IBM Software Group

What's New with Tape Manager for z/VM and Backup and Restore Manager for z/VM

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Agenda

- Overview
- Tape Manager for z/VM
  - Key features
  - Concepts and terms
  - Product architecture
  - Configuration for standalone
  - Configuration with RMM
- Backup and Restore Manager for z/VM
  - Key features
  - Product architecture
  - Configuration
- Other z/VM Tools (separate session)
  - Archive Manager for z/VM
  - Operations Manager for z/VM
- New enhancements in red

Overall z/VM Marketplace

- Traditional z/VM customers
  - Longtime z/VM (VM/ESA, VM/SP) customers
  - Running business applications on z/VM
  - Require full set of systems management solutions for z/VM and the Linux guests
- Customers using z/VM to host Linux only
  - New to z/VM
  - Understand the benefits of using z/VM to host Linux guests
  - Prefer Linux-based tools for systems management of Linux guests
  - Also need basic systems management tools for z/VM host
- Traditional z/VM customers expanding the role of z/VM
  - Using existing available capacity to host Linux guests
  - Adding additional capacity or processors to host Linux guests
  - Focus on total cost of ownership

Tape Manager for z/VM

- Tape management
  - Define tapes in a catalog, including:
  - Group tapes together into pools
- Device management
  - Define devices
  - Group devices together into device pools
- V1.2.0
  - NL and BLP support
  - Data Security Erase utility
  - Catalog verification utility
  - ATL content verification utility
  - Miscellaneous enhancements
  - Announce: 21 February 2006
  - GA: 24 February 2006

Backup and Restore Manager for z/VM

- Backup
  - Full or incremental
  - Performed by administrators
- Restore
  - User or administrator requested
  - Selection of data to restore
- V1.1.0 product information
  - Announce: 22 February 2005
  - GA: 29 April 2005
- New since V1.1.0 GA:
  - "New day" exit
  - Support for CMS RESERVEd minidisks
  - Enhanced response to STATUS request
- Watch for additional enhancements this year

IBM

Tape Manager for z/VM

Automation

Efficiency

Productivity

Tape Manager for z/VM

- Tape management
  - Define tapes in a catalog, including:
    - Free or used
    - Internal or external
    - Retention/expiration information
    - ATL or manual mount
    - Ready for DSE or not
  - Group tapes together into pools
    - Ownership and access control
    - Media type
    - Include free and used tapes, with an optional link to a free pool
- Device management
  - Define devices
    - Dedicated or assignable
  - Group devices together into device pools
    - ATL or manual mount
    - Any other grouping you choose (read only vs. write, location, etc.)
- Manage mount requests
  - SL, NL, or BLP

Key Features

- Dynamic sharing of existing tape devices between multiple images
  - Devices must be assignable and not using multiuser attach feature of z/VM
- Effective management of tapes in ATLs
  - Granular access control
  - Expiration processing
  - Notification of low threshold for tape resource
    - Utilization information provided per pool
    - Report created and sent to administrator after expiration processing
- Improved accuracy of manual tape processing
  - Automatic request and notification of manual mounts
  - Internal label verification at attach/give and detach (SL only)
  - Read/Write verification
- Optional use of RMM as the tape catalog
  - Tapes, access control, and retention managed by existing RMM catalog
  - Accessible via commands on z/VM
  - Includes SL, NL, and BLP support

