Addendum Manual - Falcon 4.0: Allied Force

Introduction

This manual covers recent changes to several aspects of the simulation.
Also see additional manuals like the FAC and the Controllers addendum manual for more information.

HyperLobby Multiplayer Support

HyperLobby (or just HL) is an online gaming lobby primarily designed to support online flight simulation and other online games which was started in summer 2000 as an experiment which became widely popular and subsequently was enhanced do support a multitude of different simulations.

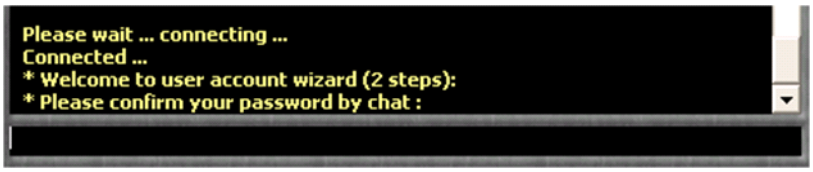
Now with Patch version 1.08, support for HL is being added to the Falcon 4.0: Allied Force franchise of flight simulations.

HyperLobby is a chat environment that is enhanced by game launch and other features. Before joining, you can see the set realism options, the theater of operations and game type that a server offers you to join.

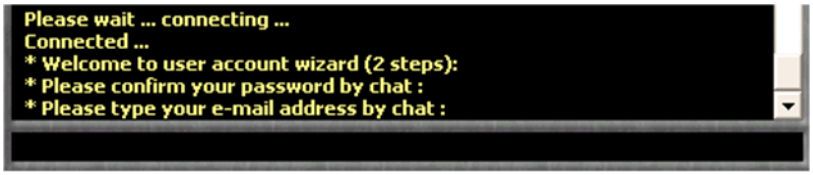
How to join HyperLobby:

1. First of all, visit the HyperLobby website at http://hyperfighter.sk, download and run the latest HyperLobby Client installer.
2. Start HL and create a new user account. To do that, enter your callsign, which should be the callsign you use within Falcon. If you don't use the same callsign, Falcon will make a copy of your current callsign and save it under the callsign name that you entered in HyperLobby. Next, enter a password and press "Connect" as shown below:

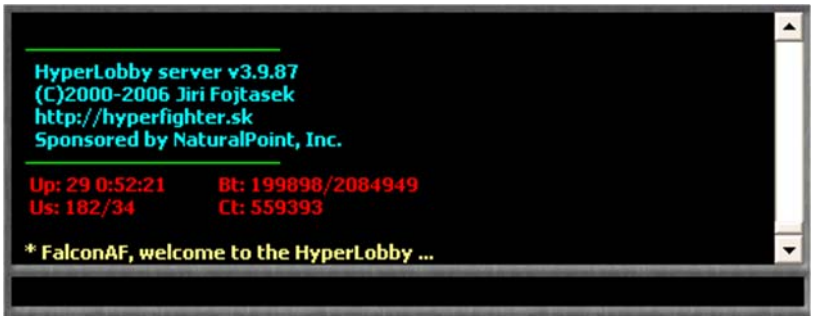
3. Perhaps you noticed the check boxes next to Callsign and Password. Click them if both shall be remembered and you want to auto-connect whenever you start HL.
4. When that is done, you are requested to confirm the password in the chat line. The chat line is in the middle section at the bottom:



5. Type the exact same password as before and press the Enter key.
6. Next step is to enter your email address:

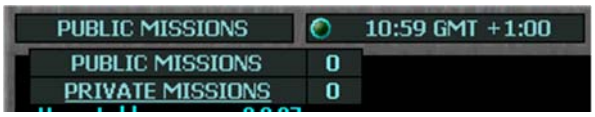


7. Once that is done, you are connected to the HyperLobby.

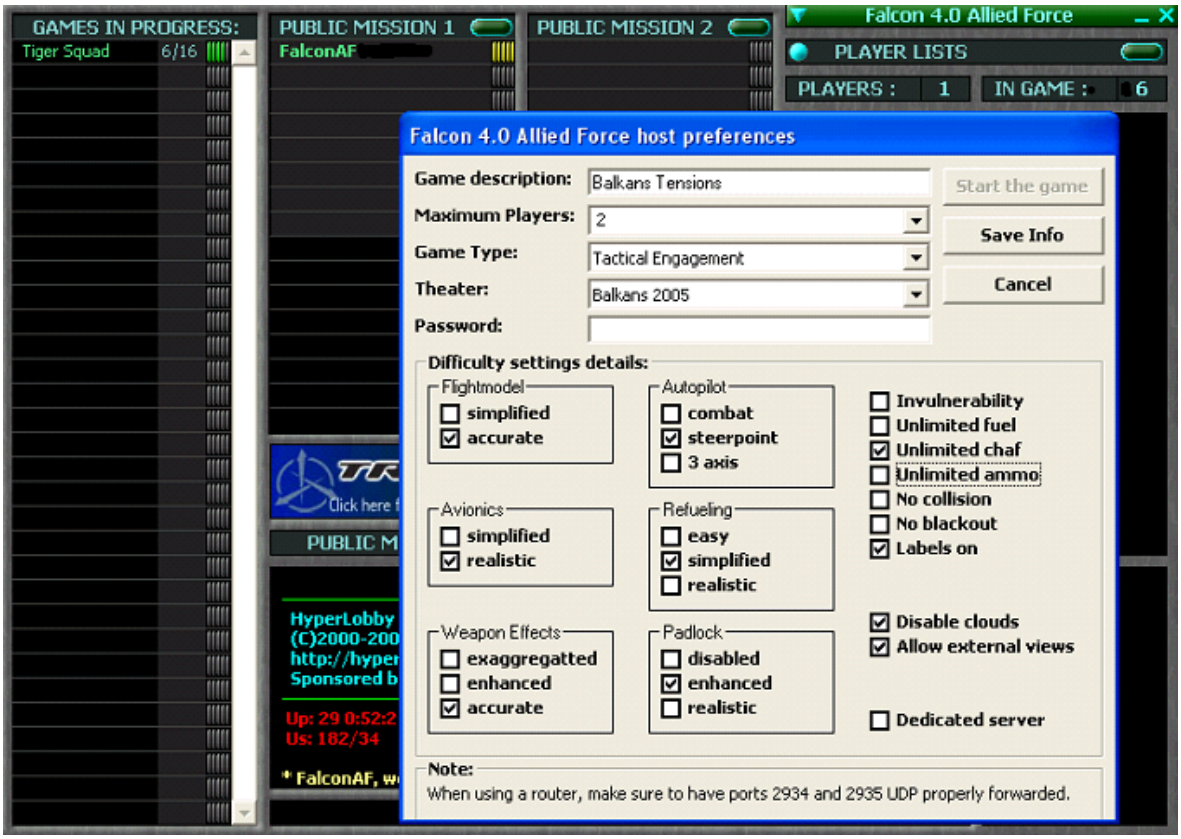


How to advertise a game on HyperLobby:

1. When you are connected to HyperLobby, you can either choose to advertise a public or a private mission. To change between these types, press the button in the middle reading "PUBLIC MISSIONS" and select the appropriate game type:



2. Next select the first slot of one of the Mission lists. Immediately a window pops up where you can customize your game, specify the theater of operations you want to use, select the number of allowed max. players and more:



3. In this example, you see that there is already one game in progress from a server called "Tiger Squad". It allows a maximum number of 16 people to join, and 6 are already flying online.
4. The window where you select the host preferences is exactly matching the options that can be set in the Rules of Engagement screen within Falcon 4.0 Allied Force. Secure your server to be joined only by friends you know with a password.
   Select the dedicated server option if you want to just leave your server alone and have others use it for online flying. With dedicated server option enabled, you are not able to fly yourself!
   Note what this window says at the bottom of the screen. As with normal Multiplayer connection from within the Falcon User Interface, you also need to properly forward ports 2934 and 2935 UDP to the correct internal IP address. Check the main manual chapter 27 for more information about Multiplayer.
5. Once done setting the options, press the "Save Info" button. Now your game is advertised to join in "Public Mission 1", but Falcon 4.0 Allied Force did not start yet, of course. To start the server, you can either wait for people to join your game in "Public Mission 1" and then launch the server, making the clients that are listed in "Public Mission 1" automatically connect to your server after about 20 seconds, or launch it anyway and allow people to join later.

6. Press the "Start the game" button. Falcon 4.0: Allied Force now automatically starts, the connection process to the Internet is performed automatically, the game type you selected (Dogfight/Tactical Engagement/Campaign) is the only available one in the main user interface.
7. Create the game as you are used to do. Once in the Rules Of Engagements screen, one new option is very important to take note of - the Bandwidth selectors:

8. Make sure that you select the up- and download speeds that you are actually capable to run. If you are unsure about that, go to speed test sites on the Internet (e.g. www.dsl-reports.com).

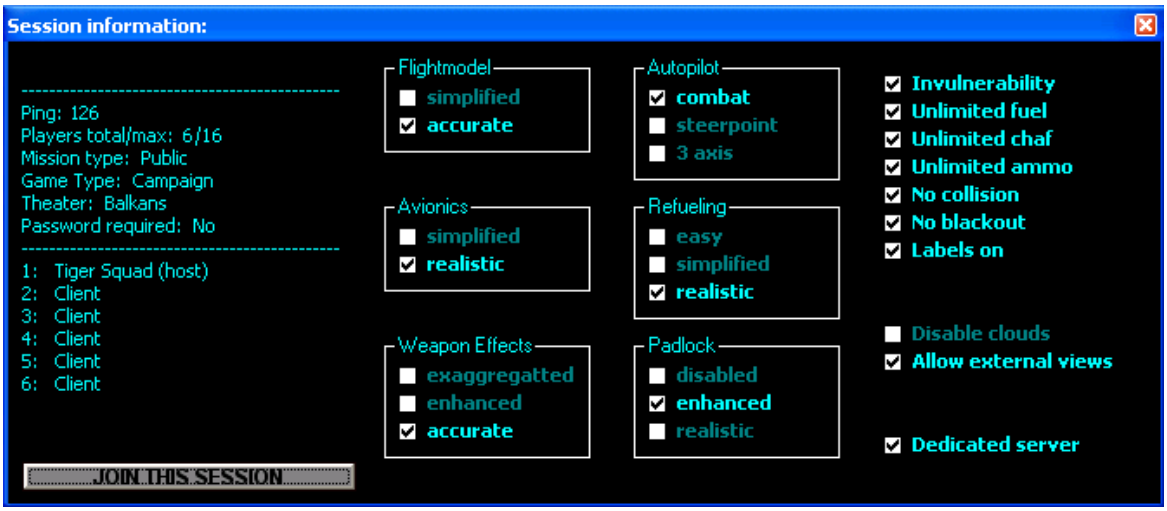
   These bandwidth selector can also be used for normal Multiplayer connections through the Falcon user interface to fix a wrong selection "in the last minute" before joining a game.

   Note: A bug that was just recently discovered is fixed in patch V1.08 which now also allows Clients to actually set their *full* up- and download speeds (but always leave some overhead e.g. for a 3rd party voice comms program...).
   This is not only true for HyperLobby, but all Multiplayer connections.

9. When exiting Falcon 4.0: Allied Force, the HyperLobby client will take notice and you are connected to the HyperLobby again.

