APRS+SA, APRSPLUS, APRS+ Help Document

AN APRS+SA, APRSPLUS, APRS+ HELP DOCUMENT

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This file is a compilation of APRS+SA related information that I extracted from the following sources: messages to the APRSPLUS reflector, a file called Current Version.txt that is included in the current version of APRSPLUSxxxxx.zip, and some of my own experience and knowledge using Automatic Packet Reporting System, A.P.R.S., software and some associated hardeware. Some of the information is edited by me to make it more comprehensible, to me. Some of the information means nothing to me, but may, later.

The original messages concern the development and use of APRS+SA and APRS related software developed by Brent Hildebrand, Bob Bruninga, and others. The relevance, value and accuracy of this information is for you to determine. No warranty, by anyone, is given or implied with any of the APRS+SA and APRS related information contained herein.

The information contained in this document file may not apply to the particular version of APRS+SA you are using.

APRS+SA, APRSPLUS, and APRS+ should be considered the same program, in this document, unless the reader has some reason to believe otherwise from the context of the particular subject text.

If you do not know how to use the find and search functions of your browser and file viewer, you may be overwhelmed by this expanding mass of APRS+SA related techno-poop. Relevent information to the topic of interest may be found in more than one place.

The content may be changed, as I am moved, to reflect changes in the software, applications and my understanding of any and all topics covered.

Do not e-mail me questions about content. Chances are, I know less than you.

Do E-MAIL me , WITH DETAILS, if you KNOW the correct theory, procedure, application, jargon, etc., of that which I have written, incorrectly.

The information presented has no specific order. I have tried to group information relative to a general or specific subject, as perceived at the time of addition/ editing. Relative to any particular subject, I have made an attempt to present the most current and/ or relevant information first.

BOUQUETS AND BRICKBATS

I will accept any and all deserved praise, DETAILED and CONSTRUCTIVE suggestions, and voluntary cash contributions to cover my various

costs of producing and maintaining this budding tome.

If you wanna throw "bricks" at something that's "free"; don't.

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LINKS

Links to this site are encouraged and appreciated.

DISCLAIMERS... Please, read them.

You have the responsibility to read and use this information at your own risk, as a socially responsible individual, within the generally accepted boundaries of civilized human behavior.

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APRS+SA TOPICS

As Compiled, Edited and Embellished by WA4HEI

CREDITS

Most of the credit for the content of this document goes to APRS+SA author KH2Z, Brent Hildebrand, and various users of the APRS+SA software that donated a piece of their lives to document some facet of the program. Their knowledge, shared via the magic of the Internet, made it possible for WA4HEI to create this document to help current and future users to derive greater use of, and enjoyment from, APRS+SA.

SOURCES OF SOFTWARE

APRS+SA software
ftp://ftp.tapr.org/aprssig/winstuff/aprsplus/

APRS+SA home page
http://www.tapr.org/~kh2z/aprsplus/

SV2AGW Packet Engine software
http://www.elcom.gr/sv2agw/

SOURCES OF HELP

APRS+SA documentation source
http://www.qsl.net/ve5dgd/aprs/html/Site_Welcome.html

APRS+SA documentation and links
http://members.aol.com/wa8lmf2/APRSplusInstructions.pdf

APRS+SA and AGWPE documentation and setup information
http://www.qsl.net/soundcardpacket/

APRSPLUS REFLECTOR - AKA: NEWSGROUP or SIG

For help, information, etc., subscribe, unsubscribe; send a message

TO: majordomo@k8sn.org

leave the subject blank

in the message body, put: help

APRS+SA Yahoo discussion group with posts archives
http://groups.yahoo.com/group/aprsplus/

APRS PROTOCOL SPECIFICATIONS

http://www.tapr.org/tapr/html/Faprswg.html

WARNING! WARNING!

APRSplus ONLY works with the "classic" Delorme Street Atlas Versions 4 through 9.

It WILL NOT work with ANY of the products based on the new user interface used by Street Atlas Road Warrior, Street Atlas "Deluxe", Street Atlas

2002, TopoUSA or 3-D TopoQuads.

Many of APRSPLUS features require case sensitive commands or dialog in specific. syntax. If a particular feature "doesn't work", check the "dialog" or "command" case and syntax, before you report a bug to the author.

APRSPLUS SETUP - QUICK START INSTRUCTIONS

Running APRS+SA for the first time:
The minimal settings required for initial configure APRS+SA on a Single Port TNC

1) Unzip the APRS+SA file to its own directory
2) Run Setup.exe
3) Start APRS+SA by executing APRSPLUS.EXE - you will get a notification that you are running an unregistered copy of APRS+SA.
4) Click the Setup menu, select Main.
5) Enter your Callsign
6) Enter you Latitude - use decimal degrees for quick start
7) Enter your Longitude - use decimal degrees for quick start
   Put a negative sign (-) in front of the longitude value.
8) Select a TNC Configuration File
9) Check your Unproto path via, default is WIDE,WIDE. Some parts of the country use WIDE2-2.
10) Configure Port 1, the TNC port.
   a) Set Baud Rate.
   b) Click the Port, and select the appropriate Com Port to Open the serial port.

You should see configuration data on the TNC page of the main program window.

You can close the Setup window and reopen it at any time, if you wish.

At this point, if your station is on an active RF network, and radio and TNC are on, you should begin to see data coming in on the TNC.

Start Street Atlas. Then from the APRS+SA main window, press the keys, Ctrl-2. This will draw the position of all known station.

If you are using Icons - you can not pan or zoom the map from within SA. Also, Icons are geared to just a single copy of SA. You will need 2 serial ports, one for SA and one for APRS+SA is you want to run the programs independently.

You can run 2 instances of SA, and preserve one instance for normal SA function. It would require an additional serial port for GPS input. To preserve an Instance of SA, check the "Preserve One Instance of SA" option on the Program tab of Setup. There is a "Flash" button so you can easily identify which instance is being preserved. If you have this option checked and only one instance of SA is running, then APRS+SA will not generate any maps.

UPDATE INSTALLATION

The aprs+sa updates are released betas, but not a full release. They

should be considered experimental; so beware.

Each update usually is announced on the APRSPLUS reflector with appropriate caveats. They all lead up to an official release version.

Here is how you do the updates in general (not the full release update, but all the 200Q, R, S,T,U,V stuff:)

Close APRS+SA

The example is based on updating to 200v

1. Download the file GPS200V.zip
2. Extract the *.w3 and *.apl files to your main aprs+sa directory (Don't worry, they don't overwrite anything)
3. Extract zones.txt and codes.txt to your aprs+sa\nws directory
4. Point your file manager (like Windows Explorer or Power Desk) to your main aprs+sa directory.
5. Double click on the program "setup.exe" in that directory.
6. It executes and when successful will show a little box saying 200V installed.

Restart the program, and you will see 200V as the version when you do the "about" command.

Special Notes on how to go backward in revisions:

a. In your main aprs+sa directory there will be a pair of files that make up the "update". Example: GPS200V.w3 and GPS200V.apl. Your prior version is still in this same directory, assuming you have neither deleted nor moved it. So you might see files like GPS199.w3 and GPS 199.apl.

b. How to go back from 200V to 199:

 1. Move GPS200V.w3 and GPS200V.apl to a temporary directory, or simply delete them.
 2. GPS199.w3 and GPS199.apl should still be in your main directory. If not, put them there.
 3. Re-run "setup.exe" as noted above and it will "install" 199 for ya.

The install program always installs the latest version of code it finds. So if you have gps197, gps198, gps 199, gps200s and gps200v all in the main aprs+sa directory, and you then execute "setup.exe" from that directory, it will install ONLY gps200v...

It could be prudent to keep several versions of older "uninstalled" code in the main directory, as well as the updated code that you are actually using.

How do you tell the difference between an update and a "patch"?

An update will have extracted file names like this: GPS200x.w3 and *.apl. A patch will be a file that looks like this: NWS.P199

Patches are loaded automatically if they reside in the main aprs+sa directory. Updates have to be "installed" using the "setup.exe" program. Patches auto load at program start, or can be patched in live with the File > Load Patches command from the main menu. Patches are not "installed". They are loaded each time the program is run. Updates are "installed"

permanently and are only affected if you re-run "setup.exe" with a different *.apl and *.w3 in place.

To list patched internal functions: File > List Loaded Patched Functions. Patched functions will appear in the status bar.

Suggestion:

Download ALL versions to a directory named "aprs+sa patches". Then extract from this directory to the main aprs+sa directory. This way you have a repository of every update, patch or whatever you may want to go back to, or simply refer to.

CONFIGURATION SETUP.REG FILES AND *.REG

You can have multiple Setup files, but only the most recently used configuration is automatically loaded. After exiting the program, if you restart APRS+, it restarts with the configuration file that was in use, when last exited. Once started, you can change the configuration to any .reg file you may have saved, by Setup > Internet > File > Open > the .reg file of choice. The ability to save configuration data is available to registered users, only, as Setup > Internet > File > Save or Save As > the .reg file of choice.

COMMAND LINE SWITCHES

APRS+SA has no command line switches.

MEMORY ISSUES

All APRS program have to deal with memory. Any version that connects to the Internet has to deal with the 3-4 packets per second, and all the data they contain.

The first and primary memory setting in APRS+SA, is the "Work Space Size" at the top of the Program tab of Setup. If some operation exceeds the memory requirement as set my the Work Space Size, you will get a "WS FULL" error announcement.

To control data in the Work Space, APRS+SA provide the "Data" page of Setup to allow you some control over how data is retained. The left column of the Data page is the number of Hours you want to retain data. If you set Messages to 24 hours, and set the check box next to it, and check the "Enable Automatic Data Deletion" at the top of the column, you will only retain messages that are 24 hours old or less.

The right column of the Data page has several options. The first is the total number of Position reports, Posits, to retain at anyone time. Default is 4000. A ballpark estimate of this setting is to take the Work Space Size and divide by 2000. If the Work Space is set to 10Mb, the default, this yields a number of 5000. Setting it to 4000 gives you a margin to work with.

The next setting is the number of Posits to retain for stations you are not actively tracking, default 10. With 10, you get a feel if a station

is moving or not and a sense of their direction of travel.

All calculations and data manipulation takes place in the APRS+SA Work Space. APRS+SA does use memory beyond the Work Space for all the display objects. If these displays become large, you may exceed the amount of physical memory, and begin causing data to be swapped to disk in virtual memory. This can cause overall slow performance of the program and the computer.

I kept data on line for more then a year, saving only 1 Posit for untracked stations. I had over 9600 stations and objects! Some data was almost a year old when I cleared the list.

Another Approach

First:

With "APRS+SA set for 25000000 workspace size. I have NEVER gotten an "Out of Memory" or "Out of Workspace" warning."

Second:

Look at Setup > Data there a quite a few changes to make here in order to maximize memory efficiency:

1. Enable auto data deletion
2. Put a check in every box and think about just how long the data in each category is of any real use.

Positions: reduce from 12 to 6 hours or less.
Bulletins: reduce to a couple or 3 hours, or less
Traffic: reduce to less hours...who cares who sent what to whom more than an hour ago?
Status: reduce to less hrs unless you have a special need Weather:
If you log RF to disk then this can be reduced dramatically.
(Store weather trends, RF only)
Objects: same as status
Telemetry: 1 hr unless you use it
Inbox: Leave it at 24 unless you are certain you will check all messages to you within 24 hours.
Igate: If an Igate is unknown for 3 hours, its not much use anyway.

Now...here is where you can REALLY SAVE MEMORY and INCREASE PROGRAM SPEED:

Delete Data By Range....check this: and set to 750 miles or 500 miles.

Click on the "Do It" button.

Go the main program, click on Commands, drop down to Range Filter and set it for a limit that reflects your actual use and needs. I have mine set to 200 miles.

Go back to Setup > Main and make sure the checkbox for Range Filter is checked. The value in the box should be whatever you set your Range Filter to in the last step (Commands > Range Filter)

You will still see all the national NWS warnings, they don't get filtered.
You will still be able to message everyone on the internet.

LOW MEMORY MESSAGES

Before asking about low memory messages, consider the following:

What is generating the message? In other words, is the message a APRS+SA message or a Windows message? If the message is a Windows message, is it low memory or low resources? Windows Me is based on Win 98, which was based on Win 95. They all may have a resource restriction which might prevent APRS+SA and SA from being run on the same computer with any other applications running. You might post the exact wording of the warning, its source, and what you have running on your computer at the time.

Check WxData subdirectory of your APRS+SA directory. There is were the WX data it stored. What is the size of your data file?

> 9,303 KB

That would be more then 129000 weather data points! IF you have the ram, put your workspace size up to 50000000. You don't need to reboot your computer, just restart the program.

TRANSFERING OLD FILES TO A NEW VERSION

To anyone installing the latest beta, you should do it as a clean installation. Do not copy over an old version. There are a list of files you MAY want to copy over from an old installation. They are:

APRSPLUS.DAT, APRSPLUS.REG, SETUP.REG, *.REG (different user setup files), TACTICAL.TXT, and PATHS.CSV. and any *.MOP files you might have.

You might save, to a "safe" directory, the following from your previous version, in addition to those above:

APRSPLUS.INI, SETTINGS.INI, SMARTVALUES.DAT, MESSAGE.TXT, PATHS.PATH, AUTOANSWER.TXT.

NB! Any use of old files is subject to possible problems that may result from changes in file format as the program evolves.

DEAD TNC?

Several manual command sequences may be of use to a TNC user with a TNC that appears "frozen", i.e.. refuses to respond to commands.

NOTE: No <Enter> key strokes are used in the escape keystroke sequences

Switch from Converse mode to Command mode
<Ctrl>C

Switch from "other user modes" to Command mode
<Ctrl>C
X

Switch from host mode to native mode
<ALT>192 (use numeric keypad, not the keyboard)
Q

<ALT>192 (use numeric keypad, not the keyboard)

Switch from KISS mode to native mode

<ALT>192 (use numeric keypad, not the keyboard)
<ALT>255 "
<ALT>192 "

Rephrased:

To exit KISS from keyboard commands:

1. Press and HOLD ALT key, then type the numbers 192 from the numerical keypad (not the keyboard); then release the ALT Key.

2. Next, Press and HOLD ALT key type the numbers 255 from the keypad. Release ALT key.

3. Press and HOLD ALT key and enter the numbers 192 from the keypad. Release Alt key.

You should then be out of KISS mode.

RESTORE.TNC, THE TNC RESTORE FILE

RESTORE.TNC is the file in which the configuration parameters for a tnc used with APRS+ is restored to a user's preferred configuration, automatically, upon quitting APRS+.

Create or edit the RESTORE.TNC file. This file is sent to the TNC when APRS+SA closes the TNC serial port.

HOVER TEXT

Expanded "hover" text. Move cursor over callsign on many tabs will show most recent position in Lat/Long, Grid Square, and UTM. And show age of position. This is now available on Position and Position 2 tabs.

TOOLTIPS

Tooltips and hover text are likely to be found anywhere, as the program evolves. Some of the places tooltips may be found are: data lines for Status, Weather, Traffic, Inbox, Object, Telemetry, and IGate tabs showing range, bearing and time since last position report

UNPROTO PATHS

Commands menu, select Unproto Paths or Control+Shift+U

A slot has been added to the Unproto path window to support paths manually entered in the Unproto Via slot on the Main Setup window. This path will be used if no default path has been set. Default path is set with the Set buttons on the Unproto path window, or with the

Via dropdown on the Main page of Setup.

RF GATE UNPROTO PATHS

Rf Gate operators should set a vhf and hf Unproto path, for rf packets gated from the tnc vhf radio port to the tnc hf radio port.

Paths for dual port TNCs should contain the paths for both ports, in whatever format the particular tnc was designed to support.

Kantronics' KAM Example:

GATE,WIDE/RELAY,WIDE-2.

Here KAM tnc port 1's path is GATE,WIDE,
and KAM tnc port 2's path is RELAY,WIDE-2.

KAM tnc Unproto Path port of 0 equals both port 1 and port 2.

Presuming you have checked the DUAL PORT TNC option on the SETUP, MAIN screen, then reports will be sent to the ports indicated depending on the path you have selected. I.e., If you do COMMANDS, UNPROTO PATHS you can set paths and select which one will actually be sent. The PORT 0 sends to both VHF and HF sides, PORT 1 send to HF only, PORT2 sends to VHF only. In other words, you can have paths set for both HF and VHF, but the PORT setting determines which one will actually be sent.

For Dual-Port TNCs, the port assigned to the Path ID in the Commands > Unproto Path list will be the IGate outbound port for internet data also. This can be used to ensure that the IGate does not transmit to HF. Also, the IGate Local List will be determined by the outbound port as well (for Dual Port TNCs).

Running APRS+SA Kantronics KamPlus version 8.2, set the commands of :

NUMNODES 1
INIT term
MYG gate
KNXC on
MAXUSERS 2
UIGATE ON/OFF

And in the APRS+SA software "setup" on the "Main" tab selected the "Dual Port Selected"

CHANNEL FILLER UNPROTO PATH

Channel Filler

If your RF network is quiet, you can use the Channel Filler function which will gate random packets from the Internet to RF at the specified rate of 1 each X seconds; where X is a number greater than or equal to 30. If the RF side become active, the Channel Filler will back off automatically. The idea is to add some fill to the an RF network will little activity.

Setup > Internet > Channel Filler has a dialog box for a filler path ID number that matches the number of the particular path desired in the

Unproto path list, under Commands>Unproto Paths. If there is no match, the default path ID number is used.

