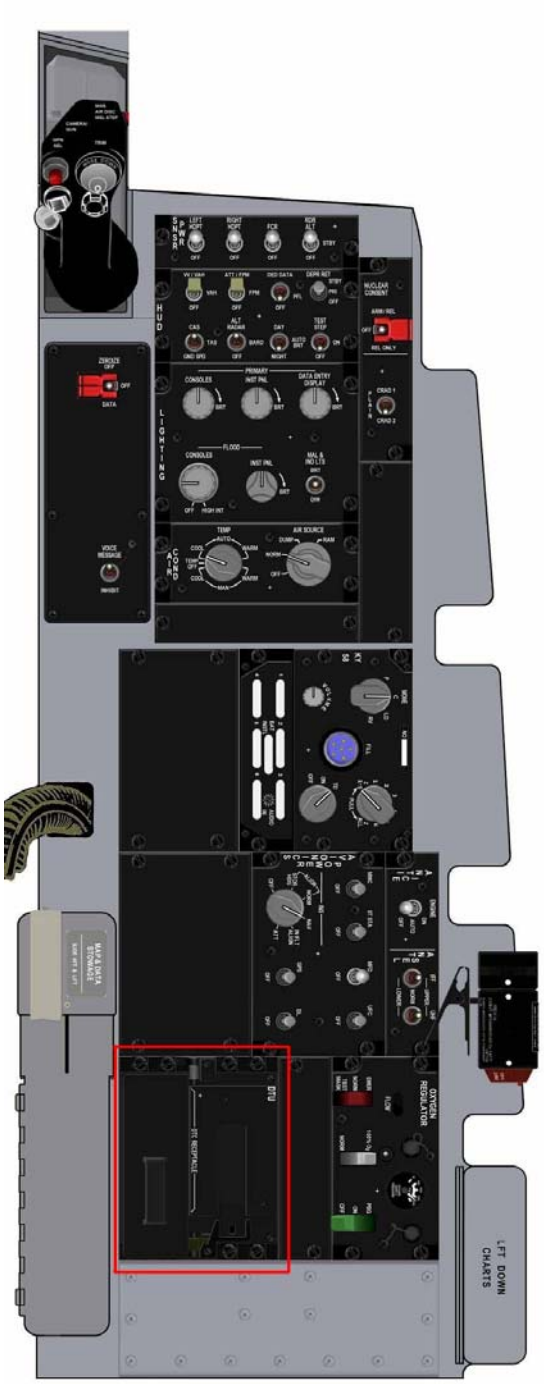
Working with the DTC



In real life, missions are planned on a normal computer or laptop. This data needs to be taken to the aircraft and loaded into the mission computer of the F-16.
This is done with the use of the DTC which stands for Data Transfer Cartridge. You can see this device as your memory stick that you use to transfer data from one computer to another.
This cartridge is taken by the pilot and inserted in the cockpit (right hand side). This data then needs to be loaded into the mission computer. Falcon BMS simulates the DTC which can be of great use. Although you can set and change most of the values in BMS itself, there are some values that can't be set in BMS. Weapon Delivery Planner offers all the DTC options in combination with other tools like the datacard.

DTC files and locations

BMS uses 2 files for the DTC and the files need some understanding to use them correctly.
The first file is made when you select your callsign in BMS. Thus this file is called the callsign.ini file. So my callsign.ini would be Falcas.ini and can be found at the following location: \Falcon BMS 4\User\Config\Falcas.ini.
This file contains a lot of data that WDP will read and show to you. It contains the data for when you are flying a campaign mission.
They are the following types of data:

- STPT
- PPT
- LINES

The callsign.ini also contains all the other data used by you aircraft systems:

- EWS programs and settings
- MFD settings
- Radio/Nav
- Nav Offsets
- Aircraft systems
- Weapons settings

For a TE mission you would need a separate file where the data for that mission is saved. You also want to pass this file to someone else who will fly the same mission with you.
Upon saving you DTC file, when you are in the BMS TE section, a new file will be created. This file has the same name as the TE name, for example you make a TE that is called "KaesongStrike", the name for the DTC will be "KaesongStrike.ini". It is placed at the same location where the mission is saved.
For the default Korea this would be: \Falcon BMS 4\Data\Campaign\save\KaesongStrike.ini.

