

**NAME**

srec\_needham – Needham EMP-series programmer ASCII file format

**DESCRIPTION**

This format is understood by Needham Electronics' EMP-series programmers. See [www.needhams.com/winman.pdf](http://www.needhams.com/winman.pdf) for more information. (This format is very similar to the ASCII-Hex format, but without the ^B and ^C guard characters.)

Each data byte is represented as 2 hexadecimal characters, and is separated by white space from all other data bytes.

The address for data bytes is set by using a sequence of `$Annnn`, characters, where `nnnn` is the 8-character ascii representation of the address. The comma is required. There is no need for an address record unless there are gaps. Implicitly, the file starts a address 0 if no address is set before the first data byte.

**Size Multiplier**

In general, binary data will expand in sized by approximately 3.0 times when represented with this format.

**EXAMPLE**

Here is an example ascii-hex file. It contains the data "Hello, World" to be loaded at address 0x1000.

```
$A1000,  
48 65 6C 6C 6F 2C 20 57 6F 72 6C 64 0A
```

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*srec\_cat* version 1.47

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