

# **HUTIL**

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**(Samsung HDD Utility)**

## **Users Guide**

**V2.00**

## 1. Manufacture purpose

(1) In existing 16 bit HUTIL relationship occasions, from UDMA support and FLEXIBILITY insufficiency by SCRIPT support absence, and limit of memory use, problem knew possibility to occur hereafter.

(2) Environment offer that can test drive using general history face and feature and OEM, program that is equal at service center.

(3) Various programs informing for drive integral management.

- A. Factory Defect List & Map (Slip List)
- A. Factory Defect List & Map (Slip List)
- B. Grown Defect List & Map (Reassign List)
- B. Grown Defect List & Map (Reassign List)
- C. S.M.A.R.T. Information
- C. S.M.A.R.T. Information

(4) Tool to change drive establishment offer.

- A. Max UDMA establishment alteration.
- B. Automatic Acoustic Management establishment alteration.
- C. Max LBA capacity establishment.
- D. Low Level Format function offer.
- E. LBA 48 bits/28 bit selection function offers.

## 3. Defect List

(1) Defect List's kind

Branch to Defect List of kind at ocean List and Map offer.

- A. NEW DEFECT LIST : Defect that is newfound through test of HUTIL program.
- B. FACTORY DEFECT LIST : Slip List forming in aboriginal test at process time.
- C. GROWN DEFECT LIST : Reassign List forming in user environment

(2) Augmentation of supporting Defect number.

- A. LEO : uniting Slip List and Reassign List and New Defect List to 3000 support.
- B. HUTIL : Handle apart Slip List and Reassign List, and New Defect List ten thousand to 5000 support.

(3) Defect attribute

- A. Unknown : Strange state whether it is Read Fail or whether it is Soft defect because do not Write Hard defect .
- B. Soft defect : Occasion that is Read Fail, Write Pass.
- C. Hard defect : Occasion that is Read Fail, Write Fail.

(4) Defect free process

- A. At first Defect discovery time, Unknown attribute grant.
- B. Through Check Defect process Soft or Hard attribute grant.
- C. Through Reassign Defect process Hard sex Defect ten thousand Reassign.
- D. Through Remove Defect process Defect in New Defect List exclusion.

(5) DEFECT MAP

- A. It is seen by picture how Defect is located in actuality Media.
- B. can observe member that want establishing Zone, Head in detail, and is seen with list on screen right side.

**4. Test**

(1) Kind of test

In case of select subsequent menu, test discharges.

- A. TEST - SHORT TEST
- B. TEST - LONG TEST
- C. TEST - LONG TEST & DF
- D. TEST - READ ALL
- E. TEST - READ FROM TO
- F. TEST - RAND FROM TO
- G. TEST - WRITE ALL
- H. TEST - WRITE FROM TO
- I. TEST - READ WRITE
- J. TEST - DEFECT FREE
- K. TEST - BURN IN
- L. TEST - DISK CONFIRM
- M. TEST - RAM VERIFY
- N. TOOL - SELF DIAGNOSTIC

(2) Practice of test

A. if execute test, tests windows appears, and test kind, Model Name of drive, F/W ROM lee vision, cereal number, test start time are displayed after after windows that ask number of times whether will repeat test of several times appears, and inputes as want.

B. if test is ended, test finish time is displayed.

C. Can cancel test pressing ESC key.

(2) Log file

(1) Name of log file : HT 000000 .LOGs

- A. The name of extension is ".LOG"
- B. "HT" that first two characters of file name are HUTIL TEST's abbreviation
- C. Remainder six characters of file name are end spell state numbers of 6 cereal number.
- D. Have a log file name differing in each drive.
- E. same drive tests several times, in file that test result is equal

Is accumulated and is recorded.

(2)Encryption of log file

A.Is recorded because all contents that appear on test windows encode in log file.

B.because was encrypted, it is impossibility that alter result of test random.

C.Therefore, that log file uses to hide truth of whether achieved test actually

There is number.

(3)Restoration of encoded log file

That input as following in command line to demobilize encoded log file by text form.

A.All log files of directory restoration

A : \ H U T I L / L O G

B.Specific log file restoration

A : \ H U T I L / D E C O D E : H T 0 1 2 3 4 5 . L O G

This time, log file name \* be, ? Can use same Wilde character coming.

(4)Reconstructed log file

Can have name of extension of ".DEC", and use and read text editor.

## 5. MENU

(1) TEST

A. SHORT TEST

After fundamental several tests, Random Read achievement about 2000 tracks.

B. LONG TEST

After fundamental several tests, I am Read achievement about track.

C. LONG TEST & DF

After fundamental several tests, I am Read achievement about track. And, discovered New Defect Defect Free.

D. READ ALL

All track Read achievement.