This file contains the following data:

- STPT
- PPT
- LINES

There is one important thing you need to understand about these DTC files. Every time you load the DTC, your callsign.ini will be loaded.
But how does your data from your mission.ini file gets used then? This data is copied to your callsign.ini when you enter the 3D world.
Suppose you are going to fly a TE in a multiplayer and you pass the mission.ini file to your wingman. When going to the 3D world, the data from the mission.ini is copied to the callsign.ini. The callsign.ini is then loaded. As the DTC contains your route, you have to be careful which mission.ini you use for which flight. You might end up with a different route.
If you want to transfer PPT or line data for campaigns, you can use the backup function that you can find in WDP. Go to the STPT part of this article for a more detailed explanation.

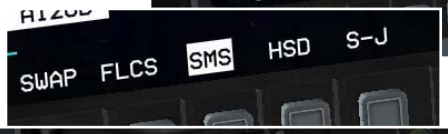
The DTC in BMS

You can add threat circles on the map in the mission UI. Lines can also be drawn on the map to create a FLOT or make an area of importance. Use the right mouse button over the map to access a context menu where you can add these objects. This can be done in campaign as well as in a TE. These objects still need to be saved to the data transfer cartridge or else you will not see them on the HSD when you are in the cockpit.
In the mission UI, beside the map, you can find the DTC button.

When you have opend the Data Cartridge screen, you can make changes and save your DTC.

Here you can already see the split between mission specific data and aircraft system data.The targets tab is for your steerpoint and is mission specific. The other 3 are for aircraft systems, like EWS, MFD and communication settings.
For TE missions it is good practice to save a DTC, no matter if you have set PPTs, lines or other things.
As BMS simulates the F-16 as close as possible, there is an option in the configuration editor to choose if you want the DTC loaded automatically when you do a rampstart. The option is called “No DTC for rampstart” and for maximum realism this option should be selected.
When you choose to go to Taxi or Takeoff the DTC is always loaded automatically.
When you do a rampstart and starting up the aircraft, you will see that you won’t have threat circles or lines. Also all the other data like your chaff and flare programs are not loaded.

Here are the steps to load the DTC. This can be done anytime you want, even during flight if you have forgotten to do this earlier.
The first picture shows you the right MFD after the engine has been started and switched on all the switches on the avionics panel. The INS has not been aligned yet so you won't see the any route or threat circles on the HSD.
The functions of the 3 centre buttons on the lower row of the MFD can be changed to any function you like. To change a function, first push any of the 3 buttons to select it. As an example I pushed on the middle button and you can see that SMS page is selected. Then push it again and you will come to the Menu page. Now you can select one of the functions that are on the screen. We would like the DTE function. DTE stand for Data Transfer Equipment and is the page where you have all the functions for the DTC. Select DTE at this time. Looking at the DTE page you will see the ID number of the DTC the middle of the page. This is the ID number of the DTC that has been inserted in the cockpit. Although this is not implemented in BMS, in real life you should check if the number corresponds to the DTC that has been saved. In the upper part of the page you will find the Load function. When you press this, the DTC gets loaded. You will see the different functions light up in clockwise direction. When all function has been passed, the load process is completed.



The screen might blink for a short time and depending on the settings that you have saved to the DTC, the lower 3 functions may change.

I have selected that the MasterMode will be set to NAV when you load the DTC. The functions that I saved for the right MFD while in NAV mode are: TGP, HSD, SMS.

