

**BY ORDER OF THE  
COMMANDING OFFICER OF THE  
185<sup>th</sup> VIRTUAL FIGHTER SQUADRON**

**185<sup>th</sup> VFS INSTRUCTION  
08 December 2011**



**185<sup>th</sup> VFS TE BUILDING  
IQT – Version 1.1**

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**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY  
FOR ALL MEMBERS OF THE 185<sup>th</sup>**

Supersedes: Previous TE Building Manuals

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This manual provides current and aspiring members of the 185<sup>th</sup> with a simple document containing a step by step guide to creating tactical engagements (TE's) for multiplayer use.

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## **1.0 INTRODUCTION**

Tactical Engagements, or TEs, are the mainstay of multiplayer life in Falcon 4, whether it is the original program and its infamous “dance”, to the 185<sup>th</sup> standard, BMS 4.XX.

Without a constant influx of fresh TEs, the multiplayer (MP), aspect of Falcon would fail, thus highlighting the importance of them, particularly to the 185<sup>th</sup> VFS.

## **2.0 AIM**

This document, with the referred videos and other files, is intended to teach you how to produce a TE with a view to enabling you to submit the required quota of TE's and at a suitable standard for an enjoyable yet challenging flight.

This document has been prepared with the complete novice in mind and you may feel comfortable in skipping the early stages of this IQT, but remember that you will be tested.

### 3.0 THE TE BUILDER EXPLAINED

#### 3.1 The Basics

Open Falcon 4 BMS and click on “Tactical Engagement” at the top of the screen. This will open a further page with a box containing mostly training TEs. At the top of this box are three buttons or tabs; “Training”, “Saved” and “Online”. Training is the default page. Clicking on Saved will open a page of your saved missions and Online is the button used for joining MP missions with your fellow pilots.

At the bottom, below the file window are a further three buttons; “TE Builder”, “Edit” and “Delete”. “TE Builder” will take you to the page where you start to create a new mission. “Edit” will open the TE Builder for the TE you highlighted in the file window. This is useful for returning to a part completed TE. “Delete” will erase a highlighted file.

To back out of this window and return to the home page, click on the red X in the top right corner of the screen.



















#### 3.2 The TE Builder

When you click on the TE Builder you will be taken to the Mission Builder screen. In the figure below there are only airfield visible on the map.



Down the left hand side of the screen are a number on buttons, the descriptions of which are as follows;

	Each click on this button will change the team to that of which you want to work on.
	The help page will offer information on Recon, Map Buttons and Map Display Options. Spend some time looking at and learning the items on this page.
	Pressing these will zoom in and out of the map in increments.
	Pressing this button will zoom the map around the current flight path of the flight you are working on.
	With this selected you can add squadrons of different aircraft to any airbase you choose.
	Click to turn this on. With it on you will be able to add a flight. Click again to turn off.
	Click to turn this on. With it on you will be able to add a package. When active you click on a target on the map and a box will open where you add one or usually more flights to the mission. You will have the option of locking the take-off time or the time on target and adjusting them to suit your needs. Click again to turn off.
	You will use this button in the same way as the two buttons above to add ground units to your mission, including SAM sites.
	Aircraft carrier groups, cargo, tanker and frigate groups can all be added to your mission with this button activated. Note that many fighting ships have potent SAM capabilities.
	These buttons give you graphical profiles of selected flights, including the total distance to fly.
	Weather options. This is quite a powerful weather changer compared to previous versions of Falcon. It will not be discussed in detail and the writer is encouraged to experiment.
	Weapon load out. This will show the ordnance loaded on aircraft in a currently highlighted flight. Here you can change the loadout as you require.
	Flight Plan. This opens details of each steerpoint on a highlighted flight. Timings, altitude, speed, formation and actions can all be programmed and adjusted in these boxes along the whole route.

	Briefing Page. This shows the automatically generated briefing based on your TE as it currently stands.
	Order of Battle. This will show all the units you have created for the TE. This will be available when actually playing the mission, although moving ground units will be hidden unless you have put a friendly JSTAR in the mission.
	Air Tasking Order shows all the flights/packages you have created. A well used item when editing your TEs.

