F4PATCH

USER'S MANUAL

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FALCON 4 HISTORY – How everything began

Falcon 4 came into existence with the first release in late 1998. After many years and many dollars of development, the flight simulation community was faced with “The New Benchmark In Flight Sim Technology”, as the advertisement said.

And really, users were amazed at the realism Falcon 4 brought to a home computer.

Immediately after its release a number of patches, up to version 1.08, were released to fix a large number of bugs in the software. Unfortunately a number of features that have been available in older versions were broken as many new features were enabled.

On December 1999, Hasbro Entertainment made the fateful decision to stop further development on Falcon 4. In the final days, the MicroProse development team and iBeta, a quality assurance company, that released the last update, version 1.08i2, and software testing company whom later took over support for Falcon 4.0. It was a huge performance and stability increase especially for multi-play, but there was still a significant number of annoying bugs in the software.

After the Falcon 4 development crew from MicroProse, Alameda, was dismissed in January 2000, the Falcon 4 user community itself started examine the Falcon 4 files with the goal of fixing bugs and deciphering the data structure with an eye to making the weapons and aircraft avionics more realistic and complete. iBeta created the first releases of patches that are known as the Realism Patches. Their work is being continued by a group of dedicated people called the Realism Patch Group. It is their goal to change the performances of weapons and aircraft to come as close to reality as possible based on information derived from unclassified data.

To help in this effort, Julian Onions created several great tools to examine and modify data files through a Windows GUI interface. Those tools, like F4Browse and TacEdit are still in use and getting enhanced today.

On another front a loose knit group of talented people, the Hex Editors, began looking at Falcon's code through the use of decompilers and hex editors. In the beginning Sylvain Gagnon, Marco Formato, Mad Max, Poogen and others started to debug the Falcon 4 108i2 executable and its data files in early 2000. There began a series of new patches that were released, often more than one new bug fix a week, that repaired some aspect of the Falcon core program that was not operating properly..

Features thought to have been lost in previous official patches were activated again, and bugs that could cause Falcon 4 to crash to desktop (CTD) were fixed by hex edits.

Those first patches were applied to the Falcon 4 files using a Hex Editor or later using a patching utility called Code Fusion. Problems began to arise as once the exe was patched there was no easy way to figure out if you had a specific patch applied,

which version of the patch was being used, or if one patch conflicted (patched the same area of the exe) or not. Joel Bierling began using a method that renamed his executable to remind him which patches have been applied. So his program files had crazy names like Falcon4_i2_bbl_bblfly_atc_cursor_barcap_reloc.exe (this was one of the shorter names). Joel quickly realized that this process could not go on for long with the rate that patches were being released.

Driven by his need to focus his creative programming juices somewhere, as he described it himself, he wrote the first F4Patch version in one weekend which was released May 15, 2000. His question, "Would this new tool be accepted by the community?"

Critical to success was acceptance by the patch building community and so when Sylvain Gagnon stated he would use F4Patch for his future releases the success of F4Patch was assured. Today F4Patch is the standard for every type of patching for Falcon 4.

The patches for Falcon include a wider range of additions, enhancements, and outright total rewrites of the original program. From flying a range of aircraft beyond the original F-16C, to new photorealistic cockpits, new theaters, new aircraft skin textures, new commands for the AI and much more, it is an all new Falcon.

There is also a group of skilled programmers around a guy named eRAZOR that developed an entirely new Falcon 4 with new functionality like Color Multi Function Display, easy multi-player linking through JetNet, a better damage model, activated ships, and other great additions.

All these add-ons and configurations are applied using F4Patch. The latest version of F4Patch always includes the latest patches and fixes known at the release date.

This document is created in order to help you in install and use F4Patch. We hope it will help you to gain confidence with upgrading and personalizing whatever version of Falcon that you use.

Manfred “Schumi” Nelles

HOW F4Patch WORKS

Falcon 4 consists of the main executable and various data files with different structures. Take a look in the MicroProse\Falcon4\art\resource folder. There are several files that define how a window in the Falcon 4 User Interface is designed, others that contain background images, and still others for graphic symbols.

Some of these datafiles are simple text files that are rather easily understood, while others are binary files with more complicated and complex structures. Much of the data structured has been decoded by Falconophiles from all over the world. We now know much of what is in most, if not all, of the data files.

