



Alien Flash Tools

VERSION 0.0
07/05/2011

INTRODUCTION

The Alien Flash cartridge comes with the Alien Flash Tools installed in ROM SLOT 0, the user is free to remove or overwrite the Alien Flash Tools (even replace with their own, or third party set of tools) if they wish to, however, it must be realised that if the Alien Flash Tools is removed or overwritten, the user will not be able to use the "SELECT 1MB SLOT" tool to access the other ROM SLOTS.

Alien Flash Tools contains the following tools:

"SELECT 1MB SLOT"
"LAUNCH AR MODE"
"D64 TRANSFER"
"ALIEN LOAD"
"PROG AF VIA USB"
"EASYPROG"

ROM SLOT 0

By default, ROM SLOT 0 contains the Alien Flash Tools, however, the user may overwrite this if they wish.

	LOW ROM	HIGH ROM
\$70000	SCRATCHPAD (D64 transfer location)	Default AR mode 64k ROM location
\$60000	SCRATCHPAD (D64 transfer location)	SCRATCHPAD (reserved for future use)
\$50000	SCRATCHPAD (D64 transfer location)	SCRATCHPAD (reserved for future use)
\$40000	SCRATCHPAD (D64 transfer location)	SCRATCHPAD (reserved for future use)
\$30000	SCRATCHPAD (PRG transfer location)	SCRATCHPAD (reserved for future use)
\$20000	SCRATCHPAD (PRG transfer location)	SCRATCHPAD (reserved for future use)
\$10000	SCRATCHPAD (PRG transfer location)	SCRATCHPAD (reserved for future use)
\$00000	Alien Flash Tools	Alien Flash Tools

DESCRIPTION OF TOOLS

SELECT 1MB SLOT

This program allows the user to launch any of the sixteen 1MB ROM SLOTS off the Alien Flash.

Additionally pressing "X" will enter Expert mode, here the user manually sets all values for the Alien Flash control register (\$DE00 - \$DE03), after which the Alien Flash will soft reset.

LAUNCH AR MODE

This tool will check to see if there is a ROM image at the default location for the AR MODE compatible ROM image. The Alien Flash does not come with an AR MODE compatible ROM image pre-installed. If the user has installed an AR MODE compatible ROM image at the default location for the AR MODE compatible ROM image, this program will launch it.

AR MODE compatible ROM images can be placed and will work from any location in the Alien Flash (theoretically, the Alien Flash could store 512 different 32K ROM images), however, Alien Flash Tools does have a set default location that it attempts to launch from. This default location for the AR MODE compatible ROM image is at \$70000 in the High ROM of ROM SLOT 0 (this is at ROM location \$870000 if programming via USB).

D64 TRANSFER

This tool is for transferring D64 files between the USB host and a 1541 connected to the C64. D64 TRANSFER is a nibbler and uses the standard Kernal routines. When transferring D64 images via USB, Alien Tools uses a SCRATCHPAD area to store the D64 data, this is 1 for 1, the D64 file with a \$100 (256) byte header at the start. The area in the SCRATCHPAD set aside for this is at \$40000 in the Low ROM of ROM SLOT 0 (this is at ROM location \$040000 if programming via USB).

In actual fact, the D64 file proper is stored at \$40100 (\$040100 if programming via USB) with the header located at \$40000 (\$040000 if programming via USB).

Any application running on the USB host would be expected to program the Alien Flash ROM starting at \$040000 with the header followed by the D64 file at \$040100.

The D64 file header is filled with #FF's except the following locations:

\$00 - \$07: Alien Flash File signature (RRBY64AF in ASCII)

\$08: File type (\$7F = D64 file)

\$18 - \$1B: File size (Stored as least significant byte first)

\$20 - \$2F: Description (in ASCII)

Following is an example of the start of a D64 file with the \$100 byte header. In this example the file size is \$2AB00 bytes (standard D64 file size), the description is "BRUTAL COMEBACK".

