VEHAUDIT.DTLRPT is looking as follow:

```
BROWSE    VBELE.***.VEHAUDIT.DTLRPT
********************************************** Top of Data ************************************************************
(C) IBM    REPORT=DTLRPT (17116)           LOGICAL VOLUME AUDIT REPORT                        RUN ON 17JUL2017 @  7:22:17
          SEQ=VOL          _____________________TITLENAME_____________________
 UTCMINUS=07                T BEFORE WRITE TIME IS ORIGINAL CLUSTER TIME. + BEFORE WRITE TIME IS ADDITIONAL TIME TO MAKE COPY.
  NEW_LVOL MEANS VOLUME BEING CREATED WHILE BVIR DATA COLLECTED, TIMES WRONG.       FILTER: 01JAN1995 @  0:00:00 - 01JAN2035 @ 23:59:59
VIRT    VOL  DEV          _____FIELDS_AVAILABLE_IN R3.1______                                                  LAST     CURR
VOLSER SEQ# ADDR CCP      MCNAME   SCNAME   SGNAME   DCNAME   JOBNAME  PGMNAME  CRTDATE  LRFDATE   EXPDATE  RMVDATE  CTGY
470109    1 995C DDINNNNN                                     HSM      ARCCTL   04FEB14  04FEB14   INDEF             100F
470110    1 9929 DDINNNNN                                     DBAJPBKP DSNUTILB 02SEP14  02SEP14   CATALOG           100F
470111    1 994B DDINNNNN                                     DB2PMSTR DSNYASCP 03SEP14  03SEP14   18SEP14           100F
470112    2 987D IDDNNNNN                                     RIFJBK08 SYS004   29AUG14  29AUG14   CATALOG           100F
470113    2 98A3 IDDNNNNN                                     ORSJT640 VASASST  29AUG14  29AUG14   CATALOG           100F
470114    1 9934 DDINNNNN                                     DB2PMSTR DSNYASCP 02SEP14  02SEP14   17SEP14           100F
470115    1 9954 DDINNNNN                                     AFSJ007R SYS004   03SEP14  03SEP14   CATALOG           100F
470116    1 9314 IEDNNNNN                                     DV98231C SYNCSORT 07DEC07  07DEC07   INDEF    17JUL14  100F
470117    1 9978 DDINNNNN                                     HSM      ARCCTL   03SEP14  03SEP14   INDEF             100F
470118    1 9803 IDDNNNNN                                     REOJ99D2 VSAMASST 29AUG14  30AUG14   CATALOG           100F
470119    1 98A0 IDDNNNNN                                     ORSJT699 VASASST  29AUG14  29AUG14   CATALOG           100F
470120    1 9830 IDDNNNNN                                     IRSJ400  DYL280   20JAN10  20JAN10   CATALOG  17JUL14  100F
470121    1 9918 DDINNNNN                                     HSM      ARCCTL   03SEP14  03SEP14   INDEF             100F
470122    1 983E IDDNNNNN                                     AAAJ022  FILEAID  29AUG14  29AUG14   CATALOG           100F
470123    1 9951 DDINNNNN                                     PTTJ10G1 VSAMASST 21JUN14  21JUN14  S22JUL14          1002
470124    1 987E IDDNNNNN                                     REOJ0050 VSAMASST 29AUG14  29AUG14   CATALOG           100F
470125    1 991B DDINNNNN                                     PTTJ10A5 VSAMASST 21JUN14  21JUN14   CATALOG           100F
470126    1 990C DDINNNNN                                     EPPJBK00 SYS004   02SEP14  02SEP14   CATALOG           100F
470127    1 9805 IDDNNNNN                                     HSM      ARCCTL   22JAN14  22JAN14   INDEF             100F
470128    1 9875 IDDNNNNN                                     REOJ0050 VSAMASST 29AUG14  29AUG14   CATALOG           100F
.................
```

```
********************************************** Top of Data ********************************************************

    * BEFORE PHVOL1 INDICATES INCONSISTENT COPY OF LVOL.  3-D CHAR R IN TVC COLUMN MEANS REMOTE MOUNT.
    $ AFTER PHVOL1 IS STALE COPY.                        3-D CHAR E IN TVC COLUMN MEANS DATA CORRUPTED.
    U AFTER TMCAT SIZE IS UNCOMP        --7720 REMOVAL POLICY 0-PREFER REMOVE, 1-PREFER KEEP, 4-PINNED
CMP      BVIR      TMCAT                                                    ___|CL0-H1407/D0010____WRITTEN ____CL1-H1380/D0011____WRITTEN ____CL2-H5228/D0012____WRITTEN
PCT    MBSIZE     MBSIZE    GRID MB  OUTCODE  DSNAME                        TVC  PHVOL1  PHVOL2  HHH:MM:SS TVC  PHVOL1  PHVOL2  HHH:MM:SS TVC  PHVOL1  PHVOL2  HHH:MM:SS
