

FALCON 4.0<sup>®</sup>

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Realism Patch Group

# Realism Patch v4.0 Quick Start Guide

# Falcon 4.0 Realism Patch

## Version 4.0 FINAL (US and UK)

### November 22, 2000

*Falcon 4.0 is a flight simulation game produced by Hasbro Interactive, to simulate the Block 50 F-16C in a fictitious Korean War. Falcon 4.0 is a U.S. registered trademark of Hasbro Interactive. The last supported patch release by Hasbro Interactive is version 1.08, available at the Microprose website <http://www.falcon4.com>. Prior to the dismissal of the Falcon 4 development team in December 1999, an unofficial version of the v1.08 game executable modified by the Microprose developers was tested by a team of public beta testers under iBeta LLC, a Colorado based quality assurance company. This version was released with increased multiplayer stability, and has now become the most widely used executable, known as version 1.08i2. This version may be obtained at the iBeta website at <http://www.ibeta.com>, or other major Falcon 4 sites.*

*The Falcon 4.0 Realism Patch is a community-based project that endeavors to improve the gameplay of Falcon 4.0 by enhancing its realism. This Realism Patch is "unofficial", and is not maintained by either Hasbro Interactive or Microprose. The Falcon 4.0 Realism Patch is supplied "as-is". Hasbro and Microprose do not accept responsibility for any adverse affects that are a result of installing this patch.*

*The Falcon 4.0 Realism Patch concept was begun by Executive Producer Eric "Snacko" Marlow with the support of iBeta LLC. The iBeta Realism Patch was released up to version 3.0 by iBeta. Eric and iBeta CEO Glenn "Sleepdoc" Kletzky have decided that iBeta cannot continue to provide corporate resources for further development. Previous patches continue to be supported on their website.*

*The Realism Patch effort is carried forward by a dedicated team of flight simmers, many of who were members of the iBeta Realism Patch team. The Realism Patch Group (RPG) has expanded to include several new members of the F4 community who have been contributing to its development and growth..*

**On-line and telephone support are not offered.** Questions, feedback, and ideas can be posted to official Falcon 4 forum, <http://www.delphi.com/falcon4/start/> and the Combatsim Falcon 4 forum at <http://www.combatsim.com>.

**French Version:** You may attempt to install these files on a French version of Falcon 4.0. However, you will first need to install the v1.07 French patch, and convert it to a v1.08US patch. The v1.07FR to v1.08US patch is available at the Check Six website, which also hosts the de-facto "official" French Falcon 4.0 forum. Support for French versions of Falcon 4 and the Realism Patch may be obtained from this website at <http://www.checksix-fr.com>.

**Other Localized Versions:** If you have other localized version of Falcon 4.0 (German, Italian, 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.

This user's guide has been re-organized into three parts, namely the Quick Start Guide, the User's Guide, and Designer Notes. Information should be easier to locate. We suggest you read through the Quick Start Guide thoroughly, particularly the installation notes. Many sections have been updated and re-written, and a lot of new material has been added. We suggest that you reference this document as your primary source of information regarding the Realism Patch.

# INSTALLATION

The Realism Patch has come a long way from its first release. The changes that are being wrought go much deeper into the functioning of the simulation than many of us had ever thought would be possible. We have begun to understand much of the complexity of this simulation both from the AI and the player's point of view. The tremendous improvements available in RP4 do not come without a price. The first is the well-known frame rate hit. The spectacularly more intelligent AI must use an ever larger slice of the CPU pie. We have lost another 2-10% in frame rates depending on your PC configuration and the graphics settings you have chosen for Falcon 4.0. A primary goal for RP5 will be to recover frame rates. However, we believe that the march forward of the Falcon 4.0 development has necessitated a change to the minimum computer configuration recommended by Microprose over three years ago.

The new recommended minimum configuration for Falcon 4.0 RP4 will permit realistic AI and OOB in the simulation. It does not support high graphics levels and indeed we recommend all graphics sliders at a setting of 1 or 2 with this minimum configuration.

## **Minimum recommended configuration:**

Pentium II or Celeron processor 300 MHz  
System bus at 66 MHz  
64 MB minimum of system RAM  
3D graphics card with 12 MB video RAM  
Hard drive with at least 100 MB free (required for installation and the minimum virtual memory)  
Sound card

## **The recommended configuration:**

Pentium III or Celeron processor 600 MHz  
System bus at 100 MHz  
128 MB minimum of system RAM  
3D graphics card with 32 MB video RAM  
Hard drive with 100 MB free (required for installation and the minimum virtual memory)  
Sound card

The recommended configuration will permit full realism settings (Object Density=6, Bubble Slider=3) with most graphics sliders at 4 or higher. We recommend the use of F4Turbo v3.0 for D3D based graphics cards (all nVIDIA based cards, all ATI based cards). You should note that installing F4Turbo will disable the devCreateSurface/CTD (fixes the CTD problems) created by Sylvain Gagnon, and included as an optional patch in RP4. 3Dfx based cards should be run in Glide for best performance.

