



# Milestone 1 Report

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# Sample Volume Hex Dump

Dumping file ../SampleVolume, starting at block 0 for 9 blocks:

```
000000: 43 53 43 2D 34 31 35 20 2D 20 4F 70 65 72 61 74 | CSC-415 - Operat
000010: 69 6E 67 20 53 79 73 74 65 6D 73 20 46 69 6C 65 | ing Systems File
000020: 20 53 79 73 74 65 6D 20 50 61 72 74 69 74 69 6F | System Partitio
000030: 6E 20 48 65 61 64 65 72 0A 0A 00 00 00 00 00 00 | n Header.....
000040: 42 20 74 72 65 62 6F 52 00 96 98 00 00 00 00 00 | B treboR.
000050: 00 02 00 00 00 00 00 00 4B 4C 00 00 00 00 00 00 | .....KL.....
000060: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
000070: 52 6F 62 65 72 74 20 42 55 6E 74 69 74 6C 65 64 | Robert BUntitled
000080: 0A 0A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
000090: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
0000A0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
0000B0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
0000C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
0000D0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
0000E0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
0000F0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....

000100: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
000110: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
000120: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
000130: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
000140: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
000150: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
000160: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
000170: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
000180: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
000190: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
0001A0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
0001B0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
0001C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
0003C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
0005C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
0005F0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000620: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000640: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000660: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000680: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
0006A0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
0006C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
0006E0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
0006F0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

000710: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....

000720: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....

```
000730: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

000740: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....

000750: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....

000760: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....

000770: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....

000780: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....

000790: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....

```
0007A0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
0007B0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
0007C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
0007F0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
0008F0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
0009C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```







```
000DF0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000E20: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000E40: 00 1A 00 00 06 00 00 00 01 00 00 00 00 00 00 00 | .....
```

```
000E60: E9 6C 4A 62 00 00 00 00 2E 2E 00 00 00 00 00 | ?ljb.....
```

```
000E80: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000EA0: 00 00 00 00 00 00 00 00 00 1A 00 00 06 00 00 00 | .....
```

```
000EC0: E9 6C 4A 62 00 00 00 00 E9 6C 4A 62 00 00 00 00 | ?|jb....?|jb....
```

```
000EE0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000EF0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000F00: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000F10: 00 00 00 00 00 00 00 00 FF FF FF FF 00 00 00 00 | .....????....
```

000F20: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....

```
000F30: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000F40: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000F50: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000F60: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000F70: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000F80: FF FF FF FF 00 00 00 00 00 00 00 00 00 00 | ? ? ? ? .....
```

```
000F90: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000FA0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000FB0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000FC0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
000FD0: 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
000FE0: 00 00 00 00 00 00 00 00 FF FF FF FF 00 00 00 | ....  
000FF0: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
  
001000: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001010: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001020: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001030: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001040: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001050: FF FF FF FF 00 00 00 00 00 00 00 00 00 | ....  
001060: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001070: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001080: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001090: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
0010A0: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
0010B0: 00 00 00 00 00 00 00 00 FF FF FF FF 00 00 00 | ....  
0010C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
0010D0: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
0010E0: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
0010F0: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
  
001100: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001110: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001120: FF FF FF FF 00 00 00 00 00 00 00 00 00 | ....  
001130: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001140: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001150: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001160: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001170: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
001180: 00 00 00 00 00 00 00 00 FF FF FF FF 00 00 00 | ....  
001190: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
0011A0: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
0011B0: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....  
0011C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
```

```
0011D0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
0011E0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 | .....
0011F0: FF FF FF FF 00 00 00 00 00 00 00 00 00 00 00 00 | 0000.....
```

## VCB Structure

The VCB structure is a struct containing a signature (magic number), number and size of blocks in the volume, and the logical block addresses of the root directory and start of the free space bitmap on volume.

The VCB is stored in the first block of the volume.

## Free Space Structure

The free space structure is a bitmap where bit states represent free and used blocks in a 1:1 fashion.

The free space bitmap is stored on volume directly after the VCB (the second block onwards of the volume) and is loaded into memory during runtime.

## Directory Entry Structure

The directory entry structure is a struct containing a name (up to 64 characters including terminating null character), a size in bytes, a logical block address, an integer signifying whether the entry is a directory or not, and three longs for storing three timestamps as UNIX time for creation date, modification date, and last access date.

## Work Table

Component	Contributor
File System initialization	Olivier Chan Sion Moy
VCB struct	Olivier Chan Sion Moy
Directory entry struct	Olivier Chan Sion Moy
Free space management	Olivier Chan Sion Moy
Root directory creation	Olivier Chan Sion Moy
Bit manipulation functions	Olivier Chan Sion Moy
PDF report	Olivier Chan Sion Moy

## Team Report

Our team communicated and met asynchronously using online chat. We were not able to divide up tasks due to inadequate communication.

We faced issues regarding team participation which have not yet been resolved.