107   4186.00   3901.00 U   8372.00           HSM.BACKTAPE.DATASET                 C00111          +  0:03:15      M00079          +  0:06:46 TVC1                 T 21:54:48
                6770.00 U                     TAPE.DB2P.FULLIMG1.SYSUTILX.G4864V00 TVC1 C00043         +  0:10:02 TVC1 M00029         +  0:10:56 TVC1                 T 22:46:35
 26   0.79000   3.00000 U   1.58000           TAPE.DB2P.ARCHLOG2.D14246.T1006144.B0047213 TVC1 C00044  +  0:04:29 TVC1 M00030         +  0:05:37 TVC1                 T 10:07:23
 30    565.59   1839.00 U   1131.18           TAPE.RIF.VAR.IMAGECPY.CIFIMSTR.G6173V00 TVC1 C00042      T 20:09:12      M00026          +  0:06:09 TVC1                 +  0:01:16
 75     20.26     27.00 U     40.52           TEST.ORSJT640.ORS005.VSAMBKUP.G1671V00       C00042      T  6:43:31      M00026          +  0:06:15 TVC1                 +  0:01:50
105   4186.07   3971.00 U  16744.14           TAPE.DB2P.ARCHLOG.D14245.T2251417.B0047209 TVC1 C00043   +  0:03:48 TVC1 M00029         +  0:04:42 TVC1                 T 22:52:48
      0.10000               0.20000           TAPE.AFSJ007R.AFS010.AAABALBK.G3264V00 TVC1 C00044       +  0:03:48 TVC1 M00030         +  0:04:50 TVC1                 T 10:33:02
 30   2885.00   9529.00 U   5770.00           TEST.ART.ARTBCKP1.QMV0DET.G0147V00            C00098      +  0:06:58      M00131          T 19:06:21 RMR1                 + 8537:36:
                6808.00 U                     HSM.HMIGTAPE.DATASET                 TVC1 C00044         +  0:03:28 TVC1 M00030         +  0:04:31 TVC1                 T 11:03:22
                6764.00 U                     TAPE.REOJ999D.STEP999L.LOANBKUP.G0864V00 TVC1 C00042     T 20:10:58 TVC1 M00026         +  0:04:21 TVC1                 +  0:04:29
                2317.00 U                     TEST.ORSJT699.ORS010.ATSBKUP.G1676V00        C00042      T  6:48:50      M00026          +  0:05:39 TVC1                 +  0:01:26
                4546.00 U                     TAPE.IRSJ400.IRS060.QTRFILE.G0062V00         C00104      T 14:28:28      M00133          +  0:07:17 RMR1                 + 3473:08:
      0.01000               0.02000           HSM.HMIGTAPE.DATASET                 TVC1 C00044         +  0:02:56 TVC1 M00030         +  0:03:58 TVC1                 T 11:03:54
 84   3973.00   4690.00 U   7946.00           TAPEDR.AAA.VAR.ESTUPLD.ENROLLBK.G3050V00     C00042      T 20:11:17      M00026          +  0:04:03 TVC1                 +  0:04:09
100    349.99    348.00 U    699.98           TAPE.PTTJ10G1.PTT005.PTPYMTR.G0075V00                        +  0:07:05                      +  0:06:33                      T  0:03:06
 76   3896.00   5111.00 U   7792.00           TAPE.REOJ0050.STEP999L.LOANBKUP.G0042V00 TVC1 C00042     T 20:13:52      M00026          +  0:06:27 TVC1                 +  0:06:35
107   4186.00   3907.00 U   8372.00           TAPE.PTTJ110.PTT130.VSAMBKUP.G4079V00        C00101      +  0:12:02      M00110          +  0:11:10 TVC1                 T  0:03:12
                2.00000 U                     TAPE.EPP.VAR.IMAGECPY.EPPDACCT.G2080V00 TVC1 C00044      +  0:05:33 TVC1 M00029         +  0:07:05 TVC1                 T 23:01:32
                1068.00 U                     HSM.BACKTAPE.DATASET                         C00157      T 21:53:12      M00129          +  0:08:01 TVC1                 +  0:07:48
 30   2860.00   9506.00 U   5720.00           TAPE.REOJ0050.STEP999C.ESCRBKUP.G0042V00 TVC1 C00042     T 20:14:34      M00026          +  0:05:44 TVC1                 +  0:05:52
.................
TOTAL  MB
    500400206  *********  *********                                                5095626 315775224  40766.37    3277388 315896369      0.00  355154215      0.00      0.00
NUM VOLUMES WITH ZERO COPIES= 108388   ONE COPY=     49   TWO COPIES= 193323 THREE COPIES=    470 FOUR COPIES=  48071

CATEGORY NUMBER SCRATCH         SIZE_ MB
  0D0F        1    +              2910.82
  000F   239295    +         495476105.12
  0001       61    +               383.11
  0002   110944    +           4920807.85
 Total   350301              500400206.90
******************************************************** Bottom of Data ********************************************************
```

