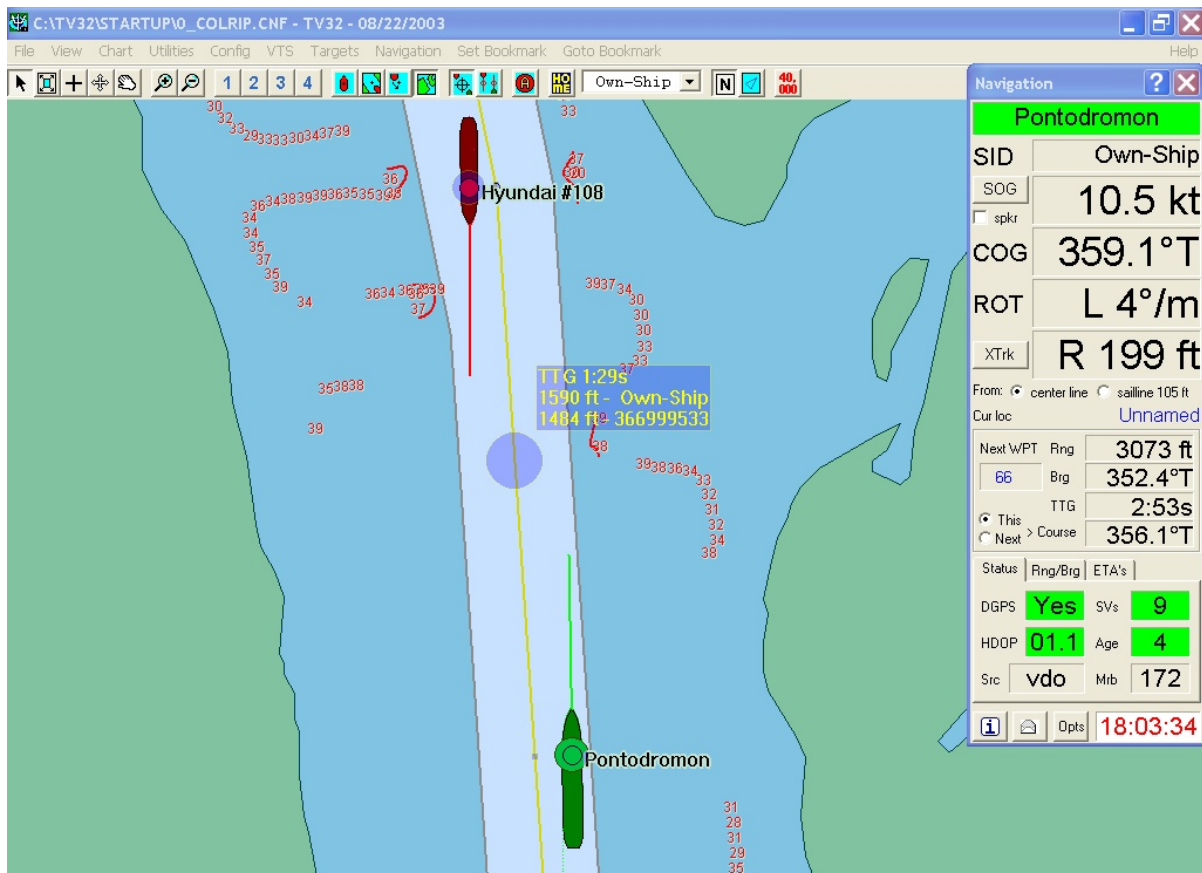# Transview (TV32) Installation and Operations Guide
for
Maritime Safety and Security Information System (MSSIS)

Version 7.7.4B, revision 1.1

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Revisions Log

Significant changes to the TV32 version 7.7.4B manual are to be documented in the following table. Significant changes are those that have the potential to affect the users' understanding of the software.

Revision Number	Date	Updated Section(s)	Description/Clarification
	7/10/08		Initial release of version 7.7.4B manual
1	6/18/09	3.4.13	
1.1	7/31/2019	Appendix H	Edited Appendix H to reflect replacement of Stunnel with Connector application
1.2	10/21/2020	Appendix H	Edited Appendix H to reflect replacement of Connector with Stunnel application

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1. Introduction

Welcome to the Transview (TV32) manual. TV32 is Geographic Information System (GIS) software that has been developed by the Volpe Center, of the United States Department of Transportation (DOT), to meet the needs of several organizations involved in vessel traffic management, pilot navigation, and maritime domain awareness. TV32 has been developed to display several types of contacts, including feeds from commercial Automatic Identification System (AIS) transceivers, certain radar and some proprietary encrypted transponders. TV32 is in use in several projects underway in the Marine Systems Division. To learn more about the Volpe Center and the type of work performed there, please visit http://www.volpe.dot.gov/.

1.1 TV32 Overview

Volpe Center engineers initiated development of Transview in 1996 and continue to enhance the software to meet the specific requirements of a number of project sponsors. As a result, TV32 has become a mature and reliable application currently serving as:

- the pilot navigation display for the Panama Canal and several ports in Central America.
- a rapid prototyping tool for the US Coast Guard Research and Development Center.
- the vessel traffic and system monitor for the Saint Lawrence Seaway AIS network.
- the display for the Vessel Identification and Positioning System (VIPS), a Department of Defense (DoD)-sponsored, secure, transponder-based surveillance system for use by harbor protection forces. VIPS integrates radar, AIS, and transponder tracks on a single harbor situation display.
- the prototype pilot and shore-side display for the Columbia River Pilots' AIS evaluation project.
- the display for the Maritime Safety and Security Information System (MSSIS) server, a project sponsored by Command Navy Europe / Command Sixth Fleet (CNE-C6F) and Component Command Maritime (CC-MAR) as an unclassified data network used to collect and disseminate commercial AIS transponder information .

The ability to quickly update and customize TV32 for use as a display system in many rapid prototyping projects is one of the key advantages of the software. Whether the goal is to enhance navigational safety, waterway efficiency, traffic situation awareness, force protection, or data analysis, TV32 can be configured or re-programmed to handle the display requirements. The intent in developing TV32 was not necessarily to evolve the application into a full-fledged, Electronic Chart Display and Information System (ECDIS), but to establish a multi-use display platform for evaluating new graphical presentation features and to rapidly implement novel ideas originated by its many users.

1.2 TV32 Features

TV32 capabilities are being developed which incorporate sponsor requests and recommendations into the software. This section highlights a few of the key features of TV32.

The basic function of TV32 is to display contacts, including AIS and radar, on a Graphical User Interface (GUI). This GUI can overlay the contacts on aerial imagery, raster navigation charts in the BSB format, or several other types of vector data. TV32 is also capable of:

- calculating the distance between any two points on the display.
- determining the *meeting point*, *closest point of approach*, estimated time of arrival, and cross track error of any contacts on the display.
- exporting data to OTH Gold, XML, or KML to be interpreted by another program. This can be done by streaming or by taking "snapshots" at fixed intervals.
- exporting contacts and their information (i.e. size, heading, etc.) to Google Earth via a KML file.
- monitoring the streams of data to determine statistics. This data includes latency, any outages, the number of unique contacts, and data flow rates from the source.
- recording and playing back logged data.
- sounding an alarm if a potential hazard could occur from a ship entering or leaving a zone specified by the user.

2. Installation and Set-up

2.1 System Requirements

- Windows 2000, XP, or Vista
- Minimum 1GHz CPU
- Minimum 500MB RAM
- Minimum 100 MB free hard disk space
- Internet connection (with firewall allowing outbound connection to MSSIS server on port 443 or 9000)

2.2 Obtaining an MSSIS Account and TV32 Software

You must have an MSSIS account user name and password assigned before logging on to the MSSIS servers. To request an MSSIS account and to receive instructions on how to obtain the TV32 software, please send an e-mail request to Volpe-ais@dot.gov with "Request for new MSSIS account" in the Subject Line.

In addition, please provide the following information in the body of the message:
- Name of the person making the request
- Agency or Organization
- Purpose for requesting an MSSIS account
- Two points of contact, including each person's telephone number and E-mail address

Once the account request has been submitted, an MSSIS representative will contact you. You will receive an account user name and password along with instructions on how and where to obtain the latest version of TV32 (version 7.7.4B).

Note: If you are a contractor or non-government personnel, a flag officer or a government official must initiate the MSSIS access request for you. Please include the contact information for both the contractor and the requesting official in the request.

2.3 Installing TV32

1. After you have received or downloaded TV32 (version 7.7.4B), open the Zipped file container. Then click and drag the file folder named "TV32_774B" (the only folder that appears immediately after the Zipped file is opened) to the desired location on your hard drive or an external USB drive. We recommend placing this folder on a shared-access drive for best compatibility with Windows' user account control restrictions.

2. Create shortcuts on the desktop for *Stunnel.exe* and *TV32.exe* by doing the following:
   - Open the "TV32_774B" folder you just dragged from the Zipped file container.
   - Open the folder labeled "Stunnel".
   - Open the folder labeled "bin".
   - Click on *stunnel.exe* and drag it to the desktop while holding down the keyboard *alt* key.

- Navigate back to the "TV32_774B" folder.
- Open the folder labeled "TV32".
- Click on *TV32.exe* and drag it to the desktop while holding down the keyboard *alt* key.

When finished, close out of all folders.

3. Double-click on the Stunnel shortcut that was just created. This starts up the program Stunnel. A Stunnel icon will appear on the bottom right of the Windows notifications area (next to the Windows system clock) once Stunnel starts running. More information about Stunnel ports and configuration is available in Appendix H.

4. Double-click the TV32 shortcut that you just created. You will be prompted with the following:
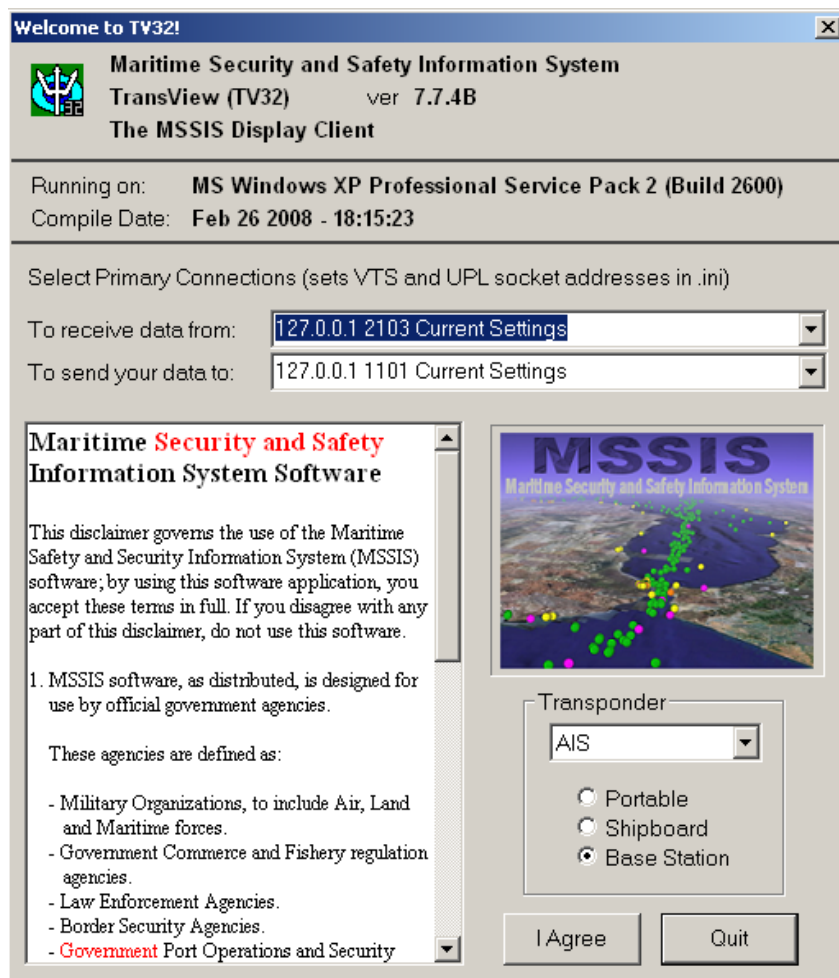

Leave the default "*To receive data from*" option as "*127.0.0.1 2103 Current Settings*" unless otherwise instructed.

Leave the "*To send your data to*" option as "*127.0.0.1 1101 Current Settings*" unless otherwise instructed.

If you have an AIS transponder, please select the type of transponder that you will be using (Portable, Shipboard, or Base Station). If the computer will not be connecting to an AIS transponder, you should leave it at the default setting.

Once you have read the disclaimer and agreed to its terms, click on "*I Agree*".

