

**iBeta Falcon 4.0 Realism Patch
Version 1.0 FINAL (US and UK)
README File
February 18, 2000**

The iBeta Falcon 4.0 Realism Patch is supplied “as-is”. Hasbro, Microprose, and iBeta do not accept responsibility for any adverse affects that are a result of installing this patch.

On-line and telephone support are not offered. Questions, feedback, and ideas can be posted to <http://network54.com/Hide/Forum/52592>

Localized Versions: If you have a localized version of Falcon 4.0 (German, French, etc) you may attempt to install these files, but you must install 1.08us as part of your upgrade. This may affect Falcon 4.0 adversely – if you choose to install 1.08us and the Realism Patch, you must do this at your own risk. Hasbro and Microprose cannot support localized versions of Falcon 4.0 if they are modified in this way.

***Executive Producer’s Notes - Version 1.0** – The initial release of the iBeta Falcon 4.0 Realism Patch can best be characterized by calling it a set of base changes that we will use as a jumping off point for further revisions. Many of the modifications employed by this patch address inaccuracies, omissions, and problems with the underlying data. In addition, we have also brought some logical sense to the amour, blast, and damage values – now they are more consistent and (we hope) more accurate. We have also improved the ground unit organization to bring it into a more realistic context.*

Things to Watch For:

- F4Gs now carry AGM-45 Shrikes and AGM-88 HARMs
- Ground battles are more realistic – ground units have accurate weapons/loadouts, and are organized according to battle doctrine
- Bomb blasts, penetration, armor, and damage values are now more accurate across the board
- Patriot and Nike SAMs are now "awake" (performance will be address later)
- Formations now work properly
- AWACs "Vector to" message now works
- Mig-19 now has radar and AA-1s
- BLU-27s (napalm) are now designated Mk-77 which is the USAF designation
- SA-7s are more realistic – they are now impact fused and not proximity fused
- AA-10 series of missiles behave more realistically due to correct seeker heads now in place

There is much more to do. Version 1.0 **does not** address missile performance (A2A, A2G, and SAMs), nor does it modify aircraft performance envelopes. We have also identified ways of allowing more escort flight for the strike missions in campaign, improve AI engagement ranges of enemy aircraft, and correct the “legal” loadouts on all the aircraft. Stay tuned, it will be an enjoyable ride - Snacko

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How to Update to the iBeta Falcon 4.0 Realism Patch

To correctly install this iBeta Falcon 4.0 Realism Patch, you must first fully install the following according to the directions included with the CD and other patches:

- Install Falcon 4.0 from the retail CD
- Install Falcon 4.0 1.08us patch
- Install iBeta Falcon 4.0 patch falcon4_108i or falcon4_108i2 (we recommend “i2”)

The iBeta Realism Patch should **ONLY** be applied over original v1.08us installation, or 1.08us with the iBeta executables v1.08i or v1.08i2.

Step 1 - Backup Old Files

- Rename the files listed below by adding the word BACK to the file name.
- Example: “\Falcon4\terrdata\objects\FALCON4.SSD” becomes “\Falcon4\terrdata\objects\FALCON4BACK.SSD”

Step 2 - Extract Patch

- Double click on “iBeta F4 Realism Patch 1.00.zip” file
- Select all files in the archive by using your RIGHT mouse button and selecting SELECT ALL
- Using the EXTRACT icon, choose the directory where Falcon 4.0 is installed (Example: Extract To: C:\Microprose\Falcon4)
- **Make sure that you select the options “Use Folder Names” and the “Overwrite Existing Files”**
- Press the EXTRACT button

Step 3 - Confirm that new files are in place - By looking at the “changed files” list below, confirm that you files are indeed now installed

Patch De-installation

Step 1 - Delete patch files - You must manually delete the files listed below

Step 2 - Rename original files to their proper names - Using Windows Explorer, rename the BACK files you named during the installation process back to their original names by removing the word BACK from the file name.

iBeta will also supply a set of default 1.08us files that can be used to overwrite the iBeta Realism Patch file set. Please check www.ibeta.com for the available of this default file set.

Original files:

"\Falcon4\art\ckptart\menu.dat"	(5340 bytes, 11/03/1999, 11:32:50)
"\Falcon4\terrdata\objects\FALCON4.ct"	(172937 bytes, 11/23/1999, 15:33:00)
"\Falcon4\terrdata\objects\FALCON4.SSD"	(21633 bytes, 11/23/1999, 15:34:30)
"\Falcon4\terrdata\objects\FALCON4.SWD"	(3746 bytes, 11/23/1999, 15:34:30)
"\Falcon4\terrdata\objects\FALCON4.UCD"	(99458 bytes, 11/23/1999, 15:34:30)
"\Falcon4\terrdata\objects\FALCON4.VCD"	(45602 bytes, 11/23/1999, 15:34:30)
"\Falcon4\terrdata\objects\FALCON4.WCD"	(12182 bytes, 11/23/1999, 15:34:30)
"\Falcon4\terrdata\objects\FALCON4.WLD"	(11426 bytes, 11/23/1999, 15:34:30)
"\Falcon4\Zips\Simdata.ZIP"	(152774 bytes, 09/23/1999, 11:41:20)

Changed files:

"\Falcon4\art\ckptart\menu.dat"	(5397 bytes, 01/10/2000, 00:01:00)
"\Falcon4\terrdata\objects\FALCON4.ct"	(172937 bytes, 01/31/2000, 00:09:00)
"\Falcon4\terrdata\objects\FALCON4.SSD"	(21633 bytes, 01/24/2000, 00:08:00)
"\Falcon4\terrdata\objects\FALCON4.SWD"	(4734 bytes, 01/31/2000, 00:09:00)
"\Falcon4\terrdata\objects\FALCON4.UCD"	(99458 bytes, 02/15/2000, 00:11:00)
"\Falcon4\terrdata\objects\FALCON4.VCD"	(45602 bytes, 02/15/2000, 00:11:00)
"\Falcon4\terrdata\objects\FALCON4.WCD"	(12182 bytes, 02/15/2000, 00:11:00)
"\Falcon4\terrdata\objects\FALCON4.WLD"	(11426 bytes, 01/31/2000, 00:09:00)
"\Falcon4\Zips\Simdata.ZIP"	(179738 bytes, 01/31/2000, 00:09:00)
"\Falcon4\sounds\commFile.bin"	(7736 bytes, 01/31/2000, 00:09:00)

Credits

Thanks must go out to Julian Onion for his F4Browse utility, without which many of our changes would not have been possible. Also, much thanks to Bengs, Duck Holiday, Paradox, Nemesis, Shawn Agne, Metal, and others not mentioned specifically here for their contributions to the F4 hex editing community. Your original discoveries have contributed significantly to this effort.

Much thanks needs to be offered to the entire Falcon 4.0 iBeta Public Sector team. Kudos are deserved for their long hours and attention to detail.

This patch would not be possible if it weren't for the exemplary efforts of Leonardo Rogic and Jeff Babineau. Both Leo and Jeff bore the brunt of labor on this version, as much work had to be done just to correct the underlying Falcon 4.0 data files to get them in shape for subsequent changes. Thanks to Leo and Jeff for their efforts!

iBeta Team – Falcon 4.0 Realism Patch

President and CEO: Glenn "Sleepdoc" Kletzky

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A2G Coordinator: Jeff "Rhino" Babineau

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Missile Coordinator: Cher Min "Hoola" Teo and Paul Stewart

Campaign/AI Coordinator: Gary "Ranger" Perry

Formation Coordinator: Rodrigo "Motor" Lourenco

Hex Meisters: Leonardo "Apollo11" Rogic and Jeff "Rhino" Babineau

Documentation: Eric "Snacko" Marlow, Leonardo "Apollo11" Rogic, and Jeff "Rhino" Babineau

3rd Party Realism Add-ons

iBeta has tested a series of additional Falcon 4.0 add-ons that we feel contribute to the added immersion of the Realism Patch. Listed below are additional patches that we recommend:

- Paul Wilson's 1024x768 cockpit – a true block 50/52 cockpit -
<http://msnhomepages.talkcity.com:6010/msngamingzone/crazyammo/>

Revision History (Summary)

** As with any development effort, certain items may be corrected or improved in subsequent internal versions. If not otherwise noted, the items below should be considered null and void if they are overwritten by a more recent release where that item is mentioned.

v0.12 02/16/2000 Changes

=====

- Additional fix for formations

v0.11 02/15/2000 Changes

=====

- Additional ground weapons blast radius fixes
- Additional fixes for various ground units

v0.10 02/04/2000 Changes

=====

- Fixed Fuel tanks that were accidentally changed in v0.09
- Changed ranges of all weapons back to v1.08 original values

v0.09 01/31/2000 Changes

=====

- Additional fix for Dragon
- Added functional LAAW (Light Anti Armour Weapon)
- Additional fix for M5 Rifle (i.e. broken LAW conversion)
- Additional fix for Hellfire (i.e. broken AT-4 CG conversion)
- Additional fix for AGM-114
- Fix for various ground unit weapons
- Fixed broken "Vector to..." message

v0.08 01/24/2000 Changes

=====

- Added ground weapons blast radius fix
- Enabled back the AGM-88 capability for F-4G
- Enabled gear on AI airplanes (fly any plane now with gear available)

v0.07 01/23/2000 Changes

=====

- Added functional TOW, AT-2/3/4/5/6 and AGM-114 ATGMs
- Fixed US Patriot, Hawk and Nike Hercules SAMs
- Fixed misc inconsistencies with non-missile weapons internal linking
- Fixed AIM-9P missile
- Fixed AA-2 missile
- Rename fix for AA-2R missile and SA-2 and SA-3 SAMs
- Fixed AA-12, AA-8, AA-8R and AA-3
- Fixed SA-19, ADATS, Stinger and Chaparral
- Added functional AS-7 and AS-12 missiles for OPFOR
- Fixed inconsistencies with LAU-3/A, UB-19-57 and UB-32-57
- Fixed inconsistencies with OPFOR bomb weapons internal linking
- Added functional AT-4 CG, Dragon, RPG-7 and LAW
- Tweaked AS-7, AS-10 and AS-14 missiles for OPFOR
- Added landing gear to AI planes

v0.06 01/22/2000 Changes

=====

- Added data for ground vehicles and units (this erases previous fixes in v0.01 #3)

v0.05 01/15/2000 Changes

=====

- Fixed AGM-65 A,B,D,G seeker
- Added functional AS-10, AS-11 and AS-12 missiles for OPFOR

v0.04 01/14/2000 Changes

=====

- Fixed AGM-45 ARM
- Additional fix for AA-1 and AA-2R missile (this changes/expands changes done in v0.02 #2)

v0.03 01/13/2000 Changes

=====

- Fixed AA-10B and AA-11 missiles (from "IR Rear Aspect" seeker to "IR All Aspect" seeker)
- Fixed AA-10A and AA-10C missiles (from ARH to SARH)

v0.02 01/12/2000 Changes

=====

- Fixed Mig-19 radar
- Fixed AA-1 and AA-2R missile (from IR to SARH)

v0.01 01/10/2000 Changes

=====

- Fixed wingman/element formations
- Fixed "Fluid 4" formation
- Fixed tanks firing ATGMs, wrong weapon configurations and wrong ammo load
- Fixed Mig-29 A2A missile preference in campaigns (Mean Mig)

Known Issues

To be corrected in later versions:

- The Nike SAM missile does not appear on the RWR
- Certain ATGMs do not track their target and they detonate in mid-air
- When Mk-77s are loaded (napalm), the BLU-27 designation is still in the HUD
- Once you have created/saved missions in TE using the Realism Patch, your TE missions may be incorrectly rendered if you use the 1.08us Default Zip file set. We have found a workaround – if you must go back to 1.08us after installing the iBeta Realism Patch, you must de-install your Falcon 4.0 game completely and reinstall from the CD, re-apply the 1.08us patch, and re-apply the "i2" EXE.

