NAME

rgbasm-old — obsolete language documentation

DESCRIPTION

This is the list of features that have been removed from the *rgbasm*(5) assembly language over its decades of evolution, along with their modern alternatives. Its goal is to be a reference for backwards incompatibility, when upgrading an old assembly codebase to work with the latest RGBDS release. It does *not* attempt to list every syntax bug that was ever fixed (with some notable exceptions), nor new reserved keywords that may conflict with old identifiers.

REMOVED

These are features which have been completely removed, without any direct alternatives. Usually these features were limiting the addition of other features, or had awkward limits on their own intended effects.

Automatic LD to LDH conversion (rgbasm -l)

Deprecated in 0.7.0, removed in 0.8.0.

rgbasm(1) used to automatically treat 'LD' as LDH if the address was known to be in the \$FF00-\$FFFF range, with the -L flag to opt out. rgbasm(1) 0.6.0 added a -1 flag to opt in instead.

Instead, use LDH, and remove the -L and -1 flags from rgbasm(1).

Automatic NOP after HALT (rgbasm -H)

Deprecated in 0.7.0, removed in 0.8.0.

rgbasm(1) used to automatically insert a NOP after HALT, with the -h flag to opt out. rgbasm(1) 0.6.0 added a -H flag to opt in instead.

Instead, use an explicit NOP after HALT, and remove the -h and -H flags from rgbasm(1).

Nested macro definitions

Removed in 0.4.2.

Instead, put the nested macro definition inside a quoted string (making sure that none of its lines start with **ENDM**), then interpolate that string. For example:

```
MACRO outer

DEF definition EQUS """

MACRO inner

println (\1) - (\\1)

\nENDM"""

{definition}

PURGE definition

ENDM

outer 10

inner 3; prints 7
```

Negative DS

Removed in 0.3.2.

This was used to "rewind" the value of @ in RAM sections, allowing labeled space allocations to overlap.

Instead, use UNION.

```
FILE and LINE
```

Deprecated in 0.6.0, removed in 0.7.0.

Instead, use WARN or FAIL to print a complete trace of filenames and line numbers.

_PI

Deprecated in 0.5.0, removed in 0.6.0.

Instead, use 3.141592653.

Treating multi-character strings as numbers

Deprecated in 0.9.0.

Instead, use a multi-value **CHARMAP**, or explicitly combine the values of individual characters.

rgbgfx -f/--fix and -F/--fix-and-save

Removed in 0.6.0.

Instead, use rgbgfx -c/--colors to explicitly specify a color palette. If using -c embedded, arrange the PNG's indexed palette in a separate graphics editor.

rgbgfx -D/--debug

Removed in 0.6.0.

REPLACED

These are features whose syntax has been changed without affecting functionality. They can generally be updated with a single search-and-replace.

Defining constants and variables without DEF

Deprecated in 0.7.0, removed in 0.8.0.

EQU, EQUS, =, RB, RW, and RL definitions used to just start with the symbol name, but had to be typed in column 1.

Instead, use **DEF** before constant and variable definitions. Note that **EQUS** expansion does not occur for the symbol name, so you have to use explicit {interpolation}.

Defining macros like labels

Deprecated in 0.6.0, removed in 0.7.0.

Macros used to be defined as name: MACRO.

Instead, use MACRO name. Note that **EQUS** expansion does not occur for the macro name, so you have to use explicit {interpolation}.

Defining variables with SET

Deprecated in 0.5.2, removed in 0.6.0.

Variables used to be defined as name SET value.

Instead, use DEF name = value.

Global labels without colons

Deprecated in 0.4.0, removed in 0.5.0.

Labels used to be definable with just a name, but had to be typed in column 1.

Instead, use explicit colons; for example, Label: or exported Label::.

'\,' in strings within macro arguments

Deprecated in 0.5.0, removed in 0.7.0.

Macro arguments now handle quoted strings and parenthesized expressions as single arguments, so commas inside them are not argument separators and do not need escaping.

Instead, just use commas without backslashes.

'*' comments

Deprecated in 0.4.1, removed in 0.5.0.

These comments had to have the '*' typed in column 1.

Instead, use ';' comments.

PRINTT, PRINTI, PRINTV, and PRINTF

Deprecated in 0.5.0, removed in 0.6.0.

These directives were each specific to one type of value.

Instead, use **PRINT** and **PRINTLN**, with **STRFMT** or {interpolation} for type-specific formatting.

IMPORT and XREF

Removed in 0.4.0.

Symbols are now automatically resolved if they were exported from elsewhere.

Instead, just remove these directives.

