

mymalloc() Metadata Design:

- Certain blocks of memory are dedicated to metadata about user data.
- Throughout the 4096 bytes of memory, there are alternating sections of metadata, followed immediately by user data.

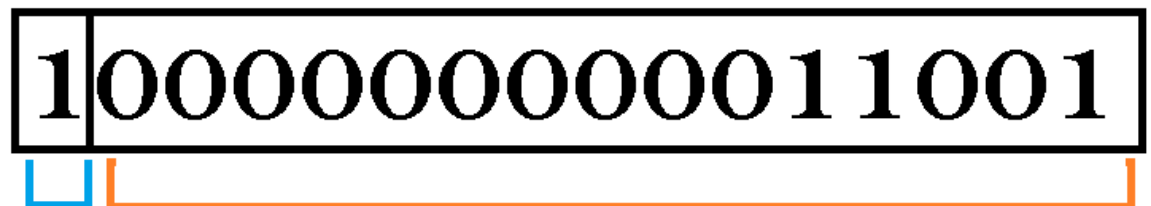
Memory Structure



Green blocks are metadata blocks. Each metadata block contains information about the data block that follows it.
Blue blocks are data blocks, pointers to data blocks are what will be returned to the caller.

- Metadata blocks are represented through unsigned short integers.
 - By using unsigned short integers, there is enough space to store all the metadata about a block of user data in only two bytes.
- Each metadata block is required to store two pieces of information
 - The size of the user data that is represented by the metadata block.
 - A flag that indicates whether the block of memory is free to be allocated or not.
- The highest bit of each metadata block indicates whether the block is free or not.
- The 15 lower bits of each metadata block are used to indicate the size of the user data.

Metadata Block



Free indicator

Data Size