Along the top of the screen are a number of options. We are concerned with the four to the left. When pressed they will take you to the respective pages/options.

**Mission Builder** – The main page for creating and editing your TEs.

**Teams** – On this page you choose the skill levels for AI units in your TE, from Rookie to Ace. **In the 185<sup>th</sup> the minimum skill level for enemy AI is Veteran.**

You can add a mission statement in the box provided. **Important** – To ensure that your statement is saved properly you must press the return key before going on to anything else.

You have the option of adding or deleting new teams with the two buttons at the bottom of the display.

On the right you can edit the current boundaries/fronts using the brush with the preferred flag highlighted on the mini-map. You can make areas neutral by using the eraser tool in the same way. Pressing the Nuke button will clear the mini-map allowing you to start afresh.

**Victory Conditions** – In this window we are only concerned with the start time, which should be set before the first mission, allowing for a twenty minute ramp start if needed. The time limit is usually set for at least one hour after the last human aircraft is due to touch down. It is important these are set correctly or the mission could end mid flight or not start at all.

**Save** – This opens the Save Engagement box. Enter a name for your TE and press the save button. All TEs are saved in your Campaign/SAVED folder in BMS.

Now that we have a knowledge of the basic tools let's start to build your first TE.

## 4.0 A BASIC TE

### 4.1 The Scenario

Before you start to prepare your TE there are a number of things you need to consider and decide upon;

- What type of mission do you want to create eg. OCA strike, CAS, Strike/Deep Strike?
- How many aircraft do you want to make available for human pilots?
- How difficult do you want to make the enemy forces?
- Do want a night time or daylight mission?
- If you want to use the weather editor and if so, will the conditions you set up in the TE effect the way the mission can be completed?

Once you have answered these questions you should be ready to start writing the mission.

For this section of the TE IQT, you will be required to build a basic TE using the Mission Editor in BMS.

*It is recommended that you print this document before starting Falcon 4 BMS and use it as you go through this tutorial.*

For the purposes of this tutorial we will create a mission to attack an enemy airfield, Koksan, that has basic SAM defences. There will be some enemy air threats to keep the friendly pilots busy before and after the airfield attack. So we shall have two aircraft on the OCA strike, two on SEAD Escort and two on Escort, a total of six friendly HUMAN flown aircraft. We will also add an AWACs to the TE. Our squadrons will be based at Seoul.

We will fly this at night and adjust the weather settings to make the scene interesting but still make the mission achievable.

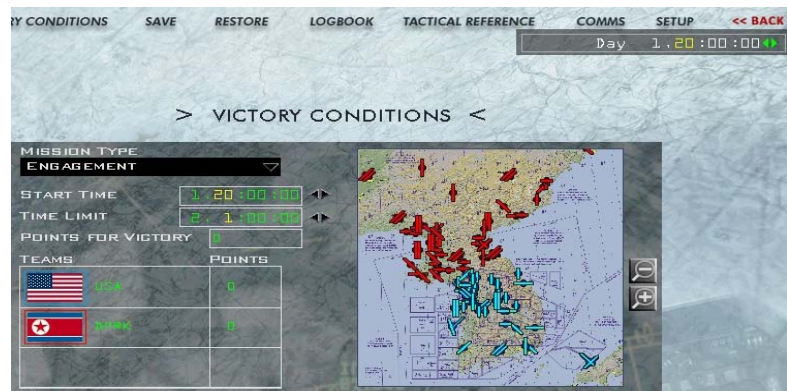
### 4.2 Set Up

Open your Mission Builder.

Click on Victory

Conditions. We will not adjust the borders for this exercise but feel free to experiment if you wish. As we are setting this at night we need to adjust the start and finish times. Click on the “9” in the hour box of the start time so it is highlighted.

Click and hold the right pointing arrow to the right until the hour reads 20. This has changed your mission period start time to 20:00hrs on day one.





Similarly, change the 14 in the finish time to 01. This has put the finish time to 01:00hrs on day two. The day changes automatically as you scroll the times back and forward. You should also remember to alter the actual time in the top right corner of the screen to 20:00hrs. If you started to add units to the map with it still set at 09:00hrs it is likely that the units will have disappeared by the time you start your mission.

