# Using Weapon for the Milviz F-86

The Milviz F86F Sabre for FSX/P3D is a fine simulation of the Sabre in the early 1950s, but at the moment it's only good for demonstrations. It lacks the armament of the fighting Sabre. Milviz has announced plans to offer an upgraded simulation in the future with the TacPack expansion.

For right now, there exists a product from Captain Sim called "Weapon for FSX" that can add weaponry to any FSX airplane. The product is fairly low-cost and is rather limited. But for the F-86, it can be made to be quite a nice fit. The HUD included with Weapon is functional but not very realistic, but the Sabre is proudly HUD-less so that doesn't matter. We can attach and use quite realistic virtual guns, rockets, and bombs to our Sabres and destroy any drivable SimObject in the FSX/P3D world with it.

Even better, we can integrate the Weapon controls so that they are matched up and controlled by the switches and indicators in the native F-86. Now, you can arm your guns and rockets from the GUN ARM and ROCKET ARM switches in the Sabre cockpit. The Main Radar light will illuminate when either is armed and to let you know the ranging radar is functional. When a target is locked on for ranging, the (unlabeled) red Radar Lock light on the gun-sight will come on. You can control the range using the Radar Sweep dial on the sight.

The Selector switch (partially hidden by the stick) is used to select with weapon to use. The GUN setting selects your machine guns for air or ground fire. BOMB selects either rockets (the default) or 500 pound bombs (by pressing CTRL-6). ROCKET selects the two AIM-9B air-to-air rockets that can mounted on the Sabre. The AIM-9B is a heat seeker, and when fired within 5 miles of a target from the rear, with the Radar Lock light on, it can be deadly. (Yes, the AIM-9B was an option in the mid to late 50s for the F-86F)

When you press your FIRE button (*joystick button one* by default but this can be changed) whatever you select will shoot. If you aim is true, you will damage or destroy your target if it is a mobile SimObject – such as an AI airplane.

# *Installing Weapon for FSX in the Milviz F-86*

First, you must own a copy of *Weapon for FSX* by Captain Sim. This is a payware product available from http://www.captainsim.com and at the time of this writing cost 14.99 Euros. You must purchase and install this product before any of this will work.

Once *Weapon for FSX* is installed we can adapt it for our F-86. Everything you need is in this document. You must follow our instructions here to modify some of the files in your Milviz F-86 installation. The way we do this will have minimal impact on the standard airplane as distributed, so you won't lose anything if you follow these instructions carefully. *However, we strongly recommend backing up your Milviz F-86 folder inside SimObjects just to be on the safe side in case something goes sideways.*

We'll be using NotePad as our text editor because everyone has a copy. Any other text editor will do. You should be fairly familiar with the folder structure of FSX/P3D and have some experience manually tweaking aircraft and panel files. If not, this might be a steep learning curve for you. But you can do it!

Step 1. Verify that the airplane is installed in the folder Milviz F-86 in your SimObjects\Airplanes folder, and that Weapon for FSX has been installed in its default location.

Step 2. Go into the folder SimObjects\Airplanes\Milviz-F86 and copy the folder named panel (by right-clicking and selecting Copy) then paste back into the same location (right-click and Paste.) A new folder will appear named panel – Copy. Rename that folder to panel.csw.

Step 3. Inside the new panel.csw you will find the file panel.cfg. Open that file in NotePad, and replace the entire contents with the section of code found in this document under the title **Modified panel.cfg**. Save. Close Notepad. (Or download a copy from http://fscaptain.net/downloads/panel.cfg and use it.)

Step 4. Copy the entire text in the section later in this document under the title **CSWeapon.xml for the F-86**. Bring up a blank NotePad, paste the copied text from above into it, and "Save As" in the SimObjects\Milviz F86 folder as CSWeapon.xml**.** (*Please do not save it in a panel folder, it does not go there! It goes in the same folder with the aircraft.cfg file.*) (Or download a copy from http://fscaptain.net/downloads/CSWeapon.xml and use it.)

Step 5. Go into the SimObjects\Milviz F86 folder and open 'aircraft.cfg' with NotePad. At the top you will see sections like this:

```
[fltsim.0]
title = Milviz F-86F-30 Sabre
sim= F86F_rc3
model=
panel=
```

```
sound=
texture=Huff
kb_checklists=f86ef_check
kb_reference=f86ef_ref
ui_manufacturer=Milviz
ui_type=F86
ui_variation="The Huff"
ui_createdby="MilViz"
atc_heavy=0
visual_damage=0
atc_id=12796
atc_airline=Air Force
atc_flight_number=796
atc_parking_types=MIL_COMBAT
atc_id_color=0x00000000
atc_id_font=Verdana,-11,1,600,0
```

There will be one of these sections for each livery of the F-86 you have. For any livery you want to activate Weapon in, change the line "panel=" to "panel=csw". Like this:

```
panel=csw
```

Step 6. Save your work. Any variation with the 'csw' panel will have Weapon active in it. The others will function without change.

At this point, we have installed Weapon for FSX into the Milviz F-86 and it should be functional according to the Weapon manual. There is no visible HUD of course (we did install one but made it invisible – a HUD is required to make Weapon work even if we don't want to see it.) However you should be able to bring up the CSWeapon 2D control panel by using SHIFT-6 in your modified cockpit and select your weapon, point the F-86 gun-sight at a target, and cut loose. GUN will fire the fiftys, RCKT will shoot the rockets, and MSLE will select the Aim-9B. If you select RCKT and then press CTRL-6 you will switch to the 500 pound gravity bombs. CTRL-6 again will toggle back to the rockets. (The gun-sight is useless with the gravity bombs of course.) But you don't have a HUD, so it's a matter of pointing and shooting and hoping to hit the target. Very 1950s.

Due to the limitations of Weapon, you won't actually see these weapons hanging on your F-86, nor do they have any actual weight on the jet. They will appear when you shoot them. You do see (and hear) them hit though!