Realism Patch Design Philosophy

"Hex Editing" started as a grass roots effort – players interested in modifying the files of Falcon 4.0 to get more enjoyment from their gameplay experience. Luckily the designers of Falcon 4.0 created a scheme that allowed much of the inner workings to be accessed by modifying the text and binary files that came with the game. And now, thanks to the innovative and creative discoveries made by those who explored the depths of Falcon 4.0, we now have the ability to bring additional immersion to the Falcon 4.0 world.

In most cases, F4 Hex Editing started out as a way to have some fun with the weapons by making them bigger and more plentiful than what Falcon allows. However it has become increasingly difficult to sort through the various modifications and collect the ones you would like to include.

For many players, "realism" is what it's all about. Having a set of files that increased the realism, while maintaining the gameplay, would have benefits beyond the scope of what Falcon 4.0 initially delivered. This "realism patch" is the outcome of this philosophy.

During our modifications, we discovered many inaccuracies, oversights, and just plain wrong information in the files. Our realism patch attempts to correct many of these issues. We also wanted to increase the realism by adding objects, weapons and capabilities that would exist in the real world.

We had several guiding principle in developing this patch. They can be listed as follows:

1. The changes should not add any additional instability to Falcon 4.0
2. The changes must reflect "real world values" - real world values must be supported by actual military or civilian documentation
3. The changes will not adversely affect gameplay

The "real world" in Falcon 4.0 terms is a hypothetical battlefield in the current or near future timeframe that involves US, ROK, DPRK, Chinese, and Russian forces. All modifications to the objects and capabilities of Falcon 4.0 will be made with these force capabilities in mind. Although

the F-16 has additional capabilities beyond what the USAF employs, we tended to keep to strict USAF specifications, as well as the specifications for the other forces.

One of our most sacred guiding principles is to support our changes with recognized military and civilian sources. While at times difficult to come by, we feel that we need to recognize the need to support our changes. Otherwise we will enter into lengthy debates about the capabilities and performance characteristics of the items we are attempting to modify. Having a source that we can point to alleviates us from those differing points of view.

As hex editing only allows (for the most part) the changing of tabular values, we cannot affect to a great extent the logic or artificial intelligence that is built into the source code. Hex editing only can take you so far. But given the structure of the Falcon 4.0 tables and the wealth of information included in them, much can be addressed.

Our interest is to refine this patch over time. As there are many items that can be “tweaked”, we plan on a series of releases that incorporate additional modifications as they are identified.

File Definitions

FALCON4 INI - as is
FALCON4 WCD - Weapon Control (?) Data
FALCON4 SWD - Sim Weapon Data
FALCON4 WLD - Weapon List Data
FALCON4 VSD - Visual Data (?)
FALCON4 ICD - IRST Control (?) Data
FALCON4 RCD - Radar Control (?) Data
FALCON4 VCD - Vehicle Control (?) Data
FALCON4 ACD - Aircraft Control (?) Data
FALCON4 UCD - Unit Control (?) Data
FALCON4 OCD - Objective Control (?) Data
FALCON4 RWD - Radar Warning (?) Data
FALCON4 PHD - Point Header data (?)
FALCON4 PD - Point Data
FALCON4 FED - Feature Entity (?) Data
FALCON4 FCD - Feature Control (?) data
FALCON4 SSD - Squadron (?) Stores Data
FALCON4 CT - ?
KOREAOBJ TEX - object's Textures
KOREAOBJ LOD - object's Level Of Detail database (?)
KOREAOBJ HDR - ?
simdata.zip - zip file of data for flight models, weapon sensors, etc.

References and Sources

Air Forces of the World - Christopher Chant

Federation of American Scientists – <http://www.fas.org>

FM 100-2-3 The Soviet Army, Troops, Organization and Equipment. US Army CGSC 101-1

FM101-10-1/1 Staff Officers Field Manual Organizational, Technical and Logistical Data

Jane's – Air Launched Weapons

Jane's – All the World's Aircraft

Jane's - Armor and Artillery – Edited by Christopher Foss

Jane's – Land Based Air Defence

MCIA-2630- NK-016-97 North Korea Country Handbook

OKB- MIG- Jay Miller, Piotr Butowski

OKB- Sukhoi- Jay Miller with Vladimir Yakonov, Vladimir Antonov, 6 others

Organizational and Tactical Reference data for the Army in the field- US- Army

ST 100-3 Battle Book

ST 100-7 OPFOR Battle Book

Weapons and Tactics of Soviet Army third edition- David C. Isby

Detailed Change History

Note: all "h:", "v:" and "value" entries are in reference to F4 HEX XLS tables by Bengs and in HEX

v0.01 01/10/2000

#1 Fixed wingman/element formations

Thanks to Rodrigo "Motor" Lourenco we have correct "FORMDAT.FIL" file that fixes erroneous "Trail", "Res Cell" and "Box" formations.

File(s) changed:

"FORMDAT.FIL" inside "\\Falcon4\Zips\Simdata.ZIP" (path = \sim\ACDATA\FORMDATA)

What was changed:

Original formation (excerpts):

```
3 1 2 trail
135.0 0.0 0.165
180.0 0.0 5.0
178.69 0.0 5.118
180.0 0.0 2.0
```

```
3 0 5 rescell
135.0 0.0 0.0823
93.138 0.0 1.060
-90.0 0.0 1.0
```

```
3 0 6 box
90.0 0.0 1.0
180.0 0.0 2.0
135.0 0.0 1.0
```


Changed formation (excerpts):

```
3 1 2 trail
 135.0 0.0 0.165
 180.0 0.0 5.0
 178.69 0.0 5.118
 180.0 0.0 5.0
```

```
3 0 5 rescell
 135.0 0.0 0.0823
 -90.0 0.0 1.0
 -93.138 0.0 1.060
```

```
3 0 6 box
 90.0 0.0 1.0
 180.0 0.0 2.0
 135.0 0.0 2.236
```

#2 Fixed "Fluid 4" formation

The "Fluid 4" formation was missing in Wingman/Flight formation menus.

File(s) changed:

"menu.dat" in folder "\\Falcon4\art\ckptart\"

What was changed:

Original commands (excerpts):

```
#menu WingmanMsg AiWingman 6 0 white WINGMAN COMMANDS
.
.
.
#page 4 0 bright_green Formation Management 2
#item 3 0 white 0.1 1 Go Wedge
#item 3 0 white 0.1 2 Go Trail
#item 3 0 white 0.1 3 Go Ladder
#item 3 0 white 0.1 4 Go Stack
.
.
.
#menu WingmanMsg AiElement 4 0 white ELEMENT COMMANDS
.
.
.
#page 4 0 bright_green Formation Management 2
#item 3 0 white 0.1 1 Go Wedge
#item 3 0 white 0.1 2 Go Trail
#item 3 0 white 0.1 3 Go Ladder
#item 3 0 white 0.1 4 Go Stack
```

Changed commands (excerpts):

```
#menu WingmanMsg AiWingman 6 0 white WINGMAN COMMANDS
.
.
.
#page 5 0 bright_green Formation Management 2
#item 3 0 white 0.1 1 Go Wedge
#item 3 0 white 0.1 2 Go Trail
#item 3 0 white 0.1 3 Go Ladder
#item 3 0 white 0.1 4 Go Stack
#item 3 0 white 0.1 8 Go Fluid
.
.
.
```

```
#menu WingmanMsg AiElement 4 0 white ELEMENT COMMANDS
.
.
.
#page 5 0 bright_green Formation Management 2
#item 3 0 white 0.1 1 Go Wedge
#item 3 0 white 0.1 2 Go Trail
#item 3 0 white 0.1 3 Go Ladder
#item 3 0 white 0.1 4 Go Stack
#item 3 0 white 0.1 8 Go Fluid
```

#3 Tanks firing ATGMs, wrong weapon configurations and wrong ammo load fix

The DPRK/Chinese/Russian tanks no longer fire ATGM (Antitank Guided Missiles) since this was not applicable in real life. Also several of the wrong weapon and ammo loads were fixed.

