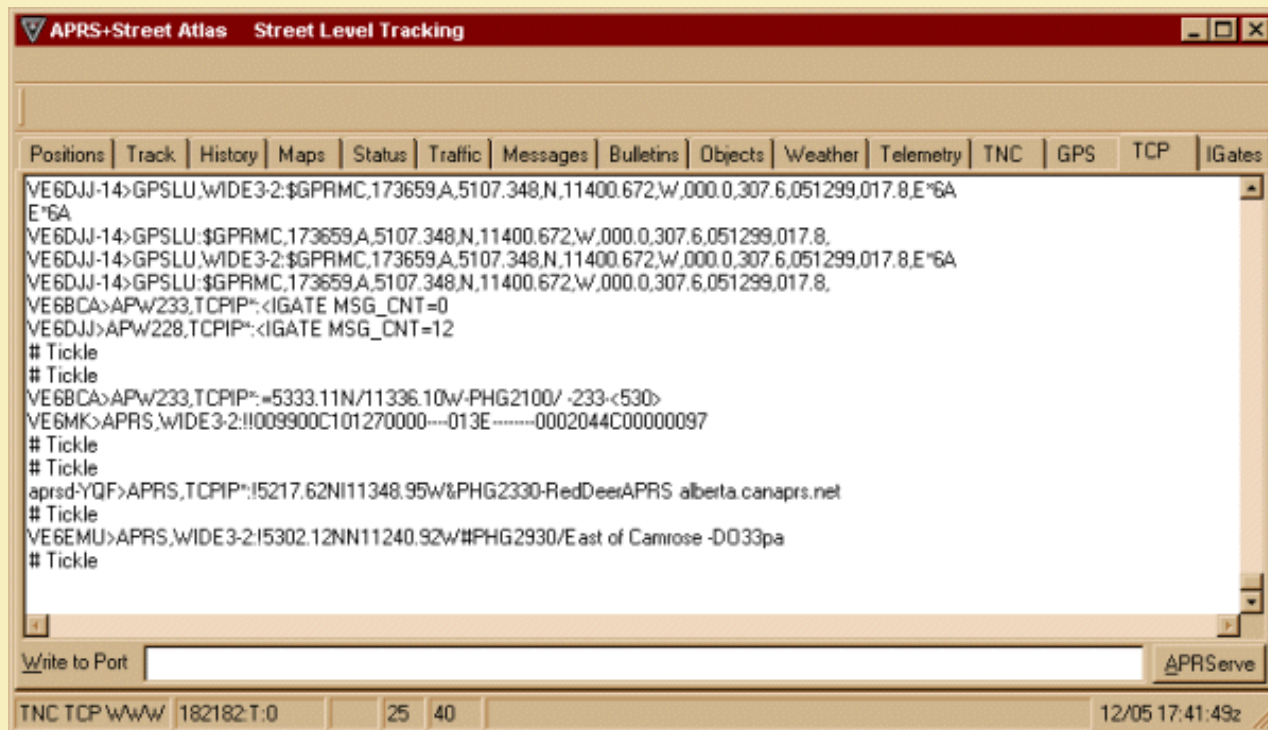




This page shows everything thing your TNC has heard or been told to do. Located on the bottom of the screen are two input boxes. One is called "CMD" and the other is called "Transmit". This screen allows you to communicate with a local BBS (Packet) network. Command codes for your TNC, such as CONNECT, MONITOR, ALIAS etc., are entered in the 'CMD' box. Information you want to transmit to a BBS you have connected to would go into the "Transmit" box.



This screen displays all the information that your GPS unit is sending back to APRS+SA. How often this screen updates depends on what setting you have chosen in the 'GPS Update Rate' of the Setup screen for APRS+SA. You can also send data to the GPS port by using the "Write to Port" input box at the bottom of the screen.



The screenshot shows a window titled "APRS+Street Atlas Street Level Tracking". The window has a menu bar with the following items: Positions, Track, History, Maps, Status, Traffic, Messages, Bulletins, Objects, Weather, Telemetry, TNC, GPS, TCP, and IGates. The main area contains a list of APRS messages and status information:

```
VE6DJJ-14>GPSLU,WIDE3-2:$GPRMC,173659,A,5107.348,N,11400.672,W,000.0,307.6,051299,017.8,E*6A
E*6A
VE6DJJ-14>GPSLU:$GPRMC,173659,A,5107.348,N,11400.672,W,000.0,307.6,051299,017.8,
VE6DJJ-14>GPSLU,WIDE3-2:$GPRMC,173659,A,5107.348,N,11400.672,W,000.0,307.6,051299,017.8,E*6A
VE6DJJ-14>GPSLU:$GPRMC,173659,A,5107.348,N,11400.672,W,000.0,307.6,051299,017.8,
VE6BCA>APW233,TCPIP*:<IGATE MSG_CNT=0
VE6DJJ>APW228,TCPIP*:<IGATE MSG_CNT=12
# Tickle
# Tickle
VE6BCA>APW233,TCPIP*:=5333.11N/11336.10W-PHG2100/-233-<530>
VE6MK>APRS,WIDE3-2:!!009900C101270000---013E-----0002044C00000097
# Tickle
# Tickle
aprsd-YQF>APRS,TCPIP*!5217.62N!11348.95W&PHG2330-RedDeerAPRS alberta.canaprs.net
# Tickle
VE6EMU>APRS,WIDE3-2!5302.12NN11240.92W#PHG2930/East of Camrose -D033pa
# Tickle
```

At the bottom of the window, there is a "Write to Port" field and an "APRServe" button. The status bar at the very bottom shows "TNC TCP WWWW 182182 T:0 25 40" and the date/time "12/05 17:41:49z".

