



**TapeStream**®

Virtual Tape Library Solution

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# TapeStream<sup>®</sup> Virtual Tape Library Solution

```
NTP@LOGO2015/01/16 09:55:27

TTTTTTTTTSSSSSS
TTS S tt
TT  aaaa  ppppp  eee  S  tttttt  r rrr  eee  aaaa  m mm mm (R)
TT   aa  pp  pp  e  e  SSSSS  tt  rr  r  e  e  aa  mm mm mm
TT  aaaa  pp  pp  eeee  S  S  tt  rr  eeee  aaaa  mm mm mm
TT  aa aa  pp  pp  e  S  S  tt  rr  e  aa aa  mm  mm
TT  aaaaa  ppppp  eee  SSSSS  ttt  rr  eee  aaaaa  mm  mm
PP
PP  V i r t u a l  T a p e  L i b r a r y  S o l u t i o n
PP

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Press any key to continue
```



# Introduction

- TapeStream is a Windows-based Appliance emulating IBM 3480/3490E tape drives and controller
- TapeStream supports ESCON and FICON connections
- TapeStream stores tape images on your existing enterprise storage
- TapeStream images are compressed and use a proprietary method to ensure the reliability of the image
- TapeStream user interface is TN3270 and users are managed by Windows Local System/Active Directory groups ( 3 levels )
- TapeStream incorporates scripting for post processing of tape images, using REXX, PowerShell or .CMD/.BAT
- TapeStream includes SCRATCH processing either via console or TAPE
- TapeStream includes utilities for tape initialization, import/export of images using AWS format, image verification, etc.



# Appliance

- TapeStream was developed for use on Windows Server 2008 R2
- Userid/Group management is native Windows
- Appliance could be added to enterprise AD domain
- TapeStream uses three levels of access rights, Administrator, operator, and Maintenance.
- TapeStream supports up to 16 concurrent TN3270 connections

```
NTP@LOGN                               TapeStream Logon                               2014/12/12 11:42:47
Enter LOGON parameters below:
Domain      ---> ts-proto-1
Userid      ---> thd
Password    --->
System      ---> TS-PROTO-1

F3/F15 - Logoff      F4/F12 - Reshow
```



# Technical

- TapeStream Emulates from 2 to 16 3480/3490E tape drives on a single controller
- TapeStream Connects to either ESCON or FICON



# Images

- TapeStream uses a proprietary image to store the virtual tape image
- TapeStream uses your existing enterprise storage appliance for image vaulting, no need for an additional DR/BC solution
- TapeStream Images are protected by a 64-bit CRC on each block of data
- TapeStream Images default to LZ4 compression - zip, RLE, and none can be selected; LZ4 results in about 80% compression on most z/OS and z/VM full volume backups
- Compressed blocks of data are decompressed; CRC is then recomputed and compared with original block prior to committing data to disk
- Maximum data per image is limited to 4194304 blocks ( $2^{22}$ ); 64K blocks, yields 256GB, 32K is 128GB, 1 is 4194304 bytes
- TapeStream Images include volume header information consisting of use information; timestamps for init, last open, last closed, last written, last scratch, last verified, compression ration, uncompressed data length, compressed data length, use count, file count, etc.
- TapeStream Images include an index of “seek” locations for the first 160 files of the tape
- TapeStream Images support WORM designation preventing accidental writing over data



# Scripting/Reporting

- TapeStream includes Script processing support REXX, PowerShell and “batch” commands
- TapeStream Scripts can be initiated at the console or as a post-processing function initiated after Rewind/Unload
- Information about the tape is passed to the Script as calling parms, filename, drive, mode, VolSer, DSN, JOB name, Step name, CRTDT and EXPDT as available (SL v. NL)
- Output from Scripts can be retrieved from the mainframe, one at a time or all at once; reserved VolSer is used to access the reports
- Sample scripts are provided