File(s) changed:

"FALCON4.VCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

T-55 original armament:

- Main wpn: 115mm HE [value 99 ()], 50 ammo
- Aux: 12.7mm [value 5F ()], 100 ammo
7.62mm PKT [value 77 ()], 100 ammo
AT-4 [value B0 ()], 6 ammo

T-55 changed armament by iBETA:

- Main wpn: 105mm AP [value 62 ()], 30 ammo
- Aux: 105mm HE [value 6B ()], 20 ammo
12.7mm [value 5F ()], 100 ammo
7.62mm PKT [value 77 ()], 100 ammo

T-62 original armament:

- Main wpn: AT-5 [value 79 ()], 6 ammo
- Aux: 115mm HE [value 99 ()], 20 ammo
115mm AP [value 73 ()], 20 ammo
7.62mm Minigun [value 56 ()], 100 ammo
12.7mm [value 5F ()], 100 ammo

T-62 changed armament by iBETA:

- Main wpn: 115mm AP [value 73 ()], 20 ammo
- Aux: 115mm HE [value 99 ()], 20 ammo
7.62mm Minigun [value 56 ()], 100 ammo
12.7mm [value 5F ()], 100 ammo

T-72 original armament:

- Main wpn: 125mm AP [value 9A ()], 18 ammo
- Aux: 125mm HE [value 9B ()], 21 ammo
12.7mm [value 5F ()], 50 ammo
7.62mm Minigun [value 56 ()], 10 ammo

T-72 changed armament by iBETA:

- Main wpn: 125mm AP [value 9A ()], 18 ammo
- Aux: 125mm HE [value 9B ()], 21 ammo
12.7mm [value 5F ()], 100 ammo
7.62mm Minigun [value 56 ()], 100 ammo

T-90 original armament:

- Main wpn: 135mm AP [value 9C ()], 50 ammo
- Aux: 135mm HE [value 9D ()], 50 ammo

12.7mm [value 5F ()], 100 ammo
7.62mm Minigun [value 56 ()], 100 ammo

T-90 changed armament by iBETA:

- Main wpn: 135mm AP [value 9C ()], 18 ammo
- Aux: 135mm HE [value 9D ()], 21 ammo
12.7mm [value 5F ()], 100 ammo
7.62mm Minigun [value 56 ()], 100 ammo

Type-62 (Chinese T-62) original armament:

- Main wpn: 115mm AP [value 73 ()], 30 ammo
- Aux: 115mm HE [value 99 ()], 30 ammo
12.7mm [value 5F ()], 100 ammo
7.62mm Minigun [value 56 ()], 100 ammo

Type-62 (Chinese T-62) changed armament by iBETA:

- Main wpn: 115mm AP [value 73 ()], 20 ammo
- Aux: 115mm HE [value 99 ()], 20 ammo
12.7mm [value 5F ()], 100 ammo
7.62mm Minigun [value 56 ()], 100 ammo

Type-80 (Chinese T-72?) original armament:

- Main wpn: 125mm AP [value 9A ()], 50 ammo
- Aux: 125mm HE [value 9B ()], 50 ammo
7.62mm PKT [value 77 ()], 100 ammo
12.7mm [value 5F ()], 100 ammo

Type-80 (Chinese T-72?) changed armament by iBETA:

- Main wpn: 125mm AP [value 9A ()], 18 ammo
- Aux: 125mm HE [value 9B ()], 21 ammo
7.62mm PKT [value 77 ()], 100 ammo
12.7mm [value 5F ()], 100 ammo

Type-85II (Chinese T-80?) original armament:

- Main wpn: 125mm AP [value 9A ()], 50 ammo
- Aux: 125mm HE [value 9B ()], 50 ammo
12.7mm [value 5F ()], 100 ammo
7.62mm Minigun [value 56 ()], 100 ammo

Type-85II (Chinese T-80?) changed armament by iBETA:

- Main wpn: 125mm AP [value 9A ()], 18 ammo
- Aux: 125mm HE [value 9B ()], 21 ammo
12.7mm [value 5F ()], 100 ammo
7.62mm Minigun [value 56 ()], 100 ammo

Type-90II (Chinese T-80?) original armament:

- Main wpn: 125mm AP [value 9A ()], 50 ammo
- Aux: 125mm HE [value 9B ()], 50 ammo
12.7mm [value 5F ()], 100 ammo
7.62mm Minigun [value 56 ()], 100 ammo

Type-90II (Chinese T-80?) changed armament by iBETA:

- Main wpn: 125mm AP [value 9A ()], 18 ammo
- Aux: 125mm HE [value 9B ()], 21 ammo
12.7mm [value 5F ()], 100 ammo
7.62mm Minigun [value 56 ()], 100 ammo

ZSU 23-4 original armament:

- Main wpn: Ak-47 [value C3 ()], 100 ammo
- Aux: 20mm AAA HE [value 69 ()], 254 ammo

ZSU 23-4 changed armament by iBETA:

- Main wpn: 20mm AAA HE [value 69 ()], 254 ammo
- Aux: 20mm AAA HE [value 69 ()], 254 ammo
20mm AAA HE [value 69 ()], 254 ammo
20mm AAA HE [value 69 ()], 254 ammo
Ak-47 [value C3 ()], 100 ammo

ZSU 57-2 original armament:
- Main wpn: 57mm HE AAA [value BD ()], 100 ammo

ZSU 57-2 changed armament by iBETA:
- Main wpn: 57mm HE AAA [value BD ()], 100 ammo
- Aux: 57mm HE AAA [value BD ()], 100 ammo

M-1A1 original armament:
- Main wpn: 120mm AP [value 39 ()], 75 ammo
- Aux: 120mm HE [value 1C ()], 75 ammo
12.7mm [value 5F ()], 50 ammo
7.62mm Minigun [value 56 ()], 10 ammo

M-1A1 changed armament by iBETA:
- Main wpn: 120mm AP [value 39 ()], 40 ammo
- Aux: 120mm HE [value 1C ()], 20 ammo
12.7mm [value 5F ()], 100 ammo
7.62mm Minigun [value 56 ()], 100 ammo

LAV/AT original armament:
- Main wpn: TOW M-1046 [value 7E ()], 5 ammo
- Aux: TOW M-1046 [value 7E ()], 5 ammo
25mm [value A2 ()], 254 ammo
7.62mm Minigun [value 56 ()], 254 ammo
M16 Rifle [value 6E ()], 100 ammo

LAV/AT changed armament by iBETA:
- Main wpn: 25mm [value A2 ()], 254 ammo
- Aux: TOW M-1046 [value 7E ()], 5 ammo
TOW M-1046 [value 7E ()], 5 ammo
7.62mm Minigun [value 56 ()], 254 ammo
M16 Rifle [value 6E ()], 100 ammo

#4 Fixed Mig-29 A2A missile preference in campaigns (Mean Mig)

This patch was last "official" file iBETA received from F4 programmers. Its goal was to make "AA-10A" missiles "more desirable" than "AA-10B" for Mig-29 in campaign.

File(s) changed:

"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

The AA-10B and AA-10A data for "Air Blast" and "Air Hit" were exchanged.

AA-10B (IR missile):
- Original "Air Blast" value = 1E (30)
- Changed "Mean Mig" "Air Blast" value = 19 (25)

- Original v1.08 "Air Hit" value = 23 (35)
- Changed "Mean Mig" "Air Hit" value = 1E (30)

AA-10A (SARH missile):
- Original "Air Blast" value = 19 (25)
- Changed "Mean Mig" "Air Blast" value = 1E (30)

- Original "Air Hit" value = 1E (30)
- Changed "Mean Mig" "Air Hit" value = 23 (35)

v0.02 01/12/2000

#1 & #2 Fixed Mig-19 + AA-1 and AA-2R

With this fix I made Mig-19 appear on RWR and lock-on to player before launching AA-1 SARH missile. I also fixed AA-2R missile to SARH.

File(s) changed:

```
-----  
"FALCON4.VCD" in folder "\\Falcon4\terrdata\objects"  
"FALCON4.CT" in folder "\\Falcon4\terrdata\objects"  
"FALCON4.SWD" in folder "\\Falcon4\terrdata\objects"  
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"  
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"  
"Simdata.ZIP" in folder "\\Falcon4\Zips"
```

What was changed:

a) Changed radar sound and symbol on RWR for Mig-19

I changed Mig-19 radar sound and symbol with J5 (Chinese Mig-19 variant).

.vcd (h:39, v:30) address 2362 changed from 00 (00) to 1D (29)

b) Changed Mig-19 "command data" for radar

I changed Mig-19 radar data with Mig-21 radar data in all instances of Mig-19 that I found.

.ct (h:AB, v:4A) address 3667 changed from 12 (18) to 13 (19)
.ct (h:442, v:4A) address 14F0E changed from 12 (18) to 13 (19)
.ct (h:66C, v:4A) address 20878 changed from 12 (18) to 13 (19)
.ct (h:66D, v:4A) address 208C9 changed from 12 (18) to 13 (19)
.ct (h:66E, v:4A) address 2091A changed from 12 (18) to 13 (19)

c) Added new AA-1 data files

I added new "aal.veh" and "aal.dat" files to "Simdata.zip". The ".veh" files represent the overall missile usage/presentation (inside Simdata.zip/Misdata folder), while ".dat" represent actual performance (inside Simdata.zip/VehDef folder).

The new "aal.veh" is now #60 (Simdata.zip/VehDef/vehicle.lst) and "aal.dat" is #28 (Simdata.zip/misdata/mistypes.lst).

Note: I created the brand new "aal.veh" file (all SARH vehicles are same) but used existing "aim9p.dat" file for "aal.dat" with change to seeker type (to SARH). This "aim9p.dat" is originally used for all non-specific A2A missiles in v1.08 F4.

Original "aim9p.dat" (excerpts):

```
# Seeker Type, Version  
0 2
```

New "aal.dat" (excerpts):

```
# Seeker Type, Version  
6 0
```

d) Changed AA-1 general data

I changed AA-1 missile from "Rear Aspect IR" to "SARH" and pointed AA-1 data to newly created "aal.veh" file (Simdata.zip/VehDef).

.wcd (h:60, v:22) address 16AC changed from 22 (34) to 04 (04)
.wcd (h:60, v:38) address 16BA changed from 16 (22) to 3C (60)

e) Changed AA-1 "command data"

I changed AA-1 radar data with AA-2R data by changing pointer to ".swd". This way both AA-1 and AA-2R (both SARH) have the same missile entry in ".swd" that deals with performance.

Note: Since both missiles are essentially in the same class this is not big harm. In future I might extend ".swd" file and with that both missiles can get their own ".swd" entries.

.ct (h:262, v:4D) address C14E changed from 25 (37) to 04 (04)

f) Changed AA-2R performance data

I changed AA-2R performance data from IR to SARH and changed pointer to newly created "aa1.dat" file (Simdata.zip/misdata).

.swd (h:04, v:30) address 102 from 00 (00) to 1C (28)

v0.03 01/13/2000

#1 Fixed AA-10B and AA-11 missiles

I changed the AA-10B and AA-11 missile seekers from "IR Rear Aspect" to "IR All Aspect" seeker.

These way airplanes armed with AA-10B and/or AA-11 will fire head-on from several miles in adequate conditions.

File(s) changed:

"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

I changed "aa10.dat" and "aa11.dat" file (inside Simdata.zip/Misdata folder).