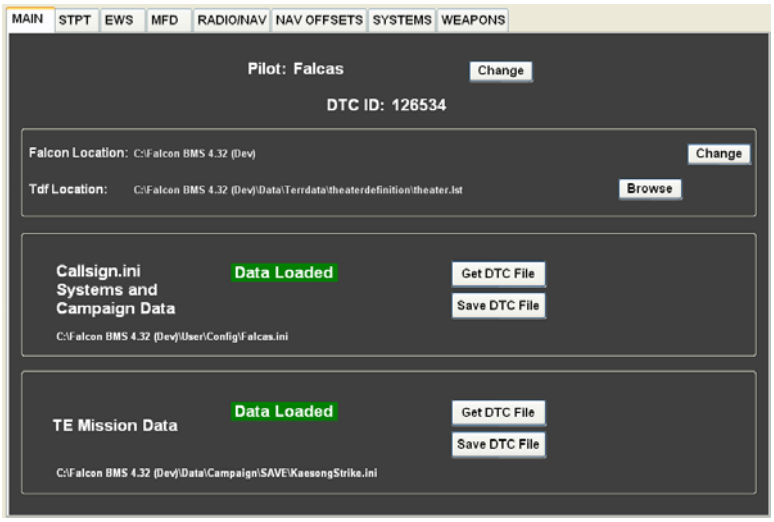
As you can see, after loading the DTC, the DTE function will always remain on one of the buttons. To finish off I still want to select the HSD function on the centre button. Pressing on the DTE button, you will directly come to the Menu page because in DTE has already been selected. On the Menu page select HSD and you are all set. Expanding the range you are able to see the threat circles.

All the other data has also been loaded. Your communication and navigation setup, your EWS programs and your weapon settings.

The options in BMS itself do not include all the options that the DTC can handle. Weapon Delivery Planner has all the possible options for the DTC. Below you will get at short explanation all the DTC settings that WDP can manage for you.

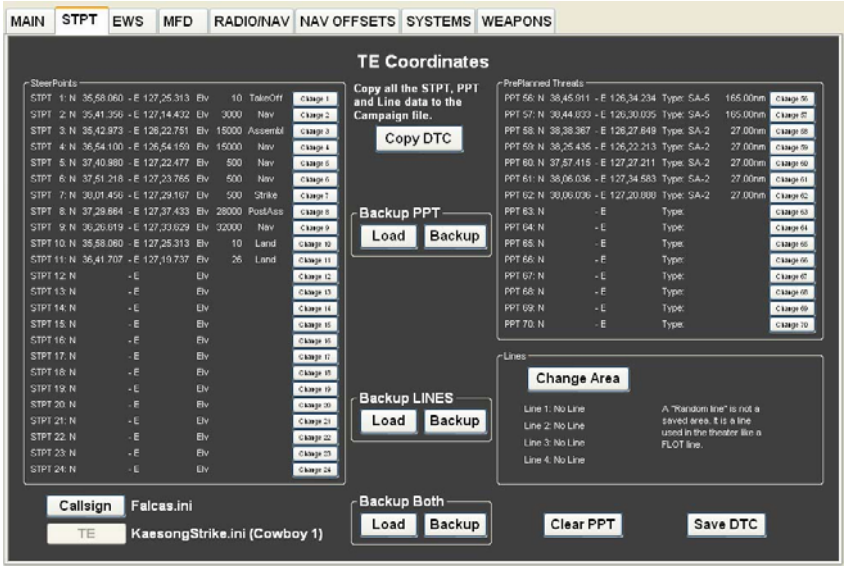
The DTC with WDP

Main



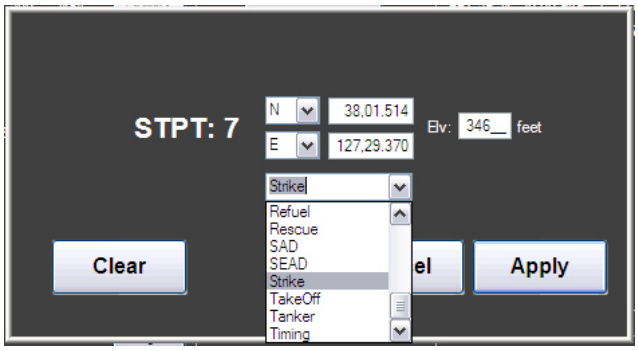
If you start WDP for the first time, you will be asked which callsign you are using in BMS. At every startup of WDP it will look if you have BMS installed on your computer. If it finds an install, WDP will automatically look for your callsign.ini and load it. To the left you will see the DTC main page. On this tab you can change your callsign, the location of the theater definition file or load and save your DTC files. If WDP did not find a BMS install, you have the option to point to the location of the BMS install. This means that you can use WDP on a remote computer that is connected over a network.
The theater definition file (TDF location) is the file where all your theater information is located. If you have added an extra theater to BMS, WDP will need to know where the theater specific files are located. WDP will gather this information automatically, but just in case something goes wrong, you can still point to the correct location.
If you want to change to another callsign.ini or want to load a TE.ini file just click on the corresponding ‘Get DTC File’ button and point to the file you want to load. If the loading of this file was successful, you will get the information label ‘Data Loaded’. You will also see which file has been loaded.

