

**OBEdit**

<b>COLLABORATORS</b>
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# Chapter 1

## OBEdit

### 1.1 OBEdit - an X-COM I and II weapons editor

OBEdit 1.0

Introduction

- What does it do?

Requirements

- What you need to use it.

Installation

- How to install it. (Duh!)

Usage

- How to use it.

Author

- About the author.

Distribution

- Copyright info and such stuff.

Aknowledgements

- Credits where credits are due.

History

- Development history.

FAQ

- Frequently Asked Questions.

### 1.2 Oy, what's this for then?

INTRODUCTION

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OBEdit is a handy little proggy for editing an important aspect of MicroProse's excellent games X-COM: UFO Defense (or UFO: Enemy Unknown) and X-COM II: Terror From The Deep - The weapons' performances.

Well, what it actually does is read the file OBDATA.DAT and extract information about the different weapons and other equipment stored there. The info is then saved to either an ASCII standard CSV (Comma Separated Variables) file, or a tab-separated RFF file with an appropriate RFF header.

The CSV format (or ADCH, if you are familiar with FinalData) can be read by most database programs and spreadsheets. The RFF format is very similar to the CSV format, except that it uses TABs rather than commas to separate entries. It also contains an RFF header that determines how the data will be presented by the program reading it. There is only one program that reads RFF headers, as far as I know, and that is DB 3.5 by David Ekholm.

RFF files are by far the best alternative to be mucking around with. To use them, however, you'll need DB v3.5 or newer. DB is a fully-functional Shareware program that can be D/L'ed from aminet at biz/dbase/db.lha. You could also try to get the newest version from the DB homepage at <http://wfmh.man.szczecin.pl/db/>

At this point you may ask yourself: "Awright, so I'll have a nice and readable database file with interesting stuff from OBDATA.DAT, but this still doesn't make the game any different. Surely there has to be more?" And the answer is Yes, of course there's more!

OBEdit is not limited to just churning out CSV and RFF files, it can also read them and apply their data to OBDATA.DAT. The logical editing process will then be: Extract data to CSV or RFF file -> Load CSV or RFF file into appropriate program and make some changes -> Import CSV/RFF file and apply changes to OBDATA.DAT => Cool!

Additionally (yes, there is even more!) OBEdit will list records to the console window in various ways: Index list, single object info and info of all objects.

Now isn't that just dandy...

## 1.3 You'll be needing some stuff to use this

### REQUIREMENTS

The following is required to use OBEdit:

- An Amiga, or at least a half-decent PC running UAE.
- OS 2.0 or higher. (Developed under OS 3.0)
- X-COM I and/or X-COM II (Any versions)

Also, the following is STRONGLY recommended:

- A database or spreadsheet program capable of reading and writing CSV files
  - or -
- DB 3.5 or newer.
- A hard drive.

It is theoretically possible to edit the CSV/RFF files with a normal text-editor, but this is only marginally better than to change the OBDATA.DAT file directly with f.ex. AZap or some other binary editor.

## 1.4 Gettin' stuff up an' runnin'

### INSTALLATION

Installing OBEdit is quite easy:

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- Copy the main program file to anywhere you want to use it from. The easiest would be your c: assign.
- Copy OBEdit.guide anywhere. Like locale:help or your X-COM drawer.

It is also strongly recommended that you make a backup of your original OBDATA.DAT file.

## 1.5 'Ere... how's this work then?

### USAGE

OBEdit is a command-line only program. There is no GUI, no MUI or anything like that; everything is controlled by the arguments you give it. The arguments are case insensitive and must be in exactly the right order. There's no need to despair, however, as the commands are very logical, and there's really not that many of them. The commands are: "exportcsv", "exporttrff", "import" and the optional "all". Here's a list of what they do:

- exportcsv Export a comma-separated ASCII file.
- exporttrff Export a tab-separated ASCII file with an RFF header.
- import Import either a CSV or RFF file (the program will recognize the format automatically).
- all An optional switch that is always the last argument. When used with exportcsv or exporttrff, it will cause ALL 80 records in OBDATA.DAT to be exported rather than just the first 50, which contain the useful stuff. And when used instead of the index number directly after the .DAT file to scan, it will list ALL records in the file to the console.
- verbose Another optional switch that is always the last argument. Used with exportcsv, exporttrff or import it causes the program to report its activities to the console window. I.e. it will print the name and index numbers of the weapons it exports or imports. This command can not be used with the all option. The command can be shortened to the letter "v".