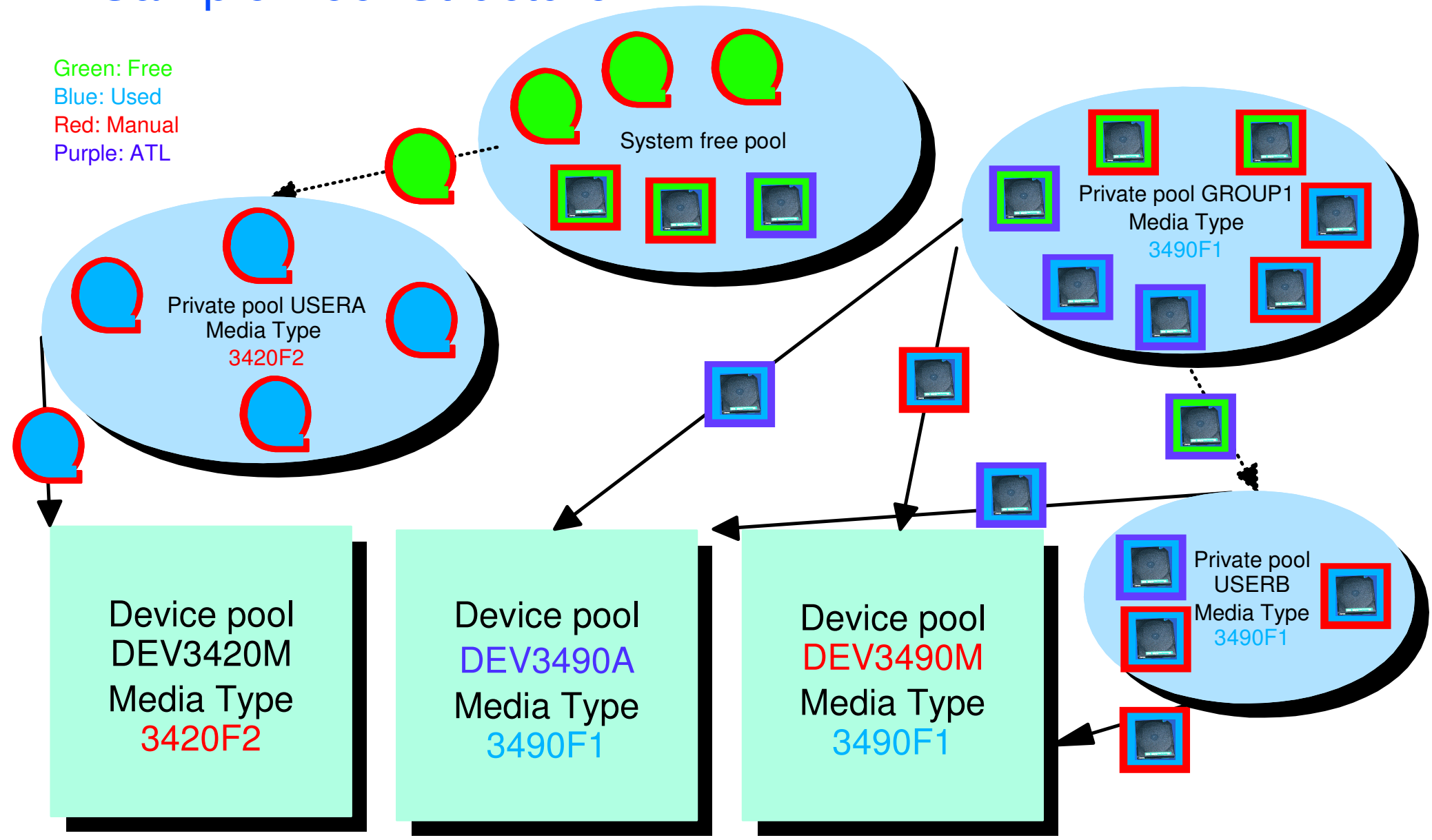
Concepts and Terms

- Free versus scratch tapes
  - Free: no longer used, but not yet available for reuse
    - On hold by an administrator
    - Waiting for Data Security Erase
    - External tape
  - Scratch: available for reuse
- Tape pool
  - System free pool
    - One (and only one) list of free tapes which are not in private pools
  - Private pool
    - Logical group of physical tapes with a defined owner
    - Free or used
    - Same media type, access control, and defaults
    - Internal or external
  - Admin-specified pool owner and pool name
    - Owner not required to be a valid CMS user ID
    - Owner and name must meet CMS requirements for a filename/filetype

Concepts and Terms

- Device pool
  - Logical group of physical devices that can handle the same physical media
  - Same mount attribute and media type
  - Can define one or more
  - One device can be in more than one pool
  - Admin-specified alphanumeric name of up to 8 characters
  - Mount requests can specify a device pool
- Media type
  - Admin defined 6-character name that associates devices in device pools with tapes in tape pools
  - One media type can be associated with more than one device pool
  - Example: 3590 drives on 1st floor vs. 3590 drives on 2nd floor