# SCRATCH Process

- TapeStream includes a SCRATCH management facility
- Scratches can be Archived instead of Scratching, user controlled number of days
- Scratches can be maintained manually or automated
- Manual process writes to a reserved VolSer a list of tapes to be scratched. The console is then used to complete the process.
- Automated process writes to a reserved VolSer with a command line as the first record, followed by the list of tapes to be scratched.
- Reserved VolSer is specified during configuration and data is written as either ASCII or EBCDIC, unblocked, non-labeled tape





# Scratch Report

- Sample Scratch Report

```
*REPORTS \\TAPESTREAM-F-02\tapevault 999998 2015-01-28 15:19:57.584 WED EST - UTC<W5>
*VAULTUSE \\TAPESTREAM-F-02\tapevault 2015-01-28 15:19:57.537 WED EST - UTC<W5>
Directory of \\TAPESTREAM-F-02\tapevault
Sub-Directory \\TAPESTREAM-F-02\tapevault\SAUTOPOOL
2015.01.08-15:26:59          0  ACL0E220.DAT
2014.12.17-12:21:12        36  ACL0E280.DAT
                               36 bytes used in sub-directory \\TAPESTREAM-F-02\tapevault\
SAUTOPOOL

Sub-Directory \\TAPESTREAM-F-02\tapevault\SCRATCHES
2015.01.10-15:29:55          2,276,640  TSP001-20150128130406.NTP
2015.01.26-13:17:34          2,736     ZVM100-20150128133942.NTP
2015.01.28-13:39:42          2,736     ZVM100-20150128140002.NTP
2015.01.26-15:01:47          210,568,779  ZVM101-20150128133942.NTP
2015.01.28-13:39:42          2,736     ZVM101-20150128140002.NTP
2015.01.26-15:02:11          210,568,523  ZVM102-20150128133942.NTP
2015.01.28-13:39:43          2,736     ZVM102-20150128140002.NTP
2015.01.07-15:46:28          2,736     ZVM103-20150128133943.NTP
2015.01.28-13:39:43          2,736     ZVM103-20150128140002.NTP
2015.01.02-15:26:20          396,288     ZVM104-20150102152551.NTP
2015.01.02-15:45:15          396,288     ZVM104-20150102154512.NTP
2015.01.02-18:28:52          2,724     ZVM104-20150128133943.NTP
2015.01.28-13:39:43          2,736     ZVM104-20150128140002.NTP
2015.01.07-17:25:14          2,736     ZVM105-20150128133943.NTP
2015.01.28-13:39:43          2,736     ZVM105-20150128140002.NTP
2015.01.28-13:39:43          2,736     ZVM106-20150128140002.NTP
2015.01.28-13:39:43          2,736     ZVM107-20150128140002.NTP
2015.01.18-20:06:48          1,042,988,766  ZVM108-20150128133943.NTP
2015.01.28-13:39:43          2,736     ZVM108-20150128140002.NTP
2015.01.17-22:25:59          1,261,578,372  ZVM109-20150128133943.NTP
2015.01.28-13:39:43          2,736     ZVM109-20150128140003.NTP
2015.01.17-14:27:58          1,261,716,519  ZVM110-20150128142742.NTP
2015.01.13-18:07:54          10,336,953    ZVM111-20150128142742.NTP
2015.01.22-15:14:58          210,580,796 R  ZVM504-20150125164221.NTP
2015.01.25-16:42:21          2,736     ZVM504-20150128130406.NTP
2015.01.24-13:31:58          10,345,514    ZVM505-20150128142742.NTP
2015.01.24-19:09:36          11,916,090 R  ZVMW01-20150124204729.NTP
2015.01.24-19:09:36          11,916,090 R  ZVMW01-20150125164221.NTP
2015.01.25-16:42:21          2,736     ZVMW01-20150128130406.NTP
2015.01.24-20:42:54          1,371,256 R  ZVMW02-20150124204729.NTP
