Detailed Explanation of Batch Command of Seagate F3

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Those who have used DOS operating system may know of BAT batch file. User can pre-define some DOS commands, and then perform together. The batch function in DOS is very powerful. It can not only perform batch commands, but also define the loop and conditional statements so as to perform sequent execution and loop execution for part of them. In fact, in terminal mode of Seagate F3 series HDDs, there also supports similar batch mechanism. This is the batch of Seagate F3. Now let us have a view of commands relevant to batch in Seagate F3 terminal system:

The first command is "D" under Level 6, which is used to display the content of batch file stored in the current HDD. Each batch file has a number ranging from hex 0x0 to 0xFF. We can see that at most 256 batch files can be defined. There is a parameter of D command. That is the number of file to be displayed. This requires prior knowledge of the batch file number. The format of D command is as follows:

View the content of batch file   D [File No.]

It should be mentioned that, some batch files have been defined and stored in Seagate HDDs before leaving factory. So each Seagate HDD has some batch files pre-defined by factory. For example, when there is a pre-defined hex 0x16 batch file, we should input D16 under Level 6 and press Enter if we want to see its content. The following picture demonstrates terminal window of MRT Seagate program:

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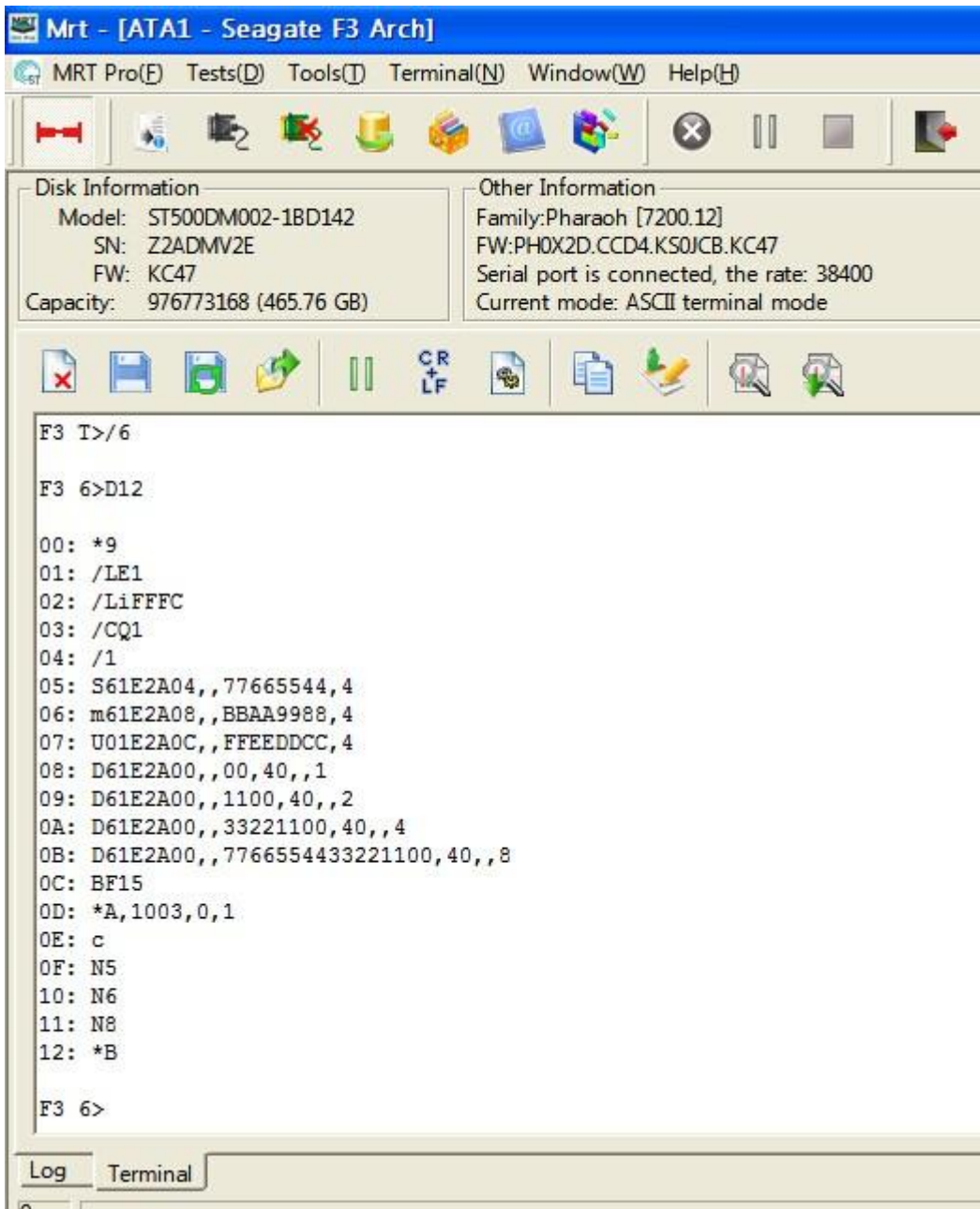
We can see that there are 13 lines of NO.12 batch file from 0x00 to 0x12, which is 19 lines in decimal. Each line is a common terminal command. For example, the "/ 1" in line 0x4 stands for entering Level 1 mode. Now we can view an existing batch file. Then, how do we build a batch file by ourselves? This requires using E command under Level 6. The format is as follows:

Enter batch file   E [File No.]

