

# **BlizzMagic**

Jan Hlavaty

**COLLABORATORS**

	<i>TITLE :</i> BlizzMagic		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
WRITTEN BY	Jan Hlavaty	August 22, 2022	

**REVISION HISTORY**

NUMBER	DATE	DESCRIPTION	NAME

# Contents

<b>1</b>	<b>BlizzMagic</b>	<b>1</b>
1.1	Welcome . . . . .	1
1.2	What's new? . . . . .	1
1.3	What it does . . . . .	2
1.4	What do you need . . . . .	3
1.5	How to use it . . . . .	4
1.6	Who cares about me, anyway? . . . . .	5
1.7	Possible trouble with BlizzMagic . . . . .	6
1.8	What happened since... . . . . .	6
1.9	Back to... no, that was another story. . . . .	8
1.10	These small usable thingies . . . . .	9
1.11	Hi-tech blobbies for everyone . . . . .	9

---

## Chapter 1

# BlizzMagic

### 1.1 Welcome

BlizzMagic V3.2

Kickstart ROM remapper for A1200 & all Blizzard 1230 and 1260

F R E E W A R E

What's new

Introduction

Requirements

Usage

Problems

Support Tools

Technical info

Author

History

Future

### 1.2 What's new?

Well, seems you are using BlizzMagic already... good! :-)

Here is a list of changes / new features in 3.2:

I borrowed Blizzard 1260 for a weekend, and this is the result:

---

BlizzMagic now fully supports 1260!!! This one was pretty hard to achieve, but I did it! For more details, see  
Tech

I also added a new option for 1230 IV and 1260 - NOSKIPOFF. When this is NOT specified, BlizzMagic will skip even the init code for testing "2" key on startup. That results in huge speedup of reboot with 1260! It also skips display flashing on 1260... You of course won't be able to turn Blizzard off using "2" key - you'll have to turn off computer, wait couple of seconds, then turn it on with "2" key pressed. But - who uses this anyway? :-)

There are also two other new options: MOVEVBR and PREPAREEMUL. MOVEVBR (when specified) moves VBR vector table in fastram. PREPAREEMUL moves start of the chip ram to \$2000 to allow some Macintosh emulators work.

### 1.3 What it does

What it does? Well, almost the same as many other #?kick ←  
programs -

allows use of different Kickstart ROM than your computer actually has. But - it has some other features, that make this program more than just a softkicker. One of the most interesting features is moving exec.library (which is one of the most heavily used libraries in system) base into fastram. Because Blizzard's expansion RAM stays on the bus all the time, the only reason why system doesn't use it from the very start of system initialization is, that fastram is added into free memory list at "diag init" time, when "exec.library" is already fully initialized and can't be easily moved into fastram (although it IS possible - I did such a patch before). So, BlizzMagic patches loaded ROM (since it's in RAM, and can be patched easily) and adds Blizzard's memory into free memory list BEFORE the final initialization of "exec.library". Exec then uses fastram for everything automatically.

Another feature of this "fastram" patch is that it changes memory attributes of Blizzard's RAM to reflect it's real behaviour. This results in ability to store reset-surviving objects such as "RAD:" devices into this fastram. You can for example have four RAD: units now! This wasn't possible before because RAD: disk images had to be stored in chip-ram, which was the only memory available with required attributes. That's history now! You may even move CPU interrupt vectors to fastram using MOVEVBR option. If you need to use "prepareemul" or similar tool, you can stop using it now, because BlizzMagic can do even this for you :-)

There are also functions that affect behaviour of Blizzard Turbo board itself. You can skip that flashing pause on reset when Blizzard says "I'm here" - this is nice when you reboot often. You can also disable SCSI kit. This is good when you have SCSI kit with SIMM installed, but no SCSI devices connected. You can skip "1230scsi.device" initialization, saving few seconds of searching SCSI bus for devices on every reboot.

Most attractive use of BlizzMagic will probably be using a new 3.1 ROM

---

on an old Commodore A1200 with 3.0 ROM. There is a  
tool  
for grabbing ROM  
image from CD32 or A1200 Magic provided in BlizzMagic distribution archive.  
Warning! Don't use A4000 3.1 ROM's - these don't work in A1200! Also note  
that using a grabbed rom may be illegal, since it's copyrighted. I warned you.  
Maybe when you grab it from your own CD32 and don't use both at once... I'm  
not a lawyer but a programmer... do what you want with BlizzMagic, but YOU  
are responsible for that. Don't blame me!