Original "aa10.dat" and "aa11.dat" (excerpts):

Seeker Type, Version
0 2

Changed "aa10.dat" and "aa11.dat" (excerpts):

Seeker Type, Version
0 1

#2 Fixed AA-10A and AA-10C missiles

I changed the AA-10A and AA-10C missiles from ARH to SARH.

File(s) changed:

"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"
"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

a) Changed AA-10A and AA-10C general data

I changed the v:36 value for AA-10A and AA-10C missiles in ".wcd"

.wcd (h:08, v:36) address 218 changed from 04 (04) to 00 (00)
.wcd (h:C2, v:36) address 2DB8 changed from 04 (04) to 00 (00)

b) Changed AA-10A and AA-10C flight data

I changed "aa10c.dat" and "aa11.dat" file (inside Simdata.zip/Misdata folder).

Original "aa10c.dat" (excerpts):

```
# Autopilot Bandwidth
4.000000
# Time To Go Active (sec)
25.000000
# Seeker Type, Version
1 1
```

Changed "aa10c.dat" (excerpts):

```
# Autopilot Bandwidth
0.000000
# Time To Go Active (sec)
-1.000000
# Seeker Type, Version
6 0
```

v0.04 01/14/2000

#1 Fixed AGM-45 ARM

I added the AGM-45 missile for F-4G and erased AGM-88 HARM capability for it.

File(s) changed:

"FALCON4.WLD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.SSD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"
"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

a) Changed F-4G pylon data

I removed AGM-88 HARM capability from F4-G hardpoint and added AGM-45 capability using "F4 Browser Editor BETA v1.3".

.wld (h:54, v:10) address 24d2 from 17 (23) to 11 (17)

b) Changed F-4G squadron weapon stock

I removed AGM-88 HARM stock (80 missiles) from F-4G squadrons and added AGM-45 stock (80 missiles).

```
.ssd (h:16, v:11) address 133D from 00 (00) to 50 (80)
.ssd (h:16, v:17) address 1343 from 50 (80) to 00 (00)
.ssd (h:2F, v:11) address 2904 from 00 (00) to 50 (80)
.ssd (h:2F, v:17) address 290A from 50 (80) to 00 (00)
```

c) Changed AGM-45 general data

I changed AGM-45 explosion from "Air" to "Ground/HE".

.wcd (h:11, v:4) address 402 from 05 (05) to 02 (02)

d) Changed AGM-45 data file

I changed AGM-45 display properties.

Original "agm45.dat" (excerpts):

```
# Display
0
```

Changed "agm45.dat" (excerpts):

```
# Display
4
```

#2 Additional fix for AA-1 and AA-2R missile

As I noted in v0.02 I decided to add the new data lines to ".swd" file. The functionality is exactly the same as in "v0.02 #2 e" but this way I can add more weapons to ".swd" file. This is just a "technical" fix to ease job in future.

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.SWD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

a) Added new record for AA-1 performance data

I added new record in ".swd" file. This record was copied from AA-2R line (both are SARH and same).

I also changed the number of records at the beginning of ".swd".

.swd address 00 from 48 (72) to 49 (73)
.swd added new record

b) Added new AA-2-2 (i.e. AA-2R) data files

I added new "aa2r.veh" and "aa2r.dat" files to "Simdata.zip".

The new "aa2r.veh" is now #61 (Simdata.zip/VehDef/vehicle.lst) and "aa2r.dat" is #29 (Simdata.zip/misdata/mistypes.lst).

Note: I created the brand new "aa2r.veh" file (all SARH vehicles are same) but used existing "aim9p.dat" file for "aa2r.dat" with change to seeker type (to SARH). This "aim9p.dat" is originally used for all non-specific A2A missiles in v1.08 F4.

Original "aim9p.dat" (excerpts):

```
# Seeker Type, Version
0 2
```

New "aa2r.dat" (excerpts):

Seeker Type, Version
6 0

c) Changed AA-2-2 (i.e. AA-2R) general data

I pointed AA-2-2 data to newly created "aa2r.veh" file (Simdata.zip/VehDef).

.wcd (h:60, v:38) address 16BA changed from 16 (22) to 3D (61)

d) Changed AA-1 "command data"

I changed AA-1 data by changing pointer to newly created record in ".swd".

.ct (h:262, v:4D) address C14E changed from 25 (37) to 48 (72)

e) Changed AA-2-2 (i.e. AA-2R) performance data

I changed pointer to newly created "aa2r.dat" file (Simdata.zip/misdata).

.swd (h:04, v:30) address 102 from 1C (28) to 1D (29)

f) Cheated AA-1 performance data

I checked pointer to "aa1.dat" file (Simdata.zip/misdata). This had to be done since the new record was copied from AA-2R (see a entry).

.swd (h:48, v:30) address ED2 must be 1C (28)

v0.05 01/15/2000

#1 Fixed AGM-65 A,B,D,G seeker

The AGM-65 A,B,D,G missiles had seeker mix-up in F4 v1.08. The real world performance (and as stated in F4 encyclopedia) is that A&B are "optical" and "D&G" are "IR".

In F4 ".wcd" this is correct but in ".swd" and in ".dat" files the AGM-65 are linked the wrong way (A&D and B&G).

File(s) changed:

"FALCON4.SWD" in folder "\\Falcon4\terrdata\objects"
"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

a) Fixed AGM-65A & AGM-65G performance data

I changed the pointers to the ".dat" files for A&G AGM-65.

.swd (h:09, v:30) address 206 from 03 (03) to 02 (02)

.swd (h:0C, v:30) address 2A2 from 02 (02) to 03 (03)

b) Fixed AGM-65A & AGM-65G data files

I fixed the "AGM65a.veh" and "AGM65g.veh" file.

Original "AGM65a.veh" (excerpts):

Data Idx
3

Fixed "AGM65a.veh" (excerpts):

Data Idx
2

Original "AGM65g.veh" (excerpts):

Data Idx
2

Fixed "AGM65g.veh" (excerpts):

Data Idx
3

#2 Added functional AS-10, AS-11 and AS-14 missiles for OPFOR

I added functional AS-10, AS-11 and AS-14 missiles for OPFOR. They were interlinked through AGMXXX record in ".swd" file and used "AGMxxx.veh" + "agmXXX.dat" files. This didn't work at all in F4 v1.08... :-)

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.SWD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"
"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

a) Added 3 new records for AS-10, AS-11 and AS-14 performance data

I added 3 new records in ".swd" file. The AS-10 record was copied from AGM-65D (IR seeker), the AS-11 was copied from AGM-45 (AntiRadar) and the AS-14 was copied from AGM-65B (optical seeker).

I also changed the number of records at the beginning of ".swd".

.swd address 00 from 49 (73) to 4C (76)
.swd added 3 new records

b) Added new AS-10, AS-11 and AS-14 data files

I added 3 new ".veh" ("as10.veh", "as11.veh" and "as14.veh") and ".dat" ("as10.dat", "as11.dat" and "as14.dat") files to "Simdata.zip".

The "as10.veh" is now #62 (Simdata.zip/VehDef/vehicle.lst) and "as10.dat" is #30 (Simdata.zip/misdata/mistypes.lst).

The "as11.veh" is now #63 (Simdata.zip/VehDef/vehicle.lst) and "as11.dat" is #31 (Simdata.zip/misdata/mistypes.lst).

The "as14.veh" is now #64 (Simdata.zip/VehDef/vehicle.lst) and "as14.dat" is #32 (Simdata.zip/misdata/mistypes.lst).

Note: For AS-10 I copied AGM-65D ".veh" and ".dat" files, for AS-11 I copied AGM-45 ".veh" and ".dat" files, for AS-14 I copied AGM-65B ".veh" and ".dat" files.

Original "AGM65D.veh" (excerpts):

Data Idx
3

Created "AS10.veh" (excerpts):

Data Idx
30

Original "AGM45.veh" (excerpts):

Data Idx
4

Created "AS11.veh" (excerpts):

Data Idx
31

Original "AGM65B.veh" (excerpts):

Data Idx
2

Created "AS14.veh" (excerpts):

Data Idx
32

c) Changed AS-10, AS-11 and AS-14 performance data

I changed pointers to newly created ".dat" file (Simdata.zip/misdata).

.swd (h:49, v:30) address F06 from 03 (03) to 1E (30)
.swd (h:4A, v:30) address F3A from 04 (04) to 1F (31)
.swd (h:4B, v:30) address F6E from 02 (02) to 1D (32)

d) Changed AS-10, AS-11 and AS-14 general data

I changed AS-10 and AS-14 seeker data from "Laser" to "IR" and "Optical". I also pointed AS-10, AS-11 and AS-14 data to newly created "AS11.veh", "AS11.veh" and "AS14.veh" files (Simdata.zip/VehDef).

.wcd (h:18, v:2A) address 5CC changed from 08 (08) to 02 (02)
.wcd (h:18, v:38) address 5DA changed from 15 (21) to 3E (62)
.wcd (h:42, v:38) address FB2 changed from 0A (10) to 40 (64)
.wcd (h:19, v:2A) address 608 changed from 08 (08) to 10 (16)
.wcd (h:19, v:38) address 616 changed from 15 (21) to 3F (63)

e) Changed AS-10, AS-11 and AS-14 "command data"

I changed AS-10, AS-11 and AS-14 pointers to newly created ".swd" records.

.ct (h:FC, v:4A) address 5008 changed from 26 (38) to 49 (73)
.ct (h:1BC, v:4A) address 8CC8 changed from 26 (38) to 4A (74)
.ct (h:FD, v:4A) address 50059 changed from 26 (38) to 4B (75)

v0.06 01/22/2000

#1 Added Jeffery "Rhino" Babineau (Deltahawks) data for ground units

This incorporation of data from Jeffery "Rhino" Babineau (Deltahawks) erases all my previous changes in ground units.

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.SSD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.SWD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.UCD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.VCD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WLD" in folder "\\Falcon4\terrdata\objects"

What was changed:

See "Background and Philosophy for Ground Unit Changes" below for details.

v0.07 01/23/2000

#1 Added functional TOW, AT-2/3/4/5/6 and AGM-114 ATGMs

I added functional TOW, AT-2/3/4/5/6 and AGM-114 antitank missiles. They were interlinked through wrong records in ".swd" file and used wrong ".veh" and ".dat" files. This didn't work at all in F4 v1.08... :-)

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.SWD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"
"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

a) Added new record for ATGM performance data

I added new record in ".swd" file. The ATGM record was copied from AG65B.