When you connect APRS+SA to an APRS server on the Internet, this screen will fill with all kinds of information. To connect to an APRS server, you must set an option in the "Setup" portion of APRS+SA and have access to the Internet.

APRS+Street Atlas Street Level Tracking

Positions	Track	History	Maps	Status	Traffic	Messages	Bulletins	Objects	Weather	Telemetry	TNC	GPS	TCP	IGates
Callsign	Lat	Long	MSG	LOC	FILL	Time	Path							
VE6BCA	53.55183	~113.60167	0	0	0	1999/12/05 17...	I:APw233,TCPIP*							
VE6DJ	51.01633	~113.98717	12	0	0	1999/12/05 17...	I:APw228,TCPIP*							
VE5DGD	50.45733	~104.62667	105	2	0	1999/12/05 11...	I:APS199,WIDE							

TNC TCP WWW 182182.T:0 25 40 12/05 17:41:53z

CONSTRUCTION

**Special thanks to Charlie Gould, K4VC and Claude D. Head III
for providing Street Atlas USA and Map 'n' Go.**

**Animated Clip Art, Titles and graphics created
with Xara 3D and WebStyles from [Xara](#).**

Site hosted at [QSL.NET](#), [Al Waller, K3TKJ](#).

APRS is trademarked by [Bob Bruninga, WB4APR](#).

APRS+SA written by [Brent Hildebrand, KH2Z](#).

DOSAP written by [Bill Vodall, WA7NWP](#).

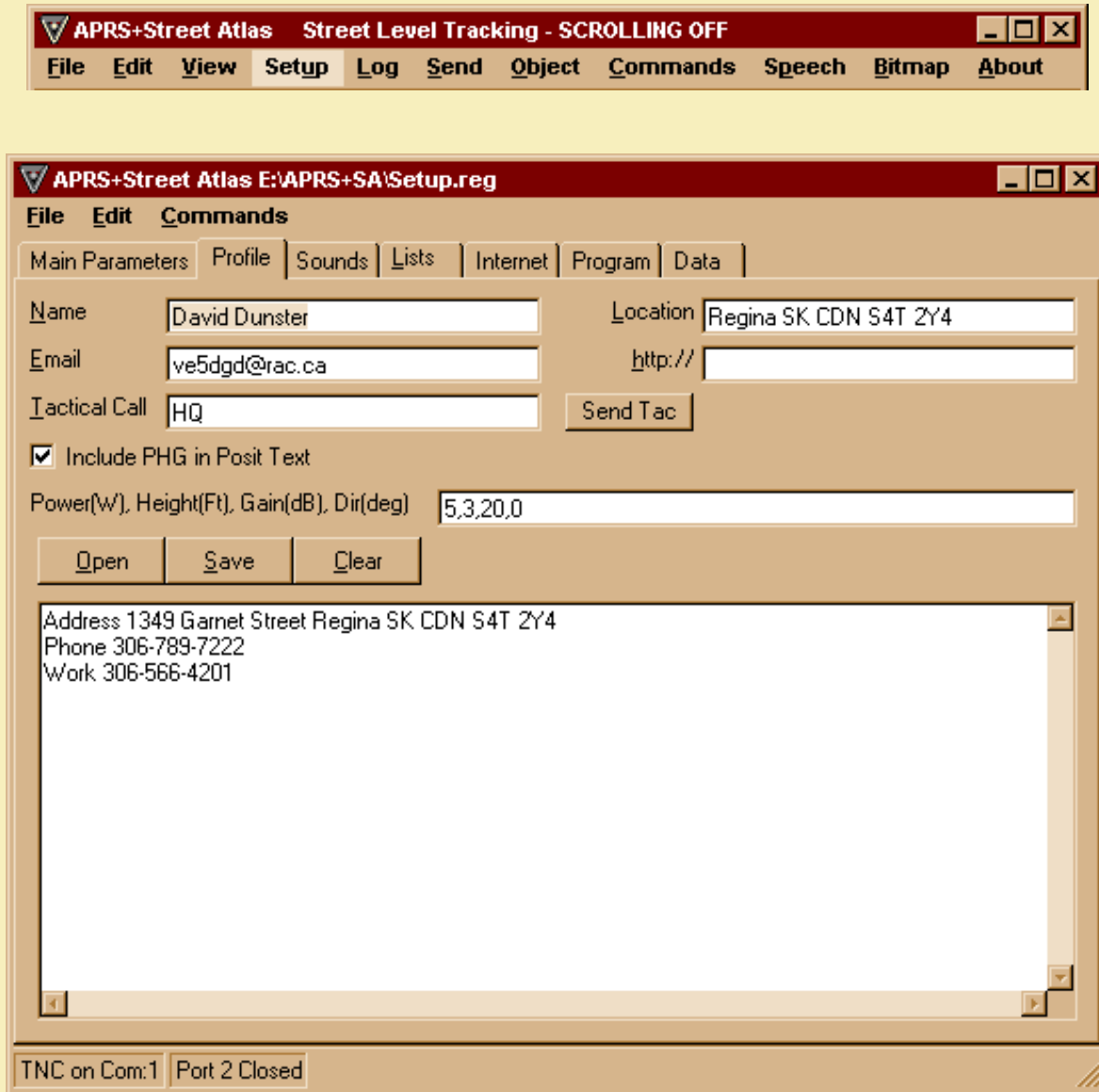
APRServe written by [Steve Dimse, K4HG](#).

