

# IBM TSM and TotalStorage Ultrium Tape Library

Model L23, automates IBM TotalStorage LTO Ultrium 2 Tape Drives with 23 cartridges, 1-I/O slot

The 3582 Tape Library can accommodate one or two Ultrium 3 and/or Ultrium 2 tape drives and comes standard with a one-cartridge I/O station and 23 data cartridge slots giving a native library capacity of 9.6 TB native (19.2 TB with 2:1 compression). Tape cartridge capacity is up to 400 GB native capacity (800 GB with 2:1 compression) with the IBM TotalStorage LTO Ultrium 400 GB data cartridge and drive performance is up to 80 MB/second native data transfer rate with the IBM LTO Ultrium 3 tape drives. Ultrium 3 tape drives come in 2-Gbps switched fabric Fibre Channel and Low Voltage Differential (LVD) Ultra160 SCSI varieties to attach to a wide spectrum of open system servers.

The 3582 tape library comes standard with Multi-Path architecture and the ability to partition the library into two logical libraries, two removable cartridge magazines, and a bar code reader. The library can be configured as a stand-alone unit or can be mounted in an industry-standard 19-inch rack. Additional optional features include: Control Path Failover, Data Path Failover, and a Remote Management Unit/Specialist for remote library management.

The 3582 tape library is suitable for use in network-attached storage implementations, such as backups and mass storage archives where multi-terabyte capacities are required. Storage and tape management for the 3582 is provided by software such as Tivoli Storage Manager and other industry-leading compatible software offerings.

## Model L23 S/N: 1336444

Products	User ID	PASSWORD	IP Address
Tape Library	operator panel	2006	
Tape Library RMU	admin	grape007	192.168.103.218

Library Status	Online
Drive Status	LTO: 2 drives
RMU User	No current user
Hostname	cmtapelib2
IP Address	192.168.103.218
MAC Address	00:30:8C:02:04:D0
Library Serial # IBM 3582	0000013364441000
Library Medium Changer (FCP) smc0	
SNMP	Off
SNMP Alerts	Off
Library Firmware	307B
RMU Firmware	190C.00004

## TSM Library definition:

Library Name	LIB3582
Library Type	SCSI
ACS Id	-
Private Category	-
Scratch Category	-
External Manager	-
Shared	NO
LanFree	-

<b>ObeyMountRetention</b>	-
<b>Primary Library Manager</b>	-
<b>AutoLabel</b>	Yes
<b>Last Update by (administrator)</b>	ADMIN
<b>Last Update Date/Time</b>	22:51.0
<b>Serial Number</b>	13364441000

query library f=d

Library Name: LIB3582

Library Type: SCSI

ACS Id:

Private Category:

Scratch Category:

WORM Scratch Category:

External Manager:

Shared: No

LanFree:

ObeyMountRetention:

Primary Library Manager:

WWN: 500308C14647C003

IBM 3582 Library Medium Changer (FCP) smc0 Serial Number: 0000013364441000

AutoLabel: Yes

Reset Drives: No

Relabel Scratch:

Last Update by (administrator): ADMIN

Last Update Date/Time: 01/04/11 12:22:51

## DEVICE Class

Device Class Name	LTOCLASS	DISK
<b>Device Access Strategy</b>	Sequential	Random
<b>Storage Pool Count</b>	4	3
<b>Device Type</b>	LTO	-
<b>Format</b>	ULTRIUM2C	-
<b>Est/Max Capacity</b>	-	-
<b>Mount Limit</b>	DRIVES	-
<b>Mount Wait (min)</b>	60	-
<b>Mount Retention (min)</b>	5	-
<b>Label Prefix</b>	ADSM	-
<b>Library</b>	LIB3582	-
<b>Directory</b>	-	-
<b>Server Name</b>	-	-
<b>Retry Period</b>	-	-
<b>Retry Interval</b>	-	-
<b>Shared</b>	-	-
<b>HLAddr</b>	-	-
<b>Minimum Capacity</b>	-	-
<b>WORM</b>	NO	NO
<b>Drive Encryption</b>	ALLOW	-
<b>Scaled Capacity</b>	-	-
<b>Last Update by (administrator)</b>	ADMIN	-

## PATH (FROM Source to Destination: ADMINSEV, SERVER, DRIVE2, DRIVE, LIB3582)

Source Name	ADMINSEV	ADMINSEV	ADMINSEV
<b>Source Type</b>	SERVER	SERVER	SERVER
<b>Destination Name</b>	LIB3582	DRIVE1	DRIVE2

<b>Destination Type</b>	LIBRARY	DRIVE	DRIVE
<b>Library</b>	-	LIB3582	LIB3582
<b>Node Name</b>	-	-	-
<b>Device</b>	/dev/smc0	/dev/rmt1	/dev/rmt2
<b>External Manager</b>	-	-	-
<b>LUN</b>	-	-	-
<b>Initiator</b>	0	0	0
<b>Directory</b>	-	-	-
<b>On-Line</b>	YES	YES	YES
<b>Last Update by (administrator)</b>	ADMIN	ADMIN	ADMIN

## DRIVES

<b>Library Name</b>	LIB3582	LIB3582
<b>Drive Name</b>	DRIVE1	DRIVE2
<b>Device Type</b>	LTO	LTO
<b>On-Line</b>	YES	YES
<b>Read Formats</b>	ULTRIUM3C,ULTRIU	ULTRIUM3C,ULTRIU
<b>Write Formats</b>	ULTRIUM3C,ULTRIU	ULTRIUM3C,ULTRIU
<b>Element</b>	257	256
<b>ACS Driveld</b>	-	-
<b>Drive State</b>	EMPTY	EMPTY
<b>Allocated to</b>	-	-
<b>Last Update by (administrator)</b>	ADMIN	ADMIN
<b>Last Update Date/Time</b>	50:22.0	53:43.0
<b>Cleaning Frequency (Gigabytes/ASNEEDED/NONE)</b>	NONE	-
<b>Serial Number</b>	1210047758	9210042579
<b>Volume Name</b>	-	-

query drive f=d

Library Name: LIB3582

Drive Name: DRIVE1

Device Type: LTO

On-Line: Yes

Read Formats: ULTRIUM3C,ULTRIUM3,ULTRIUM2C,ULTRIUM2,ULTRIUMC,ULTRIUM

Write Formats: ULTRIUM3C,ULTRIUM3,ULTRIUM2C,ULTRIUM2

Element: 257

Drive State: EMPTY

Volume Name:

Allocated to:

WWN: 500308C14647C006

Serial Number: 1210047758

Last Update by (administrator): ADMIN

Last Update Date/Time: 05/17/12 11:50:22

Cleaning Frequency (Gigabytes/ASNEEDED/NONE): NONE

Library Name: LIB3582

Drive Name: DRIVE2

Device Type: LTO

On-Line: Yes

Read Formats: ULTRIUM3C,ULTRIUM3,ULTRIUM2C,ULTRIUM2,ULTRIUMC,ULTRIUM

Write Formats: ULTRIUM3C,ULTRIUM3,ULTRIUM2C,ULTRIUM2

Element: 256

Drive State: EMPTY

Volume Name:

Allocated to:

WWN: 500308C14647C003

Serial Number: 9210042579

Last Update by (administrator): ADMIN

Last Update Date/Time: 07/23/12 08:53:43

Cleaning Frequency (Gigabytes/ASNEEDED/NONE): NONE

## Tape Library maintenance jobs:

Identify Library information in TSM

```
query library
```

Volume inventories in an automated library in TSM

```
query libv
```

Check any process, sessions, request, and cancel them before you do maintenance

```
q proc
q ses
q request
```

```
cancel process id
```

```
cancel session id
```

```
cancel request id
```

Recycle Tape Library if you cannot cancel processes

Dismount tape from drive if required

```
dismount vol <vol label>
```

q dr/ q path, you will find some drive is offline, online them

```
update path ADMINSEV DRIVE1 SRCT=SERVER DESTT=DRIVE LIBR=lib3582 device=/dev/rmt1 online=yes
```

Tape Library Scratch tape check-in using TSM command line:

```
CHECKIN LIBVOLUME lib3582 search=bulk checklabel=barcode status=scratch
QUERY PROCESS
QUERY ACTLOG
```

```
REPLY < request ID>
```

When the server needs to continue to store data on a second volume, it uses the following selection order to acquire additional space:

- An empty predefined volume

- An empty scratch volume

- A volume with the most available free space among volumes that already contain data

- Any available volume in the storage pool

If there are volume(s) in some slot(s) is in the Library, but not in the TSM's inventory database. Please either check in this volume as **scratch** (or **private**) tape, and move the volume out of the library and into the convenience I/O station ( **remove=yes** )

Audit and synchronize volume inventories in an automated library in TSM

```
audit library lib3582
query actlog
```

```
CHECKIN LIBVOLUME lib3582 search=yes checklabel=barcode status=scratch
```

```
06/25/13 12:14:49 ANR8883W The volume D00021 in slot 4113 is in the library
LIB3582 but not in the TSM's inventory database. Please
either check in this volume or remove it from the
library; (SESSION: 67683, PROCESS: 2666)
```

```
CHECKOUT LIBVOLUME lib3582 D00021 remove=yes checklabel=yes
```

```
CHECKIN LIBVOLUME lib3582 search=yes checklabel=barcode status=private
```

```
06/12/13 13:06:09 ANR2017I Administrator ADMIN issued command: AUDIT LIBRARY lib3582 (SESSION: 61487)
06/12/13 13:06:09 ANR0984I Process 2412 for AUDIT LIBRARY started in the
BACKGROUND at 13:06:09. (SESSION: 61487, PROCESS: 2412)
06/12/13 13:06:09 ANR8457I AUDIT LIBRARY: Operation for library LIB3582
```

```

06/12/13 13:06:09 started as process 2412. (SESSION: 61487, PROCESS: 2412)
06/12/13 13:06:09 ANR0609I AUDIT LIBRARY started as process 2412. (SESSION:
06/12/13 13:22:34 ANR2017I Administrator ADMIN issued command: QUERY ACTLOG
06/12/13 13:23:42 (SESSION: 61512)
06/12/13 13:23:42 ANR8883W The volume D00060 in slot 4113 is in the library
LIB3582 but not in the TSM's inventory database. Please
06/12/13 13:23:42 either check in this volume or remove it from the
library;(SESSION: 61487, PROCESS: 2412)
06/12/13 13:23:42 ANR1434W No files have been identified for automatically
storing device configuration information. (SESSION:
06/12/13 13:23:42 61487, PROCESS: 2412)
06/12/13 13:23:42 ANR8461I AUDIT LIBRARY process for library LIB3582 completed successfully.
SESSION: 61487, PROCESS: 2412)
06/12/13 13:23:42 ANR0985I Process 2412 for AUDIT LIBRARY running in the
BACKGROUND completed with completion state SUCCESS at
06/12/13 13:26:29 13:23:42. (SESSION: 61487, PROCESS: 2412)
06/12/13 13:26:29 ANR2017I Administrator ADMIN issued command: CHECKIN
LIBVOLUME lib3582 search=yes checklabel=barcode
status=private (SESSION: 61515)
06/12/13 13:26:29 ANR0984I Process 2413 for CHECKIN LIBVOLUME started in the
BACKGROUND at 13:26:29. (SESSION: 61515, PROCESS: 2413)
06/12/13 13:26:29 ANR8422I CHECKIN LIBVOLUME: Operation for library LIB3582
started as process 2413. (SESSION: 61515, PROCESS: 2413)
06/12/13 13:26:29 ANR0609I CHECKIN LIBVOLUME started as process 2413.
(SESSION: 61515, PROCESS: 2413)
06/12/13 13:26:34 ANR8430I Volume D00060 has been checked into library
LIB3582. (SESSION: 61515, PROCESS: 2413)
06/12/13 13:26:34 ANR8431I CHECKIN LIBVOLUME process completed for library
LIB3582; 1 volume(s) found. (SESSION: 61515, PROCESS:
06/12/13 13:26:34 2413)
06/12/13 13:26:34 ANR0985I Process 2413 for CHECKIN LIBVOLUME running in the
BACKGROUND completed with completion state SUCCESS at
06/12/13 13:26:47 13:26:34. (SESSION: 61515, PROCESS: 2413)
06/12/13 13:26:47 ANR2017I Administrator ADMIN issued command: QUERY PROCESS
(SESSION: 61516)
06/12/13 13:26:51 ANR2017I Administrator ADMIN issued command: QUERY
LIBVOLUME (SESSION: 61517)
06/12/13 13:28:14 ANR2017I Administrator ADMIN issued command: CHECKOUT
LIBVOLUME lib3582 d00060 remove=yes checklabel=yes
(SESSION: 61518)
06/12/13 13:28:14 ANR0984I Process 2414 for CHECKOUT LIBVOLUME started in
the BACKGROUND at 13:28:14. (SESSION: 61518, PROCESS:
06/12/13 13:28:14 2414)
06/12/13 13:28:14 ANR8434I CHECKOUT LIBVOLUME: Operation for volume D00060
in library LIB3582 started as process 2414. (SESSION:
06/12/13 13:28:14 61518, PROCESS: 2414)
06/12/13 13:28:14 ANR0609I CHECKOUT LIBVOLUME started as process 2414.
(SESSION: 61518, PROCESS: 2414)
06/12/13 13:29:08 ANR2017I Administrator ADMIN issued command: QUERY DRIVE
f=d (SESSION: 61523)
06/12/13 13:29:14 ANR2017I Administrator ADMIN issued command: QUERY ACTLOG
(SESSION: 61524)
06/12/13 13:29:30 ANR8322I 667: Remove LTO volume D00060 from entry/exit
port of library LIB3582; issue 'REPLY' along with the
06/12/13 13:29:30 request ID when ready. (SESSION: 61518, PROCESS: 2414)
06/12/13 13:29:30 ANR2017I Administrator ADMIN issued command: QUERY ACTLOG
(SESSION: 61525)
06/12/13 13:29:41 ANR2017I Administrator ADMIN issued command: REPLY 667
(SESSION: 61526)
06/12/13 13:29:41 ANR8499I Command accepted. (SESSION: 61526)
06/12/13 13:29:41 ANR8438I CHECKOUT LIBVOLUME for volume D00060 in library
LIB3582 completed successfully. (SESSION: 61518, PROCESS:
06/12/13 13:29:41 2414)
06/12/13 13:29:41 ANR0985I Process 2414 for CHECKOUT LIBVOLUME running in
the BACKGROUND completed with completion state SUCCESS at
06/12/13 13:29:47 13:29:41. (SESSION: 61518, PROCESS: 2414)
06/12/13 13:29:47 ANR2017I Administrator ADMIN issued command: QUERY ACTLOG
(SESSION: 61527)

```

If there are volumes mountable but not in library:

Example: Generate checkin commands

Generate the CHECKIN LIBVOLUME commands for full and partially full volumes that are in the ONSITE.ARCHIVE primary storage pool and stored in the overflow location Room 2948/Bldg31.

```

query media * stgpool=onsite.archive format=cmd wherestatus=full,filling
wherestate=mountablenotinlib whereovflocation=room2948/bldg31 cmd="checkin libvol lib3494 &vol
status=private" cmdfilename=/tsm/move/media/checkin.vols

```

The QUERY MEDIA command created the CHECKIN LIBVOLUME executable commands in /tsm/move/media/checkin.vols, which can be run by issuing the MACRO command with /tsm/move/media/checkin.vols as the macro name.

```
checkin libvol lib3494 TAPE04 status=private
checkin libvol lib3494 TAPE13 status=private
checkin libvol lib3494 TAPE14 status=private
```

On May 8, 2013, Find tape D00026(defined in primary storage pool: bkuptapepool) which state is **Mountable not in library**  
q media stg=bkuptapepool

```
checkin libv lib3582 d00026 status=private
```

```
q actlog
```

```
reply <request id>
```

```
q process
```

```
Process Process Description  Status
Number
```

```
-----
1,459 CHECKIN LIBVOLUME      ANR8424I Checking in volume D00026 in library
                                LIB3582.
```

```
update volume d00026 access=readwrite
```

```
move data d00026
```