So now we have the period of time in which the mission can be flown set we need to set the skill levels for the AI in the TE. Click on Teams. Highlight each flag in turn and choose the skill level for the pilots and and the air defences. **The minimum level in the 185<sup>th</sup> VFS is Veteran for all**, although most missions are set at Ace. We will not write the description yet. It is best to leave it to the end as you may wish to change your original plan before you finish writing your TE.



### 4.3 Placing Units


Click on Mission Builder on the top row of options. Due to the default options you will only see airfields on the map. Right-click on the map. The following box will open:



This box gives a number of options to the TE creator. We are only concerned with the options below the last line from “Installations” down. You will note that there are arrows to the right of Installations, Air Units, Ground Units, Naval Units, Threat Circles and STPT Lines. By hovering your mouse over these names a new box will open to the side. As mentioned earlier, the default option for installations is air bases only and you will see that a green marker next to Air Bases is in place but nowhere else. Simply move your mouse over an item you want to see and left click it to add the green marker. Thereafter the installation or unit (if you have created it) will show on the map.

For the purposes of this exercise put green markers next to (or highlight) Squadron and Fighters on Air Units. On Ground Units highlight Battalions (this will make the Divisions light move to battalions) and highlight all the three options below the line, ie Air Defence, Combat and Support. This will allow you to see the units you will be adding to your TE.



We now want to place our squadrons at their airbases. Make sure you have the correct flag selected on the left side of the screen and then press the Add Squadron button . Now left click on Seoul airbase. Note – if you cannot find an installation, go to the Order of Battle screen, find the place you are looking for in the list and press the Find button. The map will then zoom to that location and add a name under it for you.


When you have clicked on the air base the adjacent box will appear. The type of aircraft can be chosen from a drop down box. Once you have chosen the aircraft (and a different air base if required) press OK to have your new squadron created. After a short period you will see the icon for a squadron appear at your chosen airbase, in this case Seoul.



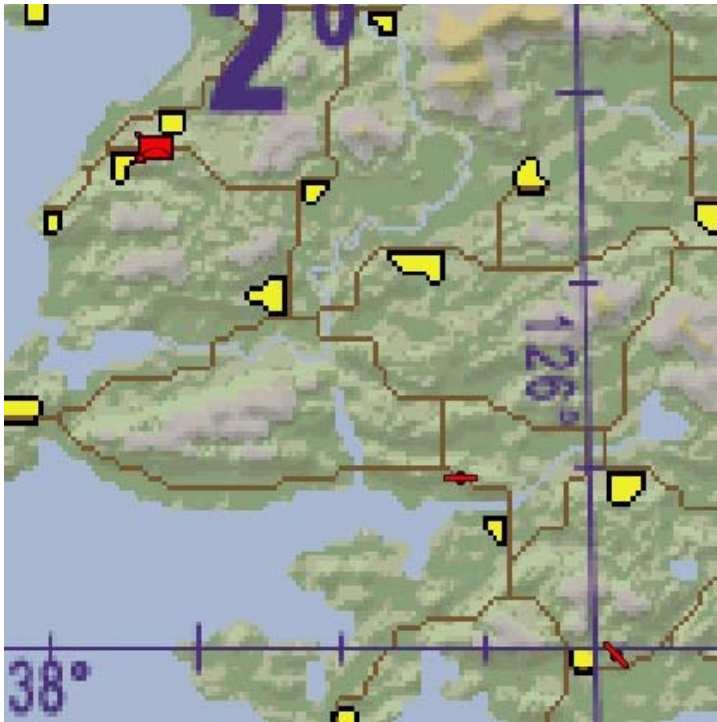
Exercise: Add a further squadron of E-3 AWACs at Kimpo airbase. Then, changing the flag to the enemy, put a Mig 29A squadron at Kwail air base.

The next set of units you should think about placing are the enemy and friendly ground units. It is important to note that these units will be in place from the time of the clock in the top right of the screen.