A patch can change data in files, or code in the main executable. The data that a F4Patch patch will use is placed in text files that have a ".f4p" extension. These files contain the old and the new value to be compared with the existing data found in the files that are to be patched.

F4Patch is capable of doing several operations, from simple file copies to exchanges of text in text files and exchanges of single bytes or byte series in binary files.
With only these three basic modifications the majority of changes to Falcon can be implemented.

Additionally, F4Patch is able to include custom-made plug-ins that allows further increases in the functionality of F4Patch. New functions, that are not a generic part of F4Patch, may be added to suit specific tasks (such as a plug-in that can change textures of aircraft and other objects).

After the program is launched, F4Patch checks the "Patch applied status" for every patch in the F4Patch folder and its subfolders. It takes the data found in the '.f4p' file and compares it with the "new" data. If even one single byte differs from the "new" status, the patch is considered as being unapplied.

108i2 OR eFalcon

There are now two executable versions of Falcon 4. The MicroProse/iBeta released 108i2 version is the last patch that was programmed by the MicroProse Falcon 4 developers.

The eFalcon executable is a 3rd party developed version of Falcon 4. It adds new features and functions from the real world to Falcon 4, like the color Multi-Function Display (MFDs) found in the Falcon MLU (Mid-Life Update) of the real F-16. The Falcon 4 community dreams of photorealistic clouds, realistic weather simulation like sunshine, rain, lightning, and storms. These dreams may come true one day with the eFalcon version.

The 108i2 version has a singular advantage for part of the Falcon community, support for Glide, a graphics standard that was created by 3dfx. This proprietary graphics engine was delivered through the Voodoo series of graphics boards. 3dfx was recently purchased by NVIDIA, their main competitor. It is unlikely that any new Voodoo chipsets will be marketed in the future, and Glide will probably die as graphics standard.

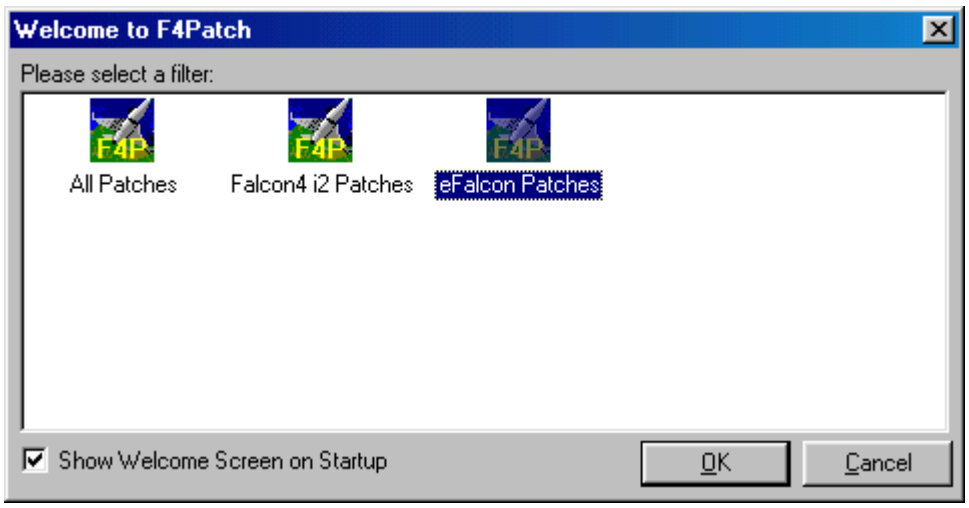
When Falcon 4.0 was introduced, DirectX was at version 6. Now at version 8, Falcon does not play nice with DirectX 7 and higher. eRAZOR corrected some of the problems in using Falcon 4.0 under DirectX 7 and later with his DX patch. eFalcon has none of these problems, having been written as a pure Direct 3D application. Thankfully most 3dfx video cards run eFalcon and the optimized code of the newer software runs D3D quite well even on older cards.

