

# Vandal's Guide to the Falcon BMS Curious

v0.1; March 20th, 2020; Current Falcon BMS v 4.34U3

Please note I have not proofread this yet!

## Initial Considerations

I've never had a problem getting Falcon BMS to run on Windows 7 or 10. Some folks have got it to run on Linux using a compatibility layer. If you have problems, the BMS forums seem to prioritize helping folks working out installation problems. Even so, some folks are not able to get it to run.

Next, you really can't enjoy the simulation with a mouse, keyboard, and any old joystick. You are going to need TrackIR (or equivalent) and a HOTAS (hands on throttle and stick). This cost me about \$350 for new gear. I'll describe my equipment and why I got it later, but for now the point I want to make is that you probably want to make sure Falcon BMS is going to work on your system BEFORE buying new equipment.

The other thing I feel strongly about is that you should be looking at this as a hobbyist. If you just want a game to keep you occupied until the next AAA Call of Duty or whatever game comes out, then this simulation is most likely going to be way more demanding than you might expect. However, if you must fly a modern fighter jet "as real as it gets" then to the best of my knowledge you need to be flying Falcon BMS or DCS World.

Let's talk about Falcon BMS and DCS World. These are both air combat simulators. DCS World has more airplane models (plus helicopters) to fly and the graphics and the user interface are better than we have in Falcon BMS. Falcon BMS shines when it comes to having a "war experience" and price. With Falcon BMS you buy Falcon 4.0 for about \$7 and you are done. With DCS World you get some free low-fidelity aircraft and if you want a high fidelity aircraft they can cost \$50 or more a pop. Plus, some of the maps (a.k.a. theaters) that go with DCS World you also have to buy. That being said DCS World has more high-fidelity models than Falcon.

Basically all flyable planes in Falcon BMS use the F-16 Viper's avionics. Some cockpits are done fairly well, such as the F/A-18, F-15E, Tornado, AV-8 Harrier, A-10, (also the Mig-29 and Mirage 2000 I believe) but the avionics are pretty much the same no matter what you fly with some tweaks. For instance, the A-10 and the F-117A only have one MFD. If a flyable plane doesn't have it's own cockpit, the cockpit will be the F-16C cockpit. So you can fly a B-2 Spirit that looks like a B-2 externally but internally it looks like the F-16C cockpit.

From what I see in Youtube videos Falcon has more munitions available. For instance, the F/A-18 in DCS World can't employ smart bombs (as of this writing) whereas you can in Falcon BMS.

For me, the reason I chose Falcon BMS is for the dynamic campaigns. Essentially, the computer plays both sides of a conflict and you just sort of insert yourself into a squadron. When you are flying you can see that the ground and air war is going on all around you and you are just a small cog in a great big effort. You don't have to design any missions. By default, the computer completely runs both sides of the war and will resolve it whether or not you choose to fly. By default, you control one aircraft. If you want you can take charge of an element, flight, squadron, many squadrons, and even battalions on the ground. You can let the computer set the war priorities, or you can take control of the war priorities (i.e. do you focus on close air support or do you focus more on deep strikes and take out army depots and war production?)

The Falcon BMS community is great. BUT... Some are a bit salty and think that only the F-16 is worthy of the developer's attention. The average developer is definitely biased towards the F-16 and sadly (as far as I can see) in the last three years have done very little to improve any other aircraft. It's all volunteers, and inexplicably they refuse to train people on how to build cockpits (or put together a video series on various aspects of modding) and the like although many people including myself have offered to help out. So we have things like in the F-15E if you as the pilot turn your head and look into the backseat you will see a hole in your plane where the backseat should be. Some planes have bombs that appear all on pylon 1 from the internal view even though the aircraft is correct when viewed externally. The F117A and A10 only have one MFD whereas the later variants in real life (to my knowledge have 2 MFDs).

## **Installing Falcon BMS**

### **Install Falcon 4.0 First**

The first thing you need is a copy of Falcon 4.0. "BMS 4.34 requires a legit installation of a Falcon 4.0 (all older and newer versions are accepted alike, i.e. Microprose, Hasbro, GOG, Steam, Retroism). The check is performed both at setup time and every time you start BMS."

