# Appendix D: Forensic Imaging Tool Test Result

## **D.1 Hard Drive: USB-HD-02**

### **D.1.1 First Test Case Result**

**Dc3dd tool result**

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| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | dc3dd 7.2.646 started at 2019-04-23 11:33:11 +1200  compiled options:  command line: dc3dd if=/dev/sdc hof=image.img hash=SHA-256 log=dc3dd.log hlog=imageName-hash.log verb=on  device size: 1250263728 sectors (probed), 640,135,028,736 bytes  sector size: 512 bytes (probed)  640135028736 bytes ( 596 G ) copied ( 100% ), 145984 s, 4.2 M/s  640135028736 bytes ( 596 G ) hashed ( 100% ), 4725.87 s, 129 M/s  input results for device `/dev/sdc':  1250263728 sectors in  0 bad sectors replaced by zeros  3f4fa6667c240801c5fefdc1b344d48163636214206574d39a76ed488950dcd3 (sha256)  output results for file `image.img':  1250263728 sectors out  [ok] 3f4fa6667c240801c5fefdc1b344d48163636214206574d39a76ed488950dcd3 (sha256)  dc3dd completed at 2019-04-25 04:06:15 +1200 |
| **Time take to create the image and verify the hash** | 40 hours 33 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 76.37% | 187.23 MB | | **Lowest** | 5.10% | 119.55 MB | | **Average** | 40.73% | 153.39 MB | |

**Dcfldd tool result**

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| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 38 hours 38 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Failed  Failed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 61.37% | 4.57 MB | | **Lowest** | 34.47% | 4.57 MB | | **Average** | 47.92% | 4.57 MB | |

**Guymager tool result**

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| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | === START OF INFORMATION SECTION ===  Model Family: Western Digital Caviar Blue (SATA)  Device Model: WDC WD6400AAKS-65A7B2  Serial Number: WD-WCASY5429282  LU WWN Device Id: 5 0014ee 1ac6b64f3  Firmware Version: 01.03B01  User Capacity: 640,135,028,736 bytes [640 GB]  Sector Size: 512 bytes logical/physical  Device is: In smartctl database [for details use: -P show]  ATA Version is: ATA8-ACS (minor revision not indicated)  SATA Version is: SATA 2.5, 3.0 Gb/s  Local Time is: Sun Apr 28 17:16:38 2019 NZST  SMART support is: Available - device has SMART capability.  SMART support is: Enabled  Acquisition  ===========  Linux device : /dev/sdc  Device size : 640135028736 (640.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/investigator/imagedrive/guymager/image.dd  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 3f4fa6667c240801c5fefdc1b344d48163636214206574d39a76ed488950dcd3  SHA256 hash verified source: 3f4fa6667c240801c5fefdc1b344d48163636214206574d39a76ed488950dcd3  SHA256 hash verified image : 3f4fa6667c240801c5fefdc1b344d48163636214206574d39a76ed488950dcd3  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-04-28 17:16:37 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-04-29 08:25:04  Ended : 2019-04-29 23:44:29 (30 hours, 27 minutes and 51 seconds)  Acquisition speed : 11.20 MByte/s (15 hours, 8 minutes and 26 seconds)  Verification speed : 11.07 MByte/s (15 hours, 19 minutes and 24 seconds) |
| **Time take to create the image and verify the hash** | 30 hours and 27 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 82.87% | 950.23 MB | | **Lowest** | 4.93% | 949.97 MB | | **Average** | 43.90% | 950.10 MB | |

### **D.1.2 Second test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | dc3dd 7.2.646 started at 2019-04-30 06:37:34 +1200  compiled options:  command line: dc3dd if=/dev/sdc hofs=image.img.000 ofsz=2G hash=sha256 verb=on log=dc3dd.log hlog=imageName-hash.log  device size: 1250263728 sectors (probed), 640,135,028,736 bytes  sector size: 512 bytes (probed)  640135028736 bytes ( 596 G ) copied ( 100% ), 155615 s, 3.9 M/s  640135028736 bytes ( 596 G ) hashed ( 100% ), 6121 s, 100 M/s  input results for device `/dev/sdc':  1250263728 sectors in  0 bad sectors replaced by zeros  3f4fa6667c240801c5fefdc1b344d48163636214206574d39a76ed488950dcd3 (sha256)  d6e8bf3606c79f343f5a8006ff731501484716c03d8c4ff6847759130263e2e5, sectors 0 - 4194303  29eb4dbfb2590c91a57c31e8c4e7c6412d8017aa6848f3a6ea01ed20d7de01a4, sectors 4194304 - 8388607  ……..  a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51, sectors 1245708288 - 1249902591  92881d64e4b86bf227bcf3393d6f3ad9f65fe907afc9b6837621bcf12939fda2, sectors 1249902592 - 1250263727  output results for files `image.img.000':  1250263728 sectors out  4194304 sectors out to `image.img.000'  4194304 sectors out to `image.img.001'  …..  4194304 sectors out to `image.img.297'  361136 sectors out to `image.img.298'  [ok] 3f4fa6667c240801c5fefdc1b344d48163636214206574d39a76ed488950dcd3 (sha256)  [ok] d6e8bf3606c79f343f5a8006ff731501484716c03d8c4ff6847759130263e2e5, sectors 0 - 4194303, `image.img.000'  [ok] 29eb4dbfb2590c91a57c31e8c4e7c6412d8017aa6848f3a6ea01ed20d7de01a4, sectors 4194304 - 8388607, `image.img.001'  …..  [ok] a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51, sectors 1245708288 - 1249902591, `image.img.297'  [ok] 92881d64e4b86bf227bcf3393d6f3ad9f65fe907afc9b6837621bcf12939fda2, sectors 1249902592 - 1250263727, `image.img.298'  dc3dd completed at 2019-05-02 01:51:09 +1200 |
| **Time take to create the image and verify the hash** | 43 hours 13 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 100.00% | 252.76 MB | | **Lowest** | 6.27% | 119.55 MB | | **Average** | 53.13% | 186.15 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | 1250263552 blocks (610480Mb) written.  1250263728+0 records in  1250263728+0 records out  0 - 2147483648: d6e8bf3606c79f343f5a8006ff731501484716c03d8c4ff6847759130263e2e5  2147483648 - 4294967296: 29eb4dbfb2590c91a57c31e8c4e7c6412d8017aa6848f3a6ea01ed20d7de01a4  ……  637802643456 - 639950127104: a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51  639950127104 - 640135028736: 92881d64e4b86bf227bcf3393d6f3ad9f65fe907afc9b6837621bcf12939fda2  Total (sha256): 3f4fa6667c240801c5fefdc1b344d48163636214206574d39a76ed488950dcd3 |
| **Time take to create the image and verify the hash** | 39 hours 11 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 63.13% | 4.57 MB | | **Lowest** | 39.50% | 4.57 MB | | **Average** | 51.31% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | === START OF INFORMATION SECTION ===  Model Family: Western Digital Caviar Blue (SATA)  Device Model: WDC WD6400AAKS-65A7B2  Serial Number: WD-WCASY5429282  LU WWN Device Id: 5 0014ee 1ac6b64f3  Firmware Version: 01.03B01  User Capacity: 640,135,028,736 bytes [640 GB]  Sector Size: 512 bytes logical/physical  Device is: In smartctl database [for details use: -P show]  ATA Version is: ATA8-ACS (minor revision not indicated)  SATA Version is: SATA 2.5, 3.0 Gb/s  Local Time is: Sun May 5 08:24:03 2019 NZST  SMART support is: Available - device has SMART capability.  SMART support is: Enabled    Acquisition  ===========  Linux device : /dev/sdc  Device size : 640135028736 (640.1GB)  Format : Linux split dd raw image - file extension is .xxx  Image path and file name: /media/investigator/imagedrive/guymager/image.xxx  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 3f4fa6667c240801c5fefdc1b344d48163636214206574d39a76ed488950dcd3  SHA256 hash verified source: 3f4fa6667c240801c5fefdc1b344d48163636214206574d39a76ed488950dcd3  SHA256 hash verified image : 3f4fa6667c240801c5fefdc1b344d48163636214206574d39a76ed488950dcd3  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-05-05 08:24:02 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-05-05 21:54:32  Ended : 2019-05-06 14:52:08 (30 hours, 28 minutes and 5 seconds)  Acquisition speed : 12.55 MByte/s (13 hours, 30 minutes and 29 seconds)  Verification speed : 10.00 MByte/s (16 hours, 57 minutes and 35 seconds) |
| **Time take to create the image and verify the hash** | 30 hours and 28 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 94.47% | 950.37 MB | | **Lowest** | 5.07% | 949.91 MB | | **Average** | 49.77% | 950.14 MB | |

### **D.1.3 Third test case result**

**Dc3dd tool result**

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| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | device size: 1250263728 sectors (probed), 640,135,028,736 bytes  sector size: 512 bytes (probed)  [!!] writing to `/media/root/testdrive/image.img': No space left on device  3202482176 bytes ( 3 G ) copied ( 1% ), 114.424 s, 27 M/s  0 bytes ( 0 ) hashed (??%), 0 s, Infinity B/s  input results for device `/dev/sdd':  6254848 sectors in  0 bad sectors replaced by zeros  64244c7d1752723fda59f614fa47f98e0e9eacdb413f303141820c561732102a (sha256)  output results for file `/media/root/testdrive/image.img':  6254736 sectors out  dc3dd failed at 2019-05-10 19:04:24 +1200 |
| **Time take to create the image and verify the hash** | 1 minutes 54 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 44.73% | 183.70 MB | | **Lowest** | 44.27% | 183.70 MB | | **Average** | 44.50% | 183.70 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | 6254592 blocks (3054Mb) written.dcfldd:: No space left on device |
| **Time take to create the image and verify the hash** | 10 minutes and 49 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 61.18% | 2.33 MB | | **Lowest** | 33.33% | 2.33 MB | | **Average** | 47.25% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | === START OF INFORMATION SECTION ===  Model Family: Western Digital Caviar Blue (SATA)  Device Model: WDC WD6400AAKS-65A7B2  Serial Number: WD-WCASY5429282  LU WWN Device Id: 5 0014ee 1ac6b64f3  Firmware Version: 01.03B01  User Capacity: 640,135,028,736 bytes [640 GB]  Sector Size: 512 bytes logical/physical  Device is: In smartctl database [for details use: -P show]  ATA Version is: ATA8-ACS (minor revision not indicated)  SATA Version is: SATA 2.5, 3.0 Gb/s  Local Time is: Fri May 10 19:41:37 2019 NZST  SMART support is: Available - device has SMART capability.  SMART support is: Enabled    Acquisition  ===========  Linux device : /dev/sdd  Device size : 640135028736 (640.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/testdrive/image.dd  Info path and file name: /media/root/testdrive/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Aborted because of image write error  SHA256 hash : --  SHA256 hash verified source: --  SHA256 hash verified image : --  Acquisition started : 2019-05-10 19:41:37 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: Acquisition aborted before start of verification  Ended : 2019-05-10 19:42:54 (0 hours, 1 minutes and 16 seconds)  Acquisition speed : 40.63 MByte/s (0 hours, 1 minutes and 16 seconds) |
| **Time take to create the image and verify the hash** | 1 minutes and 16 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** |  |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 44.27% | 793.80 MB | | **Lowest** | 35.90% | 727.20 MB | | **Average** | 40.08% | 760.50 MB | |

### **D.1.4 Fourth test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | device size: 1250263728 sectors (probed), 640,135,028,736 bytes  sector size: 512 bytes (probed)  640135028736 bytes ( 596 G ) copied ( 100% ), 28771 s, 21 M/s  640135028736 bytes ( 596 G ) hashed ( 100% ), 5037 s, 121 M/s  input results for device `/dev/sdd':  1250263728 sectors in  0 bad sectors replaced by zeros  f5964e5e2dcf094c789de7b3038b6789f804c95ff39efb608af41c2d0861c411 (sha256)  output results for file `image.img':  1250263728 sectors out  [ok] f5964e5e2dcf094c789de7b3038b6789f804c95ff39efb608af41c2d0861c411 (sha256)  dc3dd completed at 2019-05-07 04:30:18 +1200 |
| **Time take to create the image and verify the hash** | 7 hours and 59 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 81.27% | 249.36 MB | | **Lowest** | 12.90% | 183.72 MB | | **Average** | 47.08% | 216.54 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 35 hours and 22 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Failed | | DI-RO-17 | Failed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 63.83% | 2.30 MB | | **Lowest** | 32.80% | 2.30 MB | | **Average** | 48.31% | 2.30 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | === START OF INFORMATION SECTION ===  Model Family: Western Digital Caviar Blue (SATA)  Device Model: WDC WD6400AAKS-65A7B2  Serial Number: WD-WCASY5429282  LU WWN Device Id: 5 0014ee 1ac6b64f3  Firmware Version: 01.03B01  User Capacity: 640,135,028,736 bytes [640 GB]  Sector Size: 512 bytes logical/physical  Device is: In smartctl database [for details use: -P show]  ATA Version is: ATA8-ACS (minor revision not indicated)  SATA Version is: SATA 2.5, 3.0 Gb/s  Local Time is: Thu May 9 12:20:56 2019 NZST  SMART support is: Available - device has SMART capability.  SMART support is: Enabled    Acquisition  ===========  Linux device : /dev/sdd  Device size : 640135028736 (640.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/imagedrive/guymager/image.dd  Info path and file name: /media/root/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : f5964e5e2dcf094c789de7b3038b6789f804c95ff39efb608af41c2d0861c411  SHA256 hash verified source: f5964e5e2dcf094c789de7b3038b6789f804c95ff39efb608af41c2d0861c411  SHA256 hash verified image : f5964e5e2dcf094c789de7b3038b6789f804c95ff39efb608af41c2d0861c411  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-05-09 12:20:55 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-05-09 16:59:17  Ended : 2019-05-09 21:51:58 (9 hours, 31 minutes and 2 seconds)  Acquisition speed : 36.55 MByte/s (4 hours, 38 minutes and 21 seconds)  Verification speed : 34.76 MByte/s (4 hours, 52 minutes and 41 seconds) |
| **Time take to create the image and verify the hash** | 9 hours and 31 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 80.07% | 794.28 MB | | **Lowest** | 16.70% | 794.02 MB | | **Average** | 48.38% | 794.15 MB | |