Sample Pool Structure

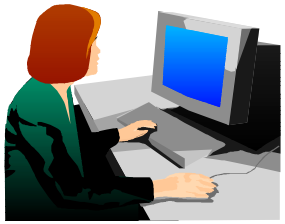


Access Control

Authority	Modify Pool Attributes and Delete Pool	Modify Tape Attributes	Add Tapes to the System Inventory (System Free Pool or Private Pools)	Delete Tapes from the System Inventory	Transfer Tapes into or out of this Pool; Delete External Tapes from this Private Pool	Modify Tapes	Read Tapes	Tape Attributes Modified Only as a Byproduct of Other Commands	Use Tape Pool as a Free Pool	Receive messages related to this pool
Sys Admin	✓	✓	✓	✓	✓			✓		
Pool Admin	✓	✓			✓	✓	✓	✓		
Tape					✓	✓	✓	✓		
Write						✓	✓	✓		
Read							✓	✓		
None										
Free									✓	
ExceptID										Threshold messages
MntID1 and MntID2										Mount messages, query and cancel mounts

- Defined using POOL commands
- Can set defaults for each pool, then add or restrict access via specific user authorization

Tape Manager - Standard Mode



Tape Manager Machine (TMM)

- ✓ Reads configuration files at startup

Device Manager Machine (DMM)

- ✓ Interacts with real tape devices
- ✓ Attaches/gives drives to end users
- ✓ Verifies volume labels
- ✓ Verifies read/write status

Library Manager Machine (LMM)

- ✓ Interacts with DFSMSrms to handle library mounts
- ✓ Handles volume specific and scratch requests
- ✓ One for each RMS server

Command Manager Machine (CMM) - Optional

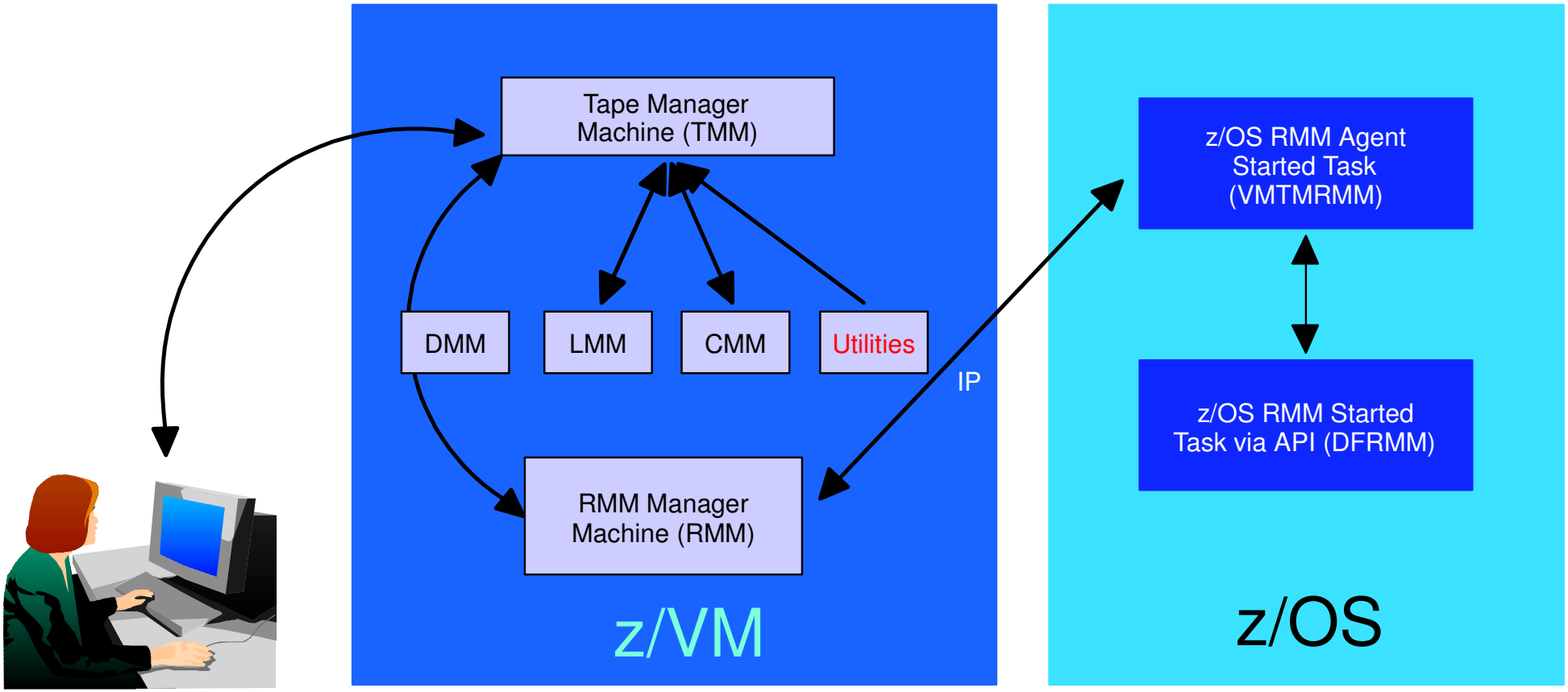
- ✓ Supports subcommand processing in user exits

