**SAT Getting Started Guide**

If the TUE and THU sims were midterms, then SAT is the final exam.  Free Falcon incorporates everything in Mig Alley and adds several more layers.  An introductory walkthrough is as follows.  For details see below.
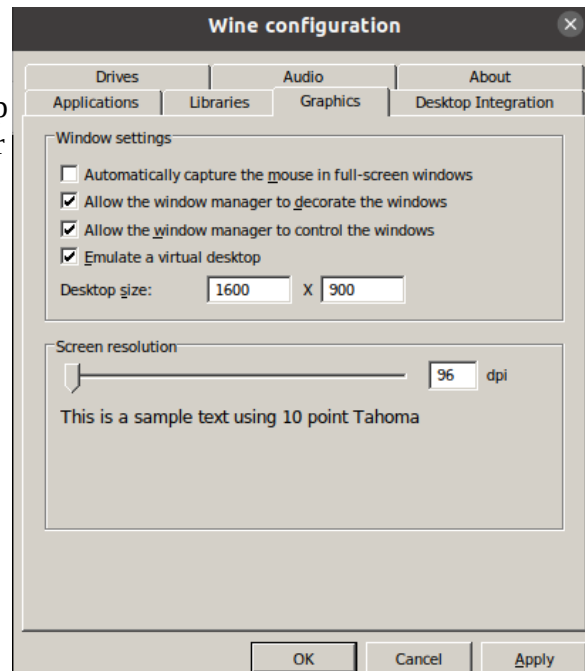
1. start FreeFalcon and change some configuration settings
2. run the ramp start trainer for an introduction to the F16 cockpit
3. review the documentation, watch the "learn falcon in 1 hour" youtube video
4. In Free Falcon, start a dogfight with no opponent.  Practice flying the F16 with reference to the keyboard commands.
5. learn a few key concepts and commands
6. work through training missions

Having accomplished all this, you'll be ready to simulate historical Arab-Israeli wars and the Balkans Conflict.

**1. Start FreeFalcon and change some configuration settings**

run ./freeFalcon.sh

In the wine dialog, select Graphics, Emulate a virtual desktop.  Free Falcon works fine at high graphics resolutions, even on an old laptop or PC.  Set the desktop size to your monitor resolution.  Supposing your monitor is set to 1600x900, the dialog should look like this:

Launching config editor will cause an error, so deselect it.
Optional: If you want to change config options manually, examine $WINEPREFIX/drive_c/FreeFalcon6/F4Patch
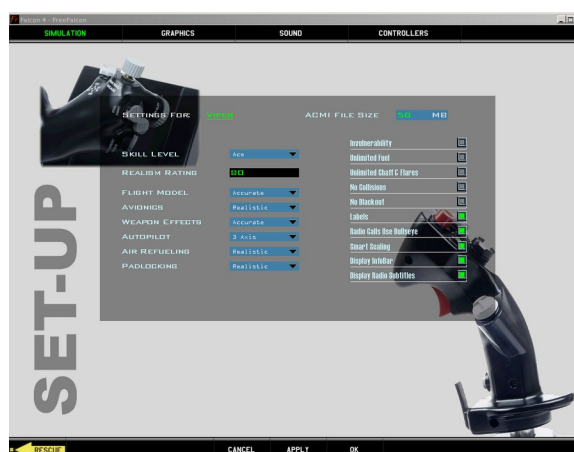
Click through the ITO (Israeli Theater of Operations) and Balkans campaign install screens.
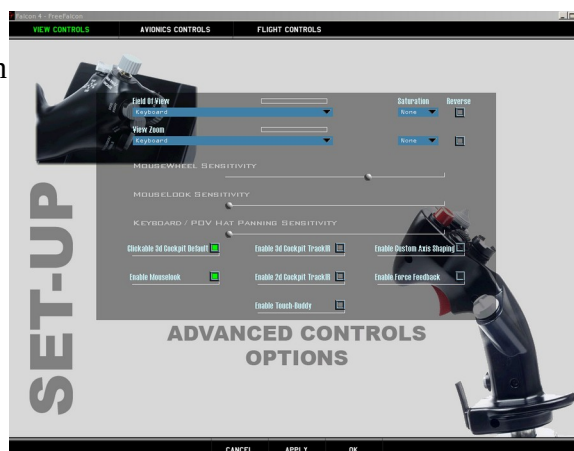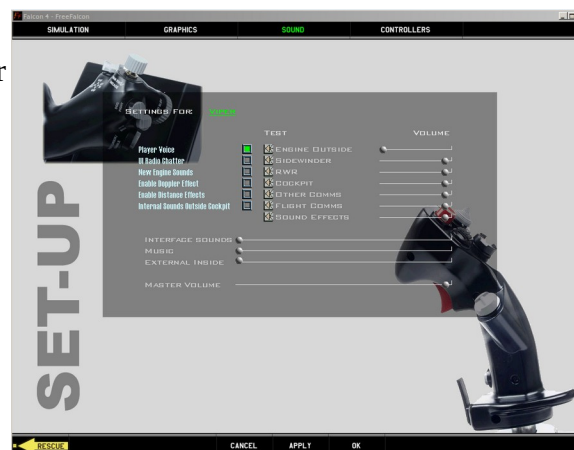
When Free Falcon loads, select SETUP

