TERMINAL CONTROLLER
WORKSTATION
REFERENCE MANUAL

STARS Scope command syntax and usage

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STARS SCOPE USED IN ATCPRO

Left Display Control Panel (DCP)

Data Control Bar (DCB)

Right Display Control Panel (DCP)

System Status Area

Flight Lists

Communications History Window

Aircraft Targets

Primary Airport

Communications Panel
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TERMINAL CONTROLLER WORKSTATION (TCW) OVERVIEW

In ATCpro the “radar scope” that is used to display aircraft under your control and the surrounding airspace is called the Terminal Controller Workstation (TCW). In this simulation we are modelling the major functions and capabilities of a Professional STARS scope in use today. We have not added or “made up” any features or capabilities that do not exist in real world equipment or even future equipment. This manual will give you an overview and detailed description of the features and how to use the TCW in the simulation.

The TCW controls are accessed by moving the mouse cursor and left or right clicking buttons or dials. The rotary knobs can be turned by rolling the mouse wheel. You will use the computer keyboard to enter keystroke combinations and certain command keys that simulates the keyboard of an actual TCW.

Once you have set up and customized the work station to your liking the primary settings can be saved as a preset file that can be loaded in at the start of the session. Note: The background maps on the scope that are specific to each facility are not part of the preset and will be selected for each controlling session.

In your controlling session you will be doing various tasks to keep the aircraft under your control safely separated and on course. Examples are giving spoken commands to aircraft based on radar position information, managing the appearance of displayed data, and transferring, accepting and initiating ATC control for flights entering and leaving a defined sector of airspace. You will be using various tools to supplement radar data such as on screen maps, flight plan lists and range line bearings.

On the Workstation there is a center display control bar (DCB) of buttons on the screen, and a right and left vertical control panel of knobs and buttons called display control panels (DCP). Other important control panels you will use are the Communications Panel for selecting radio frequencies to transmit and receive between aircraft and other controllers, the Communications History panel which displays the text content of radio transmissions of currently selected frequencies, and the Data Reference Panel for reference information such flight plan data, airport data aircraft data, waypoint pronunciations, etc.

On the screen itself are the following elements:

**System Status Area** – The current simulation information such as time (UTC), Altimeter setting for multiple airports, Traffic flow direction, ATIS letter, wind direction and speed, runways in use for multiple airports, selected range, PTL value, etc. Each of these data fields can be turned on or off.

**Flight Data Lists** – Flight lists displayed could be VFR for Visual Flight Rules flight plans, TOWER for arriving and departing traffic from each airport, FLIGHT PLANS for filed departure flight plans, CA ZONE STATUS for collision alert sensor status, SIGN ON for a list of the controllers currently active in the sector, LA/CA/MCI for flights in emergency situations and COAST/SUSPEND for coasting and suspended tracks. The position and visibility of each list can be set with keystroke combinations.

**Track** – Identifies each aircraft’s current location with a position symbol and information about the aircraft in and attached data block. The position symbol is assigned a one or two digit letter or number to indicate who is in control of the aircraft (shown on the SIGN ON list). There can be an attached history trail of dots and a predicted track line.

**Data Block** – Connected to a position symbol by a leader line, the Data Block presents textual information about the aircraft including cleared and actual altitudes, speed, destination, aircraft type,
category, beacon code, exit fix code and aircraft ID (ACID).

**Compass Rose** – Degree markings around the outer edge of the radar window as a heading reference. Oriented to magnetic north.

*Note: When drawn in red means another window (such as the Radio Panel) has program “focus” so any keyboard commands will not be recognized. Click the mouse anywhere on the scope to restore focus and the compass lines will turn white.*

**Display Control Bar** – Selectable buttons on the screen to activate controller functions. The control bar can be moved to top, bottom, left or right of the scope (or hidden). Many of the functions on the DCB (and sub control bar pages) can be activated using a keyboard shortcut.

**Preview Area** – Shows keyboard entry keystrokes and flight plan data. Can be moved or hidden with a keystroke combination.

The following sections explain all the functions of the TCW and provide a comprehensive reference for using the scope in the Simulation.
COMMANDS

You will interact with the “radar scope” or TCW using the keyboard or the mouse. Some commands can only be performed with the keyboard, some with only the mouse and many with both. In this manual each of the possible methods of interaction are described or shown as Not Applicable. The Display Control Panels (DCPs) can only be operated with the mouse since there are no external hardware consoles available in this simulation.

To perform commands, enter the key combination normally starting with a function key (such as <F10>), followed by the other letter or number keys and ending with identifying the aircraft track or scope feature. For example to perform the command to display an aircraft flight plan, press <F10>, then D, then the “tab number” which is the number on the left side of the flight list for the aircraft, then press ENTER. Another example: to move the Sign-on list position on the scope, press F10, then T, then S, then Slew (click) the new location on the scope.

Many Commands require identifying an aircraft track on which to perform the command. This can be done in several ways (including entering the Tab number) but the simplest method is to click on a track on the scope with the left button of the mouse. This is also known as “slewing” the track. (See section on Tracks and Datablocks on p.26)

Implied commands - Some commands can be entered without having to press the Function key first to begin the key sequence. An example of this is doing the handoff key sequence to a Center or Tower position: For Example, the sequence “C, Slew Target” hands a target off to an adjacent Center controller. The Function key that would normally be required at the beginning is <F8>.

Handoffs - ATCpro simulates multiple controllers in each facility of airspace. On the Duty Desk you can assign yourself as many or as few sectors to control for a session. You can even let the virtual controllers do all the controlling so you can watch how the pros handle things. You will always have controllers handing off aircraft to you and you will be handing off to other controllers.

To receive a handoff from an adjacent controller it is as simple as clicking on the track when you see the track ID letter flash white on the scope. The aircraft will soon call you up on your frequency and announce his current clearance such as “American 123, with you out of five thousand for eight thousand “.

Now this aircraft is under your control and you “own” him. When the aircraft approaches a boundary of your controlling airspace you need to hand him off to the adjacent controller.