How to join a running game on HyperLobby:

1. When you are connected to the Falcon 4.0: Allied Force HyperLobby, on the left you can see a list of advertised online games, like the "Tiger Squad" shown above.
2. Click on the server name and a window pops open that shows the server's option set, which game type it runs, which theater, and other information:

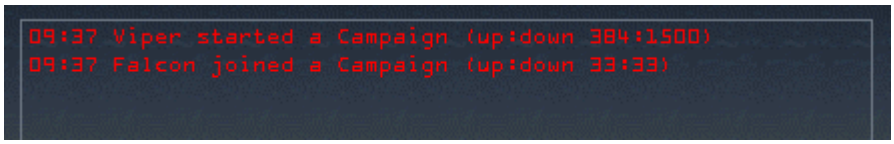


3. If you are happy with the advertised options, press "JOIN THIS SESSION" button on the lower left - and off it goes!
4. When you enter Falcon, you are automatically brought to the game type that the server selected. Join the game the way you are used to. In the **Rules Of Engagement** screen, make sure that you select your up-/ and download bandwidth correctly !

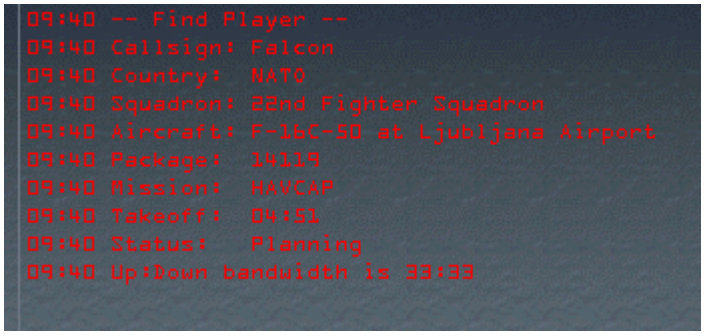
   As noted above, you should now be able to use your actual bandwidth for both up- and download.

Further changes to Multiplayer:

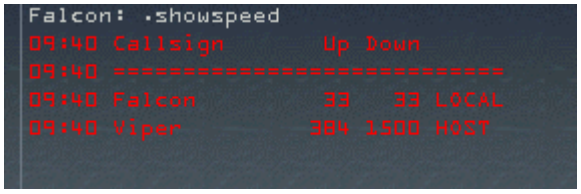
1. The requirement to mark entries in the Internet server list of the Multiplayer UI in order to keep these listed, and alongside with that the "KEEP" button has been dropped. Servers stay listed until you manually delete entries.
2. As mentioned above, because of a recently fixed bug you should now set the up- and download speeds that you are actually capable to run (test it for example at http://www.dslreports.com or other speed test sites, giving some head room for external comms programs).
3. Patch V1.08 now also shows information about the bandwidth of joining sessions:
   - First of all, when joining a game, the "join" message now also contains the used bandwidth selections, as shown below:



- Second, when you use the Find Player function when right-clicking onto a callsign in the chat, the information now also shows the session's bandwidth.



- Third, a list with all connected sessions by their callsign, selected up- and download speeds is shown by using the chatline command .showspeed.
  Additionally, this list shows which session is HOST and which is LOCAL, meaning your own session.



- So in above case, there are 3 means to find out that session Falcon mistakenly joined with a speed of 33kb/s, which means that the host is sending data to ALL clients with that speed only!!
  So this client can be asked to back out, reconnecting at the correct speed.
  The .showspeed command also works in 3D!

How to plan and program a GPS coordinate based bombing

Using the User Interface map tools, you are able to plan precision strikes against targets. Let's for example take a bombing run onto a depot in North Korea. There, we want to engage two items at the target site, each with one Mk-84 bomb.