I also changed the number of records at the beginning of ".swd".

.swd address 00 from 4C (76) to 4D (77)
.swd added 1 new record

b) Added new ATGM data files

I added new "atgm.veh" and "atgm.dat" files to "Simdata.zip".

The "atgm.veh" is now #65 (Simdata.zip/VehDef/vehicle.lst) and "atgm.dat" is #33 (Simdata.zip/misdata/mistypes.lst).

Note: For ATGM I copied "AGM65b.veh" and "atgm65b.dat" files.

Original "AGM65b.veh" (excerpts):

```
# Data Idx  
2
```

Created "ATGM.veh" (excerpts):

```
# Data Idx  
33
```

Original "atgm65b.dat" (excerpts):

```
# Final Time (sec)
30.000000
# Guidance Delay (sec)
60.000000
# Lofting Bias
2.000000
```

Created "atgm.dat" (excerpts):

```
# Final Time (sec)
7.500000
# Guidance Delay (sec)
0.000000
# Lofting Bias
0.000000
```

c) Changed ATGM performance data

I changed pointers to newly created ".dat" file (Simdata.zip/misdata).

.swd (h:4C, v:30) address FA2 from 02 (02) to 21 (33)

d) Changed TOW, AT-2/3/4/5/6 and AGM-114 general data

The TOW range was changed to 3. I changed TOW seeker data from "Radar Guided" to "Optical", AT-2/3/4/5 from "None" to "Optical" and AGM-114 from "Laser" to "Optical".

I also pointed TOW, AT-2/3/4/5/6 and AGM-114 data to newly created "ATGM.veh" file (Simdata.zip/VehDef).

```
.wcd (h:7E, v:08) address 1D92 changed from 04 (04) to 03 (03)
.wcd (h:7E, v:2A) address 1DB4 changed from 04 (04) to 10 (16)
.wcd (h:7E, v:38) address 1DC2 changed from 15 (21) to 41 (65)
.wcd (h:5C, v:2A) address 15BC changed from 00 (00) to 10 (16)
.wcd (h:5C, v:38) address 15CA changed from 15 (21) to 41 (65)
.wcd (h:76, v:2A) address 1BD4 changed from 00 (00) to 10 (16)
.wcd (h:76, v:38) address 1BE2 changed from 15 (21) to 41 (65)
.wcd (h:B0, v:2A) address 296C changed from 00 (00) to 10 (16)
.wcd (h:B0, v:38) address 297A changed from 15 (21) to 41 (65)
.wcd (h:79, v:2A) address 1C88 changed from 00 (00) to 10 (16)
.wcd (h:79, v:38) address 1C96 changed from 15 (21) to 41 (65)
.wcd (h:5B, v:2A) address 1580 changed from 00 (00) to 10 (16)
.wcd (h:5B, v:38) address 158E changed from 15 (21) to 41 (65)
.wcd (h:0E, v:2A) address 374 changed from 08 (08) to 10 (16)
.wcd (h:0E, v:38) address 382 changed from 15 (21) to 41 (65)
```

e) Changed TOW, AT-2/3/4/5/6 and AGM-114 "command data"

I changed TOW, AT-2/3/4/5/6 and AGM-114 pointers to newly created ".swd" record.

```
.ct (h:321, v:4A) address FDBD changed from 2C (44) to 4C (76)
.ct (h:25B, v:4A) address BF17 changed from 2C (44) to 4C (76)
.ct (h:2E6, v:4A) address EB12 changed from 2C (44) to 4C (76)
.ct (h:397, v:4A) address 12313 changed from 2C (44) to 4C (76)
.ct (h:2EA, v:4A) address EC56 changed from 2C (44) to 4C (76)
.ct (h:25A, v:4A) address BEC6 changed from 26 (38) to 4C (76)
.ct (h:0F6, v:4A) address 4E22 changed from 26 (38) to 4C (76)
```

#2 Fixed US Patriot, Hawk and Nike Hercules SAMs

I fixed US Patriot, Hawk and Nike Hercules SAMs. They were interlinked through Russian SAMs (SA-6, SA-13 and SA-5) record in ".swd" file and used wrong ".veh" and ".dat" files.

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.SWD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"
"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

a) Added new records for Patriot, Hawk and Nike Hercules performance data

I added new record in ".swd" file. The Patriot record was copied from "SA-5", Hawk record was copied from "SA-2" and Nike Hercules record was copied from "SA-5"

I also changed the number of records at the beginning of ".swd".

.swd address 00 from 4D (77) to 50 (80)
.swd added 3 new records

b) Added new Patriot, Hawk and Nike Hercules data files

I added 3 new ".dat" files to "Simdata.zip" ("patriot.dat", "hawk.dat" and "nike.dat") and changed pointers in "patriot.veh", "hawk.veh" and "nike.dat" files to them.

The "patriot.dat" is #34, "hawk.dat" is #35 and "nike.dat" is #36 inside the (Simdata.zip/misdata/mistypes.lst).

Note: For Patriot and Nike Hercules I copied SA-5 ".dat" and for Hawk I copied SA-2 ".dat" file.

Original "Patriot.veh" (excerpts):

Data Idx
25

Changed "Patriot.veh" (excerpts):

Data Idx
34

Original "Hawk.veh" (excerpts):

Data Idx
27

Changed "Hawk.veh" (excerpts):

Data Idx
35

Original "nike.veh" (excerpts):

Data Idx
25

Changed "nike.veh" (excerpts):

Data Idx
36

c) Changed Patriot, Hawk and Nike Hercules performance data

I changed pointers to newly created ".dat" files (Simdata.zip/misdata).

```
.swd (h:4D, v:30) address FD6 from 19 (25) to 22 (34)
.swd (h:4E, v:30) address 1002 from 16 (22) to 23 (35)
.swd (h:4F, v:30) address 103E from 19 (25) to 24 (36)
```

d) Changed Patriot, Hawk and Nike Hercules general data

I pointed Patriot, Hawk and Nike Hercules data to their real ".veh" files (Simdata.zip/VehDef).

```
.wcd (h:21, v:38) address 7F6 changed from 16 (22) to 37 (55)
.wcd (h:20, v:38) address 7BA changed from 11 (17) to 39 (57)
.wcd (h:6C, v:38) address 198A changed from 16 (22) to 3A (58)
```

e) Changed Patriot, Hawk and Nike Hercules "command data"

I changed Patriot, Hawk and Nike Hercules to newly created ".swd" records.

```
.ct (h:100, v:4A) address 50AA changed from 2D (45) to 4D (77)
.ct (h:FE, v:4A) address 519D changed from 3A (58) to 4E (78)
.ct (h:FE, v:4A) address AD0E changed from 40 (64) to 4F (79)
```

#3 Fixed misc inconsistencies with non-missile weapons internal linking

I fixed various non-missile weapons internal linking inconsistencies. Many weapons were wrongly internally linked...

File(s) changed:

"FALCON4.ct" in folder "\Falcon4\terrrdata\objects"
"FALCON4.WCD" in folder "\Falcon4\terrrdata\objects"

What was changed:

a) Changed various non-missile weapons general data

I pointed various non-missile weapons data to their real ".veh" files (Simdata.zip/VehDef).

Weapon name	Original	Changed
"20mm cannon"	-> "ATGM.veh"	-> "GunXXX.veh"
"BLU-107/B"	-> "stinger.veh"	-> "Mk82.veh"
"CBU-58A/B"	-> "hawk.veh"	-> "Mk82.veh"
"BSU-49"	-> "adats.veh"	-> "Mk82.veh"
"BSU-50"	-> "aal.veh"	-> "Mk84.veh"
"BLU-27"	-> "nike.veh"	-> "Mk82.veh"
"CBU-89/B"	-> "as11.veh"	-> "Mk82.veh"
"CBU-87 CEM"	-> "as10.veh"	-> "Mk82.veh"
"Mk-20"	-> "as14.veh"	-> "Mk82.veh"
"CBU-52B/B"	-> "aa2r.veh"	-> "Mk82.veh"
"BLU-109/B"	-> "patriot.veh"	-> "Mk84.veh"
"GAU12U"	-> "chaparral.veh"	-> "GunXXX.veh"

```
.wcd (h:3C, v:38) address E4A changed from 41 (65) to 19 (25)
.wcd (h:41, v:38) address F76 changed from 38 (56) to 0F (15)
.wcd (h:45, v:38) address 1066 changed from 39 (57) to 0F (15)
.wcd (h:4B, v:38) address 11CE changed from 3B (59) to 0F (15)
.wcd (h:4C, v:38) address 120A changed from 3C (60) to 10 (16)
.wcd (h:4D, v:38) address 1246 changed from 3A (58) to 0F (15)
.wcd (h:4E, v:38) address 1282 changed from 3F (63) to 0F (15)
.wcd (h:4F, v:38) address 12BE changed from 3E (62) to 0F (15)
.wcd (h:50, v:38) address 12FA changed from 40 (64) to 0F (15)
.wcd (h:51, v:38) address 1336 changed from 3D (61) to 0F (15)
.wcd (h:52, v:38) address 1372 changed from 37 (55) to 10 (16)
```

.wcd (h:59, v:38) address 1516 changed from 36 (54) to 19 (25)

b) Changed various non-missile weapons "command data"

I changed various non-missile weapons pointers to their real ".swd" records.

Weapon name	Original	Changed
"20mm cannon"	-> "PG28"	-> "GUNXXX"

.ct (h:DA, v:4A) address 4546 changed from 37 (55) to 2B (43)

#4 Fixed AIM-9p missile

I fixed AIM-9P missile since it had wrong pointer ("aim9l.dat") and changed it to "aim9p.dat"

File(s) changed:

"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

Original "aim9p.veh" (excerpts):

Data Idx
0

Changed "aim9p.veh" (excerpts):

Data Idx
9

#5 Fixed AA-2 missile

I fixed AA-2 missile since it used the AIM-9P ".dat" and ".veh" files. This way the AA-2 can further be tweaked in future.

File(s) changed:

"FALCON4.SWD" in folder "\\Falcon4\terrdata\objects"
"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

a) Added new AA-2 data files

I added new "aa2.veh" and "aa2.dat" files to "Simdata.zip".

The "aa2.veh" is now #66 (Simdata.zip/VehDef/vehicle.lst) and "aa.dat" is #37 (Simdata.zip/misdata/mistypes.lst).

Note:

For AA-2 I copied AIM-9P ".veh" and ".dat" files.