INSTALLATION

System Requirements:

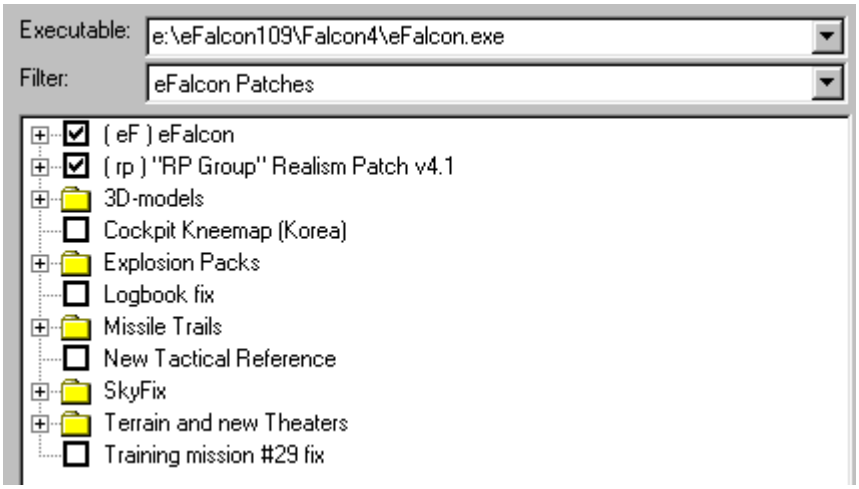
The full package of F4Patch, the Standard package plus the Cockpits, Sounds and Skins packages require a minimum of 50 MB free on your hard drive for installation.

1) Download the latest F4Patch version (download locations listed at the end of this document)
2) Extract the downloaded F4Patch_Standard_40.exe file into the main MicroProse\Falcon4 folder using Winzip or any other Zip utility
3) Run the extracted F4Patch_Standard_40.exe (Do not install F4Patch from within a zip file)
4) F4Patch welcomes you with a selection window after the data is expanded

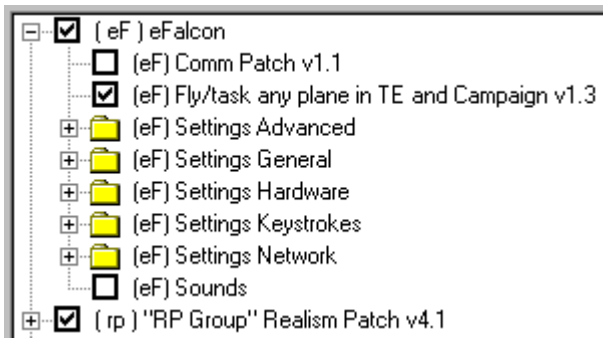


This window displays predefined 'Installation Filters'. Choosing 'Falcon4 i2 Patches' will cause F4Patch to only load patches that can be applied to the 108i2 executable. Choosing 'eFalcon Patches' will install only the patches that work with eFalcon.

NOTE: The following example assumes that the eFalcon version has been chosen.



All of these patches can be applied when using the eFalcon executable.



The ⊞ box changes to a ⊟ if you expand the patch tree.
You see that the above patches start with a (eF) prefix, which marks them as patches meant for the eFalcon version.

5) Review the available patches.
   a) Names that are preceded with a ⊞ box can be expanded to show sub-patches. If you click on a patch

it will be highlighted. In the right window of F4Patch a short description this patch's function appears with additional information below that at the author option (patch author, credits, detailed description, etc.)

   b) Some patches also provide detailed information in the form of a ReadMe, which can be accessed using this button:

This button is grayed out if there is no ReadMe available for the selected patch.
In the case of “skins”, it can also display the new texture to be applied.

6) Add a tick mark to all patches to be applied to Falcon.
7) Ensure that the Executable line contains the eFalcon.exe:

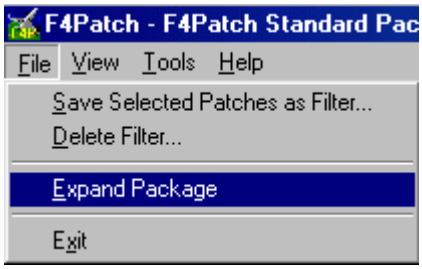
8) If the eFalcon executable isn’t present in this line, use the

button to select it.
9) Push the

button to apply the patches chosen.
10) After the patching process has taken place, a window will open that lists all the patches applied or unapplied and reports any problem or error that may have occurred:

All patches to be removed will be
processed before the new patches are applied.

Congratulations, you have successfully installed F4Patch.
F4Patch contains a function to create a permanent folder for storing its patch data until the next reinstall of Falcon 4.