Handing off is usually a two step process. The first step is entering the Controller ID letter (C,N,S,D etc.) then click the target. The second step is giving the pilot the frequency of the controller you are handing him off to, such as, “American 123, contact Albuquerque Center on one thirty three point six”. Make sure he reads back the correct frequency then his target will turn green to indicate he is no longer under your control.

Note: once you give him the frequency change you will not be able to give him any commands. There may be local variations of procedure such as for arrivals at Miami there is no need to do the command keystroke to hand off to Tower. All you need to do is give the frequency change to Tower once the pilot has been cleared for an approach.

It is important to know the controller ID codes and radio frequencies for who you are handing off to. The Sign-on list on the scope will have the ID numbers and frequencies for all the controllers in the area with the exception of Local Control (Tower). The Tower frequencies can be found currently on Quick reference sheets (or other places TBD).
This section will show the currently implemented key commands that can be used in STARS while using ATCpro.
The first table shows the function or primary keys used for commands. The second table references those keys and details each command.

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<tr>
<th>STARS Function</th>
<th>QWERTY Keyboard</th>
<th>Function or Key Description</th>
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<tr>
<td>DCB</td>
<td>F1</td>
<td>Toggle Display Control Bar</td>
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<tr>
<td>MAPS</td>
<td>F2</td>
<td>Map#, ENTER toggles display of video map. Alternatively, map#, E, ENTER turns map on, and map#, I, ENTER turns map off.</td>
</tr>
<tr>
<td>WX</td>
<td>F3</td>
<td>Used to toggle display of weather layers</td>
</tr>
<tr>
<td>INIT CNTL</td>
<td>F4</td>
<td>Not implemented</td>
</tr>
<tr>
<td>TRK RPOS</td>
<td>F5</td>
<td>Not implemented</td>
</tr>
<tr>
<td>TRK SUSP</td>
<td>F6</td>
<td>Not implemented</td>
</tr>
<tr>
<td>TERM CNTL</td>
<td>F7</td>
<td>Not implemented</td>
</tr>
<tr>
<td>HND OFF</td>
<td>F8</td>
<td>Used to preface handoff commands</td>
</tr>
<tr>
<td>FLT DATA</td>
<td>F9</td>
<td>Press then SLEW to track to toggle display of aircraft type in a full datablock</td>
</tr>
<tr>
<td>MULTI FUNC</td>
<td>F10</td>
<td>Used for multi function commands</td>
</tr>
<tr>
<td>F8</td>
<td>F11</td>
<td>Not implemented</td>
</tr>
<tr>
<td>CNTR</td>
<td>&lt;SHIFT&gt; F1</td>
<td>Used to toggle center point of map</td>
</tr>
<tr>
<td>RR</td>
<td>&lt;SHIFT&gt; F2</td>
<td>Press then enter valid range value, then ENTER to set the range ring display frequency</td>
</tr>
<tr>
<td>RANGE</td>
<td>&lt;SHIFT&gt; F3</td>
<td>Used to change range of scope</td>
</tr>
<tr>
<td>F9</td>
<td>&lt;SHIFT&gt; F4</td>
<td>Not implemented</td>
</tr>
<tr>
<td>F10</td>
<td>&lt;SHIFT&gt; F5</td>
<td>Not implemented</td>
</tr>
<tr>
<td>CA</td>
<td>&lt;SHIFT&gt; F6</td>
<td>Not implemented</td>
</tr>
<tr>
<td>F12</td>
<td>&lt;SHIFT&gt; F7</td>
<td>Not implemented</td>
</tr>
<tr>
<td>F13</td>
<td>&lt;SHIFT&gt; F8</td>
<td>Not implemented</td>
</tr>
<tr>
<td>F14</td>
<td>&lt;SHIFT&gt; F9</td>
<td>Not implemented</td>
</tr>
<tr>
<td>TGT GEN</td>
<td>&lt;SHIFT&gt; F10</td>
<td>Not implemented</td>
</tr>
<tr>
<td>F16</td>
<td>&lt;SHIFT&gt; F11</td>
<td>Not implemented</td>
</tr>
<tr>
<td>BRITE</td>
<td>Insert</td>
<td>Access the BRITE sub menu on DCB</td>
</tr>
<tr>
<td>CHAR</td>
<td>Home</td>
<td>Access the CHAR sub menu on DCB</td>
</tr>
<tr>
<td>SHIFT</td>
<td>Page Up</td>
<td>Toggle between main and auxiliary DCB</td>
</tr>
<tr>
<td>LDR</td>
<td>Delete</td>
<td>Used to change leader length</td>
</tr>
<tr>
<td>SITE</td>
<td>End</td>
<td>Access the SITE sub menu of DCB</td>
</tr>
<tr>
<td>MODE</td>
<td>Page Down</td>
<td>Access the MODE sub menu of DCB</td>
</tr>
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### Keystroke Combination