E. READ FROM TO

Last inputted from inputted first cylinder position to cylinder position Read achievement.

(Among whole channel, peel the smallest cylinder), but so that input is possible limitation

Do so that can establish sphere that input that peel MByte last from beginning MByte In Case of LOGICAL mode.

In case of do last sphere as '- 1', everybody test to each Head relationship

last Cylinder.

F. RAND FROM TO

Publish random number as much as number of times inputted within scope of inputted cylinder and head, achieve random read test.

In case of do last sphere as '- 1', everybody test to each Head relationship last Cylinder.

G. WRITE ALL

I am track Write achievement.

H. WRITE FROM TO

Last inputted from inputted first cylinder position to cylinder position Write achievement.

(Among hole channel the smallest cylinder dwindle, but so that input is possible limitation)

In case of do last sphere as '- 1', everybody test to each Head relationship last Cylinder.

I. DEFECT FREE

Read, New Defect discovered from Write test Defect Free.

Process of Check Defect, Reassign Defect, Remove Defect automatically achievement.

K. ERASE & SCAN

Scan By 00 patterns whole area write after do Write by Read Surface scan whole area scan.

L. OD SCRATCH TEST

Examination who do concentrically to 0 ~ 3000 cylinder that is spread to OS A state

M. AV SCAN TEST

Time that take reading by 256 Sectors by 10 ms units examination

N. DISK CONFIRM

Judge existence and nonexistence more than drive and when there is singularity, achieve LOW LEVEL FORMAT, and function that parts that singularity is executing Read Scan again achieves Auto Reassign and defect does free.

O. RAM VERIFY

If gouge RAM of drive and do not agree with a Write Data filling data of 8 mega quantity to RAM by function that judge whether problem is, gouge RAM and function judging by thing which problem is. Because two functions lose Drive relationship Data, in use attention desire.

(2) INFORMATION

A. NEW DEFECT LIST

Show Read, New Defect discovered from Write test by list.

[F2]Check a defect : Defect of where cursor is located Check Defect  
[F3]Check all defects : All Defects of list Check Defect  
[F4]Free a defect : Defect of where cursor is located Reassign Defect  
[F5]Free all defects : All Defects of list Reassign Defect  
[F6]Remove a defect : Defect of where cursor is located Remove Defect  
[F7]Remove all defects : All Defects of list Remove Defect  
[F8]Defect Free : About all Defects of list process of Defect, Reassign Defect, Remove Defect automatically achievement.  
[F9]Save list : List to text file save  
[UP/DOWN/PAGE UP/PAGE DOWN/HOME/END]Cursor positioning alteration

#### B. FACTORY DEFECT LIST

Slip List is seen.

[F9]Save list : List to text file save

[UP/DOWN/PAGE UP/PAGE DOWN/HOME/END]Cursor positioning alteration

#### C. GROWN DEFECT LIST

Reassign List is seen.

[F9]Save list : List to text file save

[UP/DOWN/PAGE UP/PAGE DOWN/HOME/END]being big position alteration

#### D. NEW DEFECT MAP

New Defect is seen by picture.

[ESC]End

[F1]Conversion between 4 windows mode and 1 windows mode

[F3]Servo sector is seen or concealment.

[F4]Zone's border is seen or concealment.

[F5]Arrow that indicate Defect is seen or concealment.

[F7]Help is seen.

[F10]Screen to BMP file save.

[PGUP]Cursor by move page transfer.

[PGDN]Cursor to following page transfer.

[UP]Cursor by move Defect transfer.

[DOWN]Cursor by next Defect transfer.

[LEFT]Cursor by first Defect of present page transfer.

[RIGHT]Cursor by last Defect of present page transfer.

[HOME]Cursor by first Defect of whole list transfer.

[END]Cursor by last Defect of whole list transfer.

#### E. FACTORY DEFECT MAP

Slip List is seen by picture.

Directions is NEW DEFECT MAP and uniformity

F. GROWN DEFECT MAP

Reassign List is seen by picture.

Directions is NEW DEFECT MAP and uniformity

(3) S.M.A.R.T.

A. SMART INFORMATION

Present, S.M.A.R.T.Information is seen.

B. CHECK TEMPERATURE

S.M.A.R.Calculate present temperature of drive from T. information.

C. SMART STATUS

Examinationsince there is thing which pass over marginal value among SMART's present state .

D. ENABLE SMART

Act SMART function.

E. DISABLE SMART

Do not act SMART function

F. INITIALIZE SMART

S.M.A.R.T Initialize

G. BRIEF INFORMATION

Among SMART Information, function that stand alone some

H. SELF TEST LOG

Function that is shown history that problem happened while do SMART TEST  
Is stored together to log file while ENCODED option consists of OFF.