## **D.2 Hard Drive: USB-HD-03**

### **D.2.1 First Test Case Result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | input results for device `/dev/sdc':  29767e39437403a72d1f221f20a3f3106d6bcd978854bdd135d478839e4ce166 (sha256)  output results for file `image.img':  [ok] 29767e39437403a72d1f221f20a3f3106d6bcd978854bdd135d478839e4ce166 (sha256)  dc3dd completed at 2019-05-12 06:46:38 +1200 |
| **Time take to create the image and verify the hash** | 31 hours 41 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 76.93% | 187.23 MB | | **Lowest** | 4.93% | 119.55 MB | | **Average** | 40.93% | 153.39 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 28 hours 1 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Failed  Failed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 61.60% | 4.57 MB | | **Lowest** | 37.60% | 4.57 MB | | **Average** | 49.60% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | SG\_IO: bad/missing sense data, sb[]: 70 00 05 00 00 00 00 0a 00 00 00 00 20 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    /dev/sdc:    ATA device, with non-removable media  Serial Number: ?@  Standards:  Likely used: 1  Configuration:  soft sectored  head switch time > 15us  fixed drive  disk xfer rate <= 5Mbs  disk xfer rate > 5Mbs, <= 10Mbs  data strobe offset option  format speed tolerance gap reqd  Logical max current  cylinders 17218 0  heads 0 0  sectors/track 128 0  --  bytes/track: 512 bytes/sector: 0  Logical/Physical Sector size: 512 bytes  device size with M = 1024\*1024: 0 MBytes  device size with M = 1000\*1000: 0 MBytes  cache/buffer size = unknown  Capabilities:  IORDY not likely  Cannot perform double-word IO  R/W multiple sector transfer: not supported  DMA: not supported  PIO: pio0  Hidden areas: unknown  Acquisition  ===========  Linux device : /dev/sdc  Device size : 500107862016 (500.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/investigator/imagedrive/guymager/image.dd  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 29767e39437403a72d1f221f20a3f3106d6bcd978854bdd135d478839e4ce166  SHA256 hash verified source: 29767e39437403a72d1f221f20a3f3106d6bcd978854bdd135d478839e4ce166  SHA256 hash verified image : 29767e39437403a72d1f221f20a3f3106d6bcd978854bdd135d478839e4ce166  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-05-13 19:43:02 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-05-14 07:42:04  Ended : 2019-05-14 19:49:30 (24 hours, 6 minutes and 28 seconds)  Acquisition speed : 11.06 MByte/s (11 hours, 59 minutes and 1 seconds)  Verification speed : 10.93 MByte/s (12 hours, 7 minutes and 26 seconds) |
| **Time take to create the image and verify the hash** | 24 hours and 6 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 72.90% | 950.04 MB | | **Lowest** | 4.93% | 949.78 MB | | **Average** | 38.91% | 949.91 MB | |

### **D.2.2 Second test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | Device size: 976773168 sectors (probed), 500,107,862,016 bytes  sector size: 512 bytes (probed)  500107862016 bytes ( 466 G ) copied ( 100% ), 120006 s, 4 M/s  500107862016 bytes ( 466 G ) hashed ( 100% ), 4816 s, 99 M/s  input results for device `/dev/sdc':  976773168 sectors in  0 bad sectors replaced by zeros  29767e39437403a72d1f221f20a3f3106d6bcd978854bdd135d478839e4ce166 (sha256)  10968803b4ff93bc123a5a787e122595831e7be634c5244a09a45ec235466572, sectors 0 - 4194303  7343f0b4d2215f0b588ea94ff1969b64eda6ed000e62458c4a31388dfbddf4ae, sectors 4194304 – 8388607  ……  a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51, sectors 968884224 - 973078527  184be061f71bc9c11728024012ff56d0cb2c820c70bc8ada957f13d65fee3854, sectors 973078528 - 976773167  output results for files `image.img.000':  976773168 sectors out  4194304 sectors out to `image.img.000'  4194304 sectors out to `image.img.001'  ……  4194304 sectors out to `image.img.231'  3694640 sectors out to `image.img.232'  [ok] 29767e39437403a72d1f221f20a3f3106d6bcd978854bdd135d478839e4ce166 (sha256)  [ok] 10968803b4ff93bc123a5a787e122595831e7be634c5244a09a45ec235466572, sectors 0 - 4194303, `image.img.000'  [ok] 7343f0b4d2215f0b588ea94ff1969b64eda6ed000e62458c4a31388dfbddf4ae, sectors 4194304 - 8388607, `image.img.001'  ….  [ok] a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51, sectors 968884224 - 973078527, `image.img.231'  [ok] 184be061f71bc9c11728024012ff56d0cb2c820c70bc8ada957f13d65fee3854, sectors 973078528 - 976773167, `image.img.232'  dc3dd completed at 2019-05-18 15:21:24 +1200 |
| **Time take to create the image and verify the hash** | 33 hours 20 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 100.00% | 252.76 MB | | **Lowest** | 6.50% | 119.55 MB | | **Average** | 53.25% | 186.15 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | 976773120 blocks (476940Mb) written.  976773168+0 records in  976773168+0 records out  0 - 2147483648: 10968803b4ff93bc123a5a787e122595831e7be634c5244a09a45ec235466572  2147483648 - 4294967296: 7343f0b4d2215f0b588ea94ff1969b64eda6ed000e62458c4a31388dfbddf4ae  ……  4294967296 - 6442450944: e3102264ec1ecb826a70240213ed77e84bf9bd3ee5efcb9b6ca32ae1a236e4d9  498216206336 - 500107862016: 184be061f71bc9c11728024012ff56d0cb2c820c70bc8ada957f13d65fee3854  Total (sha256): 29767e39437403a72d1f221f20a3f3106d6bcd978854bdd135d478839e4ce166 |
| **Time take to create the image and verify the hash** | 33 hours 25 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 61.37% | 4.57 MB | | **Lowest** | 37.30% | 4.57 MB | | **Average** | 49.33% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | SG\_IO: bad/missing sense data, sb[]: 70 00 05 00 00 00 00 0a 00 00 00 00 20 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    /dev/sdc:    ATA device, with non-removable media  Serial Number: ?@  Standards:  Likely used: 1  Configuration:  soft sectored  head switch time > 15us  fixed drive  disk xfer rate <= 5Mbs  disk xfer rate > 5Mbs, <= 10Mbs  data strobe offset option  format speed tolerance gap reqd  Logical max current  cylinders 17218 0  heads 0 0  sectors/track 128 0  --  bytes/track: 512 bytes/sector: 0  Logical/Physical Sector size: 512 bytes  device size with M = 1024\*1024: 0 MBytes  device size with M = 1000\*1000: 0 MBytes  cache/buffer size = unknown  Capabilities:  IORDY not likely  Cannot perform double-word IO  R/W multiple sector transfer: not supported  DMA: not supported  PIO: pio0  Hidden areas: unknown  Acquisition  ===========  Linux device : /dev/sdc  Device size : 500107862016 (500.1GB)  Format : Linux split dd raw image - file extension is .xxx  Image path and file name: /media/investigator/imagedrive/guymager/image.xxx  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 29767e39437403a72d1f221f20a3f3106d6bcd978854bdd135d478839e4ce166  SHA256 hash verified source: 29767e39437403a72d1f221f20a3f3106d6bcd978854bdd135d478839e4ce166  SHA256 hash verified image : 29767e39437403a72d1f221f20a3f3106d6bcd978854bdd135d478839e4ce166  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-05-20 06:40:34 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-05-20 15:05:33  Ended : 2019-05-20 23:15:34 (16 hours, 35 minutes and 0 seconds)  Acquisition speed : 15.74 MByte/s (8 hours, 24 minutes and 59 seconds)  Verification speed : 16.22 MByte/s (8 hours, 10 minutes and 1 seconds) |
| **Time take to create the image and verify the hash** | 16 hours and 35 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 68.20% | 950.04 MB | | **Lowest** | 9.03% | 949.78 MB | | **Average** | 38.61% | 949.91 MB | |

### **D.2.3 Third test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | device size: 976773168 sectors (probed), 500,107,862,016 bytes  sector size: 512 bytes (probed)  3202220032 bytes ( 3 G ) copied ( 1% ), 117 s, 26 M/s  [!!] writing to `/media/root/testdrive/image.img': No space left on device  3202482176 bytes ( 3 G ) copied ( 1% ), 117 s, 26 M/s  0 bytes ( 0 ) hashed (??%), 0 s, Infinity B/s  input results for device `/dev/sdd':  6254848 sectors in  0 bad sectors replaced by zeros  35b94e69406755b1d21c4bfd6b3106deedbd3cbb139de3597f3cc775224c2671 (sha256)  output results for file `/media/root/testdrive/image.img':  6254736 sectors out  dc3dd failed at 2019-05-23 17:33:28 +1200 |
| **Time take to create the image and verify the hash** | 1 minutes 56 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 38.80% | 183.72 MB | | **Lowest** | 38.03% | 183.72 MB | | **Average** | 38.41% | 183.72 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | 6254592 blocks (3054Mb) written.dcfldd:: No space left on device |
| **Time take to create the image and verify the hash** | 11 minutes and 41 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 61.97% | 2.33 MB | | **Lowest** | 33.23% | 2.33 MB | | **Average** | 47.60% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | SG\_IO: bad/missing sense data, sb[]: 70 00 05 00 00 00 00 0a 00 00 00 00 20 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    /dev/sdd:    ATA device, with non-removable media  Model Number: ,­­< ,#%,&,(\*+,,-/</2<3<6999  Serial Number: ?@  Firmware Revision: ,<,  Media Serial Num: reiDaslbeeMidAaduoiiDaslbeeMidVadioeiD  Media Manufacturer: aslbeeMidAaduoirOiV  Transport: 0x7069; Revision: 0x4974  Standards:  Used: unknown (minor revision code 0x3c77)  Supported: 13 11 10 6 5  Likely used: 13  Configuration:  Logical max current  cylinders 17218 11330  heads 2 19524  sectors/track 128 11336  --  CHS current addressable sectors: 206249034  Logical/Physical Sector size: 512 bytes  device size with M = 1024\*1024: 100707 MBytes  device size with M = 1000\*1000: 105599 MBytes (105 GB)  cache/buffer size = unknown  Nominal Media Rotation Rate: 29545  Capabilities:  IORDY(can be disabled)  Standby timer values: spec'd by Vendor  R/W multiple sector transfer: Max = 58 Current = ?  Recommended acoustic management value: 12, current value: 143  DMA: not supported  PIO: unknown  \* reserved 69[0]  \* reserved 69[2]  \* reserved 69[3]  \* reserved 69[4]  \* reserved 69[6]  \* WRITE BUFFER DMA command  \* READ BUFFER DMA command  \* Data Set Management TRIM supported (limit 7329 blocks)  \* Deterministic read data after TRIM  Security:  Master password revision code = 15499  (?) supported  enabled  locked  frozen  not expired: security count  not supported: enhanced erase  Security level high  266min for SECURITY ERASE UNIT. 272min for ENHANCED SECURITY ERASE UNIT.  Integrity word not set (found 0x0000, expected 0x7ea5)  Hidden areas: unknown  Acquisition  ===========  Linux device : /dev/sdd  Device size : 500107862016 (500.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/testdrive/image.dd  Info path and file name: /media/root/testdrive/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Aborted because of image write error  SHA256 hash : --  SHA256 hash verified source: --  SHA256 hash verified image : --  Acquisition started : 2019-05-23 17:54:54 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: Acquisition aborted before start of verification  Ended : 2019-05-23 17:56:13 (0 hours, 1 minutes and 18 seconds)  Acquisition speed : 39.68 MByte/s (0 hours, 1 minutes and 18 seconds) |
| **Time take to create the image and verify the hash** | 1 minutes and 18 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** |  |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 62.27% | 794.32 MB | | **Lowest** | 12.53% | 728.01 MB | | **Average** | 37.40% | 761.16 MB | |