But we can go further. We can install an invisible gauge that will link up your F-86 switches and lights to the CSWeapon controls. In fact, it will take them over. You won't be able to use them on the original Weapon 2D gauge, but you can look there and see them move in response to your F-86 switches, to verify what you want is actually happening. But mostly, after installing this interface you can ignore the Weapon 2D control panel. You have everything you need in the cockpit.
*Note: our implementation bends F-86 reality just a little bit, taking over some of the unused controls and indicators of the F-86 to make life easier for us. Think of this as a custom modification of a standard F-86 if you want.*

## *Installing the Weapon to F-86 Interface*

Step 1. Go into the SimObjects\Airplanes\milviz F-86\panel.csw folder and make a new folder inside it named CSWI. That's all, just CSWI (Captain Sim Weapon Interface).

Step 2. Copy the entire contents of the section of this document named **Weapon for FSX Interface to Milviz F-86** into a blank notepad, then Save As all this to a file named CSI_MV_F86.xml inside that new CSWI folder. (Or download a copy from http://fscaptain.net/downloads/CS_MV_F86.xml and use it.) This will be the only file in the folder.

That's all! The panel you installed already contains a gauge entry in the [Vcockit01] section referring to this gauge code.

## *Using the Interface*

We've made one non-essential change using the interface to help prevent problems. Whenever the cart is hooked up to your F-86, the RADAR INV indicator light will be on. This will help remind you to disconnect the cart before starting to taxi. The real F-86 needed this, and we have done it for you in this interface.

To arm your weapons, use the GUN ARM and/or ROCKET ARM switches on the weapons panel (partially hidden by the stick in the cockpit.) Both GUN ARM and ROCKET ARM are under red covers which must be opened first. The arm position is with the switch pointed up. Simply left-clicking on the switch will arm it. To disarm, right click on the switch or close the cover. Be aware that these are three-position switches, with a center setting and a full down setting. Either center or full down means not armed. To re-arm, you might need to left-click on the switch twice to get it back into the fully armed position.

Any time either weapon is armed, the MAIN RADAR light will light up on the panel right in front of you. This lets you know your weapons are armed by letting you know that the ranging radar is functional (this is not historical F-86 behavior -- in the standard F-86 that light is a warning light to let you know your radar was failed.) But this is a custom mod and it's very important to know when your weapon is ARMED because:

*Be very careful to only arm your weapons in flight and when you need them!* On default installations of FSX, CS Weapon uses the same joystick button as the wheel brakes!! This means if you arm your weapons on the ground and put on brakes, they will fire! This is bad. At the least you're wasting government property in the form of ammo, at worst...well that depends on where you are pointing!

## *Air-to-Air Combat using Weapon*

If you are hunting MIGs, you have two options, guns or the AIM-9B. Of course, the 9B is much easier, but if you care about history you know the 9B wasn't equipped (to my knowledge) on any Sabre in the Korean conflict. That option came later in the 1950s. So to simulate dogfights with MIGS don't use the AIM. It's very tempting though! It's hard to down a jet with the guns of the Sabre! That part is historically accurate and reproduced well here with Weapon for FSX.

**Guns.** Using guns is obvious. By default your weapon selector (hidden behind the stick, it's a rotary dial, you may need to move the eye-point forward a bit to use it) is on GUN. You're ready to shoot. Just flip open the GUN ARM cover and click on the switch and verify the MAIN RADAR light is on. You have 1,800 rounds. Use them well!

You'll need your gun-sight. To turn it on, click and drag the gun-sight intensity dial to the right all the way. You still won't see the actual sight until you raise your eye-point a little, if you are using the default F-86 eye-point position. As you raise it a couple of notches the sight reticule will appear on the glass. To make it larger, click and drag the "wingspan" dial just under the glass to the left, I set it on about 70 or 80. It's up to you. All it does it make the reticule larger or smaller.

Take off and find an AI airplane in flight. As you will quickly learn, this is *incredibly difficult* without some kind of tracking radar in your airplane, because FSX makes you myopic. (I have been known to install and use the ARS4 freeware radar tracking system available at AvSim. This is clearly non-historical and unrealistic however.)

The best bet – sans radar – is to fly up about 25,000 feet and look for contrails. There'll be an airplane at the front of every one of them. Fly fast and hard at one until you get in behind it.

Once you get without about 5 miles and get the target visible somewhere in front of you, it's likely the red light on the gun-sight (it has no label) will light up. This means Weapon has detected and is tracking the target. If you had a HUD, it would draw a square around it so you could see where it is. But you don't. What the light tells you is that Weapon sees a target, somewhere out in front of you, and in range of the weapon you currently have selected. For guns at max that's about 10 miles, usually five. You can see a big airplane at five miles out, but not a little one.

Get the airplane inside the reticule and shoot. You'll see tracers going basically at the target. If necessary, adjust to rain them down on the airplane. At first nothing will happen, but if you keep shooting you'll start to see smoke, then more smoke, then flames, then maybe your target will explode and maybe it will just start to fall out of the sky. The problem is keeping the bullet stream on target. F-86 veterans would sympathize knowingly, I'm sure. This isn't easy to do.

**Missiles.** You have two AIM-9B infrared heat seeking missiles. To use them, move forward a bit and look at the weapon selector behind the control stick in the cockpit. Right-click on it and move to pointer to ROCKET. Yes, in the real Sabre this would select air-to-ground rockets, but because of the way Weapon for FSX works, we've changed that to select air-to-air missiles instead.

Follow the same procedures as with the guns: get behind your target at least 10 miles on his six (rear.) Wait until your radar lock light comes on. You can shoot whenever it is on, but you'll probably be wasting an expensive AIM unless you are within about five miles. You should be able to see the target airplane to be sure of hitting it. Shoot. Watch the missile track the target and blow it up. The miracle of modern technology. Don't you wish you had more than two of these things?