Release volume in a volume group, find one volume with lowest occupied tape space, move files to other storage pool volumes in the same storage pool.

```
MOVE Data <volume_name>
```

```
query process
```

```
Sample: Process Process Description  Status
Number
```

```
-----
1,337 Move Data                Volume D00065 (storage pool BKUPTAPEPOOL), Target
                                Pool BKUPTAPEPOOL, Moved Files: 48681, Moved
                                Bytes: 11,195,429,136, Unreadable Files: 0,
                                Unreadable Bytes: 0. Current Physical File
                                (bytes): 25,984,431 Current input volume:
                                D00065. Current output volume: D00027.
```

```
query media stg=<storage group>
```

```
CHECKOUT LIBVOLUME lib3582 D00065 remove=yes checklabel=yes
```

repeat step a) and b), to concentrate the data to fewer tapes. Then

```
CHECKIN LIBVOLUME lib3582 search=yes checklabel=barcode status=scratch
```

LMS Tape Library DRIVE remote CLEAN process using TSM command line. As a best practice, check in cleaner cartridges one-at-a-time and do not use the search function when checking in a cleaner cartridge.

```
CHECKIN LIBVOLUME lib3582 A00110L2 status=cleaner cleanings=6
QUERY PROCESS
QUERY ACTLOG
REPLY <request ID>
```

```
CLEAN DRIVE lib3582 drive1
```

```
CLEAN DRIVE lib3582 drive2
```

```
CHECKOUT LIBVOLUME lib3582 A00110L2 remove=yes checklabel=yes
QUERY PROCESS
QUERY ACTLOG
REPLY <request ID>
```

TIPS: Please ask Computer Operators for information on CLEAN TAPE's Lable name like <A00110L2> and cleanings Number like <cleanings=6>

Cleaning cartridge A00110L2 in library LIB3582 is near end of life; has 5 uses left

A00110L2

cleans	date
11	2013-06-25

## Tivoli Storage Manager

Products	User ID	PASSWORD	IP Address
TSM	tsmtape	tsm567	admsrv2
	admin	tsmlms	

IBM Tivoli Storage Manager (TSM) is a powerful storage software suite that addresses the challenges of complex storage management in distributed heterogeneous environments. It protects and manages a broad range of data, from workstations to the corporate server environment. More than 44 different operating platforms are supported, using a consistent graphical user interface.

Tivoli Storage Manager is implemented as a client-server software application, consisting of a Tivoli Storage Manager Server software component, Tivoli Storage Manager backup-archive client, and other complementary IBM and vendor software products

Tivoli Storage Manager provides:

Centralized administration for data and storage management

Fully automated data protection

Efficient management of information growth

High-speed automated server recovery

Full compatibility with hundreds of storage devices, as well as LAN, WAN, and SAN infrastructures

Optional customized backup solutions for major groupware, enterprise resource planning (ERP) applications, and database products

Server Name	ADMIN SERV
Server host name or IP address	admsrv2
Server TCP/IP port number	1580
Server URL	<a href="http://admsrv2:1580">http://admsrv2:1580</a>

### Statement of Work for Tivoli Storage Manager (TSM) Implementation Services

IBM appreciates the opportunity to provide Livingston hereafter referred to as The Customer, with TSM Implementation Services.

This Statement of Work addresses:

#### 1) TSM Implementation Services

It is the intent of IBM to approach each TSM implementation effort as a project based effort. At a mutually agreed to time, IBM will assign Storage IT Specialist(s) to perform the TSM implementation. Any unforeseen changes in work effort requirements will be governed by the Project Change Control Process as outlined in Section 8.0.

### Tivoli Storage Manager (TSM) Implementation Services

The services described in this section provide a General Overview of the types of activities involved in a typical TSM implementation effort. The tasks outlined may be performed by IBM, but are not limited to solely those listed. Working with the IBM Project Manager and the The Customer Project Focal Point, we will mutually agree to the final approach and method, and estimate the total number of hours involved.

#### Services Highlights

- Help set up and exploit TSM faster and more efficiently.
- Offer recommendations for TSM implementation across the IT environment.



- Provides experienced TSM Service Specialist on site for a timely installation of the TSM server and TSM clients.
- Provide basic TSM skills instruction.

### **Services Scope**

The TSM implementation services covers the following:

- A single TSM server.
- Up to 10 TSM backup/archive clients.
- No TSM TDP's or DRM components.

### **Services Approach**

The implementation of TSM typically follows a two phased approach. During phase 1, the Storage IT Specialist will plan for the deployment of TSM and consult with the customer focal point on architecture and policy decisions for the deployment of the backup solution. Phase 2 will consist of the deployment of the said architecture and validation testing.

**Extra charges may also apply for any extensions to the TSM Implementaiton Services which form the defined scope of this Statement of Work:**

- Additional TSM options
  - OR -
- Additional TSM clients

## **1.0 IBM Responsibilities (may include, but not limited to):**

### **TSM Implementation Planning & Architecture**

IBM will assign a Storage IT Specialist who will perform activities related to the overall planning and architecture / design of the TSM implementation. This will include the following:

- Validation of all TSM components
- Validation of TSM environment including servers, backup media and clients
- Plan the TSM deployment
- Plan the TSM policies to be utilized within the environment
- Plan the TSM schedules to utilized within the environment
- Plan the TSM administrative functions within the environment
- Co-ordination of all aspects of the TSM implementation process

### **TSM Implementation Services**

IBM will assign a Storage IT Specialist to implement the TSM server and clients along with the integration of the designed tape library. This will include the following services:

- Install and customize the TSM server code.
- Define initial disk and tape storage pools.
- Create and implement TSM Administrator scheduled tasks.
- Define initial client backup/archive/space management policies.
- Install and customize TSM client code.
- Create and implement TSM client schedules.
- Establish communications between the TSM server and clients.
- Test and confirm initial client backups.
- Test and confirm client restore capability.
- Discuss potential recovery scenarios and procedures.

## **2.0 The Customer Responsibilities (may include, but not limited to):**

### **Project Focal Point**

The Customer will assign a project focal point who will perform the following activities and have overall responsibilities for the project:

Work with IBM to create a detailed project plan which identifies the major milestones for the efforts of the IBM and The Customer project team;

Interface directly with related departments of The Customer, concerning project schedules and deliverables;

Serve as the interface between IBM and all The Customer personnel participating in the project;

Obtain and provide information, data, decisions, and approvals within one working day of IBM's request unless The Customer and IBM agree in writing to a different response time;

Advise The Customer management on the project status, of significant developments, and of potential problems which could adversely impact costs, the schedule or the contractual commitments;

Initiate action on all unsatisfactory conditions and promptly advise [IBM and](#) The Customer management of the corrective action;

Provide facilities (if required) equivalent to those provided to the The Customer project team. This includes desk, phone, access to data port (analog line) and access to the facilities;

Ensure The Customer personnel provide the required project inputs by the dates in the project plan.

[Provide IBM Reference criteria](#)

### **Technical Specialist**

The Customer will provide a Technical Specialist to act as a technical focal point for the IBM Team. The Technical Specialist will be responsible for the following:

Provide information to the IBM project team as required, which may include:

- Backup requirements for designated servers
- Network information (addressing, DNS naming, etc).

- Create acceptance test plans;
- Perform acceptance testing and provide Solution acceptance;

### **3.0 Assumptions (may include, but not limited to):**

Estimates that we provide to you in this proposal are based on the following assumptions:

- English is the only language included in project deliverables;
- Microsoft Office 97-compatible file formats of productivity software (Word, Excel and PowerPoint) will represent the format of deliverable documentation;
- The Services will be provided Monday through Friday from 8:00 a.m. to 5:00 p.m.local time, excluding statutory holidays unless we both agree to another schedule;
- Work will be performed at a single location of The Customer on this project, with some IBM activities performed on IBM premises. (i.e. Planning and document preparation);
- All equipment including SAN/Storage hardware and servers will be available during the implementation of Services and can be stopped and restarted as necessary for this installation;
- The Customer storage administration personnel will be available for consultation and skills transfer;

A minimum of 2 full days of the The Customer IT Specialist is required during the project for skills transfer and verification testing.

### **4.0 IBM Deliverables (may include, but not limited to):**

IBM will provide the following deliverables:

- A complete and functional TSM backup solution for the designated client servers

### **5.0 Estimated Schedule**

The Services described in this proposal will be mutually agreed upon.

The timeline of each Storage Implementation 'project' will be determined once all of the variables are known, including final storage configuration, connectivity requirements, project timelines etc.

Changes to this schedule can be processed using the Project Change Control Procedure, described in Section 8.0.