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<th>Command Description</th>
<th>Ref on Page</th>
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<tr>
<td><strong>Handoff or accept control of aircraft</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C(sect#), SLEW</strong></td>
<td>Initiate handoff to ARTCC (Implied Command)</td>
<td></td>
</tr>
<tr>
<td><strong>C, SLEW</strong></td>
<td>Initiate handoff to ARTCC (Implied Command)</td>
<td></td>
</tr>
<tr>
<td><strong>Controller ID (N, S, D, etc), SLEW</strong></td>
<td>Initiate handoff to facility controller</td>
<td></td>
</tr>
<tr>
<td><strong>SLEW</strong></td>
<td>Accept handoff (Implied Command)</td>
<td></td>
</tr>
<tr>
<td><strong>SLEW (to associated track)</strong></td>
<td>Toggle quick look for a single track (Implied Command)</td>
<td></td>
</tr>
<tr>
<td><strong>Show aircraft flight plan</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>&lt;F10&gt;, D, (tab#), ENTER</strong></td>
<td>Full flight plan in Preview area with SID/STAR and route of flight plotted.</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;F10&gt;, D, (beacon code), ENTER</strong></td>
<td>Same</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;F10&gt;, D, (ACID), ENTER</strong></td>
<td>Same</td>
<td></td>
</tr>
<tr>
<td><strong>System Status Area</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>&lt;F10&gt;, S, SLEW</strong></td>
<td>Move system status area</td>
<td>Not operational</td>
</tr>
<tr>
<td><strong>Preview Area</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>&lt;F10&gt;, P, SLEW</strong></td>
<td>Move preview area</td>
<td></td>
</tr>
<tr>
<td><strong>Lists</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>&lt;F10&gt;, T, (listID), SLEW</strong></td>
<td>Move and show list</td>
<td></td>
</tr>
<tr>
<td>List ID can be...</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>S – Sign On List</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C – Coast/Suspend List</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>V – VFR aircraft List</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M – LA/CA Alert List</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>No ID – Flight Plan List (ie. F10, T, SLEW)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>&lt;F10&gt;, T, (list ID), ENTER</strong></td>
<td>Hide/Show list</td>
<td></td>
</tr>
<tr>
<td><strong>F10, P, (tower list #), SLEW</strong></td>
<td>Move and show specific tower list</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;F10&gt;, P, (tower list #), ENTER</strong></td>
<td>Hide/Show specific tower list</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;SHIFT F6&gt;, Q, Q, SLEW</strong></td>
<td>Move and show CA zone suppression list</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;SHIFT F6&gt;, Q, Q, ENTER</strong></td>
<td>Hide/Show CA zone suppression list</td>
<td></td>
</tr>
<tr>
<td><strong>Scope Centering</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>&lt;SHIFT F1&gt;</strong></td>
<td>Toggle between default and user-specified center</td>
<td></td>
</tr>
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</table>

In the following table, keystrokes will be entered as the STARS function key described above. Anytime the word SLEW is used, this denotes left clicking on the scope where appropriate. Items within a square bracket [] are optional entries. Keys inside <> are key labels such as <F10> and <DELETE>.
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<td><strong>Controller Sign on/off</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;SHIFT&gt; + F12, (any 2 character Initials ex. “DL”), &lt;SPACE&gt;, (2 character position initials ex. “1N”)</td>
<td>User sign on to control position</td>
<td></td>
</tr>
<tr>
<td>&lt;SHIFT&gt; + F12, * , &lt;SPACE&gt;, (2 character position initials ex. “1N”)</td>
<td>User sign off to control position</td>
<td></td>
</tr>
<tr>
<td><strong>Weather Display</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;F3&gt;, 1 or 2 or 3 or 4 or 5 or 6, [E or I], ENTER</td>
<td>Display or remove specific weather map</td>
<td></td>
</tr>
<tr>
<td><strong>Altitude Filter Limits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;F10&gt;, F, ENTER</td>
<td>Display altitude filter limits</td>
<td></td>
</tr>
<tr>
<td>&lt;F10&gt;, F, unassociated limits, [SPACE, associated limits] ENTER</td>
<td>Modify altitude filter limits for unassociated/associated tracks</td>
<td></td>
</tr>
<tr>
<td>&lt;F10&gt;, F, C, associated limits, ENTER</td>
<td>Modify associated limits only</td>
<td></td>
</tr>
<tr>
<td><strong>Range Display</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RANGE, (6-256), ENTER</td>
<td>Change display range to entered value (6-256nm)</td>
<td></td>
</tr>
<tr>
<td><strong>Datablock Positioning</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leader direction (1/2/3/4/5/6/7/8/9), SLEW</td>
<td>Specify datablock position for a single track</td>
<td></td>
</tr>
<tr>
<td>&lt;F10&gt;, L, leader direction (1-9), ENTER</td>
<td>Specify datablock position for all owned tracks</td>
<td></td>
</tr>
<tr>
<td>&lt;F10&gt;, L, leader direction (1-9), *, ENTER</td>
<td>Specify datablock position for unowned tracks</td>
<td></td>
</tr>
<tr>
<td>&lt;F10&gt;, L, TCP, SPACE, leader direction (1-9), ENTER</td>
<td>Specify datablock position for a specific controller position</td>
<td></td>
</tr>
<tr>
<td>&lt;F10&gt;, L, leader direction (1-9), U, ENTER</td>
<td>Specify datablock position for unassociated tracks</td>
<td></td>
</tr>
<tr>
<td><strong>Leader Line Length</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;DELETE&gt;, line length (0-7), ENTER</td>
<td>Change leader line length</td>
<td></td>
</tr>
<tr>
<td><strong>Auto Datablock Offset</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;F10&gt;, O, [E or I], ENTER</td>
<td>Enable or Disable datablock auto offset</td>
<td></td>
</tr>
<tr>
<td><strong>Terminal Proximity Alert</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*, J, radius (1.0-30.0nm), SLEW</td>
<td>Display/Modify TPA J-Ring for single track</td>
<td></td>
</tr>
<tr>
<td>*, J, SLEW</td>
<td>Delete TPA J-Ring for single track</td>
<td></td>
</tr>
<tr>
<td>*, *, J, ENTER</td>
<td>Delete TPA J-Ring for all tracks</td>
<td></td>
</tr>
<tr>
<td>*, P, radius (1.0-30.0nm), SLEW</td>
<td>Display/Modify TPA Cone for single track</td>
<td></td>
</tr>
<tr>
<td>*, P, SLEW</td>
<td>Delete TPA Cone for single track</td>
<td></td>
</tr>
<tr>
<td>*, *, P, ENTER</td>
<td>Delete TPA Cone for all tracks</td>
<td></td>
</tr>
<tr>
<td>*, D, SLEW</td>
<td>Toggle display of TPA size data for single track</td>
<td></td>
</tr>
<tr>
<td>*, D, ENTER</td>
<td>Toggle display of TPA size data for all tracks</td>
<td></td>
</tr>
<tr>
<td><strong>Minimum Separation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;TAB&gt;, SLEW (first track), SLEW (second track)</td>
<td>Show minimum separation for two selected tracks</td>
<td></td>
</tr>
<tr>
<td>&lt;TAB&gt;, ENTER</td>
<td>Remove minimum separation</td>
<td></td>
</tr>
<tr>
<td><strong>Predicted Track Line</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;F10&gt;, R, SLEW</td>
<td>Toggle display of predicted track line for single track.</td>
<td></td>
</tr>
<tr>
<td>Keystroke Combination</td>
<td>Command Description</td>
<td>Ref on Page</td>
</tr>
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<td>---------------------------------------------</td>
<td>--------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Low Altitude Alert warning buzzer</strong></td>
<td>F10, V, SLEW Silence alarm/enable alarm toggle</td>
<td></td>
</tr>
<tr>
<td><strong>Converging Runway Display Aid (CRDA)</strong></td>
<td>F10, N, (number in CRDA line of System Status area ex.”1”), ENTER Turn on/off CRDA display on a runway</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F10, V, (“T” or “S” for Tied or Staggered mode), ENTER Turn on/off tied or staggered mode for CRDA display on a runway</td>
<td></td>
</tr>
<tr>
<td><strong>Sim rate COMMANDS</strong></td>
<td>+ on the numpad Increase sim speed. Displays 2x in Status area with successive presses.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- on the numpad Decrease sim speed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;PAUSE&gt; (Function key lock must be off) Pause simulation</td>
<td></td>
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DISPLAY CONTROL PANELS (DCP)