As you can see, the header lines contain the explanation of some abbreviations:

```
+ BEFORE WRITE TIME IS ADDITIONAL TIME TO MAKE COPY.
* BEFORE PHVOL1 INDICATES INCONSISTENT COPY OF LVOL.
3-D CHAR R IN TVC COLUMN MEANS REMOTE MOUNT.
T BEFORE WRITE TIME IS ORIGINAL CLUSTER TIME.
+ BEFORE WRITE TIME IS ADDITIONAL TIME TO MAKE COPY.
$ AFTER PHVOL1 IS STALE COPY.
3-D CHAR E IN TVC COLUMN MEANS DATA CORRUPTED.
NEW_LVOL MEANS VOLUME BEING CREATED WHILE BVIR DATA COLLECTED, TIMES WRONG.
U AFTER TMCAT SIZE IS UNCOMP.
--7720 REMOVAL POLICY:  0-PREFER REMOVE, 1-PREFER KEEP, 4-PINNED
```

Below – explanations for the columns of the report:

Field (column)	Description	Remarks

VIRT VOLSER	The name of Virtual (Logical) volume	
VOL SEQ#	Sequence number of logical volume (it makes sense for multi volumes data sets)	
DEV ADDR	Device address	
CCP	Copy Consistency Points defined for the volume	This field indicates whether cluster <n> is to have a copy of the volume and the copy consistency point defined for the volume. The values are: '**S**' – Synchronous copy consistency point. '**I**' - Rewind unload (RUN) copy consistency point. '**D**' - Deferred copy consistency point. '**T**' – Time Delayed copy consistency point. '**N**' - No copy '**X**' – Same as an 'N'. Only set for a logical volume that was migrated from B10/20 P2P to TS7700, and its copy had existed on only one side of B10/20 P2P. '**E**' - The volume was previously assigned a copy consistency point of synchronous, rewind unload or deferred, but was changed to no copy and a private mount for read operation occurred against the volume. A private mount for write append will change the mode to 'N' since this 'E' copy is no longer valid.
MCNAME	Management Class name assigned to this logical volume	
SCNAME	Storage Class name assigned to this logical volume	
SGNAME	Storage Group name assigned to this logical volume	
DCNAME	Data Class name assigned to this logical volume	
JOBNAME	Job Name	
PGMNAME	Program Name	
CRTDATE	Creation Date	
LRFDATE	Last Reference Date	
EXPDATE	Expiration Date	The char "S" before the value of EXPDATE means that the volume is SCRATCH
LAST RMVDATE	Removal date	In a TS7700 Grid configuration, TS7720 clusters may remove volumes from tape volume cache after replicating to peer clusters. If the removal state shows that this volume was removed, this timestamp represents the time of when it was removed. If not already removed, and removal is enabled, and this volume is not pinned, this time represents the earliest time of which it can be removed (last access time plus the configured minimum retention time).
CURR CTGY	The category the volume is currently assigned to within the library manager associated with the cluster.	
CMP PCT	Percent of compression of data set	
BVIR MBSIZE	Size of data set (MB) from VOLUME STATUS file or CACHE file	
TMCAT MBSIZE	Size of data set (MB) from Tape management Catalog	
GRIDMB	Total size of data set (MB) (logical volumes) in Cache and all back up tapes	
OUTCODE	OUTCODE Reflects VMS (Vault Management System) Location	