### **6.0 Estimated Charges**

The estimated number of days required to perform the TSM Implementation is 5 days.

The price to Livingston for Services is: \$7,200 (taxes extra).

Services will be provided on a "time and materials" basis. You agree to pay our charges for the actual time expended. In addition to our net charges, you agree to reimburse us for all out-of-pocket expenses such as travel, lodging and meals associated with travel, courier charges, long distance telephone charges and other similar expenses. We will request your approval before we incur expenses. Actual services charges and expenses will be invoiced monthly. Your payment is due on receipt of our invoice.

Work will be performed during normal business hours from Monday to Friday. Charges and expenses will be invoiced monthly. Your payment is due on receipt of our invoice.

### **7.0 Completion Criteria**

IBM shall have fulfilled its obligations under this proposal when one of the following conditions are met:

the End Date is reached, or we achieve the Estimated Total Charges \$7,200.00 described in the section titled "Charges", or the deliverables described within this Statement of Work have been completed, whichever occurs first.

If we determine that the estimated total charges will be exceeded, and you request IBM to provide additional Services, we will mutually agree to extend the Services in writing.

### **8.0 Project Change Control Process**

A Project Change Request (PCR) will be the vehicle for communicating changes to this proposal. The PCR must describe the change, the rationale for the change and the effect the change will have on the project. A PCR may be initiated by either party. Changes may impact both costs and schedule.

The Customer Project [focal point](#) will review the proposed change and approve it for further investigation or reject it. If the proposed change is complex or significant, IBM must first specify any charges to The Customer for such investigation, and will not proceed until authorization is received. If the investigation is authorized, the Project [focal point](#) will sign the PCR, which will constitute approval for the investigation charges. IBM will invoice The Customer for any such charges. The investigation will determine the effect that the implementation of the PCR will have on price, schedule and other terms and conditions of the Agreement. A written Change Authorization must be signed by both parties to authorize implementation of the investigated change.

#### **9.0 Terms and Conditions (may include, but not limited to):**

This Statement of Work defines the scope of work for the requirement and analysis phase of your project that would be accomplished under the terms of your IBM Customer Agreement and is valid for 90 days only. Changes to this Statement of Work will be processed as described in the Project Change Control Procedure. The investigation and implementation of changes may result in modifications to the estimated schedule, charges, or other terms of this document.

The information in this Statement of Work shall not be disclosed outside The Customer and shall not be duplicated in whole or in part for any purpose other than to evaluate the information provided. Should a contract be awarded to IBM as a result of or in connection with this Statement of Work, The Customer shall have the right to duplicate, use or disclose information to the extent provided by the contract. This restriction does not limit the right of The Customer to use information contained in the proposal if it is obtained from another source without restriction.

IBM products and services are available only under the terms and conditions of the currently applicable IBM agreements. The following apply to all IBM proposals:

*Price Quotation:* All prices quoted are for your information only and are subject to change. Prices for IBM products and services will be those currently in effect when IBM receives your order and the applicable IBM agreement has been accepted by IBM. Prices will be subject to the terms and conditions of the Agreement. Applicable taxes are not shown.

*Third Parties:* If a third party carries out any of your responsibilities, it is your responsibility to evaluate, select, and negotiate terms of agreement for such third party. IBM is not a party to such agreements and therefore will not be responsible for the results achieved or the schedule of completion.

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## TSM Servers

```
export DSMSErv_CONFIG=/usr/tivoli/tsm/server/bin/dsmshr.opt
export DSMSErv_DIR=/usr/tivoli/tsm/server/bin
```

```
root@admsrv1:/admsrv/hacmp # tsm_start_now.ksh
```

```
#!/bin/ksh
#
# purpose: HACMP startup script for the billing application
# name: tsm_start_now.ksh
# date: Feb 8, 2006
#
```

```
set -v
set -x
```

```
logFile=/admsrv/hacmp/tsm_start_now.log
```

```
msgLog(){
    print `date` "$1" >> $logFile
}
```

```
startTSM(){
    set -v
    set -x
    cd /tsmha2/bin
    ./startserver
    if [ $? -ne 0 ]; then
        msgLog "Error: TSM failed ..." >> $logFile
        exit 1
    fi
    cd /usr/tivoli/tsm/client/ba/bin
    nohup ./dsmcad -optfile=/tsmha2/tsmhacmp/dsm.opt &
    return 0
}
```

```
startTSM && msgLog "Message: TSM is up ..." >> $logFile
```

```
exit 0
```

```
root@admsrv2# ps -ef | grep dsm
```

```
root 4980772    1  0 Sep 29   - 2:04 /usr/tivoli/tsm/client/ba/bin/dsmcad
root 7209022    1  0 Sep 29   - 2:05 ./dsmcad -optfile=/tsmha2/tsmhacmp/dsm.opt
root 11141156    1  0 Sep 29   - 2053:02 /usr/tivoli/tsm/server/bin/dsmshr quiet
```

```
root@admsrv1 # ps -ef | grep dsm
```

```
root 17301652    1  0 Oct 26   - 8:15 /usr/tivoli/tsm/client/ba/bin/dsmcad
root 22085668    1  0 Apr 11   - 2:13 ./dsmcad -optfile=/tsmha1/tsmhacmp/dsm.opt
root 24576048    1  0 May 30   - 1:44 ./dsmcad -optfile=/tsmha1/tsmdb2/dsm.opt
```

```
*****
*** ---> Q STATUS
*****
```

```
Storage Management Server for AIX-RS/6000 - Version 5, Release 5, Level 1.0
```

```
Server Name: ADMINSErv
Server host name or IP address:
Server TCP/IP port number: 1500
Server URL:
Crossdefine: Off
Server Password Set: No
Server Installation Date/Time: 01/17/06 14:16:48
Server Restart Date/Time: 09/29/12 10:45:16
Authentication: On
Password Expiration Period: 999 Day(s)
Invalid Sign-on Attempt Limit: 0
Minimum Password Length: 0
```

```

WEB Admin Authentication Time-out (minutes): 0
      Registration: Closed
      Subfile Backup: No
      Availability: Enabled
      Accounting: Off
      Activity Log Retention: 30 Day(s)
      Activity Log Number of Records: 39842
      Activity Log Size: 2 M
      Activity Summary Retention Period: 30 Day(s)
      License Audit Period: 30 Day(s)
      Last License Audit: 12/25/12 09:45:21
      Server License Compliance: Valid
      Central Scheduler: Active
      Maximum Sessions: 25
      Maximum Scheduled Sessions: 12
      Event Record Retention Period: 10 Day(s)
      Client Action Duration: 5 Day(s)
      Schedule Randomization Percentage: 10
      Query Schedule Period: Client
      Maximum Command Retries: Client
      Retry Period: Client
      Scheduling Modes: Any
      Log Mode: RollForward
      Database Backup Trigger: Enabled
      BufPoolSize: 32,680 K
      Active Receivers: CONSOLE ACTLOG
      Configuration manager?: Off
      Refresh interval: 60
      Last refresh date/time:
      Context Messaging: Off
      Table of Contents (TOC) Load Retention: 120 Minute(s)
      Machine Globally Unique ID: c1.bc.49.e2.86.c0.11.da.a3.19.08.6-
      3.c0.a8.65.d3
      Archive Retention Protection: Off
      Encryption Strength: AES