5. Next, you will be prompted with the following screen:
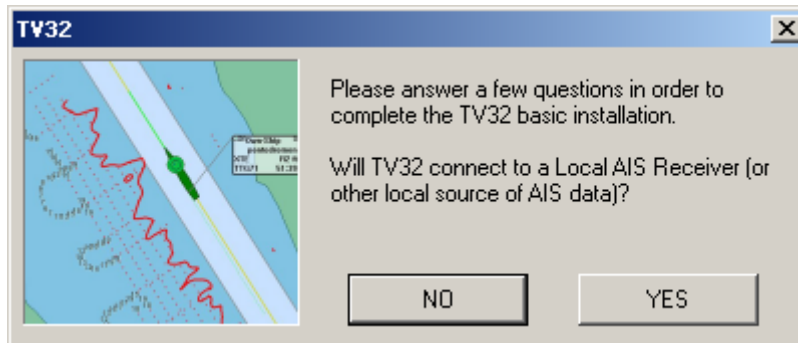
If you have an AIS receiver or base station connected to your computer system, click "*YES*" and follow the prompts to configure the data port as shown below. If you do not have an AIS receiver, you can click "*NO*" and proceed to step seven.

Clicking "*YES*" will bring you to this screen:
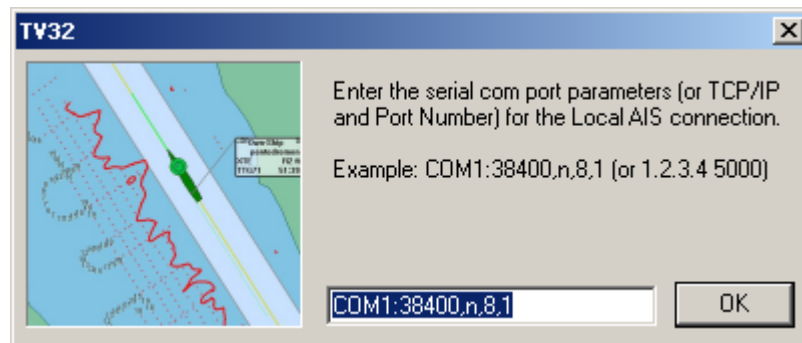
Enter the serial port settings for your AIS receiver. Usually the AIS receiver serial port is set to 38,400 bits per second (bps) with no parity, eight bits per word and one stop bit. For the screen example above, the AIS receiver is connected to the computer via serial port Com1 with the data communications parameters set to 38,000 bps, no parity, eight bits per word and one stop bit. For odd or even parity use the letter "o" or "e", respectively.

If you are connecting to a receiver or base station via a TCP/IP network connection, please enter the IP address of the device, followed by a space and then the IP port number. Example: 192.168.1.200 31415

Note: If you are using a USB serial adapter for connecting your AIS receiver/transponder to TV32, please see Appendix A for additional information on identifying the proper communications port.

6. The next prompt will look like this:
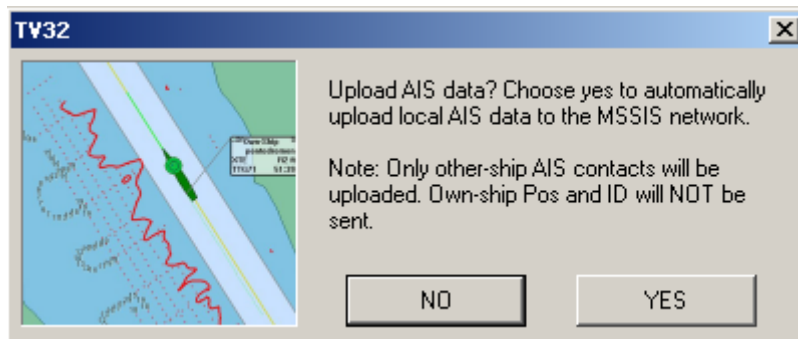
This prompt is asking whether or not you want to upload your AIS data to the MSSIS Server Collector. If you are planning on providing AIS track information to MSSIS, you should click "*YES*". If you do not want to send your receiver's AIS information, then click "*NO*" and skip ahead to step seven.

Clicking "*YES*" will make this prompt appear:
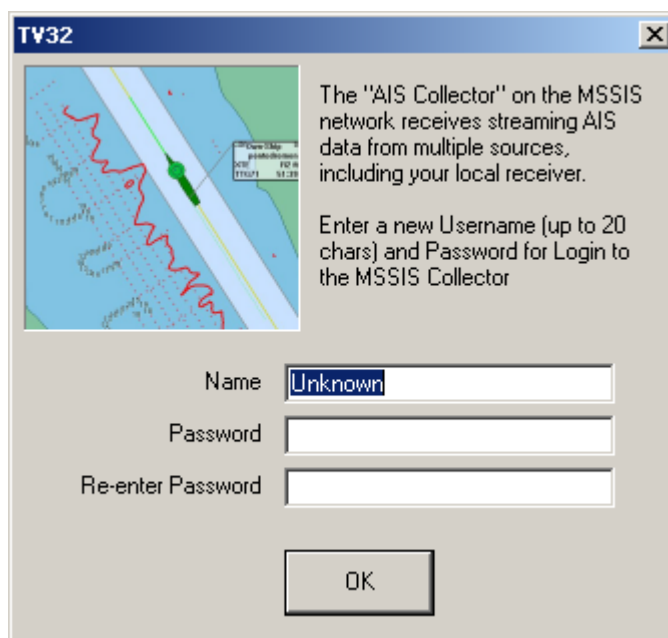
Enter the username and password that you were assigned by the MSSIS Accounts Administrator. If you do not have a username and cannot contact the person that provided you with the software, refer to section 2.2 on how to obtain an MSSIS user account. Click "*OK*" to continue.

Note: Passwords must be eight to sixteen characters and contain at least one number, one uppercase letter, and one lowercase letter.

7. Next is the section that defines whether or not you want to connect to the MSSIS Server Distributor to receive AIS data. You will be prompted with the following screen:
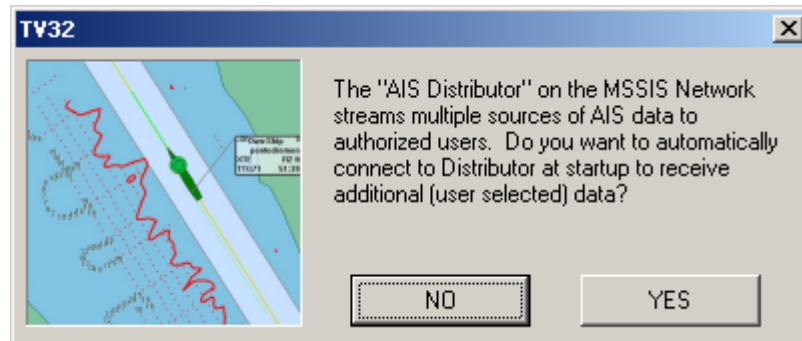
If you want the MSSIS server to stream AIS data to your computer, select "*YES*"**.** Otherwise, click "*NO*" and proceed to step eight.

The following screen appears if you select "*YES*":

If you are supplying data to MSSIS and have entered a username in the previous prompts, your username will be automatically displayed. If you did not, you will see "*Unknown*" as your user name. Typically the same username/password pair is used for both sending data to and receiving data from the MSSIS server (see step six). Enter the account name and password and click "*OK*" to proceed.
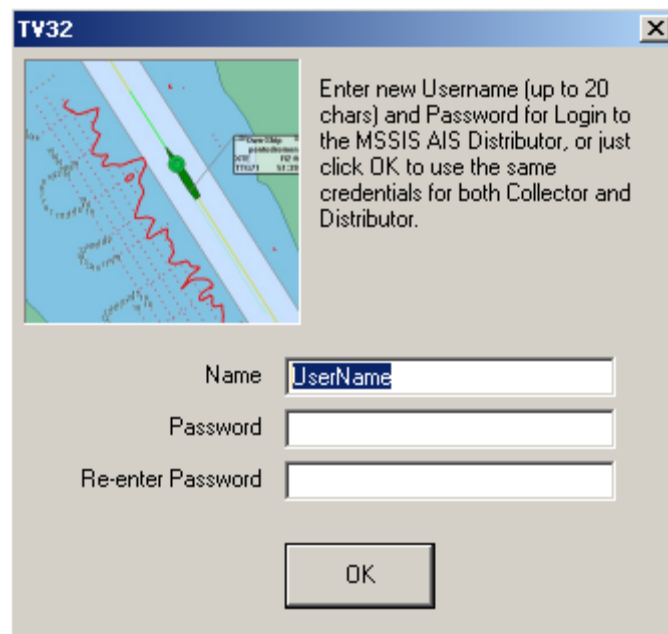
Note: Passwords must be eight to sixteen characters and contain at least one number, one uppercase letter, and one lowercase letter.

8. Once you have finished the basic TV32 configuration, you will see the following screen:
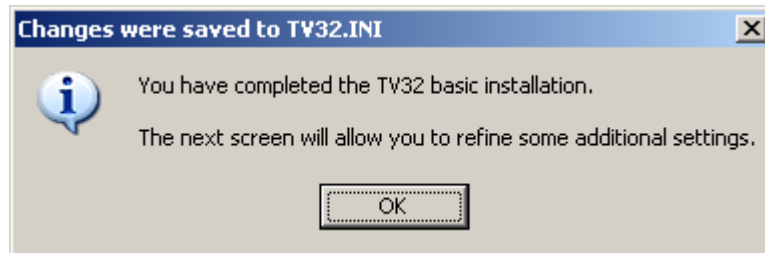
Click "*OK*", and you will now be presented with a TV32 configuration settings review page. You can just click "*Done*" unless you have a non-standard configuration.

## - Section	Keyname	Value ; Precede comments with a semi-colon
01 - [network]	VTS_IP_ADDR	127.0.0.1
02 - [network]	VTS_PORTNUM	2103
03 - [network]	VTS_CONNECT_AT_STARTUP	1
04 - [network]	VTS_USERNAME	user_accouunt
05 - [network]	VTS_IP_ADDR_ALT	127.0.0.1
06 - [network]	VTS_PORTNUM_ALT	2103
07 - [network]	VTS_SOCKET_TIMEOUT	60
08 - [network]	UPL_IP_ADDR	127.0.0.1
09 - [network]	UPL_PORTNUM	1101
10 - [network]	UPL_CONNECT_AT_STARTUP	1
11 - [network]	UPL_USERNAME	user_account
12 - [network]	UPL_IP_ADDR_ALT	127.0.0.1
13 - [network]	UPL_PORTNUM_ALT	1101
14 - [network]	UPL_SOCKET_FLAGS	0x01110001
15 - [network]	UPL_SOCKET_TIMEOUT	60
16 - [comports]	VTS	COM1:38400,n,8,1
17 - [comports]	AUX	COM0:38400,n,8,1
18 - [vessel layer]	iRemoveVesselAfterNSecs	1800
19 - [vessel layer]	iHideVesselAfterNSecs	1200
20 - [vessel layer]	iBlinkRedAfterNSecs	900

| Open TV32.ini... | Open Stunnel.conf... | | Undo Changes | Cancel | Done |

Once you click "*Done*" on the settings review page, TV32 will display the following message. Click "*OK*".

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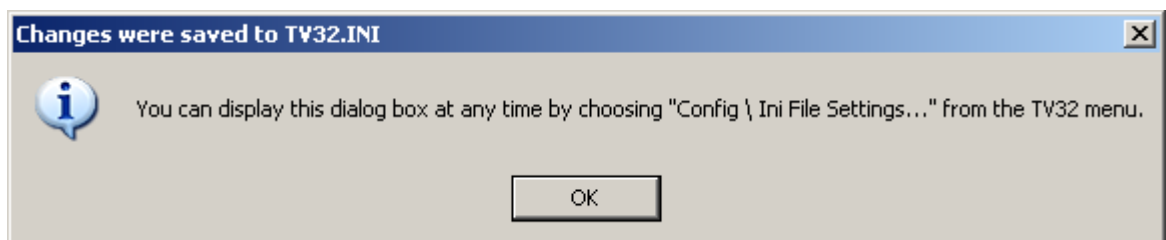
9. Now you have completed the TV32 software configuration. The program will restart and attempt to connect to an MSSIS server.

If connection with the MSSIS server is successful, TV32 will display a welcoming screen (as shown below).

Please see the next section, on TV32 startup issues, if the welcome screen is not displayed or if you get an error from TV32.

2.3.1 TV32 Startup Issues

If TV32 does not display the "*Welcome to MSSIS*" screen, the problem may be with:

- The MSSIS user account – Upon program restart, TV32 will prompt you again for your account name and password. Please accurately reenter the account information requested.

- Stunnel application not running – Stunnel creates an encrypted, or Secured Socket Layer (SSL), connection between your computer and the MSSIS server. If Stunnel is not running when TV32 starts, TV32 will notify you with the following message:

  "***Socket not connected. Make sure localhost App (ex: Stunnel) is running.***"

  If this appears, please start the Stunnel application (see TV32 installation steps two and three in this section).