Customer defined (optional)

- ✓ Data Security Erase utility
- ✓ ATL synchronization utility
- ✓ Catalog verification utility

z/VM

Tape Manager - Integration with RMM



- Communication within z/VM via SMSG/IUCV
  - IP for TMM to RMM
- Communication between z/VM and z/OS via TCP/IP

Utilities New in V1.2.0

- Data Security Erase
  - Runs on separate user IDs/service machines
  - Issues query against catalog to find all tapes with DSE flag on
    - Requires Tape Manager ADMIN authority
  - Mounts each tape
    - Verifies volume label if possible
    - Erases tape
    - Turns off DSE flag in catalog
  - Time specified for missing interrupt handler (MITIME) must be high enough for DSE to complete on each tape
  - Configuration options

```
Max_Runtime = 20
Max_Tapes = 20
Errors_to = ADMIN1
Error_action = CONTINUE
NL_Tapes = NO
TMM_Userid = TMTMM
```

Utilities New in V1.2.0

- ATL Synchronization
  - Runs on separate user IDs/service machines
  - Issues query against catalog to find all tapes in specified ATL(s)
    - Requires Tape Manager ADMIN authority and RMS Admin authority
  - For each tape
    - Queries DFSMSrms for tape status
    - Takes action based on status and configuration options
  - Configuration options

```
Max_Runtime = 20
Max_Tapes = 20
Errors_to = ADMIN1 ADMIN2
Error_action = CONTINUE
TMM_Userid = TMTMM
ATL_Names = IBMATL1 IBMATL2
Action_not_in_library = RESET
Action_inaccessible = IGNORE
Action_ejected = RESET
Action_misplaced = WARN
Action_label_damage = HOLD
```

Utilities New in V1.2.0

- Catalog Verification
  - Runs on separate user IDs/service machines
    - Tape Manager must be shut down
  - Reads the catalog directly (not via Tape Manager commands)
    - Requires RR or MR access to TMTMM's 191, 200, and 210 disks
  - For each entry
    - Verifies data format is correct (dates, numbers, etc.)
    - Verifies data is consistent across files (volser's in pool inventories vs. tape inventories
    - Optionally corrects invalid data
  - Strongly caution using the option to correct "errors"
  - Configuration options

```
Errors_to = ADMIN1 ADMIN2
Error_action = CONTINUE
TMM_Userid = TMTMM
Verbosity = MEDIUM
Database_disk_1 = 200
Database_disk_2 = 210
Config_disk = 191
Invalid_tape_inventory_records = WARN
Invalid_pool_volume_records = WARN
```

Non-Label and Bypass Label Processing

- Allow authorized users to
  - Mount NL tapes
  - Request a mount with the BLP option
  - Both
- NL mounts
  - NL must be specified on the mount request
    - Default is SL
  - Tape must be NL
    - Can't mount a Standard Label tape as NL
  - User must be authorized by system default or individually
- BLP support
  - BLP must be specified on the mount request
    - Default is SL
  - Tape can be NL or SL since no checking is done
  - User must be authorized by system default or individually