2015.01.24-20:42:54          1,371,256 R  ZVMW02-20150125164221.NTP
2015.01.25-16:42:21          2,736     ZVMW02-20150128130406.NTP
                               4,469,326,920 bytes used in sub-directory \\TAPESTREAM-F-02\tapevault\
SCRATCHES
```

```
sub-Directory \\TAPESTREAM-F-02\tapevault\POOL1
2015.01.28-15:19:55          3,413     999998.NTP
2014.12.21-20:36:04          2,736     ACL123.NTP
2014.12.21-20:36:14          2,620     ACL234.NTP
2014.12.21-20:36:23          2,736     ACL345.NTP
2014.12.21-20:36:48          2,736     ACL456.NTP
2014.12.19-17:35:58          2,761     AVM127.NTP
2014.12.16-14:55:05          2,761     AVM128.NTP
2015.01.27-12:20:38          2,620     CIRES1.NTP
2015.01.20-12:22:32          2,432     NVM400.NTP
2015.01.20-12:20:09          2,432     NVM500.NTP
2014.12.16-14:56:33          2,432     QVM129.NTP
2015.01.07-11:14:36          2,737     TAPE01.NTP
2015.01.13-12:58:49          52,320     TEMP01.NTP
2015.01.06-11:12:20          2,618     TEMP02.NTP
2015.01.10-10:38:11          210,562,522  TEMP03.NTP
2015.01.10-09:24:32          2,732     TEMP04.NTP
2015.01.10-09:24:33          2,732     TEMP05.NTP
2015.01.10-09:24:33          2,732     TEMP06.NTP
2015.01.16-13:43:56          293,987     TEST01.NTP
2015.01.16-13:03:06          6,543,616    TEST02.NTP
2015.01.15-16:50:09          6,543,582    TEST03.NTP
2015.01.15-16:50:09          6,543,571    TEST04.NTP
2015.01.28-13:04:06          2,736     THD001.NTP
2015.01.28-13:04:06          2,736     THD002.NTP
2015.01.28-13:04:06          2,736     THD003.NTP
2015.01.28-13:04:06          2,736     THD004.NTP
2015.01.28-08:18:01          376,586,651  ZVM302.NTP
2015.01.28-13:04:06          2,736     ZVM504.NTP
2015.01.28-14:27:42          2,736     ZVM505.NTP
2015.01.23-18:55:40          10,345,626   ZVM506.NTP
2015.01.28-13:04:06          2,736     ZVMW01.NTP
2015.01.28-13:04:06          2,736     ZVMW02.NTP
                               617,618,546 bytes used in sub-directory \\TAPESTREAM-F-02\tapevault\POOL1

2015.01.28-15:19:57          80        SCRATCHES_AL.DAT
2015.01.28-15:19:57          80        SCRATCHES_NL.DAT
2015.01.25-16:42:21          24        SCRATCHES_SL.BAK
2015.01.28-15:19:57          264       SCRATCHES_SL.DAT
                               448 bytes used in root directory \\TAPESTREAM-F-02\tapevault

5,086,945,950 bytes used in vault \\TAPESTREAM-F-02\tapevault

3,872,733,532,160 bytes free on disk
*SCRATCHLIST \\TAPESTREAM-F-02\tapevault SCRATCHES_SL.DAT 2015-01-28 15:19:57.568 WED EST -
UTC<W5>
THD001 THD002 THD003 THD004 TSP001 ZVM100 ZVM101 ZVM102
ZVM103 ZVM104 ZVM105 ZVM106 ZVM107 ZVM108 ZVM109 ZVM110
ZVM111 ZVM112 ZVM113 ZVM114 ZVM115 ZVM210 ZVM211 ZVM212
ZVM213 ZVM214 ZVM215 ZVM504 ZVM505 ZVM508 ZVM509 ZVMW01
ZVMW02
33 scratch tape volsers
*SCRATCHLIST \\TAPESTREAM-F-02\tapevault SCRATCHES_AL.DAT 2015-01-28 15:19:57.568 WED EST -
UTC<W5>
AVM000 AVM001 AVM002 AVM003 AVM004 AVM005 AVM006 AVM007
AVM008 AVM009
10 scratch tape volsers
*SCRATCHLIST \\TAPESTREAM-F-02\tapevault SCRATCHES_NL.DAT 2015-01-28 15:19:57.568 WED EST -
UTC<W5>
NVM100 NVM101 NVM102 NVM103 NVM104 NVM105 NVM106 NVM107
NVM108 NVM109
10 scratch tape volsers

<TM>
<TM>
```