To sum it all up, the syntax is:

```
obedit <file to scan> <record number/exportcsv/exporttrff/import/all> <file to export to/file to import from> <all> <(v)erbose>
```

NOTE: In the Amiga version of X-Com: UFO Defense the OBDATA.DAT file is kept in two separate directories: GEODATA, where it is read by the GEO program (including the UFOPAedia) and UFOGRAF, where it is read by the TACTICAL program (the action sequences). I'm not sure if this is the case with the PC floppy version, but in the CD version, only the file in GEODATA is read.

Confused? Don't worry, after reading the next bit, everything will (hopefully) seem like a walk in the park.

### EXAMPLES

Assuming you have installed the program, and you are staring at a CLI prompt that points to a directory where OBDATA.DAT is (like UFO/GEODAT or UFO/UFOGRAPH), here's what you may type:

```
obedit
```

This will only list the commands, in case you've forgotten them.

```
obedit obdata.dat
```

This will read the file "obdata.dat" and type out the index numbers and names of the records contained therein to the console.

```
obedit obdata.dat 12
```

Details about record #12 in the file "obdata.dat" will be printed to the console. Records are numbered from 0 to 79 (not from 1 to 80).

```
obedit obdata.dat all
```

This will print out details about ALL the 80 records within OBDATA.DAT to the console.

```
obedit obdata.dat exportcsv obdata.adch
```

---

Scan "obdata.dat" and make a comma-separated ASCII file (with header names) called "obdata.adch" that contains data for the first 50 (#0 to 49) records in the data file. This file can be imported and edited by most half-decent database (f.ex. FinalData) or spreadsheet (f.ex. TurboCalc) programs.

```
obedit obdata.dat exportrff obdata.db
```

As above, only that the file "obdata.db" will be a tab-separated ASCII file with an RFF header that will make the resulting file readable to **DB**.

```
obedit obdata.dat exportcsv obdata.adch all obedit obdata.dat exportrff obdata.db all
```

When used with either "exportXXX"-statement, the ALL switch will cause the resulting CSV or RFF files to contain ALL 80 records within "obdata.dat". Unless you REALLY want to make some radical changes that I can't possibly think of as useful, there is no reason to ever use this option. All the interesting stuff (as well as a lot of uninteresting), like weapons and ammo is within the first 50 records.

```
obedit obdata.dat import obdata.csv
```

The "import" command is the only one that changes the contents of "obdata.dat". In the above case, the file obdata.csv would be read to memory, and the data it contained would be applied to "obdata.dat". As previously stated, the program will determine whether the file it reads is of RFF or CSV format itself. If the file is neither, the program will exit, and nothing will be changed in "obdata.dat".

NOTE: The OBDATA.DAT file will always be checked for being exactly 4 320 bytes long. If this is not the case, then the program will warn you about this and abort any operation.

Now that you know how to import and export RFF and CSV files, let's look at **how to edit them**.

## 1.6 Changing stuff

Editing exported CSV and RFF files

Assuming you have successfully extracted a CSV or RFF file from OBDATA.DAT and loaded it into a suitable database/spreadsheet program, now there's some things you should know before you change things.

Let's start with a list of the different columns you see, and what can/can not be written in them:

**Index**

This is the object's logical placement in OBDATA.DAT. Do not change this number!

**Name**

The name of the object. This is for reference only, and will not be imported to OBDATA.DAT.

NOTE: If you use DB, both Index and Name will be unchangeable. (Another reason to download it.)

**Damage**

The amount of damage the ammo will cause. Must be between 0 and 255. Notice that this is applicable for ammo types, grenades and laser weapons only. You should not try to change the damage amount for f.ex. the rifle.