**Street Atlas USA, Map N' Go USA and Topo USA
are copyright of [Delorme](#).**

Paint Shop Pro copyright of [Jasc Software Inc](#).

WinZip is copyright of [Nico Mak Computing, Inc](#).

**Pop Up menu software utility available
from [Lefteris Haritou](#).**



This page includes entries for Power, Height, Gain and a number of other parameters. All parameters except PHG, can be queried remotely by sending a direct message. All default parameters can be queried directly from the Send Message window via a *?Query?* button. These parameters can be queried by prior version of all APRS programs by sending the appropriate *?QUERY?* text in a standard APRS message.

<i>Query Code</i>	<i>Value Returned</i>
<i>?NAME?</i>	Operator's name
<i>?LOC?</i>	Locations (QTH)
<i>?EMAIL?</i>	Email address
<i>?HTTP?</i>	Home web page
<i>?TAC?</i>	Tactical Callsign
<i>?PROFILE?</i>	Returns a list of addition query codes that can be used.

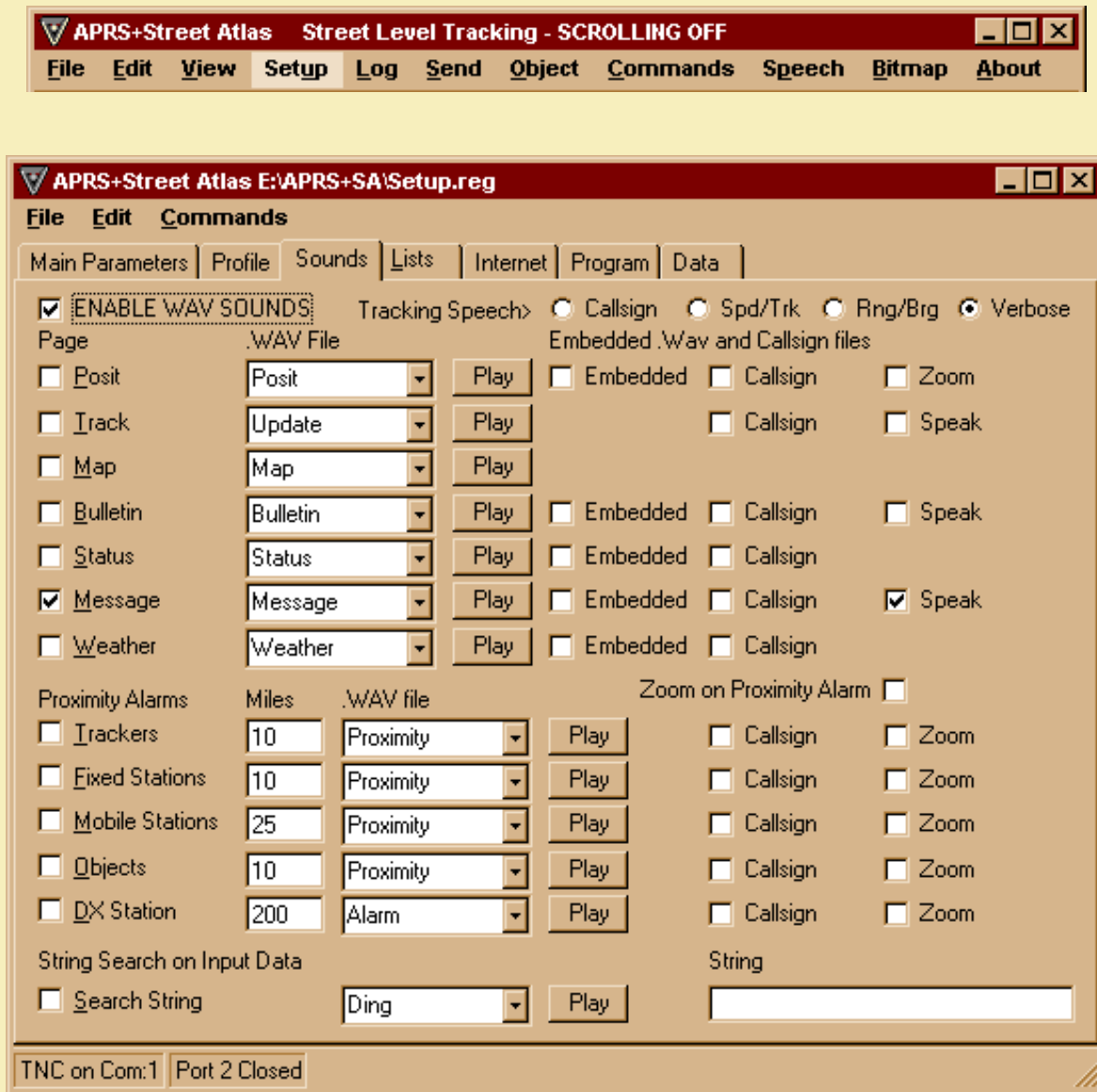
If my station received a message that contained *?NAME?*, my system would respond with "David Dunster" to the

