vSTARS

Version 1.0

Controller's Guide

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Introduction

Welcome to vSTARS! This guide is intended to get you up and running with vSTARS with minimal effort. It is assumed that you are an experienced VRC user and that you already understand all the basic concepts of controlling traffic on VATSIM.

vSTARS Overview

vSTARS is a new ATC client for VATSIM. The aim is to create a highly-accurate simulation of the STARS system used in several TRACONs in the US. Obviously, technical restrictions of the VATSIM environment limit the fidelity of such a simulation, but I believe the end result is close enough to the real thing to provide VATSIM controllers with a very good idea of what it is like to control traffic at a STARS console.

That being said, I have some words of caution. vSTARS is not for the casual VATSIM controller looking for an easy-to-use piece of software. The real STARS system isn't exactly user-friendly, and neither is vSTARS. There are no handy right-click menus like in VRC. Nearly everything is keyboard-driven, and the key command sequences are not always intuitive. In short, vSTARS strives to faithfully simulate the STARS system, even the parts that some would consider to be its weaknesses.

System Requirements

The machine on which you will install vSTARS must meet the following minimum system requirements:

- Operating System: Windows XP, Windows Vista, or Windows 7.

- Microsoft .NET Framework: Version 3.5 or later.

- Video Adapter: Must have OpenGL support.

- Horizontal Display Resolution: 1440 pixels with DCPs displayed, 1280 pixels without DCPs displayed.

- Vertical Display Resolution: 1024 pixels with DCPs displayed, 480 pixels without DCPs displayed.

- Internet Connection: 56kbps or better.

- Audio Devices: Any microphone and speakers/headset with DirectSound support.

- TCP port 6809 open for outgoing connections. (Generally no port forwarding needed.)

- TCP+UDP port 3782 open for outgoing connections. (Generally no port forwarding needed.)

- UDP port 3290 open for incoming landline connections. (Must be forwarded through your router.)

There is no minimum requirement for CPU speed or system memory. If your machine can run Windows and it meets the above requirements, then it will run vSTARS. Obviously, the faster your CPU and the more system memory you have installed, the smoother vSTARS will run.

Installation

Installation of vSTARS is accomplished by running the setup file you downloaded from the vSTARS web site. Since the installer may need to update DirectX on your system, and/or install a font, **you will need to run the installer as a user with Administrative permissions on your system**.

When the installation program starts, you will be required to accept the End User License Agreement (EULA). You will then be prompted to specify an installation location or accept the default.

The installed files include the main executable file and several software library files (DLLs) which are stored in the program folder specified during installation. The installer also places a few data files in the system Application Data folder. These data files include a navaid database, an airport database, the vSTARS fonts, cursors, and sounds, as well as the default configuration file.

When installation is completed, you will be able to launch vSTARS via a desktop icon, Quick Launch icon, or via the Start menu, depending on options selected during installation.

Terms and Concepts

Before you get started, you should become familiar with a few basic terms and concepts surrounding vSTARS:

1. **TRACON-focused.** The real-world STARS system is used primarily in TRACONs. It is not intended for use by enroute controllers. The same is true for vSTARS. Furthermore, while some real-world tower cabs use STARS, vSTARS is not particularly suitable for controlling a tower cab position on VATSIM.

2. **Facilities vs. Profiles.** Instead of having Profiles (as in VRC), vSTARS employs the concept of a Facility. A facility configuration contains information about the location where you will be controlling, such as the geographic center point, the magnetic variation, the list of airports, common radio frequencies, available video maps, radar sites, etc. Facility Engineers can create facility configurations and distribute them to their users through a single file download.

3. **Preference Sets.** A preference set contains settings related to the appearance of the scope, such as range ring spacing, character sizes, display element brightness, the location of various lists, etc. Preference sets are facility-specific, since they contain information such as visible video maps.

4. **Single Window.** vSTARS does not support multiple radar screens. This is another reason why vSTARS is not particularly suitable for controlling CTR positions on VATSIM.

5. **No Sector Files.** vSTARS does not support sector files. Instead, vSTARS separates the data traditionally found in a sector file into separate categories: Navigational data and video maps. Navigational data consist of airport locations, runways, VORs, NDBs, Intersections and Fixes. These are stored in XML files in the vSTARS application data folder. Video maps are also XML files. A video map consists of a series of line segments used to draw airspace diagrams on the scope, similar to the GEO, SID, and STAR sections of a sector file. Facility engineers import these files into the facility configuration.

Facilities

Each time you run vSTARS, you'll see the Facilities Window, shown at right. Obviously, the first time you run vSTARS, the list of facilities will be empty. Most users will download and import a facility configuration file as created by the facility engineer at their ARTCC. If you are the facility engineer, refer the the separate Facility Engineer's guide for instructions on creating a facility configuration.

To select a facility, double-click the facility name in the list. The facility will be loaded and the main radar screen will appear.
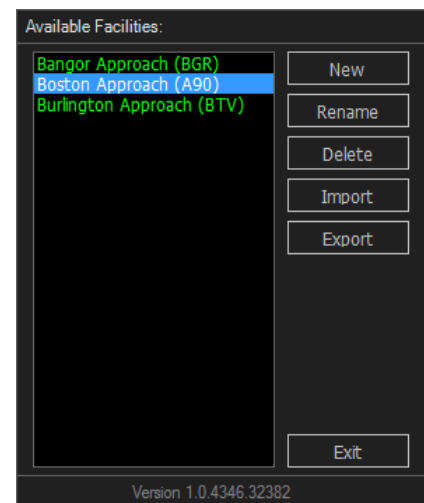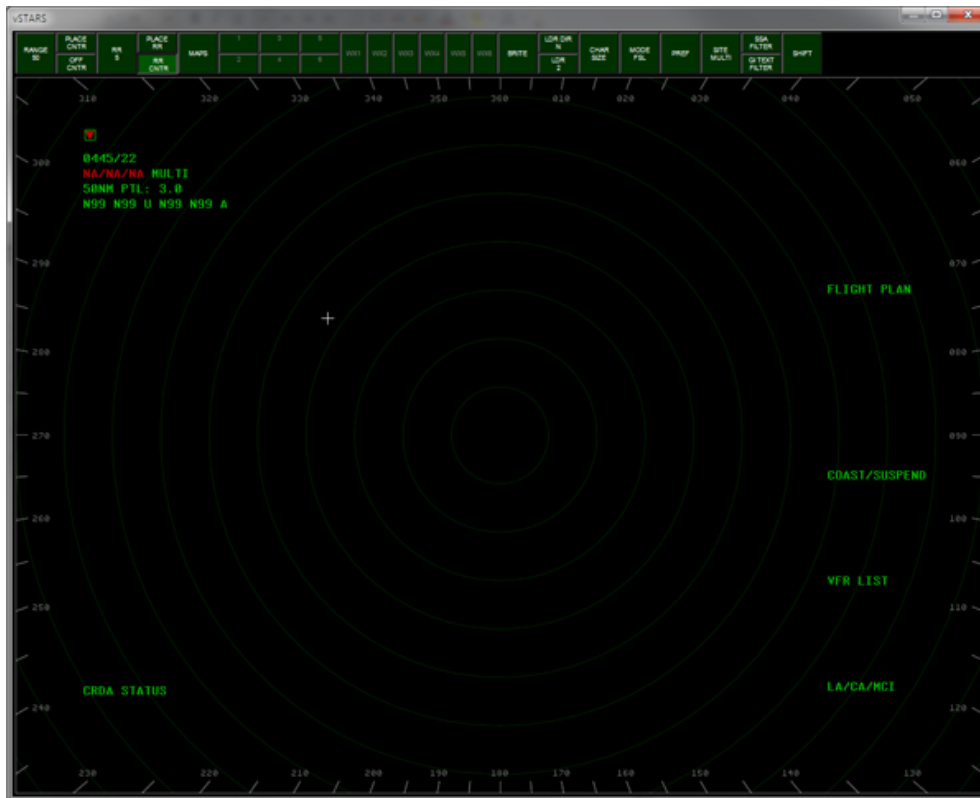
A Tour of the Main Screen

The button bar across the top is known as the Display Control Bar, or DCB. These buttons are used to control various display aspects of the system, such as toggling video maps on/off, setting screen element brightness, character sizes, range rings configuration, etc. The DCB is covered in detail in a later section.

The remainder of the screen is occupied by the radar scope itself. The numbers and hash marks around the outer edge of the scope are known as the Compass Rose. The Compass Rose can be turned off by setting its brightness to the minimum level.

In the top left corner of the scope, you'll see the System Status Area, or SSA. The SSA contains a wealth of information pertaining to system configuration, weather, altitude filters, and so on. The user can turn individual lines of the SSA on or off, and save these settings in a preference set. The SSA is covered in detail in a later section.

You'll also notice some text along the sides of the scope. These are known as list titles. The STARS system maintains lists of various items for quick reference by the user. The various lists are covered in detail in a later section.

Configuring vSTARS

There are two main configuration areas in vSTARS; user-specific settings and facility configuration. Facility configuration is intended only for facility engineers and is covered in a separate guide.