## *Air-to-Ground Weapons*

The first Sabres ready for air-to-ground strikes didn't reach Korea until the Spring of 1953, with the armistice only a few months away. "Experts" were skeptical that fast-flying jets would be effective in ground support roles. The Sabre pilots of the 8th Fighter-Bomber wing of the FEAF and others proved them wrong. But as you will quickly discover, *it ain't so easy to do!*

Your options are guns, bombs, and rockets. You have 1800 rounds of .50 caliber bullets, 18 unguided rockets, and 2 500-pound unguided bombs. You select them with a combination of your weapon selector dial in the cockpit and in the case of bombs versus rockets, a keyboard shortcut.

For the guns it's like the air-to-air combat only with a ground target. Select GUN on the selector (it's the default), point your reticule on the target, shoot, and adjust the tracers until they are on the target, watch for it to smoke and/or blow up, and hope that happens before you need to pull up to avoid impacting the target with your jet. Read more in *Ground Target Technique* below.

A better option for ground targets is rockets, but ammo is limited. To select them, place the target selector at BOMBS. (Yes, this isn't accurate, but we reserved ROCKETS to mean the Aim-9B guided kind, remember.) Arm your rockets with the ROCKET ARM switch by lifting the red cover and left-clicking on the switch. Verify your MAIN RADAR light is on. Rockets are now ready.

You will notice a subtle change on the gun-sight. Look at the "bomb altitude" slider. You will see it's pointing to the 10 level. We are using this otherwise unused gauge to indicate both the quantity and type of "BOMB" weapons you have selected. The indicator shows how many of the currently selected weapon you have left, up to a maximum of 10. Anything above 10 is shown as 10. Thus, you have *at least 10* rockets remaining.

At this point you can treat the rockets like a gun. Point your aiming reticule on the target and shoot. Each squeeze of the trigger releases one rocket. You can shoot them off very fast. The rockets simply go where the nose of the jet was pointing when you shot them – they are not guided by anything except your aim.

Your last option is gravity bombs. They make a big BOOM and blast a big area around where they hit, but they are very, very difficult to get on target. In the days before HUDs and CCIP bombing was more of an art than a science. Your gun-sight is useless. The bomb isn't going to hit where the sight is pointed unless you are 1) diving straight down, *which you do **not** want to try in an F-86*, or 2) way too low, so low you will *likely get hit by the blast of your own bomb*. Getting decent with bombs takes lots of practice.

To select bombs, place the selector on BOMBS, and press the CTRL-6 key. This key toggles back

on forth between rockets and bombs when the selector is on BOMB.  You can tell which one you have because the “bomb altitude” slider will point to 10 with rockets and 2 for bombs (unless there are exactly 2 rockets left, in which case you can't tell for sure.)

# *Ground Target Technique*

I don't know about Air Force training for flying the Sabre against ground targets, I only know what works for me in the simulator, and what doesn't. It seems like what works in the sim makes perfect sense. Here's what works for me.

First you must find your target. This is often the hardest part. FSX enforces a certain myopia and it's difficult to see tiny ground targets from altitude. And you have to know exactly where they are before you can attack them, for several reasons.

So first fly over the target area until you have a solid visual on what you want to attack. You'll need to be at most about 5000 feet AGL to get a good look, and be flying at 200 knots or below. It's hard to see much straight ahead, the best bet is to fly about 20 degree to the right of where you think they are and look to your left as you fly past.

Once you're spotted them, speed up a bit to 250-300 knots and do a hard left 180, losing speed in the turn so that you come out at about 200. If your target is a column of armor, you'll want to try and line them up so that they are vertical to your approach. That way you can get multiple hits, or at least stand a better chance of getting some kind of hit at all.

You should be at around 250 knots at around 4000 feet AGL, and the target dead ahead and visible in your gun-sight window. Cut the throttle and switch on the air brake. The jet will nose up and little and start to slow. Let it slow and climb until it's down to 170 knots, then push it over into a glide. Once you do that, quickly get a visual on the target, and start lining up the gun-sight reticule on it. *Note your heading,* and keep gliding down. The jet will want to speed up, but not so much since we have the air brake on it. That depends on how steep the dive is.

We want our wings level with the reticule in a vertical line with the target(s). It's always good to be wings level but it is critical when shooting rockets or dropping bombs. Your odds of hitting anything but yourself are almost nil unless you are wings level. You can get off quick bursts with guns in a bank, but only quick bursts and they rarely do much damage. *Wings Level. Wings Level. Wings Level.* I can't say it enough.

When you start to get close enough to see vague details on the vehicle or target, get the target in the center of the reticule and shoot. I seldom shoot less than 2 rockets in quick succession, often four. For your machine guns, pour the lead on them. As any Sabre vet from Korea can tell you, it takes a lot of .50 caliber lead to make much of an impression on anything but the softest target. And lots of those bullets miss.

Resist the temptation to get too low. The Sabre's engine spools up slowly and you have the air brake on. Don't get closer than about 3-400 feet if you can help it. When you're done blasting,

pop off the air brake, pull up decisively, and firewall the throttle and wait...wait...wait for the engine to spool up while hoping the enraged defenders below don't get off a lucky shot and hit you.

You won't be able to see what havoc your wrought (or didn't) until you climb up to 3-4000 feet and hard-over for another 180 to rinse and repeat. Remember when we said to note your heading on the nose-over? That's so you'll know when to stop your 180 for another pass. Once you're wings level, get eyes on your target (if it's still there and not smoking yet) and repeat the process described above until it's a smoking ruin.

Bombs. Yes, Bombs. Very tough subject. On the real Sabre the gun-sight was somehow tied to the ranging radar and bomb release mechanism, so that you could "program" automatic bomb drops, or get a red light when it was time to drop them. CS Weapon for FSX doesn't support any of these calculations and neither does the Milviz F-86 have them. So it's back to gray matter and the Mark I Eyeball.

I can't describe how this is done except vaguely. It's almost a Zen thing for me. When I started I never even got close to the target, leaving craters several football fields away. But gradually I've gotten much better. Somehow my mind figures speed, angle, and altitude and tells me when to click the trigger.