### **Get the Torrents from Benchmark Sims**

Now I am not going to go through the directions on how to install Falcon BMS. What I am going to do is give you the link to where you go for the official instructions and the download torrents. But before I give you the link, a bit of friendly advice:

1. Make room for Falcon on your C: Drive (I'd say 40GB because you may have more than one version of Falcon and several third party utilities). I recommend making a directory structure as follows:

C:\Falcon  
C:\Falcon\433  
C:\Falcon\434  
C:\Falcon\Installer

When you run the setup/install files, you first install to the "Installer" directory. From there you run setup again for the version and its updates. You may not need version 4.33, that is only necessary if you want to multiplay with a group that flies version 4.33. Also, 4.33 must be installed to get YAME64 to work with version 4.34.

In order to get to the torrents you need to setup a free account with Benchmark Sims forums. There's no advertising or any baloney, it's actually a very nice forum. Anyway, you go here to setup an account.

<https://www.benchmarksim.org/>

Once you have the account setup, be sure to grab the latest version and all the updates from the link below:

<https://www.benchmarksim.org/forum/forumdisplay.php?29-Releases-amp-Updates>

As of this writing that should be version 4.34 plus updates U1, U2, and U3. Write down the build number for the latest update you get. You will need that number to verify everything went according to plan.

## **Run Falcon BMS and Verify the Build**

At this point you just want to make sure the sim is going to work for you. You are not ready to hookup your TrackIR (or alternative) and HOTAS just yet.

Start Falcon. The build number is in the lower right hand corner of the first screen when you start the simulation and it should match the build number that you wrote down.

Then go to > Instant Action > Fighter Sweep > Recruit > Commit.

If you shortly find yourself in an F-16 3D cockpit. Success! And you can press the [Esc] key to exit the simulation. If you have troubles go to Benchmark Sims reread the directions and if you think you got it right, ask for help.

## The Alternative Launcher

Next I highly recommend Chihirobelmo's Alternative Launcher (aka "AL"):

[https://www.benchmarksim.org/forum/showthread.php?31774-Falcon-BMS-Alternative-Launcher-\(Easy-Setup-Keep-Joystick-Assignments\)&highlight=alternative+launcher](https://www.benchmarksim.org/forum/showthread.php?31774-Falcon-BMS-Alternative-Launcher-(Easy-Setup-Keep-Joystick-Assignments)&highlight=alternative+launcher)

You want this and you'll want it before you start mapping your HOTAS. Why, because AL makes mapping easier and also Falcon BMS has a terrible habit of losing your HOTAS map. That can be a couple of hours of work to fix, days actually if you are unlucky and don't figure out the why's and how's of Falcon BMS axis mapping. So do yourself a favor and get AL. Follow the install instructions and you should be good to go.

Thereafter, use AL to start Falcon.

At this point, if you are still excited to fly Falcon BMS, then you are ready for hardware integration.

## TrackIR

TrackIR is explained here <https://www.naturalpoint.com/trackir/trackir5/> basically your view in the game changes to match your head position. So you turn your head left to look at the left side of the cockpit. Tilt your head up to look up, etc. You will need setup a "profile" that works for you, I have one that you can try if you go to my files page <https://www.benchmarksim.org/forum/showthread.php?38446-Vandal-s-Files-and-Checklists&highlight=Vandal%27s> be sure to read the "README.Yassy.txt" file.

There are alternatives to TrackIR. I haven't used them, but one is Facetrack or something like that which uses your smartphone to do the same thing. I recommend checking out BMS Forums and asking for recommendations for a cost effective alternative.

I will note that I don't think TrackIR Pro is worth the extra money. I like the regular hat clip reflector because you don't need a cable for it like you do the pro clip.