EXAMPLE OF \$100 BYTE HEADER AT START OF D64 FILE

0	52 52 42 59 36 34 41 46 7F FF FF FF FF FF FF FF	R R B Y 6 4 A F 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10	FF FF FF FF FF FF FF FF 00 AB 02 00 FF FF FF FF	0 0
20	42 52 55 54 41 4C 20 43 4F 4D 45 42 41 43 4B 20	B R U T A L C O M E B A C K
30	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	0 0
40	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	0 0
50	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	0 0
60	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	0 0
70	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	0 0
80	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	0 0
90	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	0 0
A0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	0 0
B0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	0 0
C0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	0 0
D0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	0 0
E0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	0 0
F0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	0 0
100	01 0A 84 04 92 80 2F 32 1D 03 D3 F4 3E 22 F7 D4	START OF D64 FILE
110	DB 43 F9 0F 20 87 03 01 F3 22 D3 09 38 B3 0F	
120	25 04 C4 13 01 62 31 F8 2B 36 3D C4 15 32 25 2E	
130	03 31 14 0F 2E 4B 05 38 54 FF B0 10 04 08 0F 2C	
140	3C D3 15 E2 35 2F 2B 3A E4 11 5E 0C 57 08 04 73	
150	01 57 37 1A 03 B3 C8 2B 64 C5 A8 15 3D 52 06 9F	
160	02 0B EA 15 01 73 09 3A 03 85 02 13 61 2C 04 9C	
170	15 02 62 38 29 FF 0A 35 3C 37 16 10 F1 EC 27 29	

ALIEN LOAD

This tool is for transferring PRG files via USB directly into the C64's RAM to be RUN. The PRG files can exceed 202 Blocks. When transferring PRG files via USB, Alien Tools uses a SCRATCHPAD area to store the PRG data, this is 1 for 1, the PRG file with a \$100 (256) byte header at the start. The area in the SCRATCHPAD set aside for this is at \$10000 in the Low ROM of ROM SLOT 0 (this is at ROM location \$010000 if programming via USB).

In actual fact, the PRG file proper is stored at \$10100 (\$010100 if programming via USB) with the header located at \$10000 (\$010000 if programming via USB).

Any application running on the USB host would be expected to program the Alien Flash ROM starting at \$010000 with the header followed by the PRG file at \$010100.

The PRG file is filled with #\$FF's except the following locations:

\$00 - \$07: Alien Flash File signature (RRBY64AF in ASCII)

\$08: File type (\$0E = PRG file)

\$18 - \$1B: File size (Stored as least significant byte first)

\$20 - \$2F: Description (in ASCII)

Following is an example of the start of a PRG file with the \$100 byte header. In this example the file size is \$2FA5 bytes, the description is "MIDNIGHT RESURG".

EXAMPLE OF \$100 BYTE HEADER AT START OF PRG FILE

0	52 52 42 59 36 34 41 46 0E FF FF FF FF FF FF FF	R R B Y 6 4 A F 0E 00 00 00 00 00 00 00
10	FF FF FF FF FF FF FF FF A5 2F 00 00 FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
20	4D 49 44 4E 49 47 48 54 20 52 45 53 55 52 47 20	M I D N I G H T R E S U R G
30	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
40	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
50	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
60	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
70	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
80	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
90	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
A0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
B0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
C0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
D0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
E0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
F0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	00 00 00 00 00 00 00 00 00 00 00 00 00 00
100	01 08 0B 08 1A 03 9E 32 30 36 31 00 00 00 78 A9	00 00 00 00 00 00 00 00 00 00 00 00 00 00
110	00 8D 20 80 20 7C 08 88 01 A4 05 EE EA 01 76 ED	00 00 00 00 00 00 00 00 00 00 00 00 00 00
120	88 10 F8 B9 EA 07 99 BA 04 88 D0 F7 A2 2F 4C 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00
130	05 B1 2F 99 00 FF C8 D0 F8 CE 04 05 C6 30 CA D0	00 00 00 00 00 00 00 00 00 00 00 00 00 00
140	F0 A5 32 F0 7A 18 B1 31 4A 4A AA B1 31 20 9E 05	00 00 00 00 00 00 00 00 00 00 00 00 00 00
150	29 03 F0 39 C9 01 F0 44 C9 02 D0 0F B1 31 91 2D	00 00 00 00 00 00 00 00 00 00 00 00 00 00
160	20 9E 05 20 A5 05 CA D0 F3 F0 D6 86 8C B1 31 85	00 00 00 00 00 00 00 00 00 00 00 00 00 00
170	8B 20 9E 05 A5 8B D0 06 05 8C F0 C5 C6 8C C6 8B	00 00 00 00 00 00 00 00 00 00 00 00 00 00