You will have to practice. I set up a dive just like a strafing or rocket run. But when the target disappears underneath the nose of the jet I wait for a short period and release, pull up, pop off the air brake, and firewall it. Behind me I can hear the deep boom-boom of the two 500 pounders hitting. Doing the standard 180 at 4000 feet I switch to rockets or guns and dive back down to see what I hit and finish off anything moving. There will be fire and black smoke coming from each bomb hit so you'll know how well (or poorly) you did.

*Good luck, and whatever you do, I hope you enjoy the merging of these two products.*

# Modified Panel.cfg

[You can download a digital copy here: http://fscaptain.net/downloads/panel.cfg]

```
// This panel modified from the original to add CS Weapon for FSX

[Window Titles]
Window00=
Window01=Aircraft Config
Window02=Checklist
Window03=AoA Logic
Window04=Radio Stack
Window05=Weapons Panel
Window06=HUD 2D

[VIEWS]
VIEW_FORWARD_DIR=-3.000, 0.000, 0.000

//----------------------------------------------------------
[Window00]
Background_color=0,0,0
size_mm=150,100
window_size_ratio=1.000
position=8
visible=0
ident=MAIN_PANEL
window_size= 0.500, 0.666
window_pos= 0.010, 0.310
no_luminous=1

gauge00=ARS4!TrafficInfo_AI4, 1,1,1,1

//----------------------------------------------------------
[Window01]
Background_color=0,0,0
size_mm=960,574
window_size_ratio=1.000
position=0
visible=1
ident=793
render_3d_window=0
window_size= 0.397, 0.413
window_pos= 0.000, 0.050
zorder=5
type=SPECIAL

gauge00=Milviz_F86_ACM!ACM,  0,0,960,574

//----------------------------------------------------------
[Window02]
Background_color=0,0,0
size_mm=180,400
window_size_ratio=1.000
position=0
visible=0
ident=30
window_size= 0.080, 0.367
window_pos= 0.030, 0.030

gauge00=Checklist!F86_Checklist,  0,0,180,400

//----------------------------------------------------------
[Window03]
Background_color=0,0,0
size_mm=280,134
window_size_ratio=1.000
position=0
visible=0
ident=50
window_size= 0.300, 0.319
window_pos= 0.030, 0.030
```

```
gauge00=Checklist!AoA_Logic,  0,0,280,134

//----------------------------------------------------------
[Window04]
Background_color=1,1,1
size_mm=200,200
window_size_ratio=1.00
position=8
visible=0
ident=81

gauge00=Radio60!Radio60, 0,0,200,200

//----------------------------------------------------------
[Window05]
Background_color=0,0,0
no_luminous=1
size_mm=1024, 170
position=7
visible=0
window_size=1.000, 0.170
ident=10901
zorder=2
gauge01=CSWeapon_panel!CSWeapon_panel, 0, 0, 1024, 170

//----------------------------------------------------------
[Window06]
Background_color=0,0,0
no_luminous=1
size_mm=4, 4   // So small it's not visible...
position=0     // But CSWeapon won't work without it here
child_3d=0
visible=0
ident=10902
zorder=1

gauge00=CSWeapon!hud2d, 0, 0, 400, 400

//----------------------------------------------------------
[Vcockpit01]
Background_color=0,0,0
size_mm=512,512
visible=0
pixel_size=512,512
texture=$gunsight

gauge00=Milviz_F86!F86,  0,0,1,1
gauge01=MilVizSound!Sound,  0,0,10
gauge02=Milviz_F86!Gun,  0,60,512
gauge03=Checklist!AoA_Logic,  0,0,1,1
gauge04=CSWI!CSI_MV_F86,1,1,1,1

//----------------------------------------------------------
[Vcockpit02]
Background_color=0,0,0
size_mm=1024,1024
visible=0
pixel_size=1024,1024
texture=$light_1

gauge00=Milviz_F86CL!L1,  0,0,1024,1024

//----------------------------------------------------------
[Vcockpit03]
Background_color=0,0,0
size_mm=1024,1024
visible=0
pixel_size=1024,1024
texture=$light_2

gauge00=Milviz_F86CL!L2,  0,0,1024,1024

//----------------------------------------------------------
```

```
[Vcockpit04]
Background_color=0,0,0
size_mm=1024,1024
visible=0
pixel_size=1024,1024
texture=$light_3

gauge00=Milviz_F86CL!L3,  0,0,1024,1024

//----------------------------------------------------
[Vcockpit05]
Background_color=0,0,0
size_mm=1024,1024
visible=0
pixel_size=1024,1024
texture=$light_4

gauge00=Milviz_F86CL!L4,  0,0,1024,1024

//----------------------------------------------------
[Vcockpit06]
Background_color=0,0,0
size_mm=1024,1024
visible=0
pixel_size=1024,1024
texture=$light_5

gauge00=Milviz_F86CL!L5,  0,0,1024,1024

//----------------------------------------------------
[Vcockpit07]
Background_color=0,0,0
size_mm=1024,1024
visible=0
pixel_size=1024,1024
texture=$light_6

gauge00=Milviz_F86CL!L6,  0,0,1024,1024

//----------------------------------------------------
[Vcockpit08]
Background_color=0,0,0
size_mm=1024,1024
visible=0
pixel_size=1024,1024
texture=$light_7

gauge00=Milviz_F86CL!L7,  0,0,1024,1024

//----------------------------------------------------
[Vcockpit09]
Background_color=0,0,0
size_mm=1024,1024
visible=0
pixel_size=1024,1024
texture=$light_8

gauge00=Milviz_F86CL!L8,  0,0,1024,1024

//----------------------------------------------------
[Vcockpit10]
Background_color=0,0,0
size_mm=1024,1024
visible=0
pixel_size=1024,1024
texture=$light_9

gauge00=Milviz_F86CL!L9,  0,0,1024,1024

//----------------------------------------------------
[Vcockpit11]
Background_color=0,0,0
size_mm=1024,1024
visible=0
```

```
pixel_size=1024,1024
texture=$light_10

gauge00=Milviz_F86CL!L10,  0,0,1024,1024

[Color]
Day=255,255,255
Night=223,255,255
Luminous=246,115,119

[Default View]
X=0
Y=0
SIZE_X=8192
SIZE_Y=6143
```