SUGGESTED TRACKER PATHS

Various digi sysops and home station operators have crippled the APRS rf network, in their neighborhoods, by configuring their equipment in a manner hostile to itinerant travellers; by creating a local network that ignores, among other things, the generic RELAY digi alias. The following suggestions are probably as good as any, for those passing through foreign territory that wish to make the best of generic paths, without creating undue QRM by playing DXer.

In urban areas, it should not be necessary to use more than 2 digi hops, as in RELAY,WIDE or WIDE,WIDE, depending on the prevalence of stations and digis configured to support RELAY. It is difficult, obviously, for the casual APRS traveller to determine what paths are supported and what is not. You must choose to either support local anarchism or not.

```
RELAY,WIDE2-2   (should covers all local stuff)
RELAY,WIDE,WIDE  (covers areas where WIDEn-n is not supported)
WIDE3-3         (covers areas where there are no RELAY stations)
WIDE,WIDE       (covers all the rest)
```

PHG DISPLAY SETTINGS

To show the circle for Power-Height-Gain if a station transmits it.

Under Commands > Map Options (or cntrl-shift-M). The resulting free floating window has several tabs: the two last ones (Circles which determines the color and type of line and fill, and APRS which determines if range circles will be drawn around stations based on PHG values).

SELECTING YOUR PHGD CODE VALUES

Setup > Profile > PHGD box e.g.: 6,2,9,1

PHG Code:	0	1	2	3	4	5	6	7	8	9	Units
Power:	0	1	4	9	16	25	36	49	64	81	Watts
Height:	10	20	40	80	160	320	640	1280	2560	5120	feet
Gain:	0	1	2	3	4	5	6	7	8	9	dB
Directivity:	omni	45	90	135	180	225	270	315	360	empty	degrees

PHG0000 is not a valid string because the lowest increment of power is "1". A power of zero in fact is not transmitting anything, so no one will ever see it.

DEFAULT INTERNET PATH

The Internet path is always used for an Internet or localhost connection.

The default Internet path of "APS207 via TCPIP" cannot be changed.

The specific number depends on program version number. i.e.IE 207, in this current example. If a user prefers to use the grid square option to display his position, the default APS207 would be replaced with a 6 character grid square designator. eg. "EN65UX via TCPIP".

IGATE INBOUND PATHS; RF TO INTERNET

All local rf packets, being transferred by an IGate, to the internet TCP data stream, use the non changeable, default internet path, represented at the top of the Unproto list with the ID of I.

IGATE OUTBOUND PATHS: INTERNET TO RF

All packets being transmitted from an IGate, to rf, use the rf Unproto path set by the user from the Commands > Unproto List.

For Dual-Port TNCs, the port assigned to the Path ID in the Commands > Unproto Path list will now be the IGate outbound port for internet data also. This can be used to ensure that the IGate does not transmit to HF. Also, the IGate Local List will be determined by the outbound port as well (for Dual Port TNCs).

IGATE FILTERS

Setup > Internet > selectable Hops and Time filters affect only internet to rf data flow.

Setup > Lists > Gate by Callsign to gate (pass) packets from a given callsign, enter that callsign into list. You can use wildcards also, such as VA3DRV*. Enable list with check box.
.
Setup > Lists > Gate Object by Icon list, to gate objects by icon.

Setup > Settings > IGate > TypeReject key. This allows IGate operator to exclude certain types of packets from being send into the APRS/IS. I would caution against using this option as I'm in general opposed to doing any filtering of the APRS/IS data except for duplicates. This should be used for very special cases. BH

IGATE THIRD-PARTY TRAFFIC

The "}" type, 3rd party packets are automatically excluded from the Internet feed.

APRS provides a mechanism for formatting packets that are to be transported through third-party (i.e. non AX.25) networks, such as the Internet, an Ethernet LAN or a direct wire connection.

In both cases, the "unused" digipeater callsigns (i.e. those digipeater callsigns after the asterisk) in the original Source Path Header are stripped out. The asterisk itself is also stripped out of the Source Path Header. Then two additional callsigns are inserted:

1) The Third-Party Network Identifier (e.g. TCPIP). This is a dummy "callsign" that identifies the nature of the third-party network.
2) The callsign of the receiving gateway station, followed by an asterisk.

Third-party packets are those packets generated by an IGate to RF. After a packet emerges from a third-party network, the receiving gateway station modifies it (by inserting a } Third-Party Data Type Identifier and modifying the Source Path Header) before transmitting it on the local APRS network.

IGATE POSITION DECODING AND DISPLAY PLOTTING FILTER

If monitoring RF and the Internet at the same time, the internet side can cause the RF side to be dropped if you have the Data tab of Setup to limit the number of active position reports. There is a Key in the Internet section of Settings called InternetPositionCallsigns. You can enter the callsign(s) of the stations you want to monitor from the internet side. Those not in the list are not retained. And Empty key, is the same as "*", or all stations. This key can be used to greatly restrict what stations are decoded.

Want to just map the stations you receive by rf but send all local rf stations to the internet server?

You can stop decoding POSITION data from the Internet by assigning a value to InternetPositionCallsigns in the Internet section of Settings. Assign something like ZZZ would cause the program to stop decoding position packets if the callsign was not an exact match to ZZZ.

IGATE PAGE COLUMNS

3 columns:

Totals, since last cleared:

Number of Messages (MSG), Local stations (LOC) and Fill packet (FILL) transmitted by the IGate.

To clear, see Setup > Settings > IGate

IGATE CONFIGIRATION AND INTERNET APRS SERVERS

To activate the basic IGate function of APRS+ requires little more than establishing the internet connection: Setup > Internet > Connect, after an active APRS server is entered in the Server dialog box.

The gating of rf to internet occurs automatically, as does the display of internet traffic on the various pages of APRS+. Numerous filters are available to limit the data displayed. The use of some are detailed elsewhere in this document.

The choice of server and port can make a difference in the amount of data sent to your client, BUT there is no way the client can control the amount and type of server data sent to it. Relative to any particular server, you ask for data, you get all the data that particular server is configured to

```
pass.

APRS data servers interconnect the various APRS clients, providing them with
a constant flow of APRS data, in TCP/IP. An appropriate sever and port
must be chosen and entered into the Setup > Internet > Server dialog box.
Left double click the "Server" dialog box title to edit the file.


NOTE: Any and all servers are liable to be "broken", or inoperative for
      any number of reasons. Keep in mind, this is a hobby, with very
      little cash donated to keep the hardware and services on line.

; APRServe sites Updated 26 Oct 2002 by WA8LMF@aol.com
; Comment Lines begin with a ;
; "Dump" refers to cached recent past history.
; This list formatted for direct use with APRSplus.
; Copy/paste this list into the file APRServe.txt located in
; the APRSplus\data directory
; For use with WinAPRS, delete this comment area,
; then in the remainder, find and replace colons
; and semi-colons with the "TAB" character.
; Standard APRSd port definitions at
; http://www.ntstrans.com/~ntstate/ports.html
; Direct IP addresses subject to change --
; recommended to use only when DNS (named) access fails.
; APRSD servers can produce status report
; Enter http://servername:14501  into your WEB browser
;
; Findu mapping is now      http://map.aprs.net/callsign
;  or                       http://second.aprs.net:8000/callsign
; www.aprs.net:23 ;RIP

first.aprs.net:23 ;First APRS Net
128.143.202.191:23 ;First APRS Net - direct IP
first.aprs.net:10151 ;Florida server w/cache dump
first.aprs.net:14579 ;Florida server LOCAL ONLY

second.aprs.net:23 ; SoCal Second APRS Net
134.173.254.38:23 ; Second APRS Net - direct IP
second.aprs.net:10151 ; SoCal server w/ cache dump
second.aprs.net:14579 ; Socal server LOCAL ONLY

third.aprs.net:10151 ;Third APRS server w/8H dump
third.aprs.net:10152 ;Third APRS server w/o dump
third.aprs.net:14579 :Third Local Data Only

;AHubEast (javAPRSSrvr)
ahubeast.net:10152 ; Full APRS Feed
ahubeast.net:10151 ; Full APRS Feed w/ 30 Min Dump
ahubeast.net:1314  ; Full Feed - Read Only
ahubeast.net:14579 ; Eastern USA Regional
;  HTML Status Ports
;http://www.ahubeast.net:14501 Main Port
;http://www.ahubeast.net:14601 Regional Port
;  WEB SITE
;http://www.na4v.com

;APRSWEST (javAPRSSrvr)
aprswest.net:10152 ;Full APRS Feed - Main Port
aprswest.net:10151 ;Full APRS Feed - with 30 min. Dump
aprswest.net:1313 ;Link Port - Full Feed - Read Only
```

```
aprswest.net:1314 ;Full APRS Feed - Message Only
aprswest.net:14579 ;APRSWESTR Western States Regional Port
aprswest.net:10153 ;APRSWESTR Western States - with 30 min. Dump
;  CWOP/Weather Server (No IGates Please)
;  NOTE: REMed out to prevent accidental selection as IGate
;  Delete the semi-colon to activate
;aprswest.net:23 ;APRSWESTX CWOP/WX Primary Server
;aprswest.net:10153 ;APRSWESTX CWOP/WX - with 30 min. Dump
;ahubca.net:23 ;CAWXBAK CWOP/WX Secondary Server
;  APRSWEST HTML Status Ports
;http://aprswest.net:14501 Main Port
;http://aprswest.net:14601 Regional Port
;http://aprswest.net:14701 CWOP Port
;  APRSWEST JAVA Display
;http://java.kb7zva.com
;  APRSWEST WEB SITE
;http://kb7zva.com

;Ahub California -- Website:  www.aprsca.net
aprsca.net:2023 ;Worldwide
aprsca.net:14579 ;California
aprsca.net:10150 ; Special SATgate send-only with no RX stream

;East Lansing, MI (Mich State Univ)
elansing.aprs.net:10151 ;Full Internet Feed
elansing.aprs.net:14579 ;Local Only

;Fenton MI
fenton.miaprs.net:10151 ;Full Internet Feed
fenton.miaprs.net:10152 ;Full Internet Feed w/o cache dump
fenton.miaprs.net:10151 ;Local RF Only
65.170.9.12:10151; Full Internet Feed - Direct IP

;Grand Rapids, MI Satgate Running: APRSd 2.1.5b9
igate.miaprs.net:14601 ;status
igate.miaprs.net:14679 ;Grand Rapids, MI Sat Data heard on local TNCs,
tracking PCSAT and UO22 igate.miaprs.net:10251 ;Worldwide Sat data feed
received and filtered from first.aprs.net igate.miaprs.net: ;10252   Same
as 10251 without history

aprsdcsp.antelope.net:10151 ;FULL - Rocky Mtn regional server in Casper WY
aprsdcsp.antelope.net:10152 ;FULL w/o cache dump (current only)
aprsdcsp.antelope.net:14579 ;Local

;Tucson, AZ server
packet.kvoa.com:10151 ;Full feed
packet.kvoa.com:14580 ;Local (Tucson) feed

;Northwestern US - Southwestern Canada -- Presumably normal aprsD ports
linus.chemeketa.edu:10151 ;Salem, OR  aprsd-CCC 208.194.173.138:10151
;Redmond, WA  aprsdRDM the.hams.net:10151 ;Portland4,OR aprsdPDX
calgary.canaprs.net:10151 ;Calgary, Alberta aprsdYYC 206.186.216.155:10151
;Winnipeg, Manitoba aprsdYWG

jnos.org:10152 ;Redmond, WA aprsdRDM  WW messages and PNW local
jnos.org:14579 ;Redmond, WA aprsdRMD  Local RF

;Northern Europe
ahubswe.net:2023 ;AHubSwe World-wide APRS Feed
ahubswe.net:14579 ;AHubSwe Nordic APRS Feed
```

```
;Germany
db0lj.dyndns.org:10153 ;European Traffic
db0lj.dyndns.org:1313 ;German/Local Traffic

;Australia APRS servers
aprs.net.au:10151 ;1st VK Server - International feed w/ cache dump
aprs.net.au:10152 ;1st VK Server - International feed w/o cache dump
aprs.net.au:10153 ;1st VK Server - VK* & ZL* feed w/o cache dump
second.aprs.net.au:10151 ;2nd VK Server - International feed w/ cache dump
second.aprs.net.au:10152 ;2nd VK Server - International feed w/o cache
dump second.aprs.net.au:10153 ;2nd VK Server - VK* & ZL* feed w/o cache
dump


rotate.aprs.net:10151 ;Rotating APRServe w/ dump
rotate.aprs.net:23 ;Rotating APRServe w/o dump (current only)

aprserve.dididahdahdidit.com:10151 ;Random aprsd server w/ cache dump
aprserve.dididahdahdidit.com:10152 ;Random aprsd server w/o cache dump
aprsdmsp.dididahdahdidit.com:10151 ;Andover, MN
aprsdcho.dididahdahdidit.com:10151 ;Charlottesville, VA
aprsdorl.dididahdahdidit.com:10151 ;Orlando, FL
aprsdcle.dididahdahdidit.com:10151 ;Cleveland, OH
aprsdlan.dididahdahdidit.com:10151 ;E Lansing, MI
aprsdmtl.dididahdahdidit.com:10151 ;Montreal, QU
aprsddfw.dididahdahdidit.com:10151 ;Denton, TX
aprsdmia.dididahdahdidit.com:10151 ;Miami, FL (aprserver)
aprsdmsn.dididahdahdidit.com:10151 ;Madison, WI
aprsdsao.dididahdahdidit.com:10151 ;Sao Paulo, Brazil
aprsdtus.dididahdahdidit.com:10151 ;Tucson, AZ
aprsdden.dididahdahdidit.com:10151 ;Denver, CO
aprsdatl.dididahdahdidit.com:14579 ;Atlanta, GA (local only)
aprsdaly.dididahdahdidit.com:14579 ;Albany, NY (local only)
```

FINDU

As long as APRS data is gated to the internet, via an IGate, and through an active and properly configured APRS server, FindU will find you. FindU monitors the APRS traffic flow, continuously updating its data base to which the various inquiry software refer.

GRIDSQUARE IN "TO" POSITION BEACON FORMAT

Setup > Program > Transmit Grid-In-To Format; check box.

On an APRS display, your call will be located at the center of the 6 character gridsquare. The ambiguous location discourages visitors, etc., as it makes a precise location less convenient, yet it can be used to define a general presence. Format is considered by some to be obsolete, therefore it may not function with all software.

DEAD RECKONING

See the file, DeadReckoning.RTF.

To enable or disable dead reckoning: Commands > Map Options > APRS tab
check or uncheck "Dead Reckoning On" box.

Options on the APRS tab of the Map Options (MOP File) include "Enable Dead Reckoning" and "Zoom Included Dead Reckon". NOTE: A dead reckoned Position report is based on the last time the station was heard. A dead reckoned Object position is based on the included timestamp of the Object.

Dead Reckoning

1) What is it? Given the last known position, course and speed, and how long since the position report was receive, the current position is estimated using great circle calculations.

2) How is it displayed? In APRS+SA there are two options for displaying dead reckoning.

   A. Map Options file. In the Map Options file, APRS tab, there is an option to check to enable Dead Reckoning. Doing so will cause a line to be projected from the last known position to the estimated current position. Also, checking the Zoom Dead Reckon option will cause the estimated position to be included in the map zoom calculation. The appearance of the projected line is controlled in the Settings window, DeadReckoning section.
   There are 4 file configuration keys:
   [1] LineColor, values 0-4 for Black, Red, Blue, Green and Yellow.
   [2] LineWidth, values 0-4.
   [3] LineStyle, values 0-2 for Solid, Hatched and Highlighted.
   [4] TimeLimit in hours beyond which Dead Reckoning is not calculated.
   You can zoom in and out and pan as desired on the SA map.

   B. Live Update. This method performs live updating of the estimated position by drawing a line from the last known position to the current estimate. This works similar to the drawing of APRS Icons on the SA map. Enable Icons must be selected from the Maps toolbar, Maps Dropdown, Views, Enable Icons. A system printer (any printer) must be installed on your computer. Live update of the position will be estimated at the rate of about once per second while the processor is not busy. Live update is performed on any station(s) that are in the Tracking List. The line projected in live update is black, approximately 3 pixels wide and is not user configurable at this time. You can not zoom in/out or pan and have the projected line be in the correct location. The SA map must have been drawn by APRS+SA.

GENERAL CLEARING AND DELETING DATA

To clear all, use the Commands > Clear submenu options.
Highlight line with right click. Left click and choose from menu.
Variations of typical Windows mouse and keyboard manipulations.

TIME FILTER

Commands > Time Filter then select the time interval at which old positions will be removed from the map. The Time Filter will age position reports and remove them from the map. The Time Filter is non-destructive in that you can shorten or lengthen the time as desired.

SCROLLING ON/OFF

Commands > Scrolling on/off controls the scrolling of the following pages: tnc, position, and likely? all dynamic displays.

If you are working on the Positions page and go back to the TNC page, to find scrolling turned off, you can defeat the scrolling "pause" by going to Setup > Program and check box for "Turn Pause of after Menu Action on Position Page".

With scrolling on, a scrolling page will scroll with new data, and with that action is a degree of screen flicker as all the data scrolls up a line. The flicker is more often when the data updates more frequently, depending on the amount of data filtering enabled. The duration of each flicker event, for each screen update event, is effected by the "speed" of the computer hardware used and the demands placed upon the video and CPU circuitry by the particular page scrolling. It takes a lot more computer resouces to deliver a flicker free Positions page, with all the icon images, than a flicker free TNC or TCP page.