**Left Side Control Panel**
- Adjusts brightness of control panel text (outer knob)
- Adjusts brightness of control panel switches (inner knob)
- Adjusts brightness of history trail (outer knob)
- Adjusts number of history symbols (inner knob)
- Adjusts brightness of Full data blocks, cursor, and Preview area (outer knob)
- Adjusts brightness of list text (inner knob)
- Adjusts brightness of Limited and Partial data blocks (outer knob)
- Adjusts brightness of weather
- Adjusts brightness of position symbols for FDBs (outer knob)
- Adjusts brightness of Primary – only tracks (inner knob)
- Adjusts brightness of position symbols for LDBs and PDBs (outer knob)
- Adjusts brightness of range rings (inner knob)
- Adjusts the brightness of group A maps (outer knob)
- Adjusts the brightness of group B maps (inner knob)

**Right Side Control Panel**
- Click icon for Window mode. Press X to end controlling Session.
- Press to display or remove maps one (1) thru six (6)
- Not used
- Adjusts the leader line lengths for tracks (outer knob)
- Adjusts the leader line orientation for owned tracks (inner knob)
- Pans the radar picture North and South (outer knob)
- Pans the radar picture East and West (inner knob)
- Adjusts font size of data blocks and Prev. area (outer knob)
- Adjusts font size of position symbols (inner knob)
- Adjusts display range (outer knob)
- Adjusts range ring interval (inner knob)
- Opens Communications History and Flight Strip panels
- Opens Communications and data reference panels
- Click to Pause/Unpause simulation
# DISPLAY CONTROL BAR (DCB) MAIN

<table>
<thead>
<tr>
<th>RANGE</th>
<th>PLACE CNTR</th>
<th>RR</th>
<th>RR CNTR</th>
<th>PLACE RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF CNTR</td>
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</tr>
<tr>
<td>RR CNTR</td>
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<tr>
<td>MAPS</td>
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<tr>
<td>20</td>
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</tr>
</tbody>
</table>

- **Keyboard**: `<F1>` to Hide/show DCB

**RANGE**
Adjustment button, Used to set the viewable range on the scope.
- **DCB**: Left click, then uses mouse wheel to scroll values Up/Down
- **Keyboard**: `<SHIFT-F3>`, type value, `<ENTER>`
- **DCP Knob**: Rotate knob using mouse wheel
- **Errors**: RANGE LIMIT - Value less than 6 or greater than 256
  - FORMAT - Value entered not a number

**PLACE CNTR**
Action button, Used to set an off default center for the scope
- **DCB**: Left click, mouse will jump to center of screen and change to X shaped cursor, move mouse to move scope. Left click to SET the off center point
- **Keyboard**: Not applicable
- **DCP**: The S-N, E-W knobs can be used to move scope center, but it will NOT be saved as off center location
- **Errors**: None

**OFF CNTR**
Toggle button, Used to switch between designated off center for scope and the default center.
- **DCB**: Left click to toggle On/Off. Buttons looks pressed in when ON.
- **Keyboard**: `<Shift-F1>` to toggle On/Off
- **DCP**: Not applicable
- **Errors**: None

**RR**
Adjustment button, Used to adjust distance between range rings (2, 5, 10, 20)
- **DCB**: Left click on button, use mouse wheel to change values Up/Down
- **Keyboard**: `<SHIFT-F2>`, enter value, `<ENTER>`
- **DCP**: Rotate knob with mouse wheel
- **Errors**: ILL VALUE - Value not 2, 5, 10, or 20
  - FORMAT - Value not a number

**PLACE RR**
Action button, Used to set an off default center for the range rings
- **DCB**: Left click, mouse will jump to center of screen and change to X shaped cursor, move mouse to move range rings. Left click to SET the off center point
- **Keyboard**: Not applicable
- **DCP**: Not applicable
- **Errors**: None
## RR CNTR
Toggle Button, Used to switch between designated off center for range rings and the default center.
- **DCB**: Left click to toggle On/Off. Buttons looks pressed in when ON.
- **Keyboard**: Not applicable
- **DCP**: Not applicable
- **Errors**: None

## MAPS
Sub DCB page button, access to the Maps SubMenu.
- **DCB**: Click to select the SubMenu
- **Keyboard**: `<F2>` Map #, `<E>` or `<I>`, `<ENTER>`. “E” turns ON map number, “I” turns OFF map number. `<F2>`, `<A>`, `<ENTER>` turns off all maps.
- **DCP**: Not applicable
- **Errors**: None