### **D.2.4 Fourth test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | device size: 976773168 sectors (probed), 500,107,862,016 bytes  sector size: 512 bytes (probed)  500107862016 bytes ( 466 G ) copied ( 100% ), 22008 s, 22 M/s  500107862016 bytes ( 466 G ) hashed ( 100% ), 3865 s, 123 M/s  input results for device `/dev/sdd':  976773168 sectors in  0 bad sectors replaced by zeros  b4d5c67180905f3e23347551d3f92890c21ba797faa6d4387b75cec31f5c8c24 (sha256)  output results for file `image.img':  976773168 sectors out  [ok] b4d5c67180905f3e23347551d3f92890c21ba797faa6d4387b75cec31f5c8c24 (sha256)  dc3dd completed at 2019-05-21 12:24:25 +1200 |
| **Time take to create the image and verify the hash** | 8 hours and 6 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 72.43% | 249.36 MB | | **Lowest** | 30.87% | 183.72 MB | | **Average** | 51.65% | 216.54 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 29 hours and 12 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Failed | | DI-RO-17 | Failed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 61.67% | 2.33 MB | | **Lowest** | 30.93% | 2.33 MB | | **Average** | 46.30% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | SG\_IO: bad/missing sense data, sb[]: 70 00 05 00 00 00 00 0a 00 00 00 00 20 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    /dev/sdd:    ATA device, with non-removable media  Serial Number: ?@  Standards:  Likely used: 1  Configuration:  soft sectored  head switch time > 15us  fixed drive  disk xfer rate <= 5Mbs  disk xfer rate > 5Mbs, <= 10Mbs  data strobe offset option  format speed tolerance gap reqd  Logical max current  cylinders 17218 0  heads 349 0  sectors/track 128 0  --  bytes/track: 512 bytes/sector: 0  Logical/Physical Sector size: 512 bytes  device size with M = 1024\*1024: 375567 MBytes  device size with M = 1000\*1000: 393811 MBytes (393 GB)  cache/buffer size = unknown  Capabilities:  IORDY not likely  Cannot perform double-word IO  R/W multiple sector transfer: not supported  DMA: not supported  PIO: pio0  Hidden areas: unknown  Acquisition  ===========  Linux device : /dev/sdd  Device size : 500107862016 (500.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/imagedrive/guymager/image.dd  Info path and file name: /media/root/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully    SHA256 hash : b4d5c67180905f3e23347551d3f92890c21ba797faa6d4387b75cec31f5c8c24  SHA256 hash verified source: b4d5c67180905f3e23347551d3f92890c21ba797faa6d4387b75cec31f5c8c24  SHA256 hash verified image : b4d5c67180905f3e23347551d3f92890c21ba797faa6d4387b75cec31f5c8c24  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-05-23 06:27:04 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-05-23 10:11:15  Ended : 2019-05-23 13:59:20 (7 hours, 32 minutes and 15 seconds)  Acquisition speed : 35.46 MByte/s (3 hours, 44 minutes and 10 seconds)  Verification speed : 34.85 MByte/s (3 hours, 48 minutes and 4 seconds) |
| **Time take to create the image and verify the hash** | 7 hours and 32 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 75.57% | 794.08 MB | | **Lowest** | 15.10% | 793.82 MB | | **Average** | 45.33% | 793.95 MB | |

## **D.3 Hard Drive: USB-HD-04**

### **D.3.1 First test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | device size: 976773168 sectors (probed), 500,107,862,016 bytes  sector size: 512 bytes (probed)  500107862016 bytes ( 466 G ) copied ( 100% ), 110225 s, 4.3 M/s  500107862016 bytes ( 466 G ) hashed ( 100% ), 3871 s, 123 M/s  input results for device `/dev/sdc':  976773168 sectors in  0 bad sectors replaced by zeros  6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9 (sha256)  output results for file `image.img':  976773168 sectors out  [ok] 6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9 (sha256)  dc3dd completed at 2019-05-26 06:45:47 +1200 |
| **Time take to create the image and verify the hash** | 30 hours 37 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 71.40% | 187.23 MB | | **Lowest** | 4.97% | 119.55 MB | | **Average** | 38.18% | 153.39 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 30 hours 1 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Failed  Failed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 59.51% | 4.57 MB | | **Lowest** | 31.77% | 4.57 MB | | **Average** | 45.64% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART Status not supported: Incomplete response, ATA output registers missing  SMART overall-health self-assessment test result: PASSED  Warning: This result is based on an Attribute check.    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 0) seconds.  Offline data collection  capabilities: (0x73) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 1) minutes.  Extended self-test routine  recommended polling time: ( 142) minutes.  Conveyance self-test routine  recommended polling time: ( 2) minutes.  Acquisition  ===========  Linux device : /dev/sdc  Device size : 500107862016 (500.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/investigator/imagedrive/guymager/image.dd  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9  SHA256 hash verified source: 6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9  SHA256 hash verified image : 6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-05-27 20:27:24 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-05-28 08:42:31  Ended : 2019-05-28 21:10:50 (24 hours, 43 minutes and 25 seconds)  Acquisition speed : 10.81 MByte/s (12 hours, 15 minutes and 6 seconds)  Verification speed : 10.62 MByte/s (12 hours, 28 minutes and 18 seconds) |
| **Time take to create the image and verify the hash** | 24 hours and 43 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 72.37% | 949.95 MB | | **Lowest** | 4.20% | 949.69 MB | | **Average** | 37.21% | 949.82 MB | |

### **D.3.2 Second test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | device size: 976773168 sectors (probed), 500,107,862,016 bytes  sector size: 512 bytes (probed)  500107862016 bytes ( 466 G ) copied ( 100% ), 97355 s, 4.9 M/s  500107862016 bytes ( 466 G ) hashed ( 100% ), 5733 s, 83 M/s  input results for device `/dev/sdc':  976773168 sectors in  0 bad sectors replaced by zeros  6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9 (sha256)  e6cec69e498562e81846cb00609f8bbe878d43589ad12f550bfbc07aea44a088, sectors 0 - 4194303  9765dfeb493d7b254fc0bb88867b9d8530cb467aa5fb53205b2db69649ef3be6, sectors 4194304 - 8388607  ……..  3ace12dda79e9904f9681f8973f711ed40a89bda543d757f55f1b7676b410b17, sectors 968884224 - 973078527  12e1430fb705d10b192fbd453abc0fc5899f655e63fd3fb86cbf0293549d8b0e, sectors 973078528 - 976773167  output results for files `image.img.000':  976773168 sectors out  4194304 sectors out to `image.img.000'  4194304 sectors out to `image.img.001'  …..  4194304 sectors out to `image.img.231'  3694640 sectors out to `image.img.232'  [ok] 6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9 (sha256)  [ok] e6cec69e498562e81846cb00609f8bbe878d43589ad12f550bfbc07aea44a088, sectors 0 - 4194303, `image.img.000'  [ok] 9765dfeb493d7b254fc0bb88867b9d8530cb467aa5fb53205b2db69649ef3be6, sectors 4194304 - 8388607, `image.img.001'  ….  [ok] 3ace12dda79e9904f9681f8973f711ed40a89bda543d757f55f1b7676b410b17, sectors 968884224 - 973078527, `image.img.231'  [ok] 12e1430fb705d10b192fbd453abc0fc5899f655e63fd3fb86cbf0293549d8b0e, sectors 973078528 - 976773167, `image.img.232'  dc3dd completed at 2019-05-31 00:59:34 +1200 |
| **Time take to create the image and verify the hash** | 27 hours 2 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 93.87% | 252.76 MB | | **Lowest** | 8.63% | 119.55 MB | | **Average** | 51.25% | 186.15 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | 0 - 2147483648: e6cec69e498562e81846cb00609f8bbe878d43589ad12f550bfbc07aea44a088  2147483648 - 4294967296: 9765dfeb493d7b254fc0bb88867b9d8530cb467aa5fb53205b2db69649ef3be6  4294967296 - 6442450944: 85b67a51ae4c1be6eda8e0300efda3ade8d6ed3baa5abda491762347b06f4201  …….  496068722688 - 498216206336: 3ace12dda79e9904f9681f8973f711ed40a89bda543d757f55f1b7676b410b17  498216206336 - 500107862016: 12e1430fb705d10b192fbd453abc0fc5899f655e63fd3fb86cbf0293549d8b0e  Total (sha256): 6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9 |
| **Time take to create the image and verify the hash** | 31 hours 49 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 60.93% | 4.57 MB | | **Lowest** | 38.07% | 4.57 MB | | **Average** | 49.50% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART Status not supported: Incomplete response, ATA output registers missing  SMART overall-health self-assessment test result: PASSED  Warning: This result is based on an Attribute check.    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 0) seconds.  Offline data collection  capabilities: (0x73) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 1) minutes.  Extended self-test routine  recommended polling time: ( 142) minutes.  Conveyance self-test routine  recommended polling time: ( 2) minutes.  SCT capabilities: (0x103b) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdc  Device size : 500107862016 (500.1GB)  Format : Linux split dd raw image - file extension is .xxx  Image path and file name: /media/investigator/imagedrive/guymager/image.xxx  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9  SHA256 hash verified source: 6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9  SHA256 hash verified image : 6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-05-28 21:44:49 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-05-29 10:46:28  Ended : 2019-05-29 21:41:10 (23 hours, 56 minutes and 21 seconds)  Acquisition speed : 10.17 MByte/s (13 hours, 1 minutes and 39 seconds)  Verification speed : 12.14 MByte/s (10 hours, 54 minutes and 41 seconds) |
| **Time take to create the image and verify the hash** | 23 hours and 56 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 64.63% | 949.98 MB | | **Lowest** | 4.83% | 949.72 MB | | **Average** | 34.73% | 949.85 MB | |

### **D.3.3 Third test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | device size: 976773168 sectors (probed), 500,107,862,016 bytes  sector size: 512 bytes (probed)  3201236992 bytes ( 3 G ) copied ( 1% ), 111 s, 28 M/s  [!!] writing to `/media/root/testdrive/image.img': No space left on device  3202482176 bytes ( 3 G ) copied ( 1% ), 111 s, 27 M/s  0 bytes ( 0 ) hashed (??%), 0 s, Infinity B/s  input results for device `/dev/sdd':  6254848 sectors in  0 bad sectors replaced by zeros  021390738d5cc62a09079c79b7027e20fb83cbb69c20b225468856caa2c93cd7 (sha256)  output results for file `/media/root/testdrive/image.img':  6254736 sectors out  dc3dd failed at 2019-06-03 08:07:13 +1200 |
| **Time take to create the image and verify the hash** | 1 minutes and 51 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 37.53 | 183.72 MB | | **Lowest** | 34.70 | 183.72 MB | | **Average** | 36.11% | 183.72 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | 6254592 blocks (3054Mb) written.dcfldd:: No space left on device |
| **Time take to create the image and verify the hash** | 11 minutes 39 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 62.40% | 2.33 MB | | **Lowest** | 34.03% | 2.33 MB | | **Average** | 48.21% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART Status not supported: Incomplete response, ATA output registers missing  SMART overall-health self-assessment test result: PASSED  Warning: This result is based on an Attribute check.    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 0) seconds.  Offline data collection  capabilities: (0x73) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 1) minutes.  Extended self-test routine  recommended polling time: ( 142) minutes.  Conveyance self-test routine  recommended polling time: ( 2) minutes.  SCT capabilities: (0x103b) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdd  Device size : 500107862016 (500.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/testdrive/image.dd  Info path and file name: /media/root/testdrive/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Aborted because of image write error  SHA256 hash : --  SHA256 hash verified source: --  SHA256 hash verified image : --  Acquisition started : 2019-06-03 08:28:29 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: Acquisition aborted before start of verification  Ended : 2019-06-03 08:29:48 (0 hours, 1 minutes and 18 seconds)  Acquisition speed : 39.70 MByte/s (0 hours, 1 minutes and 18 seconds) |
| **Time take to create the image and verify the hash** | 1 minutes 18 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** |  |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 42.50% | 793.85 MB | | **Lowest** | 12.20% | 727.54 MB | | **Average** | 27.35% | 760.69 MB | |