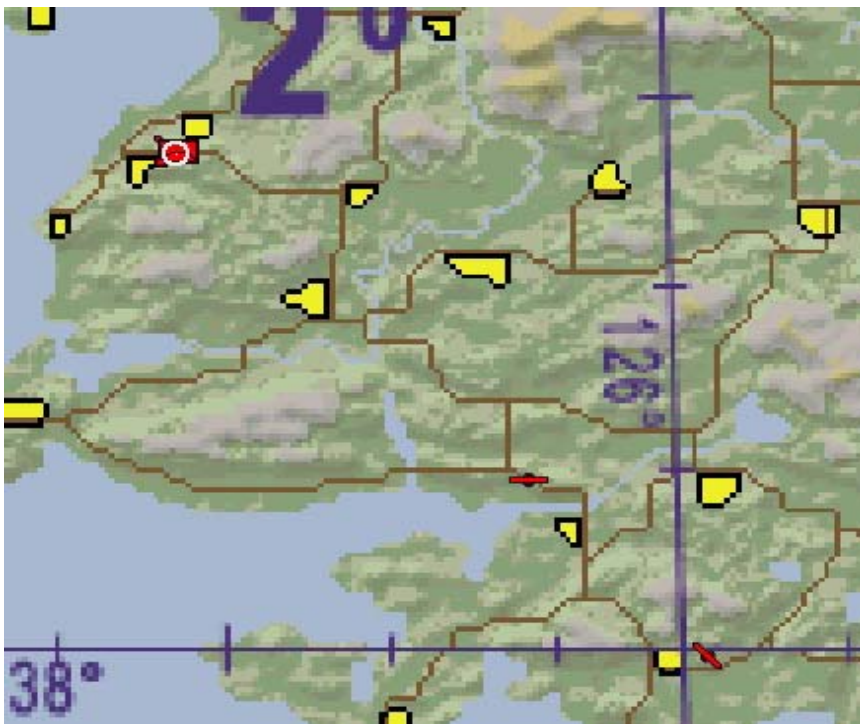
*HINT If you want mobile units to be moving when the TE starts you should wind the clock back and place them at a location then set them moving to another location (see later in the doc on how to do this). When saving the TE for use you would move the clock forward to a later time so that the units start to move. When the TE is used the players will not be able to see the already moving units unless they have a friendly JSTARS in the air.(not implemented until 4.33 release)*

For our TE we want to place an SA-2 unit at Hyon-ni air base. To do this, change the flag in the Mission Builder to the enemy and then click the Add Battalion button.  With this active, left click on Hyon-ni airbase. The box that opens will have the name of the country whose weapons you are choosing from and below that a drop down box of all the ground units that country has for you to use. It should be noted that all ground units apart from SA-2, SA-3, SA-5 and AAA battalions are potentially mobile and can have routes set for them. Leaving the country on DPRK select SA-2 battalion from the drop down list. A description box below this lists all the items within that battalion. When you press OK an enemy air defence battalion icon will appear at Hyon-ni.

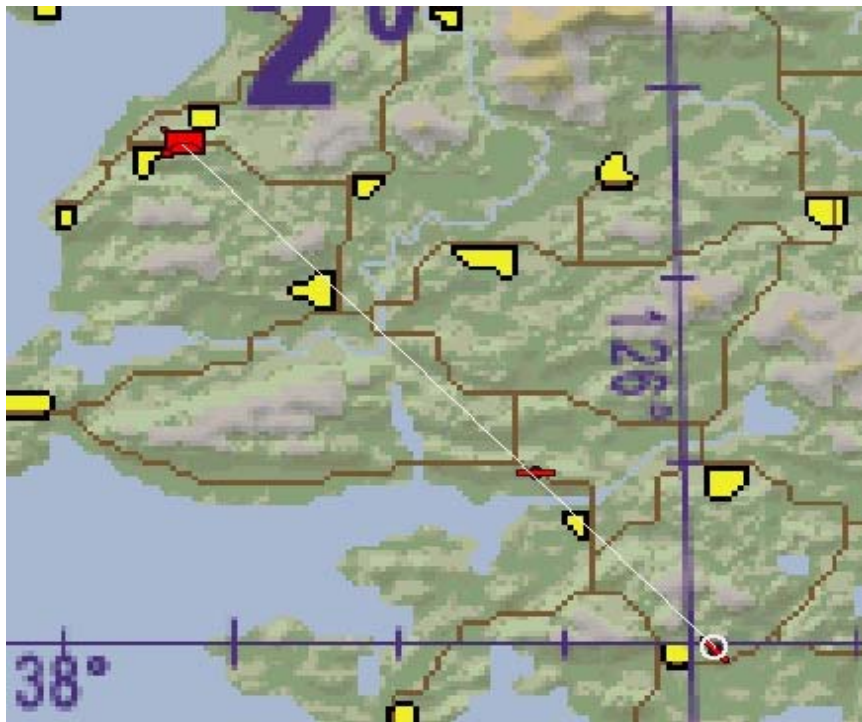
In a similar way place an SA-6 battalion at Kwail air base.