```

```

*****
*** ---> Q OPTION
*****

```

Server Option	Option Setting	Server Option	Option Setting
CommTimeOut	600	IdleTimeOut	15
BufPoolSize	32678	LogPoolSize	512
MessageFormat	1	Language	AMENG
Alias Halt	HALT	MaxSessions	25
ExpInterval	0	ExpQuiet	No
EventServer	Yes	ReportRetrieve	No
DISPLAYLFINFO	No	MirrorRead DB	Normal
MirrorRead LOG	Normal	MirrorWrite DB	Sequential
MirrorWrite LOG	Parallel	TxnGroupMax	256
MoveBatchSize	1000	MoveSizeThresh	2048
RestoreInterval	1,440	DisableScheds	No
NOBUFPREfetch	No	AuditStorage	Yes
REQSYSauthoutfile	Yes	SELF TuneBufpools-	No
		ize	
DBPAGEshadow	No	DBPAGEshadowFile	dbpgshdw.bdt
MsgStackTrace	On	QueryAuth	None
LogWarnFullPerCe-	90	ThroughPutDataTh-	0
nt		reshold	
ThroughPutTimeTh-	0	NOPREEMPT	( No )
reshold			
Resource Timeout	60	TEC UTF8 Events	No
AdminOnClientPort	Yes	NORETRIEVEDATE	No
IMPORTMERGEUsed	Yes	DNSLOOKUP	Yes
NDMPControlPort	10,000	NDMPPortRange	0,0
SHREdding	Automatic	SanRefreshTime	0
TCPPort	1500	TcpAdminport	1500
HTTPPort	1580	TCPWindowSize	64512
TCPBufsize	32768	TCPNoDelay	Yes
CommMethod	TCP/IP	CommMethod	HTTP

```

MsgInterval      1      ShmPort      1510
FileExit
FileTextExit
AcsAccessId
AcsLockDrive     No
SNMPSubagentPort 1521
SNMPHeartBeatInt 5
TECPort          0
UNIQUETEDPTECeven- No
ts
SHAREDLIBIDLE    No
CheckTrailerOnFr- On
ee
SSLTCPPort
SSLTCPADMINPort
AssistVCRRecovery Yes
AcsTimeoutX      1
AcsQuickInit     Yes
SNMPSubagentHost 127.0.0.1
TECHost
UNIQUETECEvents  No
Async I/O        No
3494Shared       No
SANDiscovery     Off

```

tsm: ADMINERV>setopt sandiscovery on

Do you wish to proceed? (Yes (Y)/No (N)) y

ANR2119I The SANDISCOVERY option has been changed in the options file.

tsm: ADMINERV>q san

```

Device   Vendor   Product      Serial Number   Device
Type
-----
DRIVE    IBM      ULT3580-TD3  1210047758     /dev/rmt1
DRIVE    IBM      ULT3580-TD3  9210042579     /dev/rmt2
LIBRARY  IBM      ULT3582-TL   0000013364441000 /dev/smc0

```

## TSM Clients

Each client is given a node name when it is registered with the server. The server views its registered nodes as clients that require services and resources from the server.

Typically, a node is equivalent to a computer as in the case of a backup-archive client installed on a user's computer for file system backups. However, multiple nodes can exist on a single computer as in the case of a SQL server containing both an application client for SQL database and transaction log backups, and a backup-archive client for file system backups.

Typically, each client file system is represented on the server as a unique file space that belongs to each client node. Therefore, the number of file spaces a node has depends on the number of file systems on the client computer.

Client requirements worksheet					
Node name					
	BANODE1	BANODE2	HANODE1	HANODE2	DB2NODE
Contact information					
Operating system	AIX	AIX	AIX	AIX	BD2

File space Name	/	/	/arstmp	/tsmha2	/ICMNLSDDB
	/admsrv	/admsrv	/cmapp		/RMDDB
	/home	/home	/db2lslogging		/RMDBLB
	/ibm	/ibm	/db2rmlogging		/TOOLSDB
	/opt	/opt	/home/db2fenc1		
	/tmp	/tmp	/home/db2fenc2		
	/usr	/usr	/home/db2inst1		
	/var	/var	/home/db2inst2		
			/lbosdata01		
			/lbosdata02		
			/lbosdata03		
			/lbosdata04		
			/lbosdata05		
			/lbosdata06		
			/lbosdata07		
			/lbosdata08		
			/lbosdata09		
			/lbosdata10		
			/lbosdata11		
			/lbosdata12		
			/lbosdata13		
			/lbosdata14		
			/lbosdata15		
			/lbosdata16		
			/lbosdata17		
			/lbosdata18		
			/lbosdata19		
			/lbosdata20		
			/lbosdata21		
			/lbosdata22		
			/lbosdata23		
			/lbosdata24		
			/lbosdata25		
			/lbosdata26		
			/tsmha1		
			/ubosstg		
Total storage used					
GB changed per backup	6.0	1.5	217	0.31	
Number of files backed up					
Data compression					
Backup window times(min)					
Backup number of minutes	10	2.5	188	0.1	
Required recovery time					
recovery time					
GB copied per archive					
Number of files archived					
Number of archives kept					
Archive frequency					
Archive window times					
Archive number of hours					
Number of image backups					
Image backup frequency					
Number of backup sets					
Backupset frequency					
Policy domain					
Client option set					

*query user ( query admin)*

Administrator      Days Since      Days Since      Locked?      Privilege Classes



Name	Last Access	Password Set		
ADMIN	1	935	No	System
ADMIN_CENTER	64	64	No	
BANODE1	1,493	2,653	No	Client Owner
BANODE2	1,493	2,653	No	Client Owner
DB2NODE	2,636	2,636	No	Client Owner
HANODE1	588	2,601	No	Client Owner
HANODE2	1,493	2,653	No	Client Owner
SERVER_CONSOLE			No	System
TSMSTG	<1	2,597	No	Storage Operator
TSMTAPE	<1	602	No	

### query node

Node Name	Platform	Policy Name	Domain	Days Since Last Access	Days Since Password Set	Locked?
BANODE1	AIX	BA		<1	494	No
BANODE2	AIX	BA		<1	494	No
DB2NODE	DB2	DB2		<1	607	No
HANODE1	AIX	BA		<1	494	No
HANODE2	AIX	BA		<1	494	No

Example:

```
REGISTER NODE db2bkup db2bkup DOMAIN=DB2 COMPRESSION=CLIENT AUTOFSRENAME=NO ARCHDELETE=YES BACKDELETE=NO
FORCEPWRESET=NO TYPE=CLIENT KEEPM=NO MAXNUMMP=2 URL=http:// admsrv2_svc.livingstonintl.com:1585
VALIDATEPROTOCOL=NO TXNGROUPMAX=0 DATAWRITEPATH=ANY DATAREADPATH=ANY SESSIONINIT=CLIENTORSERVER
```

### query auditoccupancy

License information as of last audit on 04/25/13 at 11:38:21.

Node Name	Backup Storage Used (MB)	Archive Storage Used (MB)	Space-Managed Storage Used (MB)	Total Storage Used (MB)
BANODE1	130,208	0	0	130,208
BANODE2	57,148	0	0	57,148
HANODE1	4,832,751	0	0	4,832,751
HANODE2	68	0	0	68
DB2NODE	2,199,774	1,155,691	0	3,355,465

(8.5TB)

Tips: if you want to know more detailed information like all these nodes data located (occupy) on which volumes: **query nodedata <nodename>**

### query filespace

Node Name	Filespace Name	FSID	Platform	Filespace Type	Is Filespace Unicode?	Capacity (MB)	Pct Util
BANODE1	/tmp	1	AIX	JFS2	No	2,048.0	11.4
BANODE1	/	2	AIX	JFS2	No	2,304.0	4.2
BANODE1	/usr	3	AIX	JFS2	No	20,736.0	48.6
BANODE1	/var	4	AIX	JFS2	No	2,048.0	64.3
BANODE1	/home	5	AIX	JFS2	No	4,096.0	41.5
BANODE1	/opt	6	AIX	JFS2	No	10,240.0	61.2
BANODE1	/ibm	7	AIX	JFS2	No	20,480.0	37.6
BANODE1	/admsrv	8	AIX	JFS2	No	16,128.0	50.1
BANODE2	/tmp	1	AIX	JFS2	No	4,096.0	3.3
BANODE2	/	2	AIX	JFS2	No	2,304.0	4.2
BANODE2	/usr	3	AIX	JFS2	No	20,736.0	35.6
BANODE2	/var	4	AIX	JFS2	No	2,048.0	35.0
BANODE2	/home	5	AIX	JFS2	No	4,096.0	7.6
BANODE2	/opt	6	AIX	JFS2	No	10,240.0	61.2
BANODE2	/ibm	7	AIX	JFS2	No	20,480.0	37.4
BANODE2	/admsrv	8	AIX	JFS2	No	16,128.0	81.3
DB2NODE	/TOOLSDB	4	DB2	API:DB2/6000	No	5,813.1	100.0
DB2NODE	/ICMNLSD	5	DB2	API:DB2/6000	No	114,701,771.6	100.0
DB2NODE	/RMDB	6	DB2	API:DB2/6000	No	812,295.3	100.0