- Accessing the internet – Stunnel connects with the MSSIS server on port 443 or 9000, depending on the settings in the Stunnel configuration file (*stunnel.conf*). If TV32 starts but does not display an error message and TV32 constantly tries to re-connect with the MSSIS server (as indicated by the *connection status box*, located at the bottom of the main display window), then your facility's firewall or network router is preventing TV32/Stunnel from making an outbound connection to the MSSIS server on TCP/IP port 9000 or 443.

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3. Starting TV32

1. You must run the Stunnel application before starting TV32. To run Stunnel, you can click on the shortcut you created during the installation of TV32 or go to the "Stunnel" folder, then the "bin" folder, and double-click on the *stunnel.exe* icon. The "Stunnel" folder is located within the "TV32_774B" folder.

2. Run TV32 by double-clicking on its shortcut or by running it directly from the "TV32" folder (which is also located within the "TV32_774B" folder).

3. When TV32 starts, it will display its initialization screen. Unless you need to change the server connection settings, please read the disclaimer message and click on "*I Agree*".
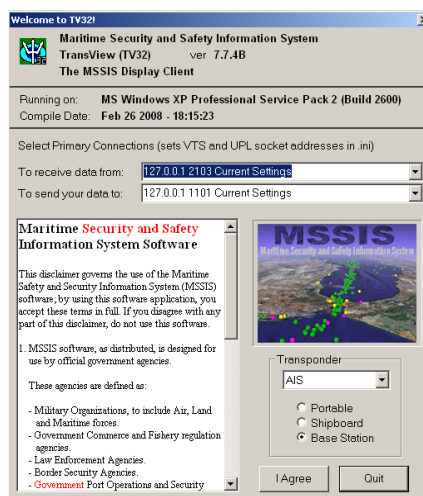
4. TV32 will now begin to load. Once the application has established a connection with an MSSIS server, it will prompt you with a request for your MSSIS account name and password.
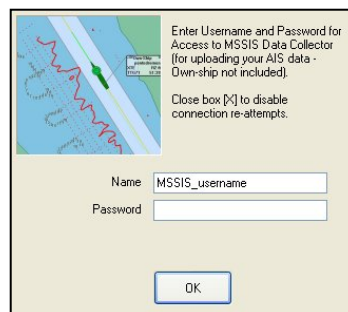
   Note: If TV32 does not display the login screen or if you receive an error message, please see section 2.3.1 for possible solutions to TV32 startup issues.

5. Once the correct account information is entered, TV32 will display the "*Welcome to MSSIS*" screen and will begin to load the vessel tracks.

Note: If the welcome screen is not displayed or if you receive an error message from TV32, please refer to section 2.3.1 on TV32 startup issues.

3.1. The Main Screen Display

Upon startup, TV32 will load the main display window. TV32 will start to display vessel tracks. If an AIS receiver/transponder is providing information to TV32, the own-ship icon will be displayed on the main display window.

Tool Bar Buttons

Navigation Panel
(Hidden by default)

Chart Display Window

Connection Status

Message Counter

Chart Scale Indicator
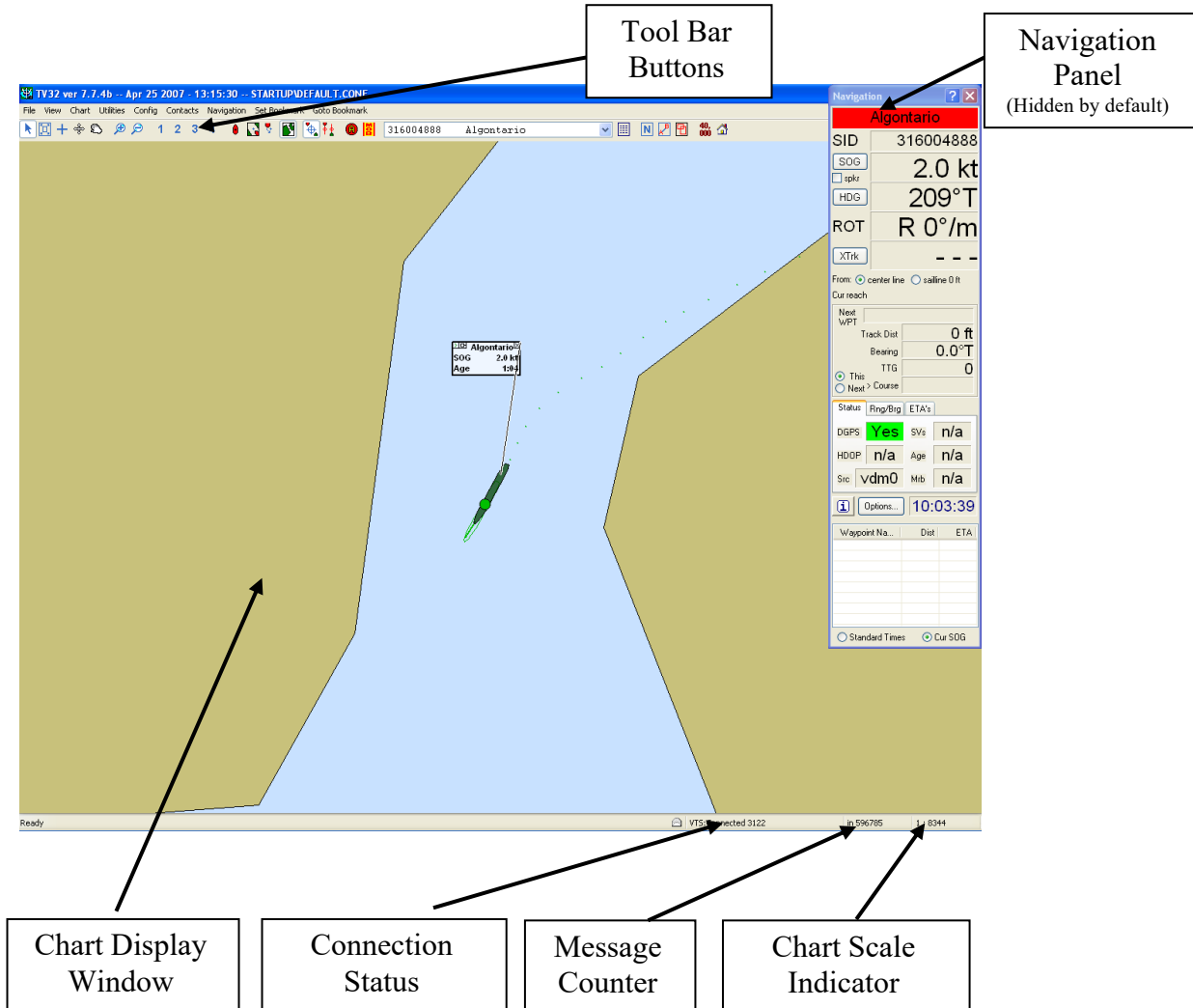
3.2 TV32 Icons and Colors

◄ Cargo, Tanker, Passenger (Underway)

◄ Cargo, Tanker, Passenger (Anchored)

◄ Unknown Vessel Type

◄ Law Enforcement/ Military

◄ All other (example: fishing)

◆ Towing/ Tug Boat

■ Dredge

▲ Pilot Boat

■ Pleasure Craft

b AIS Base Station

old MSSIS has not received data on the vessel for a certain amount of time (10 minutes by default)

old MSSIS has not received data on the vessel for a certain amount of time (15 minutes by default)

? Only one position report received since restarting TV32

✳ Not yet received static voyage report since restarting TV32

SAR Search and Rescue (SAR) aircraft equipped with AIS transponder

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Note: An extra, concentric ring on the vessel icon distinguishes own-ship from other vessels.

Own-Ship Icon　　**Other Transit Vessel**

3.3 Vessel Data Bubble

Data Bubble Tack-Down Indicator

Hide Field Labels ──────► ▷▣ S04B　　⊠ ◄── Close Data Bubble
　　　　　　　　　　　　 SOG　　　6.8 k
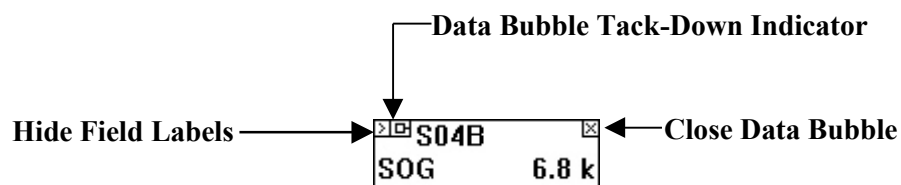
When you click on a ship, a *vessel data bubble* appears. The data bubble allows users to display a subset of the information that is available in the *Vessel Data Card* (VDC), or *Ship Particulars*. The content of the data bubble can be expanded or reduced by selecting or deselecting the check boxes within the VDC (*Ship Particulars*).

A data bubble can be tacked down, or kept in the same position on the screen, by placing the mouse pointer anywhere within the data tag and double-clicking with the left mouse button. The square symbol in the *Data Bubble Tack-Down Indicator* will change into a small circle. The data bubble will now remain in the same screen position regardless of vessel icon or chart movement.

3.4 Tool Bar Buttons

Note: To check the function of any tool, place the mouse pointer over the tool button without clicking. TV32 will display a small box identifying the function of that tool.

All tool buttons in the same group follow "radio button rules": only one tool may be selected at a time. Any tool may be selected via a single-click of the left mouse button.

3.4.1 The Display Controls

The display control group contains five tool buttons.

Once a particular tool has been selected, the cursor will change to match the appearance and function of the appropriate selected symbol.

3.4.1.1 Pointer

The *Pointer* mode is used for the following functions:

- Repositioning a ship icon's data bubble by dragging the bubble to the desired position.
- Viewing a ship's *vessel context menu* by positioning the pointer over a vessel icon and clicking with the right mouse button.
- Viewing a list of installed charts under the pointer location by positioning the pointer away from a vessel icon and clicking with the right mouse button.

An alternate method to activate the *Pointer* function quickly (besides selecting the *pointer* icon in the tool bar) is to position the cursor anywhere within the chart window and to click on the right mouse button to deselect the current mode.

3.4.1.2 Magnify View

The *Magnify View* tool allows the user to select a rectangular area to be enlarged such that the selected area will fit inside the main display window.

To select an area to magnify, begin by positioning the large crosshairs over the upper left corner of the area of interest. While pressing down on the left mouse button, drag the crosshair diagonally to the lower right corner. Once you are satisfied with your selection, release the mouse button to zoom in on the selected area. You can also place the crosshairs over a point on the chart and then click on the left mouse button to double the chart magnification and center that point in the main display window.

3.4.1.3 Center View

This tool redefines the center of the chart in the main display window. Move the small cross over the desired location. Then click on the left mouse button to reposition the chart.

3.4.1.4 Pan View

Begin panning by holding down the left mouse button. The chart will pan or scroll towards the direction of the cursor. The speed and direction of the panning movement is determined by the relative offset of the cursor from the chart center. The further displaced the cross is from the center of the chart, the faster the scroll rate. If the cursor is positioned directly over the center of the chart, no panning movement will occur.

3.4.1.5 Move View

The *Move View* tool allows the user to pan the chart in one fluid motion. Start by placing the *Move View* hand cursor over the desired location. Press and hold the left mouse button while maneuvering the mouse to move the chart. Release the mouse button to end chart movement.

Note: Other than the *Pointer* tool, selecting any other tools in the display control group will automatically change the map display to *Fixed Chart* mode (see section 3.4.4.4).

3.4.2 Magnification and Scale Control

This display group contains two tool buttons to control zoom.

3.4.2.1 Zoom In 2x

Each click on this button will result in a doubling of the chart scale.

3.4.2.2 Zoom Out 2x

A reverse of the previous, this tool will result in a halving of the chart scale.

3.4.3 Region Presets

The tool buttons in this group are configured to relocate the chart window to represent preset geographical areas. Please refer to Appendix B for details on how to create custom presets.

3.4.4 Vessel Display Controls

This display group controls the chart movement in relation to the selected vessel.

3.4.4.1 Ship-Centered

When selected, this mode maintains the selected vessel icon at the center of the display area. TV32 uses this mode as the default when the application first starts. Please refer to section 3.4.9 for information on how to select a vessel in TV32.

Note: Unless TV32 is connected to an AIS receiver or transponder, you must first select a vessel to apply this view.

3.4.4.2 Look Ahead

TV32 will continually adjust the chart to maximize the display area towards the direction of travel for the selected vessel.

Note: Unless TV32 is connected to an AIS receiver or transponder, you must first select a vessel to apply this view.

3.4.4.3 Auto Chart Advance

In the *Auto Chart Advance* mode, TV32 will allow the selected vessel to move about the chart freely until the vessel approaches the edge of the main display screen. At that time, the display will scroll the chart ahead again, placing the selected vessel near the opposite edge of the main display screen.