You can even softkick a old-style 256k 1.3 ROM, but BlizzMagic can't  
patch such a ROM without having to know it exactly. This is because  
"exec.library" is not a real "resident module" in these old-style ROM's.  
This means you can't use any of the advanced features of BlizzMagic -  
exec->fast, flash skipping... Maybe I'll support this in future, but who  
wants to use 1.3 these days anyway? I deleted all software that doesn't  
work on 3.0 years ago... These were poorly programmed and thus weren't  
worth it anyway...

You can use all the features even when you don't want to softkick any  
ROM (when you already have 3.1 ROM, for example). Just use "\*" as filename  
and BlizzMagic will use your original ROM. No problem!

For detailed instructions on usage of BlizzMagic, see  
Usage  
chapter.

## 1.4 What do you need

To be able to use "BlizzMagic", you need an Amiga 1200 with OS 2.0+  
equipped with phase5's Blizzard 1230 or 1260 and some FAST memory  
installed (4MB should be fine, I have 8MB). Blizzard should be configured  
via jumpers to enable its ROM->RAM remapping feature (MAPROM jumper) - see  
Blizzard's manual for this.

Of course you need some ROM image too.. If you have an old A1200 with  
OS3.0, you can visit your friend who has a newer A1200 with OS3.1, and use  
provided "rom grabber" to grab his ROM when he has left for a while :-).  
CD32 is a good target for grabbing too. So far I've tested these  
Kickstarts:

40.68 (my machine's own ROM)  
39.106 (normal old A1200)  
37.175 (A500 version? no IDE) \\_\_ these didn't work on 1260  
37.350 (A600 one - IDE WORKS!!) /  
34.5 (??? I don't know much about this one)

WARNING: DO NOT GRAB ROM on computer with BlizzMagic in use -  
BlizzMagic patches the ROM. Such ROM would be unusable! (As it  
jumps to RAM address, where resident part of BlizzMagic was  
located). This is not a real problem, since one who uses BlizzMagic  
already has that ROM in a file :-)

## 1.5 How to use it

Brief overview of usage:

```
BlizzMagic <filename> <options>
```

<filename> is a filename of your ROM file, or \* when you don't want to load any ROM.

<options> is one or more of following:

STARTUP - specify this when you're putting BlizzMagic into startup-sequence. When this switch is specified, BlizzMagic will only load a new ROM when there's NO ROM loaded already. This means it will work only first time after power-on. Technically, BlizzMagic will only act when the ROM installed is equal to your original ROM.

NOSKIPFLASH - Turns off flash-skipping, which is ON by default. This has no effect on SCSI.

NOSKIPOFF - Turns off "2" key detection on 1230IV and also screen flashing on 1260. You won't be able to turn Blizzard off until power-off.

MOVEVBR - This does the same as similar option in FastExec - moves VBR vectors into fastram, resulting in slight speedup of interrupts.

PREPAREEMUL - This option replaces "prepareemul" tool from ShapeShifter. It moves start of chip-ram to \$2000, so Mac emulators can use low memory for their system. This option automatically implies MOVEVBR.

NOSCSI - Turns off SCSI initialization. This means Z3/1230scsi.device won't appear at all and SCSI bus won't be searched for devices. Speeds up booting when no SCSI devices are connected.

NORESIDENT - Turns off resident part of BlizzMagic. This disables all other features (flash/off skipping, NOSCSI, exec->fastram, fastram attribute correction). Specified ROM is simply loaded over the currently installed one without any patching. This is also the case for old-style (1.3) ROMs, which can't be currently patched by BlizzMagic.

FORCE - Forces ROM replacement, even when both ROMs have the same version and revision. Mainly for debug purposes, but can be used for loading patched version of your normal ROM. Note that STARTUP switch overpowers FORCE - when both are specified, ROM won't be replaced when there is already some ROM installed, even with FORCE switch.