PROG AF VIA USB

This tool simply enables the USB for the Alien Flash, allowing the USB host to program or read the Alien Flash ROMs.

EASYPROG

This will launch EasyProg V1.2 (by Skoe) in any ROM SLOT. EasyProg V1.2 will work fine with the Am29F032B ROMs, but it will warn that it is the wrong type of flash chip.

Alien Flash ROM MAP and ROM SLOT 0

Alien Flash ROM Map

		LOW ROM	HIGH ROM
ROM SLOT 15	\$780000	SECTOR 7	SECTOR 7
		SECTOR 6	SECTOR 6
		SECTOR 5	SECTOR 5
		SECTOR 4	SECTOR 4
		SECTOR 3	SECTOR 3
		SECTOR 2	SECTOR 2
		SECTOR 1	SECTOR 1
ROM SLOT 14	\$700000	SECTOR 0	SECTOR 0
		SECTOR 7	SECTOR 7
		SECTOR 6	SECTOR 6
		SECTOR 5	SECTOR 5
		SECTOR 4	SECTOR 4
		SECTOR 3	SECTOR 3
		SECTOR 2	SECTOR 2
ROM SLOT 13	\$680000	SECTOR 1	SECTOR 1
		SECTOR 0	SECTOR 0
		SECTOR 7	SECTOR 7
		SECTOR 6	SECTOR 6
		SECTOR 5	SECTOR 5
		SECTOR 4	SECTOR 4
		SECTOR 3	SECTOR 3
ROM SLOT 12	\$600000	SECTOR 2	SECTOR 2
		SECTOR 1	SECTOR 1
		SECTOR 0	SECTOR 0
		SECTOR 7	SECTOR 7
		SECTOR 6	SECTOR 6
		SECTOR 5	SECTOR 5
		SECTOR 4	SECTOR 4
ROM SLOT 11	\$580000	SECTOR 3	SECTOR 3
		SECTOR 2	SECTOR 2
		SECTOR 1	SECTOR 1
		SECTOR 0	SECTOR 0
		SECTOR 7	SECTOR 7
		SECTOR 6	SECTOR 6
		SECTOR 5	SECTOR 5
ROM SLOT 10	\$500000	SECTOR 4	SECTOR 4
		SECTOR 3	SECTOR 3
		SECTOR 2	SECTOR 2
		SECTOR 1	SECTOR 1
		SECTOR 0	SECTOR 0
		SECTOR 7	SECTOR 7
		SECTOR 6	SECTOR 6
ROM SLOT 9	\$480000	SECTOR 5	SECTOR 5
		SECTOR 4	SECTOR 4
		SECTOR 3	SECTOR 3
		SECTOR 2	SECTOR 2
		SECTOR 1	SECTOR 1
		SECTOR 0	SECTOR 0
		SECTOR 7	SECTOR 7
ROM SLOT 8	\$400000	SECTOR 6	SECTOR 6
		SECTOR 5	SECTOR 5
		SECTOR 4	SECTOR 4
		SECTOR 3	SECTOR 3
		SECTOR 2	SECTOR 2
		SECTOR 1	SECTOR 1
		SECTOR 0	SECTOR 0
ROM SLOT 7	\$380000	SECTOR 7	SECTOR 7
		SECTOR 6	SECTOR 6
		SECTOR 5	SECTOR 5
		SECTOR 4	SECTOR 4
		SECTOR 3	SECTOR 3
		SECTOR 2	SECTOR 2
		SECTOR 1	SECTOR 1
ROM SLOT 6	\$300000	SECTOR 0	SECTOR 0