User-specific settings such as CID, Password, audio device settings, etc. are found in the Settings window, accessed through the CTRL-S key combination. You must have already opened a facility in order to access the Settings window.
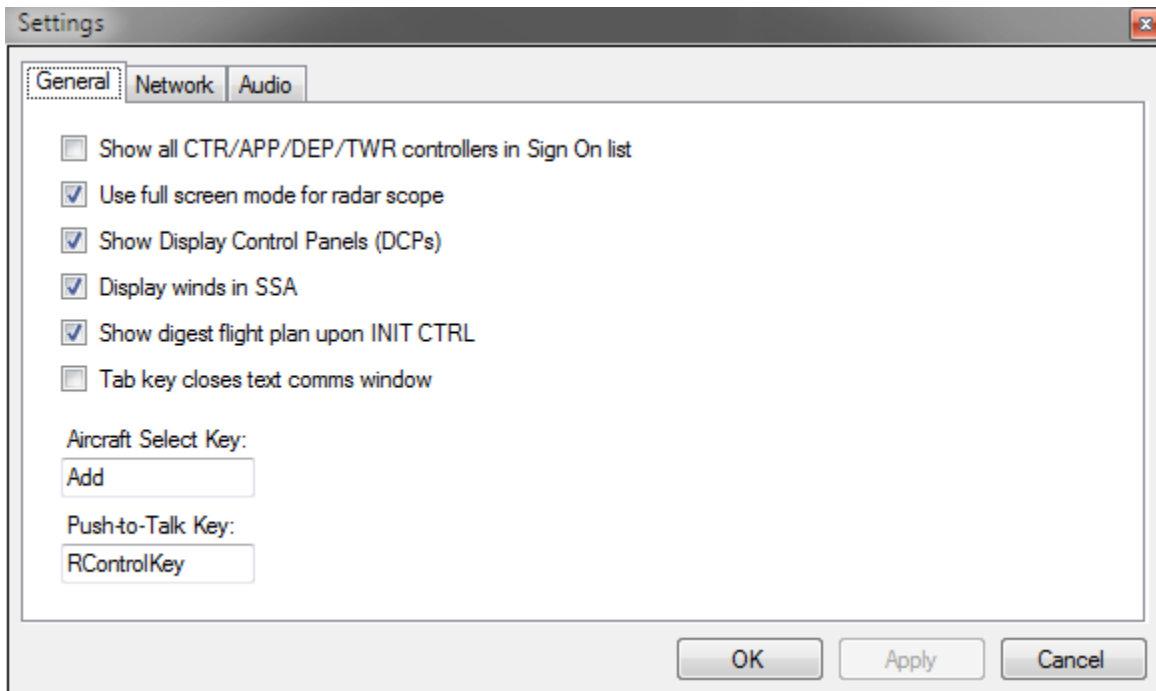
General Tab

The "Show all CTR/APP/DEP/TWR controllers in Sign On list" checkbox determines which controllers will be shown in the Sign On list. When this box is NOT checked, the Sign On list will only show controllers that are marked as "In Facility" or "Adjacent Facility". (Refer to the section in the Facility Engineer's guide on configuring positions in the facility for details.) If this box is checked, then all CTR/APP/DEP/TWR controllers will be displayed in the Sign On list regardless of whether they are In-Facility or Adjacent Facility controllers. Normally you will want to leave this box unchecked so that the Sign On list only shows controllers that you might hand off an aircraft to.

vSTARS has an option to use the full screen for the radar scope, hiding the title bar and border. This makes the scope appear much more realistic. Check the box at bottom left to use this option. Full screen mode is enabled by default. To switch out of vSTARS while in full screen mode, you can use ALT-TAB to switch to another program, press the Windows key to view the task bar, or press Windows-D to minimize all programs. Use ALT-F4 to close vSTARS when in full screen mode.

The "Show Display Control Panels" checkbox toggles display of the DCPs. The DCPs are covered in more detail in a later section.

The "Display winds in SSA" checkbox allows you to display the winds for your configured airports in the SSA.

The real STARS system does not have this option, but it is included in vSTARS to make it easier to work an approach position and also provide tower services at the primary airports in your airspace.

The "Show digest flight plan upon INIT CTRL" checkbox determines whether or not vSTARS will automatically show a digest flight plan for an aircraft as soon as you start track on it. A digest flight plan shows the aircraft type, filed altitude, and the first two items in its route (or last two items if it's an arrival.) This allows you to see at a glance where the aircraft is heading without having to open its flight plan.

The tab key can be used to switch the keyboard input focus between the main scope window and the text communications panel. (Covered in more detail in a later section.) If you are using a single monitor system, you may want to hide the text communications panel when you're not using it. The "Tab key closes text communications window" checkbox shown here makes that easier. If this box is checked, when you are working in the text communications window, if you press the tab key, the text communications window will close, and keyboard focus will be set back to the main scope window.

Setting the Aircraft Select and Push-to-Talk keys works the same in vSTARS as it does in VRC. Click to place your cursor in the appropriate box, then press the key you wish to use for that function.

Network Tab
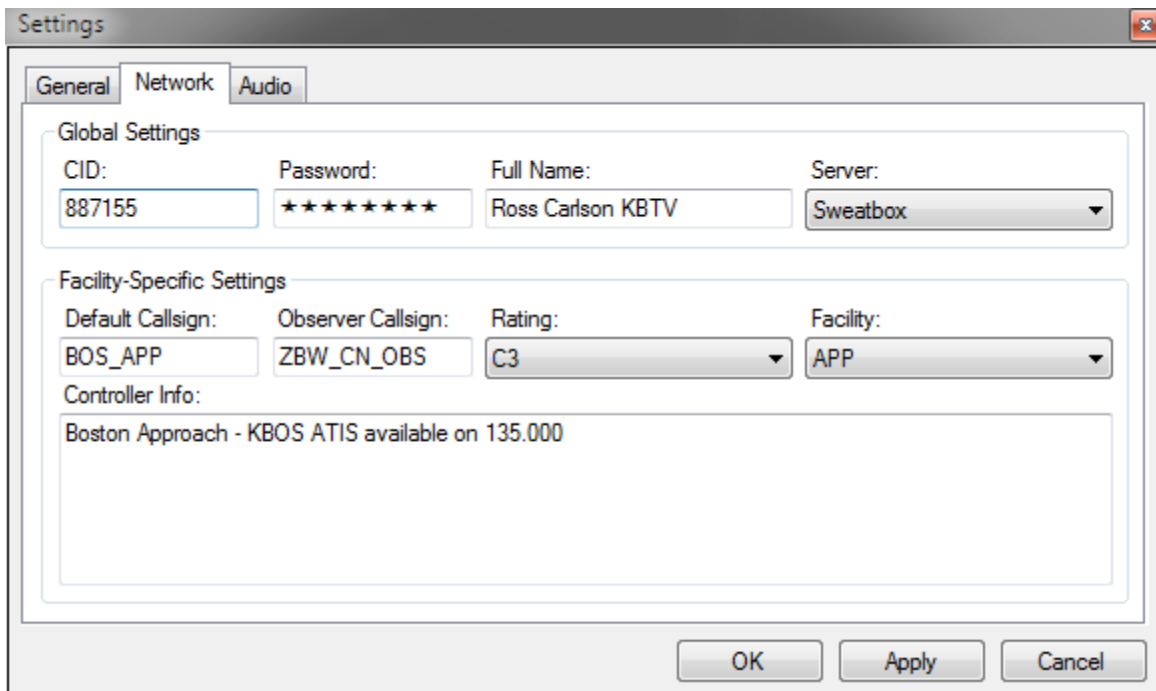
The network tab is where you enter network connection information. Most of the fields here are self-explanatory, but some items deserve extra attention:

The default callsign is just a convenience feature to save you some typing when you sign on to the network. You can always select a different callsign when you sign on, if you wish. You are not required to use the one you enter here.

The server list will be automatically downloaded from VATSIM when you first start vSTARS. The sweatbox server is automatically added to the list.

The controller info box is where you can enter text that will be sent to pilots when they tune in your frequency.

This has traditionally been referred to as your ATIS. As with VRC, you can use variables and functions within your controller info. See Appendix A for details.

Audio Tab
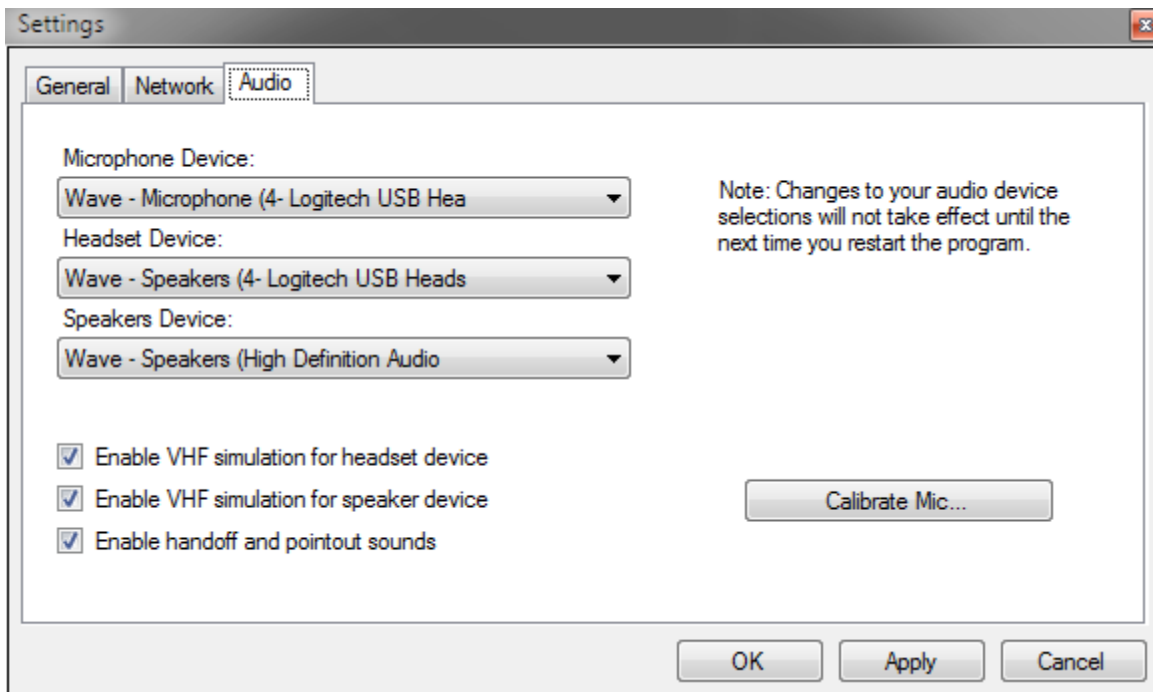
The audio tab is where you set up your audio devices. Most settings here should be self-explanatory. The "Enable handoff and pointout sounds" checkbox is provided so that you can disable these sounds if you wish, since the real STARS system does not have sounds for handoffs or pointouts. The sounds are made available in vSTARS because on VATSIM, an approach controller is often covering more airspace than he can comfortably see on the scope at once, and without the sounds, it would be easy to miss a handoff or pointout.