I. SMART SELF TEST

By function that run SMART relationship Self test directly, occasion of Offline mode marks progress circumstance continuously, and Captive mode relationship occasion practice message ten thousand representativeness.

(4) TOOL

A. SET MAX ADDRESS

Changing Max LBA of drive capacity alteration.

Software that change Max LBA can prep everybody.

a) PROCESS

By indicating value capacity of drive alteration.

b) TARGET LBA

Capacity of drive by LBA direction.

Basically, value that indicate is original size of drive.

c) TARGET SIZE

Capacity of drive by MB direction.

d) MODE [NON-VOLATILE, VOLATILE]

In case of restock for removed power, whether changed capacity will be kept, whether will be reconstructed by original capacity without being kept (VOLATILE) direction.

e) COMMAND [AUTO, 28BIT, 48BIT]

AUTO : Option that select automatically knowing 28 bits, 48 bit Commands according to 48 bit ons of drive/off relationship state and do so that may use.

28 BITS : Option that establish to use 28 bit SetMax Commands regardless of state of drive.

48 BITS : Option that establish to use 48 bit SetMax Commands regardless of state of drive.

f) RECOVER NATIVE SIZE

Restoration by original capacity of drive.

g) ENABLE 48BIT MODE

Function that change state of drive changed by 28 Bit Setmax in high capacity drive more than 160 G by 48 bit Setmax.

Must turn on while put out power of drive after execute two functions.

h) DISPLAY CURRENT STATUS

Is shown original capacity of drive, capacity that is established present.

In case of use 32 GB CLIP back to limit capacity of drive, SET MAX ADDRESS function does not act normally. HUTIL is shown message that remove 32 GB CLIP in case of present establish capacity of drive is LBA 66055248.

B. DCO SET MAX ADDRESS

Because Max LBA of drive uses DCO capacity alteration. Software that change DCO Max LBA can prep everybody.

a) PROCESS

By indicating value capacity of drive alteration.

b) TARGET LBA

Capacity of drive by LBA direction.

Basically, value that indicate is original size of drive.

c) TARGET SIZE

Capacity of drive by MB direction.

d) RECOVER NATIVE SIZE

Restoration by original capacity of drive.

e) DISPLAY CURRENT STATUS

Is shown original capacity of drive, capacity that is established present.

Should do to use certainly one of two because collide with DCO SET MAX increasing SET MAX.

C. ERASE HDD

a) PROCESS



As indicating capacity drive clear.

b) TARGET LBA

Capacity that try to remove by LBA direction.

Basically, value that indicate is present size of drive.

c) TARGET SIZE

Capacity that try to remove to MB direction.

d) ERASE MBR

Only M.B.R. (LBA 0) erase.

e) LOW LEVEL FORMAT

Because ERASE function uses WRITE SECTOR command in PIO mode very tassel. Because LOW LEVEL FORMAT uses PHYSICAL WRITE TRACK command that is vender unique command drive four corners at the very fast speed clear.

D. SET MAX UDMA MODE

Maximum UDMA mode that drive can act among support mode of drive alteration.

a) PROCESS

Conversion by indicating mode

b) UDMA MODE [UDMA 33, UDMA 66, UDMA 100, UDMA 133]

According to model, mode that support differs.

Wanting mode direction.

In case of attempt diversion by intolerant mode, outputis an error mallet .

c) DISPLAY CURRENT MODE

Mode that is established present is seen.

Can not use this command in case of capacity was changed by SET MAX.

E. AUTOMATIC ACOUSTIC MANAGEMENT

Establishment of AAM mode conversion.

a) PROCESS

Conversion by indicating mode

b) AAM MODE [DISABLE, FAST, MIDDLE, QUIET]

According to model, mode that support differs.

Wanting mode direction.

c) DISPLAY CURRENT MODE

Mode that is established present is seen.

F. SELF DIAGNOSTIC

Itself diagnostic function of drive to offer to general user.

G. CHANGE NATIVE SIZE

Changing Native Size of drive capacity alteration.

It is possibility only by our company's Software to change Native Size.

a) CHANGE NATIVE SIZE

By indicating value Native Size of drive alteration.

b) TARGET LBA

Native Size of drive by LBA direction.

Basically, value that indicate is present size of drive.

c) F/W REVISION

If change Native Size, should change with F/W Revision.

F of drive/W REVISION that wish to change establishment.

Only, first , the second character of F/W REVISION was fenced so that is not changed.

d) MODEL NAME

If change Native Size, should change with Model Name.

Model Name of drive that wish to change establishment.

Only, become so that horse of "SAMSUNG" may act though come to MODEL NAME.

That "~" was omitted expression.

e) RECOVER ORIGINAL SIZE

Restoration by original Native Size of drive.

f) DISPLAY CURRENT STATUS

Is shown original Native Size of drive, Native Size that is established present.