If you don't like the flicker when data scrolls, turn scrolling off. That is why you can turn off the scrolling. If you do not want to turn it off, go to a page that updates at a slower rate, or to a page that does not update, or to a scrolling page that requires minimal computer resources. There is more or less flicker depending upon your configuration and data activity. When the page is not visible, it does not take any CPU cycles.

In the TNC page, APRS+SA stores the last 20,000 bytes received. It always saves it. By turning scrolling off, you don't loose the data. Turn scrolling back on, and you will see the last 20,000 bytes received. If you want to save all the data, save it to disk, file menu, Store TNC data to disk.

TNC/GPS and TCP tabs. You can scroll back the list and more easily highlight and clipboard copy data. Note - currently, each tab only has 100 lines of scrollback. If you are fully at the bottom of the list, the list will scroll with new data. If you are at the top, and there is already 100 lines, you will loose the top most lines that exceed the 100 lines maximum. The tabs no longer respond to the turning on or off scrolling.

AUTO REPLY

Double clicking on the "Auto Reply" label on the Messages tab will open the AutoReply.txt file for editing. AutoReply.txt can be used to store frequently used text messages

INTERNET MESSAGE PORT DESIGNATOR

Unless a message line includes the internet port designator appended to the target call in the "Callsign To" dialog box, EG WA4HEI/I, then it will be transmitted to rf on the default radio port.

MESSAGES, BULLETINS AND EDITING

The maximum length of a message is 65 characters. APRS+SA will split a message at a space character, you can just keep typing. The number of characters is displayed so that you can keep a message short, if your target station can not display the full length message. You may choose shorter message lengths to create shorter packet lengths that decrease the odds of intermittent noise spike corruption of any individual packet, a common lower hf phenomenon due to various forms of QRN.

You can enter a message, and choose "Load" instead of "Send". This enters the message into the queue in the suspended condition. APRSPLUS will start transmitting the message when it hears the target station. In this way, you can load a suspended message to a station that is not on the air, but who can then receive it the next time that station is on the air and is recognized by your APRSPLUS program.

APRS+SA will transmit an outbound message, then 8 seconds later repeat it, doubling the interval each time until 20 minutes and it will timeout. It will try again, one time each 20 minutes if it hears the target station again.

Note: If a station, for which a suspended message is queued, returns to the air with a tnc only, i.e.. a compatible APRS program is not operating at the target station when it returns "on the air", then, upon hearing the intended recipient station, the senders APRS+ software will try to deliver the message to a dumb tnc that will not "ack"nowledge reception. The message originating APRS+ program will continue the previously described transmit cycle.

Right click to see individual or grouped message line options. Control+left click or shift+left click allow user to select various combinations of message lines. Editing and manipulation of message and bulletin lines is done from the message and bulletin tab pages.

Editing existing message and bulletins may be initiated by double left clicking a queued message or bulletin on the message tab page. The existing "to call" will be loaded into the message dialog box, allowing a total rewrite, if desired of that particular message text.

A single right click on a queued message brings up a message line menu, from which Copy Message may be chosen to load both the "to call" and the message text, allowing editing of both.

To initiate automatic transmit control of loaded or manually suspended bulletin(s), you must right click > Resume Transmission. As these generic messages are targeted to a group of stations, they have no auto resume transmit option as message lines addressed to specific stations.

Right click message line and select Queue Time: Shows time of next transmission, in status bar, for the particular line clicked.

STORED AND DELAYED SEND MESSAGE LINES

APRS+SA has the ability to "Load" messages for delayed sending. The message is stored, and when the target station is next heard, the messages begin to be transmitted.

QUERIED MESSAGE LINES

You can store messages in APRS+SA that can be pulled from the RF list. Messages are stored in simple text format, single line, in the APRS+SA Data directory with a file name similar to this: NAME.MSG. To query this file, send a directed message with ?NAME? as the query text. These files can be generated or erased by another program to make the data dynamic.

These message files can also be also be managed by APRS messages, using 3 commands:

STORE:, RECALL:, and DELETE:.

These commands can be shorted to STO:, RCL:, and DEL:, or even shorter, to S:, R:, and D:.

Example:
STO:name this is the msg text.
This would create a file, NAME.MSG, that would contain: "this is the msg text.". The stored message can be queried using ?NAME? or RCL:NAME

The message can be deleted using DEL:NAME.

File names using these three commands should not have any spaces.

APRS+SA does not generate messages based on a station's location. That would be an interesting project, to have messages for a specific location, and when a station entered that location, the message then generated to that station.

MESSAGE LINE "ACK" TIMING

When sending a message, APRS+SA generates one message packet, waits 8 seconds, if no ACK has been received, it sends it again. Waits 16 seconds, if no ACK, it sends it again. When an ACK is received, APRS+SA stops sending the message. This is indicated by a "green" message turning "black". If your friend returns an ACK, your station will not continue transmitting that message. Now you can also see multiple copies of a message, depending on what your digipeater path and view of your area digipeaters looks like. If ACK are not getting back, APRS+SA does not know that a message is received. As for ACKs, APRS+SA will generate an ACK for a received message. If APRS+SA see the message again, it will again send and ACK, then queue up another ACK that will be sent back 15 or 20 seconds later. What you need to ask, is why you are not seeing ACKs back. APRS+SA will generate 4 packets in the first minute with outgoing messages. But then the retries drop off considerably.!

Note, recent versions of APRS+SA support Reply/Acks. If you are in an active 2-way messaging conversation, the number of "ACKs" generated in significantly increase, but the number of packets is not! This means you success in getting message through with ACKs is significantly improved.

QUERIES

Send > Send Message > ?QUERY? > Explain: APRSP & APRSS & APRST

Query a stations Position (?APRSP), Status (?APRSS) or Trace the path via which you were heard (?APRST)

POSITION PAGES

Position tab: A dynamic display (scrolling) list. You can select stations on the Position page using Shift-Click, Ctrl- Click, dragging, etc. IF you first turn off scrolling, see Commands > Scrolling On/Off.

To keep just the most recent position report, right click on your station Callsign on the Position tab, and select Keep Most Recent. Or, enter a callsign on the History tab, and delete the individual position reports.

Position 2 tab: A static display (meaning that the display does not scroll) of stations showing callsign with Icon, Lat/Long, Speed, Track, Altitude, Time heard, digi path and the data portion of the decoded packet. You can sort by any column simply by clicking on the column header. Do a reverse sort by holding the Shift key while clicking the column header. Data displayed in the Position2 window, is determined by a range in miles value. Default is 50 miles. You can set it to what ever positive value you want, but note that over all system performance may be affected. The window in this experimental version is provided with 3 buttons.

1) Map - will generate a map of all highlighted stations in the list.
2) Update - will recalculate the Range and Bearing based on your current Lat/Long. This is not automatically recalculated in this release.
3) Clear - clears the entire Position 2 list. You can also generate a map by double clicking on a station or stations. You can use the shift=key or Ctrl-key to highlight multiple stations.

How is ALT set?

If you have a GPS receiver connected, then Altitude is automatically entered if altitude is available in the data strings. If you are stationary, enter the altitude in your Posit text. Example if you altitude is 1234 feet, enter: /A=001235

TRAFFIC PAGE FILTERS

You can eliminate a lot of this traffic by adding wildcards to the edit boxes at the top of the Traffic page. You need to understand what it is you want to see and what you don't want to see. The four edit boxes do have tooltips to tell you the meaning of each. The first is the "Allowed FROM list". Second is the "Prohibited FROM list". Third, "Allowed TO list", and finally, "Prohibited TO List". To monitor traffic that is only from U.S. stations, enter: A* K* W* N* To eliminate IGate messages, I enter USER* java* into the Forth list. Using these can make the traffic you monitor more meaningful to you rather than seeing every message generated.

The traffic page shows ALL messages. Many of which you may have no

interest. The options at the top of the page allow you to filter out (on in) messages from and to various callsigns. Enter the callsigns you want; wildcards are allowed.

More examples:

Prohibited from-

I don't want to see a lot of the traffic directly from the servers, so I enter: APRSERVE AHUB*

Allowed to List-

Perhaps, you only want to see messages TO a select list of stations, enter that here. I usually leave it blank.

Prohibited to List-

Again, lots of messages I don't want to see. I enter:
USER* java*

REDUCING TCP/IP SERVER TRAFFIC TO APRS+

There are no settings that will tell the APRS server to not send data to the APRS+ client machine. If you connect to port 1314 on an aprsD server, you will only receive message packets (and associated position packets) from the server. The port still sends anything you send it to the other servers, it just cuts down, tremendously, the amount of traffic coming to you. This port only passes messages and positions to you, but will accept all packets from you. When using a slow computer as an IGate, this port works better by reducing the CPU load. It is port 1314.

RANGE FILTERS

The way I usually set the range filter is from the main screen of the program. I select Commands >Range Filter>640 Miles for example. This way of setting the range filter has always worked for me.

However, I have tried setting it the way you do and that works also.

One thing to remember, 640 Miles from where? From your location. You must set your location and transmit at least one position report for the program to know where you are.

Range Filter only affects map drawing, not the position reports it collects and saves.

The Delete Data By Range on the Data Tab of Setup only deletes all types of data periodically when "Enable Automatic Data Deletion" is checked at the top left of the window.

I have observed it deletes the data by range about once a minute, or when you click the Do It button.

The timed data deletion for specific types of data works fine for me also.

You may need to run the setup.exe file again or re-install the program to fix it.

COMPRESSED POSITION DATA

APRS+SA will not transmit compressed, and the author does not intend to add it. The savings are insignificant. You can limit you packet by minimizing (read eliminating) the Posit text, and keeping your path to a minimum.

RADIO DIRECTION FINDING SUPPORT

No, APRS+SA does not support DF via a serial port. Perhaps, if such a unit was donated, it could then be added. Otherwise, the demand for this feature is very not great. And in my DFing experience, I've beaten the Doppler units with my 5 element quad and manual bearings on every occasion. Particularly the multi-transmitter hunts. I've been stopped by the police more often when using the 5-el quad also! BH

POSITION AND STATUS BEACON TRANSMIT TIMING

With change in status text of posit text or lat/long, the new information is transmitted on a reset decaying timing algorithm as are messages, for fixed stations.

Manually transmitting a position or status beacon resets the timer for the next timed report, The same position transmit timer is reset when the software responds to received ?APRS? query packets.

STATUS BEACON SPECIFICATION ANOMOLIES

With the StatusTabOther option set to "0", APRS+SA strongly enforces APRS status packet specifications. With it set to "1", it will put any non-conforming packet on the status tab IF there is no actual status tab.

SETUP SETTINGS

There are numerous software features that are only accessible by editing the various configuration entries of Settings.ini. They can be made, "on the fly", accessed directly by Setup > Settings, left click the + or - to open and close a particular part of the configuration tree. Double left click on an individual setting to bring up the editor, and edit with care.

See the information file Settings.RTF, that should reside in your APRS+ directory. The v207 file is duplicated, below, under the SETTINGS.TXT topic title.

SETTINGS.TXT

This is the v211 Settings.rtf edited to a simple text format. A text search for a particular keyword may very well point you in the right direction, if you land within the file's text...

Setup Menu Tree: The Setup Menu Tree allows for settings options in the Settings.ini file and for items that select different features with in the program. The Tree consists of a number of Sections which in turn have a number of Keys. To Edit a Key, double click on the Key, and an Edit window will appear with the Key name and current key value.Edit the value, and click the OK button to enter the new value. Click the Cancel button to abandon the change made.

SECTIONS AND KEYS

CONFIG

UTC, Display Date/Time Heard in UTC or Local time, 0 or 1
Ambiguity, The number of position ambiguity digits. 0 to 4.
OverlayChar, Icon Overlay Character, ASCII character
RemoteExecute, Allows or prevents remote access to the APRS+SA calculating engine
IPAddressIndex, Used to determine Internet IP address from computers list of numbers. Default 1.
MessageNumber, the current outgoing message number
MovingThreshold, the number of position reports to determine if a station is moving or not. Default 2
BulletinStatus, determines whether incoming bulletins are displayed in the Statusbar, 0 or 1.
Echo, determines if APRS+SA will reply to Message Echo requests.
Archive, turns on or off Packet Archiving, 0 or 1.
PositionTabMax - maximum number of stations to display on the Position Tab. Default 100. Use this to decrease CPU utilization on screen repaints
BitMask, Special feature or diagnostic tool, used as directed by the program Author.
StatusTabOther, display all non-APRS compliant packets on Status Tab if no Status Packet has been received for that station.
StatusTabFromCallsigns, only display status packets from given list. It can contain wildcards. Ex: A* K* N* W*
StatusTabTextSearch, only display status packets with text containing the search string
StatusbarStationCount - turns on/off display of total number of stations in 4th pane of Statusbar. Default 0. Note, this is set to off to decrease CPU utilization
CompactionInterval, number of seconds between tactical database compaction. range 60-300, default 150.
StatusbarTncInput, show latest TNC packet in the 6th pane of the Statusbar.
StoreLastPosition, stores last heard position stations, that is preserved as files outside of the tactical database.
MessageLength, maximum length of a message, value 20 to 110 characters. APRS protocol default is 65.
EnforceNmeaChecksum, enforces the checksum on NMEA sentences

WX

File, the fully qualified path and name to weather file written by the VWS or WD programs.
Interval, time in minutes between wx packet transmissions.
Path, the transmitted path ID as determined in the Unproto Path

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        window.

DATA

File, the fully qualified path and name to the Data file to be
        transmitted
Interval, time in minutes between transmissions.
Path, the transmitted path ID as determined in the Unproto Path
        window.

NWS

CodeFile, name of the NWS Shapefile used for Codes
ZoneFile, name of the NWS Shapefile used for Zones\tab
MarineFile, name of the NWS Shapefile used for Marine warnings
Shapefiles, turns on or off the use of Shapefiles
Boxes, uses shapefiles, but draws boxes around the zone or code
        instead of outlines
TTS, use Text-to-Speech to announce incoming warnings
WaveSound, play wave files with same name as warning type.
        Example:  FLOOD.WAV for FLOOD warning.
Morse, use Morse code to announce incoming warnings
MorseSpeed, sets the speed of the generated morse code, valid values
        (0.02 -  0.12)
MorsePitch, sets the pitch in Hz for the generated Morse code
        (200-1200)
MorseVolume, sets the volume of the generated Morse code (0-127)
Enabled, turns on or off the decoding of NWS warnings.
OverlayAll, turns on or off the decoding of all NWS warnings, not just
        the currently selected codes and zones

IGATE

MessageCount, the current IGated Message Count
FillCount, the current IGated Fill packet Count
AddUniqueID, Adds a unique ID to the path of all gated packets, RF to
        Internet
UniqueID, Adds a unique ID to be added to all gated packets, RF to
        Internet

APRS/IS - Internet

AutoReconnect, turns on or off auto-reconnect to APRS Internet Servers
InternetPositionCallsigns, Monitor positions only for callsigns in
         this list.
InetTimeOut, time after which connection is closed and connection to
        next Server is initiated

WEB SERVER

PositionTime, Number of hours back to display position data
TrafficTime, number of hours back to display traffic data
HistoryTime, number of hours back to display history data
WeatherTime, number of hours back to display weather data
WxTrendTime, number of hours back for WX Trend data
BulletinTime,  number of hours back to display bulletin data
ObjectTime,  number of hours back to display object data
StatusTime,  number of hours back to display status data
RFOnly, display RF data or all data.

KISS - kiss mode settings
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TxDelay, TX Delay in milliseconds
Persistence
SlotTime
TxTail
FullDuplex
RemoveDuplicatePackets, Removed Dupes before going to the Parser.
        Default =1

SOUNDS

Morse, turn on or off Morse Code in messages
MorseSpeed, sets the speed of the generated morse code, valid values
        (0.02 -  0.12)
MorsePitch, sets the pitch in Hz for the generated Morse code
        (200-1200)
MorseVolume, sets the volume of the generated Morse code (0-127)
DTMF, turn on or off DTMF in messages
WavOnDigipeat, Name of Wave file to play when one of your packets is
        digipeated. (File name only; .wav extension is the sole explicit
        default)
MorseOnDigipeat, Morse code Text to play when one of your packets is
        digipeated
EnableSoundOnNewPosit - Turns On/Off sounds on new position report
WavOnNewPosit, WAV file to played when a new position report is
        received
MorseOnNewPosit, Morse code to be played when a new position report is
        received
MorseOnTransmit, Morse code to be played when data is transmitted to
        RF
WavOnTransmit, WAV file to be played when data is transmitted to RF
MorseOnCompaction, Morse code to be played when internal database is
        compacted
WavOnCompaction, WAV file to be played when internal database is
        compacted
EnableSoundsOnCompaction, disable/enable all sounds on database
        compaction
MorsePlaySync, Play Morse Code Synchronously, message plays to
        completion before next message is played.

EMAIL - settings for use with APRS+SA eXtensions and sending of Email

Host, address of Email host
Return, return email address

GPS - settings for communicating with GPS receiver, $GPWPL NMEA sentences
        for the creation of waypoints.