Note: Unless TV32 is connected to an AIS receiver or transponder, you must first select a vessel to apply this view.

3.4.4.4 Fixed Chart

In the *Fixed Chart* mode, the chart remains fixed, with no automatic chart scrolling. Selecting any of the move, zoom, or magnification controls will automatically change to the *Fixed Chart* mode.

3.4.5 Meeting Point

Note – This feature only works when the channel and waypoints are defined for a particular waterway. Otherwise refer to section 3.4.6, "Closest Point of Approach"

The *meeting point* is computed based on the speed and the expected course of travel along the channel between any two selected vessels. In the *Meeting Point* mode, TV32 calculates the distance between the two vessels, the location at which the vessels will meet, and the time remaining until they meet. The *Meeting Point* feature may also be used to predict the location at which one vessel will overtake another.

Before using the *Meeting Point* mode, the user may need to adjust the chart area so that both ships appear in the main display window. In addition, the *pointer* tool must be used to select the second vessel. Place the mouse pointer over the other intended target vessel icon and then right-click once to display the selection menu. Click on "*Set for Meeting B*". By default, TV32 will set your own ship as vessel "A".

Once two vessels are selected, the *Meeting Point* and the *Closest Point of Approach* (CPA) mode will be simultaneously activated on the toolbar. The blue, circular symbol indicates the current estimated meeting position with the TTG (time-to-go) and distance from each of the vessels to the estimated meeting location displayed. A semi-transparent blue circle will also appear on each of the two vessels selected for *meeting point* display.
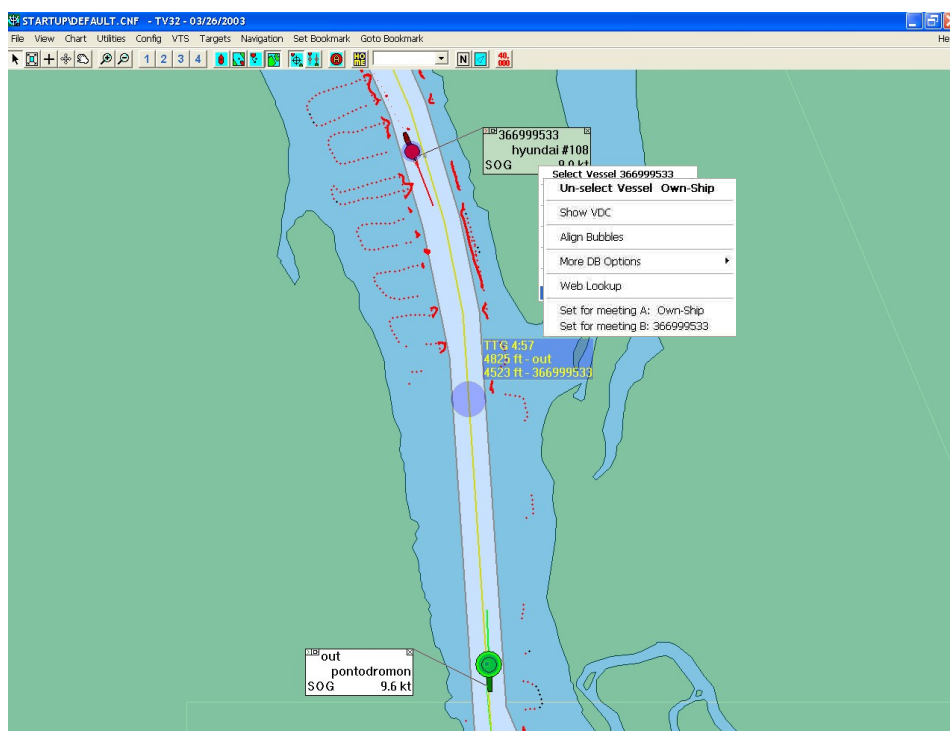
Note: By default, TV32 selects own-ship as vessel A for the *meeting point* computation. If a *meeting point* for two other vessels is desired, first select a vessel other than your own and choose "*Set for Meeting A*". Then select the other vessel and choose "*Set for Meeting B*".

3.4.6 Closest Point of Approach (CPA)

TV32 will display the CPA vectors between any two selected vessels. The procedure for vessel selection is provided in the *Meeting Point* section (section 3.4.5). CPA is automatically enabled when two vessels are selected for *Meeting Point* display. Clicking on the CPA button will toggle this feature on and off.

3.4.7 Alarm

When activated, the *Alarm* button will draw concentric boxes around your own ship's icon.

Note: The *Alarm* feature is used only for demonstration purposes.

3.4.8 Man Over Board (MOB)

Pressing the *Man Over Board* button will immediately drop a marker and initiate an elapse timer at the present location of own-ship. To clear the marker, press the MOB button again and answer "*YES*" to confirm the removal of the marker.

Note: Only one MOB marker can be activated at a time.

3.4.9 Selecting a Vessel

Clicking on the drop-down arrow will display a list of all units in AIS communications range. In the *Ship-Centered* mode (section 3.4.4.1), TV32 will automatically center the selected vessel in the chart window.

An alternate method for selecting a vessel is to right-click on the desired vessel icon to display the ship's *vessel context menu* and to then left-click on "*Select Vessel*". Target selection can also be made through the *Vessel List* (see next section).
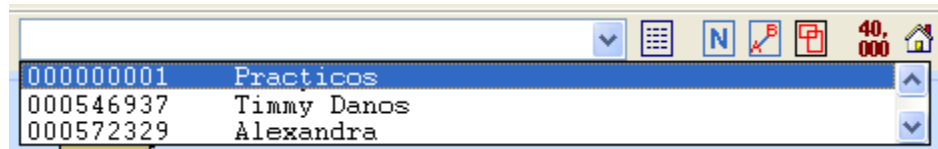
Note: When selecting a vessel other than own-ship for display or tracking, *beware that the data presented in the navigation panel is not your own ship's information.*

3.4.10 Vessel List

Pressing the *Vessel List* button will bring up a window containing all targets that are actively being tracked by TV32. The list can be quickly sorted by clicking on the heading for any data field. Information will be sorted alphanumerically in ascending or descending order. If it is in ascending order, click again and it will be sorted in descending order, and vice versa.

The bottom of the *Vessel List* window shows the number of vessels that are currently in view. The *Total* figure indicates the number of contacts being tracked. The *List All Contacts* check box determines whether vessels outside of the chart window should be listed. Deselecting this box will cause only those vessels that are currently in view within the chart window to be included in the list. Otherwise, every contact will be listed.

Vessel Name	Comms ID	IMO Num	Callsign	Type	Cargo	Destination	Dst ETA (UTC)	Nav Status	Lat
Jean Turecamo	366938440	7501077	WDB7213	52-Tug	0-AllShips			0-Underway(Engine)	40°39'17
John J Boland	366938780	7318901	WZE4539	7-Cargo	0-AllShips			4-ConstrainedByDraft	45°00'37
Jona Edvalds Sf-...	251059000	0	TFXL	30-Fishing	0-AllShips			15-NotDefined	64°14'52
K Marine 7	366898000	9202766	WDA6850	7-Cargo	0-AllShips		00/00 - 00:00	0-Underway(Engine)	28°03'38
Kandilousa	239354000	9081813	SYIF	8-Tanker	0-AllShips			0-Underway(Engine)	38°20'25
Kbv 050	265509160	0	SKIX	55-Law	0-AllShips			15-NotDefined	58°21'50
Khan	257370500	6708147	LGJD	52-Tug	0-AllShips			0-Underway(Engine)	58°58'16
Kjerringoey	257293400	7825588	LJIP	0-Unknown	Unknown			0-Underway(Engine)	67°26'20
Kossau	305122000	9356878	V2CV9	7-Cargo	9-NoInfo			0-Underway(Engine)	43°56'53
Kwintebank	245864000	9234288	PBGT	7-Cargo	0-AllShips			0-Underway(Engine)	55°14'22
Leconte	338761000	7318925	WZE4270	6-Passenger	0-AllShips			5-Moored	58°22'53
Ligrunn	259256000	7726691	LACT	30-Fishing	0-AllShips			0-Underway(Engine)	59°56'07
Linnea	257595000	7922295	LJKS3	8-Tanker	0-AllShips			0-Underway(Engine)	26°27'47
London Bridge	235403000	7928641	VSPU6	8-Tanker	1-HazCatA			0-Underway(Engine)	36°04'33
Lone Baand	219000034	6810158	OWHX2	7-Cargo	0-AllShips			0-Underway(Engine)	55°46'23
Lore D	304336000	8026282	V2CU	7-Cargo	0-AllShips			0-Underway(Engine)	54°47'26

Refresh In View 450 Total 450 ☐ List All Contacts ☐ Apply Filters   Search   Bookmark Selections ☐ Plot Bookmarks Only

By default, all vessels, regardless of vessel type, will be displayed by TV32. However, you can also change how TV32 displays or filters different categories of vessels by keeping the *Vessel List* open and clicking "*Contacts*" on the menu bar, then "*Filter*", and then selecting "*Type Filter*". A list of all vessel types will be shown. By clicking the check boxes of certain vessel types and choosing to either "*Show selected types*" or "*Hide Selected Types*", you can change how TV32 displays or hides these contacts when the *Apply Filters* check box is active at the bottom of the *Vessel List*.

You can also use bookmarks to display only those vessels you have selected through the *Vessel List* window. Select the vessel(s) of interest and then click on the *Bookmark Selections* button at the bottom of the *Vessel List* window. To apply the bookmark filter, click on the *Plot Bookmarks Only* check box. Once this feature is activated, only the vessels you have bookmarked will be shown on the main display screen. TV32 will display a "*Target Filtering On*" message in the upper left corner to remind the user that not all tracks are being displayed. In order to change the bookmarked vessels, "*Plot Bookmarks Only*" must first be unchecked. If desired, you can recheck the box again once the new vessels have been selected.

Note: You can select multiple vessels by holding down the *Ctrl* key while clicking on the vessels of interest.

The *Search* input box allows the user to enter a string of characters and have TV32 search through a list of all the vessels it is tracking. When a search is applied, TV32 will only display those vessel names that include the string of characters entered into the *Search* input box. To return to the original list of vessel names, erase the text in the *Search* input box and hit the *Refresh* button.

Note: To ensure that TV32 displays the proper settings, be sure to click on the *Refresh* button whenever a filter setting is changed.

An alternate method for selecting a contact is to double-click on the name of a vessel in the *Vessel List* window.

3.4.11 Target Names

This feature displays the vessels' names next to their icons. It can be toggled on and off by clicking on this button. The *Target Name* feature may be most helpful in reducing screen clutter when there are many targets in the system and displaying *vessel data bubbles* for all vessels would obscure large portions of the charting screen.

3.4.12 Distance Measurement Tool
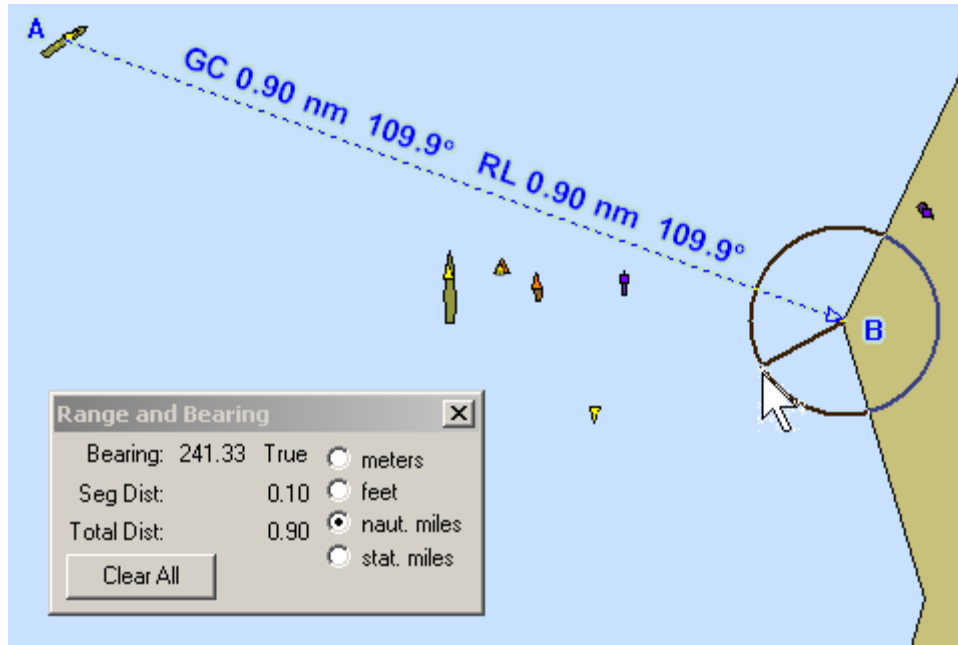
To measure the distance and bearing between two points on the chart, select the *Distance Measurement* tool. Then place the cursor over the starting location and press and release the left mouse button. Move the cursor to the second position and press the left mouse button. The distance and the relative bearing will be displayed.