# Auto Cart Loading

- TapeStream Includes support for simulating the cartridge loader
- Files containing up to 12 tapes can be generated from the console. Default name "ACLOCCUU.DAT" is assigned to each drive.
- Other filenames may be used, changed through a console operator command
- ACL is enabled per tape unit



# Console

- TapeStream Operator interface is TN3270
- TapeStream TN3270 Server accepts model 327x-4 type connections (80x43)
- TapeStream console connections can be initiated from TSO, CMS, or direct
- Up to 16 users set during configuration



# Console (cont.)

- TapeStream Main Menu

```
NTP@PRIM                               TapeStream Main Menu                               2015/01/19 12:57:03

0   Config                               Configuration Menu
1   Operations                             Operations Menu
2   Utilities                             Utilities Menu
3   Maintenance                           Maintenance Menu

Enter X to Terminate Session

Terminal. : IBM-3278-4
Time. . . : 12:57
Domain . . : TAPESTREAM-F-02
User ID . . : DEBUGUSR
Language. : ENGLISH
System ID : TAPESTREAM-F-02
Version . . : 2014D $Rev: 11650 $

NTP45412I Total Blocks Written:0      Total Bytes Written:0
NTP45414I Total Tape Requests      SL:0      AL:0      NL:0
NTP45415I IO Rate/Sec      Cur:0      Max:0
NTP45416I Drives in use Cur:0      Max:0
NTP45400I Statistics 2015-01-19 12:00:00.054 MON EST - UTC<W5>
NTP45410I Total Blocks Read:0      Total Bytes Read:0
NTP45412I Total Blocks Written:0      Total Bytes Written:0
NTP45414I Total Tape Requests      SL:0      AL:0      NL:0
NTP45415I IO Rate/Sec      Cur:0      Max:0
NTP45416I Drives in use Cur:0      Max:0

Option --->
F1 = Help      F2 = Exit
```



# Console (cont.)

- TapeStream “Option” line is also a command line
- TapeStream Console “blue” area is a 10 line rolling log to give response to commands being issued and important information
- TapeStream operator commands: HELP for a list and “cmd” HELP for help with individual commands
- Current list: AUTOINIT, CLSW, CU, DVC, MOUNT, UNMNT, OFFLINE, ONLINE, QDEV, QLP, QSYM, QSYMBOLS, RDY, NOTRDY, REPORT, SCRATCH, SETSYM, START, STOP, WP, NOTWP, LDAACL, UNLDAACL, LOG, UPTIME and VERSION
- Commands that have as an argument a specific tape drive can use the drives unit address. For example: MOUNT E280 ZVM101



# Configuration

- TapeStream Main Configuration Screen

```
NTP@CONF                TapeStream Configuration Menu                2015/01/08 14:40:20

0  Global                Global Settings
1  ChanIntf/CU/Dev      Channel Interfaces/CUs/Devices Configuration Menu

Option ==>
F2 - Exit    F3 - Back    F12 - Main Menu
```



# Configuration (cont)

- TapeStream Global Configuration

```
NTP@GLOB          TapeStream Global Configuration Menu          2015/01/08 14:40:36

0  Server          Server Settings
1  License Key     License Key Settings
2  Vaults          Vaults Settings
3  Tape Profiles   Tape Profile Settings
4  Console         Console Settings
5  Log             Logging Settings
6  Script          Script Processor Settings

Option ==>
F2 - Exit      F3 - Back      F12 - Main Menu
```



# Configuration - Vaults

- TapeStream Vault Configuration

```
NTP@VLTS          TapeStream Tape Vaults Configuration          2015/01/08 14:42:51

Tape Vault Name --> VAULT1
Tape Vault Path --> \\TAPESTREAM-F-02\tapevault
                  _____
                  _____
                  _____

Description --> First tape vault.
                _____
                _____
                _____

Scratch
Retention --> 31          (in days)

VOLSER --> 555555       (for Scratch List)

F2  = Exit      F3  = Back      F4  = Verify Path  F5  = Delete  F6  = Add
F7  = Prev Vlt  F8  = Next Vlt  F9  = Vault Path  F10 = Save    F11 = Cancel
F12 = Main Menu
```