Miscellaneous Enhancements in V1.2.0

- Additional configuration verification at startup
- Progress messages displayed during startup
  - Useful for customers with large tape catalogs
- New status queries for TMM, LMM, and DMM service machines
  - Compile date/time, user IDs of other service machines, etc.
- Improved maintenance of catalog data
  - Not erased when tape is freed or scratched
  - Only erased or rewritten when tape is reused (including DSE)
  - Improves recovery of metadata if tape is accidentally freed
- Improvements for customers running in RMM-mode
  - Optional ability to force a tape unload under specific circumstances
  - Optionally allow mount of scratch tapes by specific volser
    - Not provided by RMM natively
    - System configuration option to not allow, allow only sysadmins, allow sysadmins and operators, or allow everyone

Miscellaneous Enhancements in V1.2.0

- New command to eject a tape from an ATL
- Detaching non-dedicated devices that are unused for a period of time
  - Can only be attached if a requested volser is premounted on that device
- Additional retry processing
  - Automatically retries a mount request when
    - Internal label does not match volser requested
      - Used tapes - applies to manual mounts only
      - Scratch tapes - applies to ATLs and manual mounts, a new scratch volser is requested
    - Mounted tape is NL, but mount request specified SL (manual mounts only)
    - Mounted tape is SL, but mount request specified NL (manual mounts only)
    - RMM returns errors, 'not a scratch volume' and 'volume not found' (ATL only)
  - Operator can request a retry on manual mounts when
    - Specific volser for a scratch request is not available
      - Tape Manager finds another scratch and reissues mount request

PROFILE EXEC for TMTMM

```
/* Sample PROFILE EXEC FOR TMTMM service machine                    */
/*                                                                  */
'ACCESS 400 B'
/*                                                                  */
admn_id = 'TMADMN'
oper_id = 'OPERATOR'
mnt1_id = 'MNTID1'
mnt2_id = MNTID2'
/*                                                                  */
'GLOBALV INIT'
if rc = 0 then do;
  x = value('ADMN_ID',admn_id,'GLOBAL');
  x = value('ADMN_ID',admn_id,'GLOBAL');
  x = value('OPER_ID',oper_id,'GLOBAL');
  x = value('MNT1_ID',mnt1_id,'GLOBAL');
  x = value('MNT2_ID',mnt2_id,'GLOBAL');
  queue 'TAPMAN';
  end;
else do;
  say 'Unable to initialize GLOBALV - RC' rc;
```

Configuration File - Standard Mode

```
/* SAMPLE CONFIG FILE FOR STANDARD IMPLEMENTATIONS                    */
/*                                                                    */
ADMINS     TMADMN              /* Authorized users                    */
/*                                                                    */
ATTACH     500                 /* Dedicated device list               */
/*                                                                    */
/*       Init status Exit ID  Xmit ACTN Intervals TO ACTN  SubCmd Secs */
/*       ----------- -------- --------- --------- -------  ----------- */
CMDEXIT ENABLE       TMCMM    RUN       3         RUN      60
/*                                                                    */
/* Non-ATL device pool statement                                      */
/*          Name    Devices                                           */
DEVPOOL    3490L   600-601
DEVPOOL    3490M   500-501
/*                                                                    */
/* ATL device pool statements showing device list continuation        */
DEVPOOL    3590A   ATL NWAATL1 530-531
DEVPOOL    3590A   630-631
/*                                                                    */
DEVWAIT    4                   /* Max device wait time in minutes     */
/*                                                                    */
/*     Name  Vaddr Mode                                               */
DISK   DB1   0200  U
DISK   DB2   0210  V
DISK   USER  0191  Z
```

... Configuration File - Standard Mode

```
DMM         TMDMM               /* Userid for the Dev. Mgt. Machine      */
/*                                                                        */
EXPSTART    13:30:00            /* Start time for expiration processing  */
/*                                                                        */
FREEACC     NONE                /* Allow private pool use of sys scratch */
FREEAUTH    Y                   /* Auth required for system scratch use  */
/*                                                                        */
FILEOFF     OPERATIONS
/*                                                                        */
LIBRARY     NWAATL1 ONLINE TMLM1 /* Library / Initial status / Server     */
/*                                                                        */
LIBTYPPRI   M                   /* Primary scratch source MAN/ATL        */
LIBTYPSEC   A                   /* Secondary scratch source MAN/ATL      */
/*                                                                        */
OPERATIONS OPERATOR
/*                                                                        */
POOLAUTH    Y                   /* Auth required to define pools         */
POOLDEF     NONE                /* Auth required to define pools         */
POOLMAX     1000                /* System default for maximum pool tapes */
POOLWARN    80                  /* System default for pool warn percent  */
RETNDFLT    100                 /* Default retention days                */
RETNMAX     1000                /* Maximum retention days                */
/*                                                                        */
SCROWNER    *                   /* Default scratch pool owner            */
SCRNAME     POOL1               /* Default scratch pool name             */
/*                                                                        */
VOLMIN      6                   /* Minumum length of volume serial       */
VOLMAX      6                   /* Maximum length of volume serial <= 16 */
VOLWAIT     10                  /* Max retries (1/min) for volume wait   */
```