Using BlizzMagic:

When you want to use a new (maybe 3.1) ROM all the time, you may want to put BlizzMagic into your startup-sequence. It should be put as a first command (even before SetPatch) in s:startup-sequence, not in user-startup! Enter this at start of your s:startup-sequence:

```
BlizzMagic <filename> STARTUP
```

This will load a specified ROM when there's no rom installed already. STARTUP switch enables loading any rom later using BlizzMagic from Shell - It won't be replaced back when you have BlizzMagic in startup-sequence.

When you don't want to load any ROM but still want to use BlizzMagic's features, put this at start of startup-sequence:

```
BlizzMagic * STARTUP
```

This doesn't load any ROM, but moves exec to fast, fixes fast memory attributes and skips flashing.

```
BlizzMagic * STARTUP NOSCSI
```

This does the same as the previous one, but also disables SCSI.

When you want to restore your original ROM, use this from Shell:

```
BlizzMagic * NORESIDENT
```

Note that in this case STARTUP switch won't keep BlizzMagic from loading ROM when it's in startup-sequence, as it sees there's no ROM installed. Also, you won't be able to restore ROM this way when you softkicked 1.3, since BlizzMagic requires OS2.0+ for parsing arguments. Maybe I'll add a functionality on 1.3 for restoring ROM only (\* NORESIDENT) in future.

## 1.6 Who cares about me, anyway?

Well, seems I've definitely decided to become a famous Amiga programmer, so take a note of my e-mail address :-)

mamlason@bajt.cz

I'll be also reachable at:

hlavaty@amiga.cz

Mail from there should be auto-forwarded to me, once it starts to work :-)  
Please use mamlason@bajt.cz preferably. This account is (finally) a normal full-featured POP3 mailbox - no more BBS limits!

The "Real" world address:

Jan Hlavaty  
Tadzicka 1424  
Praha 10  
10100  
Czech Republic  
(It's in central Europe, you dumb :-)



I'm on IRC sometimes as "Mamlason"... I like giving away cookies :-)

I would like to thank the following people:

- Christer Bjarnemo for his ideas, opinions and moral support as well as other things I didn't mention here :-)
- Stephen Evans ("Mr\_Q") for launching suspicious code I DCC'ed him on his machine to provide me with essential information about Blizzard 1230III (it was not a virus - this time :-), and for being the first happy user of BlizzMagic on 1230III
- Helmut Kroeber, Rorderick (? that's all I know about you), Luke Osbaldeston, Alessandro Zummo and all other people who emailed me (and will email me) for their comments and showing interest in my work.
- "BillRiker" on IRC for the same as "Mr\_Q", but on 1230 II
- Harry Sintonen (author of BlizKick) for cloning BlizzMagic (Yeah! I was first :-), thus making me believe it's worth it :-). Isn't it nice many Amiga programs exist in pairs, making each other want to be better than the other? Well, rivalry is a strong motivation, thanks for that :-) (as this is the only motivation that works on ME - I'm very lazy otherwise)
- Any other persons/entities I forgot that exist on IRC or in general cyberspace, that helped me by discussing and/or beta-testing BlizzMagic.
- Michal Suk from Atlantida for borrowing me Blizzard 1260 for a weekend, thus allowing me to make BlizzMagic work perfectly on 1260.

## 1.7 Possible trouble with BlizzMagic

There are some tips for using blizzmagic:

- When putting BlizzMagic into startup-sequence, always put it at the very first line, before SetPatch. Specify STARTUP switch there.
- Do not use conflicting programs at once with BlizzMagic in startup-sequence. These may be "FastExec", "PrepareEmul" or similar tools which change something and then reboot. Such programs can get into fight with BlizzMagic easily and there is NO need to run them now, as BlizzMagic can do the same :-)
- Check that ROM you're going to use is for A1200. Couple of people reported problems using A4000's one.
- I had problems with some <3.0 ROMs on 1260. I think these won't work at all and shouldn't be used.