## Primary MAPS
Toggle buttons, Six primary maps (most used) are displayed on the Main DCB. These are used to toggle maps on or off. Note: These cannot be defined by the user.
- **DCB**: Click on map to toggle On/Off
- **Keyboard**: Not applicable
- **DCP**: Six buttons at top of right DCP. Click to toggle map On/Off.
- **Errors**: None

## WX 1-6
Toggle button, Used to toggle display of weather on the scope and show available of radar data.
- **DCB**: Click to toggle On/Off
- **Keyboard**: `<F3>`, WX number, `<ENTER>`
- **DCP**: Not applicable
- **Errors**: None

## BRITE
SubMenu button, Used to access the Brite SubMenu, discussed below
- **DCB**: Click to select the SubMenu
- **Keyboard**: `<INSERT>`
- **DCP**: Not applicable
- **Errors**: None

## LDR DIR
Adjustment button, Change the Data block position and leader line position for all owned/QL targets. Will display the currently selected value in the button.
- **DCB**: Click to select button, use mouse wheel to scroll through available settings
- **Keyboard**: `<F10>` L, Direction #, Left Click to set. (NW = 7, SE = 3, etc.)
- **DCP**: Use mouse wheel on knob to adjust setting
- **Errors**: None
LDR
Adjustment button, Use to change the leader line length for all owned/Quick looked targets. Displays the current value in the button.
DCB
Click to select button, scroll mouse wheel Up/Down
Keyboard
<DELETE>, type value (0-7), <ENTER>.
<F10>,<O>, <E or I>, <ENTER> to enable or disable data block auto offset.
DCP
Use mouse wheel on knob to adjust setting
Errors
RANGE LIMIT - Displayed if entered value to large or small (0-7)
FORMAT - Value entered not a number

CHAR SIZE
SubMenu button, Used to access the Character Size SubMenu, discussed below
DCB
Click to access the SubMenu
Keyboard
<HOME>
DCP
Not applicable
Errors
None

MODE FSL
SubMenu button, Used to access the MODE FSL SubMenu, discussed below
DCB
Click to access the SubMenu
Keyboard
Not applicable
DCP
Not applicable
Errors
None

SITE MULTI
SubMenu button, Used to access the SITE MULTI SubMenu, discussed below
DCB
Click to access the SubMenu
Keyboard
Not applicable
DCP
Not applicable
Errors
None

Pref Default
SubMenu button, Used to access the Preference SubMenu. Allows the user to save the scope settings to preset names, and change to saved presets.
DCB
Click to access the SubMenu
Keyboard
Not applicable
DCP
Not applicable
Errors
None

SSA FILTER
SubMenu button, Used to toggle on and off the System Status area fields, discussed below.
DCB
Click to access the SubMenu
Keyboard
Not applicable
DCP
Not applicable
Errors
None
GI TEXT FILTER

SubMenu button, Used to toggle on and off the airport info fields in the System Status area, discussed below.

DCB
Click to access the SubMenu

Keyboard
Not applicable

DCP
Not applicable

Errors
None

SHIFT

Action button, Used to change DCB from Main Page to Auxiliary DCB Page

DCB
Click to select the aux menu

Keyboard
<PAGE UP>

DCP
Non applicable

Errors
None

DCB AUXILIARY PAGE

VOL
Adjustment button, Used to adjust volume for the aural warning from the TCW.

DCB
Click to select, use mouse wheel to adjust values

Keyboard
Not applicable

DCP
Non applicable

Errors
None

HISTORY
Adjustment button, Used to adjust the number of history trails visible on targets. Valid values are 0 to 5

DCB
Click to select, use mouse wheel to adjust Up/Down

Keyboard
Not applicable

DCP
Use mouse wheel on knob to adjust value

Errors
None

H_RATE
Adjustment button, Used to adjust the distance between history trails in seconds. Valid values are 1 to 5

DCB
Click to select, use mouse wheel to adjust Up/Down

Keyboard
Not applicable

DCP
Use mouse wheel on knob to adjust value

Errors
None
**CURSOR HOME**

Toggle button, when selected the cursor will jump to center screen on PLACE commands.

- **DCB**: Click to toggle On/Off
- **Keyboard**: Not applicable
- **DCP**: Not applicable
- **Errors**: None

**CSR SPD**

Non functioning

**MAP UNCOR**

Non functioning

**UNCOR**

Non functioning

**BEACON**

Non functioning

**RTQC**

Non functioning

**MCP**

Non functioning

**DCB TOP**

Action button, Moves the DCB to the Top of the scope

- **DCB**: Click the button to move DCB position

**DCB RIGHT**

Action button, Moves to right side of scope

- **DCB**: Click the button to move DCB position

**DCB LEFT**

Action button, Moves to left side of scope

- **DCB**: Click the button to move DCB position

**DCB BOTTOM**

Action button, Moves to bottom of scope

- **DCB**: Click the button to move DCB position

**PTL LNTH**

Adjustment button, Changes the length of the predicted track line (PTL) on targets.

- **DCB**: Click button to select, use mouse wheel to adjust value Up/Down (0.0 - 5.0)
- **Keyboard**: Not applicable
- **DCP**: Not applicable
- **Errors**: None

**PTL OWN**

Radio button, selecting will deselect the PTL ALL button. When selected, PTLs will only be displayed on owned or quick looked targets.
DCB  Click to select  
Keyboard  Not applicable  
DCP  Not applicable  
Errors  None  

**PTL ALL**  
Radio button, selecting will deselect the PTL OWN button. When selected, PTLs will be displayed for all targets on scope.  
DCB  Click to select  
Keyboard  Not applicable  
DCP  Not applicable  
Errors  None  

**Dwell**  
Adjustment button, Used to turn Dwell feature on or off  
DCB  Click to select, then mouse wheel Up/Down to change value  
Keyboard  Not applicable  
DCP  Not applicable  
Errors  None  

**Shift**  
Action button, Used to change from Auxiliary DCB Page to Main Page  
DCB  Click to select the main page  
Keyboard  <PAGE UP>  
DCP  Non applicable  
Errors  None  