**Ammo**

Potentially, each weapon in X-COM can use three types of ammo. Ammo1, Ammo2 and Ammo3 are the indexes of three ammo types that can be used. F.ex. the rocket launcher (index 12) will use small, large and incendiary rockets. These are at index 13, 14 and 15, respectively. As a general rule, a weapon's ammo type(s) are on the directly following place(s). The exceptions are gauss weapons in X-COM II, which ammo types are at #47, 48 and 49. A value of 255 indicates that no ammo is usable in that particular slot.

**DmgType**

This is the damage type of the ammo. Valid types are:

0 - Armour Piercing

1 - Incendiary/Phosphorous

---

- 2 - High Explosive
- 3 - Laser Beam/Gauss Beam
- 4 - Plasma Beam/Sonic Beam
- 5 - Stun/Freeze
- 6 - Hand-To-Hand
- 255 - NONE

Accauto/Accsnap/Accaimed

The accuracy of the different firing modes are expressed in % chance to hit the target. This may exceed 100% and is also influenced by the operator's firing accuracy.

TUAuto/TUSnap/TUAimed

This number is the % of the operator's total Time Units that will be required to fire the weapon. If a value is 0, then the firing mode will not be available. If a value exceeds 100, the operator will obviously never have enough TUs to use that firing mode.

Rounds

This is the amount of rounds contained within one clip of the ammo type. For HTH weapons (stun rod/thermal tazer, vibroblade, thermic lance and heavy thermic lance) this is the amount of damage inflicted to the target.

That just about wraps it up for the things you can edit in the CSV/RFF files. Also notice that you can delete unchanged equipment from the CSV/RFF file to save space (and importing time).

Go to the [next section](#) to learn more about the limitations, error handling and structures of the CSV/RFF files.

## 1.7 Advanced info.

Advanced information about the exported files

A lot of work (well, a couple of hours at least) has been invested to prevent errors in the import files to slip through to OB-DATA.DAT. ALL data is examined very closely by the import routines before it is even read into memory. Then, to be completely sure, the values are checked again before they are written to the copy of OB-DATA.DAT that is in memory. If everything checks out OK, the OB-DATA.DAT file on the disk is finally overwritten.

Let's look at the whole process of importing CSV/RFF files in detail:

First, the import file is read into memory. This is when the first error checking takes place:

- To determine the file's format, OBEdit reads the first line and then searches it for a comma. If a comma is found, the file is regarded a CSV file. If a comma is not found, the program checks if the line contains a tab stop. If this is the case, then the file is regarded an RFF file. If neither a comma or a tab stop is present in the first line, then the file format cannot be determined, and the operation is aborted.
  - In the case of CSV files, the first line is ALWAYS skipped, regardless of what it contains.
  - In the case of RFF files, the program will start reading from the first occurrence of a linefeed after a "@" is encountered. (The RFF header always starts with a "@".) If an RFF header is not found, the program will skip the first line only. This enables the use of ASCII standard tab-separated files as well. See [custom RFF header](#) for info about exporting tab-separated files without RFF headers.
  - In any case, if a line is less than 20 characters long, it will be skipped. This prevents empty lines (two consecutive linefeeds) from being treated as data for object #0.
  - If multiple instances of the same object (matching indexes) are found, the LAST one read will be imported.
  - If an index number is invalid (less than 0 or higher than 79), the program will inform you about this, and skip the entire line. (No point in reading values that you don't know where to put, is there?)
  - If any other data is out of range, the program will skip the object (line in RFF/CSV file) and print it to the console with a helpful error message. Specific data ranges are:
-



- Damagage: 0 to 255
- Ammo1/2/3: 0 to 79
- DmgType: 0 to 6 or 255
- AccAuto/Snap/Aimed: 0 to 255
- TimeAuto/Snap/Aimed: 0 to 100
- Rounds: 0 to 255
- If a line has an incomplete or superfluous set of data (more or less than 14 comma- or tab separated values) the line will be skipped. In practice, this amounts to checking if there are more or less than 13 commas or tab stops on the line. Two consecutive commas or tab stops will make the value that was expected between them be set to 0. This error is not reported, as it also allows comments within the CSV/RFF files.

Now, there is just one more thing you should know about: the **custom RFF header** feature.

## 1.8 Using custom RFF headers

Using custom RFF headers

The procedure for exporting RFF files will look for a file called "OBEdit.hdr" in the S: assign. This file should contain an appropriate RFF header to be inserted in the exported file. If "S:OBEdit.hdr" is not found, an internal default header is used.