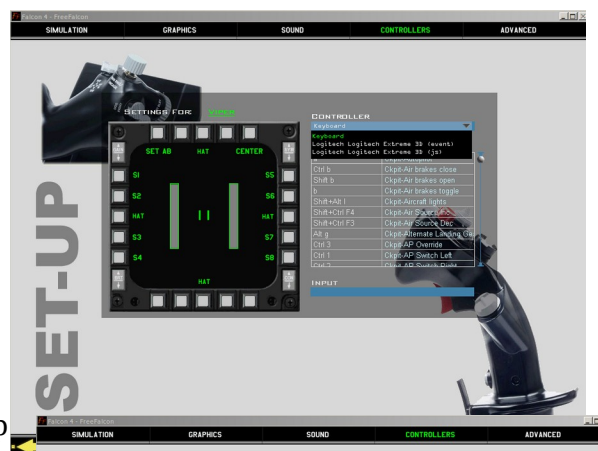Select Simulation settings as shown at right:

Under SETUP/ADVANCED select Clickable 3d Cockpit Default.  This enables mouse panning when holding down the left mouse button in the 3D pit view (the 3 view, keyboard reference card in SAT/DOC)
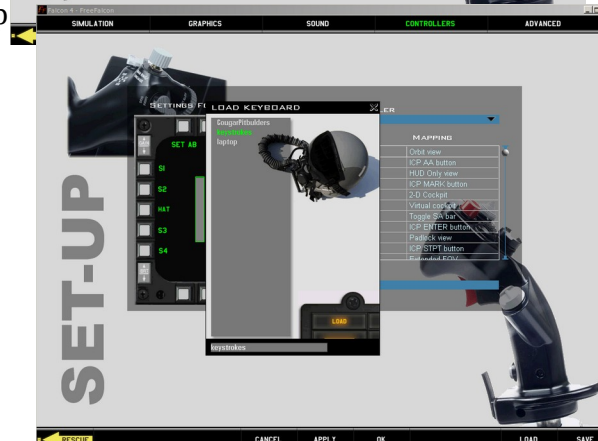
Turn off excess sound effects as show at right.  In fact, for all the ESE games it is recommended to turn off  your speakers.  Sound is not important for any of the ESE games.