### **D.3.4 Fourth test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | device size: 976773168 sectors (probed), 500,107,862,016 bytes  sector size: 512 bytes (probed)  500107862016 bytes ( 466 G ) copied ( 100% ), 21670 s, 22 M/s  500107862016 bytes ( 466 G ) hashed ( 100% ), 3570 s, 134 M/s  input results for device `/dev/sdd':  976773168 sectors in  0 bad sectors replaced by zeros  6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9 (sha256)  output results for file `image.img':  976773168 sectors out  [ok] 6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9 (sha256)  dc3dd completed at 2019-06-01 18:50:27 +1200 |
| **Time take to create the image and verify the hash** | 6 hours and 1 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 80.43% | 249.36 MB | | **Lowest** | 30.32% | 183.72 MB | | **Average** | 55.37% | 216.54 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 30 hours and 1 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Failed | | DI-RO-17 | Failed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 60.80% | 2.33 MB | | **Lowest** | 29.73% | 2.33 MB | | **Average** | 45.26% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART Status not supported: Incomplete response, ATA output registers missing  SMART overall-health self-assessment test result: PASSED  Warning: This result is based on an Attribute check.    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 0) seconds.  Offline data collection  capabilities: (0x73) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 1) minutes.  Extended self-test routine  recommended polling time: ( 142) minutes.  Conveyance self-test routine  recommended polling time: ( 2) minutes.  SCT capabilities: (0x103b) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdd  Device size : 500107862016 (500.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/imagedrive/guymager/image.dd  Info path and file name: /media/root/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9  SHA256 hash verified source: 6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9  SHA256 hash verified image : 6cfd76c7d0e41f600aeb3b071741f5ebb0f4217224fd82de2a2b6ca3adede7d9  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-06-03 08:34:02 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-06-03 12:10:33  Ended : 2019-06-03 15:54:05 (7 hours, 20 minutes and 3 seconds)  Acquisition speed : 36.71 MByte/s (3 hours, 36 minutes and 31 seconds)  Verification speed : 35.56 MByte/s (3 hours, 43 minutes and 32 seconds) |
| **Time take to create the image and verify the hash** | 7 hours and 20 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **76.70%** | 77.70% | 794.31 MB | | **Lowest** | 13.20% | 794.05 MB | | **Average** | 45.45% | 794.18 MB | |

## **D.4 Hard Drive: USB-HD-05**

### **D.4.1 First test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | device size: 488397168 sectors (probed), 250,059,350,016 bytes  sector size: 512 bytes (probed)  250059350016 bytes ( 233 G ) copied ( 100% ), 31218 s, 7.6 M/s  250059350016 bytes ( 233 G ) hashed ( 100% ), 1753 s, 136 M/s  input results for device `/dev/sdc':  488397168 sectors in  0 bad sectors replaced by zeros  7d8d497081d318d48cfdc7c087d6b3c27ef0a4cbfc6a3b529ed2fcd4b8bb657f (sha256)  output results for file `image.img':  488397168 sectors out  [ok] 7d8d497081d318d48cfdc7c087d6b3c27ef0a4cbfc6a3b529ed2fcd4b8bb657f (sha256)  dc3dd completed at 2019-06-06 02:48:59 +1200 |
| **Time take to create the image and verify the hash** | 8 hours 40 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 76.73% | 187.23 MB | | **Lowest** | 8.97% | 119.52 MB | | **Average** | 42.85% | 153.37 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 14 hours 48 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Failed  Failed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 61.03% | 4.57 MB | | **Lowest** | 35.10% | 4.57 MB | | **Average** | 48.06% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART overall-health self-assessment test result: PASSED    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 0) seconds.  Offline data collection  capabilities: (0x53) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  No Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 2) minutes.  Extended self-test routine  recommended polling time: ( 133) minutes.  SCT capabilities: (0x003d) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdc  Device size : 250059350016 (250.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/investigator/imagedrive/guymager/image.dd  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 7d8d497081d318d48cfdc7c087d6b3c27ef0a4cbfc6a3b529ed2fcd4b8bb657f  SHA256 hash verified source: 7d8d497081d318d48cfdc7c087d6b3c27ef0a4cbfc6a3b529ed2fcd4b8bb657f  SHA256 hash verified image : 7d8d497081d318d48cfdc7c087d6b3c27ef0a4cbfc6a3b529ed2fcd4b8bb657f  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-06-07 06:23:58 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-06-07 08:23:52  Ended : 2019-06-07 10:22:49 (3 hours, 58 minutes and 51 seconds)  Acquisition speed : 33.15 MByte/s (1 hours, 59 minutes and 53 seconds)  Verification speed : 33.41 MByte/s (1 hours, 58 minutes and 57 seconds) |
| **Time take to create the image and verify the hash** | 3 hours and 58 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 90.50% | 950.20 MB | | **Lowest** | 17.83% | 949.94 MB | | **Average** | 54.16% | 950.07 MB | |

### **D.4.2 Second test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | device size: 488397168 sectors (probed), 250,059,350,016 bytes  sector size: 512 bytes (probed)  250059350016 bytes ( 233 G ) copied ( 100% ), 31786 s, 7.5 M/s  250059350016 bytes ( 233 G ) hashed ( 100% ), 2380 s, 100 M/s  input results for device `/dev/sdc':  488397168 sectors in  0 bad sectors replaced by zeros  7d8d497081d318d48cfdc7c087d6b3c27ef0a4cbfc6a3b529ed2fcd4b8bb657f (sha256)  e6f2966dec21f7be4ac5aeb20229ddc4a017d041b5dfccc7a40c08c93fcd5c74, sectors 0 - 4194303  bd6000dcc2e2b18274bb175698b4a2c1ffce06988b1db049e59e0662987fc74f, sectors 4194304 - 8388607  b8103fa7e42efde3f89015fa8f82b5285bb49eb163eb67433a220b5cbcd25d5b,  …..  sectors 482344960 - 486539263  d096f02285b523db2e8be6acbbb21f8edf2f017755b5a0a3beaac843d6f3f745, sectors 486539264 - 488397167  output results for files `image.img.000':  488397168 sectors out  4194304 sectors out to `image.img.000'  4194304 sectors out to `image.img.001'  ……..  4194304 sectors out to `image.img.115'  1857904 sectors out to `image.img.116'  [ok] 7d8d497081d318d48cfdc7c087d6b3c27ef0a4cbfc6a3b529ed2fcd4b8bb657f (sha256)  [ok] e6f2966dec21f7be4ac5aeb20229ddc4a017d041b5dfccc7a40c08c93fcd5c74, sectors 0 - 4194303, `image.img.000'  [ok] bd6000dcc2e2b18274bb175698b4a2c1ffce06988b1db049e59e0662987fc74f, sectors 4194304 - 8388607, `image.img.001'  [ok] b8103fa7e42efde3f89015fa8f82b5285bb49eb163eb67433a220b5cbcd25d5b, sectors 8388608 - 12582911, `image.img.002'  …….  [ok] 0fb17d3e44413fada421cab7831ffb897d9f2a59bf30c125996c1b1e82de5500, sectors 482344960 - 486539263, `image.img.115'  [ok] d096f02285b523db2e8be6acbbb21f8edf2f017755b5a0a3beaac843d6f3f745, sectors 486539264 - 488397167, `image.img.116'  dc3dd completed at 2019-06-07 20:11:46 +1200 |
| **Time take to create the image and verify the hash** | 8 hours 49 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 100.00% | 252.76 MB | | **Lowest** | 13.03% | 119.55 MB | | **Average** | 56.51% | 186.15 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | 0 - 2147483648: e6f2966dec21f7be4ac5aeb20229ddc4a017d041b5dfccc7a40c08c93fcd5c74  2147483648 - 4294967296: bd6000dcc2e2b18274bb175698b4a2c1ffce06988b1db049e59e0662987fc74f  246960619520 - 249108103168:  …….  0fb17d3e44413fada421cab7831ffb897d9f2a59bf30c125996c1b1e82de5500  249108103168 - 250059350016: d096f02285b523db2e8be6acbbb21f8edf2f017755b5a0a3beaac843d6f3f745  Total (sha256): 7d8d497081d318d48cfdc7c087d6b3c27ef0a4cbfc6a3b529ed2fcd4b8bb657f |
| **Time take to create the image and verify the hash** | 15 hours 38 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 62.57% | 4.57 MB | | **Lowest** | 40.27% | 4.57 MB | | **Average** | 51.42% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART overall-health self-assessment test result: PASSED    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 0) seconds.  Offline data collection  capabilities: (0x53) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  No Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 2) minutes.  Extended self-test routine  recommended polling time: ( 133) minutes.  SCT capabilities: (0x003d) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.    Acquisition  ===========  Linux device : /dev/sdc  Device size : 250059350016 (250.1GB)  Format : Linux split dd raw image - file extension is .xxx  Image path and file name: /media/investigator/imagedrive/guymager/image.xxx  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 7d8d497081d318d48cfdc7c087d6b3c27ef0a4cbfc6a3b529ed2fcd4b8bb657f  SHA256 hash verified source: 7d8d497081d318d48cfdc7c087d6b3c27ef0a4cbfc6a3b529ed2fcd4b8bb657f  SHA256 hash verified image : 7d8d497081d318d48cfdc7c087d6b3c27ef0a4cbfc6a3b529ed2fcd4b8bb657f  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-06-08 18:47:46 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-06-08 20:51:05  Ended : 2019-06-08 22:49:33 (4 hours, 1 minutes and 47 seconds)  Acquisition speed : 32.23 MByte/s (2 hours, 3 minutes and 19 seconds)  Verification speed : 33.55 MByte/s (1 hours, 58 minutes and 27 seconds) |
| **Time take to create the image and verify the hash** | 4 hours and 1 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 95.53% | 949.50 MB | | **Lowest** | 17.87% | 949.24 MB | | **Average** | 56.57% | 949.37 MB | |

### **D.4.3 Third test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | device size: 488397168 sectors (probed), 250,059,350,016 bytes  sector size: 512 bytes (probed)  3201531904 bytes ( 3 G ) copied ( 1% ), 121 s, 25 M/s  [!!] writing to `/media/root/testdrive/image.img': No space left on device  3204546560 bytes ( 3 G ) copied ( 1% ), 122 s, 25 M/s  0 bytes ( 0 ) hashed (??%), 0 s, Infinity B/s  input results for device `/dev/sdd':  6258880 sectors in  0 bad sectors replaced by zeros  4f8517db193c912ee0b3d65098d24411344d89a96b17401322d3604c2c370ecb (sha256)  output results for file `/media/root/testdrive/image.img':  6254736 sectors out  dc3dd failed at 2019-06-10 10:54:35 +1200 |
| **Time take to create the image and verify the hash** | 2 minutes and 1 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 37.70% | 183.72 MB | | **Lowest** | 35.03% | 183.72 MB | | **Average** | 36.36% | 183.72 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | 6254592 blocks (3054Mb) written.dcfldd:: No space left on device |
| **Time take to create the image and verify the hash** | 11 minutes 15 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 34.93% | 2.33 MB | | **Lowest** | 34.10% | 2.33 MB | | **Average** | 32.25% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART overall-health self-assessment test result: PASSED    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 0) seconds.  Offline data collection  capabilities: (0x53) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  No Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 2) minutes.  Extended self-test routine  recommended polling time: ( 133) minutes.  SCT capabilities: (0x003d) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdd  Device size : 250059350016 (250.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/testdrive/image.dd  Info path and file name: /media/root/testdrive/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Aborted because of image write error  MD5 hash : --  MD5 hash verified source : --  MD5 hash verified image : --  SHA1 hash : --  SHA1 hash verified source : --  SHA1 hash verified image : --  SHA256 hash : --  SHA256 hash verified source: --  SHA256 hash verified image : --  Acquisition started : 2019-06-10 11:54:34 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: Acquisition aborted before start of verification  Ended : 2019-06-10 11:55:49 (0 hours, 1 minutes and 15 seconds)  Acquisition speed : 41.30 MByte/s (0 hours, 1 minutes and 15 seconds) |
| **Time take to create the image and verify the hash** | 1 minutes 15 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** |  |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 44.77% | 793.80 MB | | **Lowest** | 39.38% | 727.50 MB | | **Average** | 42.07% | 760.65 MB | |

### **D.4.4 Fourth test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | device size: 488397168 sectors (probed), 250,059,350,016 bytes  sector size: 512 bytes (probed)  250059350016 bytes ( 233 G ) copied ( 100% ), 11388 s, 21 M/s  250059350016 bytes ( 233 G ) hashed ( 100% ), 1816 s, 131 M/s  input results for device `/dev/sdd':  488397168 sectors in  0 bad sectors replaced by zeros  e685c583b2ee2359470fdf0dfa2af028dd5e02f8c4a5f07d4ff447b567b66188 (sha256)  output results for file `image.img':  488397168 sectors out  [ok] e685c583b2ee2359470fdf0dfa2af028dd5e02f8c4a5f07d4ff447b567b66188 (sha256)  dc3dd completed at 2019-06-09 02:15:24 +1200 |
| **Time take to create the image and verify the hash** | 3 hours and 9 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 75.10% | 249.36 MB | | **Lowest** | 30.77% | 183.72 MB | | **Average** | 52.93% | 216.54 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 14 hours and 42 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Failed | | DI-RO-17 | Failed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 61.13% | 2.33 MB | | **Lowest** | 30.57% | 2.33 MB | | **Average** | 45.85% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART overall-health self-assessment test result: PASSED    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 0) seconds.  Offline data collection  capabilities: (0x53) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  No Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 2) minutes.  Extended self-test routine  recommended polling time: ( 133) minutes.  SCT capabilities: (0x003d) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdd  Device size : 250059350016 (250.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/imagedrive/guymager/image.dd  Info path and file name: /media/root/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : e685c583b2ee2359470fdf0dfa2af028dd5e02f8c4a5f07d4ff447b567b66188  SHA256 hash verified source: e685c583b2ee2359470fdf0dfa2af028dd5e02f8c4a5f07d4ff447b567b66188  SHA256 hash verified image : e685c583b2ee2359470fdf0dfa2af028dd5e02f8c4a5f07d4ff447b567b66188  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-06-10 06:16:02 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-06-10 07:59:46  Ended : 2019-06-10 09:44:21 (3 hours, 28 minutes and 19 seconds)  Acquisition speed : 38.32 MByte/s (1 hours, 43 minutes and 44 seconds)  Verification speed : 38.00 MByte/s (1 hours, 44 minutes and 35 seconds) |
| **Time take to create the image and verify the hash** | 3 hours and 28 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 81.07% | 794.12 MB | | **Lowest** | 18.40% | 793.86 MB | | **Average** | 49.73% | 793.99 MB | |