The second cost necessitated by the ongoing improvements in Falcon 4.0 is in the installation procedure. The changes that we have incorporated into RP4 are so complex and interwoven that we must modify our installation practices. We have long held that providing our users with the highest degree of flexibility in installing different patches and add-ons was the key to engaging a large audience for the Realism Patch. Unfortunately this is no longer possible. The data and exe patches in RP4 are now so tightly intertwined separating them can cause totally unpredictable results including CTDs, total unplayability off or online, and random campaign behavior. The patch that you have downloaded includes a new exe that has been pre-patched with all the new and improved AI, ECM, and campaign modifications that are described in this manual. The new exe is completely compatible with Joel Bierling's F4Patch v3.0 and many of the patches it includes. However, many of the older f4p files that effected AI behavior, campaign behavior, and aircraft behavior will now flag the message, "You must uninstall RP4 before installing this patch." Third party cockpits, explosion graphics, and most user interface and cockpit display modifications will still function.

We recommend you uninstall Falcon 4.0 and perform an 'clean' install followed by the 1.08US update. You do not need to install the iBeta 1.08i2 exe. The RP4 installer will place a patched version of a new

exe in your Falcon 4 directory named "Falcon4\_RP\_v40.exe". After you install RP4 you may apply any patches which F4Patch permits.

The first reply to all questions pertaining to RP4 will be, "Did you force any patches?", "Have you performed a 'clean install'?", "Are you using F4Patch v3.0?", and "Is RP4 grayed out in F4Patch?". We have tested this RP as extensively as our small group can. We cannot accommodate a wide range of variations in installations because we must accommodate a wide range of hardware and software.

## **INSTALLING REALISM PATCH 4.0**

The installation instructions pertain to the US and UK versions of Falcon 4.0. To install Realism Patch v4.0 on your computer, first turn on your computer and wait until you see the Windows 95/98/ME desktop. If your computer is already turned on, make sure you reboot the computer. Once it is completed, follow the instructions below:

1. Backup all your existing pilot data and log book, TEs, campaigns, ACMLs, and multiplayer connection phone book, if you wish. The pilot data and log books are found in the Falcon4\config directory, while the TEs and saved campaigns are found in the directory Falcon4\campaign\save directory. The ACMLs are found in the Falcon4\acmibin directory, and the multiplayer connection phone book is the file named phonebk.dat in the root Falcon4 directory.
2. Un-install Falcon 4.0 from your computer. After un-installation, manually delete the Falcon4 directory using Windows Explorer if the directory is not removed. Then, reboot the computer.
3. After the computer has successfully rebooted, re-install a fresh copy of Falcon 4.0 from the original CD. After you have installed Falcon 4.0, reboot the computer again.
4. Once the computer has rebooted, install the Falcon 4.0 v1.08US patch. This is available for download at <http://www.falcon4.com> and other Falcon 4 websites.

### **Cautionary Note on Windows 98 Second Edition**

The version of the "msvcrt.dll" file included with the Falcon 4 CD is dated August 5, 1997. This can be found in the root Falcon4 directory. You should delete this file before installing v1.08US patch, if you are using Windows 98 Second Edition. Failure to do so may prevent the 1.08US patch from installing all the necessary files required for the RP4 installer to function properly. A newer version of the "msvcrt.dll" file will be installed with the 1.08US patch.

5. When you have successfully installed the Falcon 4 v1.08US patch, reboot the computer.
6. Place the RP4 installation zip archive in a convenient directory on your computer. Unzip the installer zip archive. You will find the RP4 installer named "F4\_RP\_v40\_Installer.exe". You will also find installation instructions and some documentation. Place the RP4 installer in the root directory of the Falcon 4 installation on your computer.
7. Open up Windows Explorer and double click on the RP4 installer icon.
8. The installer will display a window showing that it is uncompressing and unpacking the files, and will search for your Falcon 4 installation directory. You should see then the following dialog box (see the next page). You should note that the path of the executable will depend on your Falcon4 installation, and may not be the same as the screen shot below.



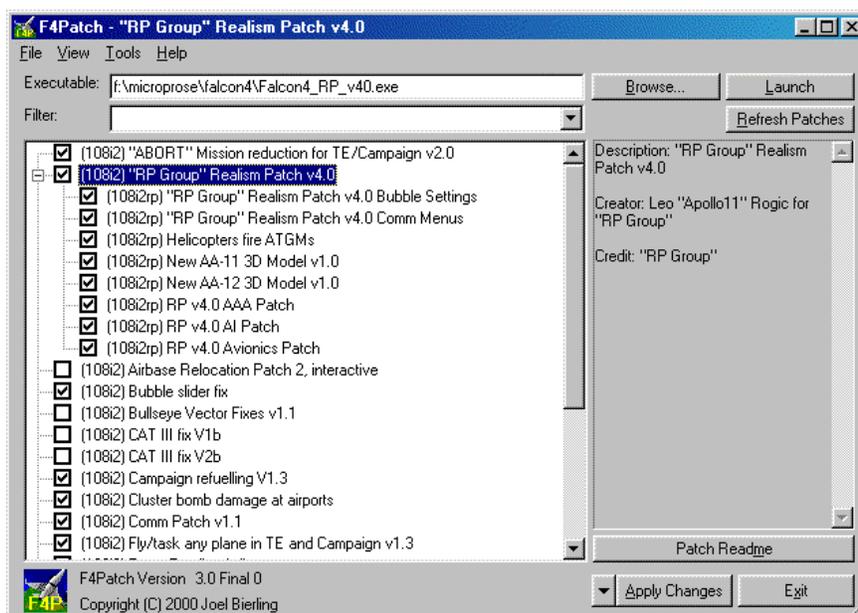
9. Select the “Apply Patch” option, and the installer will automatically install RP4 pre-patched executable and data files for you, and it will then quit. **Do not** select the “Advanced” option yet.
10. The new RP4 Falcon 4 executable will be named “Falcon4\_RP\_v40.exe”, and may be found in your root Falcon 4 directory. You may wish to create a shortcut for it on your desktop or in the Windows start menu.

