Software Development Kit (SDK)

ABOUT THIS DOCUMENT

VERSION: 16 NOVEMBER, 2011

CAPTAIN SIM DOES NOT SUPPORT ANY MODIFICATIONS OF THE ORIGINAL PRODUCT INCLUDING ITS INSTALLATION TO THIRD-PARTY AIRCRAFT. MAKE AND USE THE MODIFICATIONS ON YOUR OWN RISK.

WE HAVE PROVIDED VERY FLEXIBLE WEAPON SYSTEM AND ONE OF THE EASIEST WAYS TO MAKE A MODIFICATION (MOD): ONE XML FILE CONFIGURATION. BUT THE MOD-PERSON MUST HAVE ADVANCED KNOWLEDGE OF BASIC FSX SDK, OUTSTANDING ATTENTIVENESS AND PATIENCE. IT IS NOT FOR EVERYONE.

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MAKE SURE YOU HAVE READ THE WEAPON USER'S MANUAL AND MICROSOFT FSX SDK BECAUSE THIS DOCUMENT SUPPLEMENTS THEM.

Weapon for FSX SDK

SYSTEM STRUCTURE

Weapon for FSX has been designed to work with any aircraft on FSX Acceleration and FSX SP2 platform.

THIRD-PARTY CONTENT

OpenAL library must be installed.

CORE

CSWeapon.dll - main system file, also includes radar, HUD.
Located in ...FSX/gauges/ and must be listed in panel.cfg

CSWeapon.xml – system configuration file.
Located in ...FSX/Airplane/anyname/

These two files are sufficient for the weapon system core operation. Everything else is audio-visual content.

AUDIO-VISUAL CONTENT

All content must be placed into specific FSX folders:

Effects
Located in ...FSX/Effects

Weapon simobjects
Located in ...FSX\Simobjects\Misc\...

Sounds
Located in ...FSX\Captain_Sim\Weapon\Sound\

All content defined in CSWeapon.xml

DO NOT USE FOR FLIGHT

CSWeapon.xml

FSX AND WEAPON LOADER MUST BE OFF WHILE YOU MAKE ANY CHANGES IN THE CSWEAPON.XML.

GENERAL STRUCTURE

```
<CSGunInfo>
    <AircraftInfo>...parameters...</AircraftInfo>
    <GaugeInfo>...parameters...</GaugeInfo>
    <SoundInfo>...parameters...</SoundInfo>
    <ControlsInfo>...parameters...</ControlsInfo>
    <WeaponInfo>...parameters...</WeaponInfo>
    <GunInfo>...parameters...</GunInfo>
    <TrafficInfo>...parameters...</TrafficInfo>
</CSGunInfo>
```

PARAMETERS DESCRIPTION

For convenience most of details on the CSWeapon.xml settings are listed right in the file comments. SDK provides additional info on the parameters that have 'See SDK' mark in the comments.

<CollimationData>
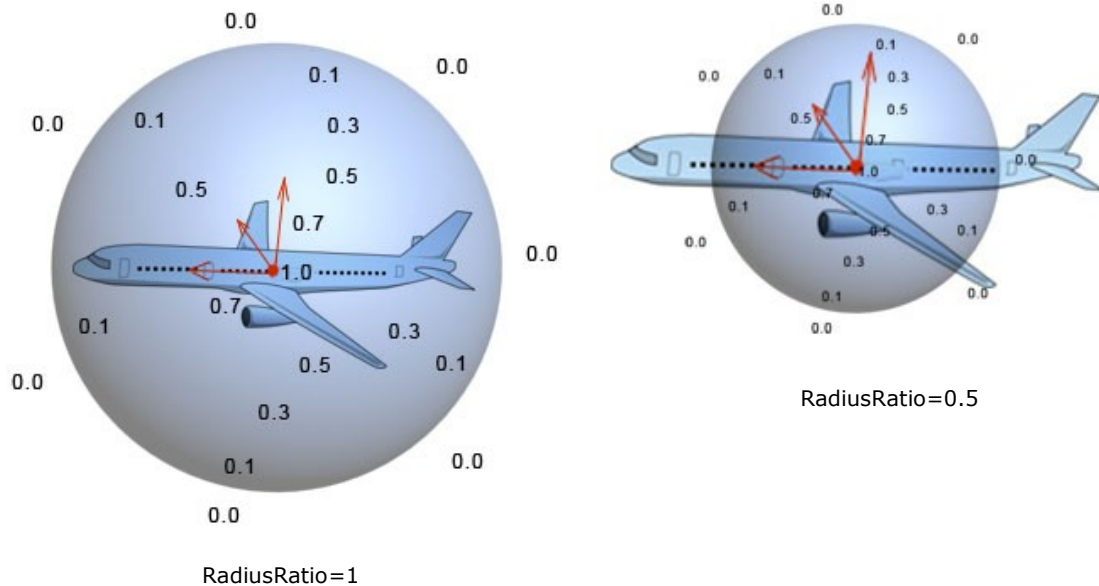
See **VC HUD installation** section.