---

**DCB Maps**

**Main**  
– example from MIA  

<table>
<thead>
<tr>
<th>DONE</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>15</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>APPCH</th>
<th>MAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLR ALL</td>
<td>E-ARR</td>
<td>EW DEP</td>
<td>MON</td>
<td>MASTER</td>
<td>INV-GPS</td>
<td>MIA</td>
<td>HOSP</td>
<td>FIX</td>
<td>D-2</td>
<td>NOSE</td>
<td>D-8</td>
<td>NOSE</td>
<td>MIA</td>
<td>ZZ</td>
<td>RR</td>
<td>FL.F</td>
<td>AIR</td>
<td>ARR</td>
</tr>
</tbody>
</table>

**Air Spc**  
– example from MIA  

<table>
<thead>
<tr>
<th>DONE</th>
<th>300</th>
<th>302</th>
<th>304</th>
<th>306</th>
<th>308</th>
<th>310</th>
<th>312</th>
<th>314</th>
<th>318</th>
<th>320</th>
<th>322</th>
<th>324</th>
<th>326</th>
<th>328</th>
<th>330</th>
<th>APPCH</th>
<th>MAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLR ALL</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>E</td>
<td>E</td>
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<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>ARR</td>
<td>DEP</td>
</tr>
</tbody>
</table>

**Appch**  
– example from MIA. Select airport first…  

<table>
<thead>
<tr>
<th>DONE</th>
<th>KBCT</th>
<th>KPKE</th>
<th>KGW</th>
<th>KDPF</th>
<th>KTMB</th>
<th>KDS</th>
<th>APPCH</th>
<th>MAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLR ALL</td>
<td>KFLL</td>
<td>KHS</td>
<td>KMA</td>
<td>KMP</td>
<td>KNT</td>
<td></td>
<td>ARR</td>
<td>DEP</td>
</tr>
</tbody>
</table>

Then select approach
ARRDEP – example from MIA. Select airport first...

Then select Arrival or Departure route

DONE Action button, Used to return to the main DCB page.
DCB Click to switch to main DCB
Keyboard Not applicable
DCP Not applicable
Errors None

CLR ALL Action button, Used to clear all video maps from the scope
DCB Click to clear any selected video map
Keyboard <F2>, <A>, <ENTER>
DCP Not applicable
Errors None

MAP number/name Toggle buttons, Used to toggle display of designated map on the scope.
DCB Click to toggle display of map on or off
Keyboard <F2>, enter map number, <ENTER>. Toggle the state of the designated map
Map # and <E> Turns ON map, Map number and <I>Turns OFF map.
DCP Not applicable
Errors ILL MAP - Incorrect map number entered
FORMAT - Improper command format.

AIR SPC Action button, Used to access the Airspace maps SubMenu
DCB Click to access Airspace Maps SubMenu
Keyboard Not applicable
DCP Not applicable
Errors None
APPCH
Action button, Used to access the Approach maps SubMenu. First page allows selection of airport with approaches. Next page allows selection of maps of approaches for that airport.
DCB Click to access Approach Maps SubMenu
Keyboard Not applicable
DCP Not applicable
Errors None

ARRDEP
Action button, Used to access the Arrival/Departure maps SubMenu. First page allows selection of airport with routes. Next page allows selection of maps of Departure or Arrival routes for that airport.
DCB Click to access Arrival/Departure Maps SubMenu
Keyboard Not applicable
DCP Not applicable
Errors None

MAIN
Action button, Used to access the main maps SubMenu
DCB Click to access main maps SubMenu
Keyboard Not applicable
DCP Not applicable
Errors None

DCB BRITE
Each button on the BRITE menu of the DCB is an adjustment button. These buttons are used to adjust the illumination value for different parts of the scope. Typically, values range between 0 and 100, though some will only adjust down to 25 or 5 All can be adjusted to 100.

DCB Select button and use mouse wheel to adjust value Up or Down
Keyboard Select button with mouse, type value, <ENTER>
DCP Rotate appropriate knob with mouse wheel Up or Down
Errors ILL VALUE - Value is too high or low for selected setting FORMAT - Value entered is not a number

DCB - Brightness of the DCB panel
BKC - Background contrast
MPA - Map category A
MPB - Map category B
**DCB CHAR**

Each button on the CHAR menu of the DCB is an adjustment button. These buttons are used to adjust the font size for different items displayed on the scope. Typically, values range between 0 and 5, though the DCB can only be adjusted as high as 2.

<table>
<thead>
<tr>
<th>DCB</th>
<th>Select button and use mouse wheel to adjust value Up or Down</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keyboard</td>
<td>Select button with mouse, type value, &lt;ENTER&gt;</td>
</tr>
<tr>
<td>DCP</td>
<td>Rotate appropriate knob with mouse wheel Up or Down</td>
</tr>
<tr>
<td>Errors</td>
<td>ILL VALUE - Value is too high or low for selected setting</td>
</tr>
</tbody>
</table>

**DATABLOCKS** - Font size of all Data blocks

**LISTS** - Font size in all lists, status area, and preview area

**DONE** - Action button, Used to return to main DCB

**DCB** - Font size of buttons in DCB

**TOOLS** – Font size of text in TPA cones/rings, etc.

**POS** - Font size of the position symbol for a target
DCB PREF

Example of preset preferences “MIA 1”

Example of default preference preset

Each of the Preference Set buttons are Action buttons that allow user to load a preset setup for the scope that has been saved. Many items are saved to a preference set, including BRITE, CHAR settings, range, range rings, flight list locations, etc. **Note: Presets are not dependent on the facility so map visibility is not saved in a preset. Maps will need to be selected for each session.**

**DEFAULT**
Action button, Used to reset the scope defaults for the current facility
- **DCB**
  - Left click to reload default settings.
- **Keyboard**
  - Not applicable
- **DCP**
  - Not applicable
- **Errors**
  - None

**RESTORE**
Action button, Used to reset the scope back to settings in selected preference set.
- **DCB**
  - Left click to reload the selected preference set.
- **Keyboard**
  - Not applicable
- **DCP**
  - Not applicable
- **Errors**
  - None

**CURRENT**
Display button, Used to display the currently selected preference set
- **DCB**
  - Not applicable
- **Keyboard**
  - Not applicable
- **DCP**
  - Not applicable
- **Errors**
  - None

**SAVE**
Action button, Used to save the current state of the scope to a preference file
- **DCB**
  - Click the SAVE button to save file (after entering name). All current settings will be saved.
- **Keyboard**
  - Enter name of the preference set (as you type it will appear in the Preview area), Click SAVE button
- **DCP**
  - Not applicable
- **Errors**
  - FORMAT - Name of preference entered too long or too short. Must be 1 to 7 characters.
CAPACITY - 32 Preference sets already exist. One or more must be deleted before any more can be created. Currently must be deleted (or can be renamed) in Profiles/User/PrefSet folder location.