# HOTAS Selection

## Some to Consider

Lot's of folks swear by Thrustmaster Warthog Stick and Throttle. I have one and it's a very well built. (I think these are also sold as the HOTAS Magnetic Base, F-16 Viper HOTAS Add On Grip and Warthog Dual Throttles.) However, the throttle switches are marked for the A-10, it lacks a nice cursor slew and is missing the antenna dial. Therefore, in my view, unsuitable for Falcon BMS. Other folks swear by it.

It's my understanding that the most accurate you can get to the real F-16 is the **Thrustmaster Cougar** but they don't make it any longer. You can get them used sometimes on the forums and Ebay. Some Viper enthusiasts will consider this the only real choice!

Personally, my dream kit would be a VIRPIL

- VPC Constellation ALPHA-R Grip
- VPC MongoosT-50CM2 Base
- VPC MongoosT-50CM2 Throttle
- VPC WarBRD Rudder Pedals

But the Alpha-R isn't out yet and I'm not so sure I want to drop \$800 or so into it. But that's some sweet gear and gets good reviews on Youtube.

## What I use and why?

I use the CH Fighterstick USB and Thrustmaster TWCS Throttle. And although a cost is a factor I like this combo better than my Warthog stick and throttle (which was twice as expensive when I got it). I probably will be using my Warthog Flight Stick at some point if I don't upgrade to Virpil (but not the throttle), but first I need to change the spring out of it. The stock spring is too stiff for my taste. Also, some folks in the past have said the gimble needs smoothing (I haven't noticed a need personally though -- that could be a hit or miss issue).

The CH Fighterstick USB has 3 hat switches, plus the 8 way pov switch, a trigger, a missile step button, a pickle button, and a pinky button. It is very comparable to the Thrustmaster Warthog and-or F-16 sticks except that the grip is a good quality plastic vs a good quality metal. The Fighterstick is about \$30 overpriced in my opinion (about \$110 on Amazon as of this writing) but there is nothing as good as it in that price range and you really do need this many switches and buttons to fly Falcon BMS like a pro.

The Fighterstick actually feels good and is a darn good F-16 replica. The buttons are great, but the base is a lighter plastic and not very sim-like or aesthetically pleasing. The software is archaic looking as well, but it works good kinda'. By kinda I mean that the drivers for this stick and Windows 10 don't seem to get along very well. With each restart of the computer it's a 50-50 chance as to whether Windows will recognize the stick or not. I've read that CH isn't going to update it's software as they see it as a Windows issue. I think maybe CH doesn't have any programmers or isn't going to hire programmers. In either case, if Windows doesn't recognize my CH Fighterstick, I just reboot and 9 times out of 10 it's good to go on the reboot.

The Thrustmaster TWCS throttle quadrant is absolutely a great bargain. You should be able to get that for about \$80 on Amazon. Everytime I order they say it's in stock but will take 5-8 weeks for delivery but it comes within seven days each time. (I've purchased 3 -- one for myself and one for each of my sons.)

This throttle -- although plastic -- is way better than the Warthog throttle as far as functionality goes. In addition to the throttle and rudder axis (saving me the cost of pedals), it has two 4 way hat switches, one 8 way pov switch, a darn good cursor slew, a great antenna dial, plus 3 regular buttons. Which is great but it gets even better, because it also has what I call a perfectly placed "hi" "lo" momentary switch for shifting functions on each button or switch. This effectively triples the number of switches and buttons you have available to you.

For example, I use the pov switch as a 4 way switch. In the "hi" position it's for additional flight controls (i.e. flaps), in the regular position I use it as my countermeasures switch, in the low position I use it to arm/disarm weapons, laser pointer, radar, and lights.

I cannot stress how much I like the high quality radar cursor slew and the antenna dial over the Warthog throttle. (I should note you can map a lever on the Warthog throttle as your antenna but you can't manipulate it and the radar slew at the same time like you can easily on the TWCS.) Although a personal preference, the switches on the Warthog do not make up for the Warthog's lack of an antenna dial because those switches are mislabeled for BMS use. I'd rather the switches not be labeled than to have them labeled wrong. Anyway, I have nothing against the Warthog throttle I just think the TWCS is better for Falcon BMS and I'm going to catch hell from Warthog fans for saying the TWCS is better. So let me stress, the TWCS is not better quality, it is better functionally for Falcon BMS.