The Display Control Bar (DCB)

The DCB is where you can control the appearance of the scope, targets, and data blocks. The DCB consists of the Main DCB, the Aux DCB, and several sub-menus. You can switch between the Main and Aux DCBs by clicking the **SHIFT** button at the far right on each DCB.

Many of the DCB buttons are toggle buttons, which have either an on or off state. In the screenshot below, the "**33L**" map button is toggled on. You can see that it appears to be pressed in, and has a lighter green color.

Many of the DCB buttons allow you to choose from a range of values. These are referred to as "Spinner" buttons. An example is the **RANGE** button in the screenshot below. To use a Spinner button, click on it with the mouse. It will appear to be pressed in, and it will take on a lighter green color. You can then use your mouse wheel to adjust the value. Your mouse cursor will be "trapped" within the boundaries of the button while you are making the adjustment. To accept the new value, click the button again. The button will revert to its original appearance, and the mouse cursor will no longer be confined to the button area.

Some of the DCB buttons open sub-menus containing additional buttons. While a sub-menu is open, your mouse cursor will be confined within the boundaries of the sub-menu. When you are finished making selections in the sub-menu, click the **DONE** button or press the ESC key to return to the main DCB.

The Main DCB
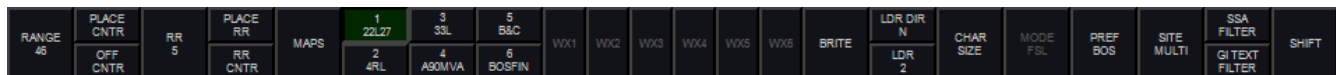
- **RANGE** – Use this spinner button to adjust the zoom level of the scope.

- **PLACE CNTR** – Click this button, then click anywhere on the scope to recenter the scope at the clicked location.

- **OFF CNTR** – This button will be pressed whenever the scope has been panned away from the center point defined in the facility configuration. Click the button to re-center the scope at the facility-defined center point.

- **RR #** - Use this spinner button to adjust the spacing between the range rings. The value is expressed in nautical miles.

- **PLACE RR** – Click this button, then click anywhere on the scope to recenter the range rings.

- **RR CNTR** – This button will be pressed whenever the range rings have been placed somewhere other than the default scope center point. Click this button to re-center the range rings.

- **MAPS** – This button opens the **MAPS** sub-menu. (See below.)

- **MAP TOGGLES** – The next 6 buttons allow you to toggle video maps 1 through 6 on and off. The button shows a number plus the "Short Name" from the video map. See the section on Video Maps for more details.

- **WX#** – These buttons are disabled as vSTARS does not support weather overlays.

- **BRITE** – This button opens the **BRITE** sub-menu. (See below.)

- **LDR DIR** – This spinner button allows you to set the default data block leader line direction.

- **LDR** – This spinner button allows you to set the default leader line length.

- **CHAR SIZE** – This button opens the **CHAR SIZE** sub-menu. (See below.)

- **MODE** – This button opens the **MODE** sub-menu. vSTARS currently only supports the FSL (Full Service Level) mode, so all of the buttons on the **MODE** sub-menu are disabled.

- **PREF** – This button opens the **PREF** sub-menu. (See below.)

- **SITE** – This button opens the **SITE** sub-menu. (See below.)

- **SSA FILTER** – This button opens the **SSA FILTER** sub-menu. (See below.)

- **GI TEXT FILTER** – This button opens the **GI TEXT FILTER** sub-menu. (See below.)

- **SHIFT** – Displays the Aux DCB.

The Aux DCB
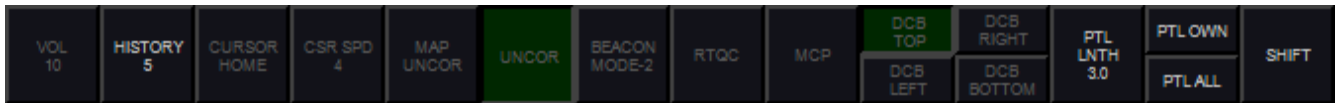
- **VOL** – Volume in vSTARS is adjusted using the normal Windows volume controls. As such, this button is disabled.

- **HISTORY** – This spinner button allows you to set the length of the track history trail.

- **UNCOR** – This button toggles the display of all uncorrelated targets. See the section on the Display Control Panels for more information.

- **PTL LNTH** – This spinner button allows you to set the length of each track's PTL (Predicted Track Line.)

- **PTL OWN** – This button toggles the display of PTLs for tracks that you own.

- **PTL ALL** – This button toggles the display of PTLs for all tracks, including those owned by other positions.

- **SHIFT** – Returns to the Main DCB.

The MAPS Sub-Menu
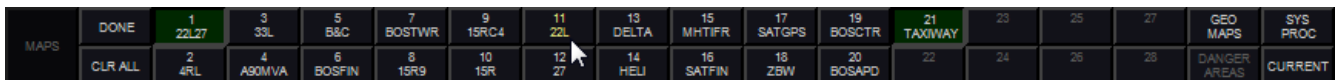
- **DONE** – Returns to the Main DCB.

- **CLR ALL** – Turns off the display of all Video Maps

- **MAP TOGGLE BUTTONS** – The middle 30 buttons on the **MAPS** sub-menu allow you to toggle individual maps on and off.

- **GEO MAPS** – This button toggles the display of a list of all available video maps.

- **SYS PROC** – This button toggles the display of a list of system processing volumes.

- **CURRENT** – This button toggles the display of a list of video maps that are currently being displayed.

The BRITE Sub-Menu
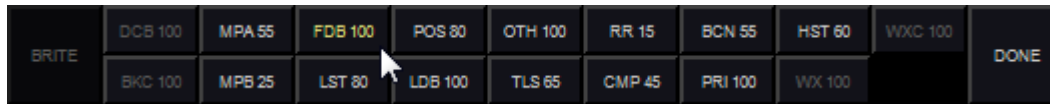
- **DONE** – Returns to the Main DCB.
- MPA – Sets the brightness for video maps in group A.
- **MPB** – Sets the brightness for video maps in group B.
- **FDB** – Sets the brightness for Full Data Blocks, the preview area, and the cursor.
- **LST** – Sets the brightness for on-screen lists and the SSA.
- **POS** – Sets the brightness for position symbols for tracks with Full Data Blocks.
- **LDB** – Sets the brightness for Limited and Partial Data Blocks.
- **OTH** – Sets the brightness for position symbols for tracks without Full Data Blocks.
- **TLS** – Sets the brightness for tools such as Predicted Track Lines, Minimum Separation Lines and Range-Bearing Lines.
- **RR** – Sets the brightness of the range rings.
- **BCN** – Sets the brightness for beacon symbols.
- **PRI** – Sets the brightness of primary target symbols.
- **HST** – Sets the brightness of track history trails.
- **DONE** - Returns to the Main DCB.

The CHAR SIZE Sub-Menu
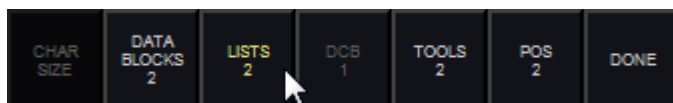
- **DATA BLOCKS** – Set the character size for data blocks.
- **LISTS** – Sets the character size for on-screen lists.
- **TOOLS** – Sets the character size for text used in tools such as Minimum Separation lines and Range-Bearing Lines.
- **POS** – Sets the character size of track position symbols.
- **DONE** - Returns to the Main DCB.

The PREF Sub-Menu
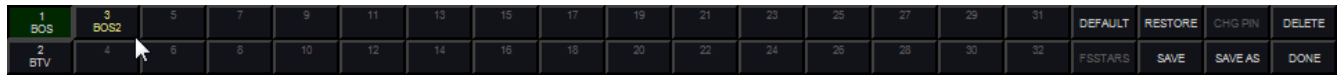
- **NAMED PREF SETS** – The first 32 buttons on the **PREF** sub-menu allow you to activate previously-saved preference sets. The currently-active preference set will show as a pressed button.

- **DEFAULT** – Pressing this button sets all preference items to their default values.

- **RESTORE** – Restores the preference settings that were in effect when you first entered the **PREF** sub-menu.

- **SAVE** – Saves any changes to the current preference set.

- **SAVE AS** – Prompts the user to enter a preference set name. The new preference set will be saved in the first available slot.

- **DELETE** – Deletes the current preference set.