# CSWeapon.xml for F-86

[You can download a digital copy here: http://fscaptain.net/downloads/CSWeapon.xml]

```
<?xml version="1.0" encoding="UTF-8" ?>
<CSWeaponInfo>
    <AircraftInfo>
        <!-- aircraft section (MilViz F-86F) -->
        <RadarRanges>5,10,40,80</RadarRanges>
        <RadarGunModeRange>10</RadarGunModeRange>
        <RadarHorizAngle>60</RadarHorizAngle>
        <RadarVertAngle>20</RadarVertAngle>
        <OptimumAOA>3.0</OptimumAOA>
        <SrmHiSound name="..\..\..\Captain_Sim\Weapon\Sound\CSWeapon_srm_hi.wav" gain="0.1" />
        <SrmLoSound name="..\..\..\Captain_Sim\Weapon\Sound\CSWeapon_srm_lo.wav" gain="0.1" />
    </AircraftInfo>
    <GaugeInfo>
        <AntiAlias2d>1</AntiAlias2d>
        <AntiAlias3d>1</AntiAlias3d>
        <HudFov2d>20.34</HudFov2d>
        <HudFov3d>17.00</HudFov3d>
        <CollimationData>0.0,14.01,3.358,0.307</CollimationData>
        <EyePtDeltaRatio>0.8</EyePtDeltaRatio>
        <Collimate>1</Collimate>
        <TestFrame>0</TestFrame>
    </GaugeInfo>
    <SoundInfo>
        <MasterGain>1.0</MasterGain>
        <ExtViewSounds>1</ExtViewSounds>
        <MaxSimulSounds>16</MaxSimulSounds>
    </SoundInfo>
    <ControlsInfo>
        <Action name="fire" control="joystick:0:button:0" />
        <Action name="fire" control="Space" />
        <Action name="masterSw" control="Ctrl+Shift+7" />
        <Action name="nextWeaponType" control="Ctrl+7" />
        <Action name="nextWeapon" control="Ctrl+6" />
        <Action name="nextWeaponMode" control="Ctrl+Shift+8" />
        <Action name="groundSw" control="Ctrl+8" />
        <Action name="hudModeSw" control="Ctrl+9" />
        <Action name="rangeSw" control="Ctrl+0" />
        <Action name="unlock" control="Ctrl+U" />
       <Action name="fovInc" control="Ctrl+Shift+9" />
        <Action name="fovDec" control="Ctrl+Shift+0" />
    </ControlsInfo>
    <WeaponInfo>
        <Weapon>
            <Gun>M60C</Gun>
            <Shell>M60C Bullet</Shell>
            <Unlimited>0</Unlimited>
           <Station name="Left Top" params="-0.5,9,-0.00,0,0.095,0,200" />
            <Station name="Left Mid" params="-0.5,9,-0.05,0,0.095,0,200" />
            <Station name="Left Bot" params="-0.5,9,-0.10,0,0.095,0,200" />
            <Station name="Right Top" params="0.5,9,-0.00,0.095,0,200" />
            <Station name="Right Mid" params="0.5,9,-0.05,0,0.095,0,200" />
            <Station name="Right Bot" params="0.5,9,-0.10,0,0.095,0,200" />
            <Mode name="AUTO" shotrate="10" setshots="0" sequence="1,2,3,4,5,6" />
            <DefaultMode>AUTO</DefaultMode>
        </Weapon>
        <Weapon>
            <Gun>AIM-9B</Gun>
            <Shell>AIM-9B</Shell>
            <Unlimited>0</Unlimited>
            <Station name="LeftWingOuter" params="-5,0,0,0,-0.039,0,1" />
            <Station name="RightWingOuter" params="5,0,0,0,-0.039,0,1" />
            <Mode name="BST" setshots="1" shotrate="0.5" sequence="1,2" reset="0" />
            <Mode name="UNCAGED" setshots="1" shotrate="0.5" sequence="1,2" reset="0" />
            <Mode name="TRACK" setshots="1" shotrate="0.5" sequence="1,2" reset="0" />
            <DefaultMode>TRACK</DefaultMode>
        </Weapon>
        <Weapon>
```

```
            <Gun>Hydra 70</Gun>
            <Shell>Hydra 70</Shell>
            <Unlimited>0</Unlimited>
            <Station name="Left Wing Inner" params="-2.7,0,-0.6,0,0.095,0,8" />
            <Station name="Right Wing Inner" params="2.7,0,-0.6,0,0.095,0,8" />
            <Mode name="SINGL" setshots="1" shotrate="30" sequence="1,2" reset="0" />
            <Mode name="X2" setshots="2" shotrate="30" sequence="1,2" reset="0" />
            <Mode name="AUTO" setshots="0" shotrate="30" sequence="1,2" reset="0" />
            <DefaultMode>SINGL</DefaultMode>
        </Weapon>
        <Weapon>
            <Gun>Mk83</Gun>
            <Shell>Mk83</Shell>
            <Unlimited>0</Unlimited>
            <Station name="LeftWingInner" params="-2,0,0,0,0.095,0,1" />
            <Station name="RightWingInner" params="2,0,0,0,0.095,0,1" />
            <Mode name="AUTO" setshots="2" shotrate="8" sequence="1,2" reset="0" />
            <Mode name="SINGL" setshots="1" shotrate="32" sequence="1,2" reset="0" />
            <DefaultMode>AUTO</DefaultMode>
        </Weapon>
    </WeaponInfo>
    <GunInfo>
        <Gun>
            <Type>MachineGun</Type>
            <Name>M60C</Name>
            <Desc>7.62mm Machine Gun</Desc>
            <HudString>GUN</HudString>
           <Pix />
            <ConeAngle>0.0005</ConeAngle>
            <TargetRange>800</TargetRange>
            <Delay>0.0</Delay>
            <FxFire />
            <Sound name="..\..\..\Captain_Sim\Weapon\Sound\csweapon_mg_shot1.wav" loopEnd="0.1"
finishLoop="1" gain="0.7" />
            <Shell>
                <Name>M60C Bullet</Name>
                 <Desc>7.62mm M60C Bullet</Desc>
                <HudString>M60</HudString>
                <Pix />