# Configuration - Tape Profile

- TapeStream TapeProfiles

```
NTP@TPRO          TapeStream Tape Profile Configuration          2015/01/08 14:44:04

Profile Name --> PROF0001
Max Size --> 180G
EOT Size --> 2M
Verify Level: Full X Header _ None _
Compress Level: LZ4 X Zip _ RLE _ None _
WORM Drive: _

F2 - Exit      F3 - Back      F5 - Delete    F6 - Add       F7 - Prev Prof
F8 - Next Prof F10 - Save     F11 - Cancel   F12 - Main Menu
```



# Configuration - ChanIntf/CU/Dev

- TapeStream Channel Interface, Control Unit and Devices Menu

```
NTP@INTC      TapeStream Channel Interfaces Configuration      2015/01/08 14:46:59

  Channel ID ==> CHPIDE3

  Channel Name ==> HSE0353

    Port ==> 1

    Port Type ==> FICON

  Port Speed ==> 1G

  Notes ==> _____
            _____
            _____

F2 - Exit      F3 - Back      F5 - Delete      F6 - Add      F7 - Prev Intf
F8 - Next Intf F10 - Save      F11 - Cancel     F12 - Main Menu
```



# Configuration - ChanIntf/CU/Dev (cont)

- TapeStream Control Unit Configuration

```
NTP@CUNC          TapeStream Control Unit Configuration          2015/01/08 14:47:22
Control Unit Name --> CUE220
Serial Number  --> 314159
CU Number      --> 6
Channel ID0    --> CHPIDE3
Channel ID1    --> _____
Channel ID2    --> _____
Channel ID3    --> _____
Channel ID4    --> _____
Channel ID5    --> _____
Channel ID6    --> _____
Channel ID7    --> _____

F2  = Exit          F3  = Back          F5  = Delete       F6  = Add
F7/F19 = PgUp/Prev CU  F8/F20 = PgDn/Next CU  F10 = Save        F11 = Cancel
F12 = Main Menu
```



# Configuration - ChanIntf/CU/Dev (cont)

- TapeStream Device Configuration

```
NTP@DEVC          TapeStream Control Unit Configuration          2015/01/08 14:47:38
Control Unit Name ==> CUE220          Number of Devices ==> 16

Device  Unit  Tape  Vault  Auto
Addr   Addr  Profile  Name  Init
-----  ----  -
E220   20    PROF0001 VAULT1 YES
E221   21    PROF0001 VAULT1 YES
E222   22    PROF0001 VAULT1 YES
E223   23    PROF0001 VAULT1 YES
E224   24    PROF0001 VAULT1 YES
E225   25    PROF0001 VAULT1 YES
E226   26    PROF0001 VAULT1 YES
E227   27    PROF0001 VAULT1 YES

E228   28    PROF0001 VAULT1 YES
E229   29    PROF0001 VAULT1 YES
E22A   2A    PROF0001 VAULT1 YES
E22B   2B    PROF0001 VAULT1 YES
E22C   2C    PROF0001 VAULT1 YES
E22D   2D    PROF0001 VAULT1 YES
E22E   2E    PROF0001 VAULT1 YES
E22F   2F    PROF0001 VAULT1 YES

F2      = Exit          F3      = Back          F5      = Delete      F6      = Add
F7/F19  = PgUp/Prev CU  F8/F20  = PgDn/Next CU  F10     = Save          F11     = Cancel
F12     = Main Menu
```



