Station Traffic System: A Traffic Handler’s Utility Package With Integrated Packet Support

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The Station Traffic System (STS) is a utility program for National Traffic System (NTS) traffic handlers written in C for use in MS-DOS” and UNIX@ environments providing a set of menu-selectable functions for message operations and operating environment support.

1. INTRODUCTION
STS provides a unified system for origination of formal NTS messages, generation of administrative reports, filing and storage of received formal messages, and tools to aid in the tracking and administration of the above.

2. HISTORY
STS had its origins in a BASIC program to format Net Control reports for the South Tidewater Amateur Radio Emergency Services (STARES) net on the author’s Tandy Color Computer in about 1984. The Color Computer version grew to include many of the features of the current release reaching its peak in 1988.

As the author migrated to MS-DOS based systems for personal use, the decision was made to port the code to that environment. Porting was made easier because both interpreters are products of Microsoft from roughly the same timeframe. After porting, an “If it ain’t broke don’t fix it!” view was taken until late 1989. BASIC’s limitations with respect to serial ports and speed, as well as the author’s experience with the sysop side of PBBS operations, and preference for the C language led to a rewrite of STS in C with release 3.0 (the initial C release) delivered 1 January 1990 for MS-DOS. Release 3.1 was a “Bells and Whistles” enhancement. Release 3.2 added UNIX support to the source and Message Identification strings (MID’s) on all traffic generated as packet-ready. Release 3.3 changed the rules for MID generation including switching between levels of MID generation (default ZIP Code/postal code routed messages only) along with adding support for an extended originator field in the preamble. The current release (3.4) adds additional support for hierarchical routing for packet-ready messages and enhances message input via a set of tilde (“”) escape commands in the rewritten input routine.

3. DIVERSE ENVIRONMENTS SUPPORTED
Given the view that the amateur traffic and packet networks are parts of a larger integrated system, it is reasonable to support operation in as many operating environments as one can within reason. To this end, STS is written to operate in multiple environments and has been compiled and run in the following: MS-DOS/TURBO C*(1.5), MS-DOSTURBO C*+ (1.0) UNIX System V (SVR2 and SVR3), SunOS™ (4.0.3c), Berkeley UNIX (4.3BSD), and ULTRIX~V3.1).

4. FUNCTIONAL DESCRIPTION
STS is a menu driven program using single keystroke entry where practical. On startup if the required local data files are missing the program will prompt for the data and prepare the needed files for future use. After the initial banner the Main Menu is presented listing functions with the invoking keys. These are:
4.1 Station Activity Report [A]
This will prompt for the data required for the monthly Station Activity / Public Service Honor Roll report for transmission to the Section Traffic Manager (STM). If the STM’s name, call, and home PBBS (if any) are not on file (in net.mgr) the data is prompted for and added. The report is generated as packet-ready traffic to call@PBBS if the STM’s home PBBS is known.

4.2 Concatenate/Book Text Files [C]
As an aid to record keeping, this choice provides for combining existing files with optional leading comments into a new or existing file with an option of removing each of the source files once combined.

4.3 Directory [D]
Provides a short form listing of the current or specified directory.

4.4 Received Message Intake [I]
Formats and provides tracking data for messages received from sources other than one’s own origination. Will prepare for filing to packet if needed data is available indicating the current station has handled the traffic while attributing the message to the proper originator.

4.5 License (Terms & Information) [L]
Redisplay of the opening screen information.

4.6 Message Origination [M]
Generate and format traffic originating at the user’s station including timestamping, interrogation for special handling directives (HX instructions), and encapsulation for packet transport (if given the needed data).

4.7 Net Report (QNS) [N]
Formats a sorted post-event Net Control Station (NCS) report for transmission to a Net Manager. The report is packet encapsulated if the Net Manager’s home PBBS has been included as part of the entry in the file net.mgr.

4.8 Print Files [P]
Prints files as per the underlying operating system.

4.9 Reset High Message Number [R]
Allows for resetting of the last message number used.

4.10 Display on Screen [S]
Display files to the screen like the ‘more’ command of Berkeley UNIX although only allowing Next, Quit, Restart, and page forward (default).

4.11 Toggle MID Generation Status [T]
Allows resetting of the conditions for attaching MID’s to generated traffic as All, None, or Zip routed only. An invalid response aborts the change.

4.12 Validate Area or Postal Code vs. State [V]
This procedure allows advance checking of ZIP/Postal codes or North American Numbering Plan area codes against State/Province. This uses the same routines used to validate the data during address entry for both message origination and received message intake.

4.13 Shell Escape [!] Spawns a sub-shell of the user’s specified shell/command processor using the value of SHELL if ret or else COMSPEC for MS-DOS or the Bourne Shell (/bin/sh) for UNIX.

4.14 Exit [X]
Cease operations and return to the operating system.

5. COMMAND LINE OPTIONS
STS supports setting of the status of MID generation on the command line by the inclusion of an argument of All, None, or Zip. No switch character is required and any option may be entered as only the first letter.

6. ENVIRONMENTAL VARIABLES
STS makes use of several environmental variables if available. As often as could be done use is made of variables that are also used by other programs. These are detailed below.

6.1 COMSPEC
The MS-DOS system related variable detailing the location of a copy of COMMAND.COM,
its default command interpreter.

6.2 ED

The pathname of the editor for the system to invoke when required. It should include any options or switches required to render the resulting file as ASCII text without program specific mark-up data.

6.3 HOME

A given user’s initial directory in multi-user environments. HOME is the first choice for where to find user specific supporting data files. (If not set STSDIR will be used.)