                <Container>CS_Weapon_M60C</Container>
                <FxWake />
                <Weight>0.0097</Weight>
                <TargetWeight>5000</TargetWeight>
                <Lifetime>3.0</Lifetime>
                <CtrLifetime>2.0</CtrLifetime>
                <Efficiency>0.01</Efficiency>
                <RadiusRatio>1.0</RadiusRatio>
                <DragCoeff>0.295</DragCoeff>
                <OpArea>0.0000456</OpArea>
                <GravCoeff>1.0</GravCoeff>
                <InitSpeed>853</InitSpeed>
               <EngThrust>0</EngThrust>
                <ThrustDuration>0</ThrustDuration>
            </Shell>
        </Gun>
        <Gun>
            <Type>MachineGun</Type>
            <Name>SPPU-30</Name>
            <Desc>2xGS-30-1</Desc>
            <HudString>GUN</HudString>
            <Pix />
            <ConeAngle>0.001</ConeAngle>
            <TargetRange>1200</TargetRange>
            <Delay>0.0</Delay>
            <FxFire />
            <Sound name="..\..\..\Captain_Sim\Weapon\Sound\csweapon_mg_fire1.wav" loopBeg="0.046"
loopEnd="0.553" finishLoop="0" gain="1.0" />
            <Shell>
                <Name>GS-30-1 Bullet</Name>
                <Desc>30mm GS-30-1 Bullet</Desc>
                <HudString>GS30</HudString>
                <Pix />
                <Container>CS_Weapon_GSH-30</Container>
                <FxWake />
```

```
        <Weight>0.390</Weight>
        <TargetWeight>5000</TargetWeight>
        <Lifetime>3.0</Lifetime>
        <CtrLifetime>2.0</CtrLifetime>
        <ContainerLifetime>3.0</ContainerLifetime>
        <Efficiency>0.04</Efficiency>
        <RadiusRatio>1.0</RadiusRatio>
        <DragCoeff>0.295</DragCoeff>
        <OpArea>0.0007068</OpArea>
        <GravCoeff>1.0</GravCoeff>
        <InitSpeed>887.5</InitSpeed>
        <EngThrust>0</EngThrust>
        <ThrustDuration>0</ThrustDuration>
    </Shell>
</Gun>
<Gun>
    <Type>MissileLauncher</Type>
    <Name>AIM-9B</Name>
    <Desc>AIM-9B Sidewinder</Desc>
    <HudString>AA</HudString>
    <Pix />
    <ConeAngle>0.005</ConeAngle>
    <TargetRange>45000</TargetRange>
    <MinRange>2000</MinRange>
    <MaxGForce>3</MaxGForce>
    <Delay>0.0</Delay>
    <FxFire />
    <Sound name="..\..\..\Captain_Sim\Weapon\Sound\csweapon_rocket3.wav" gain="0.7" />
    <Shell>
        <Name>AIM-9B</Name>
        <Desc>AIM-9B Sidewinder</Desc>
        <HudString>AIM9B</HudString>
        <Pix />
        <Container>Aim-9B</Container>
        <FxWake>csweapon_rocket_wake2</FxWake>
        <Weight>86.2</Weight>
        <TargetWeight>20000</TargetWeight>
        <Lifetime>25.0</Lifetime>
        <CtrLifetime>25.0</CtrLifetime>
        <Efficiency>0.3</Efficiency>
        <RadiusRatio>1.0</RadiusRatio>
        <DragCoeff>0.18</DragCoeff>
        <OpArea>0.015</OpArea>
        <GravCoeff>1.0</GravCoeff>
        <InitSpeed>0</InitSpeed>
        <EngThrust>6000</EngThrust>
        <ThrustDuration>10.0</ThrustDuration>
        <TurnRate>0.4</TurnRate>
        <SteerDelay>1.0</SteerDelay>
        <SeekerAngle>3.1416</SeekerAngle>
        <SelfDestrTime>10.0</SelfDestrTime>
    </Shell>
</Gun>
<Gun>
    <Type>RocketLauncher</Type>
    <Name>Hydra 70</Name>
    <Desc>Description of rocket launcher</Desc>
    <HudString>ROCKE</HudString>
    <Pix />
    <ConeAngle>0.005</ConeAngle>
    <TargetRange>2500</TargetRange>
    <MaxGForce>3</MaxGForce>
    <Delay>0.0</Delay>
    <FxFire />
    <Sound name="..\..\..\Captain_Sim\Weapon\Sound\csweapon_rocket1.wav" gain="0.3" />
    <Shell>
        <Name>Hydra 70</Name>
        <Desc>Hydra 70 rocket</Desc>
        <HudString>H70</HudString>
        <Pix />
        <Container>CS_Weapon_Hydra70</Container>
        <FxWake>csweapon_rocket_wake1</FxWake>
        <Weight>12.2</Weight>
        <TargetWeight>10000</TargetWeight>
```

```
        <Lifetime>4.0</Lifetime>
        <CtrLifetime>4.0</CtrLifetime>
        <Efficiency>0.3</Efficiency>
        <RadiusRatio>1.0</RadiusRatio>
        <DragCoeff>0.04</DragCoeff>
        <OpArea>0.004</OpArea>
        <GravCoeff>1.0</GravCoeff>
        <InitSpeed>0</InitSpeed>
        <EngThrust>5926</EngThrust>
        <ThrustDuration>1.075</ThrustDuration>
    </Shell>
</Gun>
<Gun>
    <Type>RocketLauncher</Type>
    <Name>Mk82</Name>
    <Desc>Mk82 500lb GP Bomb</Desc>
    <HudString>AS</HudString>
    <Pix />
    <ConeAngle>0.005</ConeAngle>
    <TargetRange>106000</TargetRange>
    <MinRange>2000</MinRange>
    <MaxGForce>3</MaxGForce>
    <Delay>0.0</Delay>
    <FxFire />
    <Shell>
        <Name>Mk82</Name>
        <Desc>Mk82 500lb GP Bomb</Desc>
        <HudString>Mk82</HudString>
        <Pix />
        <Container>Mk-82</Container>
        <FxWake />
        <Weight>227</Weight>
        <TargetWeight>50000</TargetWeight>
        <Lifetime>99.0</Lifetime>
        <CtrLifetime>99.0</CtrLifetime>
        <Efficiency>1.0</Efficiency>
        <RadiusRatio>1.0</RadiusRatio>
        <DragCoeff>0.15</DragCoeff>
        <OpArea>0.65</OpArea>