## **D.5 Hard Drive: USB-HD-06**

### **D.5.1 First test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | device size: 234441648 sectors (probed), 120,034,123,776 bytes  sector size: 512 bytes (probed)  120034123776 bytes ( 112 G ) copied ( 100% ), 28453 s, 4 M/s  120034123776 bytes ( 112 G ) hashed ( 100% ), 835 s, 137 M/s  input results for device `/dev/sdc':  234441648 sectors in  0 bad sectors replaced by zeros  502dd013b91b4b4bf0640e046b034af00cd394c60374a2cb20158584814c7685 (sha256)  output results for file `image.img':  234441648 sectors out  [ok] 502dd013b91b4b4bf0640e046b034af00cd394c60374a2cb20158584814c7685 (sha256)  dc3dd completed at 2019-06-11 05:59:50 +1200 |
| **Time take to create the image and verify the hash** | 7 hours 54 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 77.10% | 187.23 MB | | **Lowest** | 4.83% | 119.55 MB | | **Average** | 40.96% | 153.39 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 7 hours 22 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Failed  Failed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 60.90% | 4.57 MB | | **Lowest** | 37.90% | 4.57 MB | | **Average** | 49.40% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART Status not supported: Incomplete response, ATA output registers missing  SMART overall-health self-assessment test result: PASSED  Warning: This result is based on an Attribute check.    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 645) seconds.  Offline data collection  capabilities: (0x5b) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  Offline surface scan supported.  Self-test supported.  No Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 2) minutes.  Extended self-test routine  recommended polling time: ( 52) minutes.  SCT capabilities: (0x003d) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdc  Device size : 120034123776 (120.0GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/investigator/imagedrive/guymager/image.dd  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 502dd013b91b4b4bf0640e046b034af00cd394c60374a2cb20158584814c7685  SHA256 hash verified source: 502dd013b91b4b4bf0640e046b034af00cd394c60374a2cb20158584814c7685  SHA256 hash verified image : 502dd013b91b4b4bf0640e046b034af00cd394c60374a2cb20158584814c7685  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-06-12 06:15:19 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-06-12 09:36:19  Ended : 2019-06-12 12:48:23 (6 hours, 33 minutes and 3 seconds)  Acquisition speed : 9.49 MByte/s (3 hours, 20 minutes and 59 seconds)  Verification speed : 9.93 MByte/s (3 hours, 12 minutes and 3 seconds) |
| **Time take to create the image and verify the hash** | 6 hours and 33 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 80.40% | 949.96 MB | | **Lowest** | 5.20% | 949.73 MB | | **Average** | 42.80% | 949.84 MB | |

### **D.5.2 Second test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | device size: 234441648 sectors (probed), 120,034,123,776 bytes  sector size: 512 bytes (probed)  120034123776 bytes ( 112 G ) copied ( 100% ), 26239 s, 4.4 M/s  120034123776 bytes ( 112 G ) hashed ( 100% ), 1226 s, 93 M/s  input results for device `/dev/sdc':  234441648 sectors in  0 bad sectors replaced by zeros  502dd013b91b4b4bf0640e046b034af00cd394c60374a2cb20158584814c7685 (sha256)  4b0a5843e9d4c40fe61845657f1bf1481593f92dd0e7e7ca9512d96d4a109326, sectors 0 - 4194303  67295fdaaa1533d6df774c12286e34d3e6b07afe59a8139364f83aeea7db3de1, sectors 4194304 - 8388607  b4b113c552a474034cc092fd85767b4981a057d6cb9d246cbfc1ad65eb261f05,  ……  sectors 226492416 - 230686719  009d4c4001855591f594ac304ecf6056f998d187a7089110939e3ae7d0154d2d,  output results for files `image.img.000':  234441648 sectors out  4194304 sectors out to `image.img.000'  4194304 sectors out to `image.img.001'  …….  4194304 sectors out to `image.img.054'  3754928 sectors out to `image.img.055'  [ok] 502dd013b91b4b4bf0640e046b034af00cd394c60374a2cb20158584814c7685 (sha256)  [ok] 4b0a5843e9d4c40fe61845657f1bf1481593f92dd0e7e7ca9512d96d4a109326, sectors 0 - 4194303, `image.img.000'  [ok] 67295fdaaa1533d6df774c12286e34d3e6b07afe59a8139364f83aeea7db3de1, sectors 4194304 - 8388607, `image.img.001'  …..  [ok] 63e6d24eb6dd514f45a8cdce06755f453c15fa57cea4128fb9fd23f193cf71aa, sectors 226492416 - 230686719, `image.img.054'  [ok] 009d4c4001855591f594ac304ecf6056f998d187a7089110939e3ae7d0154d2d, sectors 230686720 - 234441647, `image.img.055'  dc3dd completed at 2019-06-11 21:47:09 +1200 |
| **Time take to create the image and verify the hash** | 7 hours 17 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 100.00% | 252.76 MB | | **Lowest** | 6.90% | 119.55 MB | | **Average** | 53.45% | 186.15 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | 0 - 2147483648: 4b0a5843e9d4c40fe61845657f1bf1481593f92dd0e7e7ca9512d96d4a109326  2147483648 - 4294967296: 67295fdaaa1533d6df774c12286e34d3e6b07afe59a8139364f83aeea7db3de1  4294967296 - 6442450944: b4b113c552a474034cc092fd85767b4981a057d6cb9d246cbfc1ad65eb261f05  ……..  115964116992 - 118111600640: 63e6d24eb6dd514f45a8cdce06755f453c15fa57cea4128fb9fd23f193cf71aa  118111600640 - 120034123776: 009d4c4001855591f594ac304ecf6056f998d187a7089110939e3ae7d0154d2d  Total (sha256): 502dd013b91b4b4bf0640e046b034af00cd394c60374a2cb20158584814c7685 |
| **Time take to create the image and verify the hash** | 7 hours 39 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 61.50% | 4.57 MB | | **Lowest** | 40.83% | 4.57 MB | | **Average** | 51.17% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART Status not supported: Incomplete response, ATA output registers missing  SMART overall-health self-assessment test result: PASSED  Warning: This result is based on an Attribute check.    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 645) seconds.  Offline data collection  capabilities: (0x5b) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  Offline surface scan supported.  Self-test supported.  No Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 2) minutes.  Extended self-test routine  recommended polling time: ( 52) minutes.  SCT capabilities: (0x003d) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdc  Device size : 120034123776 (120.0GB)  Format : Linux split dd raw image - file extension is .xxx  Image path and file name: /media/investigator/imagedrive/guymager/image.xxx  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 502dd013b91b4b4bf0640e046b034af00cd394c60374a2cb20158584814c7685  SHA256 hash verified source: 502dd013b91b4b4bf0640e046b034af00cd394c60374a2cb20158584814c7685  SHA256 hash verified image : 502dd013b91b4b4bf0640e046b034af00cd394c60374a2cb20158584814c7685  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-06-12 13:32:31 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-06-12 16:51:51  Ended : 2019-06-12 19:51:05 (6 hours, 18 minutes and 34 seconds)  Acquisition speed : 9.57 MByte/s (3 hours, 19 minutes and 20 seconds)  Verification speed : 10.64 MByte/s (2 hours, 59 minutes and 14 seconds) |
| **Time take to create the image and verify the hash** | 6 hours and 18 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 78.77% | 950.25 MB | | **Lowest** | 5.20% | 949.99 MB | | **Average** | 41.98% | 950.12 MB | |

### **D.5.3 Third test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | device size: 234441648 sectors (probed), 120,034,123,776 bytes  sector size: 512 bytes (probed)  3201531904 bytes ( 3 G ) copied ( 3% ), 119 s, 26 M/s  [!!] writing to `/media/root/testdrive/image.img': No space left on device  3202482176 bytes ( 3 G ) copied ( 3% ), 119 s, 26 M/s  0 bytes ( 0 ) hashed (??%), 0 s, Infinity B/s  input results for device `/dev/sdd':  6254848 sectors in  0 bad sectors replaced by zeros  1e0a25ef7521242fd5b15c0536bc1535b86e9f6dfcef1b463fbe14065233372a (sha256)  output results for file `/media/root/testdrive/image.img':  6254736 sectors out  dc3dd failed at 2019-06-13 20:37:08 +1200 |
| **Time take to create the image and verify the hash** | 1 minutes and 59 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 33.47% | 183.72 MB | | **Lowest** | 30.47% | 183.72 MB | | **Average** | 31.97% | 183.72 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | dcfldd:: No space left on device |
| **Time take to create the image and verify the hash** | 12 minutes 09 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 61.40% | 2.33 MB | | **Lowest** | 33.63% | 2.33 MB | | **Average** | 47.51% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART Status not supported: Incomplete response, ATA output registers missing  SMART overall-health self-assessment test result: PASSED  Warning: This result is based on an Attribute check.    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 645) seconds.  Offline data collection  capabilities: (0x5b) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  Offline surface scan supported.  Self-test supported.  No Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 2) minutes.  Extended self-test routine  recommended polling time: ( 52) minutes.  SCT capabilities: (0x003d) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdd  Device size : 120034123776 (120.0GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/testdrive/image.dd  Info path and file name: /media/root/testdrive/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Aborted because of image write error  SHA256 hash : --  SHA256 hash verified source: --  SHA256 hash verified image : --  Acquisition started : 2019-06-13 20:56:10 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: Acquisition aborted before start of verification  Ended : 2019-06-13 20:57:32 (0 hours, 1 minutes and 21 seconds)  Acquisition speed : 38.19 MByte/s (0 hours, 1 minutes and 21 seconds) |
| **Time take to create the image and verify the hash** | 1 minutes 15 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** |  |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 38.70% | 793.96 MB | | **Lowest** | 16.40% | 727.65 MB | | **Average** | 27.55% | 760.80 MB | |

### **D.5.4 Fourth test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | device size: 234441648 sectors (probed), 120,034,123,776 bytes  sector size: 512 bytes (probed)  120034123776 bytes ( 112 G ) copied ( 100% ), 5226 s, 22 M/s  120034123776 bytes ( 112 G ) hashed ( 100% ), 848 s, 135 M/s  input results for device `/dev/sdd':  234441648 sectors in  0 bad sectors replaced by zeros  2fe34928a083a5884ddcda9227cc2bfa9b40483e6a83cb9770163554290d2e9f (sha256)  output results for file `image.img':  234441648 sectors out  [ok] 2fe34928a083a5884ddcda9227cc2bfa9b40483e6a83cb9770163554290d2e9f (sha256)  dc3dd completed at 2019-06-12 22:39:19 +1200 |
| **Time take to create the image and verify the hash** | 1 hours and 27 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 76.60% | 249.36 MB | | **Lowest** | 30.77% | 183.72 MB | | **Average** | 53.68% | 216.54 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 7 hours and 18 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Failed | | DI-RO-17 | Failed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 61.27% | 2.33 MB | | **Lowest** | 32.15% | 2.33 MB | | **Average** | 46.71% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART Status not supported: Incomplete response, ATA output registers missing  SMART overall-health self-assessment test result: PASSED  Warning: This result is based on an Attribute check.    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 645) seconds.  Offline data collection  capabilities: (0x5b) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  Offline surface scan supported.  Self-test supported.  No Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 2) minutes.  Extended self-test routine  recommended polling time: ( 52) minutes.  SCT capabilities: (0x003d) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdd  Device size : 120034123776 (120.0GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/imagedrive/guymager/image.dd  Info path and file name: /media/root/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 2fe34928a083a5884ddcda9227cc2bfa9b40483e6a83cb9770163554290d2e9f  SHA256 hash verified source: 2fe34928a083a5884ddcda9227cc2bfa9b40483e6a83cb9770163554290d2e9f  SHA256 hash verified image : 2fe34928a083a5884ddcda9227cc2bfa9b40483e6a83cb9770163554290d2e9f  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-06-13 18:10:39 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-06-13 19:07:08  Ended : 2019-06-13 20:04:18 (1 hours, 53 minutes and 38 seconds)  Acquisition speed : 33.78 MByte/s (0 hours, 56 minutes and 29 seconds)  Verification speed : 33.38 MByte/s (0 hours, 57 minutes and 9 seconds) |
| **Time take to create the image and verify the hash** | 1 hours and 53 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 90.77% | 794.21 MB | | **Lowest** | 15.30% | 793.95 MB | | **Average** | 53.03% | 794.05 MB | |