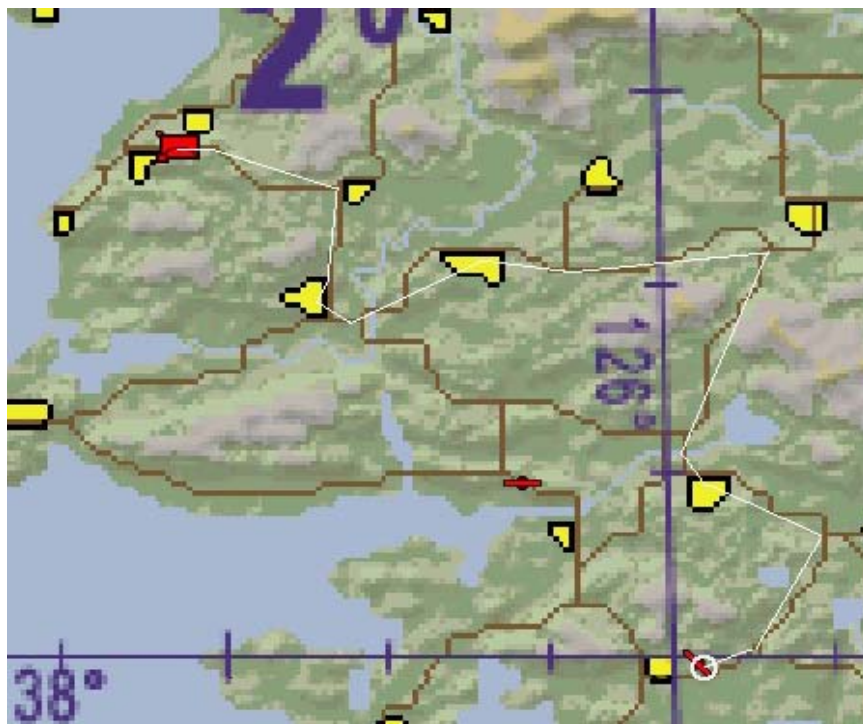
Once the icon for the battalion appears on the map, left click once on the icon. A small steerpoint marker will appear over the unit.



Left click and hold the button down and drag the marker to any other local air base, then release the left mouse button.



Falcon BMS will instantly produce a route from the current location to the place where you “dropped” the steerpoint marker. This marker can be dropped anywhere, not just at targets but also along roads.






It is important to note that the starting point or static position for any air defence units MUST be a target of some sort (the exception of bridges) or the unit will be classed as a Reserve Unit. That means that it will not take any active part in the mission unless “woken up” by an attack.

#### 4.4 Planning the Action

Now comes the fun part. We will now go through the various stages needed to set up a package of F-16s to attack an air base. We will add a “server flight” needed for multi-player TE’s, an AWACs and some enemy air threats.

Note that this is not the only way to produce a TE. Once experienced you may find another way more suited to you.

The first part of the process is to adjust the clock in the top right corner is to 1 21:00:00.

For this exercise we shall create a package to attack Hyon-ni air base. Make sure the flag is the US flag and click on the “Create Package” icon.  With this highlighted, left click once on Hyon-ni air base, at which point the box below should appear.