# Operations

- TapeStream Operations Main Menu

```
NTP@OPER                               TapeStream Operations Menu                               2015/01/19 11:12:54

0      Status                           Status Menu
1      ACL - SIM                         Automatic Cartridge Loader Simulator Menu
2      Start TS                          Start Tape Server
3      Stop TS                            Stop Tape Server

Tape Server Thread . . . : RUNNING
Tape Server Thread ID  : 00001BFC

NTP45412I Total Blocks Written:0      Total Bytes Written:0
NTP45414I Total Tape Requests      SL:0      AL:0      NL:0
NTP45415I IO Rate/Sec      Cur:0      Max:0
NTP45416I Drives in use Cur:0      Max:0
NTP45400I Statistics 2015-01-19 11:00:00.034 MON EST - UTC<W5>
NTP45410I Total Blocks Read:0      Total Bytes Read:0
NTP45412I Total Blocks Written:0      Total Bytes Written:0
NTP45414I Total Tape Requests      SL:0      AL:0      NL:0
NTP45415I IO Rate/Sec      Cur:0      Max:0
NTP45416I Drives in use Cur:0      Max:0

Option --->
F1 = Help      F2 = Exit      F3 = Back      F12 = Main Menu
```



# Status Screens

- TapeStream Device Status Screen

```
NT PT STAT      NTP      TapeStream Tape Device Status      2015/02/05 15:28:16

E220 00 LP07
VOLSER: TS1234
Mode: System RW
Status: ONL RDY
Msg1:
Msg2:

E221 01 UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E222 02 UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E223 03 UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E224 04 UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E225 05 UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E226 06 UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E227 07 UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E228 08 UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E229 09 UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E22A 0A UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E22B 0B UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E22C 0C UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E22D 0D UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E22E 0E UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

E22F 0F UA
VOLSER:
Mode: System RW
Status: ONL NRD
Msg1:
Msg2:

VERSION
NTP45130I Commands are: AUTOINIT CLSW, CU, DVC, MOUNT, UNMNT, OFFLINE,
ONLINE, QDEV, QLP, QSYM, QSYMBOLS, RDY, NOTRDY, SCRATCH, SETSYM,
START, STAT, STOP, WP, NOTWP, LDACL, UNLDACL, LOG, UPTIME,
VERSION
NTP45003I UID(DEBUGUSR) Command "AUTOINIT E220 ON" accepted
NTP451B0I Unit(E220): Tape Volser AUTOINIT is ON
NTP45004E UID(DEBUGUSR) Command "MOUNT TS1234 E220" rejected - Invalid!
NTP45003I UID(DEBUGUSR) Command "MOUNT E220 TS1234 SL" accepted
NTP45100I Drive E220 - Mount completed for Volume Serial TS1234

Command ==>
F1 - Help      F2 - Exit      F3 - Back      F4 - Change Mode      F12 - Main Menu
```



# Status Screens

- TapeStream Control Unit/Channel Status

```
NTP@CUIT      NTP      TapeStream Control Unit/Channel Status      2015/02/05 17:57:36
Control Unit ID:  0  -  Enabled

Interface
Name            #    State    Chan      Speed    Flags    Chan      LPARs
-----      -    -      -      -      -      -      -
CHPIDE3        0    Oper     FICON     1 Gbs    CAEI     HSE0333  01 02 03 04 05 07 08
              1
              2
              3
              4
              5
              6
              7

NTP45415I  IO Cnt:620   Rate/Sec   Cur:0   Max:480
NTP45416I  Drives in use Cur:0   Max:1
NTP45003I  UID(DEBUGUSR) Command "OFFLINE E22F" accepted
NTP45110I  Drive E22F OFFLINE
NTP45003I  UID(DEBUGUSR) Command "ONLINE E22F" accepted
NTP45111I  Drive E22F ONLINE
NTP45003I  UID(DEBUGUSR) Command "OFFLINE E22B" accepted
NTP45110I  Drive E22B OFFLINE
NTP45003I  UID(DEBUGUSR) Command "ONLINE E22B" accepted
NTP45111I  Drive E22B ONLINE

Command ==>
F1 = Help      F2 = Exit      F3 = Back      F5 = Disable CU
F6 = Enable CU F7 = Prev CU   F8 = Next CU   F12 = Main Menu
```