station sending the query. For more information on how to query another station supporting this function, check [Main Menu - Send](#).

Also included on this page is an edit box for entering additional profile strings. Each line is a unique entry and the first word on a line contains the key. All you need to do is type the information in as shown above, click **Save**. The default name is **Profile.txt** but you can give it any name you want. You can have different profiles for different situations such as Emergency response, civic events or personal data. Use the **Open** function to load a new profile. **Clear** will remove all data show in the profile box but will not remove it from the actual profile description file.

Query names are not case sensitive, Query, QUERY, query all mean the same thing.





APRS+SA has the ability to use sound. The sound can come by means of a .wav file or you can use the one of the [MS Agent sound characters](#) described in [Main Menu - Speech](#). You can use both .wav files and text to speech. Text to speech will work with position reports on tracked stations, messages and bulletins.

APRS+SA comes with nine .wav file that you can use. They are [73](#), [Alarm](#), [Bulletin](#), [Click](#), [Ding](#), [Message](#), [Ping](#), [Proximity](#) and [Update](#). If you have a microphone and sound card, you can create your own recordings or replace the included recordings. WAV files are stored in the main directory of APRS+SA.

The following table explains the various options available on the [Main Menu - Setup - Sounds](#) tab page.

Page

Option	Description
Enable WAV Sounds	▲ to use WAV files, this box must be checked. Leave this box unchecked and remove all references to WAV files, if you do not want the WAV file played or announced by the MS Agent character.

POSIT	▲ position reports received on any mobile station you have listed in the " tracking list " section of Tab Pages - Track will cause the WAV file you entered to be played. If you have Sound Enabled in Main Menu - Speech , the MS Agent character you have selected will announce the callsign, direction and distance to the mobile station from your station.
Track	▲ data to follow
Map	▲ data to follow
Bulletin	▲ when a new bulletin is received, the sound file you entered here will be played. In addition to this, checking the speak box on the far right will cause the MS Agent character to speak the bulletin you received.
Status	▲ when a status report of a station is received, the sound file you have entered here will be played.
Message	▲ when a new message to you is received, the sound file you entered here will be played. In addition to this, checking the speak box on the far right will cause the MS Agent character to speak the message to you.
Weather	▲ data to follow
WAV File	▲ data to follow
Play	▲ data to follow
Embedded	▲ data to follow
Callsign	▲ data to follow
Zoom	▲ data to follow
Speak Position	▲ check this box if you want the MS Agent character to report the location of a tracked station. The MS Agent will announce the location of the tracked station on the receipt of each new posit report. NOTE: a tracked station must be in the "tracking list" section in Tab Pages - Tracked for this to work.
Speak Bulletin	▲ check this box if you want the MS Agent character to announce bulletins as they are received at your station.
Speak Message	▲ check this box if you want the MS Agent character to announce new messages as they are received at your station.

Proximity Alarms

Option	Description
Trackers	▲ data to follow
Fixed Stations	▲ data to follow
Mobile Stations	▲ data to follow
Objects	▲ data to follow
DX Station	▲ data to follow