## CHANGING THE REALISM PATCH OPTIONS POST-INSTALLATION

This section is meant only for users who are conversant with Falcon 4 and its intricacies. It assumes that the user is reasonably familiar with the F4Patch program written by Joel Bierling.

RP4 includes several EXE patches that are not installed automatically. These EXE patches will have unchecked boxes next to the patch description when you start F4Patch. Installation and un-installation of these optional patches will not affect the functionality of RP4. These patches are included in RP4 as a convenience to the users, and the Realism Patch Group is of the opinion that these optional patches enhance the realism and/or gameplay value of the game, though they do not affect the functionality of RP4. For a detailed description of all the executable and data patches included in RP4, please see the next sub-section, titled “*Realism Patch 4.0 Executable And Data Patch Contents*”.

1. Open Windows Explorer, and double click on the RP4 installer executable again.
2. Select the “Advanced” option when you are presented with the installer user interface. You will be presented with the following F4Patch user interface.



3. You can select and de-select the individual patches by checking the check-boxes next to the options. Once you have made your selections, you can apply the patches by selecting the “Apply Changes” option.
4. If you select the “File → Expand Package” option from the menu, the RP4 installer will extract all the patches, the RP4 executable, as well as a copy of the F4Patch executable, into the directory within which the installer is placed. The RP4 executable and individual patches will be contained within the sub-directory named “F4Patch”.

### **WARNING**

De-selection of any of the patches within the F4Patch Realism Patch v4.0 folder will invalidate the RP4 installation. All of the data and EXE patches in this folder are required for RP4 to function properly, and you should not un-install any of them. The Realism Patch Group cannot be held responsible for the behavior of RP4 that will result from the changes made by the users that will invalidate the RP4 installation. **If you intend to change some of the patch options of RP4, please see the following section for the list of mandatory patches required for proper functioning of RP4, and the subsequent section on installing other third party patches.**

## **REALISM PATCH 4.0 EXECUTABLE AND DATA PATCH CONTENTS**

### **AUTOMATIC PATCH INSTALLS**

The Realism Patch installer includes the following executable and data patches that are installed automatically. The mandatory patches required to maintain full RP4 functionality are listed in **bold**.

1. **“RP Group” Realism Patch v4.0**
2. **“RP Group” Realism Patch v4.0 Bubble Settings**
3. **“RP Group” Realism Patch v4.0 Comm Menus**
4. “RP Group” Realism Patch v4.0 Sounds, which contains replacement sound files for the following:
  - a. AIM-9 growl (growl.wav)
  - b. C-130 propeller sound (prop.wav)
5. **RP v4.0 AAA Patch**, which is the amalgamation of the following patches from Sylvain Gagnon:
  - a. New Flaks v1.3
  - b. New Tracer v1.3a
6. **RP v4.0 AI Patch**, which is the amalgamation of the following patches from Sylvain Gagnon, many of which have not been released publicly:
  - a. Air-to-Air Abort Patch v1.1
  - b. New UI Fly Check
  - c. New Missile Evasion v1.9c
  - d. New 2D Fights v2.0
  - e. New AI Air-to-Ground Attack Patch v1.2b
  - f. New AI Launching Patch v1.2g
  - g. New Detection Distance
  - h. New Engagement Distance v1.7
  - i. New Ground Check v1.0
  - j. New Gun Fight v1.2

- k. New IR Signature v1.3
- l. New Missile Aspect Fix
- m. More Aggressive RTB Patch v1.0
- n. New AI Sensor Targeting v2.8h
- o. Bug Fix in Visual Routine v1.5a
- p. Bug Fix Skill Routine
- 7. **RP v4.0 Avionics Patch**, which is the amalgamation of the following patches from Sylvain Gagnon, some of which have not been released publicly:
  - a. New Avionics v1.3
  - b. New ECM Routine v1.8e
  - c. Engine Temperature v3.5c MP
- 8. **Helicopters Fires ATGMs**
- 9. New AA-11 3D Model v1.0
- 10. New AA-12 3D Model v1.0
- 11. Bubble Slider Fix
- 12. Campaign Refueling v1.3
- 13. **Cluster Bomb Damage At Airports**
- 14. Comm Patch v1.1
- 15. Fly/task Any Plane in TE and Campaign v1.3
- 16. Fuel Plug for External Tanks
- 17. Landing at Relocated Airbase MIA Fix
- 18. Nike RWR Symbol Fix
- 19. Recon Window Fix
- 20. BARCAP Patch 30 miles
- 21. GLOC Patch v1.1

#### **OPTIONAL PATCH INSTALLS**

The Realism Patch installer includes the following optional executable patches that are not installed automatically. You will need to select these patches manually using the “Advanced” option during installation.