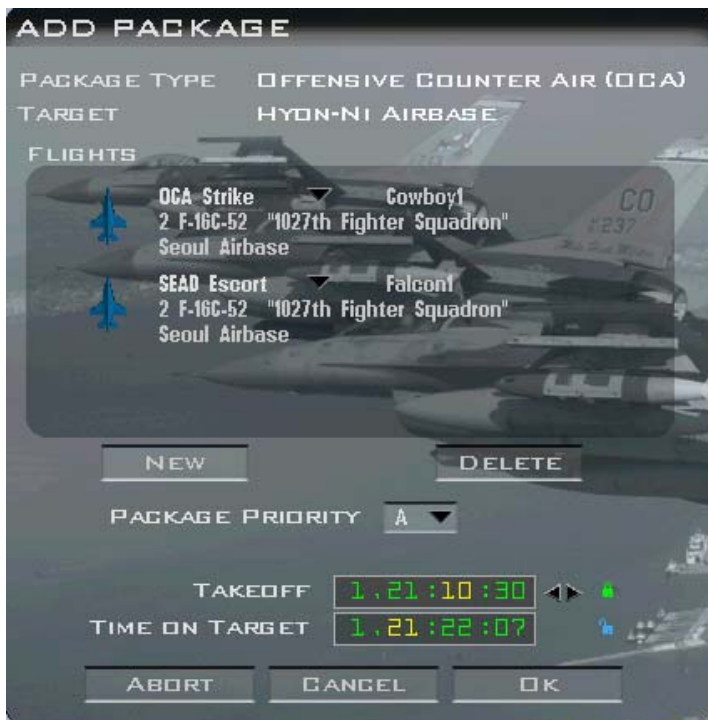
Before adding a flight, you must fix a time for take-off. Currently the green padlock is showing that the time on target is locked. By left clicking on the blue open padlock above it, you will be able to lock the take off time. Do this and set the take-off time for 21:10.

Once you have done that, click on the “New” button in the Add Package box. This will bring up the following box. If you have squadrons placed at other airbases of the same or different aircraft, you will be able to choose which type of aircraft and which air base to use on your mission. In this case we only have one choice. Pick a two ship OCA strike. Make sure the skill factor is on Ace or Veteran. It currently defaults to Rookie, which is no good for our purposes. Click Okay to continue.



The next job is to create some support for the strike flight. So click again on the “New” button in the Add Package box and create another two ship, but this time choose SEAD Escort as the mission type. You will note that it will have the OCA strike flight as it’s target. This can be changed if you want it to escort another flight in the same package, but NOT in other packages.

You can add more flights to the package such as Escort or another strike flight, but we shall stick with the two flights for this package. Your Add Package box should look like the one below before you click OK.



Now this is **IMPORTANT**. When you have flights taking off from the same air base then you must set their take off times two minutes apart and lock those times. If they are in

different air bases then this can be reduced to one minute apart. This is to stop the possibility of connection issues for the flight on the runway and the one behind rolling on to them or causing connection lags at such a critical time.

Setting these times and other things will be discussed now.

On the Mission Builder you will see a flight route with a number of **steerpoints**. Left clicking on one of the steerpoints (represented as a small circle) will bring up a box giving details of actions at that one. The box below shows steerpoint one for the SEAD Escort, Falcon 1; that steerpoint is the take off.



The take off time is locked (indicated by the green padlock) at 21:02:30. We want to save the mission at 21:00 and have the humans commit to Taxi at 21:00. As the clock counts down to four minutes before take-off for this option, we need to adjust our take off time to be at least 21:05 for the first flight. You can adjust the hour, minute or seconds by left clicking once on one of them and then by using the left and right arrows next to the time.

We want the SEAD to take off first to clear any SAM threats before the strike flight arrives. Adjust the take off time for Falcon 1 to 21:06:00. Use the drop down box on the flight name to choose Cowboy flight and adjust their take off time to 21:08:00.