6.4 SHELL

The path of the user’s chosen command interpreter that will be spawned by the shell escape [!] command. Defaults: MS-DOS = COMSPEC, UNIX = /bin/sh.

6.5 STSDIR

STS specific, the directory (if not the current directory) in which to find the common supporting data files. Also the location of user specific support files if HOME is not set.

6.6 SWITCEAR

For MS-DOS systems operating with an alternative switch character (example ‘.’) this should be set so it may be used by the program.

6.7 TFKDIR

STS specific, the directory (if not the current directory) in which to place the generated message files.

6.8 TZ

The initials for the timezone to which the system clock is set, the number of hours it lags behind UTC/GMT, and optionally the initials for daylight/summer time. Examples are: ESTSEDT, CST6, MST7, PSTSPDT, EDT4, or UTCO (the default). UNIX users should not set this as it has already been set as part of system initialization. MS-DOS systems running system clocks on local time should set TZ so that the UTC based timestamps will be correct.

7. DESIGN PHILOSOPHY

In the design of the program it has been attempted to maintain a consistency of interface. The inclusion of interfaces to the graphical user interfaces supported by the various environments, in particular, have been omitted for now to give a common presentation on all directly supported operating systems. In general the program is case insensitive for single keystroke responses. The exceptions are overriding validation failures and deleting files, both of which are of a serious enough nature that accidental invocation should be avoided. For these actions the program mandates an uppercase response. As mentioned above the design of the program endeavors to make use of environmental values that can be shared by multiple programs as opposed to creating a duplicative set of such values. Additionally portions of the user interface have been designed to match the presentation of other programs the user may have experience with, most notably the use of line by line entry of text with the availability of tilde commands to allow for greater control of the process. Also data is requested by labeled prompts so that even the infrequent user will maintain awareness of the current data entry status and requirements.

8. SPECIAL FEATURES

STS supports a pair of features that have the potential to spark controversy among PBBS operators and systems also within NTS itself.

8.1 Standardized MIDs for Traffic

Recent trends in the works of some PBBS authors indicate an awareness that message identification in general, not just the special case of Bulletin Identification (BID), is the proper course to follow in our evolving network. STS supports this trend by having the ability to generate MIDs for traffic (T-MIDs) such that a message may freely transfer to and from the various components of NTS while maintaining the accountability MIDs provide. This MID is built from the preamble of the NTS message, not from external data, and thus, is reproducible at any stage. The format used by STS and proposed for general adoption is the letter T, the message number in the preamble, an underscore ( _ ), and the callsign of the station of origin (without any extended originator data). Feedback from a bulletin posted in May proposing this plan indicated a potential problem if a message
must cross a previously traversed PBBS enroute its true destination. Analysis of this situation reveals that the message either has been re-addressed to a specific PBBS or it is starting a second tour of a routing loop that the sooner stopped the better. In consideration of this the author proposes the use of T-MIDs as outlined above for all NTS traffic on packet routed ZIP@NTS<state> and, if readressed, any MID should be assigned by the station re-routing.

8.2 Extended Originator Field

Owing to the store and forward nature of packet message handling in conjunction with the growing popularity of personal mailboxes, increasingly, traffic originators may best be contacted via packet. In this light, provision for packet addressing data should aid especially the routing and distribution of service messages be they delivery advisories or failure reports. However, the address is useful only if available, and with the current state of directory services and percentage of the NTS operator population currently on packet, it is within reason to provide such data if available. This idea has potential drawbacks, and in the longer term, will require discussion and compromise. In the current release, STS supports the extended originator in the form call@PBBS.st.nation if the needed data is provided. As a point of departure for the evolution of this proposal stipulate that this format is transmittable via packet, ASCII, and voice. Further, that one or more of the characters used do not exist in the character sets used for CW, RTTY(U.S. Baudot or CCITT Number 2), and AMTOR and thus require a translation of some form. Let an additional point of agreement be to limit the highest domain level used to the national domain (e.g. usa, can, etc.). There are two characters that require translation or other handling @ and #, for the author proposes to substitute a pair of fraction (slant) bars (i.e. //). The # character used by some as a subdomain flag is unnecessary baggage and should be dropped as subdomains are easily located by position. There is also no reason that designations for current voice, CW, RTTY, and AMTOR nets could not be created to provide an equal degree of source indication for those operators and in any event the choice to include extended originator data is the option of any operator at the time of origination of each message. Continuing discussion is welcome and encouraged as the route to compromise.

9. DISTRIBUTION

The current primary methods of distribution are via MS-DOS magnetic media and downloading from various BBS’s and PBBS’s. The set of self-extracting LHarc archives used for PBBS/BBS distribution are the following: STSPC.COM the total package both source and MS-DOS run-time, STSPCX.COM is the MS-DOS run-time only distribution for those who do not need or want source code, STSSRC.COM is source code and support files only for compilation in other environments. If required the source and support files can be provided in cpio or tar formats with or without compression or packing by special arrangement with the author.

10. DISTRIBUTION PHILOSOPHY

The licensing and distribution terms for the STS package are the result of much thought. STS is distributed as a class of “freeware” with a measure of influence by the Free Software Foundation’s (GNU) philosophy. This is NOT a work in the public domain and the license terms art such that STS is available to all who might need it for but the cost of media and shipping or a phone call. These terms boil down to - spread the word but you may not profit from it; you may only recover the out of pocket cost for media and postage and no more. Yes, you should make the program available to others who can make use of it, on a non-profit basis. Enjoy!