Further, the TWCS fits my hand better than the Warthog throttle. But the Warthog does feel studier than the TWCS. The TWCS has good to very good quality as to the switches buttons, and axis but the case material is again a light but adequate plastic. It's fairly appealing to the eye in contrast to the CH Fighterstick base.

## What to Avoid

Any stick with less than four 4 way hat switches (one of which can be a 8 way pov switch but not necessary), including but not limited to the following.

- CH Combatstick (this is different from the Figtherstick).
- All Thrustmaster sticks except the Warthog and F-16 sticks (Note: the T16000M stick just doesn't have the requisite amount of hat switches you need to fly Falcon BMS like a pro.)
- Logitech X52 and X56 Rhino. (The latter may have enough hat switches but they do not seem well placed from what I can tell by looking at the pictures of them. Some people really like the Rhino though.)

## HOTAS Mapping

### HOTAS Theory for Falcon BMS

Falcon BMS mapping should be (in my opinion) based on actual switches in the F-16. The reason I say this is because so many Falcon BMS pilots think in these terms. If you ask them a question, whether in the forums or elsewhere, they will often refer to the real world switch. (i.e. "Just hit DMS down to change the sensor of interest.") Not only that, most of the switches are well thought out. You won't understand it at first but as you get better you will understand why things are done the way they are. Here I am asking you to trust the community. They are right on this issue. I fought it for awhile but then I finally came to my senses!

Okay that being said I have some variation to the actual variations left over from my rebellious phase, but let's focus on what I accept as the absolute essentials.

In terms of 4 way switches (loosely in order of importance) I recommend:

- TMS (Target Management Switch) used to sort, lock, and unlock targets.
- CURSOR SLEW (If not already set to a micro-joystick) used to point sensors and weapons at targets with precision.
- DMS (Display Management Switch) used to switch the active display (aka sensor of interest).
- RMS (Radar Management Switch)\* used to change radar modes, range, azimuth, and bar scan pattern.
- MMS (Mode Management Switch)\* used to switch between air-to-air, air-to-ground, navigation modes as well as dogfight, and medium range missile modes.

- CMS (Countermeasure Management Switch) used to deploy chaff, flares, and activate ecm jammer pod.
- VMS (View Management Switch)\* used to eyeball zoom, sensor zoom, and change steerpoints.

\*Fictitious switches coined by myself as far as I know.

So if you weren't already convinced, hopefully you can see from the list above that grouping functions to four way switches and having names for those four way switches naturally makes sense.