- 1. “Abort” mission reduction for TE/Campaign v2.0
- 2. Airbase Relocation Patch 2, Interactive
- 3. Bullseye Vector Fixes v1.1
- 4. CAT III fix v1b
- 5. CAT III fix v2b (*see Note 1*)
- 6. Force Feedback Fix
- 7. Memory Leak Sealed (*see Note 2*)
- 8. DevCreateSurface/CTD Fix (*see Note 3*)
- 9. No Player Play in Campaign v1.2, which has options for 4, 6, 8, or 12 hours (*see Note 4*)

Note 1: CAT III fix v2b requires a compatible 3<sup>rd</sup> party cockpit that supports the activation of the CAT I/III switch. If you are unsure of your cockpit compatibility, you should install v1b of the CAT III fix.

Note 2: The “Memory Leak Sealed” patch improves stability in single player mode. It may however result in server or client crashes if used in the multiplayer mode.

Note 3: If you have also installed F4Turbo, or intend to install F4Turbo, this will automatically disable the functionality of the devCreateSurface patch, even though the devCreateSurface patch will stay installed.

Note 4: You are advised to ensure that the “No Player Play” exe patches used are the same for all players in a multiplayer environment to avoid any problems with CTDs or strange campaign behavior. The patches will affect the time between missions that the player has to fly in order to exert influence

over the campaign. The default F4 time-between-missions is 2 hours, after which the player's effect on the campaign will "wear off". The optional patches allow this to be extended to 4, 6, 8, or 12 hours.

## NOTES ON INSTALLING OTHER THIRD PARTY PATCHES

If you intend to install other third party patches that you have downloaded separately, or obtained as part of the F4Patch distribution, please take note of the following:

1. **Third Party Hit Boxes:** The Realism Patch is supplied with "hit box" modifications as part of the basic data package. As such, there is no requirement for the installation of another third party "hit box" patch or modification. All the weapon parameters, such as warhead blast radii, AI gunnery skills, and AAA accuracy, are tuned according to the hit box modifications inherent in the RP, and installation of other hit box modifications will result in unpredictable results.
2.  **Sylvain's Beta Patches:** The Realism Patch is already supplied with all of Sylvain Gagnon's AI, ECM, and avionics patches. You are *strongly* advised not to install any of these beta patches. These patches have been updated extensively during the course of the development of the RP, and many of these have not been released publicly. Please see the preceding section on the selection of Sylvain Gagnon's AI and ECM patches that are included.
3. **Flight Models:** The Realism Patch comes supplied with modified flight models of the A-10, B-52, B-1B, C-130, F-14B, F-15C, F-15E, F-16C, F-18C, F-18D, F-4E, F-4G, F-117, MiG-29, and Il-28. These flight models (with the exception of the B-1B) have been developed by Tom "Saint" Launder and John Simon, and are available on Tom's website. The B-1B model is developed by Joel Bierling. If you intend to install the flight models that you have downloaded from their website, or obtained as part of the F4Patch distribution, you are advised to check if these flight models are of a later revision than those included in the RP, before you proceed with the installation.

## UN-INSTALLING REALISM PATCH 4.0

To un-install Realism Patch v4.0 on your computer, first turn on your computer and wait until you see the Windows 95/98/ME desktop. If your computer is already turned on, be sure that you exit all programs and restart your computer. Once this is completed, follow the instructions below:

1. Open Windows Explorer, and go into the root directory where you have installed Falcon 4. You will find the F4Patch executable in the root directory. Double click on the F4Patch icon to start F4Patch. You will be presented with the F4Patch user interface.
2. Uncheck the check box next to the "RP Group Realism Patch v4.0" option, and uncheck every check box next to the individual patches inside the Realism Patch v4.0 folder.
3. Click on the option "Apply Changes", and RP4 will be uninstalled.

# EXECUTIVE PRODUCER'S NOTES – REALISM PATCH VERSION 4.0

*The Realism Patch team is still plugging away – thank you for all of your support! Great progress has been made in many areas, particularly the AI and electronic warfare. The iBeta name has been withdrawn from the RP (Eric has since re-joined the RP team as a member in his personal capacity). RP4 is the fourth release of the Realism Patch series, and has been long in gestation.*

*Here are some of the highlights:*

- The AI has been revamped, with different behavior for different skill levels. The changes include distinctions in BVR and WVR tactics, different weapon selection criteria, different gunfight tactics, AI missile evasion tactics, and different sensors for different AI planes, and improved AI ground attack tactics.*
- All radars have been adjusted to create the new electronic battlefield. Changes also include creation of different types of RWR for different airplanes, and different visual envelope.*
- ECM now works with Sylvain Gagnon's EXE hex patch. There are also coverage zones and dead zones now. Internal jammers are implemented for some aircraft where appropriate.*
- Rate of fire adjusted for all ground units.*
- All the visual, radar, and RWR sensors on all aircraft have been separated out to facilitate individualization of sensors for each aircraft.*
- New flight models included.*
- New hit bubble changes that reflect accurate hit areas.*
- SAMs fire properly at airbases and do not shoot into the ground. AAA and SAMs are no longer invulnerable when placed at airfields.*
- The vehicle graphics have been fixed for the AA-11 and a new 3D model is included for AA-12.*
- Many 3<sup>rd</sup> party EXE patches have been tested and included, such as the external fuel patch, AI patches, and ECM patch.*
- The modeling of active radar guided missiles such as AIM-120, AA-12 and AIM-54 has been revised. The launch of these missiles no longer triggers the RWR launch warning.*
- AAA and flak effectiveness has been revised and depends on slant range and airspeed.*
- Revised radar cross sections for airplanes, and all airplanes have unique visual and IR signature.*
- A new AI wingman/element command, known as "Attack Target", has been added.*
- Two new air-to-air missiles, the PL-7 and the PL-8, have been created, and may be carried by the PRC J-7/MiG-21.*
- Loadouts have been corrected on more aircraft, such as F-15, F-14, and F-5, MiG-21, MiG-23, MiG-29, Su-27, F-18, and F-4. The B-1 loadout changes from F4Alliance is now included.*
- New flight models for the A-10, B-52, B-1B, C-130, F-14B, F-15C, F-15E, F-16C, F-18C, F-18D, F-4E, F-4G, F-117, MiG-29, and Il-28 are now included.*