... Configuration File - RMM Mode

```
FILEOFF    OPERATIONS
/*                                                                  */
LIBRARY    NWAATL1 ONLINE TMLM1 /* Library / Initial status / Server   */
/*                                                                  */
OPERATIONS CSHOWA
/*                                                                  */
DISK  TCPIP  0592  Z
/*                                                                  */
/*  .- VMRMM service machine name                                   */
/*  |     .- VM TCPIP service machine name                          */
/*  |     |     .- VM RMM service machine IP address                */
/*  |     |     |     or Host Name                                  */
/*  |     |     |              .- VM service machine port           */
/*  |     |     |              |    .- z/OS agent IP address        */
/*  |     |     |              |    |     or Host Name              */
/*  |     |     |              |    |              .- z/OS agent port  */
/*  '     '     '              '    '              '                 */
RMM TMRMM TCPIP RS54           9999 RS52           35042
/*                                                                  */
RMMCMDWAIT 3
RMMSCRPOOL ATL ATL1 NWAATL1 SCRATCH0 VOL
RMMSCRPOOL MAN NOATL
/*                                                                  */
RMMSCRDFLT DEVP 3590A
/* RMMSCRDFLT SCRP ATL1                                            */
/* RMMSCRDFLT DEVP 3590A                                           */
/* RMMSCRDFLT RDEV 530                                             */
```

Tape Manager Summary

- Automate daily tape operations
  - Manage SL, NL, and BLP mount requests
  - Control tape access
  - Perform label verification
  - Expire tapes
  - Perform Data Security Erase
- Efficiently manage tapes and tape devices
  - Share devices
  - Control access to individual tapes in an ATL
- Improve productivity
  - Notify and interact with operator on behalf of user
  - Support manual and ATL mount requests
  - Perform label verification before and after tape use
  - Verify read/write attribute on manual mounts
  - Verify tapes are in ATLs
  - Retain catalog data until tape is rewritten

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Backup and Restore Manager for z/VM

Flexibility

Productivity

Control

Backup and Restore Manager for z/VM

- Backup
  - Full or incremental
  - Source data on CMS minidisk, CMS RESERVEd minidisk, SFS, ECKD images
  - Target output to tape, twin tapes, disk
  - Include/exclude minidisks or filepools
  - Mask by filename
- Restore
  - Source data on tape or disk
  - Target output to CMS minidisk, SFS, ECKD DASD, virtual reader
  - User or administrator requested
  - Selection of data to restore
    - Individual files (with wildcard support), by minidisk, by volume, or by backup instance
- Additional enhancements since V1.1.0 GA:
  - "New day" exit
  - Enhanced response to STATUS request

Key Features

- Modular design with an eye to the future
  - Data handlers for each data type (minidisk, SFS, ECKD, reader)
  - Media drivers for each media type (tape, twin tapes, CMS file)
- Standard CMS interfaces
  - Support for new hardware when CMS supports it
  - Backup/restore catalog housed as a hierarchical structure in SFS
- Documented interfaces to data packaging tools
- Review of a defined backup job before submission
- Reduced backup window with concurrent processing
  - Multiple service machines sharing the job
  - Assigned by master server
- Automatic aging and pruning of the backup catalog