Up to five continuous distance segments can be measured by relocating the cursor and clicking on the new location. In this mode, the cumulative distance will also be displayed.

To make separate or discontinuous distance measurements, press the right mouse button, and then move the cursor to a new location and begin the point selection process again.

Press the *Clear All* button to delete all measurement results.

3.4.13 Building an MSSIS Data Request
(Obtaining Data from Specific Regions)

Geographic areas and update intervals may be defined to thin the data stream received from the MSSIS servers. You are allowed to make up to three unique requests to tailor the data stream to meet individual requirements or manage bandwidth constraints. Please be aware that changes that you make will be saved next time you start TV32.

Building an AIS Request

Start by clicking on the *Build MSSIS AIS Request* icon on the toolbar:

Alternatively you can click *Config* → *MSSIS Settings* → *Build AIS Data Request* in the menu bar.

Once you are in the *Data Request* window, select which request you would like to build (Req #1 – Req #3). Do so by selecting one of the radio buttons at the top of the window, as shown here.
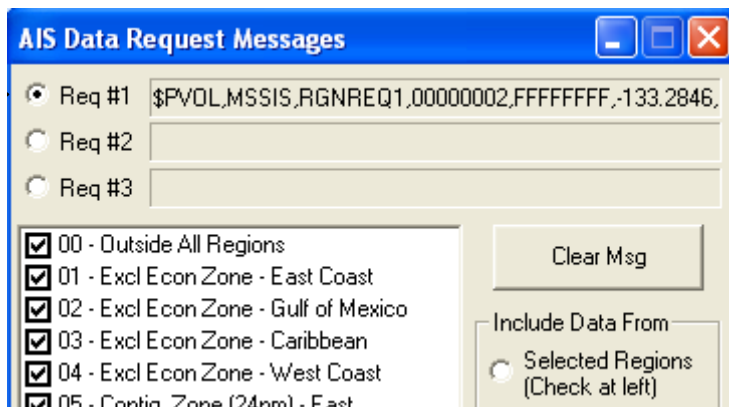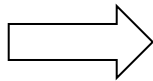
Type of Request
Next you need to decide what kind of request you would like to make. On the right side of the window is a section that looks like the following:
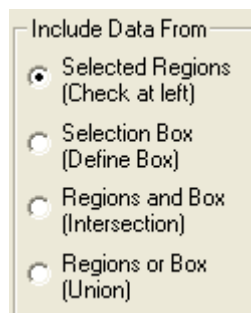
Selected Regions
To the left of this radio button is a list of regions that are defined by the server. You can check one to all of the regions. Below the region list you can clear all the checks or select them all by using the *Check All* or *Uncheck All* buttons.

Selection Box
This allows you to draw a rectangle of any size over any area. You will only receive data inside the rectangle that you draw.

Regions and Box (Intersection)
Here you draw a rectangle that intersects (overlaps) with a region. You will only receive contacts that are in both the region(s) you check AND the box that you draw. This is helpful if you are interested in only part of a defined region.

Regions or Box (Union)
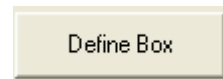This selection will give you data for checked regions PLUS the rectangle that you draw. This selection is helpful if you are looking to extend an already defined region.

Defining a Box
If you have clicked on a data request type that includes a box, the *Define Box* button is enabled.

Clicking this button hides the *Data Request* window and brings up a cross hair on the map. If you wish, you can zoom in and out just like you normally would before you draw the box. You can now define the box (any rectangle) by starting at one corner and moving the mouse to the opposite corner while holding down the mouse button. Release the mouse button to finish drawing the rectangle. At this point, the *Data Request* window reappears and a red rectangle is shown on the main display screen to represent the box you just defined. If you have defined another rectangle previously for a different request, it will be displayed as a box with a solid red line and the current data request will appear as a red rectangle with white dashes.

Select Report Rate
Next, you need to define the report rate at which the data for this request will come in. The time interval represents the minimum gap between consecutive real-time reports for each individual contact. If you select "*All Data*", you will receive every report. By selecting "*Unique Data*", you will not receive duplicate reports if the same reports are being sent by multiple base stations. To manage bandwidth utilization, most users are limited to a five minute (or slower) data rate.

Sending the Request
Once you have built and verified the specifics of your requests, click the *Send Requests* button located in the bottom, right corner of the window. If you are only sending one or two requests (instead of all three), verify that the unused one(s) are cleared so that you will not receive unwanted data. Do so by selecting the remaining request(s) and clicking the *Clear Msg* button located near the top right of the window.

Clearing Old Data
Even when TV32 has stopped receiving data for certain areas, the vessels that are not currently being tracked will still appear on the screen in the position that was specified in the

most recent data report. If you do not want these stagnant vessels to still appear on the screen, you must manually clear them. In the menu bar, select "*Contacts*", then "*Remove*", and then select from a list of options. You can either "*Remove all Contacts*" to clear every contact not currently transmitting data, "*Remove All In View*" to remove the old contacts that are displayed on the current screen, "*Remove All Not-In-View*" to hide the old contacts that are not on the current screen, or "*Remove All Single Reports*" to hide the vessels (even the ones that are still being tracked) until at least two reports have been received to verify their location. Choosing to "*Remove All Single Reports*" does not prevent vessels that have only sent one report from appearing on the screen in the future. It only clears the vessels from the current screen that are displayed as only having transmitted one report. As soon as a vessel receives a report after "*Remove All Single Reports*" has been selected, it will reappear on the screen even if it was initially hidden because this option was selected.

3.4.14 40,000 Chart Scale

Pressing this button will immediately set the chart scale to 1:40,000.

3.4.15 Home

The *Home* button offers an easy, single-step method of returning to an own-ship-centered display configuration with a chart scale of 1:20,000. This mode is useful for quickly returning the main display screen to your immediate vessel location.
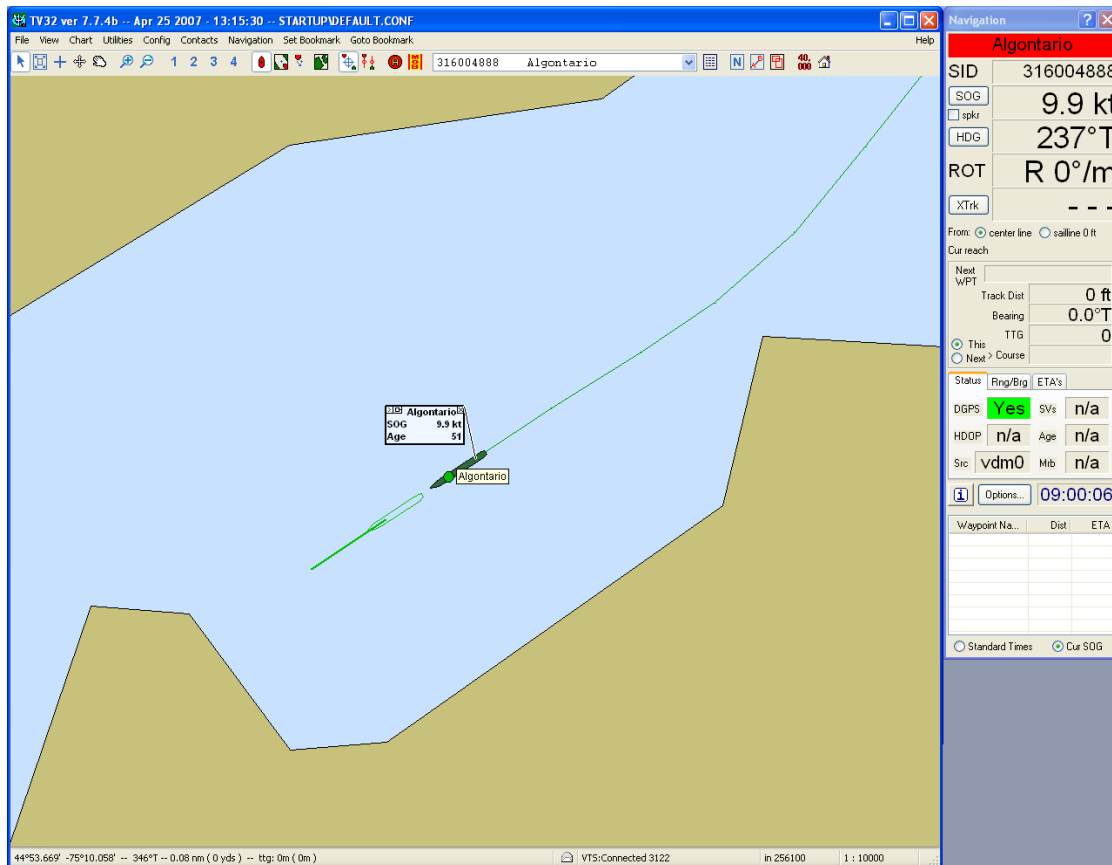
Note: TV32 continuously displays the latitude and longitude of the position of the cursor/pointer in the bottom, left corner of the main display window. Range, bearing and time-to-go (TTG) calculations are based on the currently selected vessel (e.g. own-ship for the example above) in relation to the pointer.

Appendix A. Identifying COM Port Number for USB to Serial Adapter

If you are using a USB to serial adapter for connecting an AIS receiver to your computer, the Windows driver will assign a 'virtual' com port to the device. You will need this com port number to make TV32 run. In most cases the port number assigned to the adapter will remain unchanged between uses, but there have been instances where the adapter's port number was changed when the computer system recovered from either standby or hibernate mode. If this occurs, you may need to reenter the communications parameters in TV32.

Go to the *Windows control panel* (found under the *Start* menu) and double-click on the *System* icon.

Click on the *Hardware* tab.
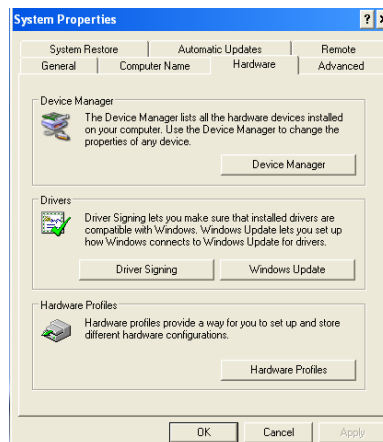
Then click the *Device Manager* button. A tree structure will be displayed and there will be a selection called *Ports*. Click the "+" to its left to expand this item. You should see several ports listed (i.e. COM1, COM2, etc.). This is a list of all serial communication ports available on your system. The name associated with each communications port may help you in determining which com port Windows has assigned to your USB adapter.


Once the com port number has been identified, enter the communications port information as indicated in step five of the TV32 installation procedure in section 2.3.

Appendix B. Customizing Region Presets

It is possible to change TV32's *region preset* buttons to refer to areas other than the default regions. The displayed area for each of the four preset buttons can be individually customized by the user.

1. Zoom, pan or reposition the main display screen to the desired area and chart scale.
2. Click "*View*" on the menu bar and select "*Set View Buttons*".
3. Select one of the four preset buttons to assign the view area you created in step one.
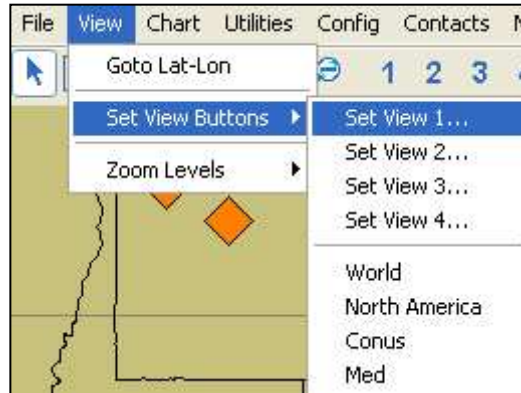
4. Enter the name you want to associate with this preset view and then click on the *OK* button to complete customizing the preset button.

5. If desired, please follow steps one through four to customize the remaining preset buttons.
6. Modifications to the settings associated with the *region preset* buttons are temporary. If these settings are not saved to the startup file, the changes will be lost when TV32 is restarted. To save your Region Presets permanently, click "*File*" on the menu bar and select "*Save Startup File*". When the "*Save As*" window appears, click on the *Save* button. Upon program startup, TV32 always reads the settings in the *Default.conf* file for previously saved settings.

Appendix C. Recording Log Files

You can set TV32 to record the data that it is receiving. The stored log files are unaltered, with the exception of a time stamp that is appended to the end of each data message for indexing the playback time. You need to turn on the *record* function before TV32 will start storing the incoming data on your computer.

To start recording incoming data:

1. Click "*Utilities*" on the TV32 menu bar and select "*Record Log File*".

2. To confirm that TV32 is in the recording mode, click "*Utilities*" (on the menu bar) again and verify that a checkmark is now next to the *Record Log File* selection.