<RadiusRatio>
(Shell section)

TARGET SPHERE
FSX "VISUAL MODEL RADIUS" creates an imaginary sphere around an aircraft home point. This sphere is one of the parameters used to calculate a total target damage from each shell hit.

PRECISION FACTOR
For realism sake, not every hit (with equal shell damage efficiency) causes equal damage because the damage rate depends on how far the hit is from the aircraft home point. For example:
- Any hit (actually miss) outside the target sphere gives Precision factor=0
- Any hit right into the aircraft home point gives Precision factor=1
- Any other hits within the target sphere give various Precision factor values from 0.1 to 0.9

RadiusRatio=0.5

RadiusRatio=1

RadiusRatio

The RadiusRatio parameter defines the radius of the target sphere. Obviously, the smaller the target sphere the more difficult to strike the target.

<ControlsInfo>

Any action can be controlled by unlimited number of duplicating controls:
<Action name="fire" control="joystick:0:button:5"/>
<Action name="fire" control="Space"/>
<Action name="fire" control="VK_LBUTTON"/>
The sample shows you can fire using either joystick button 6 (5+1) or Space key, or mouse left-click.
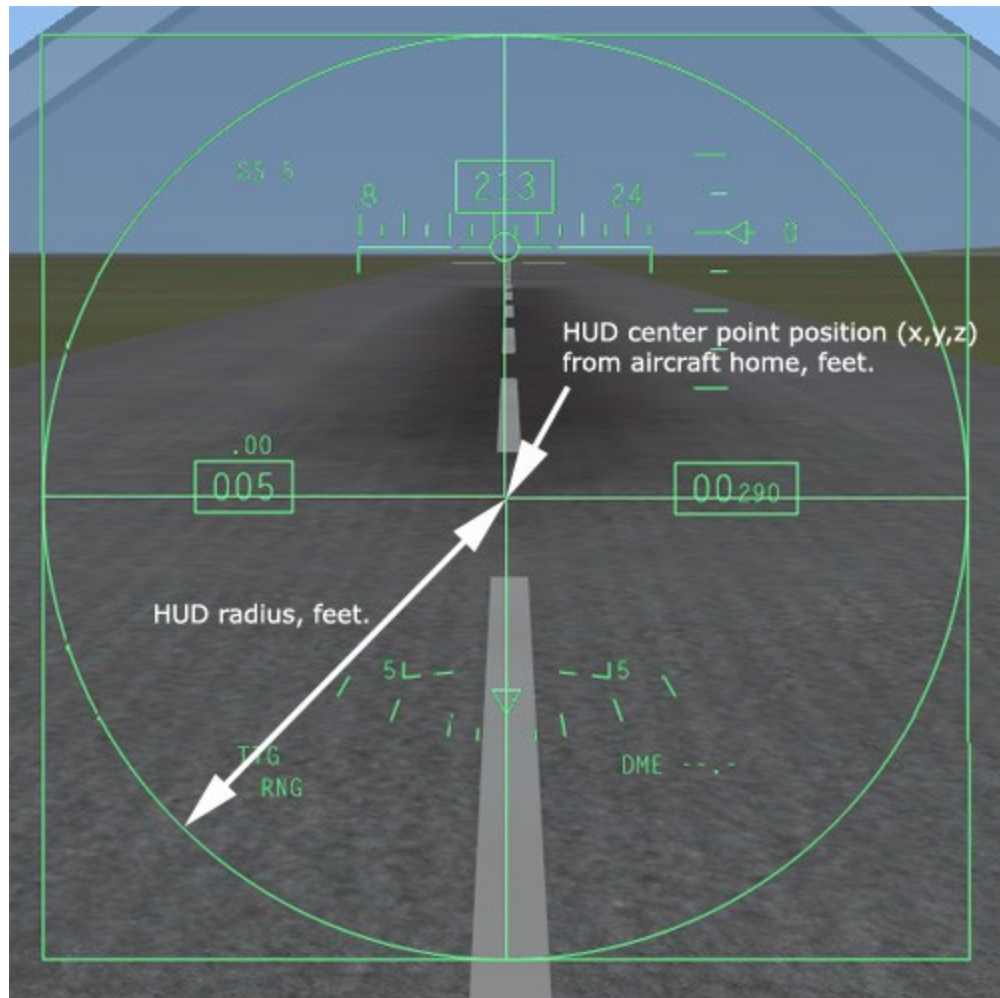
Any control assignment can be changed.