DSNAME	Data set name	

TVC	Logical volume location and status	Examples: **TVC1** means, volume is located in cache with "prefer to keep". **RMV1** - volume was removed (see the column "LAST RMVDATE"). "1" after "RMV" - the rest from "TVC1", which was set by the program just before the program detected, that volume is removed. **RMR1** - the volume was (at first) "TVC1", then program detected "remove" - "**R**MV1", then program detected, that it was mounted "remotely" = RM**R**1. Perhaps we have to think, how to improve... **" R**" - "3-D CHAR R IN TVC COLUMN MEANS REMOTE MOUNT". **blank** - no info about this volume in CACHFILE.
PHVOL1	Physical volume where the logical volume is copied to.	
PHVOL2	The second physical volume where the logical volume is copied to.	If you use "**Selective Dual Copy function**" for some or all of your data, a second physical copy of the data is written to a physical volume.
WRITTEN HHH:MM:SS	Original Cluster time, Additional time to make copy.	"**T**" before WRITE TIME is original cluster time. "**T**" here means: "This volume was the actual version written to directly by the last host write operation as a primary TVC cluster.". Time to the right side shows the time, when this logical volume has been created. "**+**" means, that copy of the logical volume has been done here after <hours:minutes:seconds> when the original volume was created. In general, some other values are possible here : If the volume is consistent, this field states what method was used to bring this volume up to consistency. '**U**' – Unknown '**C**' – Grid replication was used to bring the volume up to consistency. '**M**' – An MES process was used to bring the volume up to consistency. '**R**' – The volume was recovered as part of a disaster recovery event. '**F**' – This volume was the actual version written to directly by the last host write operation as a secondary TVC (Fork) cluster with Synchronous copy mode.
TOTAL MB(GB)/MiB(GiB) (at the bottom of the report)	This lines shows the total amount of data on the corresponding cluster	
NUM VOLUMES WITH ZERO COPIES= 170913 ONE COPY= 1329	Shows the number of logical volumes which have zero copies, one copy, two copies, etc..	
CATEGORY NUMBER SCRATCH SIZE_MB(GB)"	The table " CATEGORY NUMBER SCRATCH SIZE_MB(GB)" shows the distribution of volume categories, the total size of volumes for each category, and the char "+" in the column SCRATCH says if this category is "scratch"	"----" means that the field "category" is not filled in the source file

If any questions – please ask tapetool@us.ibm.com.

Updates:
2017-07-17: "S" before the value of EXPDATE means the volume is "scratch". Volume's "categories" are added also.
2018-02-13: Increase the number of positions for the size of the files. By default – all values are in MB. Parameter MBBASE (=1000 or 1024) could be used to convert the sizes to MiB. Also the new parameter USEGB is applied to convert the values to GB (or GiB). Even USETB could be specified.
2018-04-03: Remove showing markup.