Miles ▲ data to follow

WAV file ▲ data to follow

Play ▲ data to follow

Callsign ▲ data to follow

Zoom ▲ data to follow

Zoom on Proximity Alarm ▲ data to follow

String Search

Option

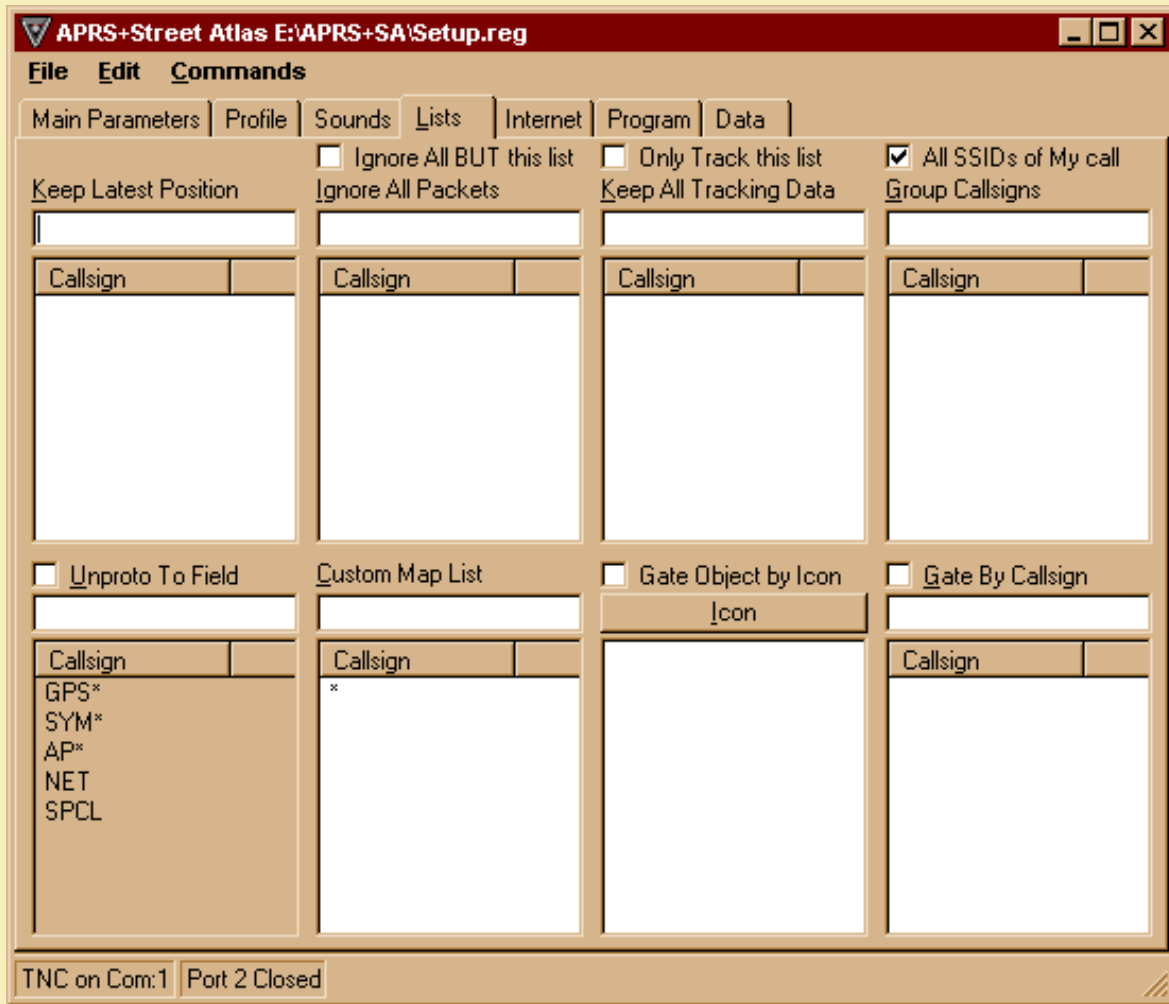
Description

Search String ▲ data to follow

WAV file ▲ data to follow

Play ▲ data to follow

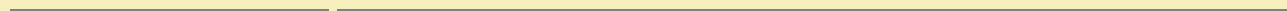
String ▲ data to follow



What you receive in the way of information on APRS+SA is controlled by this screen. In the above screen, I allow all information to pass from my TNC into the display pages. If there is anything I mention here that is incorrect, please click the page title in the bottom right corner and let me know.

List Box

Description



**All Boxes except Gate
Object by Icon**

For information to be processed by this screen, a callsign must be displayed in the list box under the appropriate window. A Callsign is entered by typing it into the long narrow box above the list box. Only one callsign can be entered at one time and spaces are not allowed. Wildcard commands can be used as well. "VE5DGD" is a single callsign. "VE5*" is ALL Saskatchewan callsigns. To remove a callsign from a box, double left click on the callsign. To remove a entire list in a box, just right click over the box then select *clear list*.

NOTE: If nothing is entered into the list boxes, APRS+SA will process all incoming data from the TNC and TCP/IP sources.

Keep Latest Positions

data to follow

Ignore All Packets

This list box can actually work in one of two ways. If you want to ignore all packets from stations shown in this list, leave the checkbox beside "Ignore ALL BUT this list" unchecked. If you want to accept all packets from station shown in this list, leave the checkbox beside "Ignore ALL BUT this list" checked. To "Ignore" or "Accept" packets, you must enter the callsign of the station. If I do not want callsigns from the province of Saskatchewan, I can enter "VE5*". To only view callsigns from the province of Saskatchewan, I would enter "VE5*" and check the box beside "Ignore ALL BUT this list".