If using a joystick, select it in the CONTROLLER pull-down menu.
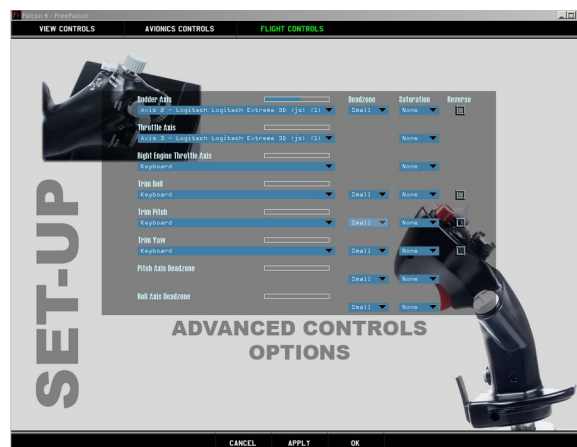
On the same page, confirm that the "keystrokes" keymap file is loaded. (If using the newer BMS 4.32 version of Falcon, this is not the default so you need to load it.)

If using the Logitech Extreme 3D Pro joystick, set throttle and rudder on the ADVANCED/FLIGHT CONTROLS tab as shown:

Save and exit Free Falcon.

**2. run the ramp start trainer for an introduction to the F16 cockpit**

run ./rampStartTrainer.sh



### 3. review the documentation, watch the "learn falcon in 1 hour" video

Skim the documentation in the SAT/DOC folder.  The F16 was one of the most influential military aircraft of the Cold War and Gulf War eras.  It was among the best in many categories, including fighter, bomber and SEAD (suppression of enemy air defenses), among others.  All these different capabilities makes the F16 particularly challenging to learn, but also means an F16 pilot can fly most every type of mission and have a large impact on a war.

Pay particular attention to the keyboard command lists and Falcon4.0_Manual.pdf.

If possible, watch the youtube video "Falcon BMS 4.32 – Install to Combat Ready in 1 Hour (Tutorial)"
https://www.youtube.com/watch?v=uU3pmXvnc0k

Note that this video is for a different sim, Falcon BMS.  For our purposes we can think of BMS 4.32 is a newer version of the Free Falcon sim.  Overall the two sims are so similar that BMS 4.32 training videos applies equally well to Free Falcon.  (For more about BMS, including how to run it on linux, see "Comparing FF6vsBMS.pdf" in SAT/DOC)
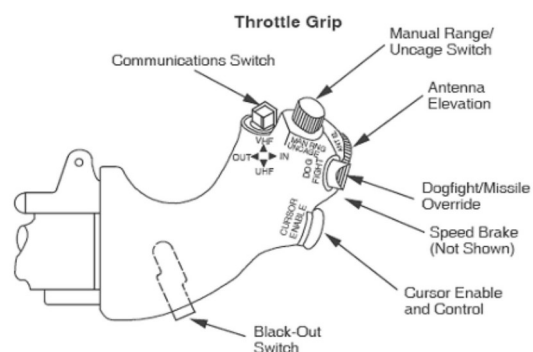
For links to more instructional videos, see SAT/DOC/youtubeTrainingVideoLinks.txt

### 4. In Free Falcon, start a dogfight with no opponent.  Practice flying the F16 to learn the keyboard commands.

Make sure that you have the keystrokes key mapping file loaded in SETUP.  Starting with trim commands, experiment with the commands the Free Falcon column of "SAT/FreeFalconKeyboardCommands.pdf".  Also examine the additional files in the SAT/DOC directory "keyboard_commands.pdf", "keyboardMapPage1.pdf", "keyboardMapPage2.pdf".
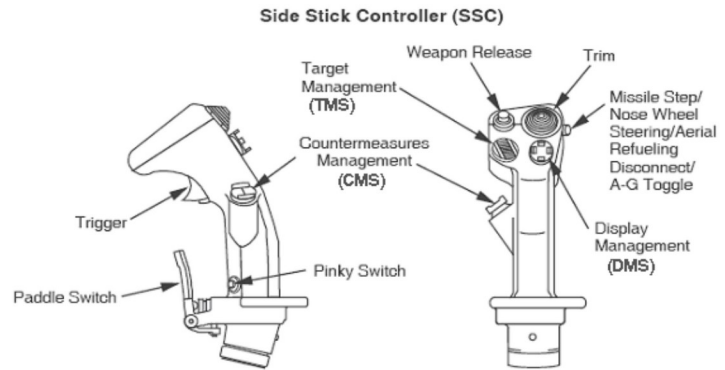
### 5. learn a few key concepts and commands