- **DONE** – Returns to the Main DCB.

A preference set consists of the following settings:

- Display center.
- Display range.
- Range ring spacing.
- Range rings center point.
- Default leader line direction.
- Default leader line length.
- History trail length.
- Cursor speed.
- PTL length.
- **PTL OWN** and **PTL ALL** toggle settings.
- Ground view mode. (See below.)
- Visible lists.
- Visible SSA fields, including GI Text lines.
- Visible video maps.
- Brightness settings.
- Character size settings.
- List locations.
- List sizes.

The SITE Sub-Menu

vSTARS can operate either in single-site radar mode, or multi-site radar mode. You can define the location of your radar sites in the Settings window, covered previously.

In single-site radar mode, you select which site you wish to use, and the orientation of all primary targets will be relative to that site. Furthermore, the size of the primary target will increase with distance from the radar site. Your visibility center is set to the location of the radar site. To select single-site mode, click one of the defined radar sites in the **SITE** sub-menu.

In multi-site radar mode, all primary targets are the same size, and they are oriented relative to the target's ground track. Your visibility center is set to the center of your scope. To select multi-site mode, click the **MULTI** button in the **SITE** sub-menu.

Press the **DONE** button to return to the Main DCB.

The SSA FILTER Sub-Menu
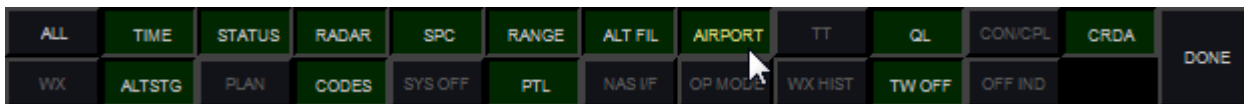
The buttons on the **SSA FILTER** sub-menu allow you to select which pieces of information are displayed in the System Status Area. (SSA) The options are:

- **ALL** – Enables all lines in the SSA.
- **TIME** – Displays the current time.
- **ALTSTG** – Displays the system altimeter setting. On VATSIM, this comes from the METAR for the primary airport.
- **STATUS** – Displays system network status. On VATSIM, this shows either "NA/NA/NA" in red when disconnected, or "OK/OK/NA" in green when connected.
- **RADAR** – Displays the currently-selected radar site in single site mode, or "MULTI" in multi-site mode.
- **CODES** – Displays any active beacon code selection blocks. (See below.)
- **SPC** – Displays any active Special Purpose Codes, such as "EM", "RF", etc.
- **RANGE** – Displays the current zoom range.
- **PTL** – Displays the length of Predicted Track Lines.
- **ALT FIL** – Displays the current altitude filters.
- **AIRPORT** – Displays weather information for the airports listed in the current facility configuration.
- **QL** – Displays which positions you currently have Quicklooked.
- **TW OFF** – Displays which functions are disabled at the terminal, such as MSAW or CRDA.
- **CRDA** – Displays any active CRDA Runway Pair Configurations. (RPCs)

The GI TEXT FILTER Sub-Menu
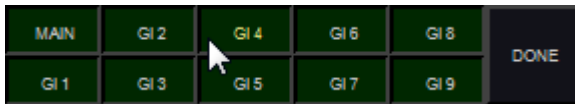
The operator can define up to 10 lines of "General Information" to be displayed in the SSA. The **GI TEXT FILTER** sub-menu allows the user to toggle these lines on and off. See below for more information on defining GI Text.

The Display Control Panels (DCPs)

The DCPs consist of vertical stacks of switches and knobs located on either side of the main screen. They are provided mainly for realism purposes, and offer very little functionality that cannot be found in the DCB.

The "FS" and "ES" switches at the top of the left DCP have no function in vSTARS. In the real STARS system, they are used to switch the console between the "Full Service" and "Emergency Service" levels.

The "MAP UNCOR" and "UNCOR" switches at the top of the right DCP have no function in vSTARS. In the real STARS system, these are used to toggle the display of radar returns that not correlated to an actual flight track. For example, a facility may use this function to hide false radar returns from trucks moving on a highway near the radar site.

The 6 map switches on the right DCP correspond to the first 6 video maps loaded in the current facility configuration.

The 12 DCP knobs can be operated by hovering your mouse over the arrows at the top or bottom of each knob, and turning your mouse wheel. The 12 knobs offer the following functions:

Left DCP:

- PANEL ILLUM / SW ILLUM – This knob has no function in vSTARS.

- HIST / HIST LNTH – Controls the brightness and length of target history trails.

- FDB / LIST – Controls the brightness of Full Data Blocks and System Data Lists.

- LDB / WX – Controls the brightness of Limited Data Blocks and Weather overlays. (Weather overlays are not implemented in vSTARS.)

- POS / PRIMARY – Controls the brightness of position symbols for target with FDBs, and the brightness of primary target symbols.

- OTHER / RR – Controls the brightness of position symbols for targets without FDBs, and the brightness of the range rings.

- MAP A / MAP B – Controls the brightness of video maps.

Right DCP:

- SPARE 1 / SPARE 2 – This knob has no function.

- LDR LNTH / LDR DIR – Controls the leader line length and direction.

- S-N / E-W – Pans the radar scope.
- CHAR SIZE / POS SIZE – Controls the size of data block text and position symbols.
- RANGE / RR INT – Zooms the radar screen, and sets the interval for the range rings.

System Lists

vSTARS maintains several lists of information. These lists are displayed on the main radar screen. The user can specify the location and size of these lists, and these settings are stored as part of a preference set. Refer to the vSTARS Command Reference for details on setting the location and size of each list.

The System Status List (SSA)

The SSA displays a number of different fields of information. Individual fields can be toggled on/off using the **SSA FILTER** DCB sub-menu. (See above.) A typical SSA is shown in the following screenshot:

The inverted red triangle is simply to allow the user to determine at a glance whether or not the system is currently capable of displaying red (emergency-related) data. If this triangle does not appear, the system requires servicing.

The next line consists of the current time in HHMM/SS, followed by the system altimeter. This altimeter reading comes from the VATSIM METAR for your primary airport. The primary airport is the one assigned to tower list #1 in the facility configuration.

The next line contains the network status. It will display "OK/OK/NA" in green while connected, and "NA/NA/NA" in read while disconnected. This is followed by the name of the currently-selected radar site (for single-site mode) or the word "MULTI" for multi-site mode.

The next line contains the current range setting for the scope, followed by the length of the Predicted Track Lines. (PTLs.)

The next line contains the current altitude filters. The filters for unassociated tracks (those with no flight plan or those not squawking mode C) are displayed first, followed by the altitude filters for associated tracks. The filter values are expressed in hundreds of feet. In this example, the altitude filters for both associated and unassociated tracks are set with a floor of 100 feet MSL, and a ceiling of 16,000 feet MSL. Tracks outside of these filter limits will have no data block. A value of "N99" indicates 0 or less.

The next three lines in this example provide weather information (wind and altimeter) for any airports listed in the current facility configuration which have the "Include in SSA" option selected. The real STARS system does not display wind information here, but it is included for VATSIM purposes to make it easier for an approach controller that is also providing tower services. For greater realism, the display of wind data can be disabled in the Settings Window on the General tab.

The SSA in the following screenshot includes some additional lines that may appear during a session:
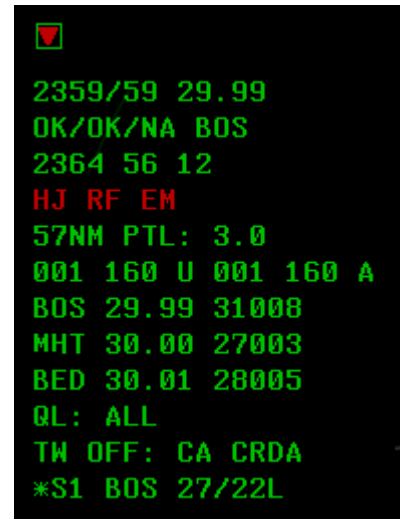
The line containing "2364 56 12" indicates the currently-selected beacon codes and beacon code blocks. Tracks that have a squawk code matching one of these codes or code blocks are rendered with a different position symbol. (See the section on data blocks for details.) A 4 digit code indicates a single unique code, and a 2-digit code indicates a code block. Any track with a squawk code starting with these 2 digits is considered "beacon code selected".

The red "HJ RF EM" line displays any currently-active SPCs. (Special Purpose Codes.) If a target is squawking one of the SPCs, the associated 2-character identifier will appear here.

The "QL: ALL" line indicates that the user currently has all positions "quicklooked". Tracks owned by a quicklooked controller will show as Full Data Blocks. (FDBs.) The user can also quicklook specific controllers. The sector ID for such controllers will be displayed in this line.

The "TW OFF:" line indicates which system functions are disabled. In this example, conflict alerts and CRDA processing are disabled.

The last line indicates that the BOS 27/22L CRDA Runway Pair Configuration is currently enabled in "Stagger" mode. (Refer to the CRDA section for more detail.)
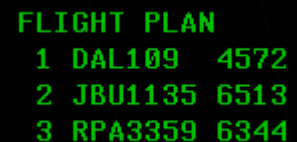
The TAB List

The TAB list displays tracks that have a flight plan indicating a departure from one of the airports listed in the current facility configuration. The list displays the flight ID (callsign) and beacon code. The list is sorted by flight ID. Once the flight is acquired on radar, its entry is removed from the list.
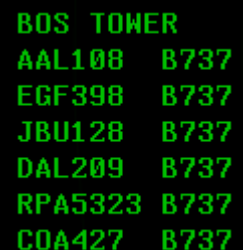
Tower Lists

Tower lists display tracks that have a flight plan indicating an arrival at one of the airports listed in the facility configuration. There can be up to 3 tower lists. Use the Airports tab to select which airports have a tower list. The three tower lists can be positioned independently. The list displays the flight ID and aircraft type, and is sorted by distance from the airport.