## **D.6 Hard Drive: USB-HD-07**

### **D.6.1 First test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | device size: 234441648 sectors (probed), 120,034,123,776 bytes  sector size: 512 bytes (probed)  120034123776 bytes ( 112 G ) copied ( 100% ), 25460 s, 4.5 M/s  120034123776 bytes ( 112 G ) hashed ( 100% ), 836 s, 137 M/s  input results for device `/dev/sdc':  234441648 sectors in  0 bad sectors replaced by zeros  293afb8c332ea4811a7905ddbc071cb7f3a1608a65e7fbc2d3555e67ccc8b3f4 (sha256)  output results for file `image.img':  234441648 sectors out  [ok] 293afb8c332ea4811a7905ddbc071cb7f3a1608a65e7fbc2d3555e67ccc8b3f4 (sha256)  dc3dd completed at 2019-06-14 21:31:46 +1200 |
| **Time take to create the image and verify the hash** | 7 hours 4 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 78.67% | 187.23 MB | | **Lowest** | 4.93% | 119.52 MB | | **Average** | 41.80% | 153.37 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 7 hours 20 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Failed  Failed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 60.73% | 4.57 MB | | **Lowest** | 35.03% | 4.57 MB | | **Average** | 47.88% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART Status not supported: Incomplete response, ATA output registers missing  SMART overall-health self-assessment test result: PASSED  Warning: This result is based on an Attribute check.    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 5) seconds.  Offline data collection  capabilities: (0x71) SMART execute Offline immediate.  No Auto Offline data collection support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 2) minutes.  Extended self-test routine  recommended polling time: ( 5) minutes.  Conveyance self-test routine  recommended polling time: ( 0) minutes.  SCT capabilities: (0x003d) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdc  Device size : 120034123776 (120.0GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/investigator/imagedrive/guymager/image.dd  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 293afb8c332ea4811a7905ddbc071cb7f3a1608a65e7fbc2d3555e67ccc8b3f4  SHA256 hash verified source: 293afb8c332ea4811a7905ddbc071cb7f3a1608a65e7fbc2d3555e67ccc8b3f4  SHA256 hash verified image : 293afb8c332ea4811a7905ddbc071cb7f3a1608a65e7fbc2d3555e67ccc8b3f4  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-06-15 22:57:56 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-06-16 01:37:21  Ended : 2019-06-16 04:08:39 (5 hours, 10 minutes and 42 seconds)  Acquisition speed : 11.97 MByte/s (2 hours, 39 minutes and 25 seconds)  Verification speed : 12.61 MByte/s (2 hours, 31 minutes and 17 seconds) |
| **Time take to create the image and verify the hash** | 5 hours and 10 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 79.20% | 950.33 MB | | **Lowest** | 6.40% | 950.07 MB | | **Average** | 42.80% | 950.20 MB | |

### **D.6.2 Second test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | device size: 234441648 sectors (probed), 120,034,123,776 bytes  sector size: 512 bytes (probed)  120034123776 bytes ( 112 G ) copied ( 100% ), 23775 s, 4.8 M/s  120034123776 bytes ( 112 G ) hashed ( 100% ), 1162 s, 98 M/s  input results for device `/dev/sdc':  234441648 sectors in  0 bad sectors replaced by zeros  293afb8c332ea4811a7905ddbc071cb7f3a1608a65e7fbc2d3555e67ccc8b3f4 (sha256)  f34d0548f25c03f0a60141ae09ffd7a2eb5e0290c695b3290817a0306c7488b2, sectors 0 - 4194303  6bd187d6e328ba70f5ccaa653ad4e6c02bad5f006ce818d349bb22f348a39694, sectors 4194304 - 8388607  ……..  a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51, sectors 226492416 - 230686719  8412114aabbad90ad6a9b669ddc78e73d533e5489d3ce04fe3a55f0e7ff796f2, sectors 230686720 - 234441647  output results for files `image.img.000':  234441648 sectors out  4194304 sectors out to `image.img.000'  4194304 sectors out to `image.img.001'  …….  4194304 sectors out to `image.img.054'  3754928 sectors out to `image.img.055'  [ok] 293afb8c332ea4811a7905ddbc071cb7f3a1608a65e7fbc2d3555e67ccc8b3f4 (sha256)  [ok] f34d0548f25c03f0a60141ae09ffd7a2eb5e0290c695b3290817a0306c7488b2, sectors 0 - 4194303, `image.img.000'  [ok] 6bd187d6e328ba70f5ccaa653ad4e6c02bad5f006ce818d349bb22f348a39694, sectors 4194304 - 8388607, `image.img.001'  ………  [ok] a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51, sectors 226492416 - 230686719, `image.img.054'  [ok] 8412114aabbad90ad6a9b669ddc78e73d533e5489d3ce04fe3a55f0e7ff796f2, sectors 230686720 - 234441647, `image.img.055'  dc3dd completed at 2019-06-15 13:11:56 +1200 |
| **Time take to create the image and verify the hash** | 6 hours 36 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 100.00% | 252.76 MB | | **Lowest** | 6.87% | 119.55 MB | | **Average** | 53.43% | 186.15 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | 0 - 2147483648: f34d0548f25c03f0a60141ae09ffd7a2eb5e0290c695b3290817a0306c7488b2  2147483648 - 4294967296: 6bd187d6e328ba70f5ccaa653ad4e6c02bad5f006ce818d349bb22f348a39694  …….  115964116992 - 118111600640: a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51  118111600640 - 120034123776: 8412114aabbad90ad6a9b669ddc78e73d533e5489d3ce04fe3a55f0e7ff796f2  Total (sha256): 293afb8c332ea4811a7905ddbc071cb7f3a1608a65e7fbc2d3555e67ccc8b3f4 |
| **Time take to create the image and verify the hash** | 7 hours 55 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 62.63% | 4.57 MB | | **Lowest** | 40.63% | 4.57 MB | | **Average** | 51.63% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART Status not supported: Incomplete response, ATA output registers missing  SMART overall-health self-assessment test result: PASSED  Warning: This result is based on an Attribute check.    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 5) seconds.  Offline data collection  capabilities: (0x71) SMART execute Offline immediate.  No Auto Offline data collection support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 2) minutes.  Extended self-test routine  recommended polling time: ( 5) minutes.  Conveyance self-test routine  recommended polling time: ( 0) minutes.  SCT capabilities: (0x003d) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdc  Device size : 120034123776 (120.0GB)  Format : Linux split dd raw image - file extension is .xxx  Image path and file name: /media/investigator/imagedrive/guymager/image.xxx  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 293afb8c332ea4811a7905ddbc071cb7f3a1608a65e7fbc2d3555e67ccc8b3f4  SHA256 hash verified source: 293afb8c332ea4811a7905ddbc071cb7f3a1608a65e7fbc2d3555e67ccc8b3f4  SHA256 hash verified image : 293afb8c332ea4811a7905ddbc071cb7f3a1608a65e7fbc2d3555e67ccc8b3f4  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-06-16 07:33:33 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-06-16 09:30:02  Ended : 2019-06-16 11:52:55 (4 hours, 19 minutes and 22 seconds)  Acquisition speed : 16.38 MByte/s (1 hours, 56 minutes and 28 seconds)  Verification speed : 13.35 MByte/s (2 hours, 22 minutes and 53 seconds) |
| **Time take to create the image and verify the hash** | 4 hours and 19 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 63.40% | 949.98 MB | | **Lowest** | 6.93% | 949.72 MB | | **Average** | 35.16% | 949.85 MB | |

### **D.6.3 Third test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | device size: 234441648 sectors (probed), 120,034,123,776 bytes  sector size: 512 bytes (probed)  3200548864 bytes ( 3 G ) copied ( 3% ), 115 s, 26 M/s  [!!] writing to `/media/root/testdrive/image.img': No space left on device  3202547712 bytes ( 3 G ) copied ( 3% ), 116 s, 26 M/s  0 bytes ( 0 ) hashed (??%), 0 s, Infinity B/s  input results for device `/dev/sdd':  6254976 sectors in  0 bad sectors replaced by zeros  759b6dab2925b915fea39b93947636e5d66ff2cef9153dc9509eaf06ba11f6f7 (sha256)  output results for file `/media/root/testdrive/image.img':  6254736 sectors out  dc3dd failed at 2019-06-17 11:43:35 +1200 |
| **Time take to create the image and verify the hash** | 1 minutes and 55 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 35.87% | 183.72 MB | | **Lowest** | 35.13% | 183.72 MB | | **Average** | 35.50% | 183.72 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | 6086144 blocks (2971Mb) written.dcfldd:: No space left on device |
| **Time take to create the image and verify the hash** | 11 minutes 45 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 33.50% | 2.33 MB | | **Lowest** | 33.07% | 2.33 MB | | **Average** | 33.28% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART Status not supported: Incomplete response, ATA output registers missing  SMART overall-health self-assessment test result: PASSED  Warning: This result is based on an Attribute check.    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 5) seconds.  Offline data collection  capabilities: (0x71) SMART execute Offline immediate.  No Auto Offline data collection support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 2) minutes.  Extended self-test routine  recommended polling time: ( 5) minutes.  Conveyance self-test routine  recommended polling time: ( 0) minutes.  SCT capabilities: (0x003d) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdd  Device size : 120034123776 (120.0GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/testdrive/image.dd  Info path and file name: /media/root/testdrive/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Aborted because of image write error  SHA256 hash : --  SHA256 hash verified source: --  SHA256 hash verified image : --  Acquisition started : 2019-06-17 12:08:25 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: Acquisition aborted before start of verification  Ended : 2019-06-17 12:09:39 (0 hours, 1 minutes and 14 seconds)  Acquisition speed : 40.71 MByte/s (0 hours, 1 minutes and 14 seconds) |
| **Time take to create the image and verify the hash** | 1 minutes 14 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** |  |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 40.33% | 793.95 MB | | **Lowest** | 38.47% | 727.64 MB | | **Average** | 39.40% | 760.79 MB | |

### **D.6.4 Fourth test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | device size: 234441648 sectors (probed), 120,034,123,776 bytes  sector size: 512 bytes (probed)  120034123776 bytes ( 112 G ) copied ( 100% ), 5237 s, 22 M/s  120034123776 bytes ( 112 G ) hashed ( 100% ), 849 s, 135 M/s  input results for device `/dev/sdd':  234441648 sectors in  0 bad sectors replaced by zeros  2b40622397eb78e36b2f9466178ccd7b094a78a1f66e4c41afca3b7b0919e6ed (sha256)  output results for file `image.img':  234441648 sectors out  [ok] 2b40622397eb78e36b2f9466178ccd7b094a78a1f66e4c41afca3b7b0919e6ed (sha256) |
| **Time take to create the image and verify the hash** | 1 hours and 27 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 79.13% | 249.36 MB | | **Lowest** | 31.80% | 183.72 MB | | **Average** | 55.46% | 216.54 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 7 hours and 30 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Failed | | DI-RO-17 | Failed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 61.83% | 2.33 MB | | **Lowest** | 30.73% | 2.33 MB | | **Average** | 46.28% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART Status not supported: Incomplete response, ATA output registers missing  SMART overall-health self-assessment test result: PASSED  Warning: This result is based on an Attribute check.    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 5) seconds.  Offline data collection  capabilities: (0x71) SMART execute Offline immediate.  No Auto Offline data collection support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 2) minutes.  Extended self-test routine  recommended polling time: ( 5) minutes.  Conveyance self-test routine  recommended polling time: ( 0) minutes.  SCT capabilities: (0x003d) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdd  Device size : 120034123776 (120.0GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/imagedrive/guymager/image.dd  Info path and file name: /media/root/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 2b40622397eb78e36b2f9466178ccd7b094a78a1f66e4c41afca3b7b0919e6ed  SHA256 hash verified source: 2b40622397eb78e36b2f9466178ccd7b094a78a1f66e4c41afca3b7b0919e6ed  SHA256 hash verified image : 2b40622397eb78e36b2f9466178ccd7b094a78a1f66e4c41afca3b7b0919e6ed  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-06-17 06:31:45 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-06-17 07:23:47  Ended : 2019-06-17 08:18:07 (1 hours, 46 minutes and 22 seconds)  Acquisition speed : 36.68 MByte/s (0 hours, 52 minutes and 1 seconds)  Verification speed : 35.11 MByte/s (0 hours, 54 minutes and 20 seconds) |
| **Time take to create the image and verify the hash** | 1 hours and 46 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 89.03% | 794.20 MB | | **Lowest** | 19.03% | 793.94 MB | | **Average** | 54.03% | 794.07 MB | |