        <GravCoeff>1.0</GravCoeff>
        <InitSpeed>0</InitSpeed>
        <EngThrust>0</EngThrust>
        <ThrustDuration>.0</ThrustDuration>
        <TurnRate>0.2</TurnRate>
        <SteerDelay>1.0</SteerDelay>
        <SeekerAngle>3.1416</SeekerAngle>
        <SelfDestrTime>60.0</SelfDestrTime>
    </Shell>
</Gun>
<Gun>
    <Type>RocketLauncher</Type>
    <Name>Mk83</Name>
    <Desc>Mk83 1000lb GP Bomb</Desc>
    <HudString>AS</HudString>
    <Pix />
    <ConeAngle>0.005</ConeAngle>
    <TargetRange>106000</TargetRange>
    <MinRange>2000</MinRange>
    <MaxGForce>3</MaxGForce>
    <Delay>0.0</Delay>
    <FxFire />
    <Shell>
        <Name>Mk83</Name>
        <Desc>Mk83 1000lb GP Bomb</Desc>
        <HudString>Mk83</HudString>
        <Pix />
        <Container>Mk-83</Container>
        <FxWake />
        <Weight>454</Weight>
        <TargetWeight>50000</TargetWeight>
        <Lifetime>99.0</Lifetime>
        <CtrLifetime>99.0</CtrLifetime>
        <Efficiency>1.0</Efficiency>
        <RadiusRatio>1.0</RadiusRatio>
```

```
            <DragCoeff>0.15</DragCoeff>
            <OpArea>0.65</OpArea>
            <GravCoeff>1.0</GravCoeff>
            <InitSpeed>0</InitSpeed>
            <EngThrust>0</EngThrust>
            <ThrustDuration>.0</ThrustDuration>
            <TurnRate>0.2</TurnRate>
            <SteerDelay>1.0</SteerDelay>
            <SeekerAngle>3.1416</SeekerAngle>
            <SelfDestrTime>60.0</SelfDestrTime>
        </Shell>
    </Gun>
</GunInfo>
<TrafficInfo>
    <Traffic>
        <Type>DefaultAir</Type>
        <FxImpactland name="csweapon_ai_impactland" lifeTime="30.0" />
        <FxImpactwater name="csweapon_ai_impactwater" />
        <LifeDamaged>360</LifeDamaged>
        <SpdDamagedMin>0.05</SpdDamagedMin>
        <Damage pct="10.0" release="1">
            <AIPilot bank="-0.2" />
            <Var name="BRAKE PARKING POSITION" units="Position" value="32000" />
        </Damage>
        <Damage pct="15.0">
            <Fx name="csweapon_ai_smoke_light" state="1" />
        </Damage>
        <Damage pct="20.0">
            <AIPilot bank="0.2" />
        </Damage>
        <Damage pct="30.0">
            <Fx name="csweapon_ai_smoke_mid" state="1" />
            <Fx name="csweapon_ai_smoke_light" state="0" />
            <AIPilot bank="-0.2" />
            <Var name="GENERAL ENG THROTTLE LEVER POSITION:1" units="Percent" value="0" />
            <Var name="GENERAL ENG THROTTLE LEVER POSITION:2" units="Percent" value="0" />
            <Var name="GENERAL ENG THROTTLE LEVER POSITION:3" units="Percent" value="0" />
            <Var name="GENERAL ENG THROTTLE LEVER POSITION:4" units="Percent" value="0" />
        </Damage>
        <Damage pct="40.0">
            <AIPilot bank="0.26" />
        </Damage>
        <Damage pct="45.0">
            <Fx name="csweapon_ai_smoke_dark" state="1" />
            <Fx name="csweapon_ai_smoke_mid" state="0" />
        </Damage>
        <Damage pct="50.0">
            <AIPilot bank="-0.52" />
            <Var name="ELECTRICAL MASTER BATTERY" units="Bool" value="0" />
        </Damage>
        <Damage pct="60.0">
            <Fx name="csweapon_ai_smoke_black" state="1" />
            <Fx name="csweapon_ai_smoke_dark" state="0" />
            <AIPilot bank="10.0" />
            <Var name="GENERAL ENG COMBUSTION:1" units="Bool" value="0" />
             <Var name="GENERAL ENG COMBUSTION:2" units="Bool" value="0" />
            <Var name="GENERAL ENG COMBUSTION:3" units="Bool" value="0" />
            <Var name="GENERAL ENG COMBUSTION:4" units="Bool" value="0" />
            <Var name="AILERON POSITION" units="Position" value="-16000" />
        </Damage>
        <Damage pct="80.0">
            <Var name="AILERON POSITION" units="Position" value="16000" />
        </Damage>
        <Damage pct="99.9" remove="1" removeDelay="2.0">
            <Fx name="csweapon_ai_expl_air" state="1" />
        </Damage>
    </Traffic>
    <Traffic>
        <Type>DefaultGround</Type>
        <LifeDamaged>560</LifeDamaged>
        <Damage pct="30.0" release="1">
            <Fx name="csweapon_ai_smoke_light" state="1" />
        </Damage>
        <Damage pct="60.0" release="1">
```

```
                <Fx name="csweapon_ai_smoke_light" state="0" />
                <Fx name="csweapon_ai_grnd_mid_dmg" state="1" />
                <Var name="GENERAL ENG COMBUSTION:1" units="Bool" value="0" />
                <Var name="GENERAL ENG COMBUSTION:2" units="Bool" value="0" />
                <Var name="GENERAL ENG COMBUSTION:3" units="Bool" value="0" />
                <Var name="GENERAL ENG COMBUSTION:4" units="Bool" value="0" />
                <Var name="ELECTRICAL MASTER BATTERY" units="Bool" value="0" />
            </Damage>
            <Damage pct="95.0">
                <Fx name="csweapon_ai_grnd_mid_dmg" state="0" />
                <Fx name="csweapon_ai_grnd_hi_dmg" state="1" />
            </Damage>
        </Traffic>
    </TrafficInfo>
</CSWeaponInfo>
```