Access Control

- Administrators
  - Review and submit jobs
  - Manipulate contents of backup catalog
  - Backup and restore from anywhere to anywhere
  - Receive all service machine consoles
  - Full screen interface for navigating the catalog and requesting restores
    - By job, then instance, ownerid, resource type, resource (specific filespace or minidisk)
    - By user, then resource, resource type, job name, instance objects
    - By DASD volid, then extent start, extent size, ownerid, minidisk address, job name, instance
    - By DASD volid, then ownerid, minidisk address, extent start, extent size, job name, instance
- Users
  - Restore files they own
  - Full screen interface to find files available for restore

New Functions Since April 2005

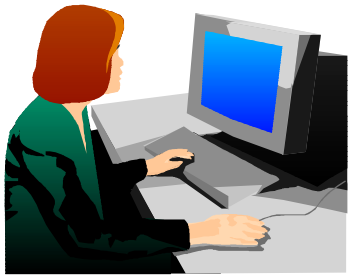
- Support for minidisks processed by CMS RESERVE
  - New job-level option to process RESERVEd disks as image or file level
    - CONFIG BKR_JOB_BACKUP_RESERVED_AS_IMAGE = NO|YES
      - NO: process as file level backup
      - YES: process as image level backup
  - Backup and Restore Manager automatically detects RESERVE status
- Enhanced response to STATUS command now includes:
  - Current job name and instance
  - Total count of backup or restore tasks in the current job
  - Current of total tasks (for example, "2 of 8")
  - Name and instance number of last job if idle

New Functions Since April 2005

- New Day processing exit
  - New exit called after first WAKEUP interrupt following midnight
    - WAKEUPs set every 15 minutes to keep server active
  - Flexible behavior based on return codes:
    - 0 Normal completion, don't call again today
    - 4 Call again later
    - 8 Error occurred, call again later
    - 12 Error occurred, don't call again today
    - 16 Disable the exit, don't call again until server is restarted
    - 20 Fatal error, shut down Backup server

Backup and Restore Manager - Architecture

➡ Communication via SMSG/IUCV



z/VM

Master Backup Server (BKRBKUP)

- ✓ Job submission
- ✓ Worker monitoring
- ✓ Client interaction

Catalog Server (BKRCATLG)

- ✓ Metadata repository
- ✓ Stores job history
  - ▸ Per client
  - ▸ Per DASD
  - ▸ Per SFS pool
- ✓ Keeps backup media history

Worker Task Server (BKRWRKnn)

- ✓ 1 or more server instances
- ✓ Interacts with source and target media
- ✓ Passes state information to BKRBKUP
- ✓ Passes metadata to BKRCATLG

Configuration File

```
Local_Backup_Admin_ID    = BKRADMIN
Local_Backup_Master_ID   = BKRBKUP
Local_Backup_Catalog_ID = BKRCATLG
*
Worker_Idle_Timeout = +00:15:00

* Temporary staging area info for worker virtual machines
Worker_Stage_Type = VFB-512

* Tunes the number of buffer pages allocated by GETMDSK for VMUDQ (diag 25c)
* reply during INCLUDE/EXCLUDE processing.  For every 1MB (256 pages) of
* buffer allocated, GETMDSK can process 17,746 minidisk definitions.
Template_MDISK_Buffer_Pages = 512

BKR_Allow_EDF_Target_Format = 1

* Configuration for tape handling exits (BKRMOUNT, BKRUMNT, BKREOV):
Tape_Exit_Context = BKR
Tape_Operator = OPERATOR
Tape_Request_Method = EXEC TELL
Tape_Delay_Interval = +00:00:60
Tape_Times_To_Poll  = 5
TAP1_Virtual_Address = 181
TAP2_Virtual_Address = 182
Tape_Retain_After_EOJ = 0

* Master Backup Catalog configuration:
CatalogPool = ROCKSFS2
CatalogSpace = RVBCATLG
```