The VFR List

The VFR list displays all VFR flight plans that have not yet been associated with a radar track.

```
VFR LIST
 1 N710CP   VFR
```

The COAST/SUSPEND List

The COAST/SUSPEND list shows any track that is owned by the current user and has been coasting (returned no radar data) for 30 seconds. Tracks remain on this list until the user drops track on the target, or until a configurable amount of time passes. (This timeout is defined in the facility configuration and defaults to 5 minutes.) The list displays the flight ID, a "C" to indicate the target is coasting, the beacon code, and the current user's sector ID.

```
COAST/SUSPEND
 1 N710CP   C 6544 AB
```

The LA/CA/MCI List

The LA/CA/MCI list displays tracks in MSAW (Low-Altitude) alert status, Conflict Alert status, or Mode C Intruder status. The example at right shows one track in LA status with callsign RPA3359, at 400 feet. Also shown is a conflict alert between DAL211 and N710CP. If one of the targets in a conflict pair is unassociated, it will be displayed as MCI instead of CA, and its reported beacon code will be shown in place of the callsign.

```
LA/CA/MCI
RPA3359 004 LA
DAL211*N710CP CA
```

The CRDA STATUS List

The CRDA STATUS list shows all available CRDA Runway Pair Configurations (RPCs) and indicates whether or not each one is active, and if so, in which mode. (See the CRDA section for details.) If an RPC is active, its index number in the list will be preceded by an "S" for Stagger mode, or a "T" for Tie mode. Active RPCs will also show the current sector ID after the runway pair.

```
CRDA STATUS
S1 BOS 27/22L   AB
 2 BOS 33L/27
 3 BOS 22L/27
 4 BOS 27/33L
```

The SIGN ON List

The SIGN ON list displays all CTR/APP/DEP/TWR controllers that are online and within range of your position. The first entry in the list is always your position. The SIGN ON list can be filtered to only display positions that are within or adjacent to your facility. This setting can be found on the General tab of the Settings window.

```
SR 118.250 BOS_APP
37 134.700 BOS_CTR
```

Video Maps

Instead of sector files, vSTARS uses video maps. Video maps are XML files containing drawing instructions for vSTARS to render the map on screen. When the facility engineer sets up the facility configuration, he can select video maps from anywhere on his hard drive to include in the list of available video maps on the **MAPS** DCB sub-menu. Video maps are organized into two groups, A and B. The brightness of each group can be set independently using the **BRITE** DCB sub-menu.

The Preview Area

The Preview Area is where textual commands are entered, and where the responses to various system commands are displayed. By default, the preview area is just below the SSA, but it can be repositioned by the user. (See the Command Reference for details.)

Signing On/Off

To connect to VATSIM, press the SIGN ON key, which is the F12 key. The preview area will display the default callsign configured in the Settings window, if any. You can edit the callsign or accept the default, then press ENTER. vSTARS will connect to the VATSIM network using the CID, password, server, position, and rating you specified on the Network tab of the Settings window.

To disconnect from VATSIM, press the SIGN ON key (F12,) enter an asterisk, then press ENTER.

If you defined an observer callsign in the settings window, you can press CTRL-F12 to start the sign on prompt using your observer callsign instead. This makes it easy to connect briefly with your observer callsign to see who is online before connecting with your actual controller callsign.

The Text Communications Panel
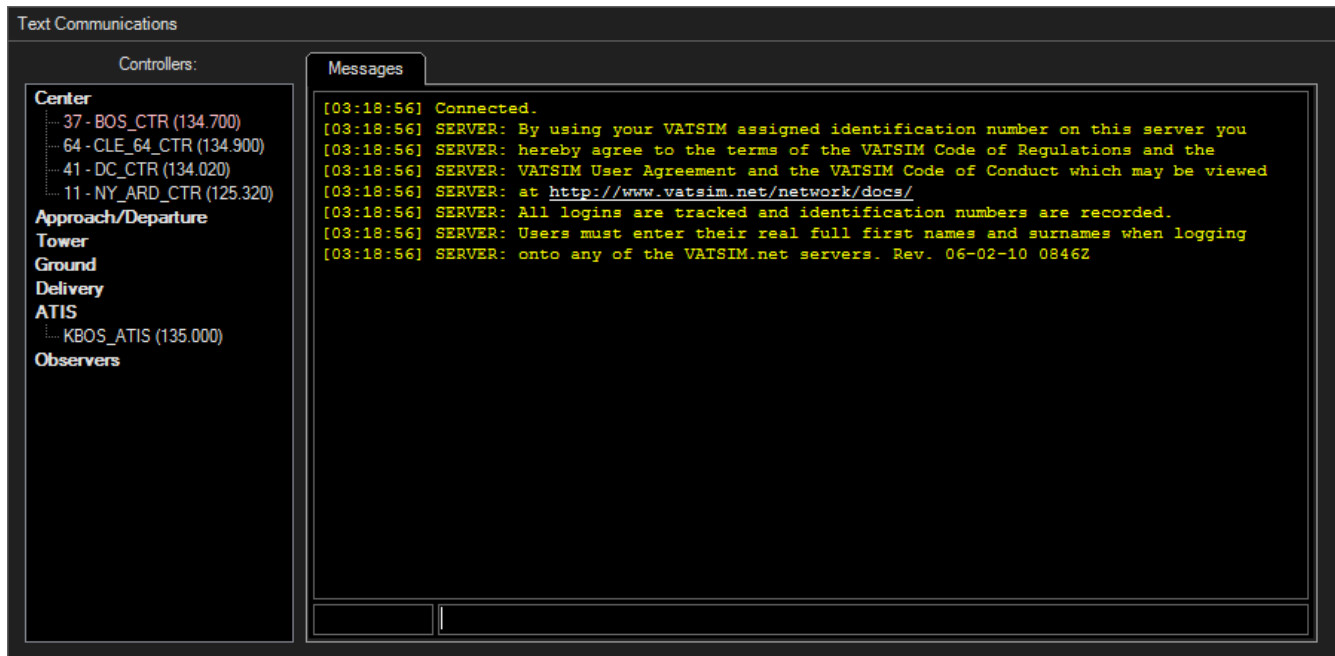
The Text Communications Panel is a floating window that can be displayed over the top of the main scope window, or dragged to a secondary monitor. You can use the Tab key to switch between the Communications Panel and the main scope window. Using a setting on the General tab of the Settings window, you can configure vSTARS such that the Text Communications Panel closes when you press the Tab key to move from the Text Communications Panel to the main scope window. This can be helpful for single-monitor users.

To re-size the Text Communications Panel, press the F12 key. This enables the sizing border around the edge of the window. Press F12 again to remove the sizing border.

Text Communications

All radio text communications appear on the "Messages" tab, shown above. The command line just below the messages window can be used to send radio text messages or dot commands. As in VRC, you can use the up/down arrow keys to retrieve previously-entered commands or radio messages.

Like VRC, vSTARS uses the concept of a "radio selected" aircraft. Information about the radio selected aircraft is used when parsing variables in aliases. The selected aircraft's callsign is also prefixed to any textual radio messages you send. Finally, the callsign is appended to any dot commands you enter with the ASEL key. (Numeric pad plus sign by default.)

To radio-select an aircraft, enter its callsign (or partial callsign) and then press your ASEL key. The callsign will appear in the box to the left of the command line. Note that the ASEL key only works in the text communications window. It does not take effect when typing directly into the main radar screen.

The Controller List

On the left side of the Text Communications Panel you will find the Controller List. This lists all controllers that

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are online and within range, grouped by facility type. Double-click an entry to open a chat tab with that controller. Hover your mouse over the controller's callsign to see his name.

Private Chat Tabs

As mentioned above, you can double-click on a controller's callsign in the Controller List to open a new private chat tab with that controller. Any private messages coming in from controller or pilots will similarly open in a new tab. The tab title will be highlighted in cyan if there are new messages waiting for you on that tab.

To send a private message to a controller that is not in your Controller List (due to being out of your range) or to a pilot, enter a command similar to the following:

```
.msg DAL245 Hi Bob!
```

This will send the private message to the indicated recipient. If the recipient responds with a private message, the message will be shown in a new chat tab.