# Weapon for FSX Interface to MilViz F-86F

(You can download a digital copy here: http://fscaptain.net/downloads/CS_MV_F86.xml)

```
<Gauge Name="MilViz F86 CS Weapon Interface" Version="1.0">

// Links certain F86 switches to CS Weapon functions

// XML Variables used by CS in their gauges:
// CSG_MasterSw - 0 or 1 for master weapons arm mode
// CSG_RadAirGrnd - 0 for air mode 1 for ground mode
// CSG_RdrRange - 0=5 1=10 2=25 3=50 4=100 5=200
// CSG_WpnSelect - 0=Gun 1=Rocket 2=Missle 3=Bomb

// XML names used by the F-86:
// GUN_ARM:  0=off 1=mid 2=on
// ROCKET_ARM: 0=off 1=mid 2=on
// RAD_MAIN:  "Main Radar" warning light, 0=off 1=on
// RAD_INV: "Radar Inverter" warning light, 0=off 1=on
// RAD_LOCK: "Radar Lock" light (unlabelled in cockpit), 0=off 1=on
// CHOCKS:  when the cart is connected, 0=no 1=yes
// S_SELECT:  Weapon Selector, 0=Gun 1=Rocket 2=Bomb
// F86_RadarRange:  "Radar Sweep" dial in gunsight, 0=min 100=max
// BombAltSelect: "Bombing Altitude" dial in gunsight, Min 1 Max 30

   <Element>
      <Select>
        <Value>

              // Initialization

              (L:CSI_Init,bool) 0 == if{
                     1 (>L:CSG_RdrRange,number)
                     1 (>L:CSI_Init,bool)
              }

              // Gun arm switch

              (L:GUN_ARM,number) (L:GUN_PREV,number) != if{
                     (L:GUN_ARM,number) 2 == if{
                            1 (>L:CSG_MasterSw,number)
                      } els{
                            (L:ROCKET_ARM,number) 0 == if{
                                   0 (>L:CSG_MasterSw,number)
                            }
                     }
                     (L:GUN_ARM,number) (>L:GUN_PREV,number)
              }

              // Rocket arm switch

              (L:ROCKET_ARM,number) (L:ROCKET_PREV,number) != if{
                     (L:ROCKET_ARM,number) 2 == if{
                            1 (>L:CSG_MasterSw,number)
                     } els{
                            (L:GUN_ARM,number) 0 == if{
                                   0 (>L:CSG_MasterSw,number)
                            }
                     }
                     (L:ROCKET_ARM,number) (>L:ROCKET_PREV,number)
              }

              (L:GUN_ARM,number) 2 != if{
                     (L:ROCKET_ARM,number) 2 != if{
                            0 (>L:CSG_MasterSw,number)
                     }
              }

              // Radar Main Light follows master arm status
              (L:CSG_MasterSw,number) (>L:RAD_MAIN,bool)
```

```
                // Radar Inv warning is on when chocks are in place
                (L:CHOCKS,bool) (>L:RAD_INV,bool)

                // Weapon select switch, we are using 2 for bombs
                // So it matches the numbers coming directly from the switch

                (L:S_SELECT,number) (L:S_PREV,number) != if{
                        (L:S_SELECT,number) (>L:S_PREV,number)
                        (L:S_SELECT,number) 0 == if{
                                0 (>L:CSG_RadAirGrnd,number)
                                0 (>L:CSG_WpnSelect,number)
                        }
                        (L:S_SELECT,number) 1 == if{
                                0 (>L:CSG_RadAirGrnd,number)
                                1 (>L:CSG_WpnSelect,number)
                        }
                        // "Bomb" is actually selection of missles
                        (L:S_SELECT,number) 2 == if{
                                1 (>L:CSG_RadAirGrnd,number)
                                2 (>L:CSG_WpnSelect,number)
                        }
                }

                // Radar Lock Light

                (L:CSG_LockOn,number) (>L:RAD_LOCK,number)

                // Force landing gear horn off when armed

                (L:CSG_MasterSw,number) 1 == if{
                        (L:F86_LDG_HornSilence,number) 0 = if{
                                1 (>L:F86_LDG_HornSilence,number)
                        }
                }

                // Bomb Altitude indicates ground ammo remaining

                (L:CSG_RadAirGrnd,number) 1 == if{
                        (L:CSG_RdsRem,number) 31 &lt; if{
                                (L:CSG_RdsRem,number) (>L:BombAltSelect,number)
                        }
                }

                // Radar Range

                (L:F86_RadarRange,number) 10 &lt; if{
                        0 (>L:CSG_RdrRange,number)
                }
                (L:F86_RadarRange,number) 9 &gt; if{
                        (L:F86_RadarRange,number) 25 &lt; if{
                                1 (>L:CSG_RdrRange,number)
                        }
                }
                (L:F86_RadarRange,number) 24 &gt; if{
                        (L:F86_RadarRange,number) 50 &lt; if{
                                2 (>L:CSG_RdrRange,number)
                        }
                }
                (L:F86_RadarRange,number) 49 &gt; if{
                        (L:F86_RadarRange,number) 90 &lt; if{
                                3 (>L:CSG_RdrRange,number)
                        }
                }
                (L:F86_RadarRange,number) 89 &gt; if{
                        4 (>L:CSG_RdrRange,number)
                }

        </Value>
      </Select>
  </Element>
</Gauge>
```