For control *name=* names see FSX SimConnect SDK> KeyStrings> SimConnect > MapInputEventToClientEvent.

VC HUD INSTALLATION

Notes:

1. 99% of issues are from not following SDK. PLEASE read carefully.
2. Do NOT try to install 2D HUD to VC. There's a special VC HUD for VC.
3. VC HUD gau should be installed on the aircraft's HUD. Of course there's got to be a physical 3D HUD glass with $ poly in the model. Contact the model's developer if you unsure.

1. In CSWeapon.xml *<GaugeInfo>* section set *<Collimate>0* and *<TestFrame>1*.
That will bring a fixed test pattern to HUD:

2. In panel.cfg place hud3d gau as required.

For example:
[Vcockpit01]
...
gauge03=CSWeapon!hud3d, 526, 515, 550, 550
...

3. In CSWeapon.xml *<GaugeInfo>* section set aircraft specific collimation data:

F/A-18 sample:
<CollimationData>0.0,14.01,3.358,0.307</CollimationData>
0.0,14.01,3.358 – HUD center position from aircraft home (feet)
0.0 – X

14.01 – Y
3.358 - Z
0.307 – HUD radius (feet)

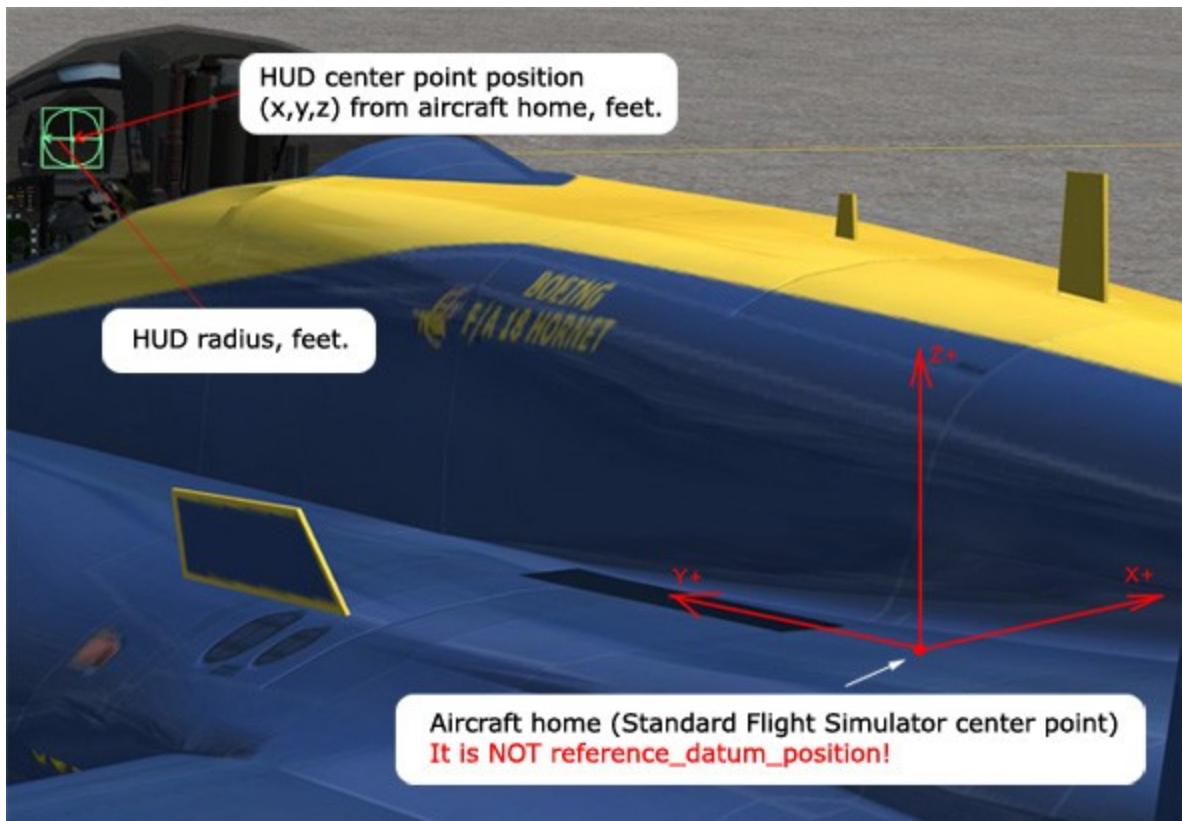### Where to get the numbers for my aircraft?