Please note that, as the factory predefined batch files have occupied some file numbers, the number of user-defined batch files can only be 0--2. Input E, and then press Enter. At this time, the command prompt of terminal will enter edit mode. We can input the batch commands we want to define and wrap by pressing Enter at the end of each command. After we entered all batch commands, we just need to enter

"|" to exit edit mode. That is pressing Shift + "\", the symbol "|" will come out. In this way, edit mode of batch is exited. The HDD will execute batch syntax check. If there is no problem, the batch file will be automatically saved. Otherwise the HDD will give an error prompt. Let us demonstrate creating batch files in MRT terminal mode:
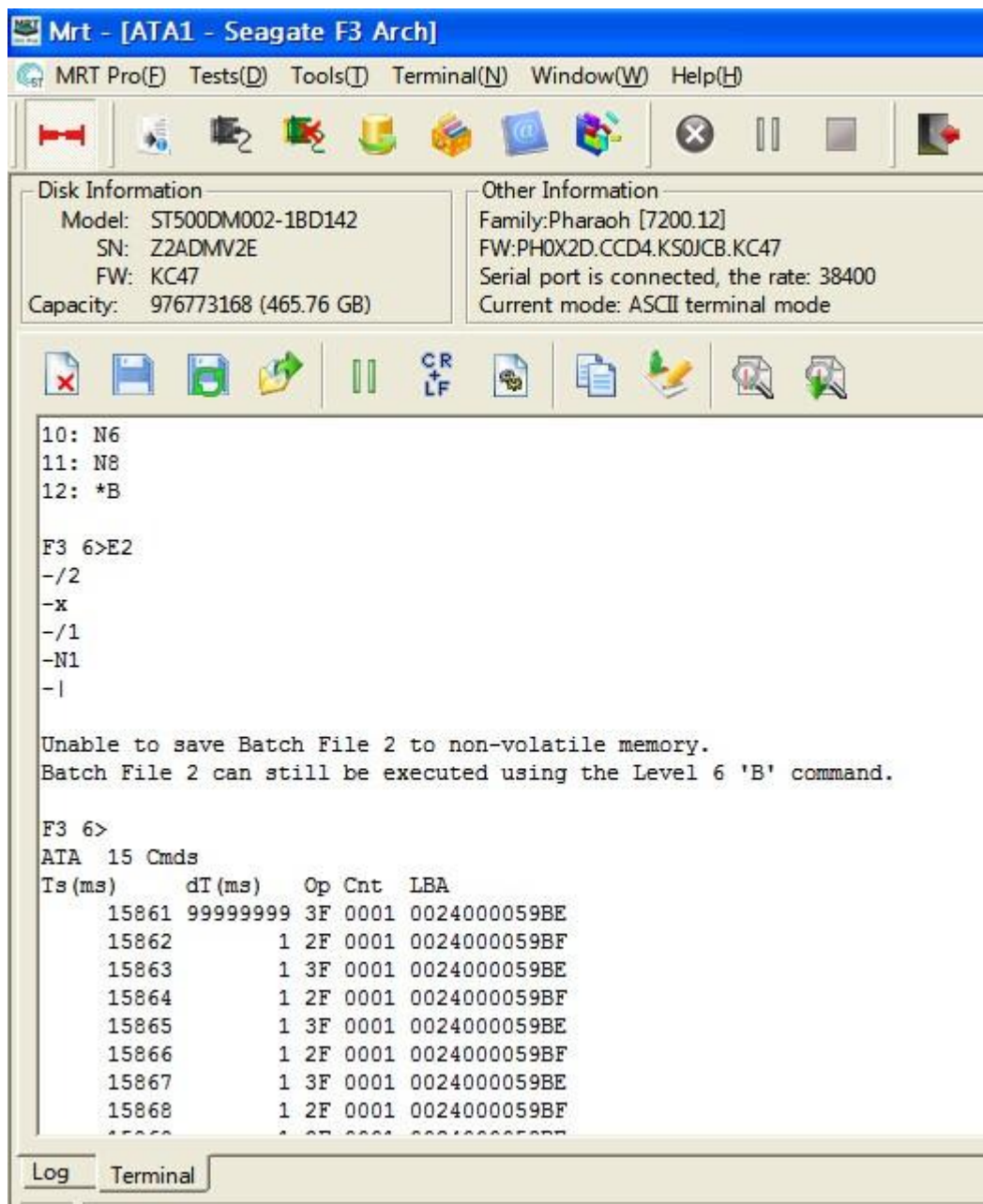
The batch file created above entered Level 2 first, then execute x instruction of viewing zone table, and then execute N1 instruction of clearing SMART. At last, input pipe symbol "|", exit edit mode. HDD shows some tips, and then return to the command prompt "F3 6>" below. Here we must note that user-defined batch will be lost after a power failure, so the HDD will prompt that user-defined batch can only be executed under continuous power supply.