## 1.8 What happened since...

---

- V1.0: First public release, for Blizzard 1230 IV only...  
Used overlay trick which confused most programs patching  
LoadSeg(). Not bad, but...
- V2.0: Complete rewrite and concept change, now supports 256k ROMs  
and checks for ROM loaded. Still for Blizzard 1230IV only... :-(  
Released on coverdisk of Czech magazine for Amiga users "AMIGA Review"
- V2.1: I caught a 1230III owner on IRC finally (hi Mr\_Q) and adapted  
BlizzMagic to use 1230III too. Now supports versions III and IV.  
Still no bugs found.
- V2.2: Someone wrote to me it could be very nice feature to make BlizzMagic  
copy exec to fast ram, since using "fastexec" and "BlizzMagic"  
together results in two reboots. I was surprised that the first  
attempt I made was successful - one evening work :-). Only 1.3  
seems to dislike my way using romtags, so no fast exec on v34...
- V2.3: I discovered that Blizzard's RAM (at least on IV) doesn't go  
away after reset - It's only unknown to the system until  
diag init phase adds it to the free memory list. I changed the  
FASTEXEC mechanism and corrected fastram attributes to reflect  
this - BlizzMagic adds fastram just before exec.library gets  
initialized, thus effectively moves exec and system stack to fastram.  
FASTEXEC doesn't use the KickMemPtr/KickTagPtr/KickChecksum vectors  
so that RAD: can be used and doesn't have to be in chip-ram.  
Also "boot with no startup-sequence" can be used again.  
Now you can have more than two RAD: units due to large amount  
of suitable memory available.  
Also added a feature to skip the one-second flashing pause  
in Blizzard's initialization - BlizzMagic adds the memory  
on its own and bypasses Blizzard's initialization. If you have  
"scsi kit" installed, disable this using "NOSKIP" option.  
Added a nice effect on reboot.
- V2.4: I got my hands on unguarded 1260. BlizzMagic should work  
on that too! I was surprised that 1260 has the same  
product number as 1230IV... and it works the same way!  
Unfortunately, there is still something wrong - i'll get this
- V2.5: Found someone with 1230 II finally. BlizzMagic now supports  
that too! Now there's only one left... and maybe 1260.  
This is second public release on Aminet.
- V3.0: Complete rewrite. Changed way of patching ROM - now there are  
two patches: "exec.library" and "diag init" init vectors.  
Now supports all models of Blizzard 1230. Added option  
for skipping SCSI initialization. Added support for easy launching  
of BlizzMagic from startup-sequence. Third Aminet release.
- V3.1: BlizzMagic now fully works on 1260. Also added skipping  
of "2" key detection on 1230IV and 1260. Now skips flashing  
on 1260. Added checks of options of currently resident  
BlizzMagic. BlizzMagic WILL reboot now when ROM's are same  
but selected options are different. Should be another Aminet  
release, but progress went too fast this time...
-

V3.2: Added option for moving VBR vectors into fastram. Added replacement for "prepareemul" tool. Another Aminet release.

## 1.9 Back to... no, that was another story.

My future plans with BlizzMagic

I'll continue to develop BlizzMagic as long as someone wants it. There are some possible improvements of BlizzMagic:

- Support for rekick back from 1.3 ROM
- Add patch for 1230 I and II similar to "patch1230scsi"

Other projects

I got very angry, since I found some bugs in Term v 4.6/4.6a - I even searched for another terminal but - I didn't find anything at least half as usable as TERM. All terminals (even commercial) that I've seen (except TERM, thank God for it) seem to be old, half-functioning sh\*ts!!! I can't stand this, so new project was born:

T.W.I.C.T. - That's What I Call Terminal!

TWICT will be a small, compact terminal written completely in assembly, that will have these features and requirements:

- OS 3.0+, maybe 68020 required
  - Full usage of OS3.0/3.1 features
  - meant and optimised for use on stock A1200's, using OCS/ECS/AGA
  - 16-color screen, with flash-fast scrolling, BBS ANSI compliant
  - Ibm gfx font
  - nasty yet system-friendly and compatible tricks to speed-up things
  - Smart built-in dialer with phonebook and intelligent automatic login
  - XPR 2.001 support for external transfer protocols, maybe ZModem module
  - Optional hardware-banging serial device emulation mode to allow higher speeds (for internal serial port only)
  - Modular design
  - Maybe even SLIP and PPP modules, to use it as a dialer/gateway for Internet access
  - Many ideas that I'll get developing this will be turned into mighty, not-seen-before features :-)
-

- ARexx support, when I finally learn how to make ARexx interface :-)
- Probably SHAREWARE, but with USABLE, unrestricted demo version.

I don't promise I'll finish it, but... It's very likely :-) I already started working on this.

I also work on other assembly projects, but they're small (since it's too much work with assembler to make big projects, and as I said - I'm too lazy) and won't be probably released on Aminet.