Note: TV32 stores the recorded files in the "Logs" folder, which is within the "TV32_774B" directory (the folder that you used when installing TV32). Within the "Logs" folder are twelve numbered subfolders, where the number of each subfolder represents a specific month of the year (e.g. the 07 subfolder represents data stored in July). As long as your local computer system's date and time are correct, on March 3, 2008, TV32 would record the file as *20080307.log* in the "03" folder of the "Logs" directory.

Based on the system time of your computer, TV32 will start a new file at midnight and date stamp the file in a year, month and day file format. If the TV32 session was stopped and restarted on the same day, the program would append the new recording to the end of the previously created log file of that day.

Appendix D. Playback of Log Files

To play back a previously recorded log file:

1. Turn off or disconnect real-time feeds from TV32. This is to avoid confusion between real-time contacts/tracks and those that are generated during playback. If TV32 is connected to the MSSIS server through Stunnel, go to the Windows notifications area and right-click on the Stunnel Icon (one of the icons located to the left of the Windows system clock). Next, choose "*Exit*" to terminate Stunnel's connection to MSSIS.

2. Click on "*Utilities*" and select "*Playback Log File…*".

3. Select the log file you want to play back by clicking on the *Open File* button within the *Playback* window. By default, TV32 stores the recorded files in the "Logs" folder (see Appendix C for more information on how TV32 stores log files).
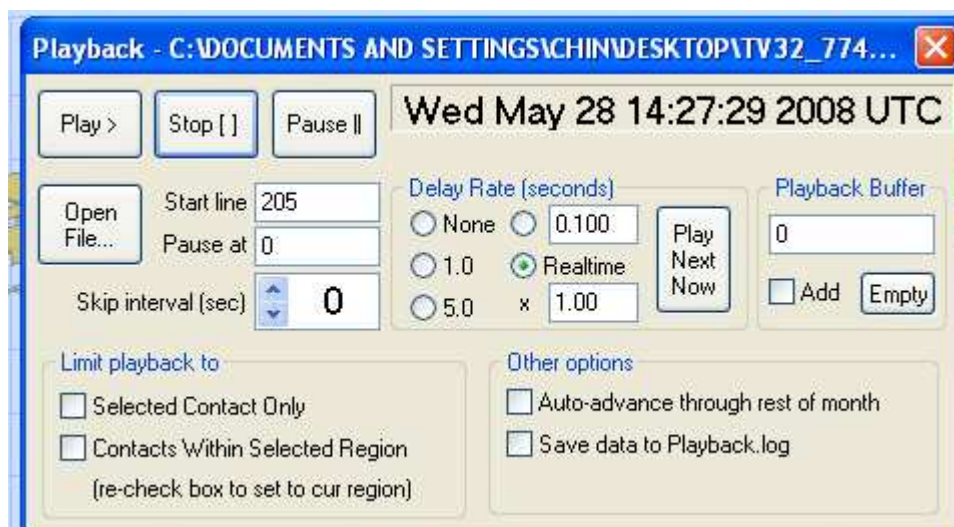
4. After you have selected the file, click on the *Play* button to start the playback.

D.1 File Playback Controls

Play > – Once you have selected the file for playback, click on the *Play* button. This will start the playback process. By default, TV32 will start the replay at the beginning of the log file. However, you may enter a starting line number, if known, in the *Start Line* counter field to skip to that point when starting your playback.

Stop [] – The *Stop* button is used to stop the playback. You can then click on the *Play* button to restart the playback.

Pause || – The *Pause* button is used to temporarily stop the playback and retain the current position of the playback counter. Once you have clicked on the *Pause* button, it will change into a *Resume* button, indicating that the playback is in pause mode. Clicking on the *Resume* button will continue the playback.

Start line – The *Start Line* counter indicates the number of messages TV32 has read. You can manually enter a line number to start playback at a point further into the log file. This is useful for playing back an event without starting at the beginning of the file.

Pause at – By default, file playback is completed at the end of the file. However, if a number other than zero is entered into the *Pause at* data field, TV32 will automatically stop the playback once reaching that line number.

Skip interval (sec) – Increasing the *skip interval* will allow TV32 to ignore those records that are within the selected time interval. For example, if the *skip interval* is set to sixty, TV32 will apply a global filter to all tracked vessels so that all vessel positions are updated only once every minute. This will speed up playback and may help to quickly advance to a time of interest in the log file.

D.2 Delay Rate Section

The settings in the delay rate section are used to control the speed at which the log file is played back.

Realtime – Selecting "*Realtime*" with a 1.00 in the *time multiplier* field (located directly below the *Realtime* radio button) will allow the file to be played back at the actual recorded rate. Changing the *time multiplier* number will increase or decrease the playback speed. To activate a change in the *time multiplier* field, be sure to reselect the *Realtime* radio button.

None – Selecting the *None* radio button will allow TV32 to play back a file at the maximum possible rate. The speed at which the file will be replayed will depend on the data processing capability of the computer.

1.0 – The *1.0* radio button sets the playback speed to normal time.

5.0 – Selecting the *5.0* button slows the playback to one fifth of the normal rate.

Play Next Now – Clicking on this button will skip time gaps (i.e. data recording was stopped and then restarted later) in the data file during playback. This feature is particularly useful when there is a large time interval where no data was recorded and TV32 must wait for that time duration before continuing the playback.

D.3 Limit Playback to

Selected Contact Only – When this box is checked, only the selected vessel will be displayed during playback.

Contacts Within Selected Region – During activation of this feature, TV32 "remembers" the geographic display boundary. If the display area is later expanded or panned, TV32 will not plot any vessel outside of the "remembered" boundary.

D.4 Other Options

Auto-advance through rest of month – When this option is enabled, TV32 will attempt to look for subsequent log files representing each day after the playback of the current file. TV32 will continue the replay process until the last file for the month has been played. It will stop if a day is missing in the sequence of log files. Note: TV32 will only search for files in the folder within which the first file was selected for playback.

Save data to Playback.log – If this box is checked, TV32 will save the data from a playback session to a log file named *Playback.log*. This file is stored in the "Logs" folder. If a *Playback.log* file already exists, TV32 will append the new saved data to the file.

D.5 Playback Buffer

Add – When selected, the *Add* buffer will extend the history trail to all tracked vessels.

Buffer Counter – This counter is incremented as more vessel trails are stored in the buffer.

Empty – Clicking on this button will delete the stored history buffer and reset the buffer counter.

Appendix E. Receiving and Displaying AIS Text Messages


AIS Text Message Indicator
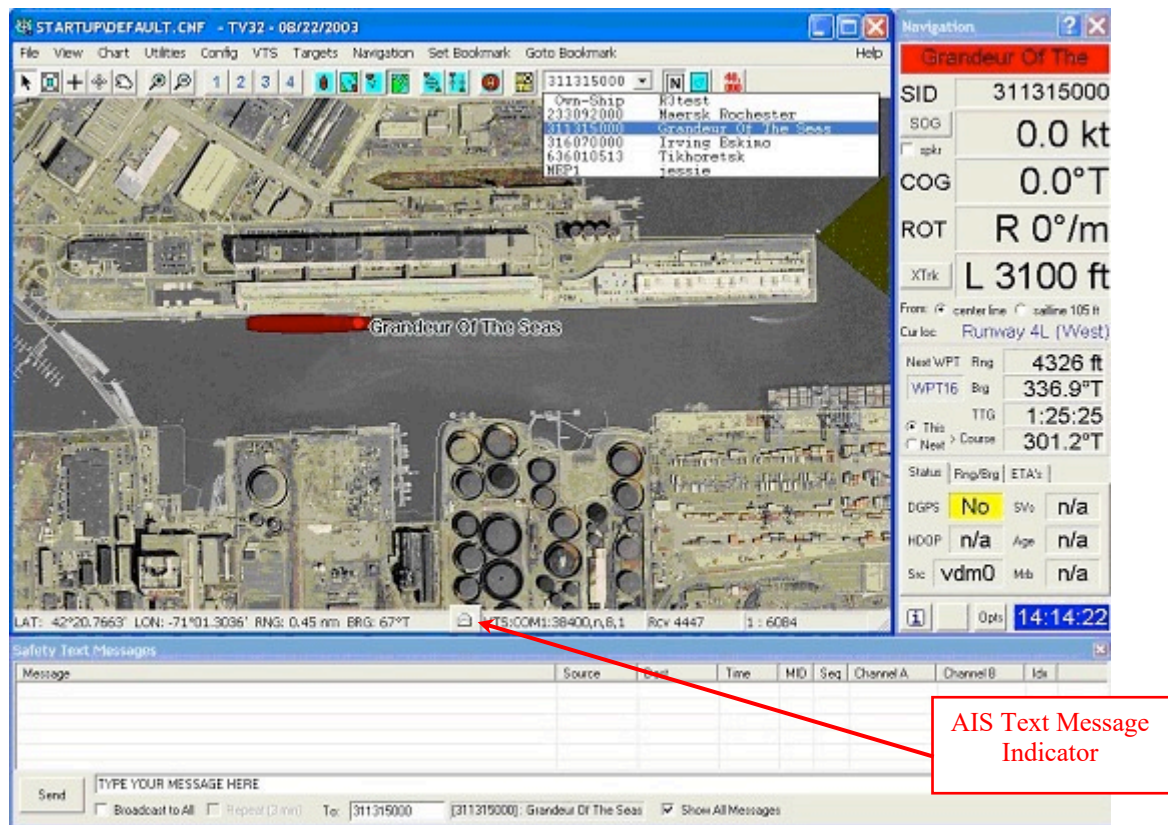
When an incoming message is received, the *envelope* icon will turn bright green. Click on the icon to open the *message* window. Every message, whether transmitted or received, will be sorted in chronological order. The message queue has the capacity of storing up to one hundred messages. When the number of messages exceeds the number of lines in the main display window, a scroll bar will be available to allow you to view the messages that are outside of the displayed message area.

A message is considered read when the user double-clicks on its message line. The *envelope* icon to the left of the received text will change from closed to open.

Appendix F. Alarm Zones

F.1. Creating an Alarm Zone

Alarm zones can be created by using TV32's polygon drawing tool. To access the *Draw* tool, click on "*Utilities*" in the menu bar. Select "*Tools*", then "*Draw*" to bring up the *Draw* options window.
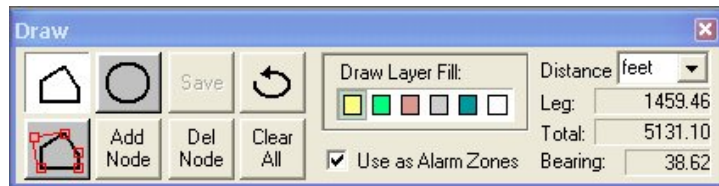
By default, the *Freehand Polygon Draw* tool will be selected when the *Draw* window opens. Begin drawing the zone by moving the cursor to the desired chart location. Then left-click and drag the mouse to draw the first segment. Click the left mouse button again at the point you want the current line segment to end. Continue to draw your alarm zone polygon until all segments are completed. To stop adding additional perimeter segment lines to the polygon, press and release the right mouse button. At this point, you may start drawing another zone by repeating the previous steps. The distance and bearing for each line segment are calculated to help the user to draw a more precise alarm zone.

The *Draw Circle* tool allows you to quickly define a circular alarm zone area. To draw a circular zone, start by moving the mouse cursor to the desired chart location and placing the pointer at the center of the zone you wish to create. Press and release the left mouse button and move the pointer to define the radius of the circle. The radial distance of the circular zone being drawn will be displayed on the right of the *Draw* window.

The *Node Display* button allows the user to edit the alarm zones. When this button is pressed, the nodes of all defined zones will be displayed as red squares. Each node may be moved simply by a click and drag of the mouse. Note: The *Node Display* button must be depressed in order to add, delete, clear or save nodes to the polygons.

Additional nodes may be inserted into a polygon by first selecting an existing node and then pressing the *Add Node* button. The node can then be dragged to the desired location.

A selected node may be deleted by using the *Del Node* button.

The *Save* button will save all drawn polygons to a file named *DRAW.BDY* in the "TV32" folder. TV32 will load the polygons stored in this file each time the program is restarted. These polygons will be used as a static alarm zone by TV32.

Pressing the *Clear All* button will remove all defined alarm zone polygons from program memory. If there is one alarm zone among many that you wish to remove, it is recommended that you use the *Del Node* tool instead.

Draw Layer Fill:

The color of the alarm zones may be changed by selecting the desired color in the *Draw Layer Fill* box. Note: The selected fill color will be applied to all alarm zones.
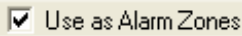
☑ Use as Alarm Zones

By default, TV32 uses the polygons and circles drawn as active alarm zones. Deselecting the *Use as Alarm Zones* checkbox will disable alarm zone functions.