STPT



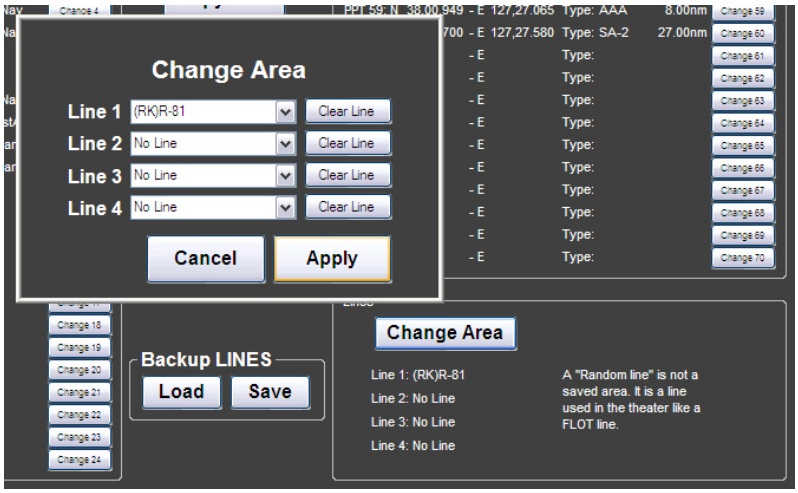
On the STPT tab you can find and manage all that has to do with Steerpoints. First let me tell you something about the buttons in the left lower corner, the Callsign and TE button. As I have explained before, the DTC consists of 2 files. In this example the callsign.ini and the TE.ini have been loaded and you can see which files they are beside the Callsign and TE buttons. In the example picture they are the Falcas.ini and the KaesongStrike.ini files.
The TE button has been selected and that will tell you that you are working with the TE data. The text “TE Coordinates” in the upper part is also there to make it clear which file we are working on. When you load a TE.ini WDP will select TE automatically.

For the Steerpoint part the coordinates are listed. You might notice that for the Takeoff, land and alternate STPTs the elevation is not zero. Normally in the DTC the values for the airports are zero. WDP will compare the coordinates of these STPTs to the airport database and get the correct elevation. If the DTC file already did contain an elevation for these STPTs, it will leave the elevation as is.
The airports that are found for the takeoff, land and alternate STPT are also passed on to the DataCard. There you can see all the relevant data for these airports.
If you want to change, delete or add coordinates for an STPT, you can do so by clicking the corresponding change button. A new screen will appear for making the changes.
These changes will only be in your DTC file, not in the mission itself.
As you can see in the picture on the previous page, the action type for STPT 6 and 7 are empty. This is because I have set the coordinates for the target and the IP on the exact place of the Factory and the IP point. After saving the DTC the action type is then deleted in the DTC. In WDP you can set the action type back to Strike again.
Save the TE.ini DTC file on the DTC Main page. The action type is now saved. Reloading the TE.ini will insert the coordinates of the strike STPT into the DataCard.