The RDVS Panel
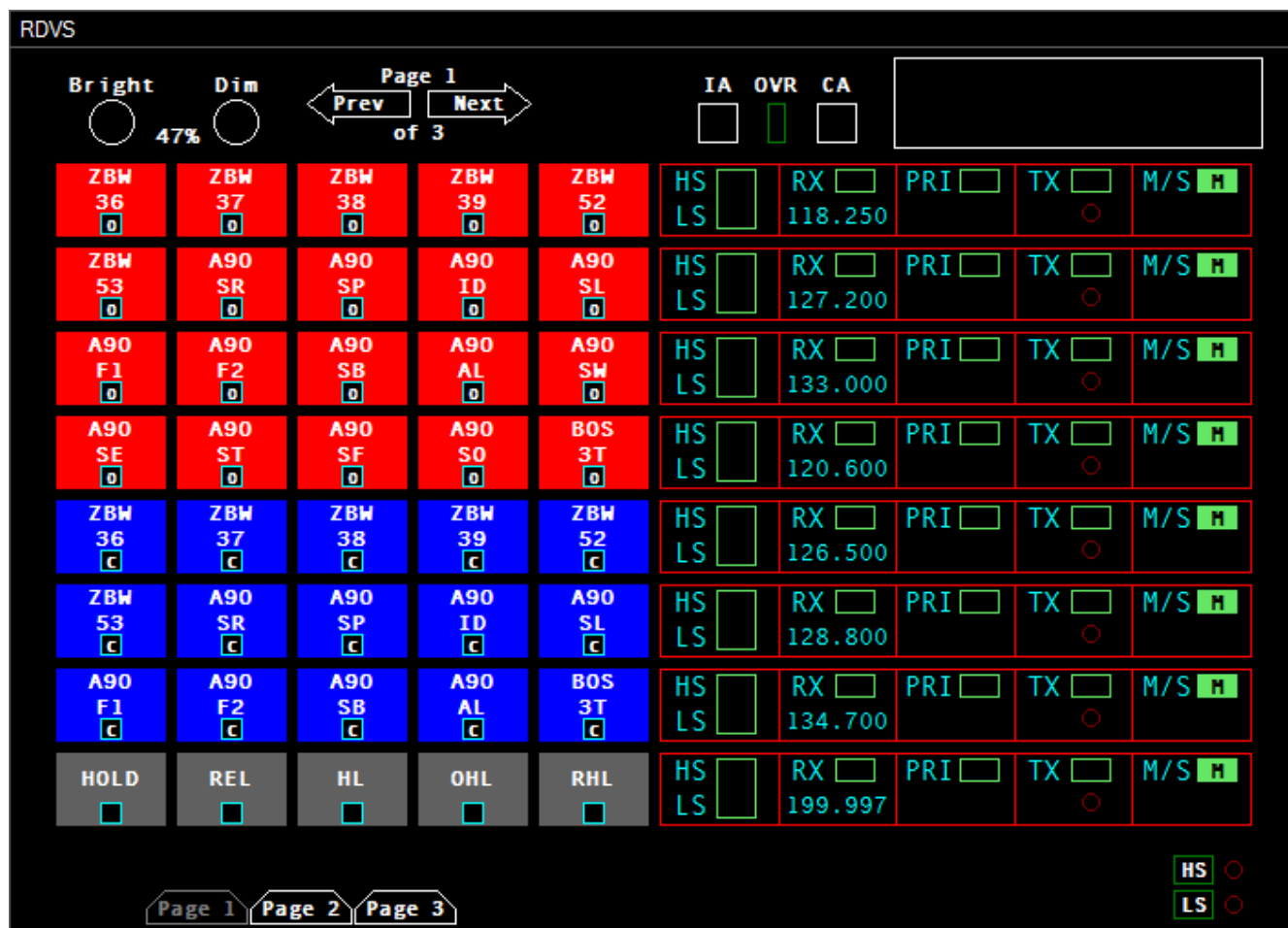
RDVS stands for Rapid Deployment Voice Switch. It is used at a number of real-world facilities alongside STARS to provide radio and interphone (land line) communications capabilities to the controller. The system consists of a touch-screen display with multiple pages of configurable buttons and panels. In vSTARS, the RDVS panel is intended to be controlled with the mouse, but the click spots on the screen are large enough to be suitable for touchscreen use as well. (Note that the brightness controls, and the IA/OVR/CA indicators are not implemented in vSTARS. Nor is the message window at top right.)

RDVS Pages

The real RDVS system provides facility engineers with the ability to configure any number of pages, with any combination of land line and radio function buttons on each page. In vSTARS, there are always 3 pages, and the left side of each page is dedicated to land line functions, and the right side of each page is dedicated to radio frequency panels. The land line buttons are called Direct Access (DA) buttons. Furthermore, the bottommost row of the left side on page 1 is always configured for the HOLD/REL/HL/OHL/RHL buttons. These buttons are covered in greater detail in a later section.

To switch pages, you can either press the Prev/Next arrows at the top of the screen, or press the direct access

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buttons across the bottom. The current page's direct access button is shown in gray, and the other page buttons are shown in white.

Using Radio Panels
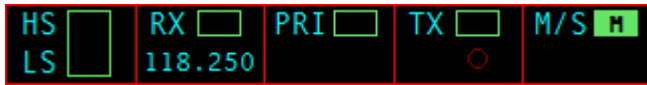
From left to right, the 5 sections of the Radio Panel provide the following functionality:

1. HS/LS – Clicking in this section determines whether or not the frequency is connected via voice. Click once to select HS (Headset). Click again to select LS (Loudspeaker). Click again to go back to HS. CTRL-click to turn off voice and operate the frequency as text-only. Obviously, you can only use voice if you have configured a voice server and channel name for this radio panel.

2. RX – Clicking in this section selects or deselects the frequency for receive.

3. PRI – Clicking in this section selects or deselects this frequency as your primary frequency on VATSIM.

4. TX – Clicking in this section selects or deselects the frequency for transmit. This section also contains the transmit/receive indicator. If you are transmitting on voice, this indicator blinks rapidly. If another station (controller or pilot) is transmitting on voice, this indicator lights up solid.

5. M/S – This section has no function in vSTARS. In the real RDVS, this selects the master or standby transmitter equipment.

Using Direct Access (DA) Buttons

As mentioned previously, the DA buttons are used to create or accept land line connections with another controller. Each DA button is configured for a specific position, based on the callsign prefix/suffix, and the frequency used by the position. If you wish to open a land line connection to a controller, you must have a DA button configured that matches that controllers callsign and frequency.

In order to receive an override or intercom call from another controller, you must have a DA button configured that matches that controller. If a controller tries to override you (or initiate an intercom call with you) and you have no matching DA button, then their land line call request will be rejected. The exception is when another controller wishes to monitor your voice communications. You do not need a matching DA button in this case. All monitor requests are approved in vSTARS. If another controller is currently monitoring you, his callsign will appear in blue in the Controller List on the Text Communications Panel.

Overriding Another Controller

When you override a controller, you hear everything they are saying, even if they don't press their push-to-talk (PTT) key. You can talk to the overridden controller using your PTT key. The controller you are overriding does not need to accept the override call, but they can end the override call by pressing their associated DA button, if they are using vSTARS. You can only override one controller at a time.
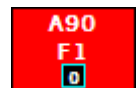
To initiate an override call, press the associated DA button. Override buttons are always red in color, and have a small "O" displayed in the indicator square at the bottom of the button. The indicator will blink rapidly while the override call is in progress.

To end the override, press the associated DA button. The indicator light will go out.

Initiating an Intercom Call

An intercom call is a two-way call between two controllers. Each controller must push their PTT key to talk to the other end. You can only have one active intercom call at a time, though you can have any number of intercom calls on hold. (See below.)

To initiate an intercom call, press the associated DA button. Intercom buttons are always blue in color, and have a small "C" displayed in the indicator square. When you first press the intercom button, the indicator will light up solid, indicating that the call is ringing on the receiving end and we are waiting for the receiving controller to answer the call.

When the receiving controller answers the call, the indicator will begin to blink rapidly. The call is now active, and you can use your PTT key to transmit voice to the receiving controller.

To end the call, press the associated DA button. The indicator light will go out.

Note that if you initiate an intercom call while you have another active call in progress, that call will be terminated.

Monitoring a Controller

When you are monitoring a controller, you hear everything they hear. This includes voice radio communications as well as land line communications.
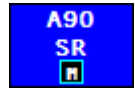
To monitor a controller, press the associated DA button. Monitor buttons are always blue in color, and have a small "M" displayed in the indicator square. When you press the button, the monitoring starts immediately (the receiving and does not need to accept the call) and the indicator light will blink rapidly.

To stop monitoring the controller, press the associated DA button. The indicator light will go out.

Receiving an Override Call

When another controller overrides your position, you will hear a single long tone, and the indicator light on the associated DA button will blink rapidly. (You must have an associated DA button in order to accept an override call. Otherwise, the call will be rejected automatically.)

To end the override, press the associated DA button. The indicator light will go out.

Receiving an Intercom Call

When another controller initiates an intercom call with you, you will hear a ringing sound, and the indicator light on the associated DA button will flash slowly. (You must have an associated DA button in order to accept an intercom call. Otherwise, the call will be rejected automatically.)

If you wish to answer the intercom call, press the associated DA button. The indicator light will blink rapidly while the call is active. You can now respond to the calling party using your PTT key.

To end the intercom call, press the associated DA button. The indicator light will go out.

Placing an Intercom Call on Hold

If you are on an active intercom call, and you need to talk to pilots, or initiate a call with another controller, you can place the current intercom call on hold. To do so, press the HOLD button, which is found below the DA buttons on the first RDVS page. The associated DA button's indicator will start to "wink". (Flash off slowly.) You can then initiate a new intercom call in the usual manner.

To take the intercom call off hold, press the associated DA button. The indicator will again blink rapidly.

Miscellaneous Function Buttons

We've already covered the HOLD button. There are four other miscellaneous function buttons found below the DA buttons on the first RDVS page. They are:

- REL – This is the release function. Pressing this button releases any active or pending unanswered intercom call.

- HL – This is the Headset/Loudspeaker button. If the indicator is not lit, then all voice radio traffic is directed to the headset or loudspeaker according to the HS/LS selector on each radio panel, and all land line voice traffic is sent to the headset. If the indicator is lit, all voice traffic (both radio and land line) is directed to the loudspeaker.

- OHL – This is the Override Headset/Loudspeaker button. When the indicator is not lit, override voice traffic is directed to the headset. When the indicator is lit, all override voice traffic is directed to the loudspeaker.