Current "fix list" for future RP versions: individualized flight models for the F-16 and other aircraft, realistic adjustments to loadout carriage of other aircraft, improved skins, more EXE improvements, additional weapons, and much more!

## KNOWN ISSUES WITH REALISM PATCH 4

- ◆ Once you have created/saved missions in TE using the Realism Patch, your TE missions may be incorrectly rendered. Likewise if they were created under a previous RP or v1.08US file set they may not function properly under the most recent RP. We have found a workaround – if you must go back to 1.08US after installing the 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. Similarly, if you wish to attempt to use a TE created under a previous RP then we recommend you select edit after highlighting the TE, change the mission clock by one minute (doesn't matter if you move it earlier or later), and resave the mission. These attempts to ‘save’ favorite TEs are not always effective. The scope and quantity of the changes made make it impossible to maintain total compatibility.
- ◆ We do not recommend using the –Gx command on your EXE command line. This may increase significantly the number of objects in the F4 world and radically increase CPU loading. You will see very significant decreases in frame rates near high activity areas (FLOT) in a campaign. When the CPU is loaded down so significantly that the frame rate drops below about 10, you will see missiles stop fusing and pass-through targets.
- ◆ The MiG-29 will now choose to carry AA-2R's for radar guided missiles in the Dogfight module. Those wishing to practice BVR in dogfight should choose the Su-27 that now carries the AA-12.
- ◆ When using Sylvain's patches and the combat autopilot your own aircraft will not fire medium range missiles if your radar is set to RWS (the default). This problem is solved by switching the radar mode to TWS.
- ◆ RWR will continue to display the symbol of active missiles for approximately 10 – 12 seconds after missile impact, and continue to play the audio tone of the missile pinging for approximately 3 – 5 seconds after missile impact. This is a known problem inherent in F4 since v1.07. The RWR symbol of enemy planes will behave similarly even after being destroyed. We will be attempting to solve this problem in later Realism Patch releases.
- ◆ The default F4 Il-28 bomber flight model has a very high fuel consumption rate that will result in it running out of fuel frequently in campaign. The modified Il-28 flight model included in RP4 may reduce these tendencies, but may not eliminate it totally. We will be addressing this problem in later Realism Patch releases.

# REALISM PATCH DESIGN PHILOSOPHY

“Hex Editing” started as a grass roots effort with players modifying the files of Falcon 4.0 to get more enjoyment from their gameplay experience. Fortunately, the designers of Falcon 4.0 created a scheme that allowed much of the inner workings of the simulation to be accessed by modifying the text and binary files that came with the game. 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 is 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 principles in developing this patch. They are listed as follows:

- The changes should not add any additional instability to Falcon 4.0.
- The changes must reflect “real world values” - real world values must be supported by actual military or civilian documentation.
- 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, which involves the 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 alleviate us from those differing points of view.

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.

# REALISM PATCH TEAM COMPOSITION

Executive Producer: Leonardo "Apollo11" Rogic

Associate Producer: Jeff "Rhino" Babineau

AAA and SAM Coordinator: Alex Easton

AI and Air-to-Air Warfare Coordinator: Paul Stewart

Aircraft Loadout Coordinator: Lloyd "Hunter" Case

Air-to-Ground Warfare Coordinator: Larry "Echo 1" Coblentz

Artwork, Cockpit, Skins: Alan "Xis" Phillpot

Blast and Damage Coordinators: Jeff "Rhino" Babineau

Bubble Mafia Coordinator: Kurt "Frog lips" Giesselman and Alex Easton

Campaign/TE Coordinator: Tom "Saint" Launder and Thomas McCauley

Command/Menus/UI Coordinator: Kurt "Frog lips" Giesselman and Thomas McCauley

1.08i2 EXE Modifications: Sylvain Gagnon

Flight Model Coordinator: Tom "Saint" Launder and John "NavIAV8r" Simon

Ground Unit Coordinator: Jeff "Rhino" Babineau

Missile Coordinator: "Hoola", Paul Stewart, and John "NavIAV8r" Simon

Outside Development: "Silkman"

Public Relations and Message Boards: Lloyd "Hunter" Case

Sensors, EW and Countermeasures Coordinator: "Hoola", John "NavIAV8r" Simon and Paul Stewart

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

Documentation: Leonardo "Apollo11" Rogic, and "Hoola"

## CREDITS

Thanks go out to Joel Bierling for his nifty F4Patch program.