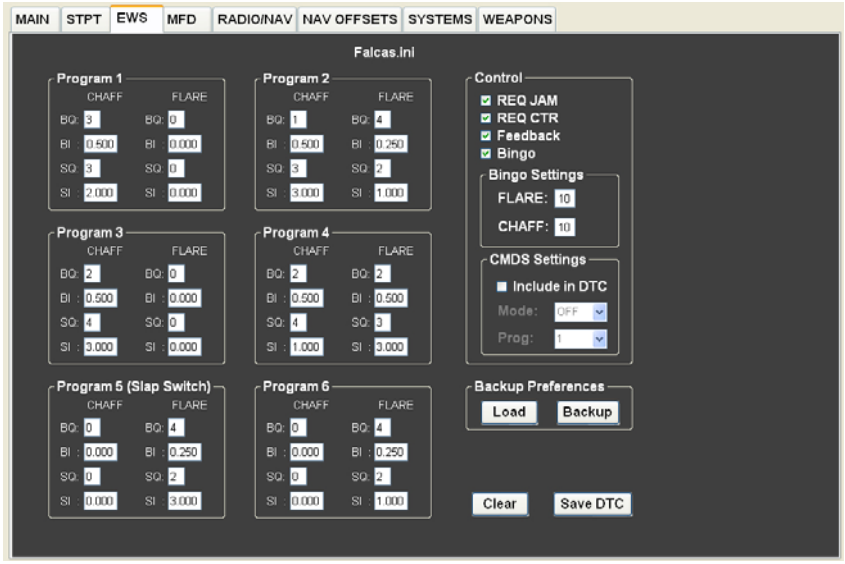
This DTC file also contains some PPTs. You probably don't want to change much here, but you can. One very nice option is that you can make a backup of the PPTs. This can be used to transfer the PPTs to another DTC file or keep a backup; useful for example if you are flying a campaign and where unable to destroy a threat that you will want to revisit or avoid in future. That will save you some time selecting all the PPTs again.

New in this version is the option for the Lines. WDP contains a database for MOAs (Military Operating Areas) and Restricted Areas. Clicking the "Insert Area" button will show you a new screen where you can select these areas. If you already had a line in the DTC, WDP will call this a "Randome Line".
You can delete a line by selecting the "No Line" or clicking the Clear Line button.



If you have made any change here, don't forget to go to the DTC – Main page to save the callsign.ini or the TE.ini files.

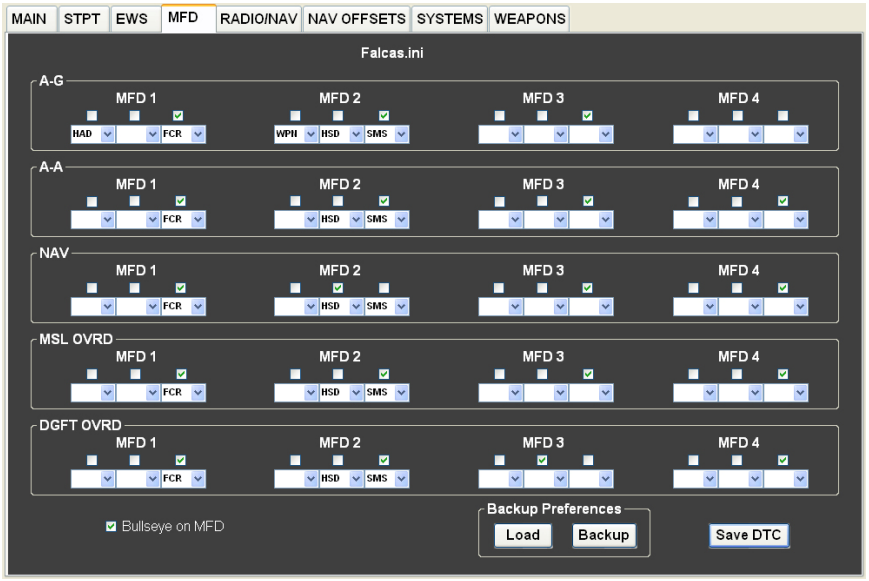
EWS



Here you can manage your EWS setup. You can make, change and delete different EWS programs and settings. The label in the upper middle will show you which file are being used at the time. You can see that this example it is the Falcas.ini. For each program you can set the Burst Quantity, Burst Interval, Salvo Quantity and Salvo Interval. Program 5 is started by pressing the Slap switch. This switch is located on the cockpit wall just above the throttle. You can also set your preferences for the other setting for the EWS system. They can be found in the Control part. The options are REQ JAM, REQ CTR, Feedback and Bingo. Bingo amount for Flare and Chaff and the beginning position for the Mode and Program selector on the CMDS panel.
With the Clear button you can clear all the settings for the programs at once if you want to start from the beginning.
Also for the EWS you can make a backup. This can be used to make different setups for different types of missions. With the install of WDP a typical setting is already included and can be loaded.
If you have made any change here, don't forget to go to the DTC – Main page to save the callsign.ini file.