H. 48BIT LBA SUPPORT

Function that play drive so that can select 48 BITs and 28 BIT Ros

(5) OPTION

A. DRIVE INFORMATION

Information of drive is seen.

B. PARTITION INFO

Show Partition relationship information placed in drive.

C. AUTO DETECTION

Find drive placed on computer automatically.

D. ABOUT HUTIL

Show HUTIL version and information.

E. DOS SHELL

Going out to DOS.

F. IDE CHANNEL

Selection among PRIMARY port and SECONDARY port.

G. DEVICE

Selection among MASTER drive and SLAVE drive.

H. RETRY

Selection among FULL and HALF 5th.

I. HIDDEN RETRY

Selection among ON and OFF.

J. ECC

When progress test, can establish ECC. Selection among ON and OFF

K. LOG FILE

Establishment whether will record test result in log file . Selection among ON and OFF.

(6) EXIT TO DOS

HUTIL end of program.

## 7. TEST

(1) MC CHECK

Sphere that examine by function that examine Defect of MC area is as following.

1. P40, V40, V60: (Cyl: 0 ~ 6, Head: All, Sector: All)
2. P80, V80, M40, PL40, VL40P ~ : (Cyl: 0 ~ 12, Head: All, Sector: All)

(2) SMART Check

Among SMART Attribute values of drive, whether is value that pass Threshold examination. Threshold relationship level can control badness criterion in 'SMART WARNING LEVEL' by %.

(3) HEAD TEST

Gouge Head and in routine that problem examines whether is Achieving Read, Write, if problem happens, by head unit that problem happens 100, Head fail Ro puncheonif achieves, and fails earn duplex 3 Seek of times .

(4) PES TEST

Gouging SERVO achieving Read, Write whether problem is examination.

(5) SPIN DOWN / UP

Measure time that take to become normalcy drive (wakeup) from Standby state of drive, examination.'WAKE UP LIMIT that distinguish badness existence and nonexistence' controlling article badness criterion time controlcan.

(6) SIMPLE SURFACE SCAN

As established extent OD, ID part examination.

OD : Cyl 0 ~ establishment OD value.

ID : ( Last Cyl - establishment ID value )~ Last Cyl.

Can establish ID and an OD relationship sheep to comes 'SIMP READ TRACK NUM OD' and examines by 'SIMP READ TRACK NUM ID' value.

**(7) RANDOM SURFACE SCAN**

Producing Cyl value of number of specification to do Random, examination before Track relationship sector  
Can control track hand to examine in 'RAND READ TRACK NUM'.

**(8) READ SURFACE SCAN**

As surface of drive does (sequential) sequentially Read examination

**(9) WRITE ALL, WRITE FROM TO**

As drive surface does (sequential) sequentially Write examination

**(10) SIMPLE READ/WRITE**

Time that take trash value achieving read as 20 sectors/write in each Head relationship last cylinder relationship position examination.  
Can decide badness criterion going through 'READ WRITE TIME LIMIT'.

**(11) WRITE VERIFY**

After uses 0 x 5 A relationship patterns in LBA 62 positions, and do that do Off Read/Write cache, progress by following sequence Test.

Gouge LBA 62 save --> 0 x 5 A relationship Patterns LBA 62 relationships data and data rehabilitation --> Read/Write Cach On that Write --> LBA 62 relationships data stores existence and nonexistence confirmation --> more than Read --> data compare -->.

Save LBA 62 relationships data --> Write 0 x 5 A Patterns gouge LBA 62 Write --> Read LBA 62 relationships data --> data compare --> existence and nonexistence confirmation --> Storing data restoration --> Read/Write Cach On.

**(12) LOGICAL TEST**

Because go through Read Multiple Setting read Test

**(13) AVERAGE SEEK TIME**

After raise average measuring seek time of 1000 times by Random seek Value examination  
Can control badness criterion as 'AVG SEEK TIME LIMIT'. (ms unit)

**(14) MAX SEEK TIME**

Measuring seek time of 1000 times by Random seek biggest value examination.  
Can control badness criterion as 'MAX SEEK TIME LIMIT'. (Ms unit)

## 8. Other function

[ HUTIL Hot Key List ]

F5 : SEND SOFTWARE RESET  
F6 : DEFECT FREE  
ALT + S : FACTORY DEFECT MAP  
ALT + L : FACTORY DEFECT LIST  
ALT + G : GROWN DEFECT MAP  
ALT + H : GROWN DEFECT LIST  
ALT + N : NEW DEFECT LIST  
ALT + A : LONG TEST & DF  
ALT + E : LONG TEST  
ALT + I : BURN IN  
ALT + M : DRIVE INFORMATION  
ALT + R : SHORT TEST