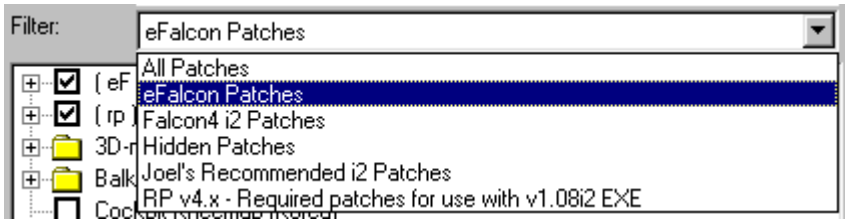


- Use this function to expand the patch data to a folder named F4Patch. This folder will be created in the directory where F4Patch_Standard_40.exe is placed. For example if it is in MicroProse\Falcon4 folder, the F4Patch folder will be created as: MicroProse\Falcon4\F4Patch.
- Choose „Yes“ in the next dialog to expand the data into the F4Patch folder.
- The next message shows you that you now have to use another F4Patch executable named F4Patch.exe if you want to use the F4Patch folder. This newly created executable contains only the user interface and the apply/unapply software, but not the compressed patch data which is now present in expanded form in the F4Patch folder.
- To make things easier, you can order F4Patch to place a desktop icon to this new F4Patch executable. It is recommended to do so, so press „Yes“ here.
- Now all 3rd party add-ons can be installed. Please refer to their documentation about how to do that.

FILTERS

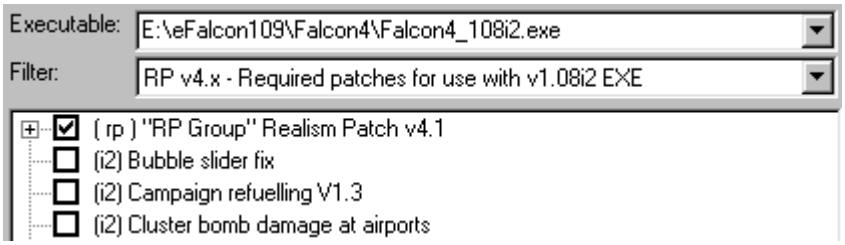
Note: The F4Patch user interface images in this manual may differ slightly from what you see when using different F4Patch versions.

Filters are predefined sets of patches. In the main F4Patch window, above the patch list, there is a dropdown list that contains all available Filters:



Predefined Sets of Patches are accessible through this dropdown list.

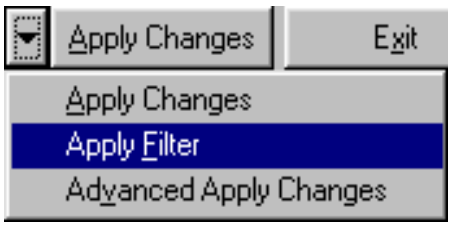
- There are more Filters listed than the Welcome filters All, Falcon i2, and eFalcon
- The currently displayed filter is highlighted.
- To change Filters simply select the new filter from the dropdown list:



Don't forget to choose the **correct executable**, too !!!

- After choosing a new Filter, click on the dropdown-arrow left of

and click on 'Apply Filter'.



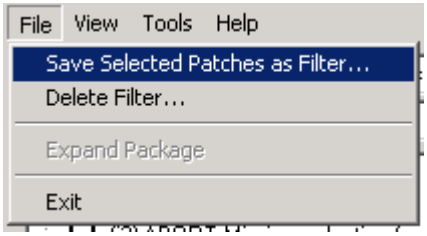
The 'Advanced Apply change' selection is for very experienced users. More information is referenced later in this document. Don't use this option if you don't know what it exactly does!

- All patches that are contained in the filter automatically get applied using this function. You don't need to click the checkboxes, 'Apply Filter' will do that for you!
- After you have chosen to apply a Filter, always recheck the patch tree. Since the entire patch is applied you may find a patch that you didn't want is applied.
- Again you'll see a report about the success of apply and remove processes.

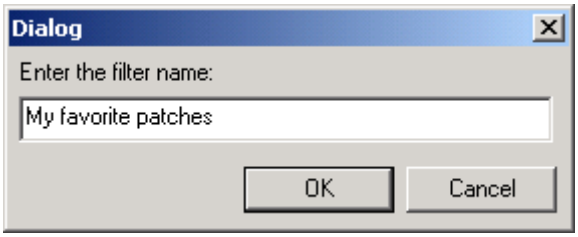
CREATING YOUR OWN FILTERS

Want to save a set of your own patches to share with your online squad or need two different sets of patches for two different campaign theaters? This is an area where F4Patch really shines.