The EXE-meisters get a medal this round for their modifications to the Falcon 4.0 EXE. The addition of many new EXE modifications have definitively opened up F4 like is has never been opened before. Sylvain Gagnon, in particular, has been a key player in helping us make the most out of the many of the data enhancements that form the RP.

Thanks must go out to Julian Onions for his F4Browse utility. Without it many of our changes would have been more difficult if not impossible. Also, much thanks to MadMax, Bengs, Duck Holiday, Paradox, Nemesis, Shawn Agne, Metal, RAD, and others not mentioned specifically here for their contributions to the F4 hex editing community. Your original discoveries have contributed significantly to this effort.

Many thanks need to be offered to the entire Falcon 4.0 iBeta Public Sector team. Kudos are deserved for their long hours and attention to detail, for making Falcon 4.0 version 1.08US and 1.08i2 a possibility, and a stable base upon which the Realism Patch can be built upon.

Many thanks to Glenn "Sleepdoc" Kletzky and Eric "Snacko" Marlow, for assembling the original iBeta Realism Patch team that makes this patch a possibility. Kudos to their dedication and passion for Falcon 4. We wish them all the best in their professional endeavors with iBeta LLC.

This patch would not be possible if it were not 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!

# HIGHLIGHTS OF PREVIOUS REALISM PATCHES

## IBETA REALISM PATCH VERSION 3.0

- *The AAA has been readjusted. The blast radius values are still based on realistic numbers, and include references to warhead size, warhead type (flak vs. contact), cyclic rate of fire, and guidance. The new values diminish the power of the large-caliber flak guns, while still keeping the deadly nature of the smaller caliber tracer-type guns. Although the new blast values should make it easier to penetrate enemy airspace, there is still no substitute for good planning and combat tactics. Read the section of “AAA Briefing” in this document for additional intel on how to defeat the AAA threat.*
- *The ground and air-based radars have been improved to allow for more realistic detection performance.*
- *The “roles” of various aircraft have been adjusted to allow the aircraft to be tasked with more correct mission types. No longer will the A-10 be tasked to fly OCA missions against airbases!*
- *The sizes of the ground and air units have been adjusted to account for the difference in OPFOR vs. US/ROK size/strength.*
- *Separated out all of the flight model data for the aircraft – this was done to facilitate future modifications for each individual aircraft.*
- *Developed a new keyboard command file (ibeta\_keystrokes.key) that contains the ability to assign keystrokes to the AUX COMMs commands and to the new CAT I/III switch.*
- *Improved the A-10’s hardpoints, maximum takeoff weight, and fuel loads. A-10 flight model improvements forthcoming in a future RP version.*
- *Improved “abort/cowardice” behavior in AI in the statistical (2D) war (user selectable – not selected by default)*
- *Fixed the vehicle graphics for the 2S19 and SA-9.*
- *Tested and included many 3<sup>rd</sup> party EXE hex patches such as the GLOC patch, “Fly and Plane”, BARCAP, interactive airbase relocation, CAT I/III switching, and recon window fix.*
- *Many other “minor” fixes that will improve the overall gameplay and enjoyment.*

## IBETA REALISM PATCH VERSION 2.1

*With the recent release of RP2, we discovered several issues that required a responsive set of fixes. RP2.1 addresses the problems with the D-30 “super gun” and the inability of the Patriots to fire. We also added the capacity for helicopters to attack ground targets using air-to-ground missiles (ATGMs). RP2.1 (like RP2a) also fixes the problem of copying a duplicate set of files to the Windows/System directory.*

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- *We adjusted the balance of AAA along the FLOT and in mobile AAA battalions. These changes were implemented after we managed to speak to a former USAF targeter with PACAF and Osan AFB. You will now find smaller caliber (57mm and below) around the DMZ because of the mobility required in the forward-deployed units, but you will see the larger caliber AAA (85mm and 100mm) encircling Pyongyang and other fixed strategic targets.*

These changes were based on a conversation with a former USAF targeter with PACAF at Osan.

- Both the AAA battalion (which contain the KS-12, S-60, M-1939, and KS-19) and the Towed AAA battalion (which contain the S-60, M-1939, ZPU-2) are available for placement in TE missions. The HART battalion, which is not available for placement in TE, now contains only the S-60 and the SA-7 as air defense protection.
- Radar guidance for some of the AAA guns is turned on. The FireCan radar controls the KS-19, KS-12, and S-60. While our tests have not shown that adding radar to the AAA increases their accuracy, you will see them on your RWR with the “A” symbol. You can target and destroy these guns with HARMs.
- The addition of large amounts of AAA is no doubt a surprise to many F4 pilots who have become complacent with the lack of a Triple-A threat. North Korea has over 5000 pieces of flak-type AAA, and although much of it is older technology, many of these pieces have fire control radar attached and are a credible threat. The large numbers of AAA guns can be a danger, you should be able to avoid much of it by proper mission planning. Make sure to fly around, over, or under known AAA sites (HART sites around the DMZ, cities, airbases, etc.). Be especially careful around large cities and other strategic targets, as this is where much of the large caliber AAA resides. You may have to run several anti-AAA sorties before attacking the targets they are protecting. A rapid change in altitude once AAA is encountered also seems to defeat their ability to track and hit you.