GLOBAL and XDEF

Deprecated in 0.4.2, removed in 0.5.0.

Instead, use EXPORT.

HOME, CODE, DATA, and BSS

Deprecated in 0.3.0, removed in 0.4.0.

Instead of HOME, use ROMO; instead of CODE and DATA, use ROMX; instead of BSS, use WRAMO.

JP [HL]

Deprecated in 0.3.0, removed in 0.4.0.

Instead, use JP HL.

LDI A, HL and LDD A, HL

Deprecated in 0.3.0, removed in 0.4.0.

Instead, use LDI A, [HL] and LDD A, [HL] (or LD A, [HLI] and LD A, [HLD]; or LD A, [HL+] and LD A, [HL-]).

LDIO

Deprecated in 0.9.0.

Instead, use LDH.

LD [C], A and LD A, [C]

Deprecated in 0.9.0.

Instead, use LDH [C], A and LDH A, [C].

Note that LD [\$FF00+C], A and LD A, [\$FF00+C] were also deprecated in 0.9.0, but were undeprecated in 0.9.1.

LDH [n8], A and LDH A, [n8]

Deprecated in 0.9.0.

LDH used to treat "addresses" from \$00 to \$FF as if they were the low byte of an address from \$FF00 to \$FFFFF.

Instead, use LDH [n16], A and LDH A, [n16].

LD HL, [SP + e8]

Deprecated in 0.3.0, removed in 0.4.0.

Instead, use LD HL, SP + e8.

LDHL SP, e8

Supported in ASMotor, removed in RGBDS.

Instead, use LD HL, SP + e8.

rgbasm -i

Deprecated in 0.6.0, removed in 0.8.0.

Instead, use -I or --include.

rgbgfx -h

Removed in 0.6.0.

```
Instead, use -Z or --columns.
```

rgbgfx --output-*

Deprecated in 0.7.0, removed in 0.8.0.

```
Instead, use --auto-*.
```

CHANGED

These are breaking changes that did not alter syntax, and so could not practically be deprecated.

Trigonometry function units

Changed in 0.6.0.

Instead of dividing a circle into 65536.0 "binary degrees", it is now divided into 1.0 "turns".

For example, previously we had: delim \$\$

- SIN(0.25) == 0.00002, because 0.25 binary degrees = \$0.25 / 65536.0\$ turns = \$0.000004 tau\$ radians = \$0.000008 pi\$ radians, and $$\sin(0.000008$ pi) = 0.00002\$
- SIN(16384.0) == 1.0, because 16384.0 binary degrees = 16384.0 / 65536.0 turns = 0.25 tau radians = $\frac{2}{2} \text{ radians}$, and $\frac{2}{2} = 1$
- ASIN(1.0) == 16384.0

Instead, now we have:

- SIN(0.25) == 1.0, because 0.25 turns = 0.25 tau\$ radians = $\frac{pi}{2}$ radians, and $\sin (pi/2) = 1$ \$
- SIN(16384.0) == 0.0, because \$16384\$ turns = \$16384 tau\$ radians = \$32768 pi\$ radians, and \$\sin(32768 pi) = 0\$
- ASIN(1.0) == 0.25

delim off

** operator associativity

Changed in 0.9.0.

Instead of being left-associative, '**' is now right-associative.

```
Previously we had p ** q ** r == (p ** q) ** r.
```

Instead, now we have p ** q ** r == p ** (q ** r).

BUGS

These are misfeatures that may have been possible by mistake. They do not get deprecated, just fixed.

Space between exported labels' colons

Fixed in 0.7.0.

Labels with two colons used to ignore a space between them; for example, Label: :.

Instead, use Label::.

Space between label and colon

Fixed in 0.9.0.

Space between a label and its colon(s) used to be ignored; for example, Label : and Label ::. Now they are treated as invocations of the Label macro with ':' and '::' as arguments.

```
Instead, use Label: and Label::.
```

ADD r16 with implicit first HL operand

Fixed in 0.5.0.

For example, ADD BC used to be treated as ADD HL, BC, and likewise for 'DE', 'HL', and 'SP'.

Instead, use an explicit first 'HL' operand.

= instead of SET

Fixed in 0.4.0.

The = operator used to be an alias for the **SET** keyword, which included using = for the **SET** instruction.

Instead, just use **SET** for the instruction.

SEE ALSO

rgbasm(1), *gbz80*(7), *rgbds*(5), *rgbds*(7)

HISTORY

rgbasm(1) was originally written by Carsten Sørensen as part of the ASMotor package, and was later repackaged in RGBDS by Justin Lloyd. It is now maintained by a number of contributors at https://github.com/gbdev/rgbds.