So, your flights are ready for take off at the right time. The simulation will pick what it feels is an appropriate weapons load out. You can change this and fix the load out in the TE briefing or leave it and allow the flight leads to choose the weapons for their mission.

Note that at each steer point you can change the altitude, formation, speed and actions required. This is not usually required (except for steerpoint 1 of course), although you may want to fix times on target and altitudes, depending on your requirements for the mission. For example you may want two flights from different airbases to attack a target at the same time, in which case you would set and lock the time on target for each flight to the same time.

In the 185<sup>th</sup> a critical steerpoint is number 2. This should be in line with and in the direction of the take off runway. It should be approximately 10 miles from take off and the flight must be flying at 350knots and be at 5000 feet. If you are not sure which way you will be taking off then look in the mission briefing. At the bottom there is information on the weather including the wind direction. So if the wind was given as 180° at 5 knots, then you will be taking off in a southerly direction.

Another useful steerpoint would be the opposite of steerpoint 2, ie one that lines the flight up with the home runway, usually 5 to 10 miles for the landing.

Go through the remaining steerpoints now to make sure the OCA Strike flight does not overtake the SEAD Escort.

It would be nice to have some AWACs cover.

*Exercise: Create a new package and put an E-3 AWACs on station from Seoul to 60 miles east. Time on station should be set to 20:45. That way it is in the air and scanning for enemy aircraft by the time you get airborne in your F-16.*

The last crucial item in planning your mission is to put in some enemy air threats to make it a little busier for your flights. Where you have these flights attacking your F-16s is very flexible. Before the attack, during or after or all three is completely up to you. It is also good to put some patrols in areas off the flight plan to a) make the flight leads think about the route and b) to offer an extra threat that should not be engaged.

For our needs we will add a two ship of Mig 29A fighters to do a Defensive Counter Air (DCA) patrol south of Hyon-ni.

*Exercise: Change the flag in the Mission Builder to the enemy flag and create a package as you did for the F-16s, but this time by clicking just south of Hyon-ni airbase. Put a two ship MIG 29A DCA of ace or veteran aircraft on a patrol running from north to south at 30000 feet. Set the time on target as locked and the time set to 21:15. Don't forget to choose the weapons for the MIGs.*

Congratulations you have created your first Tactical Engagement.

## 4.5 Summary

In this section you have been shown how to create a basic TE, including siting of static and mobile ground units, creation of packages and flights and the adjustment of steerpoint details.

It is recommended that you practice making some missions of your own and trying them out to see how they work.

## 4.6 Further Reading

You should read this document in conjunction with the BMS manual included in the Docs section of your Falcon install, particularly pages 14 to 20.

Documents on TE writing and rules in the [185<sup>th</sup> Document library](#)

You should also consider the benefits of using the Weapons Delivery Planner to produce an ini file for the mission, which loads the mission with all the pre-planned threats loaded when you enter the mission. The latest version can be downloaded [here](#).

## 5.0 THE BRIEFING

Many find this part of the TE preparation the hardest to do. This is because you must ensure that all the necessary details are put in the document and that they make sense and, above all, they do not make the mission impossible or unlikely to succeed in.

In appendix A you will find one of the better briefings we have had. You will note that it shows;

- all the details of the flights,
- clear mission success criteria, making sure you do NOT use percentages of destruction as this is impossible to assess during the mission.
- recon pictures,
- frequencies for flights and towers, and also the datalink information
- weather information,
- known threat information and lastly,
- a good story.

The rules for TE building in the 185<sup>th</sup> VFS (SOP 9.X) can be found in the document library along with a blank briefing template for you to use. This should be used for all TEs you submit for use on official flight nights.

## 6.0 TEST EXERCISE

You are tasked with creating a TE to include the following:

- A package to attack Kwail air base, to include 4 x F-16C-52 OCA strike, 2x F-16C-52 SEAD Escort and 2 x F-16C-52 Escort.
- An AWACs flight to be airborne 30 minutes before the first flight takes off.
- An enemy SA-2 battalion at Chodo-ri naval base
- A package of 4 x Mig 21-PF based at and on patrol east of Kwail. Timing must be set for a threat to the F-16s on their ingress to the target.
- An enemy HQ battalion moving from Kwail air base in a SE direction.
- First friendly F-16 is to take off at 12:15hrs
- A briefing.