- RHL – This is the Radio Headset/Loudspeaker routing button. When the indicator is not lit, radio voice traffic is directed to the headset or loudspeaker according to the HS/LS selector on each radio panel. When the indicator is lit, all radio traffic is sent to the loudspeaker if there is an active override or intercom call in progress. This is sometimes referred to as "auto-routing."

The Global HS/LS Indicator Lights

At the bottom right of the RDVS window, you will see two round red indicator lights, one marked "HS", and the other marked "LS". These lights indicate when there is voice traffic on any radio frequency. This is useful if you are viewing an RDVS page other than the one on which the voice traffic is occurring. The indicator light will light up solid if you are receiving voice traffic on a frequency, and it will blink rapidly if you are transmitting on any voice frequency.

The Flight Plan Editor

The Flight Plan Editor allows you to create and edit flight plans for a track. To display the Flight Plan Editor, press the F6 key and slew the target. Or, you can press F6, enter the track's callsign, and press ENTER. Make any required changes to the flight plan and press the "Amend Flight Plan" button. You can also assign a squawk code to the target by clicking the Squawk button. The text on the button shows the currently-assigned code.

Setting ATIS ID and General Information Text

vSTARS allows the user to specify the current ATIS identifier and up to 10 lines of General Information (GI) text, which is optionally displayed in the SSA. GI text is intended for use as a reminder to the user of any arbitrary information, such as requested miles-in-trail, an event in progress, adverse weather, etc. Refer to the Command Reference for details on how to set the ATIS ID and GI text lines.

Ground Range Mode

The radar system can be placed in Ground Range mode, which causes the primary targets to be rendered similar to multi-site mode, even though the system is still in single-site mode. Use <MULTIFUNC>9<ENTER> to toggle between Ground Range and Slant Range mode.

Top-Down Mode

To support VATSIM controllers that are covering an approach sector as well as one or more tower cab positions (TWR/GND/DEL,) vSTARS provides Top-Down Mode or TDM. When TDM is active, targets that are within 3 NM of one of the TDM-supported airports in the current facility's airport list, are moving less than 40 knots, are within 100 feet of the airport elevation, and are not visible to one of your radar sites, will be displayed with a basic data block showing the callsign, scratchpad, and aircraft type. Use <CTRL>+T to toggle Top-Down Mode. The abbreviation "TDM" will appear next to the selected radar site in the SSA to indicate Top-Down Mode is active.

Bookmarks

vSTARS provides the ability for the user to save and recall the current radar view, including the center point, the zoom level (range) and whether or not Top-Down Mode is active. You can save up to 10 bookmarks using <CTRL>+<ALT>+#. Use the 0-9 number keys across the top of the keyboard. To recall a bookmark, press <CTRL>+#. When a bookmark is recalled, the display center point, display zoom level, and TDM on/off status will be adjusted to match the settings that were in effect at the time the bookmark was created.

Tracking Aircraft

To take ownership of a track, press the INIT CTRL key (F3) and then *slew* (click on) the track. You can also press F3, followed by the aircraft's callsign or beacon code, followed by the ENTER key. The track's data block will turn white and the position symbol will change to your own. The track must be associated (must have a flight plan and an assigned squawk code, and must be squawking that code) in order for this command to work.

To drop track on a target, press the TERM CTRL key (F4) and then slew the track. You can also press F4, followed by by the aircraft's callsign or beacon code, followed by the ENTER key. The track's data block will revert to green and the position symbol will change back to an asterisk (or other symbol depending on various factors.)

Automatic Tracking of Departures

vSTARS supports the ability to automatically begin tracking aircraft as they depart airports listed in the current facility configuration. This feature is off by default. To enable it, use the `.autotrack` dot command. For example, to automatically track all departures from KBOS, KBED, and KMHT, enter the following command:

        `.autotrack kbos kbed kmht`

To autotrack departures from all airports:

```
.autotrack all
```

To disable autotrack completely:

```
.autotrack none
```

To autotrack departures from all airports except KBOS and KMHT:

```
.autotrack all -kbos -kmht
```

Handoffs and Point Outs

Handing Off a Target

To hand off a target to another controller, simply type the controller's sector ID and slew the track. The data block will change to indicate the pending handoff. When the receiving controller accepts the handoff, the target's position symbol will show that of the receiving controller, and the data block will change to green.

Accepting a Handoff

When a controller is handing off a target to you, its data block will change accordingly. (See the section on data blocks for more details.) To accept the handoff, simply slew the track. The position symbol will change to yours, and the data block will turn white.

Point Outs

To point out a track to another controller, enter the controller's sector ID, followed by the asterisk, then slew the track. The data block will indicate a point out on the receiving controller's screen.

If a controller points a track out to you, it will change to a yellow full data block (FDB) with the letters "PO" displayed in green after the target's callsign. To acknowledge the point out, simply slew the track.

Creating Abbreviated Flight Plans

vSTARS supports the ability to create an abbreviated flight plan using command syntax that is similar to that of the real STARS system. If the specified callsign already has a flight plan, the specified data will be used to amend the existing flight plan.

The command to create an abbreviated flight plan consists of the aircraft callsign, followed by zero or more optional fields separated by spaces. The optional fields can be specified in any order. If none are specified, an empty VFR flight plan will be created and a squawk code will be issued. The optional fields are:

- Squawk Code – Specify as 4 digits.

- Scratchpad – Specify as a plus sign followed by up to three alphanumeric characters.

- Aircraft Type – Specify as 4 alphanumeric characters. Must start with a letter.

- Requested Altitude – Specify as three digits in hundreds of feet.

- Departure + Destination Airport – Enter the three letter identifiers separated by an asterisk.

- Destination Airport – Enter the three letter identifier.

- Flight Rules Indicator – For VFR, enter a period followed by the letter V. For IFR, enter just the plus sign. VFR can also be specified with just a forward slash. The plus sign or forward slash can also be entered immediately after the callsign, with no space. Flight rules default to VFR if not specified.

For example, to create a VFR flight plan for N925RC, a Cessna 182, with squawk code 4304, cruising at 6,500 feet, with a scratchpad value of "VFF", issue the following command:

```
N925RC 4304 +VFF C172 065<ENTER>
```

Forcing Track Association

vSTARS supports the ability to force an unassociated track (one that is showing a limited data block) to associate to a flight plan already in the system. This is done by entering the aircraft's callsign, followed by an optional 4 digit beacon code, then clicking on the unassociated track. This will cause the track to become associated with its flight plan and you will automatically start tracking the target. If you do not enter a beacon code, then the code that the track is already squawking will become the assigned beacon code for the track.

The Minimum Safe Altitude Warning (MSAW) System

The MSAW system provides a means to alert the controller when a track has descended (or is about to descend) below the MSA (Minimum Safe Altitude) for a defined geographic region. These geographic regions are defined in the current facility configuration.

If a track enters MSAW alert, it will have a red "LA" displayed on the first line of its data block. A tone will also sound. The track will also be added to the LA/CA/MCI list. To acknowledge the alert and silence the tone, slew the track.

The Conflict Detection System

The conflict detection system in vSTARS works similarly to that of VRC. If two targets are converging and are predicted to have less than the minimum lateral and vertical separation, they will be displayed in Conflict Alert (CA) status. A red "CA" will be displayed in the first line of the data block, and if you are tracking either target, a

tone will sound. A line will also be added to the LA/CA/MCI list for the pair of tracks in conflict. To acknowledge the CA and silence the tone, slew either track.

The facility engineer can use system processing volumes can be used to create areas where conflict alerts are suppressed.

The Converging Runway Display Aid (CRDA) System

The CRDA system is designed to assist controllers with sequencing arrivals to converging runways. CRDA can be enabled for one or more Runway Pair Configurations, or RPCs. Each RPC consists of a master runway, a slave runway, a horizontal qualification region, and a descent path profile. RPCs are defined by the facility engineer.

The horizontal qualification region and descent path profile are used by vSTARS to determine if a track is eligible to create a ghost track on the associated slave runway. The horizontal qualification region is trapezoidal in shape, with the narrow end closest to the runway's arrival end, and the wider end furthest out from the runway. (See the Command Reference for instructions on how to display the qualification region on screen.)

The system generates "ghost tracks" on the slave runway for each track that enters the qualification region for the master runway (or vice-versa if ghosting is enabled for targets on the slave runway) and meets the following criteria:

1. The track's ground track is within a configurable variance from the master runway heading.

2. The track's altitude is within the descent path profile.

3. The track's ground speed is 350 knots or less.

Tracks within the qualification region that do not meet the above criteria can be forced to generate a ghost track using a keyboard command. (See the Command Reference for details.)

If an RPC is active in Stagger mode, ghost tracks are generated on the slave runway extended center line at a point that is the same distance from the crossing point of the two runways as the parent track's distance from the intersection. The controller can then sequence arrivals to the slave runway in between these ghost tracks and be ensured proper separation from the tracks arriving at the master runway.

If an RPC is active in Tie mode, the ghost tracks are offset by the configured stagger distance. In this mode, the controller vectors arrivals to the slave runway such that they are co-located with (or "tied to") the ghost tracks. This ensures that the arrivals will have separation equal to the stagger distance for the RPC.