Keep All Tracking Data

data to follow

Group Callsigns

data to follow

Unproto to Field

data to follow

Custom Map List

data to follow

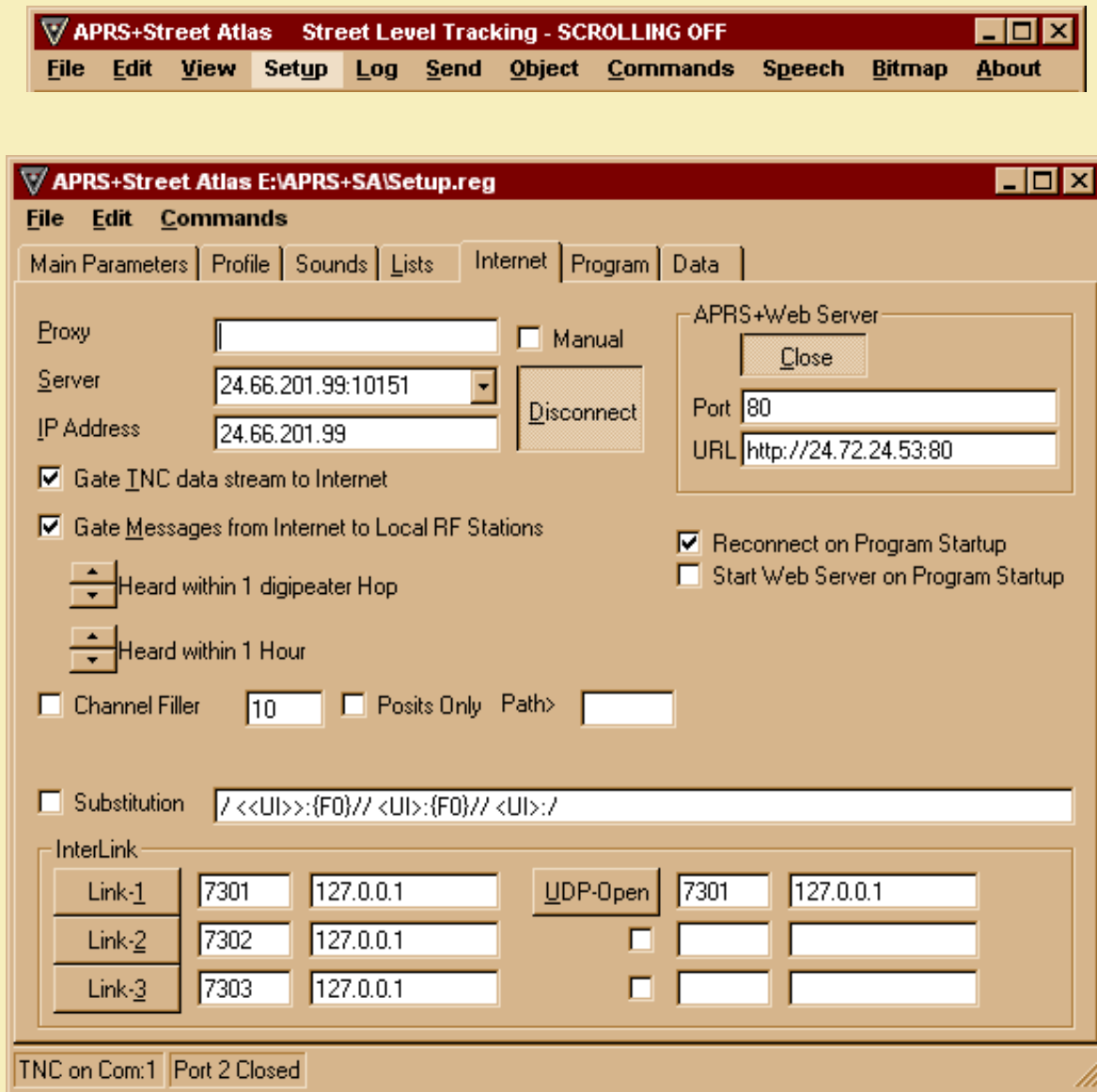
Gate Object by Icon

You can specify what type of icons to gate by entering them here. Unlike the other list boxes, "Gate Object by Icon" does not use a callsign but an actual APRS icon. You can select the icon you want gated by clicking the "Icon" button above the box.

Gate by Callsign

In addition to gating an object by icon, you can also enter a callsign to gate.





In "*About APRS*", I mentioned that you do not need a radio and tnc to use APRS+SA. This is because APRS+SA gives you the ability to connect to one of many APRServers on the Internet. These APRServers provide a means by which APRS information, from around the world, can be view by anyone, anywhere and at any time using the Internet. More information on APRServer can be found at <http://www.aprs.net/aprserve.dcc.html>. APRServe is written by [Steve Dimse, K4HG](#).

APRS+SA has a default file called APRServe.txt. In this file are addresses, or url locations, of two APRServers. These two servers are www.aprs.net and www.second.aprs.net. You can edit this file to add additional APRServers when they become available. You won't need to exit APRS+SA or load another program to edit the file, just double-click on the word "**Server**" on the Internet tab of Setup. This will load the APRS+Text Editor and the APRServe.txt file. Entering a new server is just a matter of typing it's URL or IP address. When you are done entering the information be sure to save the changes by using the "**File**" option of the APRS+Text Editor. To select the appropriate server that you wish to connect to, just click the pull down to view the choices. Click the one you want and the information will be displayed in the box. To connect to the indicated server, you must click the "Connect" button (shown above as "**Disconnect**").

If APRS+SA is unable to connect to the requested server, the software will automatically try the next server in the list, and so forth, until it gets a connection. If you cannot get a connection to a server, you may need to go through a "**Proxy Server**" first. This is an unlikely requirement for home Internet access but it may be necessary if you are doing it at work (yes, some of us run APRS+SA at work, just don't tell my boss). If you need to go through a Proxy to get an Internet connection you will need to enter the IP address in the box beside "**Proxy**".