## **D.7 Hard Drive: USB-HD-09**

### **D.7.1 First test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | device size: 1250263728 sectors (probed), 640,135,028,736 bytes  sector size: 512 bytes (probed)  640135028736 bytes ( 596 G ) copied ( 100% ), 96306 s, 6.3 M/s  640135028736 bytes ( 596 G ) hashed ( 100% ), 4681 s, 130 M/s  input results for device `/dev/sdc':  1250263728 sectors in  0 bad sectors replaced by zeros  e6238f978e1e2178f2730ea17c3834293373e3c0d776dc27fcee0b4a3e38ac52 (sha256)  output results for file `image.img':  1250263728 sectors out  [ok] e6238f978e1e2178f2730ea17c3834293373e3c0d776dc27fcee0b4a3e38ac52 (sha256) |
| **Time take to create the image and verify the hash** | 26 hours 45 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 77.43% | 187.23 MB | | **Lowest** | 6.37% | 119.55 MB | | **Average** | 41.90% | 153.39 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 39 hours 50 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Failed  Failed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 60.67% | 4.57 MB | | **Lowest** | 34.27% | 4.57 MB | | **Average** | 47.32% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART overall-health self-assessment test result: PASSED    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 0) seconds.  Offline data collection  capabilities: (0x73) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 1) minutes.  Extended self-test routine  recommended polling time: ( 161) minutes.  Conveyance self-test routine  recommended polling time: ( 2) minutes.  SCT capabilities: (0x103b) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdc  Device size : 640135028736 (640.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/investigator/imagedrive/guymager/image.dd  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : e6238f978e1e2178f2730ea17c3834293373e3c0d776dc27fcee0b4a3e38ac52  SHA256 hash verified source: e6238f978e1e2178f2730ea17c3834293373e3c0d776dc27fcee0b4a3e38ac52  SHA256 hash verified image : e6238f978e1e2178f2730ea17c3834293373e3c0d776dc27fcee0b4a3e38ac52  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-07-05 06:11:35 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-07-05 21:31:12  Ended : 2019-07-06 14:20:26 (32 hours, 8 minutes and 50 seconds)  Acquisition speed : 11.06 MByte/s (15 hours, 19 minutes and 36 seconds)  Verification speed : 10.08 MByte/s (16 hours, 49 minutes and 13 seconds) |
| **Time take to create the image and verify the hash** | 32 hours and 8 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 77.57% | 950.10 MB | | **Lowest** | 4.97% | 949.80 MB | | **Average** | 41.27% | 949.95 MB | |

### **D.7.2 Second test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | device size: 1250263728 sectors (probed), 640,135,028,736 bytes  sector size: 512 bytes (probed)  640135028736 bytes ( 596 G ) copied ( 100% ), 107743 s, 5.7 M/s  640135028736 bytes ( 596 G ) hashed ( 100% ), 6305 s, 97 M/s  input results for device `/dev/sdc':  1250263728 sectors in  0 bad sectors replaced by zeros  e6238f978e1e2178f2730ea17c3834293373e3c0d776dc27fcee0b4a3e38ac52 (sha256)  6a0476ddb077c4b9e4340f598b94770a6e1f348c02866b6bcf86ce20a839c330, sectors 0 - 4194303  a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51, sectors 4194304 - 8388607  …….  47744fac69b4d799da37ce6c8fbb69caf58507a1b4271f416b9ba9e09e6e0925, sectors 1245708288 - 1249902591  253f7c56064c97f9af5aac6a29c4bf8f8fe358a430bbc3ee5019fc3ce2e3a93d, sectors 1249902592 - 1250263727  output results for files `image.img.000':  1250263728 sectors out  4194304 sectors out to `image.img.000'  4194304 sectors out to `image.img.001'  ……  4194304 sectors out to `image.img.297'  361136 sectors out to `image.img.298'  [ok] e6238f978e1e2178f2730ea17c3834293373e3c0d776dc27fcee0b4a3e38ac52 (sha256)  [ok] 6a0476ddb077c4b9e4340f598b94770a6e1f348c02866b6bcf86ce20a839c330, sectors 0 - 4194303, `image.img.000'  [ok] a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51, sectors 4194304 - 8388607, `image.img.001'  ………  [ok] 47744fac69b4d799da37ce6c8fbb69caf58507a1b4271f416b9ba9e09e6e0925, sectors 1245708288 - 1249902591, `image.img.297'  [ok] 253f7c56064c97f9af5aac6a29c4bf8f8fe358a430bbc3ee5019fc3ce2e3a93d, sectors 1249902592 - 1250263727, `image.img.298'  dc3dd completed at 2019-07-03 12:28:07 +1200 |
| **Time take to create the image and verify the hash** | 29 hours 55 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 100.00% | 187.23 MB | | **Lowest** | 8.34% | 119.55 MB | | **Average** | 54.17% | 153.39 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | 0 - 2147483648: 6a0476ddb077c4b9e4340f598b94770a6e1f348c02866b6bcf86ce20a839c330  2147483648 - 4294967296: a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51  ……..  637802643456 - 639950127104: 47744fac69b4d799da37ce6c8fbb69caf58507a1b4271f416b9ba9e09e6e0925  639950127104 - 640135028736: 253f7c56064c97f9af5aac6a29c4bf8f8fe358a430bbc3ee5019fc3ce2e3a93d  Total (sha256): e6238f978e1e2178f2730ea17c3834293373e3c0d776dc27fcee0b4a3e38ac52 |
| **Time take to create the image and verify the hash** | 41 hours 10 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 63.20% | 4.57 MB | | **Lowest** | 37.73% | 4.57 MB | | **Average** | 50.46% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART overall-health self-assessment test result: PASSED    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 0) seconds.  Offline data collection  capabilities: (0x73) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 1) minutes.  Extended self-test routine  recommended polling time: ( 161) minutes.  Conveyance self-test routine  recommended polling time: ( 2) minutes.  SCT capabilities: (0x103b) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdc  Device size : 640135028736 (640.1GB)  Format : Linux split dd raw image - file extension is .xxx  Image path and file name: /media/investigator/imagedrive/guymager/image.xxx  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : e6238f978e1e2178f2730ea17c3834293373e3c0d776dc27fcee0b4a3e38ac52  SHA256 hash verified source: e6238f978e1e2178f2730ea17c3834293373e3c0d776dc27fcee0b4a3e38ac52  SHA256 hash verified image : e6238f978e1e2178f2730ea17c3834293373e3c0d776dc27fcee0b4a3e38ac52  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-07-06 14:27:48 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-07-07 02:00:45  Ended : 2019-07-07 12:28:20 (22 hours, 0 minutes and 31 seconds)  Acquisition speed : 14.68 MByte/s (11 hours, 32 minutes and 56 seconds)  Verification speed : 16.21 MByte/s (10 hours, 27 minutes and 34 seconds) |
| **Time take to create the image and verify the hash** | 22 hours and 0 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 67.13% | 950.41 MB | | **Lowest** | 8.87% | 950.15 MB | | **Average** | 38.00% | 950.28 MB | |

### **D.7.3 Third test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | device size: 1250263728 sectors (probed), 640,135,028,736 bytes  sector size: 512 bytes (probed)  3202023424 bytes ( 3 G ) copied ( 1% ), 116 s, 26 M/s  [!!] writing to `/media/root/testdrive/image.img': No space left on device  3202482176 bytes ( 3 G ) copied ( 1% ), 116 s, 26 M/s  0 bytes ( 0 ) hashed (??%), 0 s, Infinity B/s  input results for device `/dev/sdd':  6254848 sectors in  0 bad sectors replaced by zeros  7ead43b6040959257bc733a13fc759faea49ab29422609f8077964110f38e6d1 (sha256)  output results for file `/media/root/testdrive/image.img':  6254736 sectors out  dc3dd failed at 2019-07-10 07:59:21 +1200 |
| **Time take to create the image and verify the hash** | 1 minutes and 56 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 38.37% | 183.72 MB | | **Lowest** | 34.50% | 183.72 MB | | **Average** | 36.43% | 183.72 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | dcfldd:: No space left on device |
| **Time take to create the image and verify the hash** | 12 minutes 20 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 55.53% | 2.33 MB | | **Lowest** | 32.87% | 2.33 MB | | **Average** | 44.20% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART overall-health self-assessment test result: PASSED    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 0) seconds.  Offline data collection  capabilities: (0x73) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 1) minutes.  Extended self-test routine  recommended polling time: ( 161) minutes.  Conveyance self-test routine  recommended polling time: ( 2) minutes.  SCT capabilities: (0x103b) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdd  Device size : 640135028736 (640.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/testdrive/image.dd  Info path and file name: /media/root/testdrive/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Aborted because of image write error  SHA256 hash : --  SHA256 hash verified source: --  SHA256 hash verified image : --  Acquisition started : 2019-07-10 07:52:19 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: Acquisition aborted before start of verification  Ended : 2019-07-10 07:53:49 (0 hours, 1 minutes and 29 seconds) |
| **Time take to create the image and verify the hash** | 1 minutes 29 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** |  |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 41.85% | 794.70 MB | | **Lowest** | 39.37% | 728.40 MB | | **Average** | 40.61% | 761.55 MB | |

### **D.7.4 Fourth test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | device size: 1250263728 sectors (probed), 640,135,028,736 bytes  sector size: 512 bytes (probed)  640135028736 bytes ( 596 G ) copied ( 100% ), 28500 s, 21 M/s  640135028736 bytes ( 596 G ) hashed ( 100% ), 5310 s, 115 M/s  input results for device `/dev/sdd':  1250263728 sectors in  0 bad sectors replaced by zeros  ce54663a8c5ff16a3667d2155d8b6fdd39772de30ef770d2b2671271a3cacf09 (sha256)  output results for file `image.img':  1250263728 sectors out  [ok] ce54663a8c5ff16a3667d2155d8b6fdd39772de30ef770d2b2671271a3cacf09 (sha256)  dc3dd completed at 2019-07-07 21:41:01 +1200 |
| **Time take to create the image and verify the hash** | 7 hours and 55 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 69.50% | 249.36 MB | | **Lowest** | 29.50% | 183.72 MB | | **Average** | 49.50% | 216.54 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 38 hours and 15 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Failed | | DI-RO-17 | Failed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 62.20% | 2.33 MB | | **Lowest** | 30.33% | 2.33 MB | | **Average** | 46.26% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART overall-health self-assessment test result: PASSED    General SMART Values:  Offline data collection status: (0x00) Offline data collection activity  was never started.  Auto Offline Data Collection: Disabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: ( 0) seconds.  Offline data collection  capabilities: (0x73) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  No Offline surface scan supported.  Self-test supported.  Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Short self-test routine  recommended polling time: ( 1) minutes.  Extended self-test routine  recommended polling time: ( 161) minutes.  Conveyance self-test routine  recommended polling time: ( 2) minutes.  SCT capabilities: (0x103b) SCT Status supported.  SCT Error Recovery Control supported.  SCT Feature Control supported.  SCT Data Table supported.  Acquisition  ===========  Linux device : /dev/sdd  Device size : 640135028736 (640.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/imagedrive/guymager/image.dd  Info path and file name: /media/root/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : ce54663a8c5ff16a3667d2155d8b6fdd39772de30ef770d2b2671271a3cacf09  SHA256 hash verified source: ce54663a8c5ff16a3667d2155d8b6fdd39772de30ef770d2b2671271a3cacf09  SHA256 hash verified image : ce54663a8c5ff16a3667d2155d8b6fdd39772de30ef770d2b2671271a3cacf09  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-07-09 13:39:01 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-07-09 18:22:23  Ended : 2019-07-09 23:16:03 (9 hours, 37 minutes and 2 seconds)  Acquisition speed : 35.91 MByte/s (4 hours, 43 minutes and 21 seconds)  Verification speed : 34.65 MByte/s (4 hours, 53 minutes and 40 seconds) |
| **Time take to create the image and verify the hash** | 9 hours and 37 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 86.30% | 794.60 MB | | **Lowest** | 18.13% | 793.96 MB | | **Average** | 52.21% | 794.28 MB | |