Original "aim9p.veh" (excerpts):

Data Idx

9

Created "aa2.veh" (excerpts):

```
# Data Idx
37
```

b) Changed AA-2 performance data

```
-----
I changed pointers to newly created ".dat" file (Simdata.zip/misdata).

.swd (h:03, v:30) address CE from 09 (09) to 25 (37)
```

c) Changed AA-2 general data

```
-----
I pointed AA-2 data to newly created "aa2.veh" file (Simdata.zip/VehDef).

.wcd (h:33, v:38) address C2E changed from 0B (11) to 42 (66)
```

#6 Rename fix for AA-2R missile and SA-2 and SA-3 SAMs

To avoid confusion and preserve consistency of naming I changed name of AA-2R missile in ".wcd" file from "AA-2-2" to "AA-2R". All other things done before (in v0.02 #2) were preserved. The same applies to SA-2 and SA-3.

File(s) changed:

```
-----
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"
```

What was changed:

```
-----
Name of AA-2R was changed from "AA-2-2" to "AA-2R", "SA2" to "SA-2" and "SA3"
to "SA-3".
```

#7 Fixed AA-12, AA-8, AA-8R and AA-3

I fixed AA-12, AA-8, AA-8R and AA-3 missiles. They were interlinked through other AAMs records in ".swd" file and used wrong ".veh" and ".dat" files.

File(s) changed:

```
-----
"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.SWD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"
"Simdata.ZIP" in folder "\\Falcon4\Zips"
```

What was changed:

a) Added new records for AA-12, AA-8, AA-8R and AA-3 performance data

```
-----
I added 4 new records in ".swd" file. The AA-12 record was copied from AIM-120, the AA-8
from AA-2, the AA-8r from AA-2r and AA-3 from AA-2.
```

I also changed the number of records at the beginning of ".swd".

```
.swd address 00 from 50 (80) to 54 (84)
.swd added 4 new records
```

b) Added new AA-12, AA-8, AA-8R and AA-3 data files

I added new ".veh" and ".dat" files to "Simdata.zip".

The "aa12.veh" is #67, the "aa8.veh" is #68, the "aa8r.veh" is #69 and the "aa3.veh" is #70 in (Simdata.zip/VehDef/vehicle.lst). The "aa12.dat" is #38, the "aa8.dat" is #39, the "aa8r.dat" is #40 and the "aa3.dat" is #41 in (Simdata.zip/misdata/mistypes.lst).

Note: For AA-12 I copied AIM-120 ".veh" and ".dat" files, for AA-8 I copied AA-2 ".veh" and ".dat" files, for AA-8R I copied AA-2R ".veh" and ".dat" files and for AA-3 I copied AA-2 ".veh" and ".dat" files.

Original "aim120.veh" (excerpts):

```
# Data Idx
1
```

Created "aa12.veh" (excerpts):

```
# Data Idx
39
```

Original "aa2.veh" (excerpts):

```
# Data Idx
37
```

Created "aa8.veh" (excerpts):

```
# Data Idx
40
```

Original "aa2r.veh" (excerpts):

```
# Data Idx
29
```

Created "aa8r.veh" (excerpts):

```
# Data Idx
41
```

Original "aa2.veh" (excerpts):

```
# Data Idx
37
```

Created "aa3.veh" (excerpts):

```
# Data Idx
42
```

c) Changed AA-12, AA-8, AA-8R and AA-3 performance data

I changed pointers to newly created ".dat" file (Simdata.zip/misdata).

```
.swd (h:50, v:30) address 1072 from 01 (01) to 26 (38)
.swd (h:51, v:30) address 10A6 from 25 (37) to 27 (39)
.swd (h:52, v:30) address 10DA from 1D (29) to 28 (40)
.swd (h:53, v:30) address 110E from 25 (37) to 29 (41)
```

d) Changed AA-12, AA-8, AA-8R and AA-3 general data

I pointed AA-12, AA-8, AA-8R and AA-3 data to newly created ".veh" files

(Simdata.zip/VehDef).

.wcd (h:32, v:38) address BF2 changed from 2A (42) to 43 (67)
.wcd (h:36, v:38) address CE2 changed from 0B (11) to 44 (68)
.wcd (h:B3, v:38) address 2A2E changed from 1C (28) to 45 (69)
.wcd (h:68, v:38) address 189A changed from 16 (22) to 46 (70)

e) Changed AA-12, AA-8, AA-8R and AA-3 "command data"

I changed AA-12, AA-8, AA-8R and AA-3 pointers to newly created ".swd" records.

.ct (h:EE, v:4A) address 4B9A changed from 02 (02) to 50 (80)
.ct (h:E9, v:4A) address 4A05 changed from 25 (37) to 51 (81)
.ct (h:398, v:4A) address 12364 changed from 25 (37) to 52 (82)
.ct (h:289, v:4A) address CDA5 changed from 25 (37) to 53 (83)

#8 Fixed SA-19, ADATS, Stinger and Chaparral

I fixed SA-19, ADATS, Stinger and Chaparral systems. They were interlinked through other SAMs records in ".swd" file and used wrong ".veh" and ".dat" files.

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.SWD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"
"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

a) Added new records for SA-19, ADATS, Stinger and Chaparral performance data

I added 4 new records in ".swd" file. The SA-19 record was copied from SA-8, the ADATS from SA-8, the Stinger from SA-14 and Chaparral from SA-9.

I also changed the number of records at the beginning of ".swd".

.swd address 00 from 54 (84) to 58 (88)
.swd added 4 new records

b) Added new SA-19, ADATS, Stinger and Chaparral data files

I added new "sa19.veh" and 4 ".dat" files to "Simdata.zip".

The "sa19.veh" is #71 in (Simdata.zip/VehDef/vehicle.lst). The "sa19.dat" is #42, the "ADATS.dat" is #43, the "Stinger.dat" is #44 and the "Chaparral.dat" is #45 in (Simdata.zip/misdata/mistypes.lst).

Note: For SA-19 I copied SA-8 ".veh" and ".dat" files, for ADATS I copied SA-8 ".dat" file, for Stinger I copied SA-14 ".dat" file and for Chaparral I copied SA-9 ".dat" files.

Original "sa8.veh" (excerpts):

Data Idx
26

Created "sa19.veh" (excerpts):

Data Idx
42

Original "adats.veh" (excerpts):

```
# Data Idx
20
```

Changed "adats.veh" (excerpts):

```
# Data Idx
43
```

Original "stinger.veh" (excerpts):

```
# Data Idx
18
```

Changed "stinger.veh" (excerpts):

```
# Data Idx
44
```

Original "chaparral.veh" (excerpts):

```
# Data Idx
26
```

Changed "chaparral.veh" (excerpts):

```
# Data Idx
45
```

c) Changed SA-19, ADATS, Stinger and Chaparral performance data

I changed pointers to newly created ".dat" file (Simdata.zip/misdata).

```
.swd (h:54, v:30) address 1142 from 1A (26) to 2A (42)
.swd (h:55, v:30) address 1176 from 1A (26) to 2B (43)
.swd (h:56, v:30) address 11AA from 15 (21) to 2C (44)
.swd (h:57, v:30) address 11DE from 14 (20) to 2D (45)
```

d) Changed SA-19, ADATS, Stinger and Chaparral general data

I changed SA-19 and ADATS to "SARH" from "IR All Aspect" and "Laser". I also pointed SA-19, ADATS, Stinger and Chaparral data to ".veh" files in (Simdata.zip/VehDef).

For convenience I renamed "CHAPARRAL" to "Chaparral".

```
.wcd (h:84, v:2A) address 1F1C changed from 02 (02) to 04 (04)
.wcd (h:84, v:38) address 1F2A changed from 16 (22) to 47 (71)
.wcd (h:7F, v:2A) address 1DF0 changed from 08 (08) to 04 (04)
.wcd (h:7F, v:38) address 1DFE changed from 21 (33) to 3B (59)
.wcd (h:2A, v:38) address A12 changed from 01 (01) to 38 (56)
.wcd (h:83, v:38) address 1EEE changed from 01 (01) to 36 (54)
```

e) Changed SA-19, ADATS, Stinger and Chaparral "command data"

I changed AA-12, AA-8, AA-8R and AA-3 pointers to newly created ".swd" records.

```
.ct (h:231, v:4A) address B1CD changed from 40 (64) to 54 (84)
.ct (h:322, v:4A) address FE0E changed from 44 (68) to 55 (85)
.ct (h:0FF, v:4A) address 50FB changed from 42 (66) to 56 (86)
.ct (h:326, v:4A) address FF52 changed from 42 (66) to 57 (87)
```

#9 Added functional AS-7 and AS-12 missiles for OPFOR

I added functional AS-7 and AS-12 missiles for OPFOR. They were interlinked through wrong records in ".swd" file and used wrong ".veh" and ".dat" files. This didn't work at all in F4 v1.08... :-)

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.SWD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"
"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

a) Added 2 new records for AS-7 and AS-12 performance data

I added 2 new records in ".swd" file. The AS-7 record was copied from AGM-65B (optical seeker) and the AS-12 was copied from AGM-88 (AntiRadar).

I also changed the number of records at the beginning of ".swd".

.swd address 00 from 58 (88) to 5A (90)
.swd added 2 new records

b) Added new AS-7 and AS-12 data files

I added 2 new ".veh" ("as7.veh" and "as12.veh") and ".dat" ("as7.dat" and "as12.dat") files to "Simdata.zip".

The "as7.veh" is now #72 (Simdata.zip/VehDef/vehicle.lst) and "as7.dat" is #88 (Simdata.zip/misdata/mistypes.lst).

The "as12.veh" is now #73 (Simdata.zip/VehDef/vehicle.lst) and "as12.dat" is #89 (Simdata.zip/misdata/mistypes.lst).

Note:

For AS-7 I copied AGM-65B ".veh" and ".dat" files. For AS-12 I copied AGM-88 ".veh" and ".dat" files.

Original "AGM65B.veh" (excerpts):

Data Idx
2

Created "AS7.veh" (excerpts):

Data Idx
46

Original "AGM88.veh" (excerpts):

Data Idx
5

Created "AS12.veh" (excerpts):

Data Idx
47

c) Changed AS-7 and AS-12 performance data

I changed pointers to newly created ".dat" file (Simdata.zip/misdata).