In the real F16, the pilot controls the jet mainly via switches on the controllers, the buttons on the front panel and the buttons around the borders of the two displays in the cockpit.   The F16 controllers are shown schematically below:

The throttle grip, which contains the 4-way communications switch, as on the left side of the pilot.
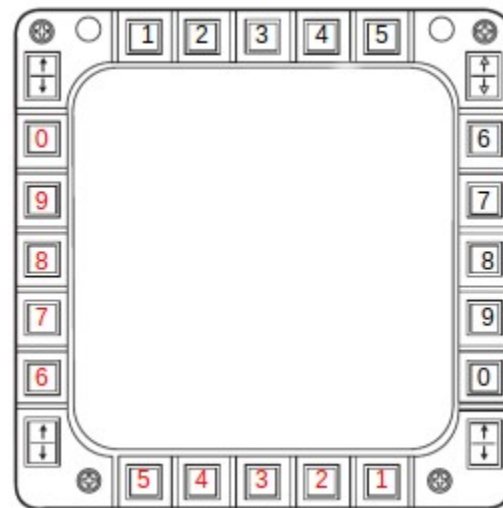
The stick is on the pilot's right. Note that there are 4 different 4-way switches on the stick, namely the trim switch, the Target Management switch (TMS), the Display Management Switch (DMS) and the Countermeasures Management switch (CMS). Pay particular attention to the commands bound to these 4-way switches, as they are some of the most important commands.

The two displays in the F16 are called "Multi-Function Displays", abbreviated as MFD. The buttons around the edges are "Object Select Buttons" (OSB). The keyboard commands that map to OSB buttons are shown at right. To activate an OSB on the left MFD, press CRTL ALT and the corresponding number key on the keyboard, if the number at right is black, or on the keypad, if the number at right is red.

Thus to activate the rightmost OSB on the top row on the left MFD, press CTRL ALT (keyboard 5).
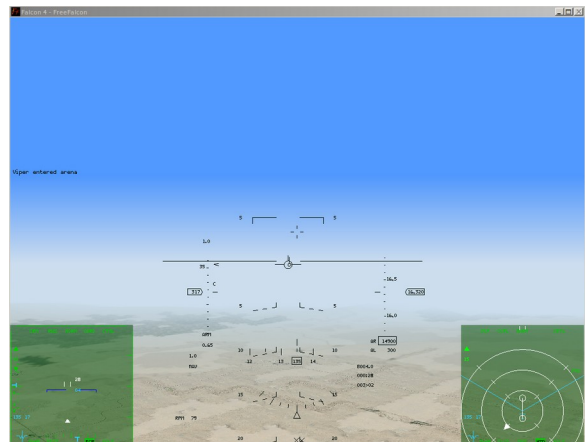
The process is the same for the right MFD, except that you press SH ALT (number key). Thus to activate the lowest OSB on the left side of the right MFD, press SH ALT (numpad 6).

Knowing the keyboard commands for OSB buttons is important when flying aircraft other than the F16, since in non-F16 cockpits there may be no OSB buttons to press with the mouse.

Keyboard OSB commands are also necessary when flying in the convenient HUD/MFD view obtained by pressing the "1" key shown at right. The left and right MFD's are shown along with the HUD.

Note that you can cycle the HUD colors by pressing SH CTRL ALT c.

Press "2" for the clickable cockpit 2D view.  Press the keypad number keys for snap views.



Press "3" for the 3D view.  Pan by pressing the left mouse button and moving the mouse.

Press SH 3 to add the Situational Awareness bar (SA bar) on the left of this view.  These classic flight sims often have ingenious devices for mimicking peripheral vision – note also the enemy position indicator display in Mig Alley and Battle of Britain.