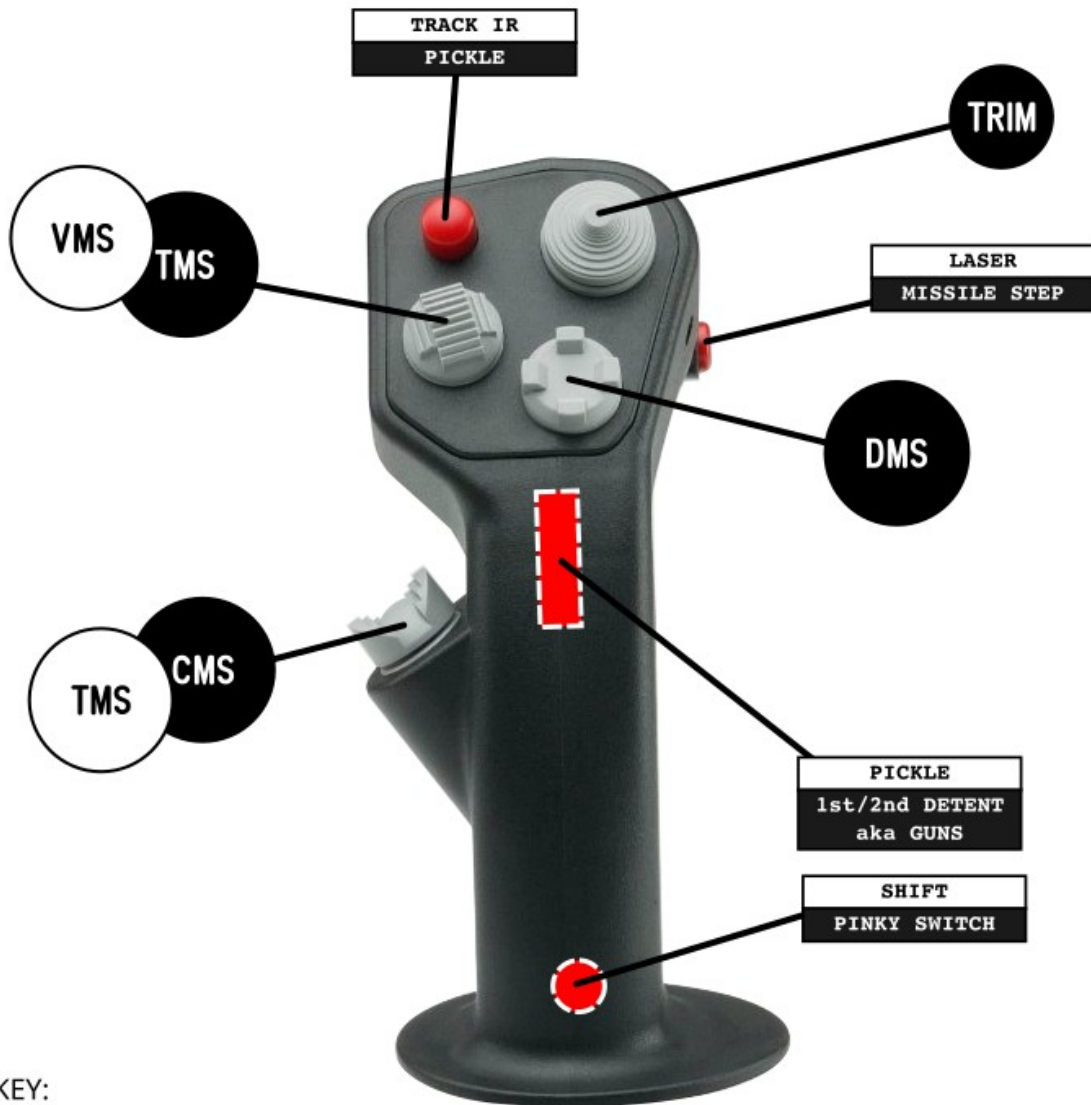
Example 1: Basically TMS Up means loose lock, TMS Up twice means hard lock, TMS Down means unlock, TMS Left means IFF Inquire, and TMS Right means switch targets (in certain radar modes) or switch polarity on the targeting pod.

Example 2: DMS Left means cycle the Left Multifunction Display mode and DMS Right means cycle the Right Multifunction Display Mode and DMS Down means cycle the active display (aka the sensor of interest) (SOI).

Now when you talk to another Falcon BMS pilot and he asks "How do I change the Sensor of Interest, again?" You just answer, "DMS Down."

Okay, so let's look at how I have my Side Stick Controller (or just stick) setup and how the actual F-16 stick is and compare the two. (It's probably worth your time to print out the next two pages as a beginning planning reference for yourself.)