MFD

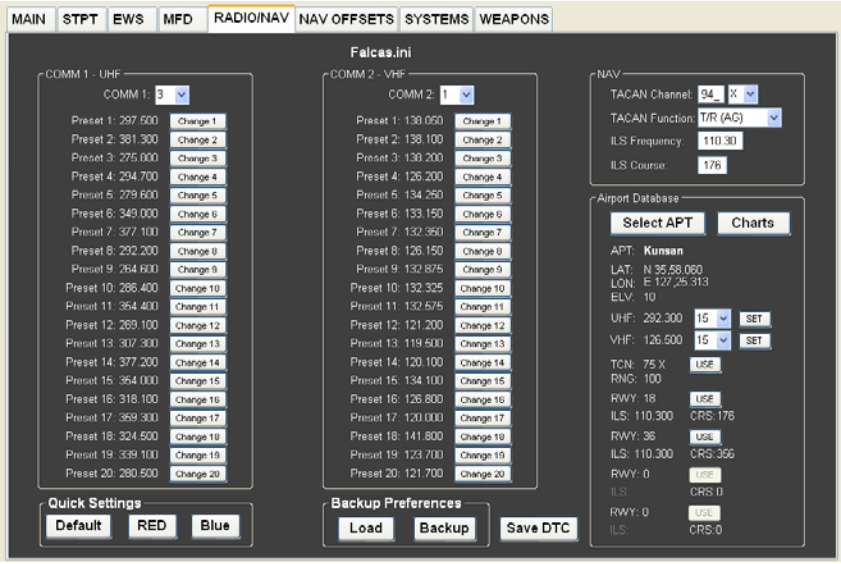
Here you can manage the setup for your MFDs. The 3 middle OBS buttons of the lower row of the MFD can be set as the pilot wants. You can do this already in WDP and as soon as the DTC is loaded in the F-16, these setting are present. The label in the upper part shows again in which file this data is stored. It is the callsign.ini.



The F-16 has 5 Master Modes for which you can program in advance which MFD settings you want to have. These modes are; A-G, A-A, NAV, MSL OVRD and DGFT OVRD. For each of these modes you can make a different setup so that you can have the correct data for the situation. The checkbox above the selection will indicate which one will be selected when

switching to that mode. Have a look at the picture and suppose you switch to A-G. You will have the FCR on the left MFD and the SMS in the right MFD. Although not in the real F-16, MFD3 and MFD4 are included in the DTC.
At the bottom of the screen you can also select if you want to see the Bullseye on the MFD or not.
You can make a backup again for the MFDs setup. Now you can make a setup for an A-A, SEAD or Strike with LGBs and save them for later use.
If you have made any change here, don't forget to go to the DTC – Main page to save the Callsign.ini or the TE.ini files.

Radio/Nav

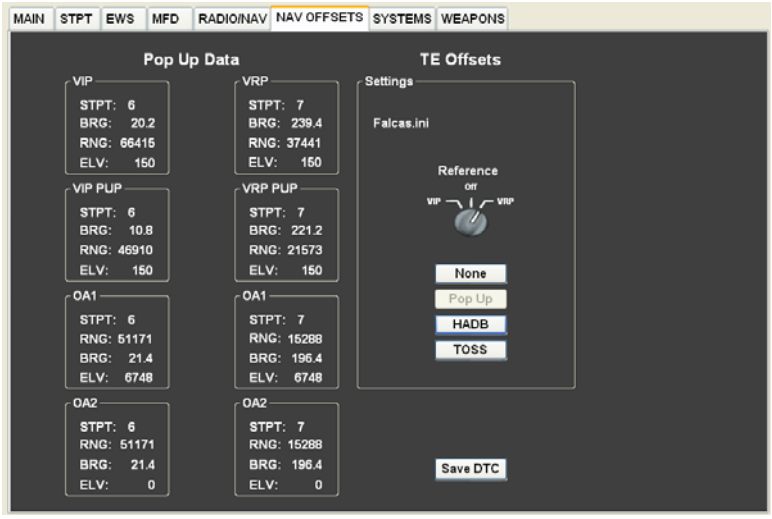


Here you can manage all your settings for the Radios and Navigation. Again the label on the top will show you from which file this data comes.
There are 2 sections for communication frequencies. Here you can change the frequencies for any preset by clicking on the Change button. A new screen will appear where you make the changes.
On top of the comm-1 and comm-2 column, you can find the channel that will be default when you enter the cockpit.