F.2. Setting Alarm Criteria for Individual Targets

The interaction between individual targets and an alarm zone can be customized by the user via the VDC (*Ship Particulars*) information panel.

The VDC (*Ship Particulars*) information panel can be accessed by placing the mouse pointer over a vessel contact and clicking on the right mouse button. Next, select the *VDC* (*Ship Particulars*) option to open up the information panel. Use the *Alarms* tab in the VDC (*Ship Particulars*) to change the behavior of the alarm zone for the vessel. Note: Any changes made in the *Alarms* tab will only affect the currently selected vessel.
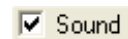
☑ Sound

The *Sound* check box enables or disables the audio alert when the vessel violates the set alarm condition.

SOG (kt) 0.0
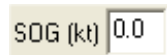
By entering a speed limit in the *SOG (kt)* data field, TV32 will trigger an alert when the vessel exceeds the set speed.
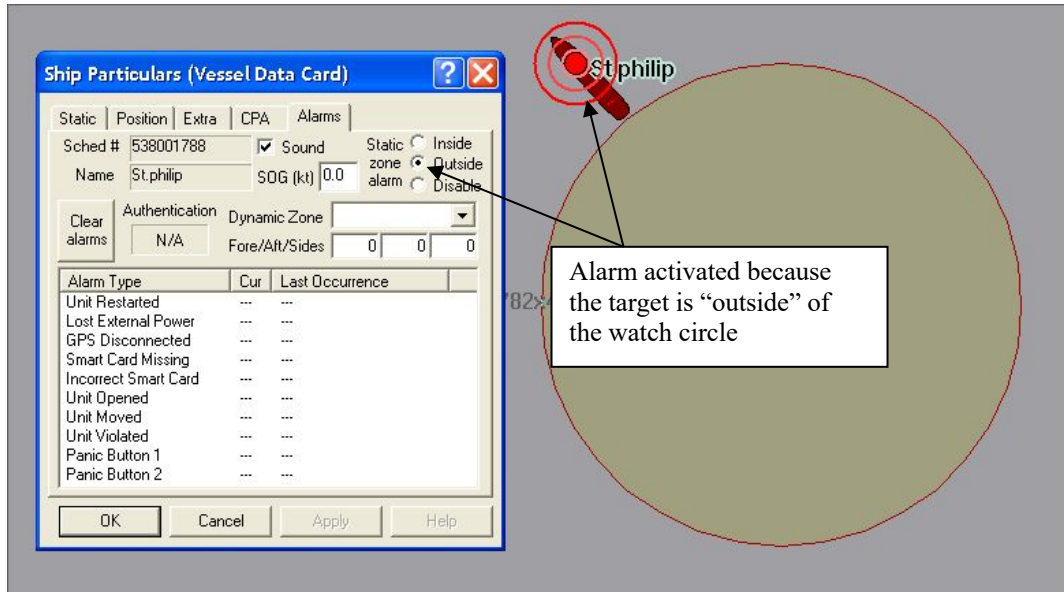
F.3. Target Inside an Alarm Zone

By default, TV32 will trigger and sound an alarm whenever a target has moved inside an established alarm perimeter. This feature is best used for detecting a target that has entered into a "protected" or "watched" zone.

Alarm activated because the target is "inside" the static alarm zone (default setting)
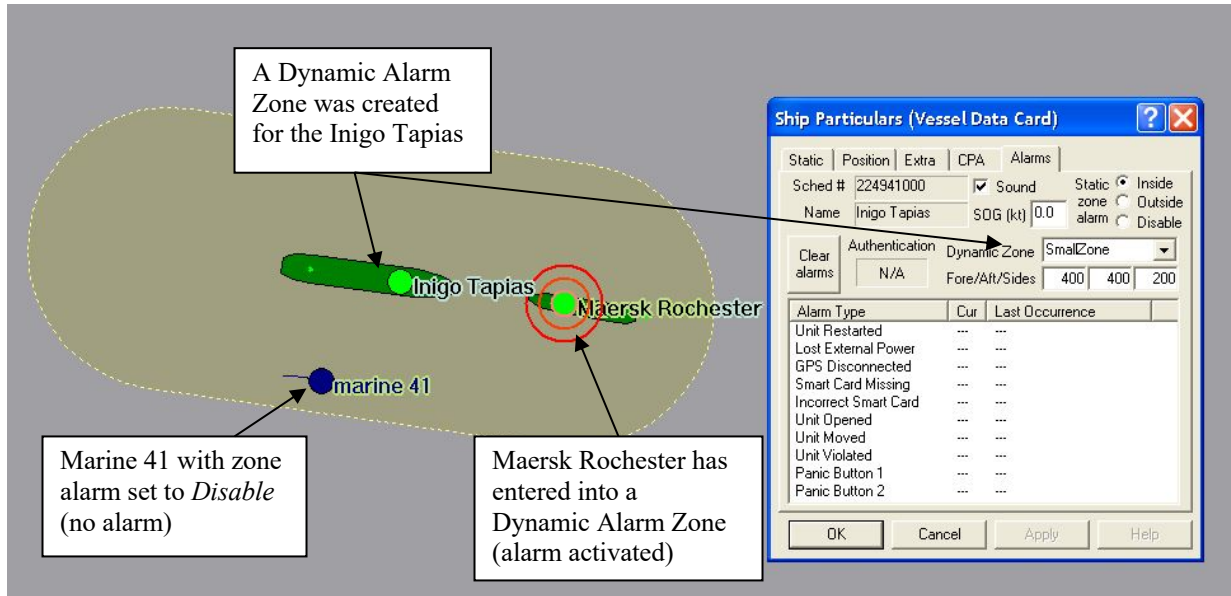

38
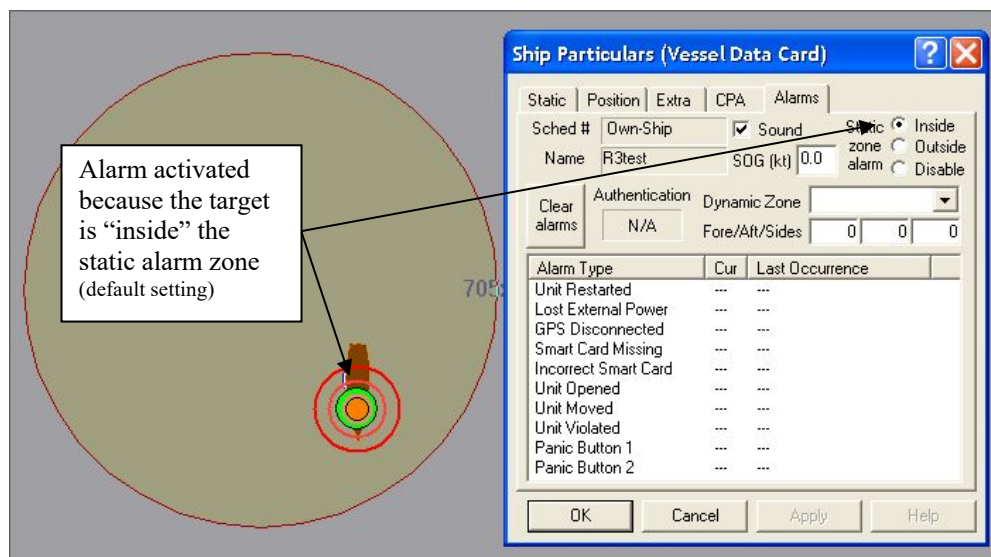
F.4. Target Away from an Alarm Zone

When the static zone alarm is set to "*outside*" for an individual vessel, an alarm will be triggered if that vessel leaves any zoned areas. This feature may be useful for establishing an anchor watch for a vessel or for alerting watch personnel when a vessel has deviated from its established operating area.

Note: Since this alarm zone configuration takes place in the VDC (*Ships Particulars*), the alarm settings will only affect the selected vessel.

F.5. Dynamic Alarm Zone

A Dynamic Alarm Zone was created for the Inigo Tapias

Marine 41 with zone alarm set to *Disable* (no alarm)

Maersk Rochester has entered into a Dynamic Alarm Zone (alarm activated)

As its name implies, a *dynamic alarm zone* is associated with a vessel rather than a fixed geographic area. When a *dynamic alarm zone* has been set for a specific vessel, the zone will move with the vessel so that it continuously surrounds it. Any other vessel entering the zone will trigger an alert.

In the screen-shot shown above, a dynamic protection zone was established around the vessel Inigo Tapias. The size of the zone is determined by the *Fore/Aft/Sides* settings. These distances are in meters*. Marine 41 is a harbor patrol craft with its alarm disabled. However, the Maersk Rochester's alert was set at default, with the zone alarm setting remaining as "*inside*". Therefore, the alarm of the Maersk Rochester will be triggered when it enters into the *dynamic alert zone* of the Inigo Tapias.

* Note: Alarm zone distances are expressed in feet.

Appendix G. Using Google Earth with TV32

### G.1. Enabling TV32 for Google Earth

From the TV32 dropdown menu bar, click on "*Utilities*", then on "*Tools*", and select "*Write KML Files*". Once this feature is enabled, TV32 will write and update the vessel tracking files for display on Google Earth. These files are stored in a folder named "Data", which is inside the "TV32" folder. Once the *Write KML Files* feature is enabled, TV32 will generate and update a file called *Tracks.kml*.

Note: Running TV32 and Google Earth on the same computer can be extremely processor-intensive. In order to prevent potential system performance issues for a typical computer system, by default TV32 limits the number of tracks displayed on Google Earth to five hundred, with a ten second refresh rate. In addition, you must re-enable the *Write KML Files* function each time you start TV32.

G.2. Linking Google Earth to TV32 KML Output Files

1. You must first download and install Google Earth on your computer. You can obtain a copy from the following web link: http://earth.google.com/
2. After enabling the function to generate KML files in TV32 and ensuring that the Google Earth application is running in full view, place your mouse pointer over "*My Places*" (located on the left panel under Google Earth's *Places* section) and click on the right mouse button to bring up the section menu.
3. Next, left-click on "*Add*" and then click on "*Network Link…*"
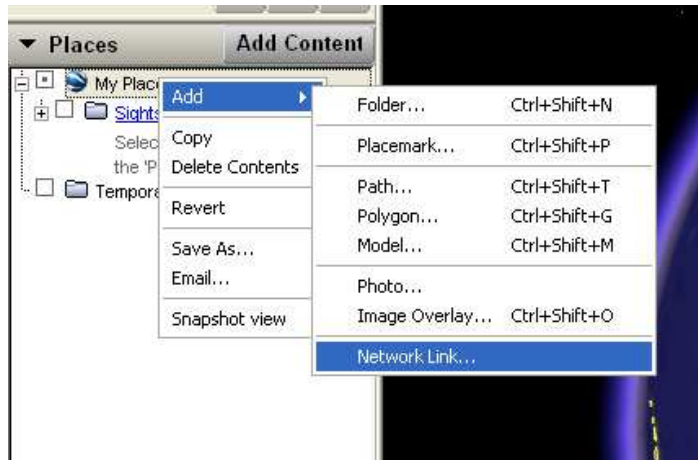
4. Rename the new Google Earth link "TV32 Tracks" (or another similar name) in the *Name* field.
5. Click on the *Browse* button and navigate to the "Data" folder (which should be under Desktop → TV32_774B → TV32 → Data).
6. Locate and select the file named *Tracks.kml*.

7. Click on the *Refresh* tab. Under the *Time-Based Refresh* section, change the settings for "*When"* from "*Once*" to "*Periodically*" and increase the refresh time to ten seconds or more.
8. Next, turn on the *Fly to View on Refresh* feature by clicking on its check box.
9. Click on the *OK* button to complete the procedure.