.swd (h:58, v:30) address 1212 from 02 (02) to 2E (46)
.swd (h:59, v:30) address 1246 from 05 (05) to 2F (47)

d) Changed AS-7 and AS-12 general data

I changed AS-7 seeker data from "None" to "Optical". I also pointed AS-7 and AS-12 data to newly created "AS7.veh" and "AS12.veh" files (Simdata.zip/VehDef).

.wcd (h:1A, v:2A) address 644 changed from 00 (00) to 10 (16)
.wcd (h:1A, v:38) address 652 changed from 15 (21) to 48 (72)
.wcd (h:66, v:38) address 1822 changed from 15 (21) to 49 (73)

e) Changed AS-7 and AS-12 "command data"

I changed AS-7 and AS-12 pointers to newly created ".swd" records.

.ct (h:0FA, v:4A) address 4F66 changed from 26 (38) to 58 (88)
.ct (h:267, v:4A) address CAE3 changed from 26 (38) to 59 (89)

#10 Fixed inconsistencies with LAU-3/A, UB-19-57 and UB-32-57

I fixed various inconsistencies with LAU-3/A, UB-19-57 and UB-32-57 unguided rockets. They were wrongly linked internally...

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

a) Changed LAU-3/A, UB-19-57 and UB-32-57 general data

I pointed various non-missile weapons data to their real ".veh" files (Simdata.zip/VehDef).

Weapon name	Original	Changed
"UB-32-57"	-> "chaparral.veh"	-> "Rcktxxx.veh"
"UB-19-57"	-> "chaparral.veh"	-> "Rcktxxx.veh"

.wcd (h:5D, v:38) address 1606 changed from 36 (54) to 02 (02)
.wcd (h:5E, v:38) address 1642 changed from 36 (54) to 02 (02)

b) Changed LAU-3/A, UB-19-57 and UB-32-57 "command data"

I changed LAU-3/A, UB-19-57 and UB-32-57 pointers to their real ".swd" records.

.ct (h:1F8, v:4A) address 9FC4 changed from 07 (07) to 38 (56)
.ct (h:25C, v:4A) address BF68 changed from 07 (07) to 38 (56)
.ct (h:25F, v:4A) address C05B changed from 07 (07) to 38 (56)

#11 Fixed inconsistencies with OPFOR bomb weapons internal linking

I fixed various bomb weapons internal linking inconsistencies. Many weapons were wrongly internally linked...

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

a) Changed various non-missile weapons general data

I pointed various non-missile weapons data to their US counterparts ".veh" files (Simdata.zip/VehDef).

Weapon name	Original	Changed
"PTK-250"	-> "Mkxxx.veh"	-> "Mk82.veh"
"FAB-250 LDGP"	-> "Mkxxx.veh"	-> "Mk82.veh"
"FAB-250 HDGP"	-> "Mkxxx.veh"	-> "Mk82.veh"
"FAB-250 LGB"	-> "GBUxxx.veh"	-> "gb12.veh"
"FAB-1000 LDGP"	-> "Mkxxx.veh"	-> "Mk84.veh"
"FAB-1000 HDGP"	-> "Mkxxx.veh"	-> "Mk84.veh"
"FAB-1000 LGB"	-> "GBUxxx.veh"	-> "gb10.veh"
"RPK-180"	-> "Mkxxx.veh"	-> "Mk82.veh"
"RPK-500"	-> "Mkxxx.veh"	-> "Mk82.veh"

.wcd (h:65, v:38) address 17E6 changed from 1A (26) to 0F (15)
.wcd (h:A7, v:38) address 275E changed from 1A (26) to 0F (15)
.wcd (h:A8, v:38) address 279A changed from 1A (26) to 0F (15)
.wcd (h:AA, v:38) address 2812 changed from 18 (24) to 20 (32)
.wcd (h:AB, v:38) address 284E changed from 1A (26) to 10 (16)
.wcd (h:AC, v:38) address 288A changed from 1A (26) to 10 (16)
.wcd (h:AD, v:38) address 28C6 changed from 18 (24) to 1D (29)
.wcd (h:B1, v:38) address 29E6 changed from 1A (26) to 0F (15)
.wcd (h:B2, v:38) address 29F2 changed from 1A (26) to 0F (15)

b) Changed various non-missile weapons "command data"

I changed various non-missile weapons pointers to their real ".swd" records.

Weapon name	Original	Changed
"PTK-250"	-> "MK82"	-> "MK20D"
"FAB-250 LDGP"	-> "MK82"	-> "MK82"
"FAB-250 HDGP"	-> "MK82"	-> "B49"
"FAB-250 LGB"	-> "GBXXX"	-> "GB12"
"FAB-1000 LDGP"	-> "MK82"	-> "MK84"
"FAB-1000 HDGP"	-> "MK82"	-> "B50"
"FAB-1000 LGB"	-> "GBXXX"	-> "GB10A"
"RPK-180"	-> "MK82"	-> "CB89B"
"RPK-500"	-> "MK82"	-> "CB87"

.ct (h:26D, v:4A) address C4C9 changed from 28 (40) to 33 (51)
.ct (h:316, v:4A) address FA42 changed from 28 (40) to 34 (52)
.ct (h:317, v:4A) address FA93 changed from 28 (40) to 15 (21)
.ct (h:350, v:4A) address 10C9C changed from 2A (42) to 21 (33)
.ct (h:392, v:4A) address 1217E changed from 28 (40) to 35 (53)
.ct (h:393, v:4A) address 121CF changed from 28 (40) to 16 (22)
.ct (h:394, v:4A) address 12220 changed from 2A (42) to 20 (32)
.ct (h:26E, v:4A) address C51A changed from 28 (40) to 1E (30)
.ct (h:2FB, v:4A) address F1B7 changed from 28 (40) to 1D (29)

#12 Added functional AT-4 CG, Dragon, RPG-7 and LAW

I added functional AT-4 CG, Dragon, RPG-7 and LAW antitank missiles. They were interlinked through wrong records in ".swd" file and used wrong ".veh" and ".dat" files.

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.SWD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"
"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

a) Added new record for ATM performance data

I added new record in ".swd" file. The ATM record was copied from RCKT.

I also changed the number of records at the beginning of ".swd".

.swd address 00 from 5A (90) to 5B (91)
.swd added 1 new record

b) Added new ATM data files

I added new "atm.veh" and "atm.dat" files to "Simdata.zip".

The "atm.veh" is now #74 (Simdata.zip/VehDef/vehicle.lst) and "atm.dat" is #48 (Simdata.zip/misdata/mistypes.lst).

Note: For ATM I copied "rocket.veh" and "2_75in.dat" files.

Original "rocket.veh" (excerpts):

```
# Data Idx
0
```

Created "ATM.veh" (excerpts):

```
# Data Idx
48
```

Original "2_75in.dat" (excerpts):

```
# Final Time (sec)
30.000000
# Guidance Delay (sec)
60.000000
```

Created "atm.dat" (excerpts):

```
# Final Time (sec)
3.000000
# Guidance Delay (sec)
0.000000
```

c) Changed ATM performance data

I changed pointers to newly created ".dat" file (Simdata.zip/misdata).

.swd (h:5A, v:30) address 127A from 07 (07) to 30 (48)

d) Changed AT-4 CG, Dragon, RPG-7 and LAW general data

I changed AT-4 CG seeker from "Laser" to "None".

I also pointed AT-4 CG, Dragon, RPG-7 and LAW data to newly created "ATM.veh" file (Simdata.zip/VehDef).

```
.wcd (h:3F, v:2A) address EF0 changed from 08 (08) to 00 (00)
.wcd (h:3F, v:38) address EFE changed from 15 (21) to 4A (74)
.wcd (h:88, v:38) address 201A changed from 15 (21) to 4A (74)
.wcd (h:89, v:38) address 2056 changed from 02 (02) to 4A (74)
.wcd (h:6D, v:38) address 19C6 changed from 19 (25) to 4A (74)
```

e) Changed AT-4 CG, Dragon, RPG-7 and LAW "command data"

I changed AT-4 CG, Dragon, RPG-7 and LAW pointers to newly created ".swd" record.

```
.ct (h:1F0, v:4A) address 9D3C changed from 26 (38) to 5A (90)
.ct (h:2D9, v:4A) address E6F5 changed from 2C (44) to 5A (90)
.ct (h:236, v:4A) address B362 changed from 2C (44) to 5A (90)
.ct (h:2A0, v:4A) address D4EC changed from 2B (43) to 5A (90)
```

#13 Tweaked AS-7, AS-10 and AS-14 missiles for OPFOR

I tweaked AS-7, AS-10 and AS-14 missiles for OPFOR. Their range was greater than US counterparts from which the files were "copied" and therefore the "burn time" has to be extended.

File(s) changed:

"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

I edited the AS-7, AS-10 and AS-14 ".dat" files.

Original "as7.dat" (excerpts):

```
# Final Time (sec)
30.000000
```

Changed "as7.dat" (excerpts):

```
# Final Time (sec)
50.000000
```

Original "as10.dat" (excerpts):

```
# Final Time (sec)
30.000000
```

Changed "as10.dat" (excerpts):

```
# Final Time (sec)
40.000000
```

Original "as14.dat" (excerpts):

```
# Final Time (sec)
30.000000
```

Changed "as14.dat" (excerpts):

```
# Final Time (sec)
60.000000
```

v0.08 01/24/2000

#1 Added Jeffery "Rhino" Babineau (Deltahawks) ground weapons blast radius fix

This incorporation of data from Jeffery "Rhino" Babineau (Deltahawks) fixes various ground weapons blast radius values.

File(s) changed:

"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

See "Background and Philosophy for Ground Unit Changes" below for details.

#2 Enabled back the AGM-88 capability for F-4G

I enabled back the AGM-88 missile for F-4G.

File(s) changed:

"FALCON4.WLD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.SSD" in folder "\\Falcon4\terrdata\objects"

What was changed:

a) Changed F-4G pylon data

I re-enabled AGM-88 HARM capability to F4-G hardpoint.

.wld (h:54, v:1A) address 24DC from 00 (00) to 17 (23)
.wld (h:54, v:55) address 2517 from 00 (00) to 01 (01)

b) Changed F-4G squadron weapon stock

I re-added AGM-88 HARM stock (80 missiles) to F-4G squadrons.

.ssd (h:16, v:17) address 1343 from 00 (00) to 50 (80)
.ssd (h:2F, v:17) address 290A from 00 (00) to 50 (80)

#3 Enabled gear on AI airplanes (fly any plane now with gear available)

I enabled taking off and landing for player using any airplane "trick". All AI airplanes now have controllable gear.