The big advantage of this is to let you - the user - export RFF files with the header of your choice. The recommended way to do this:

- Export an RFF file from OBEDIT.DAT
- Load the resulting RFF file into DB and use the "Edit design" menu command to change the appearance of the window to your preference.
- Save the RFF file and open it with a text editor (f.ex. CygnusEd).
- Copy the RFF header (the line that starts with a "@") and make a new file that contains this header and one linefeed. Save this file to "S:obedit.hdr".

Another advantage of this approach becomes apparent if your database/spreadsheet program does not support comma-separated ASCII files, but needs TABs as delimiters. (I have never heard of such a program, but hey, it might happen.) In this case, you would make an empty file and save it as "S:OBEdit.hdr". Now your RFF files will be just like normal tab-separated ASCII files, which are also readily importable by OBEdit.

## 1.9 About the author

About myself

Just the basic facts:

On the west coast of an utterly insignificant country called "Norway", there is an even more insignificant city called "Bergen". This is where I live. It rains a lot here, and that's all there is to say about it, really.

Although this program is freeware, I figure there is a one-in-1200120120^1212 chance that somebody will actually send me a postcard, money, inflatable women or anything else. So here's the adress:

Kay Ove Ovesen

Carl Konowsgate 36, L514

5161 LAKSEVAAG

NORWAY

My homepage: <http://home.sol.no/~kaovesen>

My e-mail adress: [ai97koo@stud.hib.no](mailto:ai97koo@stud.hib.no) or [kayove@hotmail.com](mailto:kayove@hotmail.com)

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## 1.10 Distribution

### Distribution

OBEdit is FREEWARE. This means that you can copy it, use it and spread it around as long as the original archive is intact. The Copyright remains with me, however. Disassembling and changing the executable file is a complete waste of time, since the source code can be downloaded from Aminet in the dev/e directory anyway. (dev/e/obedit\_src.lha)

The only thing I request for this program is that any bugs/errors are reported to me as soon as possible. In other words: complaints are welcome!

### Disclaimer:

If this program messes up your hard disk, melts your CPU, blows your fuses, degrades your vision or reduces the quality of your sex life, it is not my problem!

## 1.11 Credits

### Credits

Thanks go to:

Wouter van Oortmessen for the excellent programming language Amiga E.

Jason Hulance for an excellent beginner's guide to Amiga E.

Scott T. Jones (Author of XcomUtil for the PC) for sharing his knowledge about the OBDATA.DAT file.

MicroProse for X-COM I and II.

The subscribers of the AmigaE mailing list for invaluable advice about E-programming.

Software used:

CygnusEd 4.2 by CygnusSoft Software.

Amiga E v3.3a

DB v3.5 by Martin Ekholm and Marchin Orłowski.

FinalData relase 2 by SoftWood.

TurboCalc 5.01 by Michael Friedrich.

AZap v2.40 by Denis Gounelle

## 1.12 Program development history

### HISTORY

v1.0: (15.05.99) Initial relase. Yay!

v1.1: (28.05.99) Minor upgrade.

- Successfully implemented "\$VER:" version string. (Finally got it working!)
  - Improved import-file exception handling. No longer aborts if procline() or impvalues() encounter out-of-range data, but rather skips the object (line in CSV/RFF file) entirely and prints it to the console.
  - Added the "Verbose" option just for the heck of it.
  - No bugs fixed because: no bugs found.
-

## 1.13 Frequently Asked Questions

F.A.Q.

Q: Your program totally sucks and it messed up my hard drive big-time when I tried to run it! Where can I find your adress, so I can come to your house and punch you in the face?

A: You can find my adress [here](#) .

Q: Your program is simply divine! It has elevated X-COM to a whole new level of playability and my life has been pure bliss ever since I downloaded it. Where can I find your adress, so that I can send my 18 year old virgin sister over?

A: Again, you can find my adress [here](#) .

Q: What is the answer to the ultimate question about Life, the Universe and Everything?

A: Forty-two.

Q: Why aren't there any real questions in this FAQ?

A: Nobody has asked me anything yet.

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