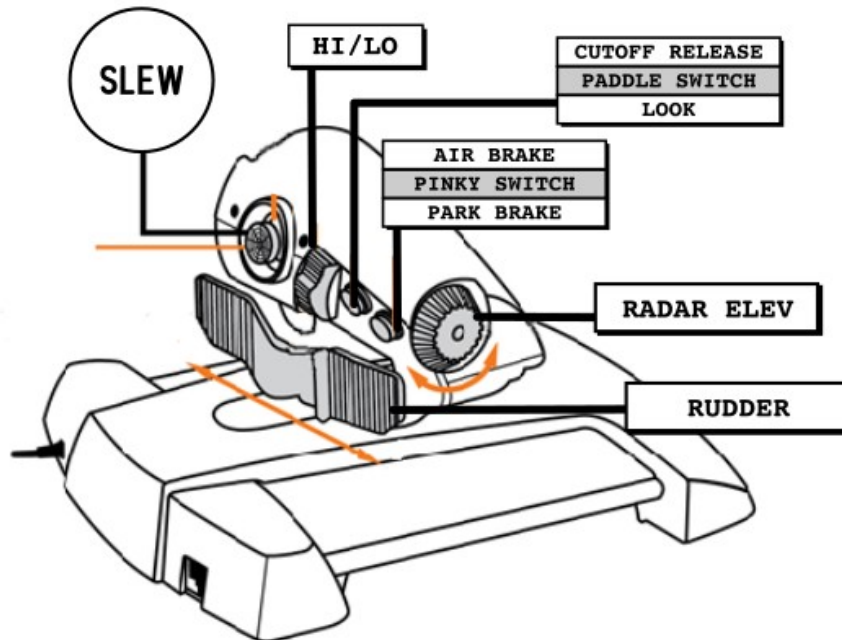
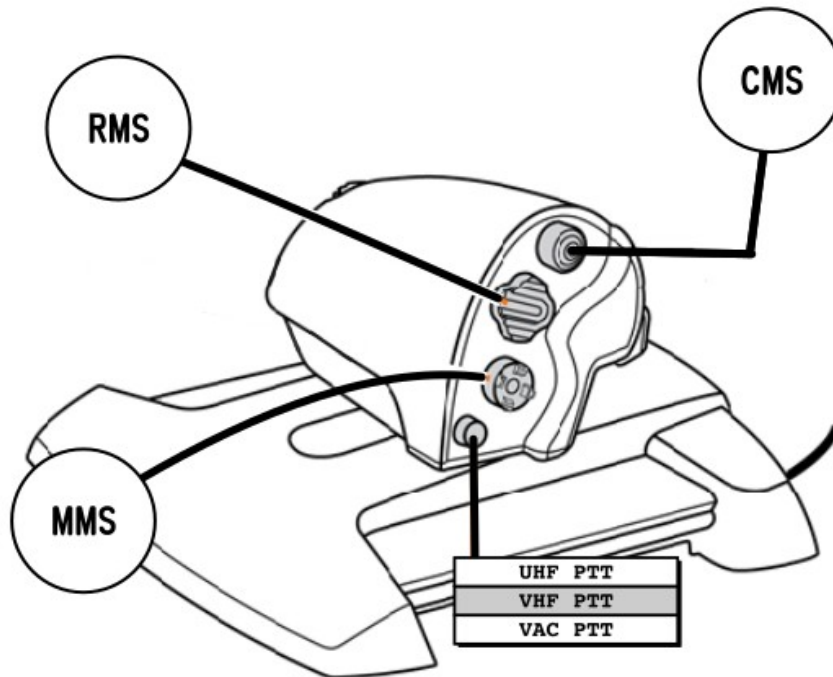


KEY:

WHITE ON BLACK IS VANDAL MAPPING.  
 BLACK ON WHITE IS REAL F-16 MAPPING.

CMS = Countermeasures Management Switch  
 DMS = Display Management Switch  
 TMS = Target Management Switch  
 VMS = View Management Switch (a completely fictional switch).

I have TRIM and DMS just as in the real F-16.



My apologies to those that disagree with my mapping!

The first thing to note is that I do not have the CMS switch on the stick at all. I have that on the TWCS throttle. My view is that the CMS switch needs to be on the HOTAS but I don't need it at the most comfortable spot on my stick. The most comfortable spot on my stick to use for me is the "saddle" hat for my right thumb. So that's where I put TMS, which I am using all the time.

The next most comfortable switch is on the throttle where my left thumb rests and I want that to be for the next most used functions I tend to use and that's radar. So RMS it is. Now RMS is something that I made up, so virtually no one else will reference such a switch.