Job Template

```
CONFIG BKR_OUTPUT_SPEC  = IBMTAPE SCRATCH RW 1
*CONFIG BKR_OUTPUT_SPEC  = IBMTWIN SCRATCH RW 1 SCRATCH
*CONFIG BKR_OUTPUT_SPEC  = CMSFILE DISK POOL X
*
CONFIG BKR_JOB_WORKERS = 3
CONFIG BKR_JOB_NAME     = RS54FULL
*
CONFIG BKR_JOB_CMS_FILEMASK = * * *
CONFIG BKR_JOB_SFS_PATHMASK = *
*
CONFIG BKR_JOB_CATALOG  = Y
CONFIG BKR_CATALOG_RETENTION = 30
CONFIG BKR_CATALOG_VERBOSE    = N
CONFIG BKR_OUT_EDF_VERBOSE = N
CONFIG BKR_OUT_TAPE_VERBOSE = N
*
CONFIG BKR_EDF_INCR_TOGGLE = N
CONFIG BKR_SFS_INCR_TOGGLE = N
CONFIG BKR_JOB_BACKUP_RESERVED_AS_IMAGE = NO
```

... Job Template

```
/*****************************************************************/
/* Include/Exclude definitions                                   */
/*****************************************************************/
  FUNCTION  MEDIATYPE   OWNER      VDEV VOLUME DEVTYPE       START          END           SIZE     RESERVED
|----------|----------|--------|--|----|------|--------|--|----------|--|----------|--|----------|--------|
 INCLUDE    MINIDISK   *        =  *    *      *        =  *          =  *          =  *          *

 EXCLUDE    MINIDISK   FDISK    =  *    *      *        =  *          =  *          =  *          *
 EXCLUDE    MINIDISK   $ALLOC$  =  *    *      *        =  *          =  *          =  *          *

 EXCLUDE    MINIDISK   MACK0*   =  *    *      *        =  *          =  *          =  *          *
 INCLUDE    MINIDISK   MACK0*   =  019* *      *        =  *          =  *          =  *          *

 EXCLUDE    MINIDISK   MAINT    =  0123 *      *        =  *          =  *          =  *          *
 EXCLUDE    MINIDISK   MAINT    =  0124 *      *        =  *          =  *          =  *          *

 EXCLUDE    MINIDISK   ROCKSFS* =  *    *      *        =  *          =  *          =  *          *
 INCLUDE    MINIDISK   ROCKSFS* =  019* *      *        =  *          =  *          =  *          *
 EXCLUDE    MINIDISK   VMSERV*  =  *    *      *        =  *          =  *          =  *          *
 INCLUDE    MINIDISK   VMSERV*  =  019* *      *        =  *          =  *          =  *          *

 EXCLUDE    MINIDISK   *        =  *    *      *        =  *          =  *          >  3300        *
 EXCLUDE    MINIDISK   *        =  *    *      *        =  *          =  *          =  END         *
 INCLUDE    MINIDISK   MAINT    =  012* *      *        =  *          =  *          =  *          *

  FUNCTION  MEDIATYPE  POOLNAME  OWNER    FS
|----------|----------|--------|--------|---|
 INCLUDE    SFS        VMSYSU:   *        SFS
 EXCLUDE    SFS        VMSYSU:   DFSMS*   *
 INCLUDE    SFS        ROCKSFS2:*        *
 EXCLUDE    SFS        ROCKSFS2:RVBCATLG *
 INCLUDE    SFS        VMDEVU:   *        *
```

Backup and Restore Manager Summary

- Flexibility
  - Backup only what is needed via include, exclude, and masking statements
  - Mix and match source and target types
- Productivity
  - Review of backup job before submission
  - User driven restores with no administrator interaction
- Control
  - Each user can only access restore data owned by him/her
  - Automatic aging and pruning of backup catalog
  - Consistent backups using the object directory (not source)
- Watch for additional enhancements this year

Summary

- New z/VM tools for systems and storage management
  - Improved flexibility, productivity, and control of backup and restore operations
  - Automated, efficient, and productive tape management and operations
- V1.1 GAed 29 April 2005
- V1.2 of Tape Manager GAed 24 February 2006
- Archive Manager and Operations Manager discussed in separate session
- Gathering and prioritizing additional customer requirements
- Web site:
  - http://www.ibm.com/software/stormgmt/zvm

Potential Development Items and Discussion Points

- Backup/Restore Manager and Archive Manager
  - RACF enablement
  - Performance improvements
  - Incremental image backups
  - Data compression
  - Data encryption
  - FBA and VFB-512 support
  - BFS file level support
  - FLASHCOPY support
  - More flexible job assignment when multiple workers are used
  - Observe deleted files in incremental backup/restores
  - Backup to tape and disk in one job
- Feedback requested
  - CP accounting data