DB2NODE	/RMDBLB	7	DB2	API:DB2/6000	No	10,620,791,974,035.8	100.0
HANODE1	/tsmha1	1	AIX	JFS2	No	5,120.0	34.0
HANODE1	/home/db2fenc2	2	AIX	JFS2	No	1,024.0	0.0
HANODE1	/home/db2inst2	3	AIX	JFS2	No	48,640.0	20.1
HANODE1	/cmapp	4	AIX	JFS2	No	6,144.0	1.3
HANODE1	/db2lslogging	5	AIX	JFS2	No	1,792.0	0.0
HANODE1	/db2rmlogging	6	AIX	JFS2	No	1,792.0	0.0
HANODE1	/home/db2fenc1	7	AIX	JFS2	No	4,864.0	0.0
HANODE1	/home/db2inst1	8	AIX	JFS2	No	199,680.0	75.3
HANODE1	/lbosdata01	9	AIX	JFS2	No	99,840.0	94.9
HANODE1	/lbosdata02	10	AIX	JFS2	No	99,840.0	94.3
HANODE1	/lbosdata03	11	AIX	JFS2	No	99,840.0	94.4
HANODE1	/lbosdata04	12	AIX	JFS2	No	99,840.0	94.8
HANODE1	/lbosdata05	13	AIX	JFS2	No	99,840.0	95.1
HANODE1	/lbosdata06	14	AIX	JFS2	No	99,840.0	96.3
HANODE1	/lbosdata07	15	AIX	JFS2	No	99,840.0	95.5
HANODE1	/lbosdata08	16	AIX	JFS2	No	99,840.0	96.9
HANODE1	/lbosdata09	17	AIX	JFS2	No	99,840.0	94.6
HANODE1	/ubosstg	18	AIX	JFS2	No	48,640.0	0.0
HANODE1	/lbosdata10	19	AIX	JFS2	No	99,840.0	95.8
HANODE1	/lbosdata11	20	AIX	JFS2	No	99,840.0	94.4
HANODE1	/lbosdata12	21	AIX	JFS2	No	99,840.0	95.4
HANODE1	/arstmp	22	AIX	JFS2	No	4,608.0	0.5
HANODE1	/lbosdata13	23	AIX	JFS2	No	99,840.0	97.9
HANODE1	/lbosdata14	24	AIX	JFS2	No	99,840.0	95.7
HANODE1	/lbosdata15	25	AIX	JFS2	No	99,840.0	95.5
HANODE1	/lbosdata16	26	AIX	JFS2	No	99,840.0	97.3
HANODE1	/lbosdata17	27	AIX	JFS2	No	99,840.0	96.9
HANODE1	/lbosdata18	28	AIX	JFS2	No	99,840.0	98.4
HANODE1	/lbosdata19	29	AIX	JFS2	No	99,840.0	95.9
HANODE1	/lbosdata20	30	AIX	JFS2	No	99,840.0	98.4
HANODE1	/lbosdata21	31	AIX	JFS2	No	99,840.0	86.4
HANODE1	/lbosdata22	32	AIX	JFS2	No	99,840.0	86.7
HANODE1	/lbosdata23	33	AIX	JFS2	No	99,840.0	86.5
HANODE1	/lbosdata24	34	AIX	JFS2	No	99,840.0	85.9
HANODE1	/lbosdata25	35	AIX	JFS2	No	99,840.0	5.2
HANODE1	/lbosdata26	36	AIX	JFS2	No	99,840.0	5.1
HANODE2	/tsmha2	1	AIX	JFS2	No	5,120.0	0.4

### query occupancy

Node Name	Type	Filespace Name	FSID	Storage Pool Name	Number of Files	Physical Space Occupied (MB)	Logical Space Occupied (MB)
BANODE1	Bkup	/tmp	1	BKUPCOPYPOOL	642	237.42	230.63
BANODE1	Bkup	/tmp	1	BKUPTAPEPOOL	642	232.15	230.63
BANODE1	Bkup	/	2	BKUPCOPYPOOL	2,730	469.71	429.10
BANODE1	Bkup	/	2	BKUPTAPEPOOL	2,730	446.37	429.09
BANODE1	Bkup	/usr	3	BKUPCOPYPOOL	97,260	12,002.49	11,457.61
BANODE1	Bkup	/usr	3	BKUPTAPEPOOL	97,260	11,571.54	11,457.56
BANODE1	Bkup	/var	4	BKUPCOPYPOOL	4,519	2,659.92	2,191.55
BANODE1	Bkup	/var	4	BKUPTAPEPOOL	4,519	2,538.98	2,191.53
BANODE1	Bkup	/home	5	BKUPCOPYPOOL	617	4,846.73	4,757.03
BANODE1	Bkup	/home	5	BKUPTAPEPOOL	617	4,854.82	4,757.03
BANODE1	Bkup	/opt	6	BKUPCOPYPOOL	67,727	6,104.90	6,085.81
BANODE1	Bkup	/opt	6	BKUPTAPEPOOL	67,727	6,085.81	6,085.81
BANODE1	Bkup	/ibm	7	BKUPCOPYPOOL	6,770	7,837.86	7,803.02
BANODE1	Bkup	/ibm	7	BKUPTAPEPOOL	6,770	7,803.02	7,803.02
BANODE1	Bkup	/admsrv	8	BKUPCOPYPOOL	8,874	31,488.56	30,760.58
BANODE1	Bkup	/admsrv	8	BKUPTAPEPOOL	8,874	31,100.16	30,760.53
BANODE2	Bkup	/tmp	1	BKUPCOPYPOOL	269	145.56	133.51
BANODE2	Bkup	/tmp	1	BKUPTAPEPOOL	269	152.03	133.51
BANODE2	Bkup	/	2	BKUPCOPYPOOL	2,685	459.18	404.89
BANODE2	Bkup	/	2	BKUPTAPEPOOL	2,685	517.29	404.90
BANODE2	Bkup	/usr	3	BKUPCOPYPOOL	96,995	7,703.41	7,264.60
BANODE2	Bkup	/usr	3	BKUPTAPEPOOL	96,995	7,274.80	7,264.55
BANODE2	Bkup	/var	4	BKUPCOPYPOOL	4,282	1,152.69	944.19
BANODE2	Bkup	/var	4	BKUPTAPEPOOL	4,282	1,776.28	944.27
BANODE2	Bkup	/home	5	BKUPCOPYPOOL	1,712	310.89	309.27
BANODE2	Bkup	/home	5	BKUPTAPEPOOL	1,712	313.18	309.27