## **iBETA REALISM PATCH VERSION 2.0**

*The recent release of the Falcon 4.0 source code was cause for concern at iBeta. We were not sure how Hasbro Interactive would view hex editing and the Realism Patch project in light of the source code release. We have had the opportunity to clarify these issues with Hasbro, and they send not only their approval to continue the iBeta Realism Patch Project, but they fully support users developing their own hex edits that result in an increased enjoyment for their product. Given our confirmation and clarification concerning this hex-editing project, we offer these modifications to the Falcon 4.0 community with “Hasbro Interactive’s blessing”.*

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***Please be aware that with the bubble changes and other EXE modifications, there is likelihood that the in-game frames-per-second (FPS) rate will be affected.*** If you choose to adopt the iBeta F4 RP2 EXE, you will have the ability to NOT install the “airbase relocation fix” (a big frame rate hog), and adjust the in-game bubble, but everyone must understand that the more we turn on, the more it affects the CPU and frames per second.

***If you are using the Bubble Slider EXE fix, the recommended in-game bubble slider setting is “3”. We have adjusted all bubble values to reflect the best balance of AI and FPS when “3” is used.***

- All A2A missile kinematics have been adjusted based on realistic performance characteristics - A2A engagement envelopes have been updated for realistic behavior
- Most SAM missile kinematics have been adjusted based on realistic performance characteristics - SAM engagement envelopes have been updated for realistic behavior
- Most SAMs and A2A missiles now launch at their maximum effective range; radar “pings” to the RWR also occur at ranges commensurate with their radar distances
- The SA-5 was given a terminal homing active radar seeker head (a la AIM-120 and AA-12). Watch for the “M” to appear in the RWR

- *New weapons for the ROK: KSAM (Chun-ma missile) and KFIV-AD (Tracked Vulcan) are now included*
- *HN-5a MANPAD is now given in quantity to the “elite” forces of the DPRK. Russian forces now have access to the SA-14, as do some NK forces*
- *Weapon blast and damage values have been improve to allow for a more realistic missile/bomb results*
- *Ground unit order of battle (OOB) has been improved to simulate realistic grouping of weapons and equipment*
- *You can now fly any plane in TE*
- *The USAF F-16C now has realistic loadout and carry limits; some weapons were removed while some were added (don't worry – we've compromised for those who wish to still use the Mk-77 and LGBs even though these are not realistic on the block 50/52)*
- *The CBU-97 Sensor Fused Weapon has been added - this is THE tank buster cluster munitions to carry.*
- *We added the KS-19 100mm AAA gun to the HART battalion in Campaign (watch out when flying over the DMZ!). AAA bursts up to 40,000 ft! Also added the KS-12 85mm AAA (bursts may reach up to 26,000 ft), the S-60 (57mm AAA – bursts up to 16,000 ft), and the M-1939 (37mm AAA – bursts up to 8500ft) to AAA battalions that are available in TE. Created an e M-1992 tracked 37mm AAA gun for the DPRK as well as a ZPU-2 14.5mm AAA gun.*
- *Flight model limiters have been installed into AI aircraft to give them more realistic performance limits (the flight models of the AI aircraft are not individualized, but rather prevent them from behaving unrealistically).*
- *Nike Hercules, Patriot, and Hawk have now all been enabled with the correct RWR symbologies.*
- *Ground-based search radars and AWACS are now enabled and emitting*
- *Unit deaggregation distance improvements in line with the new bubble discoveries; this improves aircraft/SAM AI among other things*
- *We removed the AIM-120s from the F-14A as this is no longer a legal loadout*
- *F/A-18A has been renamed to F/A-18C*
- *An actual AIM-9m Sidewinder “growl” sound has been added – really cool!*
- *The C-130 and other prop planes now have a prop sound when viewed externally*
- *Renamed SAM launchers and SAM missiles so it will be easy to distinguish what is what in ACMI and when using labels*
- *Corrected all the Bradley variants: M2A2, M3A3, and M2A2 BCV (Bradley Command Vehicle): Now they have the proper loadouts. Created the M2A2 BSFV (Bradley Stinger Fighting Vehicle and M6 BL (Bradley Linebacker): both are mobile Stinger platforms.*
- *Created the BTR-60: a common DPRK troop transport*
- *Runways now have a repair time that is more realistic – 6-10 hours for an entire runway*

## **IBETA REALISM PATCH VERSION 1.0**

- *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".*
- *Formations now work properly.*
- *AWACS "Vector to" message now works.*
- *Mig-19 now has radar and AA-1s.*
- *BLU-27 (napalm) is now designated as 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.*

## **IBETA TEAM – FALCON 4.0 REALISM PATCH (UP TO REALISM PATCH VERSION 3.0)**

President and CEO: Glenn "Sleepdoc" Kletzky

Executive Producer: Eric "Snacko" Marlow

Associate Producer: Leonardo "Apollo11" Rogic

AI Coordinator: Paul Stewart

Aircraft Loadout Coordinator: Lloyd "Hunter" Case and Robert "Trakdah" Borjesson

Blast and Damage Coordinators: Jeff "Rhino" Babineau and Eric "Snacko" Marlow

Bubble Mafia Coordinator: Kurt "Froglips" Giesselman

Campaign/AI Coordinator: Gary "Ranger" Perry

Command/Menus/UI Coordinator: Kurt "Froglips" Giesselman and Thomas McCauley

F-16 Flight Model Coordinator: Tomas "RIK" Eisloe and "Hoola"

Formation Coordinator: Rodrigo "Motor" Lourenco

Ground Unit Coordinator: Jeff "Rhino" Babineau and Eric "Snacko" Marlow

Missile Coordinator: "Hoola", Paul Stewart, and John Simon

Radar/ECM Coordinator: Eric "Snacko" Marlow and Tomas "RIK" Eisloe

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

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

# HISTORY OF REVISIONS AND README FILES

HISTORY.TXT – a detailed description of the changes we have included in the F4 Realism Patch.