If you are using APRS+SA with a TNC and radio and you are connected to an APRServer, you can gate local APRS activity on to the Internet. For this to work you must have a check mark in the box beside "**Gate TNC data stream to Internet**". You can also allow a station that is connected to an APRServer permission to send messages to your local APRS network. This is accomplished by having a check mark in the box beside "**Gate Messages from Internet to Local RF Stations**".

You can allow any Internet user, they do not need APRS, to view activity in your local APRS network. All that is required by the user is a web browser, such as Netscape or Internet Explorer. You, however, must be willing to turn your station into an APRS+Web Server.

An APRS+Web Server is not the same as an APRServer. When you press the "**Open**" button in the APRS+Web Server section, your IP address will be displayed in the URL box. Anyone on the Internet, who knows your IP address, can connect to your APRS+Web Server. This server is built into APRS+SA and is not an additional package.

For the Internet user to connect to your server, they must know your URL address or IP. If they are an APRS user, they can get the IP address by sending a message to your station that contains **?IP?**. This address is then typed into the URL box of their browser. When they hit enter, they will be connected to the APRS+Web Server on your computer.

WARNING: I highly recommend that you do this only if you have a machine that is at least a P300 or better. There is a lot of processing done by the APRS+Web server and the more power and speed, the better. I only run a P166 with 32 meg and it was barely acceptable but a faster machine would make a big difference.

You will know if someone has connected to your APRS+Web Server as you may see a slow down in processes you are running. You can still use your machine if someone has connected to you. ***Remember, the faster the machine, the quicker the processing.***

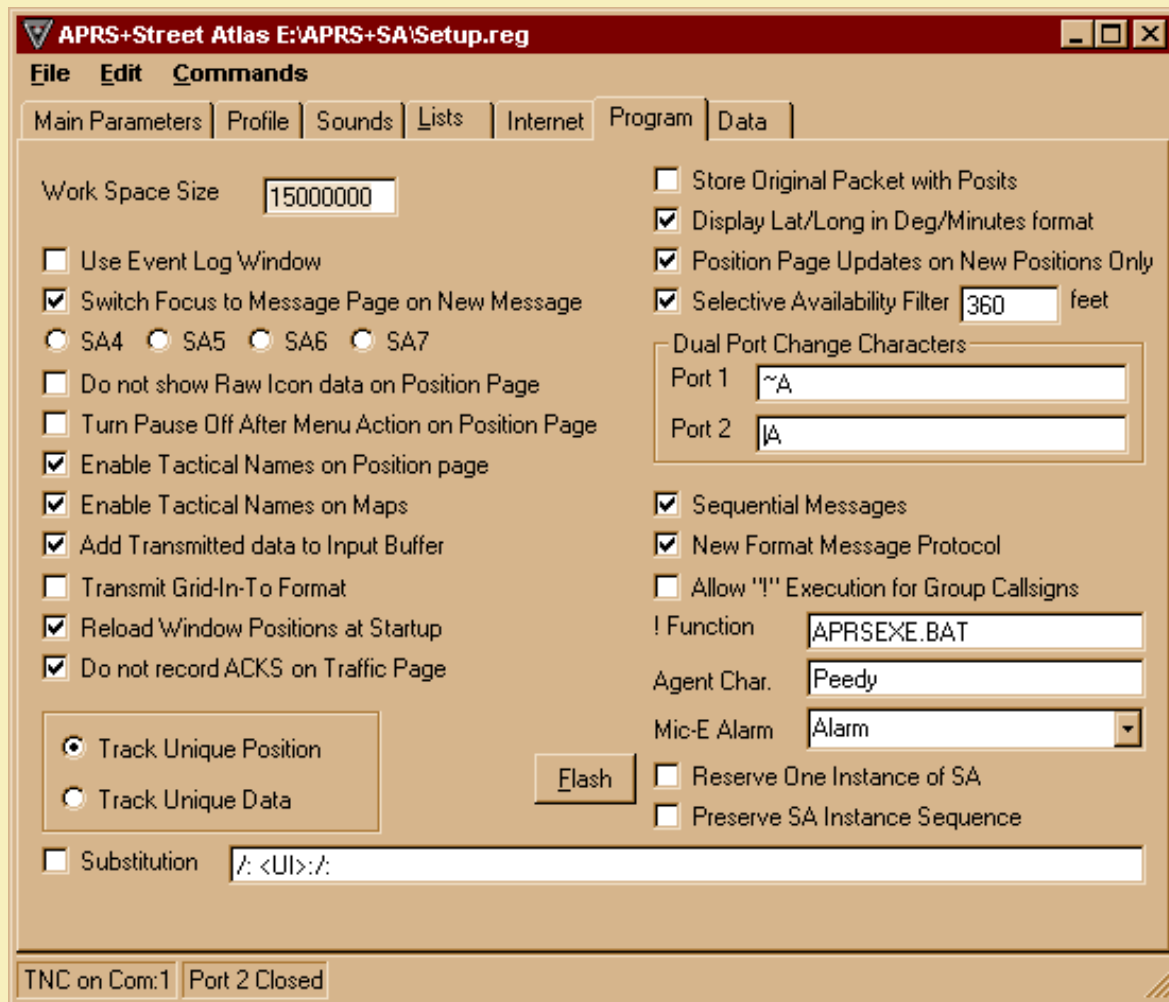
So what happens when the Internet user connects to your APRS+Web Server? Well seeing is believing. I was impressed with what I saw. The user will be able to view all of the information you receive. They will see callsigns, bulletins, messages, objects, history, status and weather reports. If they are viewing callsigns, they can click any single callsign and then be presented with detailed information about that callsign.