The Nav section will set all TACAN and ILS data. You can select the tacan channel, the A-G or A-A tacan mode, ILS frequency and ILS course. These will be all inserted and won't need to be inserted by hand anymore.
The airport database section holds a complete database for the Korean and Balkan theater and contains all the data like coordinates, frequencies and runway data.
By clicking the "Charts" button you will see the chart of the airport.
Normally the COMM presets 15 are used for the tower frequencies. In the Airport database section you can select at which preset you want to have these frequencies and by pressing the 'SET' button they are copied to those preset location.
With the 'USE' buttons you can copy the data from the Airport database section to the Nav section. Just by one click you have the data at the spot that you need it.
Also here you can save and load a backup file. But you can do even more. If you make a setup for the comms and then save it as Red.rad or Blue.rad, you can use it with the quick buttons Red and Blue. They are for if you are flying Force on Force missions. This way each side can have there own set of frequencies.
The default button will give you the default frequencies that come with the Falcon install.
If you have made any change here, don't forget to go to the DTC – Main page to save the callsign.ini or the TE.ini files.

NavOffsets

On the NavOffsets page you can select and include the attack profiles into the DTC. WDP will calculate the data for each type of attack when the program is started. While WDP will remember your settings it will have your latest calculation upon start up. This means it has this data is available for all three types, PopUp, HADB and TOSS. So if you don't want to change any parameter, you also don't need to go that attack profile page.



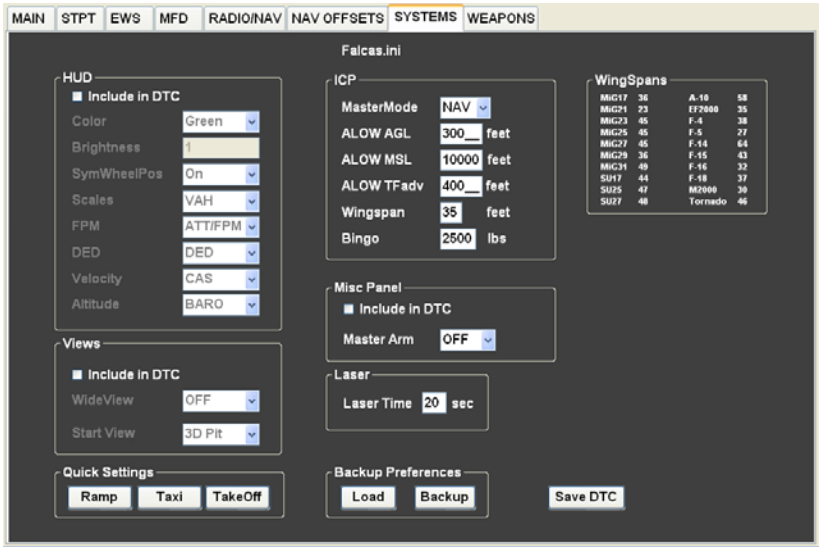
The NavOffsets are located in the Callsign.ini DTC file. In the example you can see that this is the Falcas.ini file.

With the Reference switch you can select if you want to have a VIP or a VRP setup active when you are in the pit. If the switch is in the OFF position, the data for the VIP and VRP are both included in the DTC, but none has been made active. For activating the VIP or VRP go to the LIST (DED) page. There you will see the (3)VIP and (9)VRP options. The one that is highlighted is the active one. If none of these are active, you can activate them by going to there respective page. By inserting zero in the first line you can activate and deactivate it.

The buttons None, Pop Up, HADB or TOSS will select which NavOffset data will be transferred to the DTC. By selecting your attack profile, the data is also passed on to the DataCard

The main difference between the OFF position of the Reference switch and the 'None' button is that with the 'None' button there will be no data in the DTC. With the Reference switch in 'Off' the data is in the DTC, but VIP and VRP are not active.