HUD center position X and Z can be taken from aircrft.cfg

[Views]
eyepoint = -17.0, 0.0, 3.358

The Y you can get in two ways:
1. From the model source files.
2. Or playing with aircrft.cfg eyepoint Y value (-17.0 in sample above) until the eyepoint will lie in the same plane with HUD. Then record the findings to *<CollimationData>* and set the aircrft.cfg eyepoint back to initial condition.

4. In CSWeapon.xml *<GaugeInfo>* section set *<Collimate>1* and *<TestFrame>0*.
That will remove fixed test patern from the HUD.

5. Run FSX, load the aircraft.

If HUD appears to small: in CSWeapon.xml *<GaugeInfo>* section increase value of *<HudFov3d>*
If HUD appears to big: in CSWeapon.xml *<GaugeInfo>* section decrease value of *<HudFov3d>*

6. Pless Ctrl+Shiftt+0 or Ctrl+Shift+9 to check HUD calibration.

NEED HELP?

Visit forum discussion on the Weapon installation to third-party aircraft.

PANEL.CFG

CSWeapon.dll provides the following 3 gauges:
1. weapon
2. hud2d
3. hud3d

hud2d — 2D HUD
CSWeapon!hud2d, 0, 0, 400, 400

hud3d - VC HUD
Loads only when user is in virtual cockpit view mode.
CSWeapon!hud3d, 0, 0, 400, 400

[Window Titles]
Window00=Weapon Control Panel
Window01=HUD
Window02=HUD Glass

WEAPON CONTROL PANEL

CSWeapon_panel.cab.
Located in ...FSX\Airplane\anyname\panel\ and must be listed in panel.cfg

Does not contain system functions, just controls L: variables.

L: VARIABLES

Power
ELECTRICAL MASTER BATTERY
AVIONICS MASTER SWITCH

("CSG_MasterSw", "bool")
Weapon/radar master switch

("CSG_WpnSelect", "position")
Weapon class selector switch
0 - GUN
1 - RCKT
2 - MSL
3 - BOMB

("CSG_RadAirGrnd", "bool")
Radar AIR-SURFACE mode selector switch

("CSG_RdsRem", "position")
Rounds counter indicator

("CSG_HudMode", "position")
HUD mode selector switch
0 - NAV
1 - TCN
2 - ILS

("CSG_RdrRange", "position")
Radar range selector switch
0 – first range value listed in CSWeapon.xml
For example if:
<RadarRanges>5,10,25,50,100,200</RadarRanges>
then ("CSG_RdrRange", "position") = 0, will set range = 5NM
1 - 10

2 - 25
and so on.

("CSG_TargRange", "position")
Locked target range indicator
NM * 1000.

Attack hemisphere indicator
("CSG_Pps", "bool")
ППС - 1 if interceptor and the target heading difference is more than 90 degrees.

("CSG_Zps", "bool")
ЗПС - 1 if interceptor and the target heading difference is less than 90 degrees.

("CSG_LockOn", "bool")
Lock-on light
1 if the target is is locked by a radar.

("CSG_InRange", "bool")
Shoot light.
1 if the target is in effective range for selected weapon.

If you have not found a variable you need, please contact a developer

DO NOT USE FOR FLIGHT

CUSTOMER CARE

FORUM

You are invited to join Captain Sim [community forum](#)

DAILY NEWS

For Captain Sim *daily* news please follow us at [Twitter](#) or [Facebook](#).

VIDEO CHANNEL

For Captain Sim videos please watch our YouTube [channel](#).

TECH SUPPORT

Our product is not perfect (unfortunately nothing is). But we are working on improvements. If you have some important issue to report, please check-in to [Your Profile](#) then click Product Name > Customer Support > and use the Trouble Ticket System. We process all tickets and consider the most significant issues for the next service packs.