The next tip is about speeding up missions.  Air combat has often been described as "hours of boredom punctuated by moments of sheer terror."  To avoid the boredom of flying from one steerpoint to another, turn on steerpoint autopilot as shown (Right switch up, left switch down.)  Note: the left autopilot position is incorrectly labeled in the 2D view: it should be labeled " STRG SEL".  It is labeled correctly in the 3D view.



Set steerpoint to AUTO in the DED as shown at right (press STPT on the UFC followed by SEQ) .  Now you can accelerate the time by pressing SH TAB and zip from one steerpoint to the next.  As you reach a steerpoint, the steerpoint is automatically incremented.   Thus navigation through your steerpoints is fully automated.  Press SH CAPS LOCK to return to normal speed when you need to perform a task or deal with a threat.
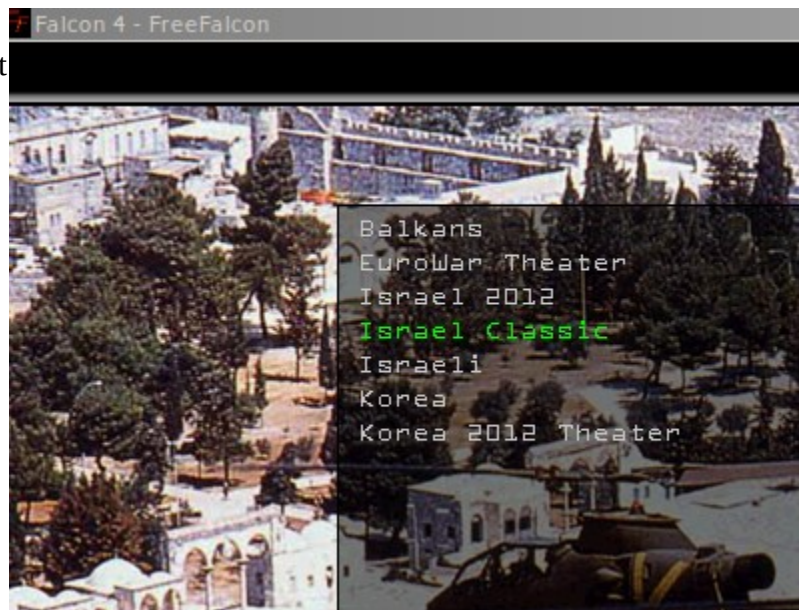
In Free Falcon press X or Z to release countermeasures in order to decoy an incoming missile. The default countermeasures program, PRGM 1, will release only chaff. You need flares, not chaff, to decoy an IR missile. To change the active countermeasures program, use the mouse to turn the PRGM knob in the 2D view(shown at right) or press SH Q to turn the knob to the right, SH W to turn the knob left.



## 6. work through training missions

At minimum, work through the CCRP, CCIP, Laser Guided Bomb, Maverick and HARM missions, as well as air to air weapon missions.

Once finished, you are ready to fly in Free Falcon's dynamic campaign! Select THEATER and choose either Balkans or Israel Classic to engage in a historically accurate war.



## Campaign Notes and Workarounds

If Free Falcon stalls when it's just about to enter the 3D view (as shown at right for the Balkans theater and the Israel Classic theater), wait a couple minutes.

You will be returned to the debrief screen.  Wait until your chosen flight is in the air, then select TAKEOFF again to join your flight.  The state of the campaign is saved in a file named Autosave whenever you enter the 3D view.   If Free Falcon crashes during a mission, you can always load the Autosave file to restart.

In the Israel Classic theater, Free Falcon crashes if you select SHLOM HAGALIL – 1982 or YOM KIPPUR – 1973.  (SIX DAY WAR – 1967 usually works).



To fly in the 1982 or 1973 war, select SAVED at the upper left and load one of the saved 1967 or 1982 campaigns.  You can choose a saved Israel campaign or a saved Arab campaign, depending on which side you want to fly for.  Note also that saved campaigns with different squadrons are available, giving you a choice of the aircraft you fly and the mission type you attempt.