- Select all the patches you want to be applied when selecting your filter.
- Choose 'Save Selected Patches as Filter from the File menu.



- Enter a name for your filter the name that will appear in the dropdown list).



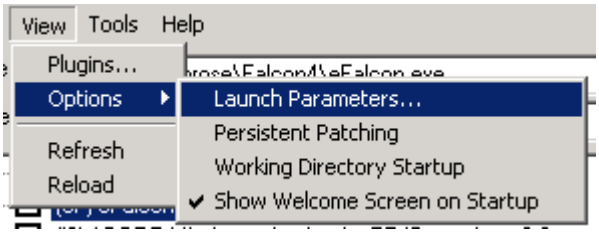
- F4Patch will request a filename (you can use long file names) and directory location to save the filter. Don't enter an extension, as F4Patch will automatically add the ".f4p" extension.
- Don't forget to place copies of any custom filters in another secure place. Reinstalling Falcon 4 may delete the F4Patch folder.

LAUNCHING FALCON 4 WITH F4Patch

F4Patch also allows you to launch the Falcon 4 executable you selected.

Pressing the Launch button actuates this.

You can specify a variety of command line switches with modify functions of Falcon 4. Command line switches can be entered using this menu:



There are a variety of command line parameters. Some of the most useful for Falcon pilots are listed below:

-file	Start missions with ACMI recording on
-log	Log frame rates during the mission to the files framerate.csv and fr_summary.csv (an Excel format)
-g<N>	Set graphics detail to <N> - useful values being 1 to 5. It allows you to move the sliders in the graphics setup up and down to a greater extent. But be careful, this is a framerate killer!
-window	Run Falcon in a 640*480 window. Useful with the –time switch to act as a campaign server. Also useful if you want error messages, if they appear, to be displayed on the desktop.
-nomovie	Don't play the intro movie of the F-16.
-noUIcomms	In the User Interface (UI), you will not hear radio chatter and take-offs.
-screen	Allows screenshots to be taken from the UI. Hit the "Print screen" key to save an image in 'TGA' format.
-time	Run as a server – you can't play yourself though.
-noloader	Graphics are loaded when you are already in the cockpit. Gets you into the game faster, but there are no graphics loaded when you enter the cockpit.
-hostidx <N>	Select between different network cards. It will default to the first card. If you have trouble connecting in multi-player, run the netchk.exe tool from the Falcon 4 main folder in a MSDOS-box to view which cards are connected in your computer and to select the correct ID <N>.
-pf number	Packet filter is used to restrict packet flow to a given number in multi-player play. A value of 100 has been proven best, which is a default parameter in F4Patch for Falcon 4 108i2 and is set as default in eFalcon.

- Persistent patching, in this menu, disables the applied status of the patches each time you run F4Patch. Activating this option, F4Patch records the patches it's applying and unapplying, which is unsafe as if 3rd party mods are made to Falcon 4 or if you upgrade your F4Patch uncorrectly, it can corrupt your whole Falcon 4 installation which would result in a complete reinstall. Do not enable this option is you do understand the ramifications.
- The "Working Directory Startup" selection permits redirecting F4Patch to use a different folder for patch data at startup. The F4Patch executable normally uses patches in the same directory where it has been installed by default. If you move the patch data folder from the Falcon4 directory to another location then redirect the executable to look up patches in the new location. There is more information on the patch data folder in the "INSTALLATION/Expand Package" section.
- The Welcome screen that appears at F4Patch Installation startup can be disabled in this screen itself using the bottom left checkbox. If you want it to reappear again at every startup, activate the "Show Welcome Screen on Startup" selection in this menu.