SendWPLForTrackedStations, send $GPWPL sentence for new position
        reports from tracked stations.
SendWPLForAllStations, send $GPWPL sentence for new position reports
        from all stations.
SendWPLForHistoryStations, send $GPWPL sentence for new position
        reports from stations displayed on History Tab
WPLNameLength, the length of the waypoint name to send in the $GPWPL
        sentence.  Range, 6-10 characters.
WPLNameFromEnd, select the WPLNameLength of characters from the end of
        the name or front.  This is used for GPS receivers that only
        support 6 characters names.
DeadReckoning - settings for the display of the projected line estimating
        the location of stations with valid course and speed.
```

LineColor - Black, Red, Blue, Green, and Yellow (0-4)
LineWidth - with of projected line. (0-4)
LineStyle - Solid, Hatched, Highlighted (0-2)
TimeLimit - number of hours since last valid position.
Stations older then the TimeLimit are not Dead Reckoned.

UTC OR LOCAL TIME?

Setup > Settings, open CONFIG and double left click UTC to bring up editor.

MAP CONFIGURATIONS SETTINGS AND INFORMATION

DESCRIPTOR

Includes location data with call, on the SA map.

Maps > Options > APRS; check Include Descriptor. Other options available include Altitude Risers, leaders, range circles, new map to front, etc.

CUSTOM MAPS SCRIPTS

These are scripts that can be created to plot data based on the criteria you specify. There are a number of functions and criteria you can use such as Latitude, Longitude, Range to a specific station or Lat/Long, station Icon, posit text search, and others. These can be combined in logical expressions, and/or numerical comparisons.

NOTES: Text case is important in function names, and callsign arguments.
Map Scripts are evaluated RIGHT to LEFT.

Here is a sample script: Lets say you wanted to show only stations that were in Iowa. You can create one that looks only at Lat/Long. Here it is:

(Long > -97) And (Long < -90) And (Lat > 40) And (Lat < 43)

Here, there is a numerical comparison to check to see if Longitude is > -97, logically combined with Longitude < -90, then combined with the Latitude range. Only stations in this range will be plotted. Others will be excluded. Here the "functions", Long and Lat are the numerical values of Longitude and Latitude of stations APRS+SA has decoded. The function And, performs the logical and function. Note, text case is important in function names, and callsign arguments.

Another numerical function is the RangeTo function. RangeTo takes a right argument of a station callsign, or a Latitude/Longitude pair. An And example might be as follows:

50 > RangeTo 'KH2Z'

This would plot stations less than 50 miles from KH2Z, provided the location of KH2Z is known. The follow script would plot stations less than 50 miles from the coordinates of 34,-117. Note the comma, which is necessary:

50 > RangeTo 34,-117

RangeTo can also have an argument of '' (2 single quotes) which means your current location:

```
50 > RangeTo ''
```

Summary so far, Logical functions:
And
Or
Not
Xor

Numerical functions:
Lat
Long
RangeTo

Another function is the From function. This looks at Position data from the specified station(s). Several stations can be specified, and wildcards can be used. Example, this would include positions "less than from KH2Z-9, and all variants of N9XTN":

```
> From 'KH2Z-9' 'N9XTN*'
```

The search function, To, will search the Unproto To for a string match. The following will search for the unproto To of APS211:

```
To 'APS211'
```

Searching for a portion would also work:

```
To '211'
```

Or, the following will pick out most APRS+SA stations:

```
To 'APS'
```

The Text function will search for text strings in the Posit text of stations:

```
Text 'APRS+SA'
```

```
Text 'PHG'
```

The last function I will discuss is the Type function. This one can be used for a number several types of searches.

The following searches for the digipeaters GATE and ECHO in the path:

```
Type 'HF'
```

This one searches for stations that are listed in the IGate tab of APRS+SA, meaning that they have transmitted an IGate packet and has been decoded by APRS+SA:

```
Type 'IGATE'
```

The TRACKER argument looks for all NMEA string position reports:

```
Type 'TRACKER'
```

The IGATED argument looks for the last position as having been transmitted

via an IGate:

Type 'IGATED'

TRACKED will show stations in your tracking list.

A little trickier is the ICON Type argument, It requires a second, left argument:

'*&%' Type 'ICON'

Note, if you want to use the digipeater symbol, you need to enter it twice. Why? Because that is the way I programmed it!

'##*&%' Type 'ICON'

Or for those stations, only, claiming to be digipeaters, enter:

'##' Type 'Icon'

Or, just:

Type 'DIGI'

So the right arguments to Type are:
'IGATE'
'TRACKER'
'TRACKED'
'IGATED'
'HF'
'ICON'
'DIGI'
'OBJECT'
'Mic-E'
'D7'
'WX'

The only left arguments to Type, exist for the right argument Icon. They are detailed, above.

In the Custom Map Editor, there are several options. A time filter which will only look back the number of hours specified. Also, the History check box will enter the callsigns of stations found into the History tab of APRS+SA. The Delete Posits button will delete stations that match the criteria of the script. The Keep Posits that Match does the same thing when the map is drawn automatically, providing another way to trim the data you keep stored in the active internal Tactical Database.

To find IGates with in 100 miles of N9XTN, you might use the following Map Script.

((Type 'IGATE') And 100 > RangeTo 'N9XTN') Or From 'N9XTN'

To find the digipeaters with in 100 miles of N9XTN, try:
(('##' Type 'ICON') And 100 > RangeTo 'N9XTN') Or From 'N9XTN'

Show Quake objects:
('Q' Type 'Icon') And Type 'Object'

Once you have created your script, you can save it to a name you specify. The new name can have its own MOP file (Map Options). The new map can

have its own overlay file to add drawing objects to the final map.

There are a number of possibilities. If you create a favorite, let us know.

Here is a custom map script example to show only stations in Iowa (as can best be defined by simple longituude and latitude boundaries), and excludes stations that use the Satellite Icon, and ARISS.

NOTES: Text case is important in function names, and callsign arguments.
Map Scripts are evaluated RIGHT to LEFT.

So the From 'ARI*" is calculated first, then Or'd with ('S' Type 'Icon'), not-ed, and then added with the rest of the criteria. All my code reads right to left!!

(Long > -97) And (Long < -90) And (Lat > 40) And (Lat < 43) And Not ('S' Type 'Icon') Or From 'ARI*'

Put this file into your Map subdirectory of APRS+SA. It will now appear in the Custom map dropdown on the Maps toolbar. No more satellites. Just Iowa stations.

Brent Hildebrand, KH2Z

STREET ATLAS MAP CAPTURE TO APRS+SA BITMAP WINDOW.

1) Open the APRS+SA Bitmap window
2) Draw a map in SA, do not zoom or pan the map. You can remove the SA draw objects if you wish
3) In the APRS+SA bitmap window, right click on the map, and choose Paste SA.You will now have a screen capture of SA,that is calibrated and on which Icons can be drawn, and objects created. NB! You can not resize the bitmap window, or zoom it or out.

VIEW.TXT APPLICATION FOR CUSTOM BIT MAPS

The View.txt data, is used when you do not use map drawing from other sources. If you have the map being updated by other means, this can change the magnitude. Icons will be drawn correctly, because the screen gets calibrated. But if you want to have a static map display, turn off all other map drawing functions, then use the Views menu to set the SA screen. Am I making any sense? If you are repainting the screen from methods other then Views, then you need to adjust your MOP file for that map. You can often do this easily by redrawing the map, then click on the Maps button on the Map toolbar. The MapOptions window will open, set your magnitude on the "Center & Mag" tab, then save the file.

To create a map view that I want to use for a specific map I do the following:

1. Turn floating toolbar on in APRS+

Not required but makes things a bit easier.

2. Switch to SA8

3. Create a map view that I like. Let's say the western 80% of Iowa.

4. Save the map to a unique file name.. DO NOT! save as any of the Map7 or Map#...give it a unique name like Iowa.sa8, so you will recognize a non ambiguous name, easily.

5. Click on Map in the Floating Tool Bar (brings up the mop window)

6. File - Read Map Configuration

7. Select the previously saved UNIQUE! Mapname.SA8, eg. above:Iowa.sa8, to read configuration from.

8. Make appropriate selections in each of the tabs of the .mop box.

9. File - Save As UNIQUE! Mapname.mop, eg. above: Iowa.mop

10. Switch back to APRS+SA

11. Go to the Maps Tab of the main program. Go to white box with "7 All Stations" on its left.

12. Type in "Iowa" , no quotes.

13. Now, go to Select maps button and Iowa will MAGICALLY appear in the map list under Maps!!!

14. Select maps as you will for the big white box to be redrawn at the specified interval (already knew about that part). The trick is, the newly NAMED maps won't appear in the Select Map List, UNTIL and UNLESS you have put their name in one of the 9 white boxes adjacent to the buttons for "1 All Reports" through "9 All Stations"

You can follow the steps listed above and put your NAMED maps in slots 6,7,8 and it works fine. I'm betting it will work anywhere, but with as much trouble as I've had to this point, I'm not vouching for anything that I haven't actually done with my own fingers.

Once I am sure that I have explained this properly, I will rewrite this without all the comments, just a "by the numbers" description so others can make use of it. I can tell from the responses that I have gotten that this has been a big problem for a lot of people.

Now I have four maps in my "redraw list" (the big white square under the Maps Tab of the main program). NWS, IAcent, CentPlains, Iowa. Each has its own distinctive magnitude and center, as well as Map Features (cities, rivers, track lines, circles etc)

NWS shows the entire country.
IAcent shows the contiguous counties to my own county.
CentPlains shows about a 7 state area from Iowa to the West and South (Primary Bad weather track) Iowa shows the western 80% of the state with county lines and county names.

At last....peace of mind....for a little while.

Thanks for all the help, and any additional feedback you want to provide. I'll then clean this up and post it so others will not have to go through what I have. It is a simple process, IF IT IS CLEARLY outlined. Otherwise, for me, it was like not knowing the secret handshake AND a password.

MAP MAGNIFICATION - .MOP FILES

What ever happens in Street Atlas is not reflected back to APRS+SA.

To change the way maps are displayed, you need to edit the Map Options (MOP) file. In v1.99 you can click the Maps button the Map Toolbar. In all versions, you can use the Commands menu, and select the Map Features option which has a speed key of Ctrl-Shift-M. From the Map Options window, go to the Center & Mag tab, and you can adjust the Minimum and Maximum Magnitude to desired levels. The default name for the MOP file is MapOptions.MOP. Every map can have their own MOP file where the MOP file is named after the map. NAME.MOP. Thus, different maps can have different views if desired.

MAPS, MOPS and other things.

APRS+SA Maps

1) Map Names: All APRS+SA maps have names. They are followed by either a +A.SAx or +B.SAx where the x in SAx is the version of SA you are using. Example, Map2+A.SA8.

2) MOP files: This are Map Options files. All maps use a MOP file. The MOP file has the same name as the Map you are drawing. Map2+A.SA8 would use the MOP file Map2.MOP. If there is no defined MOP file, then the MapOptions.MOP file is used. MapOptions is the default MOP file for all maps that do not have a MOP file. When you first install APRS+SA, there are no defined MOP files, and MapOptions.MOP is used. If you edit MapOptions.MOP, then these changes apply to all maps.

3) Defining MOP files. Click the Maps button on the Maps toolbar, or use the Commands menu, or use the keyboard shortcut of Ctrl+Shift+M to open the Map Options window. Map all the changes you desire on the various tabs, and save the file. If you want to make a specific view for Map2, do File+Save As, and give it the name Map2. Now, when ever Map2 is drawn, it will use the options contained in Map2.MOP.

4) A MOP Shortcut: Lets say you want to have a specific view, that has a fixed center and magnitude. Setup SA (not APRS+SA) to show the view you want. Save the map from SA and give it a name you will remember. Example, a view showing the lower 48 states, I might name US48. Open the Map Options window, go to the Center & Mag tab. The from the MOP windows File menu, select the Read Map Configuration, and select then the US48 file you have saved previously. That maps Center Lat/Long and Magnitude will be read and entered into appropriate slots. Check the Fixed Center and Fixed Magnitude, and save the MOP file - give it the name you desire for the map you desire. Remember the naming convention above.

5) Map Overlays: You can include map drawing objects with your maps. These can be of any type of drawing object that SA supports.
A) Global - drawn with most maps. The Global overlay is an SA map with the name GLOBAL.SAx. All drawing objects in GLOBAL.SAx will be drawn with all maps. B) Specific map overlays: This is a file with the same name as the map being drawn. Example. Map2 will use the file Map2.SAx as an overlay C) Dynamically loaded map overlays. This are drawing objects you load from the Main program window's File menu. Select File+Open Map Overlay File. The file you select will be read, and its objects included with each new map draw. You can clear these objects by selecting File+Clear Overlay File. D) DF Objects. You can

generate DF bearing lines (Ctrl-D to activate the DF window). Enter the DF Fix parameters, and click Map. Click Clear to delete these objects.

MOP file accepts all combinations and permutations of Lat/Long that other locations in APRS+SA with Lat/Long accept.

MORE .MOP FILE CONFIGURATION INFORMATION

There is a way to display Power-Height-Gain circles, but this is not the same as the weather circles. They are completely different animals. Many parameters can be changed to show how the map is displayed including the zoom level, track lines for a moving station, and the detail level of the map. Many of the MAP settings that you would select in SA can be controlled from the MOP files.

What are MOP files and why did I mention it. There were several other posts that contained questions about how the SA settings got changed or why my map looks different. So I will try to briefly explain this very nice feature quickly. I learned all about the MOP files when setting up APRS+SA for the Rocket City Marathon in Huntsville and we have several maps and zoom levels configured so that we would get a birds eye view of the whole track, portions of the track, and zoom to appropriate levels automatically. All we had to do is sit back and watch the show.

I am not going to go into full detail, but you can play with it yourself.

Click on Commands -> Map Options

This will give you a window with four tabs:

1. Symbols & Text
   Allows you to control Symbol, Text, and Track Lines size and color

2. Center & Mag
   Allows you to control the ZOOM level control of the map

3. Map Features
   Allows you to control map features displayed on SA

4. Circles
   Allows you to control the thickness of the line on a circle.
   You can also specify a fill color if desired.
   This has nothing to do with NWS circles (red or yellow)

5. APRS
   Allows you to control APRS functions on how some things are displayed. You can select including range circles, track lines, track lines included in the zoom display, and a few others here.

These settings determine what options are used for specific maps. I believe the default file will be MapOptions.mop so be careful how and what you save.

What do I mean by specific maps. If you display your SA map on the screen and look in the top left corner of the window on the title bar, you will see something like MapOption, Map9, Map5, etc followed by some other text

and the SA file extension like .sa8 Mine shows .sa8 because I am using Street Atlas version 8 and I have APRS+ writing SA8 files on the updates. The MOP files are located in the DATA directory under the APRS+ main software directory on your hard drive.

When I look for MOP files in this directory I see the following:

Map5.mop
Map6.mop
Map7.mop
Map8.mop
Map9.mop
Digipeaters.mop
TrackMap.mop
MapOptions.mop

You will not have all these files. Do not worry, because you are going to create them if you want.

If you go to the "Maps" tab in APRS+ and look at all the maps you can display, then you can realize how many MOP files you could have to control how each of these maps will look to suit your own desires. Try clicking on All Stations which uses Map9 as a default. Now look at the top left corner of the SA window and see what the title bar shows before the "+" sign in the text. Mine shows Map9+B.sa8. Do not worry about all of this except the Map9 at this point. If you create a Map9.mop file, you will find that you can control how it is displayed. The same is true for the Digipeaters button on that screen. Yes, if you have a Digipeaters.mop file you can control how it looks. In mine I have the range circles activated so I can see where all the digipeaters are located and also see there range circles to see where we need new digipeaters or where a digipeater may be off the air.

Does all of this sound good. I hope I can explain it so you can get to the meaning of it.

How do I create a MOP file?

Click on Commands -> Map Options

Change all the settings you would like to have and then save the file as the proper mop name. For instance, if I want to create a Map9.mop, I will click on Commands -> Map Options. Then, I will make my changes and click on File -> Save As, and then the name of the map I want to affect. It is that simple. A word of caution. You should turn off all automatic map updating functions when doing this. If a map gets updated in the process of you making changed, you will quickly find that your settings are most likely being changed by some unknown force. This includes turning off auto map update under the Track tab in APRS+. Also make sure the enable box is not checked under the Maps tab. This will help make things go smoother in making a MOP file and saving it before the auto functions in the software does its thing before you do.

If you do not know what map is created on the Map tab for each button, then click on the button and look at the title of the SA window. You will find the name of the map preceding the "+" symbol in that text. All you need to do is create a MOP file with that name, save it, and the next time you click on that button the screen will look just like you set it.

It takes a little while to get use to what all those MOP settings can do for you so you will need to do a little experimenting.

BITMAPS - CUT AND PASTE

I am a very happy APRS+SA user in Canada but I am an unhappy APRS user in Canada because of the serious lack of maps for Canada.

The only solution for us is this:

www.mapblast.com or www.mapquest.com

Make the bitmap and load them into APRS+SA. I have done maps for our use here and they work well enough. I cut and paste using Paint Shop Pro.

TRACKING MAPS

The selective tracking controls ONLY work with Street Atlas. If you are trying to use the bit map mode activated with the "Bitmap" command on the top menu bar that uses simple scanned BMP images of maps, it won't work.

Assuming you are using Street Atlas (the ONLY way to really use this program!):

Do you have the "Track Any Moving Station" check box on the Track panel checked?? This will cause all mobiles that fall through your mileage range filter to be tracked. Clear this box to track only the ones listed in the third ("Tracking List") column. DO check the first three boxes ("Enable Tracking", "Auto Map Update" , and "Zoom to Most Recent".

Basically the Maps tab allows you to call up several different pre-defined sets of plotted presentations on top of the Street Atlas background such as weather only, digipeaters only, etc. You can also have the program present several different map views automatically in rotation every few seconds.

The Range Filter is a display filter and selects stations that are with in the set Range. If you map is displaying data outside this range, it probably has to do with the Track lines; satellites have long track lines. To not include the track in the map zoom, uncheck the "Zoom Includes Tracks" on the APRS tab of the Map Options window.

Maps by Icon are just that - maps of stations with the specified Icon. They do not affect any other maps.

As for the numbered maps, 1-9, these relate to the stations listed:
1) All Reports, means every position report currently loaded, current and old positions.
2) Latest Reports, displays only the most recent position.
3) All Tracked - all position reports for stations in the Tracking list.
4) Latest Tracked - Most recent position report for stations in the Tracking list.
5 and 6) Station List - Most recent position report for stations specified in the Custom Map List on the Lists tab of Setup.
7,8,and 9) Most recent position report for all stations, same as Map2, with a different name.

Why have maps which have the same station list, but different names? Each map can have its own Map Options file, (MOP File) and each MOP file

can have a different definition for how the map is to appear. Different map centers for example, of different level of detail. Track lines on or off, different map instance, etc...

You can put the map name into the Map drawing list, the center list on the Maps page, and have those maps be redrawn at a given interval. You can manually redraw the maps by pressing Ctrl+0 to draw the next map in the list. Map1-9 can be manually triggered using the key combination, Ctrl+9 -> Ctrl+9

It is important to understand that every map generated can have an associated Map Options file (MOP) and overlays. MOP files control map appearance, such as map center, fixed or variable centers, map magnitudes, display of various features such as inclusion of minor or major roads, place names, railroads, text size and color, and whether track lines are on or off. If a map has a MOP file defined it is used, if not, then the default file MapOptions.MOP is used. Using the numbered maps, 7,8, and 9 for example, the only difference between these would be the MOP file. If no MOP file is defined, then the default MapOptions.MOP is used, and they all look the same.

What is the name of the MOP file? Every map generated by APRS+SA named as follows: MAPNAME+A.SAx or MAPNAME+B.SAx. The associated MOP file will be MAPNAME.MOP. You create MOP files from the Map Options window opened from the Menu Command+Map Features or by clicking the Maps button on the Maps toolbar in v1.99. Set your desired parameters, and execute File+Save and give the file the name MAPNAME.

Overlays - there are several layers of overlays.
Global - If the file Global.SAx is defined, it is loaded and included with every map generated Run time globals, and loaded from the File+Open ... Overlay File. You can open any number of files to be used as a runtime global. These overlay objects are deleted from the File+Clear Overlay file. Additionally, just like each map can have a MOP file, each map can have an associated Overlay file named MAPNAME.SAx. Also if any DF lines have been plotted, they are included as an overlay and these are controlled from the DF window (Ctrl-D)

Note - SAx applies to the version of Street Atlas you are using. If you specify SA7, then the file GLOBAL.SA7 is used for the overlay, not GLOBAL.SA6.

MAINTAINING MAP CONFIGURATIONS, S'MORE

When APRS+ switches from the A map to the B map and back again all map features settings are lost and a world view is thrown up on the display. To keep map settings, You will want to setup MapOptions (MOP) files for each map you want to draw. Click the Maps button on the Map toolbar to open the MOP window. If no MOP is defined for a specific map, then the default MOP file, MapOptions.MOP is used. To make a MOP file that is specific for the map you want, use the name of the Map without the +A or +B. The MOP file for NAME+A.SAx would be NAME.MOP. You can set map centers, zoom, features, etc. via the MOP files.

MAP ICONS

1) Click on the Maps drop down on the Maps button on the Maps toolbar.

2) Select Views+Enabled Icons
3) Enable live update if you wish.

Now, Icons will only be in the correct location if APRS+SA has drawn the map. You can not pan or zoom and expect to have the icons in the correct place.

You must have a printer installed in Win9x in order for icons to appear on maps. This is a relatively "obscure" requirement that is easy to miss. So...even if you don't have a printer attached to your machine and never will, you must install a printer in Win9x if you want icons to work with APRS+SA

Then, click on the Maps dropdown, on the Maps toolbar, select view, and Enable Icons. Note, Icons will only be in the correct location if you do not zoom or pan the map manually. The map must be drawn by APRS+SA. You can setup Views, defined in the views.txt file, and editable on the Views menu under the Maps dropdown. Views entries are in the form of: NAME, LAT, LONG, MAGNITUDE Examples: Seattle,47.6,-122.3,10 Washington,48,W120,7

This way, you can zoom to a specific view, and have Live Update of Icons and callsigns.

You must have a LOCAL printer installed for map icons to work in the manner described. Having only a NETWORK printer driver installed means that the icons won't be drawn unless you have the network connected and the printer is online.

MAP ICON OVERLAYS

APRS+SA can transmit an Overlay character. Enter that character in the Settings section under setup (v2.01). See the Config section, OverlayChar key. Default is empty. eg. The recommended icon for I-gates is the alternate gate icon with an I overlay.

MAP OBJECTS

1) With SA showing, select Object+Create Object from the Map.
2) Keep the focus on the Objects Editor, but move the cursor over the map so that the Lat/Long changes
3) From the Object Editor, click Ctrl-M to capture the cursor coordinates.

Objects can have an expiration time. This can be entered in the Object editor by two methods. The upper Date/Time entry allows for specifying the year, month, day, hour, and minute of expiration. The lower Date/Time entry allows for an offset of time in Hours and Minutes up to 24 hours. Unchecking the upper Date/Time box, means the object does not expire. Objects are transmitted in an initial decaying interval to the final transmit interval. Setting the state of an Object to "Killed", Sets the object expiration time to .15 hours. With the decaying transmission times, this means the killed packet would be send 6 times and quit.

Object names are now included in the Ignore List, with wildcards.

WEATHER

CORRECT WEATHER ICON = CORRECT DATA DECODING

Make sure your icon is an underscore. APRS+SA only sends weather as a full weather packet (including position). This requires that you use the standard weather icon (blue WX) or the alternate weather icon (green WX). The blue or green WX icons with a black circle around them is a W and is not valid for a full weather packet (this symbol should only be used for NWS locations). Using the incorrect icon is likely to cause decoding problems in other software.

WEATHER INSTRUMENTS DISPLAY FILE

How does aprsplus locate the file that is need from Virtual weather or weather display?

In the settings.ini file there is a section for WX. For example:

```
[WX]
File=C:\WDisplay\WXnow.txt
REM File=C:\vws\data\wxreport.txt
Interval=10
Path=
```

To use both VWS and WD alternate between the two by moving the REM to whichever one you don't want to be using at the time.

You can also find this in APRS+ at (Setup-Settings-WX) you then double click on the line you want to change and take it from there.

THIRD PARTY WEATHER SOFTWARE

Weather transmit using data files written by 3rd party programs such as:

Weather Display, http://www.weatherdisplay.de/english/
Virtual Weather Station, http://www.weatherconnect.com/Products/Descriptions/vws.asp.

To enable WX transmit, edit or create a file named SETTINGS.INI
Add the following Keys:

```
[WX]
File=path\name (eg. FILE=drive:\path\wxnow.txt)
Interval=10
```

Where path\name is a fully qualified path and name to the file written by the 3rd party programs, and Interval is the time in minutes. When APRS+SA transmits the Weather data, it deletes the file, so that no duplicate transmissions occur. APRS+SA can be forced to transmit WX from the Send menu, select "Send Weather File".

1) New - Weather graphic trending for the 8 displayed parameters.
 a) Stations to trend are selected by checking the call sign on the Weather tab
 b) Select the trend to plot using the "Checked" button on the Weather tab
 c) Select stations manually or using the "Select" button. WXTREND*.TXT files can be used to store call sign lists and then quickly recalled

later. The WXTREND*.TXT files can be created, edited and deleted from the "Select" button.

d) Trend plots can be zoomed using the mouse via click and drag

e) Trend data requires more RAM for storage. The Data page of Setup has new choices to support weather trending. You may consider increasing the WorkSpace size on the Program tab of Setup if you plan to do any long term trending, or to collect trend data from APRServe. Default is to trend RF data only.

f) Trend plots for individual stations can be drawn by highlighting the station(s) and using the "Highlighted" button on the Weather tab. "Highlighted" and "Checked" buttons work the same except for which stations are selected

APRS+SA will work cooperatively with other weather program to provide transmission of weather data. These programs will write a file which APRS+SA will read and transmit. Many different weather stations are supported by these programs.

Weather Display, $49.00 for life time registration.
http://www.weatherdisplay.de/english/

Virtual Weather Station
http://www.weatherconnect.com/Products/Descriptions/vws.asp

You should evaluate any program for suitability in your application.

WEATHER TREND DATA

Weather trend data - You can now easily identify which station generated a trend line on a multi-station trend plot by moving the mouse over a line and letting if "hover" on the line. The Callsign will be identified in the trend plot window's status bar. This makes it convenient when you plot multiple stations in separating out which line belongs to what station

WX trend data is now stored externally in data files in the new WXData subdirectory. These files are named as follows: CALLSIGN.wx where CALLSIGN is the call of the transmitting station. The data within each file is 9 8-byte floating point numbers per record. The first number is a date/time stamp, the remaining 8 are the decoded weather parameters. All other aspects of displaying trends remain the same. The Data page now has 2 options to enable saving of trend data and to limit it to just RF stations. NOTE - trend data is no longer purged as was the case previously with the Data page. You can now have extended periods of trend data. Additional work will be required to be able to trim these files.

WX Alarms

Individual stations can now have alarms set for the various parameters, such as a low temperature, high temperature, high wind speed, etc. To set an alarm right click on a station on the Weather page to bring up the WX Alarm window. Enter the parameters desired. The program tests for either Greater Than or Less Than. So entering a low temperature of 32 for an alarm value, would cause an alarm when the temperature was below 32. You can enter alarms for any station from the Alarm window by entering the call sign of the station desired, entering the parameters, and clicking OK. To delete a station from the alarm list, enter their call sign, and click the Delete menu. The call sign drop down list on the WX Alarms window,

shows a list of all stations for which alarms are currently set. Or from the APRS+SA calculator, enter: #disclose WX_ALARMS

When an alarm is triggered, several things happen:
1) The ALARM.WAV file is played.
2) A message is placed into your message Inbox with the call sign of the station causing the alarm, and what event triggered it.
3) if you have Port 2 open, the RTS line is Set so an external event can be triggered. External alarms are cleared via the menus: Commands+Clear+Clear Alarms.

Alarm data is stored in the DATA\WXALARMS.DAT file.

The WX Alarms window can also be activated from the Commands menu with shortcut keys of Ctrl+Shift+W.

Note: You can enter 32 for a low temperature alarm, and 9999 for a high alarm. This will effectively prevent a high alarm while having a low alarm set.

When you want to send the wx file manually, look at the bottom of the Send menu. 2nd from bottom, above Send Tactical is "Send WXNOW.TXT", if your version of APRS+SA supports the feature I'm talking about.

It really isn't going to send that file...it is going to send whatever file you defined in settings.ini

This will immediately send the wx string out, as opposed to waiting for Interval=10 or whatever you have it set to.

To shut off wx alarm or change settings:

Open the WX Alarm window: Commands>Set Weather Alarms>Callsign

Select callsign, and delete or modify the menu.
Click OK to close the window.

Clearing NWS page

Shift-Click and Ctrl-Click, standard windows keyboard functions, works for doing multiple select. Ctrl-X will delete them. Or you can click the Menu button, and clear them all.

Click the Menu button, Clear Page. Then select the Clear Overlay if you wish.

Packets that do not self purge do not have an explicit expiration- but some do have an implicit expiration. All packets coming out of my server have a sequence tag. This along with the "from" call makes all packets from the same NWS bulletin (or part of bulletin that have the same geographical scope) "associated". Any packets matching the "From" call and the first 4 characters of the sequence tag the same should be eliminated at the same time. This means the only problem then would be the stray packet with no expiration time and no associated packet with one, such as solar weather, and tsunamis; or for various other reasons outside of the Wx data server. 73 de kg5qd, Dale. (the person that fills up your NWS tab with data from his NWS wx data server.)

The 24 hour limit will be reinstated on the next revision of APRS+.

NWS SHAPEFILES DIRECTORIES

Where to put the NWS shapefiles so that APRS+SA will use them?

The z_* and c_* files need to be put right in the NWS directory under your APRS+SA main directory. However, that alone isn't enough. You also need to select Setup-Settings, click on the plus sign by NWS and you will see two file identifiers, one for the c_* and one for the z_*. If you don't change the text of the parameters to match the spelling of the actual NWS shapefiles, it still won't work.

NB! to emphasize...There are entries in your settings.ini file that tell APRS+SA what the names of the NWS files are. As the names of the files are liable to change be aware that APRS+ must be told what the new file names are, or the files are useless.

A good description for setting up NWS mapping is at:

http://www.nwaprs.org/nws.htm

NWS TAB

PERUSE NWSTAB.TXT, POSITION2TAB.RTF, SETTINGS.RTF ,,,

This tab decodes NWS warning messages as generated by Dale Huguley's, KG5QD, server application which translates the NWS messages into APRS type messages. The NWS tab can automatically map WX warnings using Street Atlas. The "From" column shows the weather service station issuing the message, the "To" column shows the type of message, such as WARN for Warnings, ADVIS for Advisories, WATCH for Watches, etc. The "Expires" column is the date and time the message is do to expire. The "Type" column shows the type of message, such as FLOOD for possible Flooding, SVRTSM for Severe Thunderstorm, TORNDO for Tornado, etc. The Zones/Codes column is the NWS designation for the location that applies to the message. The "Posted" column is the date/time that the message was generated. The "Sequence" column is equivalent to the message number of regular APRS messages. The Sequence number contains thePosted date/time information, and the line number of multi-line ! weather message. Click on the Sequence column will sort the list by time of origin, and order the message in sequence with in multi-line messages. You can sort the list by clicking any column. See theNWSTAB.TXT file in the program distribution for more information.

NWS Tab Notes

Subject: [aprsplus] APRS+SA v1.99YQ - NWS Tab Notes
Date sent: Wed, 4 Apr 2001 20:26:25 -0700

APRS+SA NWS Tab
Purpose - decoding, displaying, and mapping of NWS Weather related messages.

The NWS messages that APRS+SA decodes are generated by a server written by Dale Huguley, KG5QD. These messages are in the following format. This information is from the following URL:

www.ae5pl.net/html/nws_databases.htm

CWAPID>NWS-TTTTT:DDHHMMz,ADVISETYPE,zcs{seq#

CWA is the NWS office (See databases to the left).
PID is the product Code (See database to the left).
TTTTT is ADVISE, WARN, WATCH, etc.
DDHHMMz is the expiration time.
ADVISETYPE is things like FLOOD, FLASHFLOOD, SVRTSM, SEVERE_WEATHER, etc.
zcs are the zone codes, county codes (See databases to the left), or statement text. {seq# is decoded as:

The first three characters are the "issue time" compressed by assigning 0-9 as themselves A-Z as 10 thru 36 a-z as 37 - 62 --where it is DHM (Day of the Month-Hour in 24 hour format and Minute). Up to 16 this reads as hexadecimal so {A8B** was issued on the 10th at 08:11 Z.

The next two characters are line numbers which (along with the "From Call") make the packet unique. Any packet with the "from Call" and the first 4 digits of the sequence matching are "associated" packets- in other worlds they are from the same product or portion of product that is defined by UGC codes.

The final character is for sorting and for assigning some priority to the various outputs (objects, headlines, packets that highlight counties, background info).

The APRS+SA NWS tab shows the following columns:

From, To, Expires, Type, Zones/Codes, Posted, Sequence, and Path.

From: This is the CWA of the NWS office, and PID
To: is the TTTTT, or level of warning
Expires: is the Expiration time of the message
Type: is the ADVISETYPE
Zones/Codes: are the zone and county codes. There can be multiple zones or counties in one message. Posted: This is the date/time the message was posted. This is taken from the Sequence number Sequence: is the sequence number of the message. Path: is the APRS path by which the packet was received.

NWS TOOLBAR

Map Button: This button calculates a map Overlay from the Zones and Codes of decoded messages, and them generates a map from this overlay.

Menu Button: Use Shapefiles - This option tells APRS+SA to look for and use the "Shapefiles" for drawing either a rectangle or an outline border around the warning area. These "Shapefiles" are available online from the NWS. A Shapefile is a standard of ESRI, which produces GIS products such as ArcView. A Shapefile is actually 3 files, a DBF database file, a SHP file which contains the various "shapes", and a SHX file which is an index into the SHP file. These files are quite large, but contain all the information for CONUS and non-CONUS areas covered by the NWS. They can be downloaded from the locations below. Note, the NWS does update these files periodically, and the actual file name can change. The main NWS Map catalog is located at:

http://isl715.nws.noaa.gov/mapdata/newcat

(download the zips from "Zone Forecast Areas" and "AWIPS Counties").

Shapefiles for the coastal zones ("Coastal and Offshore Marine Zones") may be found at Pete Loveall's AE5PL web site as a database lookup. You can access all three of the databases for review at

http://www.ae5pl.net/html/aprs.htm

for the current coastal and offshore shape files.

APRS+SA users that prefer circles can download updated zones.txt and codes.txt files from (http://aprs.ae5pl.net). These APRS+SA users need to stop and start APRS+SA after installing the zones.txt and codes.txt files so APRS+SA rebuilds the indexes.

The same Zones.txt and Codes.txt files will work for both APRS+SA and APRSdos. Zones.txt includes the Marine Zones. And if you want to rebuild the Zones.txt and Codes.txt index on the fly without stopping APRS+SA, you can use the following APRS+SA Calculator "trick" which expunges from memory the current Zones and Codes Index variable. It will be rebuild automatically next time it is needed using the new Zones and Codes files.

#ex 'ZC_INDEX'

WinAPRS and APRS+SA support these shape files. Other APRS software may also. Please contact the author of your APRS software regarding how to update these files.

The files needed are the Zone Forecast Areas, and AWIPS Counties, not the County Warning Areas. Here are the links to the current Zone and Code files used by APRS+SA.

http://isl715.nws.noaa.gov/mapdata/newcat/amdc/wsom/z_16mr02.zip ;
(current file format: z_(current file date).zip

http://isl715.nws.noaa.gov/mapdata/newcat/amdc/county/c_22mr02.zip ;
(current file format: c_(current file date).zip

APRS+SA can still draw warning areas using circles centered on the various regions with a radius the covers the area. The files for this data are the same ones that I produced for use with APRSdos named Codes.txt and Zones.exe. This are automatically installed into the NWS directory when you run the APRS+SA SETUP.EXE program. Note: when APRS+SA first uses either the Shapefiles or the Codes/Zones files, it much first calculate the indexes. This may cause the program to pause momentarily while the indexes are calculated. They are calculated only once after starting the program.

Menu Button: Use Boxes instead of Outlines from Shapefiles - If you are using the NWS Shapefiles, you can generate a rectangle the covers the area of warning instead of outlining the specific zone and code areas. You would use this option for speed only.

Menu Button: Text to Speech - This tells APRS+SA to use Microsoft's Agent to speak out the warning message.

Menu Button: Morse Code - This tells APRS+SA to generate a Morse code message of the PID code for decoded messages.

Menu Button: Map All Incoming packet on the Overlay - This option causes APRS+SA to include all decoded Zones and Codes in the NWS Overlay map.

Menu Button: Recalculate Overlay - This causes APRS+SA to recalculate the Overlay map data for the all the messages received. You might use this option if you change which files you are using, Shapefiles or not, or whether you change from drawing Boxes to Outlines.

Menu Button: Map Overlay - this causes APRS+SA to draw a map with the current NWS Overlay Map data

Menu Button: Clear Page - this clears the entire NWS tab, it does not clear the current overlay

Menu Button: Clear Overlay - this clears the current NWS Overlay map data, but does not clear the NWS tab.

Zones/Codes: In this slot, you can enter the various codes and zones you want to decode. You can use Wildcards, and you can multiple specifications separated by either a space or a comma. Example: CA* AZ* NV*. This would decode all messages for Zones and Codes in California, Arizona and Nevada. When a packet is decoded which passes the specification you provide, APRS+SA will 1) Draw a map centered on the area of warning, 2) will generate a audio, Text-to-Speech message is Speech is enabled, and 3) will generate a Morse code message for the PID if Morse is enabled. Decoded packets are added to the NWS Map Overlay.

Mapping note: to get all of the mapped Zones and Codes to be included in view, check the "Zoom Includes Tracks" option on the APRS tab in the appropriate MOP file for the map being drawn. If you do not use MOP files, then the default MapOptions.MOP is used, and you can check the Zoom option on the APRS tab of the MOP window.

Thanks to Pete Loveall, AE5PL for providing information on the NWS Shapefiles and NWS Message format. Thanks to Dale Huguley, KG5QD for the NWS Server data. And to Hasan Schiers, N0AN for his hours of testing and feedback.

LIMITING WEATHER VIEWS

How to the view on the NWS tab

The NWS tab displays all NWS data. There is not option to turn that off. You can sort the list quickly however by clicking column headings. You do that for California for example, but clicking the Zones/Codes column, and then scrolling to the CA_ values.

The Zones/Codes selected affect mapping and audible alarms. But all NWS data is collected and you can quickly add the additional data to the map if desired. But again, there is not option to not collect that data.

RESTRICTING WEATHER WARNINGS

To restrict the incoming internet data to the program to just display weather warnings that effect your area, do the following:

Put the Zone and County codes that you are looking for in the "Zones/Codes" area of the NWS tab. For instance, Place "TX_C085 TX_Z104" without the quotes

in "Zones/Codes" so all that are displayed are alerts for Collin County, Texas. I could have used "TX_C* TX_Z*" to get all Texas alerts. If you want to restrict your map updates, as well, make sure that "Map all incoming packets on the overlay" is not checked.

Click on Setup -> Settings

CHANGING NWS FEATURES

Under the NWS tab you can select several items and change their function. From the settings.rtf document included with the latest versions you will find the following text:

NWS
CodeFile, name of the NWS Shapefile used for Codes
ZoneFile, name of the NWS Shapefile used for Zones
MarineFile, name of the NWS Shapefile used for Marine warnings
Shapefiles, turns on or off the use of Shapefiles
Boxes, uses shapefiles, but draws boxes around the zone or code instead of outlines
TTS, use Text-to-Speech to announce incoming warnings
WaveSound, play wave files with same name as warning type.
Example: FLOOD.WAV for FLOOD warning.
Morse, use Morse code to announce incoming warnings
MorseSpeed, sets the speed of the generated morse code, valid values (0.02 - 0.12)
MorsePitch, sets the pitch in Hz for the generated Morse code (200-1200)
MorseVolume, sets the volume of the generated Morse code (0-127) Enabled, turns on or off the decoding of NWS warnings. OverlayAll, turns on or off the decoding of all NWS warnings, not just the currently selected codes and zones