Special Purpose Codes

A number of Special Purpose Codes (SPCs) are recognized by the system. These are beacon codes that carry special meaning when the pilot enters the code into the aircraft's transponder. These codes and their meanings are as follows:

*   7500 – HJ – Hijack

*   7600 – RF – Radio Failure

*   7700 – EM – Emergency

*   7777 – MI – Military Intercept

*   1236 – SA – Suspect Aircraft

If a target squawks any of these codes, the associated two-character identifier will be displayed in the first line of the target's data block. The identifier will also be displayed in the SSA, and a tone will sound (with the exception

of the SA code.) To acknowledge the SPC and silence the tone, slew the track. These codes can also be manually assigned to a track. (See the Command Reference for details.)

TPA J-Rings and Cones

vSTARS supports the ability to display Terminal Proximity Alert (TPA) J-Rings or Cones. These are graphical tools which assist the controller with maintaining minimum separation between targets.
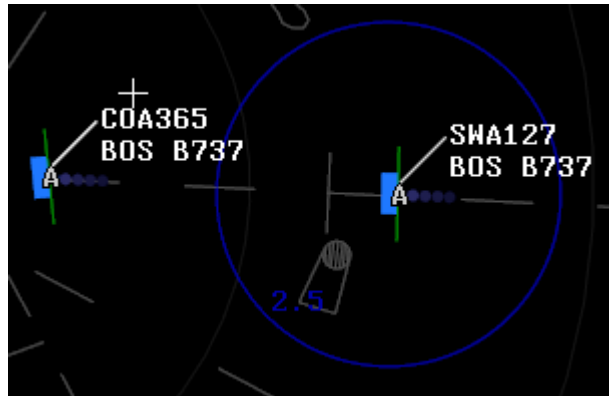
TPA J-Rings (pictured above) are rendered as a circle centered on the target. The controller specifies the radius in nautical miles when activating the J-Ring.
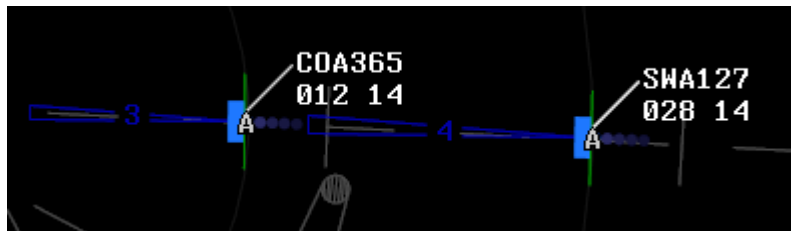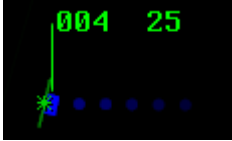
TPA Cones (pictured above) are rendered as a cone projecting out from the target location along the target's calculated ground track. The controller specifies the length of the cone in nautical miles when activating the cone.
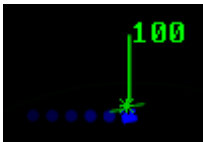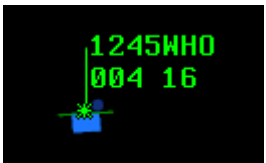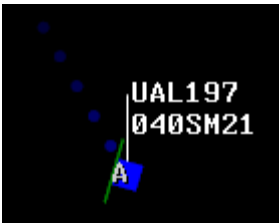
The display of the J-Ring radius or Cone length can be inhibited using keyboard commands.

Refer to the Command Reference for details on activating TPA graphics.

Data Blocks

This section provides examples of the various types of data blocks supported by vSTARS.
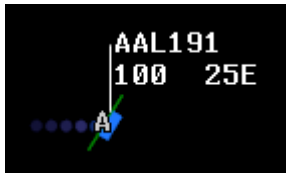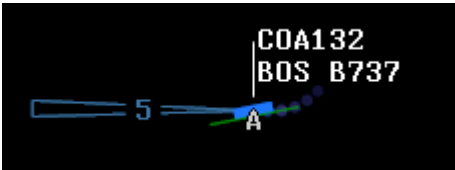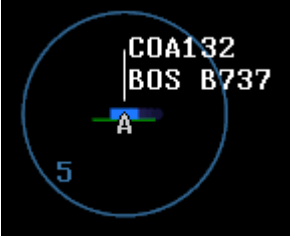
`004   25`	This is a partial data block (PDB), showing the altitude and ground speed. The altitude is displayed in hundreds of feet MSL, and the ground speed is displayed in tens of knots. The asterisk indicates that the track is not owned by any controller.
`UAL197` `004   25`	This is a full data block. (FDB) The second line of the data block alternates between displaying altitude and ground speed, and destination airport (or scratchpad) and aircraft type.

`UAL197`
`KJFK   B737`
`A`
	The white data block indicates that this track is owned by us.

`UAL197` `KJFK   B737`	A cyan data block indicates a track that has been highlighted by the user.

`LA`
`UAL197`
`KJFK   B737`
`A`
	This track is in MSAW alert status.

`UAL197`
`340   45`
`C`
	This track is owned by another controller. The "C" position symbol indicates that it is owned by an enroute (CTR) sector.

	This track is not squawking Mode C. Only the primary target symbol is shown.
`4305` `100`	This is an unassociated track showing a limited data block (LDB). The target is squawking Mode C, but the beacon code is not associated with a flight plan.

100	This is the same track, with beacon codes inhibited in limited data blocks.
4305 100	The square position symbol depicted here indicates that this track is squawking a code that belongs to a beacon code group that the user has selected.
UAL197 KJFKSMB737 M	This track is being handed off to us. The "SM" between the two fields on the second line indicate the sector ID of the sending controller. The data block blinks until the handoff is accepted or refused. For handoffs to/from a CTR sector, the sector ID is instead time shared with the Mode C altitude.
1245WHO 004 16	This track just departed one of the airports listed in the facility configuration, but it is not associated to a flight plan. (Due to not squawking its assigned code.) The "WHO" indicator blinks, to show that the flight cannot be automatically tagged up to a controller.
UAL197 040SM21 A	We are handing this track off to the "SM" sector. When the receiving controller accepts the handoff, the data block will blink for 10 seconds and remain white until the user clicks the target, after which the data block will revert to the normal green color.
UAL197 PO 040 21 M	This track has been pointed out to us. The data block blinks.
UAL197 △ 040 21 A	The triangle after the callsign indicates that conflict alerts have been inhibited for this track.

	This track has its Predicted Track Line (PTL) enabled, showing where the system predicts the track will be in a configurable number of minutes.
	This data block is showing the pilot's requested (filed) altitude. The requested altitude is prefixed with an "R".
	An altitude prefixed with an "A" on the third line of the data block indicates an assigned (temporary) altitude.
	For this track, the user has inhibited the display of the Mode C reported altitude.
	The asterisk following the altitude field indicates that this is a pilot-reported altitude.
	For this track, the user has inhibited MSAW alerts. This is indicated by the asterisk following the callsign.
	This is how tracks appear when the system is in single-site radar mode. The secondary radar return, also known as the beacon extents, and the primary target symbol, are drawn perpendicular to the target's bearing from the radar site. The beacon extents and primary target symbol are larger the further the track is from the radar.

UAL197 040 21 A	This is how tracks appear when the system is in multi-site radar mode. There is no beacon extents line, and the primary target symbol is drawn perpendicular to the target's ground track. The primary target symbol will appear hollow if the target is beyond 40 NM from the reporting radar site.
COA132 CST 25 A	This track is coasting.
EM/LA UAL197 KJFK B737 A	This example shows a track that is both in MSAW alert and is squawking an SPC.
CA N710CP 065 11V A A CA DAL211 065 25	These tracks are in Conflict Alert (CA) status.
N710CP 065 11V	A VFR track, indicated by the "V" following the ground speed.
DAL342 100 25 F A	The "F" following the ground speed indicates this is a Boeing 757. A "J" would indicated an A380.
UAL982 100 25 H A	The "H" following the ground speed indicates that this track is a "heavy".

AAL191 100 25E A	The "E" following the ground speed indicates that this track is an overflight. (Not arriving to or departing from any of your listed airports.)
COA1090 TRK 25 F A	The "TRK" indicator in place of the Mode C altitude signifies that this target is being tracked by a radar site other than the currently-selected site. Such targets also have no primary or secondary target symbol, and no radar history trail.
COA132 BOS B737 5 A	This track is displaying a TPA Cone. The cone indicates the target's predicted ground track. The number 5 indicates the length of the cone in nautical miles.
COA132 BOS B737 A 5	This track is displaying a TPA J-Ring. The number 5 indicates the radius of the ring in nautical miles.

Appendix A – Controller Info Variables and Functions

Variables

Since many of the items you will commonly want in your controller info change with time, or from one pilot to the next, vSTARS provides a number of variables which you can insert into your controller info text. When a pilot tunes your frequency and requests your controller info, these variables are replaced with the relevant information. The following table lists all of these variables:

$arr	Inserts the aircraft's destination airport.
$dep	Inserts the aircraft's departure airport.
$callsign	Inserts your callsign.
$com1	Inserts your primary frequency.
$myrealname	Inserts your full name. (From the Network Tab in the Settings Window.)
$winds	Inserts the winds at the aircraft's departure field if the aircraft is not airborne, otherwise inserts the wind at the destination airport.
$time	Inserts the current zulu time.

Functions

$metar(airport)	Inserts the current METAR for the specified airport. Note that the METAR must have been retrieved previously either by having the airport contained in the SSA, or by having previously retrieved the full METAR with the .metar or .wx commands.
$altim(airport)	Inserts the current altimeter setting for the specified airport.
$wind(airport)	Inserts the current winds for the specified airport.
$radioname()	Inserts your "Radio Name" as defined in the POF file. Leave the parentheses empty.
$freq()	Inserts your primary frequency, same as $com1. Leave the parentheses empty.