Other functions of the "View" menu:

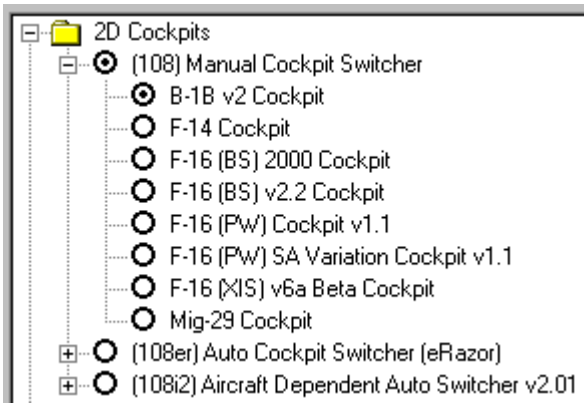
- Plug-in shows a list of external 'plug-in' DLLs (programs) which increase the functionality of F4Patch that are installed.
- "Refresh" is identical to the

button and rechecks the current status of each patch.
- "Reload" reloads the patch data from your hard disk. This function is particularly useful for patch developers as is the whole "Tools" menu.

INSTALLING F4PATCH COCKPITS, SOUNDS AND SKINS

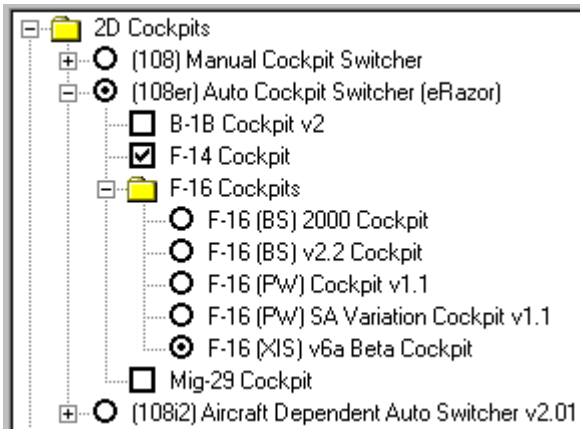
- These three packages are an optional download.
- The Cockpits package has 2D and 3D cockpits, containing an assortment of different F-16 cockpits, a F-14 cockpit, a MiG-29 cockpit, and a B1-B cockpit.
- The latest version will also have a F-4 and a C-130 cockpit.

The cockpits can be manually selected:



Select the „Manual cockpit switcher“ radio button and then the desired Cockpit button.

- Or selected using the Automatic Cockpit Switcher which is available in two versions, one for eFalcon and one for 108i2. The 'Fly Any Plane' patch is in the standard package and allows you to fly almost any fixed wing aircraft. The Automatic Cockpit Switcher chooses the correct cockpit depending on the aircraft chosen to fly from the ATO list, if this cockpit is installed and activated:



This example activates the Auto Cockpit Switcher with the F-14 and one of the F-16 cockpits.
If you fly a F-16, the „v6a Beta Cockpit“ from XIS will be active in Falcon 4. If you fly an F-14, the F14 cockpit will appear. In this selection, if you fly a MiG-29, the F-16 cockpit will appear which is the standard cockpit. Adding the MiG-29 to the selected cockpits will allow you to fly the MiG-29 cockpit.

- The Sounds add-on provides, as the naming says, several sound effects
- The Skin package contains new textures for aircraft.

- The process of installing the package and applying patches for the Cockpits, Sounds and Skins packages is identical to the Standard package. The only important difference is the lack of installation Filters.

NEW F4PATCH ADD-ONS

Why would we need to apply new add-ons after F4Patch has been released? Some reasons might be:

- Latest patches
- Custom cockpits
- New theaters other than Korea
- Patches too big in file size to be distributed together with the Standard packages

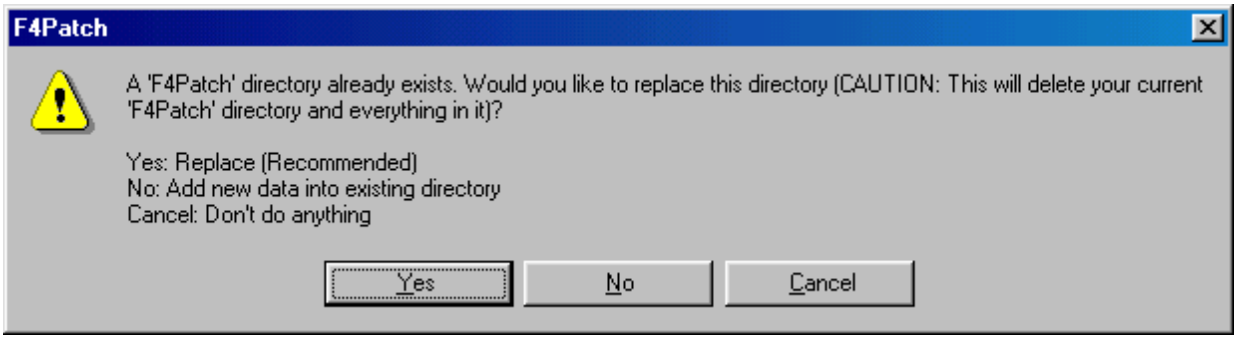
The F4Patch_Standard_40.exe file contains all patches in a compressed format. When you run this executable the patch data is expanded to a temporary folder which gets deleted after the installation is complete.