Your submission is to be presented to your instructor pilot a maximum of seven days after your on line training session. This submission should include both the tac and the twx files. If you have used the Weapons Delivery Planner you should also include the ini file.

All of these files can be found on your computer in C:/Program Files/Falcon BMS 4.32/Data/Campaign/SAVE/.



The Art of Deception						
By Dmans1						
Falcon Version	Patch Status	Theatre of Operations				
Falcon 4 BMS	V4.32	Balkans				
		Korea Original	x			
Package Information						
Takeoff time	Callsign	Task	Target	Time on Target	Package #	AC # & Type
04:38:30	Chalis1	AWACS	Package 3717	04:55:00	3722	1XSentry AWACS
04:57:00	Stud1	Training			3727	1x F-16C-52
04:58:00	Garbo1*	CAS	FAOR	05:10:00	3717	4x Mirage2000-5
04:58:00	Python1*	CAS	FAOR	05:10:00	3717	4x F-16C-52
04:59:00	Shark1	CAS	FAOR	05:10:00	3717	4x F-16C-52
05:00:00	Panther1	Strike	Togwon-ni Nuclear Plant	05:30:00	3717	4x F-16C-52
<sup>(1)</sup> Blue colour indicates for human use.						
<b>Mission Success criteria</b>		All	Reactors Hit before 5:30, destroyed with less than 33% human losses.			
<b>Mission Partial Success criteria</b>		All	Reactors Hit after 5:30, destroyed with less than 33% human losses, or Reactors Hit before 5:30, damaged, with less than 33% human losses, or Reactors Hit before 5:30, destroyed, human losses between 33% and 50%.			
<b>Mission Partial Success criteria</b>		All	More than 50% human losses, or reactors not hit, or hit after 5.30,damaged with more than 33% human losses, or radio-radar silence broke from strike before STP11.			
<b>Air to Air Weapon Loadout</b> (Free or Fixed)		FIXED-Interflight weapons exchange allowed.				
<b>Air to Ground Weapon Loadout</b> (Free or Fixed)		FREE-No Harms				
<b>Mission Flight plan</b> (Free or Fixed)		FIXED				
<b>RTB Callsign</b>		Dogs are loose				
<b>Abort Callsign</b>		Woof,whoof,woof (who let the dogs out)				

\*Only Garbo1 or Python1 can fly. Use appropriate TE.

Radio Frequencies

	UHF Frequency	Preset Channel	VHF Frequency
Garbo1-Python1	--	1	138.05
Shark1	--	2	138.10
Panther1	--	3	138.20
Chalis1	349.00	6	--

MISSION DETAILS

Togwon-ni Nuclear Plant must be hit. We cannot attack it directly since, the whole bad guy's airforce will be scrambled, instead, deception tactics will be used. We will harass the CAP flights to the east of the FLOT, keeping the enemy's eyes and ears there while a 4 ship flight will take off from Seoul, on a touch and go "training" mission, hitting the deck after the touch and go, then using terrain masking to cruise up to the nuclear plant.

Weather –

- a. Weather is Poor, heavy precipitation and winds from the east.
- b. Contrails expected at A20-A27

Enemy – Enemy has Mig29 Mig31 and Su27 Squadrons. Check Order of Battle.

Friendly – A training flight at South Korea.

Mission – This is the Target. The Reactor must be hit before 5.30. We know the airbases are on a 15 minute readiness, harassment will start at about 5.10, so skies are expected to get flooded by then.





2 FAORS have been predefined. The DCA flights must provide air superiority until the strike flight is has flown back over the FLOT.

The strike flight, will takeoff on a “training”, touch and go scenario. After the touch and go, the flight will be in radio and radar silence, in the weeds, using terrain masking to reach the target area undetected.

The 3715<sup>th</sup> squadron is having issues and cannot guarantee availability of more than 4 aircrafts, so the 3716<sup>th</sup> squadron is on standby, to provide 4 M2k-5’s if needed.