1. Open Mission Builder - our target will be the Kojo Depot north-west of Kuum-Ni Airbase:

2. Next, we do a recon on the target site and choose the "Very high" Priority target:

3. Write down the coordinates **N 38°55.14' E 129°14.28'**, we will need them later.
4. Next, click on the Radar item in the target list, and its coordinates will be shown as **N 38°55.19' E 129°14.26'**.
5. As there is currently only one waypoint, make a new waypoint between point 5 and 6. To do that, click and hold down the small square icon between the circular waypoints 5 and 6, and drag it a bit to either side to create a new waypoint. You don't actually need to place it somewhere specific, just keep it between point 5 and 6 for now.
6. Go to the mission loadout screen and change A2G ordnance to 2 Mk-84 bombs.
7. Save the tactical engagement mission.
8. Start the mission and enter 3D world - once in the cockpit, press Shift+P to freeze the simulation.
9. Your current waypoint is already the target waypoint - in other cases you might now have to select it first using S or Shift+S keys.
10. On the ICP, press the circular **LIST** button, then the **1** button for the **DEST** function:

11. Next, enter the "N" coordinate of the first target by pressing the buttons **3**, **8**, **5**, **5**, **1**, **4** in order:

12. Press the **ENTR** button on the ICP, and do the same with the "E" coordinate - **1**, **2**, **9**, **1**, **4**, **2**, **8** and **ENTR** again.
13. You can then advance to the next steerpoint by pressing S key or the **UP** arrow on the ICP. Enter the coordinates of the second target in the same way as above as coordinates of waypoint 6.
14. You're done setting up the waypoints. Now press Backspace key to enter A2G bombing mode. Make sure CCRP mode is selected as well as Steerpoint 5.
15. On the ground radar, press **STP** and - if you wish - **CZ** to center the radar cursor at the exact position of the target waypoint:

16. Because the cursor is now at the exact GPS waypoint position, you don't need to lock the target in the A2G radar display, in fact, the target position might be less accurate because locking means to rely on radar returns rather than exact GPS coordinates.
17. Do a normal CCRP delivery on the first target. Fly around, select steerpoint 6, do a radar centre on this steerpoint, and do another CCRP delivery - both targets are accurately hit - well, as accurate as dumb bombing can be, which is also dependant on release altitude, wind strength and other factors:

Air to Ground Ripple Bombing

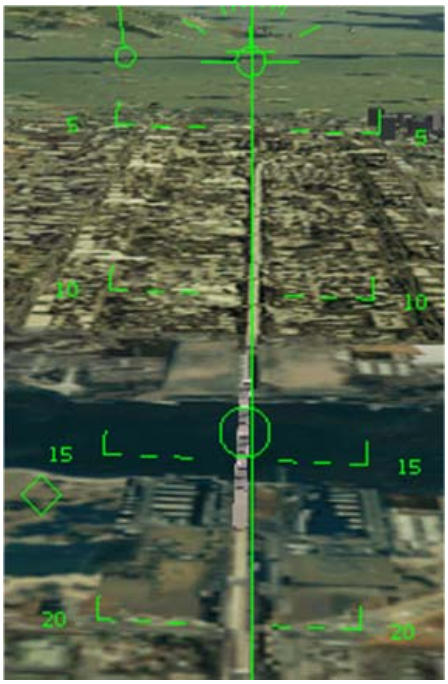
With the introduction of Patch V1.08, ripple bombing works differently now. Before, the bomb impact display in the Head Up Display (HUD) would show the first bomb impact location, and now the center of the programmed ripple bombing is being marked by the HUD piper.
This is true for all A2G release modes, be it CCIP, CCRP or DTOS.

Let's say we want to vaporize a simple bridge using a ripple bombing pattern with 6 Mk-82 bombs - now that's overkill for sure, but explains well how ripple bombing works.

1. In the A2G SMS page, press OSB-10 to enter a ripple count:

2. Use the ICP numbered keys to enter the count, in our example, we ripple 3 times.
3. Set the bomb release to drop pairs by pressing OSB button 8 once.
4. Next, select the ripple spacing using OSB button 9 and enter 250FT.
5. Finally, we choose CCIP delivery mode using OSB 2 button, so that the MFD SMS page should look like this:

6. Flying towards the target, place the piper exactly onto the center of the bridge:



7. Delivery mode - as usual - may change to CCRP as shown above if the bomb drop point has not yet been reached in airspace when pressing the launch button.
8. When reaching the point of the first bomb pair to drop, rippling takes place:

The middle bomb pair will impact exactly at the above designated impact point, the first bomb pair will impact 250 ft before, the last 250 ft after the impact point.