Large projects, like new theaters, that are selected via F4Patch need a place to store their data that F4Patch will use to activate them. The temporary folder F4Patch creates during installation isn't suitable, as it gets deleted again. F4Patch compatible 3rd party add-ons check for a F4Patch folder and abort their installation if they find none available.

EXPANDING COCKPITS, SOUNDS AND SKINS PACKAGES

Expanding the three other F4Patch packages follows the same rules as expanding the Standard package, with one significant difference. If a F4Patch folder is present, each of the other packages will recognize this as they are expanded and return with the following dialog:

First the question, "Do you want to expand the package?" asks for confirmation that this is the operation you intended to perform. If you answer 'Yes' then this dialog appears:

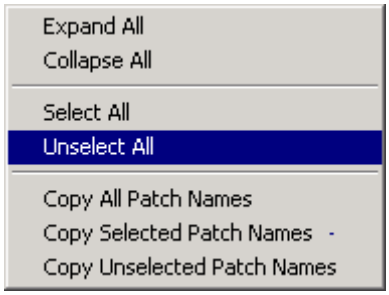


- Pressing 'Yes' would delete the previously expanded data, thus your whole Standard package data would be overwritten in this folder.
- Pressing 'No' would merge the new data with the existing installation.
- Pressing 'Cancel' – well, you know what that does :-)

The normal installation process is to select 'No' to avoid losing previously expanded data patches and data. This is the choice when expanding all the three additional packages in this dialog. The use of the 'Yes' choice is to install a new version of F4Patch as this will overwrite an older one. In this case, as recommended above, it is better to do a complete reinstall of Falcon 4. However if you want to replace the former F4Patch version, you must insure that each and every patch is **unapplied**!

To unapply of all patches with a single operation:

1) Select the “All Patches” Filter.
2) Click anywhere on the patch list with the **right** mouse button, which opens this dialog:



3) Choose “Unselect All”
4) Press the

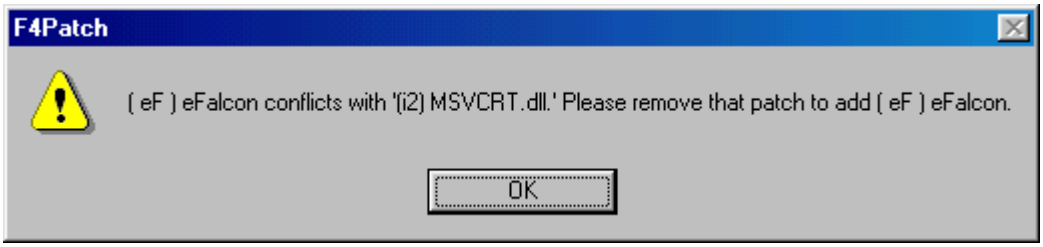
button to unapply all patches.

Now you can expand the new F4Patch version, using “Yes” in the above dialog – but of course only for the first package of the new version. If you also want to install further packages, like the cockpits of the new version, you have to press “No” for not loosing the already expanded data.

ERROR MESSAGES IN F4PATCH

Patch conflicts:

There are several error messages that may appear if the program can not install or uninstall a patch. Occasionally patches in F4Patch can conflict with each other, meaning only one of them may be applied. An error message is generated to indicate this that looks like the following:

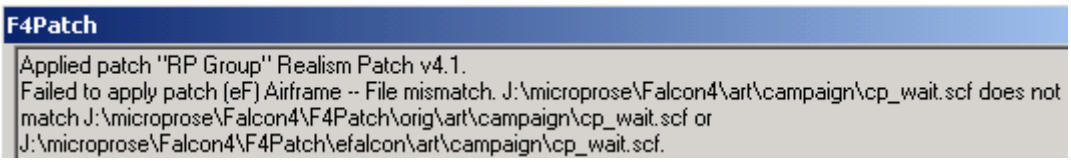


Conflict error messages will always tell you which two patches are conflicting.