Since we have created a user-defined batch file, how to execute it? This requires the use of instruction B under Level 6.

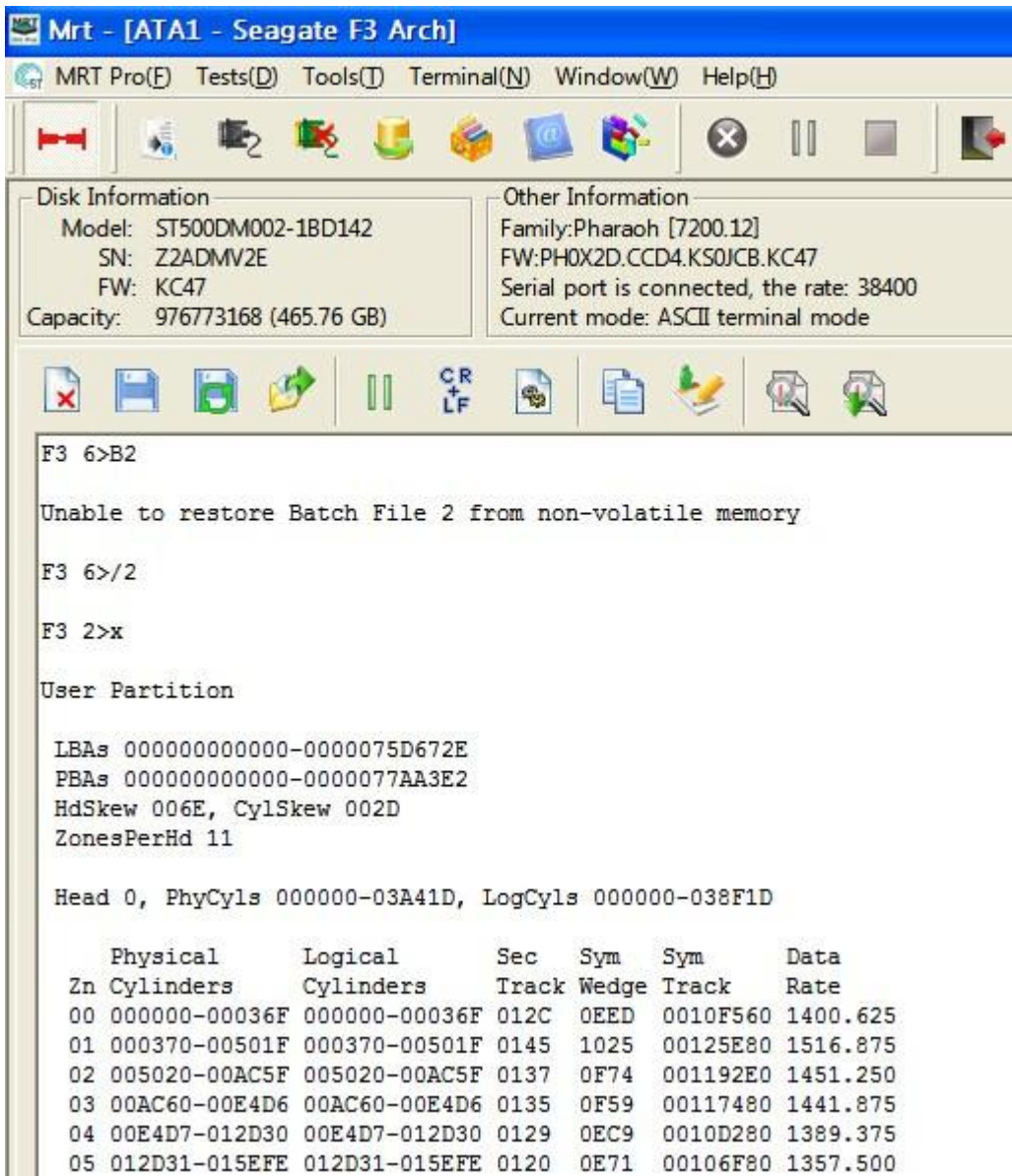Execute batch file   B [File No.], [execution options]

The first parameter is the number of batch file to be executed. The second parameter is a bitmask used to control the details of execution. Optional mask bits:

0x08   continue when failure occurs
0x04   perform all batches
0x02   single-step execution
0x01   display the content of batch file when executing

For example, if we want to perform all of the batch files, enter F3 6> B, 4.