BANODE2	Bkup	/opt	6	BKUPCOPYPOOL	67,873	6,104.91	6,085.79
BANODE2	Bkup	/opt	6	BKUPTAPEPOOL	67,873	6,085.79	6,085.79
BANODE2	Bkup	/ibm	7	BKUPCOPYPOOL	6,756	7,862.72	7,826.06
BANODE2	Bkup	/ibm	7	BKUPTAPEPOOL	6,756	7,826.05	7,826.05
BANODE2	Bkup	/admsrv	8	BKUPCOPYPOOL	4,478	4,608.24	4,301.27
BANODE2	Bkup	/admsrv	8	BKUPTAPEPOOL	4,478	4,888.77	4,301.30
DB2NODE	Bkup	/ICMNLSDb	5	BKUPCOPYPOOL	22	1,050,884	1,050,884
DB2NODE	Bkup	/ICMNLSDb	5	BKUPTAPEPOOL	22	1,050,884	1,050,884
DB2NODE	Bkup	/RMDB	6	BKUPCOPYPOOL	6	10,708.25	10,708.25
DB2NODE	Bkup	/RMDB	6	BKUPTAPEPOOL	6	10,708.25	10,708.25
DB2NODE	Bkup	/RMDBLB	7	BKUPCOPYPOOL	22	42,867.05	42,867.05
DB2NODE	Bkup	/RMDBLB	7	BKUPTAPEPOOL	22	42,867.05	42,867.05
DB2NODE	Arch	/TOOLSDB	4	ARCHCOPYPOOL	4	0.41	0.41
DB2NODE	Arch	/TOOLSDB	4	ARCHTAPEPOOL	4	0.41	0.41
DB2NODE	Arch	/ICMNLSDb	5	ARCHCOPYPOOL	59,028	575,186.2	575,186.2
DB2NODE	Arch	/ICMNLSDb	5	ARCHDISKPOOL	19	185.77	185.77
DB2NODE	Arch	/ICMNLSDb	5	ARCHTAPEPOOL	59,055	575,450.1	575,450.1
DB2NODE	Arch	/RMDB	6	ARCHCOPYPOOL	3,841	5,251.35	5,251.35
DB2NODE	Arch	/RMDB	6	ARCHTAPEPOOL	3,844	5,252.18	5,252.18
HANODE1	Bkup	/tsmha1	1	BKUPCOPYPOOL	37	1,687.49	1,634.26
HANODE1	Bkup	/tsmha1	1	BKUPTAPEPOOL	44	1,764.59	1,729.25
HANODE1	Bkup	/home/db2fenc2	2	BKUPCOPYPOOL	4	1,024.13	1,024.13
HANODE1	Bkup	/home/db2fenc2	2	BKUPTAPEPOOL	4	1,024.13	1,024.13
HANODE1	Bkup	/home/db2inst2	3	BKUPCOPYPOOL	2,397	47,908.62	47,815.62
HANODE1	Bkup	/home/db2inst2	3	BKUPTAPEPOOL	2,397	47,920.54	47,815.62
HANODE1	Bkup	/cmapp	4	BKUPCOPYPOOL	62,587	191.42	164.65
HANODE1	Bkup	/cmapp	4	BKUPTAPEPOOL	62,587	195.97	164.65
HANODE1	Bkup	/home/db2fenc1	7	BKUPCOPYPOOL	2	0.00	0.00
HANODE1	Bkup	/home/db2fenc1	7	BKUPTAPEPOOL	2	0.00	0.00
HANODE1	Bkup	/home/db2inst1	8	BKUPCOPYPOOL	5,330	137,649.9	136,891.7
HANODE1	Bkup	/home/db2inst1	8	BKUPTAPEPOOL	5,330	137,384.9	136,891.7
HANODE1	Bkup	/lbosdata01	9	BKUPCOPYPOOL	740,862	92,829.74	92,829.74
HANODE1	Bkup	/lbosdata01	9	BKUPTAPEPOOL	740,862	92,831.12	92,829.74
HANODE1	Bkup	/lbosdata02	10	BKUPCOPYPOOL	856,418	92,687.85	92,028.80
HANODE1	Bkup	/lbosdata02	10	BKUPTAPEPOOL	856,418	92,083.14	92,028.73
HANODE1	Bkup	/lbosdata03	11	BKUPCOPYPOOL	948,109	92,560.64	91,892.63
HANODE1	Bkup	/lbosdata03	11	BKUPTAPEPOOL	948,109	92,293.25	91,892.60
HANODE1	Bkup	/lbosdata04	12	BKUPCOPYPOOL	774,005	93,066.05	92,826.52
HANODE1	Bkup	/lbosdata04	12	BKUPTAPEPOOL	774,005	92,834.74	92,826.49
HANODE1	Bkup	/lbosdata05	13	BKUPCOPYPOOL	650,229	93,308.74	93,308.73
HANODE1	Bkup	/lbosdata05	13	BKUPTAPEPOOL	650,229	108,961.5	93,310.64
HANODE1	Bkup	/lbosdata06	14	BKUPCOPYPOOL	706,179	94,483.94	94,267.91
HANODE1	Bkup	/lbosdata06	14	BKUPTAPEPOOL	706,179	96,866.01	94,268.20
HANODE1	Bkup	/lbosdata07	15	BKUPCOPYPOOL	697,560	95,262.78	93,480.33
HANODE1	Bkup	/lbosdata07	15	BKUPTAPEPOOL	697,560	94,926.54	93,480.29
HANODE1	Bkup	/lbosdata08	16	BKUPCOPYPOOL	781,750	94,779.42	94,557.42
HANODE1	Bkup	/lbosdata08	16	BKUPTAPEPOOL	781,750	94,661.02	94,557.40
HANODE1	Bkup	/lbosdata09	17	BKUPCOPYPOOL	706,958	92,603.81	92,603.81
HANODE1	Bkup	/lbosdata09	17	BKUPTAPEPOOL	706,958	92,604.18	92,603.81
HANODE1	Bkup	/lbosdata10	19	BKUPCOPYPOOL	571,568	94,269.43	94,269.42
HANODE1	Bkup	/lbosdata10	19	BKUPTAPEPOOL	571,568	94,269.42	94,269.42
HANODE1	Bkup	/lbosdata11	20	BKUPCOPYPOOL	596,752	92,806.12	92,806.12
HANODE1	Bkup	/lbosdata11	20	BKUPTAPEPOOL	596,752	93,715.09	92,806.23
HANODE1	Bkup	/lbosdata12	21	BKUPCOPYPOOL	574,951	93,896.45	93,896.22
HANODE1	Bkup	/lbosdata12	21	BKUPTAPEPOOL	574,951	94,197.54	93,896.26
HANODE1	Bkup	/arstmp	22	BKUPCOPYPOOL	10,059	3,067.14	2,821.28
HANODE1	Bkup	/arstmp	22	BKUPTAPEPOOL	10,059	3,148.90	2,821.29
HANODE1	Bkup	/lbosdata13	23	BKUPCOPYPOOL	473,909	96,585.63	96,585.63
HANODE1	Bkup	/lbosdata13	23	BKUPTAPEPOOL	473,909	96,585.63	96,585.63
HANODE1	Bkup	/lbosdata14	24	BKUPCOPYPOOL	457,422	94,515.88	94,441.22
HANODE1	Bkup	/lbosdata14	24	BKUPTAPEPOOL	457,422	94,515.88	94,441.22
HANODE1	Bkup	/lbosdata15	25	BKUPCOPYPOOL	466,424	94,369.03	94,270.99
HANODE1	Bkup	/lbosdata15	25	BKUPTAPEPOOL	466,424	94,369.03	94,270.99
HANODE1	Bkup	/lbosdata16	26	BKUPCOPYPOOL	436,600	96,225.25	96,082.37
HANODE1	Bkup	/lbosdata16	26	BKUPTAPEPOOL	436,600	96,225.26	96,082.37
HANODE1	Bkup	/lbosdata17	27	BKUPCOPYPOOL	423,261	95,871.49	95,745.59
HANODE1	Bkup	/lbosdata17	27	BKUPTAPEPOOL	423,261	95,874.50	95,745.59
HANODE1	Bkup	/lbosdata18	28	BKUPCOPYPOOL	389,751	97,339.53	97,262.78
HANODE1	Bkup	/lbosdata18	28	BKUPTAPEPOOL	389,751	97,343.30	97,262.78
HANODE1	Bkup	/lbosdata19	29	BKUPCOPYPOOL	406,147	94,818.96	94,769.10
HANODE1	Bkup	/lbosdata19	29	BKUPTAPEPOOL	406,147	94,844.07	94,769.10
HANODE1	Bkup	/lbosdata20	30	BKUPCOPYPOOL	445,071	96,827.37	96,826.00
HANODE1	Bkup	/lbosdata20	30	BKUPTAPEPOOL	446,056	97,369.54	97,033.07

HANODE1	Bkup	/lbosdata21	31	BKUPCOPYPOOL	388,458	81,261.04	81,258.88
HANODE1	Bkup	/lbosdata21	31	BKUPTAPEPOOL	389,402	81,806.72	81,420.82
HANODE1	Bkup	/lbosdata22	32	BKUPCOPYPOOL	387,720	81,552.48	81,551.10
HANODE1	Bkup	/lbosdata22	32	BKUPTAPEPOOL	388,587	82,042.36	81,711.59
HANODE1	Bkup	/lbosdata23	33	BKUPCOPYPOOL	387,913	81,277.69	81,277.27
HANODE1	Bkup	/lbosdata23	33	BKUPTAPEPOOL	388,880	81,833.74	81,458.73
HANODE1	Bkup	/lbosdata24	34	BKUPCOPYPOOL	387,822	80,716.39	80,715.63
HANODE1	Bkup	/lbosdata24	34	BKUPTAPEPOOL	388,735	81,298.04	80,901.54
HANODE1	Bkup	/lbosdata25	35	BKUPCOPYPOOL	5,279	1,015.58	1,015.58
HANODE1	Bkup	/lbosdata25	35	BKUPTAPEPOOL	6,190	1,195.57	1,195.57
HANODE1	Bkup	/lbosdata26	36	BKUPCOPYPOOL	5,187	963.06	963.06
HANODE1	Bkup	/lbosdata26	36	BKUPTAPEPOOL	6,152	1,151.50	1,151.50
HANODE2	Bkup	/tsmha2	1	BKUPCOPYPOOL	948	30.92	27.31
HANODE2	Bkup	/tsmha2	1	BKUPTAPEPOOL	948	36.88	27.31

## **dsmc command**

Purpose: Backups and stores data generated while using the IBM® Tivoli® Storage Manager Server.