DUPLICATE NAME - A preference set with this name already exists.

DISK ERR - Error writing the data for the set to the disk.

**DONE**

- Action button, Used to return to main DCB
- DCB
  - Click to return to the main page of the DCB
- Keyboard
  - Not applicable
- DCP
  - Not applicable
- Errors
  - None
SCOPE INFORMATION LISTS AND AREAS

System Status Area

Weather level status, UTC system time, altimeter setting
Enabled traffic flow
Main airport ATIS letter, wind direction/speed and active runways
Other airports ATIS letter, wind direction/speed and active runways
Sector plan and radar sensor mode
Display Range, PTL value
Altitude Filters
Airports with Altimeter

To move System Status area: Type <F10>, <S>, then Left Click on new scope location. Currently cannot be moved.

Preview Area

Flight plan shows ACID, AC type, Beacon code, position controlling, departure procedure, Airport.

Display flight plan, text entry area or error messages.

- To display flight plan: Type <F10>, <D>, Left Click on target position symbol, or type tab# or type ACID or type beacon code.
- To Move Preview area: Type <F10>, <P>, Left Click on new scope location.
Flight Data Lists

Example lists from MIA, SIGN ON, TOWER Departure, TOWER Arrival.

<table>
<thead>
<tr>
<th>Flight Data List Name</th>
<th>Airport ID of List</th>
<th>Flight Data List #</th>
<th>Tab #</th>
<th>AC ID</th>
<th>Beacon code</th>
<th>Altitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIGN ON</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TMB_APP AI</td>
<td>48</td>
<td>1H 125.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1W 125.5 MIA_DEP AI</td>
<td>53</td>
<td>1W 125.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1D 119.45 MIA_DEP AI</td>
<td>54</td>
<td>1D 119.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1S 120.5 MIA_APP UC</td>
<td>58</td>
<td>1S 120.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1A 123.95 MIA_APP UC</td>
<td>51</td>
<td>1A 123.95</td>
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<td></td>
</tr>
<tr>
<td>1N 125.75 MIA_APP UC</td>
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<td>1N 125.75</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1V 124.85 MIA_APP UC</td>
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<td>1V 124.85</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1Z 128.6 FLL_APP AI</td>
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<td>1Z 128.6</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1Q 126.85 FLL_APP AI</td>
<td>4</td>
<td>1Q 126.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1L 126.05 MIA_DEP AI</td>
<td>5</td>
<td>1L 126.05</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1G 119.7 FXE_APP AI</td>
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<td></td>
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</tr>
<tr>
<td>1F 133.72 MIA_APP UC</td>
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</tr>
<tr>
<td>1R 133.775 MIA_APP AI</td>
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<tr>
<td>1J 118.1 MIA_APP AI</td>
<td>23</td>
<td>1J 118.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Selecting Tracks

In order to interact with aircraft targets on the scope you will need to select a specific target or “track”.

There are several ways to select tracks in ATCpro.

1. Left click with the cursor on top of the track’s position symbol (primary method).
2. Type the “tab” number, the number in the first column (on the left) shown in the flight list.
3. Type the aircraft ID (ACID), the number in the second column shown in the flight list.
4. Type the four digit beacon or “squawk” code in the third column of the flight list.

- For example to display the flight plan for a track, press <F10>, then <D>, then type the tab line #, or Aircraft ID, or beacon code, then press ENTER.

Cursor graphics

- Normal cursor crosshair
- Cursor when on top of selectable target
Track Graphics

**Position Symbols** - indicate the controlling position of the associated tracks (in these examples “S”). In FMA mode view it is centered on the target symbol. In Slant Range view it is offset from the Target Symbol.

**Target Extent Symbols** – Indicate a sensor detected object’s location. In Multi mode, it is a “top hat” symbol aligned toward the radar location. In Fused mode it is a filled circle.

**History Trail** – A series of dots that show the previous position of the target. The dots fade away to indicate direction and like the original scopes would have displayed.

**Predicted Track Line** – A straight line that predicts the target’s future position based on speed and heading. The prediction time in minutes can be set on the DCB. The PTL can be turned off when set to zero minutes. It shows on all owned targets by default.

**Leader line** – connects the Position Symbol to it’s Datablock. The line’s length and orientation can be set manually on the DCB or keyboard or will adjust automatically.

**Data Block** – A track’s datablock contains flight information such as AC ID, beacon code, ground speed, aircraft type and altitude. There are three different types of datablocks: Full, partial and limited. See below for more explanation of datablock
Other Target Symbols

![Associated track symbol](image1) ![Unassociated track symbol](image2)

**Limited Data Block with altitude only**

![Associated track symbol](image3) ![Unassociated track symbol](image4)

**Quick Looked Targets – Full datablocks with AC ID, altitude, ground speed and AC type**

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Data blocks

A data block shows text data that pertains to the track. There are three types of data blocks described below:

- **Full Data Blocks** are shown for tracks “owned” by a controller, tracks that have been “Quick Looked”, if they have been involved in a handoff, or if they are involved in a “Point out” with the controller. Owned tracks are shown in white. Unowned tracks are shown in green (see diagram.)