9. As a result, the middle section of the bridge is being totally destroyed:

and you scored 6 out of 6 hits!

10. So to sum up - when you use a ripple count, the impact point always designates the CENTER of the programmed ripple bomb stick that will be delivered. This also means that when you use an even number for ripple count, then there won't be a bomb impact exactly at the designated point, as shown by the following graphic:

Using Helmet Mounted Sight with IR missiles

Helmet Mounted Sight (HMS) has been improved for patch 1.08 in both displayed symbology and functionality.

Specifically, the way that HMS is cueing IR missiles is corrected. Previously, padlocking a target with 4 key was the only way to get HMS to designate target for IR missile. This is now corrected, so that HMS reticle, which is drawn in the center of the screen, needs to be placed over the intended target and IR missile seeker will try to acquire and lock onto it. This can be done either manually or with padlocking.

Using HMS is really easy (that's the point of it!) if you follow these rules:

1. You have to be in an HMS equipped plane, which includes all F-16 CCIP and MLU variants in 2005 and 2010 theaters.
2. You have to be in 3D-cockpit, Padlock or Extended-FOV views and have IR missile selected as a current AA weapon.
3. Press U key to uncage seeker from Radar cueing and switch to HMS cueing. If your plane has HMS you will now see HMS cue reticle in the center of the screen. At the center of the cue will be the missile seeker diamond and offset from center will be a number in degrees showing

how far away from the aircraft boresight axis (angle off-bore) your current view direction is. You can use this angle display to estimate how probable your missile shot is at any moment. Unfortunately IR missile seekers provide no information on the range to the target so this information can not be displayed.

4. After uncaging the missile and slaving it to HMS view direction, missile will try to lock onto the first target it finds and remain locked onto it as long it has good IR "tone". At this point you can look away and the missile will not drop its current target. While you look away a line extending from the center of the HMS cue will point in the direction that missile seeker is looking at.
   To force missile to drop current target you have to cage it with U again and then uncage it to be able to search for another target. In case the missile loses target lock on its own - either because target moved outside its seeker gimbal zone or its IR signature is too small (too far away) - missile will go hunting for next target in the direction that you are looking at.

5. Once you're satisfied with the relative position of your target and the missile has a solid lock, all that remains is to fire the missile.
   To use the next missile in HMS mode, press uncage again and repeat the procedure.

Using HMS in padlock view (4 key) and Extended-FOV view (5 key) will automatically cue the missile to the current padlock target. In 3D-Cockpit view (3 key) you have to manually slew view and look close to the direction of the target for missile to acquire it.

Using **Track IR** to pan the view - apart from making looking around an easier exercise than using Joystick POV hat - has the added benefit of becoming a true point and shoot combination in Falcon.

Note that HMS will work with all IR missiles although its full potential is realized only when used together with high angle off-bore capable missiles such as Aim-9X (90° off-bore angle), Aim-132 (90°) and Python-4 (70°). For comparison Aim-9M has off-bore angle of only 30°.

But beware that opposition also has similar capability - MiG-29 equipped with HMS and AA-11 (R-73 Mod2) is capable of 67° off-bore shot as well and really is a worthy opponent.

Add you own pilot or squadron patch picture

Use a picture processing program to modify a picture of yourself so it can be imported into FalconAF. Picture has to be saved in Targa (.TGA) format with the following parameters:

- Targa compressed or uncompressed RGB image
- Maximum of 96 pixels width or 96 pixels height
- 16, 24 or 32 bit per pixel
- Alpha channel information is ignored
- To make parts of the picture transparent, paint those pixels purple (R=255, G=0, B=255).