I'm not going to go through all of my decisions but I want to touch on the idea of my VMS. My guess is the vast majority of folks with a HOTAS map the field of view increase/decrease functions to it somewhere. If you end up putting that on a four way switch like I have, then try to bundle other "view" changing functions to that switch. In my case, I consider switching a steerpoint to dramatically manipulating the HUD, HCMS, radar and targeting pod views. So I mapped these functions together. Whatever, grouping makes sense to you is fine in my opinion just as long as you have a name for each switch for yourself when there is no real F-16 switch equivalent. This mental grouping should help you memorize and become a fluid user of your own setup.

On my Falcon BMS Forums files page I will have a link to my complete map with instructions and diagrams for their use. Keep in mind, the maps above are simplified so as to drive home the point as to the utility of using the real F-16 four way hats and how one might go about judiciously moving things around a bit and creating new groups and names for your hats.

## **Mapping in Falcon BMS**

Don't do it. That's my recommendation. Use AL the Alternative Launcher. It's much more intuitive. For example, find the Keymapping tab and type "TMS" in the filter and that will take you right to the functions (known as callbacks in Falcon BMS) and you'll have your TMS switch mapped in no time.

Chapter 2 of the BMS Technical Manual goes over a lot of information and options you have when it comes to mapping as well as the BMS Device Setup Guide. For instance, do you map your device to a BMS keybind, or do you map your device's virtual Direct X button, or do you map it's native Direct X button. These are important subjects to consider and understand and so I highly recommend reading up on the subject. Keep in mind, some of this information will have to be adapted for use with the Alternative Launcher if you are using AL.

# Training and Player Groups (Squadrons)

I highly recommend watching Youtube videos for training. I personally found Krause's training videos to be about the best for introducing a layman to a bunch of concepts at once. He has a few errors in there but I think his videos are engaging and 98% accurate.

Tim "Stretch" Morgan's videos are often a bit more advanced but very well done.

Supernova has a video for about every subject that is covered by the Falcon BMS Training Manual and associated Missions. I think he is often reading right out of the manual, so that can be a benefit or a bit of shortfall depending on where you are at, but I think well worth your time if you are following the BMS Training Manual (which you should do the manuals are your friend).

I would skip Air-to-Air refueling and save that for the very end of your initial training. It is ridiculously hard for a beginner in my opinion. It has taken many a virtual pilots several days of trying before they were able to connect and then stay connected to the tanker. It is one of the great pleasures of Falcon BMS to do, so don't skip it entirely. Just wait until you get a handle on most the other stuff.

Personally, I think it's a bit foolish to try to learn everything at once. Just take your time say learning how to employ air to air missiles. Don't just learn it once and go to the next thing. Learn that and practice it until you become somewhat fluid in that. Then move on to the next thing you want to tackle.

I would recommend the following topics (in order):

1. Landing
2. Takeoff
3. Basic Navigation (following steerpoints)
4. Air-to-Air Mode and Launching Missiles (using Instant Action to practice).
5. Air-to-Air Guns (using Instant Action to practice).
6. UHF and VHF Comms
7. Ramp Start & Taxi
8. Dropping JDAM Bombs

Then after that the topics that you find most interesting.

Most virtual squadrons I believe would want you to be able to employ most weapons, takeoff and land, and be able to refuel in the air before applying (even if they don't say so). I would

recommend you also play through a campaign on easy and learn how to frag (make) your own campaign packages before applying. After that, I think you got the stuff that most squadrons are looking for and if you don't apply to join, well then I think you are being foolish because flying with other humans is by far the funnest part of Falcon BMS. Just login to the forums and ask if anyone is taking new pilots.

## **Final Thoughts**

Falcon BMS should not be approached initially as a game, but rather as a project, then as a hobby. If you can train yourself to enjoy the challenge of installation and mapping your controls and navigating through the various manuals for Falcon BMS, checking out Youtube videos on the subject, and visiting with folks at the forums... well then you'll be in for one hell of a treat. If you easily get bent out of shape whenever you are asked to overcome an obstacle or learn something new, then Falcon BMS is going to get under your skin. The simulation and the challenge that goes with it has given me and many others thousands of hours of good fun and entertainment. I hope the same goes for you. Good luck.