Changing the Enabled value from 1 to 0 will shut off all decoding of the NWS messages. Go to your NWS tab under MENU and click on clear page and clear overlay. Your NWS will stay empty and the map overlay will not contain any red or yellow NWS weather watch circles.

Some of the keys in the settings can also be changed by clicking on the MENU button on the NWS tab.

Your yellow and red circles come from the NWS settings and from the settings under the MENU button on the NWS tabs.

GATING WEATHER WARNINGS

TO gate those warnings to local rf, find the CWA for your area (in our case, North Texas is served by FWD) and put that CWA in your Gate to RF area of your Lists Setup. On my IGate, I have "FWD*" (without the quotes) in my Gate to RF list. The asterisk is a wildcard that allows any message from your CWA to be gated.

PLAYING WEATHER WARNING .WAV FILES

To play a wave file for the NWS Warning Type. Example, if a NWS warning was received which was "FLOOD", APRS+SA would look for the file WAV\FLOOD.WAV and play it if Wave files for NWS were enabled.

LOCAL TACTICAL CALLSIGNS

To assign a tactical callsign to someone so that there is only local display of the tactical information for them (without them having to do anything),i.e. to change the display of a call sign on just the map without changing anything in a tracker, tnc, remote equipment, software, etc...

For your computer only; it isn't sent out to anyone else. You get the Tactical Callsign window by entering " T", put the cursor on the empty callsign=tactical entry box, enter text in the following syntax:

callsign=tac_call

Press keyboard <Enter> key

Example:

WA4HEI=SAG4

Press keyboard <Enter> key

Clearing Tactical Calls List

You have to hit the clear button. Then, to confirm that you really want to do this, put the cursor on Yes, in the new pop-up dialog box, and click left, once. The list is gone.

Clearing Individual Calls

High-light the desired call with the cursor and one left mouse click, then left double click erases it.

REMOTE TACTICAL CALLSIGNS

Also, you can add stations to other APRS+SA stations by sending an APRS message to TACTICAL. In the message text, put: WA4HEI=Pete Or for multiple stations, enter: WA4HEI=Pete;WB2BOL=HAWK

Note also, you can send messages TO the Tactical callsign, and APRS+SA will substitute the real callsign. If WA4HEI=Pete is in your Tactical list, when you put Pete in the TO field of the Message window, it will generate a message addressed to WA4HEI.

GRID SQUARES & LAT LONG CALCULATOR

Setup > Main > Latitude Longitude button enables the Co-ordinate Conversion and Map Capture utility that simplifies much conversion math.

APRS+SA's "Calculator" can calculate Maidenhead coordinates (Grid

Squares), both forward and reverse. CommandsActivate the APRS+SA "Calculator" from the Menu.

16 character Grid Squares now supported in Coordinate Conversion calculator. This should give about 0.00001 degree accuracy to the grid value. Yes, Grid Squares can be more then 6 characters!

To Calculate the Grid Square from Longitude/Latitude, uses the following syntax:

GridSq lat, long <Enter>

where # is an even number, between 2 and 16, of grid square characters desired, lat is the Latitude in decimal degrees, and long is the Longitude in decimal degrees. <Enter> Depress "Enter" key

Examples; (6 is default):

GridSq 34, -117
DM14MA

10 GridSq 34, -117
DM14MA00AA

To calculate the Lat/Long from the Grid Square, use the syntax:

GridSq 'gridsq'

where 'gridsq' is the group of grid square characters. Example:

GridSq 'DM14MA'
34 ¯117

Note - There is nothing magical about using 6 characters for the Grid Square. It can easily be extended. In fact, the Trimble ScoutMaster GPS receiver would report extended Maidenhead coordinates. APRS+SA's Grid Square function can calculate these extended values, up to 14 characters!

14 GridSq 34,-117
DM14MA00AA00AA

GridSq 'DM14MA00AA00AA'
34 ¯117

Or, a more meaningful value of Lat/Long:

14 GridSq 34.02345,-117.1575
DM14KA15CP40AR

GridSq 'DM14KA15CP40AR'
34.0234498 ¯117.1575

DATA LOGGING

There are several types of logging of TNC data you can perform. First, you can log all input from the TNC. This is activated from the main program window, File menu, "Start Logging TNC Data". Next, you can save received and decoded packets. This is done in 2 possible forms. One is

in the APRS+SA internal data format. These can be quickly loaded at a future date for review. NOTE: The time filter, and auto data deletion functions will hide and/or remove the data. So when reviewing old data, turn off auto-data deletion. You can also save the received position packets in their raw TNC data format if you are saving the original packet (Position tab of Setup, upper right, "Store original packet with posits". These can then be saved as a text file. See the data type in the Save dialog box on the History tab.

CALCULATOR VIEWING OF ARCHIVED TIMESTAMPED PACKETS

First, the Packet Archiver is not a "finished" product. What it does, is store every packet heard on RF for recall later. It does not log TCP/IP packets, you have FindU for that. The Packet Archive function creates 2 files, PACKETSYYYYWW.pkt and PACKETSYYYYWW.idx. YYYY is the year, WW is the week of the year. For example, for July 21, 2000, we are in week 29 so the files would be named PACKETS200029.

You can start storing data by clicking the Commands > Start Packet Archiver. The command does not toggle.

or, for auto archiving at program start: Setup > Lists > Archive : turns on or off Packet Archiving, 0 or 1.

To recall the data open the Query Window, select Commands>Calculator to start the APRS+SA "Calculator". Enter the following, CASE IS IMPORTANT

ArchiveForm 'Create'

This will create a query form with several edit boxes on it, and an OK button if the form window is maximized sufficiently. The first editbox is for entering the callsign of the packets of interest. You can also enter the packet type in the second edit entry (NB! Text search is not implemented.) For example, enter, CASE SENSITIVE! :

WA4HEI gets all packets with "WA4HEI"
digi retrieves all packets with "digi"
$ recalls NMEA strings
@ for timed Position reports
: will recall all message type packets.
$=@!: will recall the multiple types requested
Leave it blank, and you get everything

There are other functions, again not to expose to the end user in any convenient way. If you open a file from the ArchiveForm (Query Window), go back to the "Calculator" and enter the following; case sensitive:

ALookup 'Stats'

This will return the number of bytes, average bytes per packet and a few other items.

Other ALookup commands are:
ALookup 'Count'
ALookup 'Calls'
ALookup 'Types'
ALookup 'FileTime'

Again - this is all experimental, and my be altered or removed in a future

release.

APRSERVE.TXT

An APRSPLUS trick. Double click on the "Server" label on the Setup - Internet dialog. It opens the text file of servers for easy editing. Comment out, with semicolons ";", the ones you aren't currently using. Add a new server with the name and port, in the format

hostname:port

examples:

localhost:3131
www.aprs.net:23

Most of the pull down lists related to configuration files behave similarly.

If no TCP/IP data is received for 60 seconds, APRSPLUS will disconnect from and immediately try to reconnect to the same host, or connect to the next host address (if there is one) in the aprserver.net file.

HEARD WITHIN X DIGIPEATER HOPS

Internet to RF. If your IGate has heard an RF station within X hops (X<=3) in the last Y hours and someone on the Internet side has a message for him, APRS+ will reverse gate it. ALL rf traffic heard will be sent *to* the internet - the servers will take care of dupe filtering.

This setting should be <= the number of hops your station typically transmits. If you hear a 3-hop station and send him a message using 1 hop, chances are he won't get it. So if you have WIDE,WIDE set for your UNPROTO path, you may want to set your max to 2. Of course, your mileage and circumstance may vary.

NOTE: The odds of a packet being received by any addressed station, in a "busy" network, decreases at a geometric rate, for each additional digipeater hop. In a busy network, a choice of three hops borders on deliberate QRM.

WIDEn-n is calculated into the number of Hops.

"Heard within X digipeater Hops" means if you set it to 0 then it would only be passed on to rf from the internet if only the receiving Igate heard it, directly.

"Heard within Y hours" means if you set it to 8, it would pass the message to the station if it was heard within the last 8 hours and also if it passed the X hops test.

REVERSE IGATE FEATURES

In accordance with those calls and icons specified in the Setup > Lists > Gate Callsign, and Icon lists, APRS data can be

reverse IGated, from the internet to the rf network. This allows for listed stations, anywhere on the internet or some distant part of the rf network, to be heard on the local rf network.

You could, for example, include your mobile tracker call in the Callsign list, and be driving around in another state with your APRS data broadcast on your home rf network. You could exchange rf messages, at your distant location, with folks on your hometown rf network. I suspect, for those interested in telemetry, even greater challenges are apparent.

REVERSE IGATING NWS WEATHER WARNINGS

To reverse-IGate NWS warnings for ONLY your location

You need to know the weather service stations for your area. Example, for SoCal, LAX is in the ID of the weather service in Los Angeles. So I enter LAX* in the Gate by Callsign list. New Mexico might be ABX*, etc...

IGATE SUBSTITUTED TEXT TAGS

Substituted Text tags are allowed in Status Text, Posit Text and Auto-Reply Text. For a list of tags, and their meaning, see SubText.TXT. Example: The Tag <GS6> would be substituted with the 6-character Grid Square. Thus, where <GS6> is entered, it would be substituted with DM14KA for my home station. Uses: IGate can indicate its status by entering the appropriate combinations of text and tags.

The replaceable tags are Substituted by the appropriate value, when transmitted. For example, the tag for the IGate is <IGATE2>. On transmit, the <IGATE2> tag is changed to either Yes or No depending on whether the IGate is enabled or not; so putting something like this in your Posit text or Status text would show the IGate status. IGate=<IGATE2>, in the allowed text, would be transmitted as either: IGate=Yes or IGate=No, depending on the active configuration.

Example: "IGate is <IGATE2>". If the gate is open, the transmitted text would be "IGate is UP".

Recommendation: Place important information and tags in the first 20 characters of the POSITION COMMENT text so that users with Kenwood D7's can see them.

Variable	Value	Meaning
<IGATE>	No\Yes	Is IGate open and available
<IGATE2>	Down\Up	Is IGate open and available
<FILLER>	No\Yes	Is Channel Filler on
<INET>	Unknown\No\Yes	Is an Internet Connection Available (Win95/98= Yes/No) WinNT=Unknown
<VER>	###XX	Version of APRS+SA
<TTS>	No\Yes	Is Text-To-Speak Enabled
<SA>	SAx	Version of Street Atlas being used
<TNC>	Name.tnc	TNC file in use
<UP>	Days:hr:min:sec	Time since program was last restarted
<WWW>	No\Yes	Is Web Server enabled
<URL>	Web Address	URL of APRS+SA Web server if enabled

<UNIQUE>	9999	Number of Unique stations with Position
<POSITS>	9999	Current number of unique position reports
<TAC>	Tac Call	Tactical Callsign
<EMAIL>	Email Address	Email address as entered on the Profile page of Setup
<NAME>	Name	Name as entered on Profile page of Setup
<HOMEPAGE>	Web Address	Web Address as entered on Profile page of Setup
<GS4>	Grid Square	Grid Square - 4 character
<GS6>	Grid Square	Grid Square - 6 character
<GS8>	Grid Square	Grid Square - 8 character
<GS10>	Grid Square	Grid Square - 10 character
<GS12>	Grid Square	Grid Square - 12 character
<GS14>	Grid Square	Grid Square - 14 character

ECHO - TAG SUBSTITUTION AND REQUEST MESSAGE.

Send a message to an APRS+SA station, and enter in the message text: ECHO:<TAG><TAG>... where <TAG> is any of the valid Text Substitution tags. Tags can be combined with any combination of text and tags. Note, returned message will be truncated to 56 characters. If the text is longer then 56 characters, the trailing characters are elided and substituted with "...".

IGATE SELECTIVE CALL SIGNS, WX REPORTS

To selectively gate some call signs or weather reports from the internet to RF (specifically to VHF, and NOT HF), you enter the call signs in the Gate by Callsign List on the Lists page. And check the checkbox at the top of the list to enable it.

TRANSFERRING WAYPOINTS TO A GPS RECEIVER

Support for NMEA transfer of waypoints to a GPS receiver connected via Port 2 of APRS+SA. The program will create waypoints in $GPWPL format for position reports, and send them to the GPS if the port is open. The selection of the reports to send currently has 3 methods. All, Tracked Stations, and stations selected to be displayed in the History tab. Note, wildcards are supported in the selection of stations. Selecting All and using the Internet feed is probably not a wise choice, but I'll leave it up to you. See Settings.RTF for options on the new GPS section of Settings. $GPWPL sentences can be generated from the Position, Position2, History, Weather, and IGates tabs. Right click on the selected station or stations, and choose, "Send to NMEA GPS".

MAPPING INTO MAPSOURCE

Highly Experimental: Mapping into MapSource. MapSource is from Garmin for the Mapping GPS receivers. In the release, I have added a couple of experimental maps. You enable these options on the MPS section of Settings. 1) Tracking. You can enable mapping of position reports into MapSource. If you have Zoom Most Recent on (see Tracking tab), then it will only map the report that was just received. If you have Zoom Most Recent Off, them that map is similar to the stations on Map 4 of Maps. And Clicking the Map 4 button will cause MapSourse to be populated with

the most recent position for stations in the Tracking list. The other option is Mapping ALL reports, similar to Map 2 of the Maps tab. WARNING: Do not enable Zooms on MapSourse if you have other programs open that use Ctrl-D to Delete data. You may loose data in those program if you switch the focus to those program when MapSource is being updated by APRS+SA /WARNING: NOTE: this is all experimental, and ! may be removed at any time. /NOTE:. Notes on MapSource - MapSource Roads and Recreation maps are similar to Street Atlas USA as far a street placement. MapSource Metroguides are very good maps, and appear to be more current then either R&R or SA. There is also a World map available, and a number of European R&R and MG maps. Also, Topo maps for the US. The program Trackpoint+ supports MapSource and SA maps also, if you want to try just an APRS mapping program

PROXY SERVERS

There are several different kinds of proxy servers. On the Internet tab of Setup, you enter your proxy's address, and the address of APRServe in the "server" slot. Click connect. APRS+SA will first connect to the proxy, then issue a connect command to APRServe. This configuration works in a number of locations. If this does not work, click the Manual checkbox next to the Proxy, and click connect, go to the TCP tab of the main server, and enter the appropriate commands to connect to APRServe, for you proxy. Once connected to APRServe, click the APRServe button to validate you station. Yes, manual is a bit of a pain. Brent KH2Z

KISS, KipSS/PE, AND KipSS

KipSS/PE TO AGWPE

The program, KipSS/PE uses the Kiss over IP interface and talks to the AGWPE. KipSS/PE works just like KipSS, except the KipSS/PE talks to the AGWPE while KipSS talks to a TNC.

You need to download the file, KipSS/PE.zip at:

ftp://ftp.tapr.org/aprssig/winstuff/aprsplus

The SV2AGW Packet Engine and supporting documentationlinks are at the beginning of this document subject material.

Install and configure the AGWPE files in their own directory.

In AGWPE's WinSock and HTTP Interface Setup window, leave the TCP port # at the default 8000, unless you understand the setup better than I do.

You should start, and configure AGWPE first, then run the program KipSS/PE.EXE.

In the KipSS/PE window there is a dialog box for Settings; ignore it, it is not used at this time, unless you understand the setup better than I do.

N.B.!!! KipSS/PE ALWAYS (to date) assumes that the PE will be at 127.0.0.1 on port 8000 so to change the Settings data actually accomplishes nothing, except to create input dialog with an expectation that it will do something.

Click "PE Open" button. Button will change to "PE Close".

Next, there is an IP address selection. It should show all valid IP addresses for your computer. KipSS/PE uses port 7301, as default, so select the appropriate IP address, and do not add a port number, unless you understand the setup better than I do.

Click "Open TCP/IP"button. Button will change to "Close TCP/IP"

On APRS+, connect to KipSS/PE from the KipSS section on the Internet tab of Setup. Enter the IP Address that you are using in KipSS/PE, without a port number. Port 7301 is the assumed default; do not add a port number, unless you understand the setup better than I do.

Back on KipSS/PE, you can check the Auto-Start checkbox.

Exit KipSS/PE.

When you start KipSS/PE next time, it will automatically connect to the PE, and open the TCP/IP port for client programs.

APRS+SA will automatically connect to KipSS/PE, when you start APRS+. This assumes you start AGWPE first, then KipSS/PE, then APRS+SA.

KipSS/PE works and acts like KipSS. The KipSS/PE icon will appear in the System Tray once started. The Icon is the letters K I S S in Morse code.

Hitting the Esc key or [X] will hide the KipSS/PE window. Click on the KipSS icon to bring the window back. There is no button on the task bar. The way to close the program is by clicking on the Exit menu.

If APRS+SA is not receiving data via the KipSS interface in 120 seconds, i.e. if you are on a quiet RF network, you will get a reconnect to KipSS every 120 seconds, on the TNC page, if nothing has been received.

NOTE: If you understand how and why to shuffle the various port options, of the various pieces of software, in this integrated setup, I would like to know, and include it in this documentation.

I spent many hours trying to make sense of it, and failed. Using the port defaults, as described, resulted in a working and stable configuration for me, WA4HEI.

AUTOMATING STARTUP OF APRS+SA WITH AGWPE

Automate the Entire Startup Process via the AGWPE.INI file

Want to get the AGWPE program to automatically start KipSSPE and then APRSplus and Radio Mobile when AGWPE finishes loading? Here's how:

Locate the file AGWPE.INI in the AGWPE program directory.
Open the file in the Windows Notepad or any other ASCII editor and add the following paragraph to the bottom of the file:

```
[RUNPRG]
RUN0=D:\Amateur\APRSPLUS\KipSSPE.exe
CMD0=0
RUN1=D:\Amateur\APRSPLUS\APRSplus.EXE
CMD1=0
```

```
RUN2=D:\Amateur\Radio Mobile\RMWDLX.exe
CMD2=0
```

Note: Be sure to edit the file paths in the paragraph to match the drive and directory where you have installed the KipSSPE and APRSplus programs. Then save the file and close the editor. This automated process will begin the next time you start AGWPE.

AUTO STARTUP OF APRS+SA FROM MULTIPLE AGWPE.INI FILES USING VBScriptfiles OR BATCH FILES

>Windows Scripting Host has to be installed to run scriptfiles. Since the >appearance of script-viruses one should be very careful when the Scripting >Host is installed, especially when using Outlook Express.

Anyone with anything like a recent version of IE installed will already have the Windows Scripting Host (WSH) installed. In my experience it is now unusual to find a PC that hasn't got it installed. If WSCRIPT.EXE is in your WINDOWS, WINDOWS/SYSTEM or WINDOWS/SYSTEM32 folder, then WSH is installed on your PC.

As regards security issues with WSH or any other aspect of Windows, one thing every Windows user should do as a matter of routine, particularly if they use Outlook Express, is to go to the Windows Update page - http://windowsupdate.microsoft.com/ - and install any available critical updates.

--
Roger Barker, G4IDE - http://groups.yahoo.com/group/SV2AGW

To be able to choose from differently configured AGWPE.INI files, how about using a good old DOS batch file? Or, if you want to be a bit more modern, a VBScript?

Batch file - Put the following two lines in Option1.BAT, and save it in in your AGWPE folder.

```
COPY AGWPE1.INI AGWPE.INI
"AGW Packet Engine.exe"
```

Then make another one called Option2.BAT that copies AGWPE2.INI, etc...

VBScript - Put the following four lines in Option1.VBS, and save it in in your AGWPE folder.

```
set fso = CreateObject("Scripting.FileSystemObject")
set sh = CreateObject("WScript.Shell")
fso.CopyFile "agwpe1.ini", "agwpe.ini"
sh.run """AGW Packet Engine.exe"""
```

(Note - there are three sets of double quotes surrounding the file name.)

Then make another one called Option2.VBS that copies AGWPE2.INI, etc...

Create a separate shortcut to each VBScript, and name it to reflect its unique purpose. A double left mouse click, on each shortcut, will then start AGWPE according to the parameters stored in the particular AGWPE.INI file identified in the VBScript associated with the shortcut.

--
Roger Barker, G4IDE - http://groups.yahoo.com/group/SV2AGW

SETTING UP APRSPLUS FOR 2 TNCs

There isn't provision for a 2nd TNC. Only a single dual-port such as a KAM or KPC-4.

You can use more than 1 TNC, indirectly, by installing AGW Packet Engine which can deal with multiple hardware TNCs as well as the soundcard soft TNC.

Then install the APRSplus add-on middleware KipSS/PE which then attaches AGWPE to APRSplus as a quasi-Internet connection. The KipSS/PE interface is activated on the Internet tab of the pulldown Setup screen. For more information, see the web site:

http://www.qsl.net/soundcardpacket/

or get the capture of this site into an Acrobat .PDF file located at website:

http://members.aol.com/wa8lmf/links

Note that:
1) When you go to the APRSplus FTP site, be sure you are downloading KipSSpe, not the similar-named KipSS file !

2) The KipSSpe interface only works with REGISTERED copies of APRSplus!

APRS+SA KipSS Password

You can't change it. KipSS has two login methods. Initially, it was an internal hashed number that was created based on your call sign. Your call sign and the number is sent to KipSS which then verifies it is correct, and validates it. The alternate method is the Password you define in KipSS. Then the logon sequence is \CALLSIGN\PASSWORD. Note: KipSS and KipSS/PE are 2 quite different programs, and the above discussion pertains to KipSS.

KISS SETUP - KipSS - FOR LAN OPERATION

KipSS. KipSS is a program that allows KISS of IP. This makes an ideal interface for working over a network, either local or remote over the Internet. For information about KipSS, see:

ftp://ftp.tapr.org/aprssig/winstuff/aprsplus

See the file KipSS.htm or KipSS.zip. KipSS runs in conjunction with APRSPLUS.EXE found in APRS+1.zip at the same FTP location. With KipSS, multiple copies of APRS+SA can share a TNC. APRS+SA can be run on multiple computers.

Do note, that Kiss mode from either APRS+SA or KipSS uses completely different code to communicate with the serial port then what is used when

you open either Port 1 or Port 2 on the Main tab of Setup. Kiss is using the MSCOMM32.OCX ActiveX communications control. The proper way to setup Kiss or KipSS is to do the following:
1) Enter the appropriate communications parameters in the Setup> slot.
2) The second slot contains the commands to put your TNC into Kiss mode. As an example, for a KPC-3, I enter: INT KISS (CR) RESET (CR)

Note the (CR) sequence is replaced by a carriage return character when actually sent to the TNC.

3) Click the Open button. If it opens the serial port properly, the Open changes to Close.
4) Click the Kiss On button. It should change to Kiss Off.

There are 2 Transmit buttons next to 2 Demo> slots. In the Demo slots, you can enter complete packets, in TAPR2 format in order to test the Kiss interface. The packet contains the Path, a port assignment, and the packet data payload. Example: WA4HEI>APRS/1:This is a test This would transmit a packet from WA4HEI, to APRS, on Port 1. The payload is "This is a test". If you have a single port TNC, and have entered /2, your TNC will probably not transmit.

The Transmitted Data slot shows the complete packet that was attempted to be transmitted. If you TNC is not transmitting, check which port, if any, was being selected.

The Received Data slot shows packets successfully decoded on receive.

KipSS allows a list of KipSS nodes in the Kipss.txt file. The color ":" is the separator for the data in this file. The basic form is for data entry into the Kipss.txt file is as follows: station identifier:IP address:IP Port. Examples:

Redlands Node:209.145.3.45:7301
Redlands Node Also:wa4hei.whiner.com:7301

Alternative

If several PCs are being networked with TCP/IP protocol,native mode of Win98, 2K, and later; BUT not native to Win95 (which as to be installed as an add-on), you can use AGW on ONE pc with a radio attached to the soundcard. Since AGW (and for that matter, most APRS apps) acts as an IP server, you can then set the APRS applications on the other PCs to connect via "Internet" instead of via the TNC port. Determine the IP address of the sound card "server" PC on your LAN, and then set that address into the IP address box of the APRS apps running on the other machines instead of the "real" aprs.net address.

Alternative

KipSS will work fine under Win2K.

Copy the KipSS files into their own directory (not APRS+SA's directory). Exit APRS+SA. Run KipSS. Define callsign and alias (I use RELAY). Select TNC port and select autostart.

KipSS requires a TNC that can operate in KISS mode. It will set the TNC to KISS mode and you should start seeing RF data showing in the receive window.

With KipSS running, start APRS+SA and go to setup. Turn off the TNC port. Go to the Internet Tab. In the bottom right of that setup screen is a KipSS Open button and a text field. Enter the IP address of the PC (127.0.0.1 if APRS+SA is on the same PC) and port number (7301). It will look like 127.0.0.1:7301

You can create a file with this info in it. In your APRS+SA data directory, create a file called "KipSS.txt" (without the quotes). Enter a line that looks like: TNC Name:IP Address:Port The IP Address can be a DNS name or a physical IP address. The Port is 7301.

Hope this gets you closer. The password is only needed for non-APRS+ applications.

Alternative

I run KipSS on the computer with the TNC (download from the APRS+SA directory on TAPR). I run APRSPlus on that TNC as my RF Only view and as an APRS weather station. I run APRSPlus on a different server as an IGate. Both APRSPluses talk to the RF world via the single TNC

KIPSS WITH TWO LAN COMPUTERS ON ONE TNC

Set 2 IP addresses in KipSS, one 127.0.0.1 and the other the LAN IP of your KipSS PC. Have APRS+SA connect to KipSS via the KipSS box on the Internet Setup using 127.0.01:7301 for the local and LANIP:7301 for the remote where LANIP is the IP address of the KipSS PC. KipSS should be set to use all defined IP addresses.

SEEU FOR FINDU

17 Jun 2000 23:40:54

I have posted the file, SeeU.zip at TAPR's FTP site. See:

ftp://ftp.tapr.org/aprssig/winstuff/aprsplus.

SeeU uses SQL lookup to FindU's database, and takes the data and plots it into Street Atlas USA.
It should work with version SA4,5,6, and 7. There are 2 lookup modes:
1) Latest Known Position
2) Track data.

Track data is limited to 100 position points in the last 24 hours.
Latest Position is the last known position for your chosen station.

Setup instructions, download the SeeU.zip and unzip the contents to a new directory. Double click on SeeU.exe and the program should start.

There are 4 menu options.
1) Connect - makes or breaks connection to FindU.
2) Lookup - performs the lookup of position data. You must connect to FindU first. 3) Options - Sets various display options for Street Atlas. NOTE: APRS tab is NOT used. 4) View - View the data you have downloaded in the Lookup

How to do a Lookup:
1) You must have an active Internet connection. Sorry, no proxies.
2) Start Street Atlas USA. NOTE: the program defaults to SA7. If you are using a different version, you much change it by selecting the Options menu, then the Map Features tab, and set the SA Version.
3) Connect. Click connect to connect to FindU. The status bar will show you progress as the connection proceeds, finally showing you "Ready for Lookup"
4) Enter the call sign of the station you want to locate.
5) Click Lookup which has 2 options
    a) Track Data which is limited to the last 24 hours and only the last 100 points in the time frame. NOTE: This can time some time!! You need to be patient with this option
    b) Last Known Position will show you the last known position for a station. This is generally very quick.

Map display - The track map will show the track, if any and the call sign of the station, followed by the time since the position was heard. Example: KH2Z (0:0:1:34) Meaning: 0 days, 0 hours 1 minute 34 seconds The Last Known Position will show the call sign and the time with a dot at the location of the station.

This is the first release of this program. I have not tested it on any platform other then Win98. It is supplied AS IS. There is no guarantee made of any kind. Use this program at your own risk.

SeeU should run Win95 (with latest updates from Microsoft), Win98, and WinNT/2000. Again, I have only used it on Win98.

FAQ: Does it show Icons? No.

HISTORY FILES

History Tab - enter the callsign(s) of the positions you want to save, click the Save button. You can either save the original packets, or save in APRS+SA's log file format.

HISTORY LIST

If you draw maps, such as "Stations in Range", or "Local", or "Direct", the callsigns of those station will be entered into your History list. You can predefine any number of callsigns for the History list in the History.txt file. Double-click on the "Enter Callsign>" label to the left of the callsign list to edit the History.txt file.

SAVING AND LOADING HISTORY "TRACK" FILES

History Tab - From the History page, enter the callsign(s) of the station(s) you want. Then click the SAVE button. You can save the data in APRS+SA's internal format or if you are saving the original packets (option on the Position tab of setup), you can just save the original packet to a text file.

To reload the previously saved data, and then generate a map from those

data. NB!!! When you reload, be sure that automatic data deletion is turned off if the data's time stamp is not within those being preserved on the data tab of setup, or else it will be automatically purged during the next cleanup!

The track (and everything else APRSplus superimposes over a Street Atlas map) is part of a normal Street Atlas overlay file with a form of the type filename.SAn where n is the version of Street Atlas you are running; i.e. if you are running Street Atlas 8.0 these files will be of the form filename.SA8.

SAVING STREET ATLAS DISPLAYED DATA OVERLAY FILES

You can save everything on the current map by doing a File, SaveAs in Street Atlas and giving the overlay any name you wish. (This is an intrinsic feature of Street Atlas that is completely independent of APRS). Later on, you can start Street Atlas alone (APRSplus not required) and reload the overlay by doing a File, Open. If you wish, you can use SA's own draw tools to annotate the overlay and then re save it. When an SA overlay is saved, the current center position and magnification is saved along with any drawing objects (lines, labels, map notes, etc) so when you reload it, the map will return to the same position and size as when you saved it.

APRSplus actually creates these overlay files "off-screen" and then makes SA open them (each time the map refreshes or plots a new position, the overlay file who's name shows in the SA title bar is being re-written). If you then save it under a new name before the next refresh, you have grabbed it for posterity...

OBJECT OVERLAY FILES

There is a way to add objects to SA or APRS+SA maps, and to have them show on the map, each time a map is loaded. These objects (locations, wx, etc.) will not be transmitted, and whenever a map is drawn, designated objects are added to the display.

This is called an Overlay. There are a several types of Overlays. The global overlay is generated by the GLOBAL.SAx file Enter your objects on the map in SA, and save it a file named Global, in the APRS+SA DATA directory. It will then be loaded automatically when a map is drawn. Or, you can load the objects manually from the Files menu, where you can open any SA map and the objects in it will become overlay objects. And Each map can have it own overlay. Save the specific overlay to a file of MAPNAME.SAx.

MIC-E TRIGGERING PORT 2 DTR LINE FOR EXTERNAL HARDWARE

Fri, 10 Nov 2000 15:54:23 -0800

Experimental: Mic-E alarms now trigger the toggling of the DTR line of the serial port opened as Port 2 on the Main tab of Setup. This port is frequently used for GPS input, and the DTR line is not used in communications. This line can now be used as a trigger to external hardware when a Mic-E alarm is received. In addition, this can also be

triggered by messages sent TO ALARM, ALERT, WARNING or EMERGENCY. The DTR line is raised when triggered. To clear an alarm, used the Commands Menu. Commands+Clear+Clear Alarms, or simply, Alt+C+C+C. An addition method of triggering an external alarm is to send a directed message to your APRS+SA v1.99YF station, and using ** as the first 2 characters of the message. Additionally, ## will trigger a second alarm using the RTS line

STREET ATLAS TOPICS

RUNNING SA MAP DATA RUNTIME FILES (MAP FILES) FROM ANY DRIVE

I forgot to mention that there is another completely undocumented program in the SA8 bundle that will let you use CD data copied to ANY location on your system AFTER SA8 is installed. In the subdirectory \UTILS underneath the main directory where SA8 is installed, you will see an application OSMOSIS.EXE . Running OSMOSIS allows you to specify the location of the SA8 data files if they are in a location other than under the main program directory. This location can be on another drive, or even another machine on a network using Windows UNC naming conventions; i.e. \\SERVERNAME\DIRECTORYNAME.

To use it, copy the entire contents of the SA8 runtime (data) CD (except for the directory \UTIL which is not needed) into a directory such as \SA8data on your hard disk, preserving the relative directory structure. Then run OSMOSIS and specify the entire path to this directory, including the drive letter; (such as D:\SA8data) when prompted for the data location.

Start up SA8 and test it. You have succeeded if you can zoom into mag 12 or closer (where the grey minor streets start showing) and see street detail without the CD inserted. (The Interstate and major road data is part of the base SA8 installation and will show even with no CD, or no data extracted).

EXTRACTING SPECIFIC SA FILES FROM CD TO HD

I don't have my SA8 CDs handy to make sure of all the steps, but here is the general way to get SA8 files onto you hard disk.

When you start SA8 Installation, select the "Custom" option. One of the next screens will allow up to pick components - pick "Extractor" in addition to whatever else you want (I'm not sure right now what the choices are). Extractor is the program that will allow you to load the files on your HD.

After installation is completed, open the Programs menu and then look for the Delorme section. You should see Extractor as one of the Delorme programs. When you run Extractor, you may select just what you install right down to county level (I think). For example, I only installed states where I generally travel. There are also some other choices, like Interstates. Check all of them out to see what you like.

I was disappointed that Delorme did not have more on Extractor in the manual. I have run several previous versions and it took me a couple of tries to remember how to get to it.

If you have already installed SA8 without extractor, you may have to

completely remove it and the re-install, putting Extractor in during installation. I could never figure out how to get Extractor to install after SA8 was already installed.

Once things are expanded it seems to take at least 850 MB for a full install. There are many options for customizing the extent of the installation:

You can elect whether or not to store points of interest info. This has an impact of 10's of MB, and greatly affects search speed for points of interest and zip codes. You should probably go for everything rather than a partial here. - you can select specific types of points of interest info to extract. This seriously slows down the extraction process and will make you think the computer stopped. - you can select specific geographic areas to extract street info from. Since I live close to CO in the SE corner of WY I have CO and WY loaded on HD. Anything outside of that, I need the CD to be present if I want close up detail. Major highways for the whole country always install no matter which states or counties you select on a partial extraction. This option affects 100's of MB of HD space.

You run the Extract program that's in the same directory as your SA. Loading the Extractor is an install option which you might have said NO to. If it's not on your HD already, just run Setup again from the CD.

>Also, there is mention that there is an option during install to install
>all the files to the HD...I sure never saw it. Now...how do I go about
>changing it.

You only see that when you run Extract.

>Another consideration is how will APRS+SA know to look to the HD instead
>of at the CD?

No difference whatsoever - Brent's APRS+SA looks for your Street Atlas *executable* by name once you tell it which version you have. Street Atlas in turn keeps track of where it's *data base* info is stored.

RDF RADIO DIRECTION FINDING FUNCTION(S)

APRS+SA can draw RDF Bearing lines. Press Ctrl-D to activate the DF window. Current position can automatically be entered, bearings are manually entered. Bearing lines then persist until they are deleted with most subsequent map redraws.

TRACKPOINT+

Jan 2001

Posted to the TAPR FTP site, Trackpoint+.
See: ftp://ftp.tapr.org/aprssig/winstuff/aprsplus/Trackpoint.zip

Trackpoint+ is position plotting program that utilizes either DeLorme's Street Atlas USA (SA) maps or Garmin's MapSource (MPS) maps for the display of APRS style station location, and tracks. Both SA and MPS can provide street level detail maps. SA provides coverage

for the United States. MPS provides coverage for the United States in 3 different style maps, including Topo style maps, and also Canada and many parts of Europe.

Trackpoint+ decodes various position packets and APRS style status packets only.

Trackpoint+ does not connect to a TNC directly. Input to Trackpoint+ is via TCP/IP. Trackpoint+ will connect to either APRServe, AFilter, or KIPSS. KIPSS provides TCP/IP connectivity to a Kiss TNC, and is available at the above FTP site.

Trackpoint+ currently is available for experimentation only. Read the file Trackpoint.txt in the program distribution.

PEEDY - TEXT TO SPEECH TTS

MS Agent is used to do Text-to-Speech (TTS). It requires at least 3 files, The Agent software, MSAGENT.EXE, the TTS software TV_ENUA.EXE, and a character. Peedy seems to be a popular one. Install all three. On the Program tab of Setup, the is a slot to enter the character you want to use, if you have chosen Peedy, enter: Peedy Now if you click on the Speech menu, Enable, you should see Peedy "fly" on to the screen. The Off Screen menu moves the agent character off screen, but you still hear it. What you hear depends on what you have configured the character to speak. This is set on the Sounds tab of Setup. At the top, there is "Tracking Talk>" with several options. Also, you can enable the several Speak options on the right. Note, if you do not have WAV files for the other possible sound effects, the Agent will speak what the name of the file you have selected. Example, you have a selected the WAV file UPDATE.WAV to be played when a new Position report is received, the Agent will SPEAK the work UPDATE. Enabling the speaking of incoming messages means the Agent will speak the text of the message.

Peedy will only announce positions for your tracked stations if you have them in your track list (otherwise he might never shut up!) Also, you have to have the Setup > Sounds > Top Right, check Verbose.

.WAV FILES

For those that may be interested in generating a complete custom set of .wav files, they may be generated at these web sites. I consider the Bell Labs pages the best.

http://www.bell-labs.com/project/tts/voices.html
http://www.bell-labs.com/project/tts/digtalk.html
http://www.research.att.com/~ttsweb/cgi-bin/ttsdemo

WEB PAGE SERVER

TEMPLATES

1) Templates. These are web pages you can design to display certain text, data, and/ or maps the way you want. The Templates are called up from the Message entry window, under the Query button. For example, you may have

found a location on the Internet to provides really cool maps. You can build a web page using replaceable parameters that APRS+SA provides to build your page. I have provides a couple of examples in Template1.htm or Template2.htm. Template1.htm will draw a web page with 3 maps from MapBlast. The replaceable parameters in the Templates are delimited like this: #long#. This would be replaces by the Longitude of the station you have entered into the Message entry windows To Callsign slot. Click the Query button, and choose the Internet menu option. Note: In all prior versions, a connection to APRServe was required. This restriction will be dropped in the next revision, because obviously, you may have an Internet connection without a connection to APRSer! . Here are a list of replaceable parameters you can use in constructing a web page Template. #call#, #blat#, and #long#. These apply to the call sign in the Message entry To field. Additional replaceable parameters include #mylat#, #mylong# and #mycall# for your Latitude/Longitude and call sign.

APRS+SA web server now has settings that can be entered into the SETTINGS.INI file to allow for generating Web Pages with just RF Stations, or all known stations. Also some time limits are now adjustable. The following are the INI file Keys for the Web Server