FileChanges.TXT – contains a list of the files that have changes as part of the F4 Realism Patch as well as the patch installation and de-installation procedures.

F4\_RealismPatch\_v40\_User\_Manual.PDF – This document

F4\_RP\_Sensor\_Properties.XLS – Excel spreadsheet containing sensor properties (radar, visual, RWR, IR) and vehicle signatures (IR, visual and radar cross section)

## FILE DEFINITIONS

FALCON4 ACD	- AI Control (?) Data
FALCON4 CT	- Falcon 4 Class Table
FALCON4 FCD	- Feature Control (?) data
FALCON4 FED	- Feature Entity (?) Data
FALCON4 INI	- as is
FALCON4 ICD	- IR Sensor Control Data
FALCON4 OCD	- Objective Control (?) Data
FALCON4 PD	- Point Data
FALCON4 PHD	- Point Header data (?)
FALCON4 RCD	- Radar Control Data
FALCON4 RWD	- Radar Warning Data
FALCON4 SSD	- Squadron (?) Stores Data
FALCON4 SWD	- Sim Weapon Data
FALCON4 UCD	- Unit Control (?) Data
FALCON4 VCD	- Vehicle Control (?) Data
FALCON4 VSD	- Visual Sensor Data
FALCON4 WCD	- Weapon Control (?) Data
FALCON4 WLD	- Weapon List Data
KOREAOBJ HDR	- ?
KOREAOBJ LOD	- Object's Level Of Detail database (?)
KOREAOBJ TEX	- Object's Textures
simdata.zip	- zip file of data for flight models, weapon sensors, etc.

## 3<sup>RD</sup> PARTY REALISM ADD-ONS

iBeta and the RP Group 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 F-16C Block 50/52 cockpit -  
<http://msnhomepages.talkcity.com:6010/msngamingzone/crazyammo/>

Skypat's and Ben Hur's F-16C Block 50/52 cockpit –  
<http://spower.free.fr/falcon4/addons/cockpits/ckptBS/cockpitBS.htm>

Xis's F-16C Block 50/52 cockpit –  
<http://www.ozemail.au.com/~xis>

Byoung-Hoon Moon's Korea Skyfix – can be found at the iBeta website

If you have a 3<sup>rd</sup> party add-on for F4 and you would like the RP team to test it for possibly inclusion in our “recommended” list, please let us know.

## REFERENCES AND SOURCES

There have been requests that we would update the F4 Tactical Reference to go along with everything we are changing as part of this project. It may be possible to edit the entries in the Tactical Reference guide. This project is being pursued.

For those of you interested in knowing more about many of changes we are including, you should visit [www.fas.org](http://www.fas.org) (Federation of American Scientists). This website, while having some inaccuracies, is for the most part the most convenient single-source of military information available to the general public.

1. AFP 51-45: Electronic Combat Principles, September 1987, available at <http://www.wpafb.af.mil/cdpc/pubs/AF/Pamphlets/p0051050.pdf>
2. Air Forces of the World - Christopher Chant
3. Aviation Week and Space Technology (various issues)
4. Avionics: The Story and Technology Of Aviation Electronics, Bill Gunston, published by Patrick Stephens Limited, 1990.
5. Federation of American Scientists – <http://www.fas.org>
6. Flight International (various issues)
7. FM 100-2-3 The Soviet Army, Troops, Organization and Equipment. US Army CGSC 101-1
8. FM101-10-1/1 Staff Officers Field Manual Organizational, Technical and Logistical Data
9. Jane's – Aero-Engines
10. Jane's – Air Launched Weapons
11. Jane's – Avionics
12. Jane's – All the World's Aircraft
13. Jane's – Aircraft Upgrades
14. Jane's – Armor and Artillery
15. Jane's – Land Based Air Defense
16. Jane's – Radar and Electronic Warfare
17. Jane's – Defense Weekly (various issues)
18. Jane's – Missiles and Rockets (various issues)
19. Jane's – Defense Review (various issues)
20. Jane's – Intelligence Review (various issues)
21. Journal of Electronic Defense, <http://www.jedonline.com>
22. MCIA-2630- NK-016-97 North Korea Country Handbook
23. OKB- MIG- Jay Miller, Piotr Butowski
24. OKB- Sukhoi- Jay Miller with Vladimir Yakonov, Vladimir Antonov, 6 others
25. Organizational and Tactical Reference data for the Army in the field- US- Army
26. ST 100-3 Battle Book
27. ST 100-7 OPFOR Battle Book
28. USN Electronic Warfare and Radar Engineering Handbook, available at <http://ewhdbks.mugu.navy.mil>
29. Weapons and Tactics of Soviet Army third edition- David C. Isby
30. World Air Power Journal (various issues)