If you made any changes that you want to take effect, or you just want to include the NavOffset data in the DTC, go to the DTC main page and save the callsign.ini. So now you don't need to type all this data into the MMC yourself and the chance of the wrong data is made very small this way.



Aircraft systems

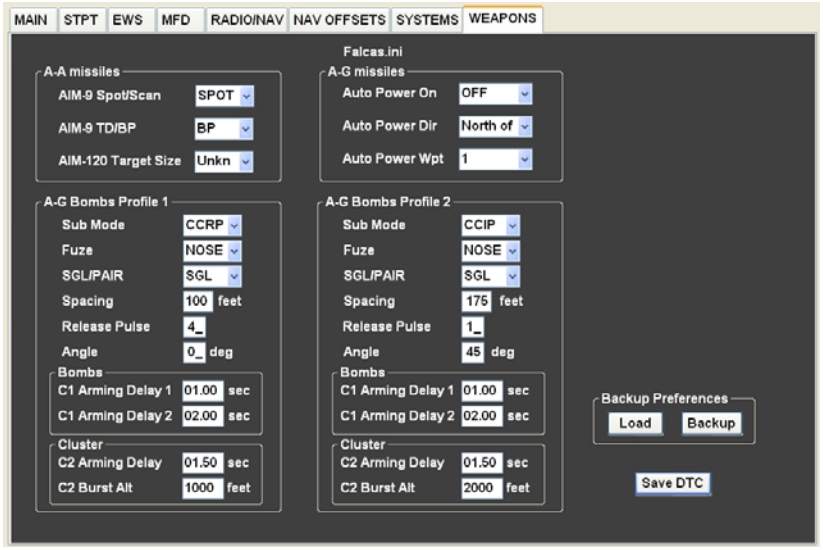
On the systems page you can make a lot of different settings for aircraft system and other settings that will be set when you enter the cockpit.

These setting are located in the Callsign.ini file as you can see on the top of the page.

In the HUD section you can set the position of a lot of switches so that they are in the position that you would

like. I think that I don't need to explain every switch here.
In the view section you have two options. You can choose if you want to have Wide view or not. But the second option is probably new to most people. With the Start View you can select in which view you start when you enter the 3D world. I have this option selected to 3D pit. That means that I don't have to change the view anymore.
In the ICP section you can select some data that will be handy to set before you enter the pit. Because you can also set the Wingspan that will set the size of the A-A gun funnel, I also included a table with the wingspans of a number of aircraft.
In the Misc Panel section you can choose the position of the Master Arm switch.
The Laser time can be set so that the tracking of the LGB will start at that time before impact.
Also here you can save and load your preferences. If you give the saved file the following names; Ramp.sts, Taxi.sts or Takeoff.sts, you can use the quick setting buttons to select your saved preference for that situation.

Weapons



One of the best features of the DTC is the possibility to setup your weapons while planning. As you can see in the example picture there is a lot of data that can be set. All the data for your weapons are located in the callsign.ini.
For your A-A missiles you got the possibility to set the spot/scan and TD/BP functions for the AIM-9. For the AIM-120 you can set the target size.
The A-G missiles have the possibility to set the auto power function. With this function you can choose when the missile will get powered.
For the bombs you will have 2 sets of profiles that can be used and also set in the DTC. While flying you can quickly change profile by the push of just one MFD button on the SMS page.
For each profile you can set which type of FCC sub mode will be used. The type of fuse can be set. Then you can set the amount of bombs that will be dropped and how this is done by setting the SGL/PAIR, pacing and release pulse.
For the TOSS delivery you can set the number of degrees of pitch angle at which you want to release the bomb. The FCC will then give you the correct pull-up cue for a 3g pull-up.
For both profiles you can set the arming delays and burst altitude already.
Also for this page you can make a backup of your favorite settings and load them again when you want.
You can see that this part of WDP will reduce the work that needs to be done in the cockpit a lot.

For any more questions or updates of WDP, check out the weapon delivery planner website.
http://www.weapondeliveryplanner.nl/

Enjoy your flight

Falcas