```
[Web Server]
RF=1
PositionTime=2
HistoryTime=2
StatusTime=4
```

RF=1, means, only draw stations on your local RF network. This ignored IGated packets. The time values are in hours, and the defaults are shown.

Web Server: Web page for specific stations now shows time since last position heard, and automatic reload after 3 minutes.

MESSAGES, BULLETINS AND EDITING

The maximum length of a message is 65 characters. APRS+SA will split a message at a space character, you can just keep typing. The number of characters is displayed so that you can keep a message short, if your target station can not display the full length message. You may choose shorter message lengths to create shorter packet lengths that decrease the odds of intermittent noise spike corruption of any individual packet, a common lower hf phenomenon due to various forms of QRN.

You can enter a message, and choose "Load" instead of "Send". This enters the message into the queue in the suspended condition. APRSPLUS will start transmitting the message when it hears the target station. In this way, you can load a suspended message to a station that is not on the air, but who can then receive it the next time that station is on the air and is recognized by your APRSPLUS program.

APRS+SA will transmit an outbound message, then 8 seconds later repeat it, doubling the interval each time until 20 minutes and it will timeout. It will try again, one time each 20 minutes if it hears the target station again.

Note: If a station, for which a suspended message is queued, returns to the air with a tnc only, i.e. a compatible APRS program is not

operating at the target station when it returns "on the air", then, upon hearing the intended recipient station, the senders APRS+ software will try to deliver the message to a dumb tnc that will not "ack"nowledge reception. The message originating APRS+ program will continue the previously described transmit cycle.

Right click to see individual or grouped message line options. Control+left click or shift+left click allow user to select various combinations of message lines. Editing and manipulation of message and bulletin lines is done from the message and bulletin tab pages.

Editing existing message and bulletins may be initiated by double left clicking a queued message or bulletin on the message tab page. The existing "to call" will be loaded into the message dialog box, allowing a total rewrite, if desired of that particular message text.

A single right click on a queued message brings up a message line menu, from which Copy Message may be chosen to load both the "to call" and the message text, allowing editing of both.

To initiate automatic transmit control of loaded or manually suspended bulletin(s), you must right click > Resume Transmission. As these generic messages are targeted to a group of stations, they have no auto resume transmit option as message lines addressed to specific stations.

Right click message line and select Queue Time: Shows time of next transmission, in status bar, for the particular line clicked.

EXPERIMENTAL MESSAGE FUNCTIONS

New message functions: one can now store and retrieve and delete data remotely. To use these functions, one sends an APRS message to your station. In the message body, use the following constructs:

STO:name data goes here.
RCL:name
?name?
DEL:name

name is the "name" of the data being stored. Note that the construct ?name? will also return the requested data. ?name? and RCL:name return the same data, however, ?name? transmits the data only once while RCL:name queues the data up as a regular APRS message. STO/RCL/DEL are not case dependant.

Example:
STO:Jim Call home when you can
RCL:Jim
Jim=Call home when you can{01}

These messages are stored in the DATA subdirectory with following naming construct: "name.msg" This allows for the creation of any number of such files for recall later.

Experimental: APRS+SA runs using an advanced "APL" interpreter. This allows for interpreting code on the fly. This release allows for inputting of numerical code. Send a message as in #2 above as follows:

```
APL:code goes here
XEQ:code goes here

Examples:
APL:  (1+2) #time (3+4)
Returned:
APL=21{02}
APL:  GridSq 34,-117
Returned:
APL=DM14MA{03}

This is experimental.
```

REPLY/ACKS - ACKNOWLEDGEMENTS

Reply/Acks have message "acks" encoded in the APRS message line number. This is an attempt to increase message through put. Thus, each outgoing message to another station will include the message number of the most recently received message in an attempt to speed up the "ack" process. Line numbers will look like this:

{AK}MN where AK is the message number to be "ack'ed", and MN is the Message Number of the new outgoing message.

This has been implemented in v1.99XN to be transparent with the current APRS messaging system. This is experimental, and will only work fully between other stations that support reply/acks.

SMART BEACONS

Normally position reports are transmitted at time intervals determined by the number in the pulldown to the right of the "Posit Text" window

With Smart Beaconing checked, the rate of position reporting varies based on your speed as reported from an attached GPS receiver; i.e. if you are moving rapidly (GPS position is changing rapidly) it sends position reports more frequently. If you stop moving, position reports are sent much less frequently to reduce channel congestion when there is nothing new to report.

Variable Beaconing for moving stations based on the "Smart Beaconing" work of Steve Bragg and users the HamHUD. See:

http://www.qsl.net/ka9mva/hamhud

To setup variable rate beaconing, press Ctrl+Shift+B or use the Commands menu to bring up the window to set beaconing parameters. Beacon rates are determined by speed and turn angle. Faster speed has faster beacon rates, up to a maximum of Beacon_Fast rate at Fast_Speed. Beacon rates will not be faster then Beacon_Fast based only on speed. When stopped, or at a speed less then Slow_Speed, the beacon rate becomes Beacon_Stopped. Beaconing can be triggered by a turn. Speed must exceed Slow_Speed for turning angle to cause beaconing. This is determined by 3 factors, Turn_Minimun, Turn_Factor and Turn_Time. See the Turn Plot for beacon rate based on the turn angle and speed. To have APRS+SA use variable rate beaconing, check the Checkbox next to the "Smart" button on Port 2,

main tab of Setup. This should apply whether position input is via Port 1 or Port 2. The "Smart" button also activates the Variable Beaconing parameter setup window.

QRZ AND EMAIL ACTIVE X FEATURES

eXtensions for APRS+SA v2.0

Download APRSX.ZIP at tapr.org

1) Unzip the file APRSX.ZIP into a subdirectory of your APRS+SA directory.

2) Copy the files XLOOKUP.W3, XLOOKUPNAME.W3, and XSMTP.w3 to your APRS+SA directory.

3) Execute the SETUP.BAT file. This will configure the file APRSX.EXE as an ActiveX control.

4) Edit the Email section of Settings, under Setup in APRS+SA.

```
[Email]
EMAIL_RETURN=you@mailhost.com
EMAIL_HOST=mail.mailhost.com
```

you@mailhost.com should be your return Email address, or an appropriate email address.

mail.mailhost.com should be address of your POP3 mail host.

You should now be able to send APRS Email messages and do QRZ callsign lookups.

To send an Email message, send a message to your station's callsign and in the message body, put:

em: someone@somewhere.com The message subject goes here

You should receive back a confirmation that the message was actually sent correctly.

To lookup information by callsign, send a message to your stations' callsign, and in the message body put:

L:wa4hei

You will be returned the name, license class, and address associates with that particular callsign if the data is available.

A simplified WHOIS variant is as follows:

w:w1aw

You can also do a name lookup to find a callsign.

n:robert bruninga

Returns is the number of "hits" and up to seven callsigns. Any more then seven will be truncated.

[1] WB4APR

Doing name lookups is not always successful as city names and street names may also be included in the search.

Brent KH2Z

ERROR TRAPS

In addition to the new trap, I have added a "Tracer" function which will trace the execution of each function and windows callback. When activated and the program abends, it will save the execution stack for review. To activate the Tracer, you need to open the Calculator window, and enter the following:

Tracer

Ignore the error in the upper calculator window - this is expected.

APRS+SA AND PSK31svr

PSK31svr by Roger Barker, G4IDE, is an experimental TCP/IP server that will talk to APRSPLUS for the purpose of transmitting and receiving PSK31 data in the APRS format.

As an experimental program, what you see is what you get, with all possible consequences! RTFM! Read the docs!

The program can be found at:

http://www.rochesterny.org/beaconet/

Set up APRSPLUS for an internet connection but instead of connecting to your favorite internet APRS server, comment out all the internet servers in the APRSERVE.TXT file and add this one:

localhost:3131

This will provide the connection from APRSPLUS to PSK31svr so that both programs can talk to each other.

NB! Make sure that Setup > Program > Add Transmitted Data to Input Buffer is NOT checked. If it is it will cause all data originating from your system to be sent to PSK31svr, twice, resulting in 2 status beacons, position reports, queries, etc.

The purpose of the function is to cause your own data to be decoded as if transmitted on RF; i.e. it is always decoded. It ensures you see it as if digipeated, while using APRS+ in the manner for which it was designed.

FINI

HOME