This instruction will execute all the batch files one by one until all defined batch files are executed. As manufacturers predefined a lot of batch files, the execution will take a long time.

If we just want to execute specified batch files, then fill in the first parameter with number. For example, we created a NO. 0x02 user-defined batch file, then we should enter F3 6> B2 to execute it. Here is operating demo:

```
F3 6>B2

Unable to restore Batch File 2 from non-volatile memory

F3 6>/2

F3 2>x

User Partition

 LBAs 000000000000-0000075D672E
 PBAs 000000000000-0000077AA3E2
HdSkew 006E, CylSkew 002D
ZonesPerHd 11

Head 0, PhyCyls 000000-03A41D, LogCyls 000000-038F1D

    Physical       Logical       Sec   Sym   Sym       Data
 Zn Cylinders      Cylinders     Track Wedge Track     Rate
 00 000000-00036F 000000-00036F 012C  0EED  0010F560 1400.625
 01 000370-00501F 000370-00501F 0145  1025  00125E80 1516.875
 02 005020-00AC5F 005020-00AC5F 0137  0F74  001192E0 1451.250
 03 00AC60-00E4D6 00AC60-00E4D6 0135  0F59  00117480 1441.875
 04 00E4D7-012D30 00E4D7-012D30 0129  0EC9  0010D280 1389.375
 05 012D31-015EFE 012D31-015EFE 0120  0E71  00106F80 1357.500
```

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We can see that after inputting B2 and pressing Enter, the terminal displays Executing Batch File 02. Then it starts to execute the previously defined batch command.

What to do if you want to execute factory pre-defined batches? Factory pre-defined batches start from number 0x10. That is to say, if we enter an instruction like this:
F3 6> B10
F3 6> B11
F3 6> B12
, factory pre-defined batches will be executed one by one.

Above is the common usage of batch instructions. Sometimes, we can see some logical judgment and loop control marks in factory pre-defined batches. These are advanced features of batch. The following is a

brief introduction about them:

```
F3 6>D10

00: *9
01: /CQ^
02: ^R
03: *7,2,0
04: *3,1
05: @0
06: ^Z
07: /LE1
08: /LiFFFC
09: @1
0A: ^M
0B: !
0C: ^W
```

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In the batch content above, there is a mark "@" on the ninth line, which is used to mark the line number. The number after "@" is tag number. You can use a jump instruction to jump to this line. It is mainly used for those require to be processed according to the situation (branch execution).

Then how to express jump, loop and other instructions? In Seagate, a "*" stands for an advanced batch function. There are a group of parameters after "*", with different parameters standing for different operations.
Asterisk command can only appear in batch file. The format is:

* [Function number], [Parameter 1], [Parameter 2], [Parameter 3]

Parameter 1 and Parameter 2 are determined by the function number.
Function number can be chosen from the following:
0 - No Action
1 - Pause the execution of batch, and continue when any key is pressed
2 - Enlarge the number of milliseconds specified by Parameter 1. For example, * 2,3000 stands for delay of 3000 milliseconds.
3 - Jump instruction. Jump to the label specified by Parameter 1 and perform.
4 - Conditional jump instruction. Increase the starting address. If there is no loopback after the increase, jump to position specified by Parameter 1 and perform.
5 - Clear screen. It is similar to the CLS instruction in DOS.
6 – Stop execution if an error occurs.
7 - Set the number of loops from Parameter 2 to Parameter 1.
8 – Decrease the loop counter specified by Parameter 2 progressively. If the loop counter is not equal to 0, jump to the address specified by Parameter 1 and perform.
9 - Clear execution error messages.
A – Update batch error marks with error code specified by Parameter 1. The minimum count is specified by

Parameter 2. The maximum count is specified by Parameter 3.

B - Display active error log and compare it with batch error messages to determine whether the batch failed.

Inserting an asterisk instruction in the batch can make batch execute loops, jumps, conditional judgment and other advanced usages.

One last point, if you want to stop the execution of batch file during the process, you just need to press ESC.

Some examples of using instructions:

Execute all batches: F3 6> B, 4

Execute NO. 0x10 batch: F3 6> B10

Display the content of NO. S0x10 batch: F3 6> D10

Create a user-defined batch, numbered 0x2: F3 6> E2

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