File(s) changed:

"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

All "AIRPLANExxx.dat" files were changed inside "\\Falcon4\Zips\Simdata.ZIP"
(path = \sim\ACDATA).

v0.09 01/31/2000

#1 Additional fix for Dragon

I mistakenly placed Dragon into unguided antitank missiles. This is to fix this mistake...

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

a) Changed Dragon general data

I changed Dragon seeker from "None" to "Optical". I also pointed Dragon to newly created "ATMG.veh" file (Simdata.zip/VehDef).

.wcd (h:88, v:2A) address 200C changed from 00 (00) to 10 (16)
.wcd (h:88, v:38) address 201A changed from 4A (74) to 41 (65)

b) Changed Dragon "command data"

I changed Dragon pointer to "atmg.swd" record.

.ct (h:2D9, v:4A) address E6F5 changed from 5A (90) to 4C (76)

#2 Added functional LAAW (Light Anti Armour Weapon)

I renamed the RPG-7VAT (the only in game functional short range antitank weapon) into LAAW. This way it would become available to all sides since Jeff's experiment with separate LAW and AT-4 Carl Gustav didn't work.

File(s) changed:

"FALCON4.SWD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"
"Simdata.ZIP" in folder "\\Falcon4\Zips"

What was changed:

a) Renamed performance data record from ATM to LAAW

I renamed performance data record from ATM to LAAW.

b) Renamed data files from ATM to LAAW

I renamed "atm.veh" to "LAAW.veh" and "atm.dat" to "laaw.dat"

c) Renamed RPG-7VAT (i.e. new LAAW) general data

I renamed RPG-7VAT record line to LAAW in ".wcd" file.

#3 Additional fix for M5 Rifle (i.e. broken LAW conversion)

Jeff's experiment with converting "M5 Rifle" to "LAW" didn't succeed. The problem is that only very similar weapons can be "converted" to others. I returned it to original state.

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

a) M5 Rifle (i.e. broken LAW conversion) general data

I copied whole original M5 Rifle (i.e. broken LAW conversion) record line back onto ".wcd" file.

b) Changed M5 Rifle (i.e. broken LAW conversion) "command data"

I changed M5 Rifle (i.e. broken LAW conversion) pointer to original "GUNXXX" entry in ".swd" record.

.ct (h:2A0, v:4A) address D4EC changed from 5A (90) to 2B (43)

#4 Additional fix for Hellfire (i.e. broken AT-4 CG conversion)

Jeff's experiment with converting "Hellfire" to "AT-4 CG" didn't succeed. The problem is that only very similar weapons can be "converted" to others. I returned it to original state.

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

a) Hellfire (i.e. broken AT-4 CG conversion) general data

I copied whole original Hellfire (i.e. broken AT-4 CG conversion) record line back onto ".wcd" file.

Then I changed the guidance for "Laser" to "Optical". I also pointed Hellfire to "ATGM.veh" file (Simdata.zip/VehDef).

.wcd (h:3F, v:2A) address EF0 changed from 08 (08) to 10 (16)

.wcd (h:3F, v:38) address EFE changed from 15 (21) to 41 (65)

b) Changed Hellfire (i.e. broken AT-4 CG conversion) "command data"

I changed Hellfire (i.e. broken AT-4 CG conversion) pointer to "ATGM" entry in ".swd" record.

.ct (h:1F0, v:4A) address 9D3C changed from 26 (38) to 4C (76)

#5 Additional fix for AGM-114

In original F4 there was AGM-114 and Hellfire as separate weapons (although those are same things in real world). Unfortunately the AGM-114 is non-functional in F4 (I suspect the broken and un-repairable "command line"). This is why I returned things back to original status.

File(s) changed:

"FALCON4.ct" in folder "\\Falcon4\terrdata\objects"
"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

a) AGM-114 general data

I copied whole original AGM-114 record line back onto ".wcd" file.

b) Changed AGM-114 "command data"

I changed AGM-114 pointer to original "AGXXX" entry in ".swd" record.

.ct (h:1F0, v:4A) address 9D3C changed from 4C (76) to 26 (38)

#6 Jeffery "Rhino" Babineau (Deltahawks) fix for various ground unit weapons

Jeff changed the weapon loadout for certain units because of the changes mentioned in v0.09 #2/3/4/5.

File(s) changed:

What was changed:

See "Background and Philosophy for Ground Unit Changes" below for details.

#7 Fixed broken "Vector to..." message

Thanks to "Poogen" (name?) we have fixed broken "Vector to..." message.

File(s) changed:

"commFile.bin" inside "\\Falcon4\sounds\"

What was changed:

If you have a hex editor you can open commFile.bin in the sound folder and go to hex offset 4BC. There you will find hex 05. Change that to hex 07.

v0.10 02/04/2000

#1 Fixed Fuel tanks that were accidentally changed in v0.09

Jeff's accidentally changed Fuel tanks damage and thus changed the amount of their fuel.

File(s) changed:

"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

I returned all damage values for Fuel tanks to original value (and thus changed the amount of their fuel).

#2 Changed ranges of all weapons back to v1.08 original values

Jeff's changed range values for almost all weapons. Unfortunately, since we still don't know what that value really represent, this was unnecessary at this stage.

File(s) changed:

"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

I returned range values for all weapons to original value.

v0.11 02/15/2000

#1 Jeffery "Rhino" Babineau (Deltahawks) additional ground weapons blast radius fix

Jeff additionally changed the ground weapons blast radius fix along with armour values for vehicles.

File(s) changed:

"FALCON4.WCD" in folder "\\Falcon4\terrdata\objects"
"FALCON4.VCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

See "Background and Philosophy for Ground Unit Changes" below for details.

#2 Jeffery "Rhino" Babineau (Deltahawks) additional fix for various ground units

Jeff additionally changed the ground units.

File(s) changed:

"FALCON4.UCD" in folder "\\Falcon4\terrdata\objects"

What was changed:

See "Background and Philosophy for Ground Unit Changes" below for details.

v0.12 02/16/2000

#1 Additional fix for formations

Rodrigo "Motor" Lourenco has additionally changed the "Res Cell" formation since there was small discrepancy.

File(s) changed:

"FORMDAT.FIL" inside "\\Falcon4\Zips\Simdata.ZIP" (path = \sim\ACDATA\FORMDATA)

What was changed:

Previous formation (excerpts):

```
3 0 5 rescell
135.0 0.0 0.0823
-90.0 0.0 1.0
-93.138 0.0 1.060
```

Changed formation (excerpts):

```
3 0 5 rescell
-135.0 0.0 0.0823
90.0 0.0 1.0
93.138 0.0 1.060
```

Background and Philosophy of Ground Unit Change (by Jeff "Rhino" Babineau)

Squadron Stores:

Merely updated to support new units in the squadron/battalion and new weapons on those aircraft of vehicles.

Unit changes:

Significant work was done here to duplicate battle formations as best as Falcon would allow. No unit fights pure. There is always mutual support from other units in the battalion. In all cases this is mission directed. Engineer units are commonly assigned to attacking units to support the breach of obstacles used for defenses and cross bridges. In the defense, engineer units prepare the defense but are then held back as these are mostly lightly armored vehicles if armored at all.

In the case of rocket units (MLRS, BM24) and SAM units, I decided to split up the unit to reflect a deployed battery instead of a deployed battalion. In no case that I can think of is a SAM battalion all placed in one location. In the Falcon 4.0 world that location could be 1 sq km. Now you can take a SAM battery and protect a city and another battery to protect another city. If you look at Patriot deployment to South Korea, you will see that we have 1 Patriot Battalion for the whole county. Where would you place it? Now we have the option to place a battery around Seoul, Pusan, Chuncheon, etc. In all of these cases supporting vehicles have been assigned. SAM batteries are commonly supported with man portable weapons i.e. SA7, stinger.

Blast and damage:

A formula was used to take into account the weapons warhead size and type in proportion to all similar types. The formula was used to ensure correct relative values between similar types. Some items could perhaps be more researched to say 6kg of C4 is more powerful than 6kg of TNT, but I did not go that far....yet.... ;)

You will find damage values that will look blatantly wrong at first glance. It is then that you need to understand that all damage values have different effects based on their damage type. Air blast is different than GP/ HE blast that is again different from incendiary and armor penetration. Even penetration alone has very different determining values that Falcon may not understand. Armor penetration from tank to tank is very different than armor penetration of bomb to ground. So ultimately we end up with data and values that need to be translated into the falcon world.

In some cases, we are talking pure art, feel, or gameplay. In others it is a cold and hard fact that this tank gun WILL penetrate that tank. Now in tank vs. tank damage, we need to look at the VAST differences in armor types and penetrators. Shaped charge weapons, i.e. AGB65B's, HEAT penetrate much differently than do 120mm APFSDS kinetic rounds. On the other side is the effect that standard hardened steel offers much less protection against HEAT rounds than does composite armor like the M1A1 and reactive armor like the T80's normally carry. However, both of those types of armor do not offer any significant effect to a standard APFSDS round. In only one case in the world that I know of where a composite armor offers both chemical and kinetic protection and that is the depleted uranium (DU) armored M1A2.

Also, the armor on a tanks frontal arc is vastly different than the armor on its roof, sides and rear. Luckily Falcon accounts for this by allowing damage to acquire on the target. A T-55 unit could pound a M1A1 unit all day in the frontal arc and never kill a tank. In Falcon it will end up getting kills. I think this is a good tradeoff to manipulate the effects of maneuvering for side and rear aspect shots.

Now in the case of air dropped munitions, we need to understand that although they may be exclusively shaped charge weapons with relatively little penetration (3 to 7 inches) they are tasked with raining down on the most unarmored part of the tank. I say tanks in most of this argument because they are on the far end of the armor spectrum as most APC's and IFV's are so little armored that in most cases troops ride on top of them to get out quickly WHEN they blow up because nearly every weapon in the world can kill an APC.

Now with all this being understood, you will find in some rare cases weapons do not fit into my "formula" for all of these described reasons. And let us also remember that in fact they do offer protection from small arms fire and most artillery fragments. It only takes 1.5 inches of hardened steel to stop the shrapnel of a 500lb bomb at 10 feet from impact. Most APC's have about 1 inch and in the case of almost all OPFOR vehicles, 20mm and LESS. Yes, in fact it is true. A .50 caliber or 12.7mm AP round will penetrate one of these vehicles at close range. Another reason why ZSU 23-4's are nasty house to house weapons as well as AAA terrors.