# Status Screens

- TapeStream Control Unit/Device Status

```

NTP@DEVS      NTP      TapeStream Control Unit/Devices Status      2015/02/06 11:00:06

Control Unit ID:  0  -  Enabled

Device  Online  Ready  Label  Alt.  LPAR  Tape  Auto
Address Status  Status VOLSER Type  Message  Message  Assgnd  INIT  Cart
-----  -----  -----  -----  -----  -----  -----  -----  -----  -----
E220    Online  NOTRDY  *      *      UA      AUTO  SYS
E221    Online  NOTRDY  *      *      UA      AUTO  SYS
E222    Online  NOTRDY  *      *      UA      AUTO  SYS
E223    Online  NOTRDY  *      *      UA      AUTO  SYS
E224    Online  NOTRDY  *      *      UA      AUTO  SYS
E225    Online  NOTRDY  *      *      UA      AUTO  SYS
E226    Online  NOTRDY  *      *      UA      AUTO  SYS
E227    Online  NOTRDY  *      *      UA      AUTO  SYS
E228    Online  NOTRDY  *      *      UA      AUTO  SYS
E229    Online  NOTRDY  *      *      UA      AUTO  SYS
E22A    Online  NOTRDY  *      *      UA      AUTO  SYS
E22B    Online  NOTRDY  *      *      UA      AUTO  SYS
E22C    Online  NOTRDY  *      *      UA      AUTO  SYS
E22D    Online  NOTRDY  *      *      UA      AUTO  SYS
E22E    Online  NOTRDY  *      *      UA      AUTO  SYS
E22F    Online  NOTRDY  *      *      UA      AUTO  SYS

NTP45003I UID(DEBUGUSR) Command "CLSW 0 00 SILO" accepted
NTP45106I Drive E220 - ACL Deactivated - Sys Mode Active - (SILO)
NTP45400I Statistics 2015-02-06 11:00:00.005 FRI EST - UTC<W5>
NTP45410I Total Blocks Read:0 Total Bytes Read:0
NTP45411I Total Compressed Bytes Read:0 Comp Ratio:0
NTP45412I Total Blocks Written:0 Total Bytes Written:0
NTP45413I Total Compressed Bytes Written:0 Comp Ratio:0
NTP45414I Total Tape Requests SL:0 AL:0 NL:0
NTP45415I IO Cnt:7 Rate/Sec Cur:0 Max:4
NTP45416I Drives in use Cur:0 Max:0

Command ==>
F1 = Help      F2 = Exit      F3 = Back      F5 = Disable CU
F6 = Enable CU F7 = Prev CU   F8 = Next CU   F12 = Main Menu
  
```





# Status Screens

- TapeStream Device Statistics Screen

```
NT PSTATS      NTP      TapeStream Tape Device Statistics      2015/02/06 16:24:56

E220 00 LP03      E221 01 LP03      E222 02 LP03      E223 03 LP03
Reads:          32      Reads:           10      Reads:           3      Reads:           0
Writes:         282     Writes:          10      Writes:        47094     Writes:           0
ByteRd:        27560    ByteRd:          800     ByteRd:          240     ByteRd:           0
ByteWr:        361762  ByteWr:          800     ByteWr: 2462917084     ByteWr:           0
Mounts:         2      Mounts:          2      Mounts:          1      Mounts:           0

E224 04 LP03      E225 05 LP03      E226 06 LP03      E227 07 LP03
Reads:           0      Reads:           0      Reads:           0      Reads:           0
Writes:           0      Writes:           0      Writes:           0      Writes:           0
ByteRd:           0      ByteRd:           0      ByteRd:           0      ByteRd:           0
ByteWr:           0      ByteWr:           0      ByteWr:           0      ByteWr:           0
Mounts:           0      Mounts:           0      Mounts:           0      Mounts:           0

E228 08 LP03      E229 09 LP03      E22A 0A LP03      E22E 0E LP03
Reads:           0      Reads:           0      Reads:           0      Reads:           0
Writes:           0      Writes:           0      Writes:           0      Writes:           0
ByteRd:           0      ByteRd:           0      ByteRd:           0      ByteRd:           0
ByteWr:           0      ByteWr:           0      ByteWr:           0      ByteWr:           0
Mounts:           0      Mounts:           0      Mounts:           0      Mounts:           0

E22C 0C LP03      E22D 0D LP03      E22E 0E LP03      E22F 0F LP03
Reads:           0      Reads:           0      Reads:           0      Reads:           0
Writes:           0      Writes:           0      Writes:           0      Writes:           0
ByteRd:           0      ByteRd:           0      ByteRd:           0      ByteRd:           0
ByteWr:           0      ByteWr:           0      ByteWr:           0      ByteWr:           0
Mounts:           0      Mounts:           0      Mounts:           0      Mounts:           0

NTP45415I  IO Cnt:95,819  Rate/Sec  Cur:49  Max:342
NTP45416I  Drives in use Cur:1  Max:3
NTP45003I  UID(DEBUGUSR) Command "STAT" accepted
NTP45410I  Total Blocks Read:45  Total Bytes Read:28,600
NTP45411I  Total Compressed Bytes Read:5,974  Comp Ratio:79
NTP45412I  Total Blocks Written:47,169  Total Bytes Written:2,452,860,238
NTP45413I  Total Compressed Bytes Written:725,215,159  Comp Ratio:70
NTP45414I  Total Tape Requests  SL:5  AL:0  NL:0
NTP45415I  IO Cnt:96,113  Rate/Sec  Cur:34  Max:342
NTP45416I  Drives in use Cur:1  Max:3

Command ==>
F1 = Help      F2 = Exit      F3 = Back      F12 = Main Menu
```