In the example, if you want to apply the “(eF) eFalcon” patch, you have to remove the ”(i2) MSVCRT.dll” patch. If the conflicting patches are not currently listed in your patch list window, be sure the “All Patches” Filter is selected to see all available patches.

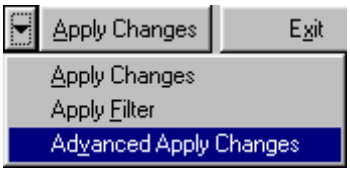
File mismatch errors:

This type of error can be found in the patching report window:



Example of a file mismatch error report

As mentioned in the overview, there are two states recognized for a file by F4Patch, the original state and the patched state. Before F4Patch applies a patch, it checks to see what state the file is currently in. A program other than F4Patch in the above example has altered the file c:\MicroProse\Falcon4\art\campaign\cp_wait.scf. The data to be changed in the file is not identical to the version F4Patch recognizes as original or patched. In such situations, you can try to use the “Advanced Apply Changes” function of F4Patch. This is found in the dropdown list where you also found the “Apply Filter” function. This will force the application of the patch's new data but may cause other problem and often will prevent removal of the patch.



- **WARNING:** If you decide to use this function, F4Patch will ask you to confirm your choice, as this function may have **undesirable side-effects** which may force you to a complete reinstallation of Falcon 4.
- However if you choose to use this function, in the above example, will still find the file being not matching the original or patched status:

You have the ability to ignore this error with “Advanced Apply Changes” function.

- If you choose “Yes” in the above dialog, F4Patch will overwrite the current version with the patched version (or original version – which depends on if you apply or unapply the patch) of the file to be changed. “No” leaves it unchanged.

Patch mismatch errors:

If this error type occurs, a current byte value or a group of bytes in the executable isn’t identical to what F4Patch knows to be the original or patched values. Thus it refuses to apply this patch. This can be overruled by the above mentioned “Advanced Apply Changes” function, but it should be used cautiously, also.

There are no patches to the eFalcon executable. This error can only occur with hex edits on the 108i2 version.

FREQUENTLY ASKED QUESTIONS

Q: Which versions of Falcon work with F4Patch?
A: F4Patch can generally work with any version of Falcon 4, however, most of the patches in the standard version can only be applied to the 108i2 executable. The Cockpits, Sounds, and Skins packages are designed for 1.08i2 or **e**Falcon.

Q: Can I use other utilities with F4Patch?
A: Some patches are incompatible with tools like F4Bubble and F4Browse. These utilities change the same files as certain patches. Some utilities like F4Blips (to change the size of the radar blips on the MFDs) have been incorporated into F4Patch. If you want to use these utilities, handle them cautiously and always make a backup of your files.

Q: How do I know if a new patch is compatible with the 'official' patches in F4Patch?
A: Add-ons that are not a part of F4Patch may cause problems. If you are unsure as if an add-on is compatible with F4Patch, please contact the add-on's author(s).

Q: Filters seem like the easiest way to use F4Patch. Why isn't everything part of a filter?
A: The “Apply Filter” function applies all patches in the list. This may include patches you don’t want to have applied. So it’s always better to apply each patch you want to be active by hand than using the “Apply Filter” function. This is especially true for the “Welcome” Filters, as they don’t show a recommended list of patches, but show all patches that **can** be applied with a specific executable.

DOWNLOAD LOCATIONS

Author's web site download location:

http://www.bierling.net/joel/pages/falcon4/falcon4.html

Mirror sites:

http://www.checksix-fr.com

http://f4c.krawall.de/page.php?SEITE=postfiles.php

http://www.koala.demon.nl/Falcon4/patches

http://www.letterboy1.com

ftp://193.11.234.107:2000/ User:f4 Pwd:f4

http://members.tripod.de/SCUD2/

http://www.mikesell.net/hotas/

http://gallery.uunet.be/Freebirds/

http://WWW.siteofshadow.de/Patches.htm

http://simactu.gameloft.fr/fichiers/utilitaires_contenu.php3?id=46

http://members.nbci.com/_XMCM/f4diary/downloads.htm

http://www.dogfight.cjb.net/

http://www.lagoon.no/Falcon4/patch

http://simactu.gameloft.fr/fichiers/utilitaires_contenu.php3?id=46