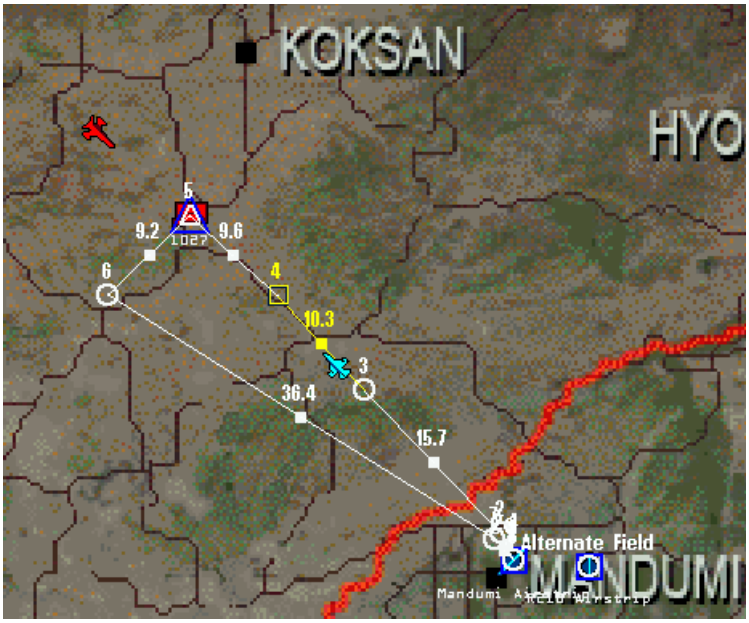
Place the resulting image with .tga file extension in \Pictures\Pilots directory. Procedure is the same for squadron patches which go into \Pictures\Patches directory.

To change to the new pilot picture or squadron patch in the game, from the main user interface screen open Logbook, click on the pilot picture or patch picture and in the file dialog choose your new picture.

Handling the AI pilot

Patch V1.08 includes several improvements for the AI handling, especially the responsiveness on a "Weapons Free" call is much enhanced.
However, there is still uncertainty about which AI commands to use in specific situations. In addition to the main manual, this manual wants to explain the most useful ones to direct the AI in an example mission.

1. See the mission situation as depicted below. Our task is to suppress and destroy a SAM site. Only the lead aircraft is equipped with AGM-88 HARM missiles, all wingmen carry CBU bombs only. However, there is a flight of 3 MiG-25's being scrambled, coming in from the north-west for intercept.



2. A combat tactic might be to send the element wingmen (#3 and #4) to intercept the incoming flight, while lead and lead wingman (#1 and #2) continue on engaging the SAM site.
3. So the best way to have the element engage the whole enemy flight, is to bug one blip of the enemy aircraft group on the radar and order the element to "Attack Targets" (press E and 8). The element will then start the Beyond-Visual-Range (BVR) A2A engagement.
4. Next, the SAM site might show up on your HTS display when its radar is engaged. Launch the HARM missile to destroy it. Remember that it is a "fire and forget" missile, so you can actually stay outside of the SAM's engagement range until your missile had impact.
5. When #1 and #2 are close to the IP point, #2 will ask for "Permission to engage". Give your wingman "Weapons Free" (press W and 4) and he will engage the ground target.
6. As soon as your element has done its job, it will come back to formation and when near the target, also ask for "Permission to engage". Order the Element "Weapons Free" (press E and 4), and they will do the job on their main mission targets.
7. If you are spiked on the RWR from an enemy aircraft at your 6 o'clock position, the command "Clear My Six" to the flight (press R and 7) is useful to have your wingmen take care of the intruder.
8. In most situations, these commands should be sufficient to order your AI to do their job. Refer to the main manual for further wingmen commands.

Refueling enhancements

Major revisions to in-flight refueling have occurred since the initial release of this product, and now at version 1.08, refueling has been made more realistic, whilst becoming a little friendlier to the pilot.