Note: These settings will allow TV32 to control the zoom, pan and tilt angle of the Google Earth display. To see vessel icons drawn to actual scale and orientation in Google Earth, zoom in on the area of interest in TV32 until the vessel icons are shown in actual scale. Google Earth will now automatically pan and zoom to the exact geographic location, synchronized with the TV32 main display window. In addition, if a vessel is selected in TV32, Google Earth will change the display orientation and viewing angle to follow the selected ship.
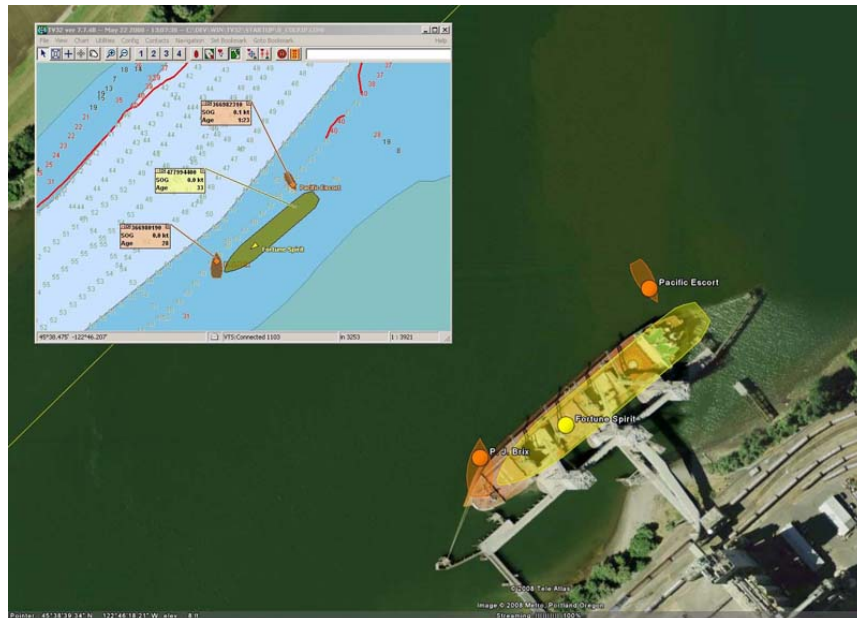
TV32 zooms into an area of interest without a vessel selected

The Fortune Spirit is selected in TV32; Google Earth automatically follows the vessel

Appendix H. Stunnel Configuration

Stunnel creates an encrypted, or Secured Socket Layer (SSL), connection between your computer and the MSSIS server. TV32 communicates with the MSSIS server through the Stunnel interface application. In turn, Stunnel uses IP port 443 or 9000 to establish an SSL-encrypted tunnel between your computer and the server. Therefore, the firewall/router at your facility must allow Stunnel to establish an outbound connection using either one of these ports.

The Stunnel configuration settings in the *stunnel.conf* file determine which port your computer will use to establish a connection with the MSSIS server. This file is located in the "Stunnel" folder, which is within the "TV32-774B" folder.

H.1. Configuring Stunnel for Port 443

1. Locate and open the "Stunnel" folder.
2. Open the "config" folder.
3. Rename *stunnel.conf* as *stunnel-backup.conf*. Do this by double-clicking on the name "*stunnel.conf*" and then editing the text.
4. Make a copy of the file named *stunnel_443.conf* in the current folder. Do this by right-clicking on the *stunnel_443.conf* file, selecting *copy* and then right-clicking anywhere else in the folder and selecting *paste*.
5. Rename the copied *stunnel_443.conf* file as *stunnel.conf*.
6. Now Stunnel will use port 443 to connect with the MSSIS Server.

H.2. Configuring Stunnel for Port 9000

1. Locate and open the "Stunnel" folder.
2. Open the "config" folder.
3. Rename *stunnel.conf* as *stunnel-backup.conf*. Do this by double-clicking on the name "*stunnel.conf*" and then editing the text.
4. Make a copy of the file named *stunnel_9000.conf* in the current folder. Do this by right-clicking on the *stunnel_9000.conf* file, selecting *copy* and then right-clicking anywhere else in the folder and selecting *paste*.
5. Rename the copied *stunnel_9000.conf* file as *stunnel.conf*.
6. Now Stunnel will use port 9000 to connect with the MSSIS Server.

Appendix I. Setting up TV32 to Distribute Data to Multiple Local Computers

TV32 can be configured to act as a local client and server so that several computers can receive the MSSIS data stream from a single TV32 connection. This can be done by configuring one instance of TV32 to serve as the primary connection to the MSSIS server while distributing the feed to up to twenty other local, networked computers running TV32. This configuration will reduce the bandwidth usage through the Internet connection.

The following are some considerations to take into account when determining if this setup is feasible:

- All the computers must be on the same network. The secondary computers need to be able to make a TCP/IP connection to the primary computer.
- The primary computer has to be on and logged into the MSSIS server for data to be displayed on any of the secondary computers.
- Only the primary computer will be able to request specific data and data rates from the MSSIS server. If the primary computer requests to receive data from a certain region and/or at a particular update interval from the MSSIS server, then all the secondary computers will also receive the same data set as the primary one.

Once TV32 software has been successfully installed on the primary computer and can log on to the MSSIS server, follow the instructions below to configure TV32 to distribute MSSIS data to multiple (secondary) local computers.

I.1. Configuring TV32 on the Primary Computer

1. Close TV32 and navigate to the *TV32.ini* file, located in the "TV32" folder, which is within the "TV32_774B" folder. The *TV32.ini* file may appear in Windows as just "TV32", accompanied by a logo of a gear on top of a notebook (Microsoft Windows' default icon for *ini* files). Double-click the icon to open the file in the computer's default text-editing software.

2. Use the *find* function to search for the string "AcceptedConnectionPort". The *find* function can usually be accessed by holding down *CTRL* and then pressing the *F* key or by clicking "*Edit*" and then "*Find*" in the text editor's menu bar.

   You should see the following entries:

   ```
   AcceptedConnectionPort=0
   AcceptedConnectionPort2=0
   ```

   By default, both ports are set to zero (external connection is disabled). For TV32 to accept connections from secondary computers, replace the zeroes with the desired port numbers. Note: Each port can support up to ten simultaneous secondary connections.

For example, if you are going to use ports 31410 and 31411, the configuration parameters should be edited as shown below:

```
AcceptedConnectionPort=31410
AcceptedConnectionPort2=31411
```

3. Once the port numbers are changed, save the edits by selecting "*File*" and then "*Save*" in the text editor's menu bar.

4. Next, if you are running a local Windows firewall, you will need to allow TV32 to accept connections on that port.

This completes the changes to the *TV32.ini* file on the primary computer.

## I.2. Configuring TV32 on a Secondary Computer

Note: The IP address of the primary computer is needed before completing the configuration of any secondary computer.

1. Follow the installation instructions for TV32 in section 2.3 of this manual until you have completed step four.

2. Then, select "*Yes*" when asked whether TV32 will connect to a local AIS receiver or other local source of AIS data.
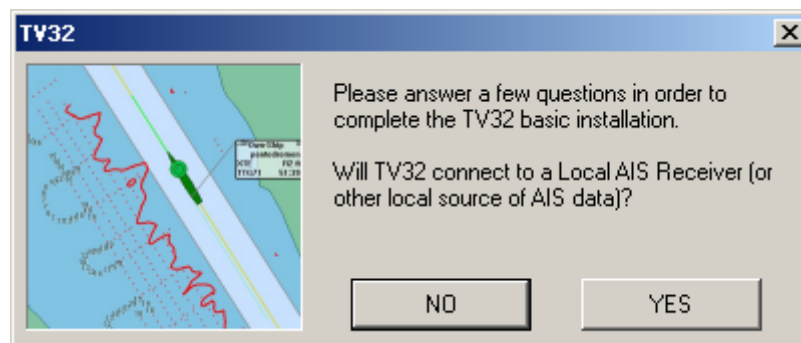

3. Next, enter the IP and port addresses of the primary computer respectively, separated by a space. After this information has been entered, click on the *OK* button.

Note: If you created two different port numbers on the primary, choose one of the two numbers, keeping in mind that each port can support up to ten simultaneous secondary connections.
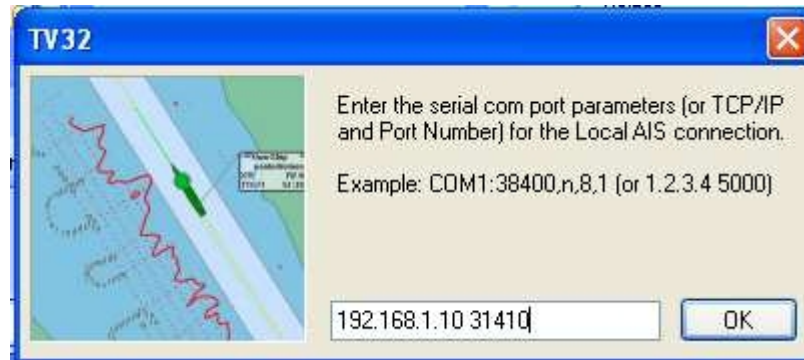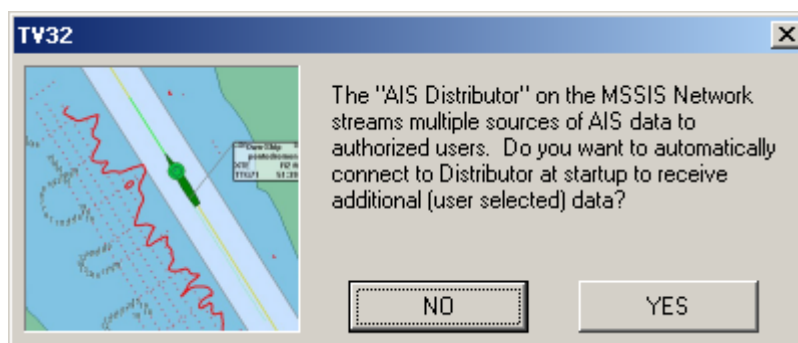
In the above example, TV32 is connecting to the primary computer at IP address 192.168.1.10 and on port 31410.

4. Select "*NO*" to the prompt asking whether to upload AIS data.
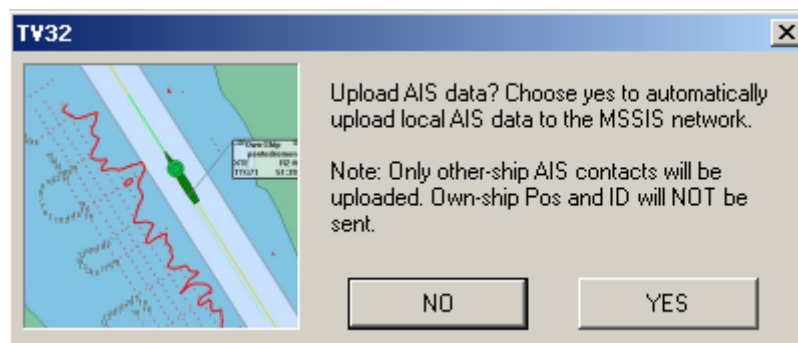
5. Again answer "*NO*" when asked if you want to connect to the 'AIS Distributor'. This is because the secondary computer will be receiving MSSIS data through the primary TV32 computer.


6. Resume following the installation instructions in section 2.3, starting at step eight.

   Note: Since the secondary computer receives MSSIS data through the primary computer, TV32 on the primary computer must be running, connected to the MSSIS server, and properly configured to accept TCP/IP configuration before the secondary computers can receive and display vessel track information.

Appendix J. Changing MSSIS Account Password Using TV32

After you have successfully installed TV32 and logged on to the MSSIS network, it is recommended that you change your password so that it is different from the one that was initially assigned to you. To change your MSSIS password in TV32, follow these steps:

1. On the TV32 dropdown menu bar, click on "*Config*", then on "*MSSIS Settings…*", and select the connection sock[et] number that is associated with your user name. For most users, your user name should appear as the first TCP/IP socket connection (Sock0), as shown in the sample screen shot below, where the user's name is "MSSIS_User".
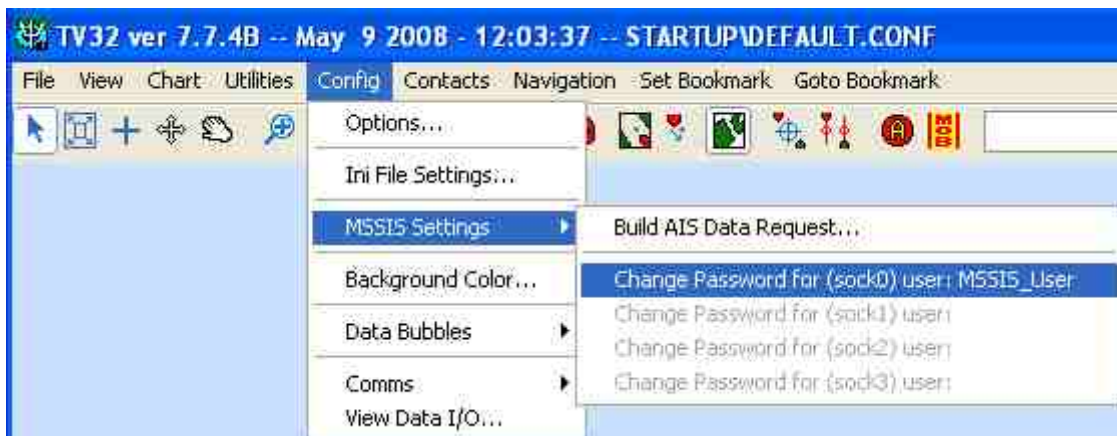
2. Once the user account name has been selected, TV32 will initiate a change password request to the MSSIS server. The MSSIS server, through TV32, will prompt you to enter your current and new passwords.

It is recommended that you restart TV32 after changing your password, particularly if your configuration uses multiple user accounts to log on to the MSSIS server.