# Utilities

- TapeStream Utility Main Menu

```
NTP@UTIL          TapeStream Utilities Menu          2015/01/08 14:49:48
0  Init Tapes      Initialize Tape Images
1  Migrate         Migrate Tape Images
2  Import         Import Tape Images
3  Export         Export Tape Images
4  Compare        Compare Two Tape Images
5  Verify         Verify Tape Image

Option ==>
F2 - Exit      F3 - Back      F12 - Main Menu
```



# Utilities

- TapeStream Initialize Tape Screen

```
NTPTINIT  NTP      TapeStream Tape Initialization  2015/02/09 17:00:37

  Tape Vault Name ==> VAULT1
    Tape VOLSER ==> ZOS403
  Owner ID (optional) ==> _____
    Max Size ==> 1000M
    EOT Size ==> 512K

Number to Initialize ==> 10 _____ Maximum 1000
  Label Type: Standard X ISO/ANSI _ No Label _
  Compression Type: LZ4 X Zip _ RLE _ None _
    WORM: _
  Emulated Tape Type: 3480 _ 3490 X 3590 _
Scratch existing volume: _

NTP70300I Volser (ZOS403), Owner (none) - Completed successfully.
NTP70300I Volser (ZOS404), Owner (none) - Completed successfully.
NTP70300I Volser (ZOS405), Owner (none) - Completed successfully.
NTP70300I Volser (ZOS406), Owner (none) - Completed successfully.
NTP70300I Volser (ZOS407), Owner (none) - Completed successfully.
NTP70300I Volser (ZOS408), Owner (none) - Completed successfully.
NTP70300I Volser (ZOS409), Owner (none) - Completed successfully.
NTP70300I Volser (ZOS410), Owner (none) - Completed successfully.
NTP70300I Volser (ZOS411), Owner (none) - Completed successfully.
NTP70300I Volser (ZOS412), Owner (none) - Completed successfully.
NTP70303I Library Pool is "C:\TapeStream\Vault1\POOL\"
NTP70301I 10 volumes from ZOS403 to ZOS412 - Completed successfully.

F1 = Help      F2 = Exit      F3 = Back      F4 = Select Tape Vault
F5 = Init Tape(s)  F12 = Main Menu
```



# Recap

- TapeStream Virtual Tape Library Solution is a complete, cost-effective tape solution for the mainframe user
- TapeStream is simple to install, configure and use with an intuitive mainframe TN3270 user interface
- TapeStream utilizes your existing enterprise data storage negating the need for an additional DR/BC plan for your tape images
- TapeStream uses an innovated tape image with data compression, file location index, 64-bit CRC on every block, WORM support, and usage statistics
- TapeStream includes SCRIPT post processing of images and an mainframe initiated SCRATCH management process



# Questions?



# Information

For additional information:

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