## **D.8 Hard Drive: USB-HD-10**

### **D.8.1 First test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | device size: 488397168 sectors (probed), 250,059,350,016 bytes  sector size: 512 bytes (probed)  250059350016 bytes ( 233 G ) copied ( 100% ), 37566 s, 6.3 M/s  250059350016 bytes ( 233 G ) hashed ( 100% ), 1755 s, 136 M/s  input results for device `/dev/sdc':  488397168 sectors in  0 bad sectors replaced by zeros  4daf6bc4b64c6b44e7912138f3b3eb136d287baed2a81006c14c21251bd32f26 (sha256)  output results for file `image.img':  488397168 sectors out  [ok] 4daf6bc4b64c6b44e7912138f3b3eb136d287baed2a81006c14c21251bd32f26 (sha256)  dc3dd completed at 2019-07-12 06:37:23 +1200 |
| **Time take to create the image and verify the hash** | 10 hours 26 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 77.07% | 187.23 MB | | **Lowest** | 6.33% | 119.55 MB | | **Average** | 41.70% | 153.39 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 15 hours 26 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Failed  Failed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 60.77% | 4.57 MB | | **Lowest** | 37.20% | 4.57 MB | | **Average** | 48.98% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-01 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART overall-health self-assessment test result: PASSED    General SMART Values:  Offline data collection status: (0x82) Offline data collection activity  was completed without error.  Auto Offline Data Collection: Enabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: (15556) seconds.  Offline data collection  capabilities: (0x5b) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  Offline surface scan supported.  Self-test supported.  No Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.    Acquisition  ===========  Linux device : /dev/sdc  Device size : 250059350016 (250.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/investigator/imagedrive/guymager/image.dd  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 4daf6bc4b64c6b44e7912138f3b3eb136d287baed2a81006c14c21251bd32f26  SHA256 hash verified source: 4daf6bc4b64c6b44e7912138f3b3eb136d287baed2a81006c14c21251bd32f26  SHA256 hash verified image : 4daf6bc4b64c6b44e7912138f3b3eb136d287baed2a81006c14c21251bd32f26  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-07-13 00:11:04 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-07-13 07:15:09  Ended : 2019-07-13 12:01:18 (11 hours, 50 minutes and 14 seconds)  Acquisition speed : 9.37 MByte/s (7 hours, 4 minutes and 5 seconds)  Verification speed : 13.89 MByte/s (4 hours, 46 minutes and 9 seconds) |
| **Time take to create the image and verify the hash** | 11 hours and 50 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  |  |  | | --- | --- | --- | --- | | DI-RM-01  DI-RM-02  DI-RM-03  DI-RM-04  DI-RM-05  DI-RM-06  DI-RM-07  DI-RM-08 | Passed  Passed  Passed  Passed  Passed  Passed  Passed  Passed | DI-RO-01  DI-RO-02  DI-RO-05  DI-RO-17 | Passed  Passed  Passed  Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 77.70% | 949.97 MB | | **Lowest** | 4.80% | 949.71 MB | | **Average** | 41.25% | 949.84 MB | |

### **D.8.2 Second test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | device size: 488397168 sectors (probed), 250,059,350,016 bytes  sector size: 512 bytes (probed)  250059350016 bytes ( 233 G ) copied ( 100% ), 25572 s, 9.3 M/s  250059350016 bytes ( 233 G ) hashed ( 100% ), 2653 s, 90 M/s  input results for device `/dev/sdc':  488397168 sectors in  0 bad sectors replaced by zeros  4daf6bc4b64c6b44e7912138f3b3eb136d287baed2a81006c14c21251bd32f26 (sha256)  b68b9cc8ba09aef86e78f9e2f85e006816e528b31155b166bd512719f9d39830, sectors 0 - 4194303  7c5b38603749460c56a399bb6b762b6eb5b8a06a7437f765500b1050662891bc, sectors 4194304 – 8388607  ……….  a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51, sectors 482344960 - 486539263  c9a3be4cd69769b74921922e7d7e143c2aab458a363548c602aa476a1af517b6, sectors 486539264 - 488397167  output results for files `image.img.000':  488397168 sectors out  4194304 sectors out to `image.img.000'  4194304 sectors out to `image.img.001'  …….  4194304 sectors out to `image.img.115'  1857904 sectors out to `image.img.116'  [ok] 4daf6bc4b64c6b44e7912138f3b3eb136d287baed2a81006c14c21251bd32f26 (sha256)  [ok] b68b9cc8ba09aef86e78f9e2f85e006816e528b31155b166bd512719f9d39830, sectors 0 - 4194303, `image.img.000'  [ok] 7c5b38603749460c56a399bb6b762b6eb5b8a06a7437f765500b1050662891bc, sectors 4194304 - 8388607, `image.img.001'  ….  [ok] a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51, sectors 482344960 - 486539263, `image.img.115'  [ok] c9a3be4cd69769b74921922e7d7e143c2aab458a363548c602aa476a1af517b6, sectors 486539264 - 488397167, `image.img.116'  dc3dd completed at 2019-07-13 21:22:53 +1200 |
| **Time take to create the image and verify the hash** | 7 hours 5 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 100.00% | 252.76 MB | | **Lowest** | 18.15% | 119.55 MB | | **Average** | 59.07% | 186.15 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | 0 - 2147483648: b68b9cc8ba09aef86e78f9e2f85e006816e528b31155b166bd512719f9d39830  2147483648 - 4294967296: 7c5b38603749460c56a399bb6b762b6eb5b8a06a7437f765500b1050662891bc  ……  246960619520 - 249108103168: a7c744c13cc101ed66c29f672f92455547889cc586ce6d44fe76ae824958ea51  249108103168 - 250059350016: c9a3be4cd69769b74921922e7d7e143c2aab458a363548c602aa476a1af517b6  Total (sha256): 4daf6bc4b64c6b44e7912138f3b3eb136d287baed2a81006c14c21251bd32f26 |
| **Time take to create the image and verify the hash** | 15 hours 59 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 61.20% | 4.57 MB | | **Lowest** | 39.40% | 4.57 MB | | **Average** | 50.30% | 4.57 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-02 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART overall-health self-assessment test result: PASSED    General SMART Values:  Offline data collection status: (0x82) Offline data collection activity  was completed without error.  Auto Offline Data Collection: Enabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: (15556) seconds.  Offline data collection  capabilities: (0x5b) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  Offline surface scan supported.  Self-test supported.  No Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.    Acquisition  ===========  Linux device : /dev/sdc  Device size : 250059350016 (250.1GB)  Format : Linux split dd raw image - file extension is .xxx  Image path and file name: /media/investigator/imagedrive/guymager/image.xxx  Info path and file name: /media/investigator/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : 4daf6bc4b64c6b44e7912138f3b3eb136d287baed2a81006c14c21251bd32f26  SHA256 hash verified source: 4daf6bc4b64c6b44e7912138f3b3eb136d287baed2a81006c14c21251bd32f26  SHA256 hash verified image : 4daf6bc4b64c6b44e7912138f3b3eb136d287baed2a81006c14c21251bd32f26  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-07-14 14:15:16 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-07-14 18:27:47  Ended : 2019-07-14 22:32:57 (8 hours, 17 minutes and 40 seconds)  Acquisition speed : 15.74 MByte/s (4 hours, 12 minutes and 31 seconds)  Verification speed : 16.21 MByte/s (4 hours, 5 minutes and 9 seconds) |
| **Time take to create the image and verify the hash** | 8 hours and 17 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-04 | Passed | | DI-RO-05 | Passed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 79.40% | 950.10 MB | | **Lowest** | 8.93% | 949.84 MB | | **Average** | 44.16% | 949.97 MB | |

### **D.8.3 Third test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | device size: 488397168 sectors (probed), 250,059,350,016 bytes  sector size: 512 bytes (probed)  3200909312 bytes ( 3 G ) copied ( 1% ), 143 s, 21 M/s  [!!] writing to `/media/root/testdrive/image.img': No space left on device  3202482176 bytes ( 3 G ) copied ( 1% ), 143 s, 21 M/s  0 bytes ( 0 ) hashed (??%), 0 s, Infinity B/s  input results for device `/dev/sdd':  6254848 sectors in  0 bad sectors replaced by zeros  5d1f02055062865abdee26f2ee78eb103939306a14e8b87757744b9a712b9a23 (sha256)  output results for file `/media/root/testdrive/image.img':  6254736 sectors out  dc3dd failed at 2019-07-16 12:19:53 +1200 |
| **Time take to create the image and verify the hash** | 2 minutes and 23 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 35.27% | 183.72 MB | | **Lowest** | 27.60% | 183.72 MB | | **Average** | 31.43% | 183.72 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | dcfldd:: No space left on device |
| **Time take to create the image and verify the hash** | 11 minutes 25 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** | NA |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 62.03% | 2.33 MB | | **Lowest** | 34.30% | 2.33 MB | | **Average** | 48.18% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-03 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART overall-health self-assessment test result: PASSED    General SMART Values:  Offline data collection status: (0x82) Offline data collection activity  was completed without error.  Auto Offline Data Collection: Enabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: (15556) seconds.  Offline data collection  capabilities: (0x5b) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  Offline surface scan supported.  Self-test supported.  No Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.  Acquisition  ===========  Linux device : /dev/sdd  Device size : 250059350016 (250.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/testdrive/image.dd  Info path and file name: /media/root/testdrive/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Aborted because of image write error  SHA256 hash : --  SHA256 hash verified source : --  SHA256 hash verified image : --  Acquisition started : 2019-07-16 12:09:10 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: Acquisition aborted before start of verification  Ended : 2019-07-16 12:10:44 (0 hours, 1 minutes and 34 seconds) |
| **Time take to create the image and verify the hash** | 1 minutes 34 seconds |
| **Reference Hash vs Tool Hash** | NA |
| **Notify to user the limited space on output location before the process start** |  |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-03 | Passed | | DI-RO-07 | Failed | | DI-RO-17 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 33.07% | 794.88 MB | | **Lowest** | 31.83% | 728.57 MB | | **Average** | 32.45% | 761.72 MB | |

### **D.8.4 Fourth test case result**

**Dc3dd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | device size: 488397168 sectors (probed), 250,059,350,016 bytes  sector size: 512 bytes (probed)  250059350016 bytes ( 233 G ) copied ( 100% ), 12528 s, 19 M/s  250059350016 bytes ( 233 G ) hashed ( 100% ), 1817 s, 131 M/s  input results for device `/dev/sdd':  488397168 sectors in  0 bad sectors replaced by zeros  a52d0c79afad520edc724c99eff64103f9e61e087ff9833d86d663d7f163774a (sha256)  output results for file `image.img':  488397168 sectors out  [ok] a52d0c79afad520edc724c99eff64103f9e61e087ff9833d86d663d7f163774a (sha256)  dc3dd completed at 2019-07-15 13:23:06 +1200 |
| **Time take to create the image and verify the hash** | 3 hours and 28 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 76.63% | 249.36 MB | | **Lowest** | 25.53% | 183.72 MB | | **Average** | 51.08% | 216.54 MB | |

**Dcfldd tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | NA |
| **Time take to create the image and verify the hash** | 14 hours and 19 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Failed | | DI-RO-17 | Failed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 63.03% | 2.33 MB | | **Lowest** | 31.57% | 2.33 MB | | **Average** | 47.30% | 2.33 MB | |

**Guymager tool result**

|  |  |
| --- | --- |
| **Test Case** | FIT-ID-04 |
| **Sample Log Information** | === START OF READ SMART DATA SECTION ===  SMART overall-health self-assessment test result: PASSED    General SMART Values:  Offline data collection status: (0x82) Offline data collection activity  was completed without error.  Auto Offline Data Collection: Enabled.  Self-test execution status: ( 0) The previous self-test routine completed  without error or no self-test has ever  been run.  Total time to complete Offline  data collection: (15556) seconds.  Offline data collection  capabilities: (0x5b) SMART execute Offline immediate.  Auto Offline data collection on/off support.  Suspend Offline collection upon new  command.  Offline surface scan supported.  Self-test supported.  No Conveyance Self-test supported.  Selective Self-test supported.  SMART capabilities: (0x0003) Saves SMART data before entering  power-saving mode.  Supports SMART auto save timer.  Error logging capability: (0x01) Error logging supported.  General Purpose Logging supported.    Acquisition  ===========  Linux device : /dev/sdd  Device size : 250059350016 (250.1GB)  Format : Linux dd raw image - file extension is .dd  Image path and file name: /media/root/imagedrive/guymager/image.dd  Info path and file name: /media/root/imagedrive/guymager/image.info  Hash calculation : SHA-256  Source verification : on  Image verification : on  No bad sectors encountered during acquisition.  No bad sectors encountered during verification.  State: Finished successfully  SHA256 hash : a52d0c79afad520edc724c99eff64103f9e61e087ff9833d86d663d7f163774a  SHA256 hash verified source: a52d0c79afad520edc724c99eff64103f9e61e087ff9833d86d663d7f163774a  SHA256 hash verified image : a52d0c79afad520edc724c99eff64103f9e61e087ff9833d86d663d7f163774a  Source verification OK. The device delivered the same data during acquisition and verification.  Image verification OK. The image contains exactly the data that was written.  Acquisition started : 2019-07-16 07:58:31 (ISO format YYYY-MM-DD HH:MM:SS)  Verification started: 2019-07-16 10:01:13  Ended : 2019-07-16 12:06:09 (4 hours, 7 minutes and 38 seconds)  Acquisition speed : 32.40 MByte/s (2 hours, 2 minutes and 41 seconds)  Verification speed : 31.81 MByte/s (2 hours, 4 minutes and 56 seconds) |
| **Time take to create the image and verify the hash** | 4 hours and 7 minutes |
| **Reference Hash vs Tool Hash** | Match |
| **Result by Requirement** | |  |  | | --- | --- | | DI-RO-05 | Passed | | DI-RO-17 | Passed | | DI-RO-18 | Passed | |
| **Hardware Usage** | |  |  |  | | --- | --- | --- | |  | **CPU Usage** | **Memory Usage** | | **Highest** | 84.10% | 794.59 MB | | **Lowest** | 16.80% | 794.33 MB | | **Average** | 50.45% | 794.46 MB | |