		SECTOR 7	SECTOR 7
		SECTOR 6	SECTOR 6
		SECTOR 5	SECTOR 5
		SECTOR 4	SECTOR 4
		SECTOR 3	SECTOR 3
		SECTOR 2	SECTOR 2
ROM SLOT 5	\$280000	SECTOR 1	SECTOR 1
		SECTOR 0	SECTOR 0
		SECTOR 7	SECTOR 7
		SECTOR 6	SECTOR 6
		SECTOR 5	SECTOR 5
		SECTOR 4	SECTOR 4
		SECTOR 3	SECTOR 3
ROM SLOT 4	\$200000	SECTOR 2	SECTOR 2
		SECTOR 1	SECTOR 1
		SECTOR 0	SECTOR 0
		SECTOR 7	SECTOR 7
		SECTOR 6	SECTOR 6
		SECTOR 5	SECTOR 5
		SECTOR 4	SECTOR 4
ROM SLOT 3	\$180000	SECTOR 3	SECTOR 3
		SECTOR 2	SECTOR 2
		SECTOR 1	SECTOR 1
		SECTOR 0	SECTOR 0
		SECTOR 7	SECTOR 7
		SECTOR 6	SECTOR 6
		SECTOR 5	SECTOR 5
ROM SLOT 2	\$100000	SECTOR 4	SECTOR 4
		SECTOR 3	SECTOR 3
		SECTOR 2	SECTOR 2
		SECTOR 1	SECTOR 1
		SECTOR 0	SECTOR 0
		SECTOR 7	SECTOR 7
		SECTOR 6	SECTOR 6
ROM SLOT 1	\$080000	SECTOR 5	SECTOR 5
		SECTOR 4	SECTOR 4
		SECTOR 3	SECTOR 3
		SECTOR 2	SECTOR 2
		SECTOR 1	SECTOR 1
		SECTOR 0	SECTOR 0
		SECTOR 7	SECTOR 7
ROM SLOT 0	\$000000	SECTOR 6	SECTOR 6
		SECTOR 5	SECTOR 5
		SECTOR 4	SECTOR 4
		SECTOR 3	SECTOR 3
		SECTOR 2	SECTOR 2
		SECTOR 1	SECTOR 1
		SECTOR 0	SECTOR 0

FLASH ROM 3

FLASH ROM 2

ROM SLOT 0

By default, ROM SLOT 0 contains the Alien Flash Tools, however, the user may overwrite this if they wish.

	LOW ROM	HIGH ROM
\$70000	SCRATCHPAD (D64 transfer location)	Default AR mode 64k ROM location
\$60000	SCRATCHPAD (D64 transfer location)	SCRATCHPAD (reserved for future use)
\$50000	SCRATCHPAD (D64 transfer location)	SCRATCHPAD (reserved for future use)
\$40000	SCRATCHPAD (D64 transfer location)	SCRATCHPAD (reserved for future use)
\$30000	SCRATCHPAD (PRG transfer location)	SCRATCHPAD (reserved for future use)
\$20000	SCRATCHPAD (PRG transfer location)	SCRATCHPAD (reserved for future use)
\$10000	SCRATCHPAD (PRG transfer location)	SCRATCHPAD (reserved for future use)
\$00000	Alien Flash Tools	Alien Flash Tools