If you would like to see what APRS+Web Server has to offer, check my [APRS+Web Server](#).

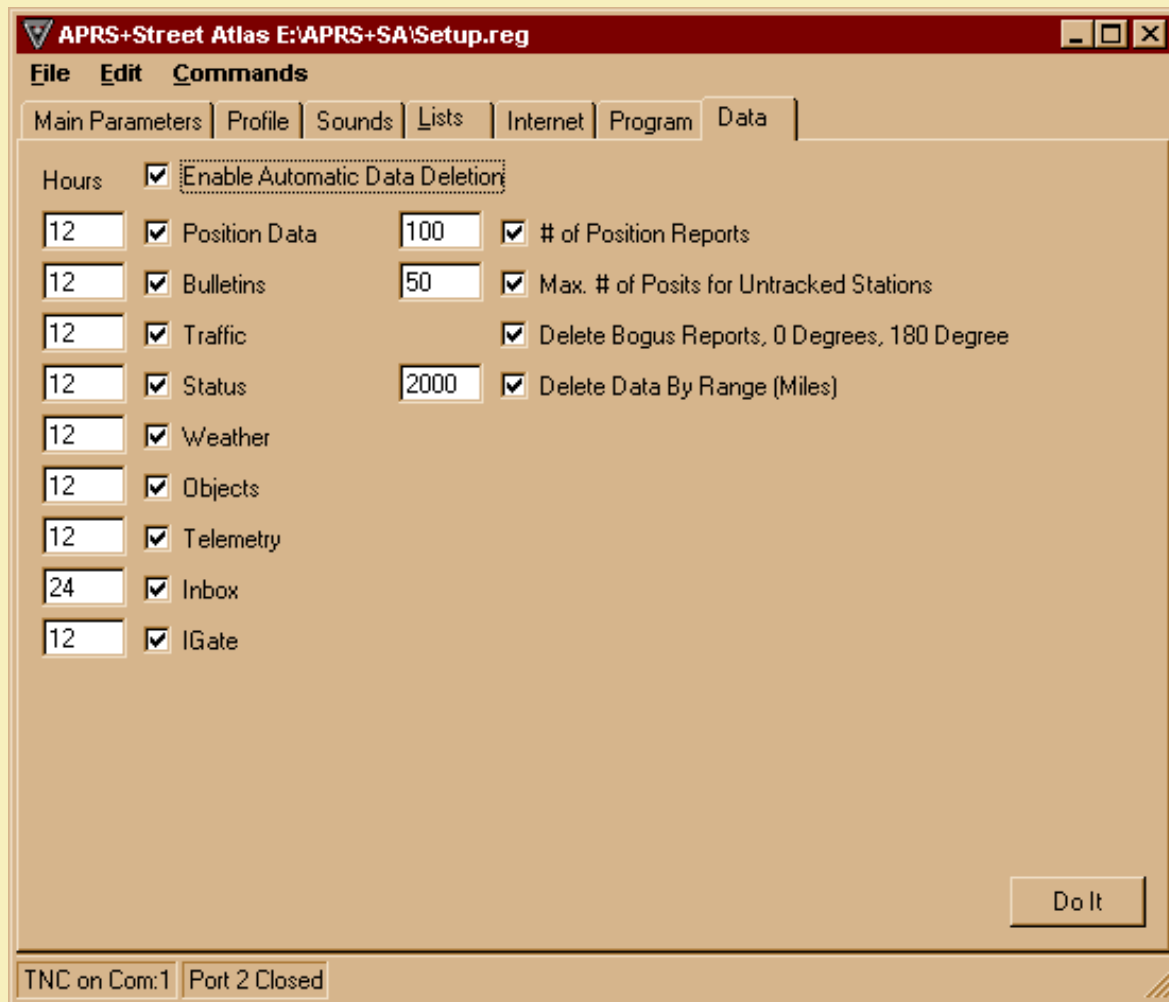
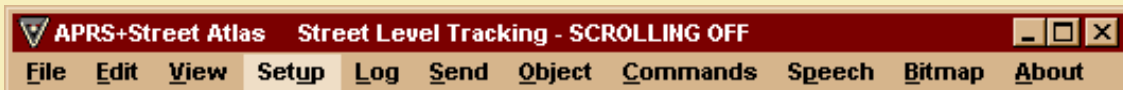
To have your APRS+SA software automatically connect to the Internet, each time you open it, just check the box beside "**Reconnect on Program Startup**".

To have your APRS+Web Server automatically start when someone connects to you, check the box beside "**Start Web Server on Program Startup**".

More information will follow when I found out more about the other options on the "Internet" tab of Setup.



CONSTRUCTION



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