- **Partial Data Blocks** are shown for associated tracks that are not “owned” by this controller and are within the altitude filter limits. Owned tracks are shown in white. Unowned tracks are shown in green (see diagram.)

- **Limited Data Blocks** are shown for unassociated tracks (tracks without a flight plan). These tracks are shown in green.

- **Alternating Fields** – The lines of a data block can display alternating text fields depending on the situation.

  If there is an emergency condition then the data block may appear in flashing or steady red.

**Datablock fields** – below are descriptions of the data fields (slash / indicates alternating fields):

- **Line 1**: Aircraft ID – The callsign of the aircraft.

  /Beacon code.

- **Line 2**: Altitude and flight level – Always entered and displayed in hundreds of feet. For example 14,500 feet is shown as **145**.
/ Scratchpad or exit gate or exit fix.

/ Ground speed and aircraft category – Always shown as tens of knots. For example 310 knots is shown as 31. The aircraft category letter codes are: F = B757, H = Heavy, J = Jumbo.

/ Aircraft type code

/ Requested Altitude.

**TOOLS**

**Minimum Separation Line**

The minimum separation line displays the separation distance between two selected tracks.

- To enable a Minimum Separation Line, press <TAB>, then Left Click the target 1, then Left Click the target 2, then press <ENTER>. To turn off the line, press <TAB>, then Left Click the target 1, then press <ENTER>.

**Range Bearing Line** (not currently implemented)

To display up to three vectors (Range Bearing Lines) labeled with the vector’s length and direction. The start and end points can be a fixed location (such as an airport) or a track. The length and direction will be updated as the tracks move.

- To enable a Range Bearing Line, press <*, Press <T>, then Left click the first point, then Left click the second point, then press <ENTER>. To Turn off the line press <*, Press <T>, then Left click the first point then press <ENTER>.

**Terminal Proximity Alert Cone**

The TPA cone is displayed at the specified length in nautical miles, indicating the separation of the track from tracks ahead. The TPA cone may display automatically in certain high traffic situations when this feature is turned on.
To enable a TPA cone, press <\star>, Press <P>, then type the number of whole miles, a period (.), then tenths of miles, then press <ENTER>. To Turn off the line press <\star>, Press <P>, then press <ENTER>.

**Terminal Proximity Alert J-ring**

The TPA J-ring displays a circle at the specified distance as a guideline for separation.

- To enable a TPA J-ring, press <\star>, Press <J>, then type the number of whole miles, a period (.), then tenths of miles, then press <ENTER>. To Turn off the line press <\star>, Press <J>, then press <ENTER>.
Weather graphics are generated from either downloaded live Nexrad weather data or from User Weather settings. These settings are made on the Duty Desk Weather Settings area. On the TCW the weather display is turned on by clicking on the WX 1-6 buttons on the DCB. Level 1 is lighter precipitation and Level 6 is the heaviest precip. Note only precipitation will show up on radar. Based on the level of weather the pilots will report turbulence and be affected by it.

Adjust brightness here, or on BRITE menu on DCB

WX Levels indicated here as a number

WX buttons – if AVL, then weather is available at that level. Button must be clicked to display WX

Level 1 solid blue

Level 2 – Blue, slight texture

Level 3 – Blue, dense texture

Level 4 – Solid mustard

Level 5 – Mustard, slight texture

Level 6 – Mustard, dense texture
Communications Panel

The Communications Panel provides control of the radio frequencies that you can hear over the headset or speakers.

To display the floating Panel window click on the icon in the lower Right DCP. You can move or resize the window as desired. To close the Panel click on the X in the upper Right corner.
Communications History Window
The Communication History Window shows a transcription of the most recent voice communications between controllers and pilots. Only the communications of the active radio frequencies are shown as enabled in the Communications Panel. The older lines are automatically deleted after a few seconds for clarity.

To display the Comm History floating window click on the icon in the lower Right DCP. You can move or resize the window as desired. To close the Comm History click on the X in the upper Right corner.

Information Reference Panel
The Information Reference Panel provides reference data during a controlling session. There are four tabs with useful information (see below). To display the floating Panel window click on the icon in the lower Right DCP. You can move or resize the window as desired. To close the Panel click on the X in the upper Right corner.
Airport Weather Information

KMIA: Miami International
ats V report: METAR KMIA 221435Z 08005KT 18SM FEW050 03/05 A3029
departing: 08R, 12, 09, 08L
arriving: 08R, 12, 09, 08L

KFL: Ft Lauderdale-Hollywood Intl
ats B report: METAR KFLL 221435Z 07603KT 16SM FEW070 03/05 A3029
departing: 10L, 10R
arriving: 10L, 10R

KHST: Homestead ARB
ats R report: METAR KHST 221435Z 10106KT 13SM FEW070 03/05 A3023

Aircraft Information

search: 747 select: 744 Boeing 747-400

CLIMB
- mach: 0.85
- tas: 510 knots
- mach: 0.25
- tas: 300
- fpm: 1500
- mach: 0.85
- tas: 300
- fpm: 1000
- mach: 0.85
- tas: 300
- fpm: 1000
- takeoff
- tas: 185
- fpm: 1500
- initial
- tas: 160
- fpm: 1000
- high
- tas: 185
- fpm: 1500
- mid
- tas: 160
- fpm: 1000
- low
- tas: 140
- fpm: 800

DESCENT

Code: 744
Manufacturer: Boeing
Type: 747-400
Ceiling: 45000 ft
Engines: 4 J
Seating: 416
RNAV: True
Pronounced: Boeing 747

Pronunciation Guide

The ATCpro speech recognition software has been optimized to recognize phonetically spoken waypoint and fix pronunciations. Since vowels are frequently omitted or words abbreviated, a pronunciation guide for this facility is shown below.

ADKOQ: add cock
AGLER: ag lurr
AGOYA: eh gny ya
ANNEY: an nee
ANNEY2: an nee two
ARKES: arks
ARKES3: arks three
Flight Data Strip Panel

The Flight Data Strip Panel Window displays current important information about each aircraft under your control. There is a separate section for each arrival runway, departures and overflights.
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