I hope you'll hear of me in the future :-)

## 1.10 These small usable thingies

There are three little pig- err... tools provided with BlizzMagic:

FixSum - can be used to fix checksum of 512k ROM. Such (patched) rom can be used with NORESIDENT then.

StealROM - saves ROM of computer it's executed on into file named "GrabbedROM".

ReconnectModules - run this on ROM file - makes (very-very-little) speedup of ROM resident modules recognition.

## 1.11 Hi-tech blobbies for everyone

Blizzard 1260 and 68060.library

I had hard times figuring out what's going on with 1260, so I'll explain here what I discovered.

My problem was: I had to (illegally) access certain undocumented memory regions to keep things going - namely Blizzard ROM->RAM emulating memory (where ROM gets written to to appear as system ROM at \$00f80000) and second appearance of original system ROM at \$00a80000, which isn't replaced by Blizzard's ROM emulation (and thus enables restoring original ROM). Both these memory areas disappeared when setpatch was started, making BlizzMagic work only from startup-sequence when run before setpatch. Thus, no loading ROMs from your usual environment (shell/wb). So, let the world know that 68060.library which is loaded by setpatch uses MMU to hide these memory regions!

I've found two ways of working this around:

- 1) I used MOVES opcodes in address space 7 to access required memory areas. This did work on RAM only. My 1230 also CRASHED with "bus error" when i tried accessing address space 7.

On 1260, it worked.

2) I turned off MMU for a while - this method was finally used in BlizzMagic 3.1.

Another prob was with skipping of 1260's startup-code that checks "2" key - it also set 68060's PCR register. BlizzMagic now does this itself. As PhxAss V4.32 didn't work on 1260 (\*sigh\*), I had to enter some 68060 opcodes as data.

#### How it works

For anyone interested, here is how BlizzMagic works:

As you know, Blizzards can remap ROM into RAM. This is because RAM access is faster than ROM access. When Blizzard's MAPROM feature is enabled, Blizzard's init code takes 512k of RAM and copies system ROM there. After the ROM is copied, it activates special hardware that makes this RAM appear instead of original system ROM at \$00f80000. BlizzMagic is able to modify or even completely replace this copied ROM with another. It also patches this ROM to achieve some of it's features. ROM image is currently patched at three places:

1. Cold entrypoint - the very first routine that is called after reset. This routine normally checks for extra ROM at \$00f00000 and when it is detected, it gets jumped to. This was originally for development purposes, when there was a FLASH-ROM at \$00f00000. Blizzards 1230IV and 1260 however use this location (illegally, but it works :-)) to gain control at the very start of system reboot. One half of Blizzard's autoconfig ROM appears here, and it's code is responsible for turning off Blizzard when "2" key is pressed. On 1260, it also sets some 68060 registers and does screen flashing. BlizzMagic patches cold init routine so that this extra ROM never gets called and does necessary stuff itself.

2. Exec resident romtag init code - at this point, there exists a temporary (and partial) execbase in chip-ram, that only contains some information - like AttnFlags, last alert, Cold/Cool/Warm capture and Kick vectors and memory list that contains only chip-ram and some special RAM added by expansion.library (this is not the case of Blizzard's RAM). BlizzMagic takes over at this point and adds Blizzard's FASTRAM into this memory list, then it passes control back to exec.library initialization. As fastram is available already at exec.library initialization, it is used for all stuff that exec.library allocates. Nice, eh?

3. diag init initialization code - This resident module is initialized after expansion.library and exec.library are fully ready to use, before any other libraries/modules get initialized. At this point, list of expansion boards from expansion.library is scanned for devices which contain their own ROM code. This is our case :-)  
As this routine couldn't be patched easily to work on any ROM revision, I completely replaced this module with my own one. Still does the same, but when it gets to Blizzard's expansion ROM, it

patches it before running it (as expansion ROMs get converted/copied into RAM for execution). This is the place where flash and SCSI skipping are done. However, only 2.0+ ROMs have this structure containing "diag init", so all this can't be done on 1.3 ROM's. I move VBR to fastram here (as all vectors are set by exec initialization now).

I also patch the ROM code for installing chip-ram to move its start to \$2000 when PREPAREEMUL is activated. After ROM image is patched, it's copied to appropriate memory space and system reboots with the new ROM.

---