Training mission 26 is a good place to practice refueling. Practice the same refueling conditions over and over until you can repeatedly refuel, so that in the campaign, you can find a nearby tanker and hook up when needed. It really helps to be patient. Refueling is daunting in real life, and in Falcon, do not be afraid of it - dive in and practice until you develop a technique that works for you, but be patient. A fast frame rate is essential, as is a good quality joystick or HOTAS (Hands On Throttle And Stick). Create a picture in your mind of precisely where you want your jet to be, and every move you make to put it into that position should be smooth. Make tiny incremental changes to the throttle / inputs onto the stick and wait a moment for the jet to respond. To help form this picture in your mind, use the Easy refueling mode to start with, which will refuel on behalf of the human pilot. Watch the process, and pick a point on the horizon or a relative location between your HUD and the frame of the tanker that you can remember and use this in your attempts to help you accurately position your plane. As always, look out for the positional indicator lights located on the underside of the refueler. These lights tell you if you need to move up, down, left or right, and finally listen to the refueler over the radio providing you with constant updates.

There are three modes of difficulty for in-flight refueling, configurable on the main Setup screen, described below:

Easy

With Easy refueling, the procedure is as follows. After locating the tanker (AWACS can help with this inside a campaign where a tanker has been assigned), press Y (Z on German keyboards) then 1 to request refuel. The tanker will respond with instructions. Fly up behind the tanker and regulate your speed to the tanker's. The tanker will adjust its normal speed to around 310kts to refuel the F16.

Once you are in position, the AI will take control of your jet and perform the refueling operation. It will open and close the refueling door, handle the radio calls, and once the tanks are full, will disconnect and make way for your wingmen (if any) to fill up.

Simplified

As with Easy refueling, press Y then 1 to request the attention of the tanker.

This time, the process is the same, in that the AI will handle your radio calls for you, and will open/close the refueling door. However, you will need to fly your jet and hold it to the boom. In this realism mode, the AI will be helping you fly to the boom. As you get closer to the jet, the AI will provide more input, and attempts to regulate the approach speed to the tanker.

Realistic

This is the most challenging mode of in-flight refueling, yet the most rewarding! In this realism mode, the pilot must handle the procedure from beginning to end, perform all the radio calls manually, and open and close the refueling door.

The first stage is to request refueling, so press Y then 1.

Once it is your turn to refuel, approach the rear of the tanker, stabilize your speed and position, and inform the tanker pilot that you are in position, stabilised and ready. Press Y then 2 to do this.

If you are close enough, the tanker will respond by lowering the boom. The boom operator will try to follow you as you close up to connect, and will do his best to adjust to your position. However, he can only deal with gradual movements, the boom cannot swing around if you move wildly from side to side or up and down.

One change in patch 1.08 is to cushion slightly the tendency for the pilot to oscillate vertically in relation to the boom position. The effect is subtle but should lead to a more realistic experience.

Once you connect, you will hear the tanker call "Connect", and will feel any small speed advantage you may have reduce and dissipate as the action of connecting to the boom absorbs this. Of course if you have a 20kts speed advantage then you will shoot right by!

In patch 1.08, just as in real life, the boom operator is able to apply inputs to the boom that help maneuver the refueling jet. He is able to steer the jet and push/pull it around to some degree. The effect is that you should find the refueling experience slightly easier than before to keep the aircraft in position, even during tanker turns, and this is closer to the real life experience.

During refueling, monitor your fuel load, and once the tanks are full, back off the throttle a little and break away. You then need to inform the tanker you have finished refueling, so press Y followed by 3. The next aircraft in the refueling queue will then be called to the tanker.

Once you have finished refueling, standard practice is to hold a position just astern and to the left of the tanker. Your wingmen will join you in that position after they have completed their procedure. Once the final aircraft in your flight has refueled, you should continue on with your mission. Of course, if at any time you fall under attack, you can use the wingman or element Rejoin commands to abort refueling and then to issue any new instructions.