**DSMC CONFIG** Specifies the location of the dsm.sys configuration file:

/usr/tivoli/tsm/client/ba/bin/dsm.sys

You can set up multiple groups of stanzas in the dsm.sys file to connect to different servers. Each servername stanza must have listed below it all client option stanzas required to establish communication with a server. The stanza list can also contain other options for backup-archive operations.

```
root@admsrv1# more /usr/tivoli/tsm/client/ba/bin/dsm.sys
```

```
*****
* Tivoli Storage Manager                                     *
*                                                           *
* Sample Client System Options file for AIX and SunOS (dsm.sys.smp) *
*****
```

```
* This file contains the minimum options required to get started
* using TSM. Copy dsm.sys.smp to dsm.sys. In the dsm.sys file,
* enter the appropriate values for each option listed below and
* remove the leading asterisk (*) for each one.
```

```
* If your client node communicates with multiple TSM servers, be
* sure to add a stanza, beginning with the SERVERNAME option, for
* each additional server.
```

```
*****
```

```
SERvername  banodel_bkup
  COMMmethod  TCPip
  TCPPort    1500
  TCPServeraddress  admsrv2_svc.livingstonintl.com
```

```
  Nodename    banodel
  Passwordaccess  generate
```

```
  schedmode   polling
```

```
  maxcmdretries  3
```

```
  retryperiod  20
```

```
  querysch    12
```

```
  managedservices  schedule webclient
```

```
  TCPclientaddress  admsrv1.livingstonintl.com
```

```
  Httpport     1581
```

```
  Domain       / /usr /var /tmp /home /opt /ibm /admsrv
```

```
SERvername  hanodel_bkup
  COMMmethod  TCPip
  TCPPort    1500
  TCPServeraddress  admsrv2_svc.livingstonintl.com
```

Nodename	hanode1
Passwordaccess	generate

schedmode	polling
-----------	---------

maxcmdretries	3
---------------	---

retryperiod	20
-------------	----

querysch	12
----------	----

managedservices	schedule webclient
-----------------	--------------------

TCPclientaddress	admsrv1_svc.livingstonintl.com
------------------	--------------------------------

Httpport	1583
----------	------

* Clusternode	yes
---------------	-----

passworddir	/tsmha1/tsmhacmp
-------------	------------------

errorlogname	/tsmha1/tsmhacmp/dsmerror.log
--------------	-------------------------------

schedlogname	/tsmha1/tsmhacmp/dsmsched.log
--------------	-------------------------------

Domain	/cmapp /arstmp
Domain	/db2lslogging
Domain	/db2rmlogging
Domain	/home/db2fenc1
Domain	/home/db2fenc2
Domain	/home/db2inst1
Domain	/home/db2inst2
Domain	/lbosdata01 /lbosdata02 /lbosdata03
Domain	/lbosdata04 /lbosdata05 /lbosdata06
Domain	/lbosdata07 /lbosdata08 /lbosdata09
Domain	/lbosdata10 /lbosdata11 /lbosdata12
Domain	/lbosdata10 /lbosdata11 /lbosdata12
Domain	/lbosdata13 /lbosdata14 /lbosdata15
Domain	/lbosdata16 /lbosdata17 /lbosdata18
Domain	/lbosdata19 /lbosdata20 /lbosdata21
Domain	/lbosdata22 /lbosdata23 /lbosdata24
Domain	/lbosdata25 /lbosdata26
Domain	/tsmha1
Domain	/ubosstg

SERvername	hanode2_bkup
COMMethod	TCPip
TCPPort	1500
TCPServeraddress	admsrv2_svc.livingstonintl.com

Nodename	hanode2
Passwordaccess	generate

schedmode	polling
-----------	---------

maxcmdretries	3
---------------	---

retryperiod	20
-------------	----

querysch	12
----------	----

managedservices	schedule webclient
-----------------	--------------------

TCPclientaddress	admsrv2_svc.livingstonintl.com
------------------	--------------------------------

Httpport	1584
----------	------

* Clusternode	yes
---------------	-----

passworddir	/tsmha2/tsmhacmp
-------------	------------------

errorlogname	/tsmha2/tsmhacmp/dsmerror.log
--------------	-------------------------------

```

    schedlogname      /tsmha2/tsmhacmp/dsmsched.log

    exclude           /tsmsrv/*
    exclude           /tsmstg/*

    exclude.archive   /tsmsrv/*
    exclude.archive   /tsmstg/*

    Domain            /tsmha2

SErvername db2node_bkup
COMMMethod TCPip
TCPPort 1500
TCPServeraddress admsrv2_svc.livingstonintl.com

    Nodename          db2bkup
    Passwordaccess    generate

    schedmode         polling

    maxcmdretries     3

    retryperiod       20

    querysch          12

    managedservices   schedule webclient

    TCPolientaddress  admsrv2_svc.livingstonintl.com

    Httpport          1585

*    Clusternode      yes

    passworddir       /tsmha1/tsmdb2

    errorlogname      /tsmha1/tsmdb2/dsmerror.log

    schedlogname      /tsmha1/tsmdb2/dsmsched.log

```

**DSMC DIR** Specifies the location of the Tivoli Storage Manager configuration directory:  
 /usr/tivoli/tsm/client/ba/bin/

**Option file** Nodes use dsm.opt to specify the TSM server in your dsm.sys file to contact

```

root@admsrv1:/tsmha1/tsmhacmp # more dsm.opt
*****
* Tivoli Storage Manager                                     *
*                                                           *
* Sample Client User Options file for AIX and SunOS (dsm.opt.smp) *
*****

* This file contains an option you can use to specify the TSM
* server to contact if more than one is defined in your client
* system options file (dsm.sys). Copy dsm.opt.smp to dsm.opt.
* If you enter a server name for the option below, remove the
* leading asterisk (*).

```

```

*****

```

```
SErvername hanodel_bkup
```

```
subdir      yes
```

Syntax: dsmc -optfile=dsm.opt

```

dsmc [ -incremental | -schedule ]
dsmc [ -query | -restore ] argv

```

#### Description

The dsmc command allows the user to back up and restore data from the IBM Tivoli Storage Manager Server.

Flag

-incremental

Backs up all new or changed files or directories in the default client domain or from file systems, directories, or files you specify, unless you exclude them from backup services.

-query [argument]

Query functions to query backups on the IBM Tivoli Storage Manager Server  
access Displays a list of current authorization rules. archive Displays a list of archived files backup  
Displays a list of back up versions. backupset Queries a backup set from a local file, tape device, or the  
IBM Tivoli Storage Manager Server. filespace Displays a list of file spaces in IBM Tivoli Storage Manager  
storage. You can also specify a single file space name to query. group Displays information about group  
backups and their members. image Displays information about image backups. inclexcl Displays a list of  
include-exclude statements in the order in which they are processed during backup and archive operations.  
mgmtclass Displays information about available management classes. node Displays all the nodes for which an  
administrative user ID has authority to perform operations. options Displays all or part of your options  
and their current settings. restore Displays a list of your restartable restore sessions in the server  
database. schedule Displays information about scheduled events for your node. session Displays information  
about your session, including the current node name, when the session was shed, server information, and  
server connection information. systeminfo Gathers IBM Tivoli Storage Manager system information and outputs  
this information to a file or the console. was Displays backups of the WebSphere® Application Server (WAS)  
Network Deployment Manager (contains setup, application files, and configuration information) or the  
Application Server that match the node name and type of the WAS group backup that you specify.

-restore [argument]

Restores copies of backup versions of your files from an IBM Tivoli Storage Manager server. backupset  
Restores a backup set from the IBM Tivoli Storage Manager server or a local file. You can also restore a  
backup from a tape device. group Restores specific members or all members of a group backup. image Restores  
a file system or raw volume image backup. nas Restores the image of a file system belonging to a Network  
Attached Storage (NAS) file server. was Restores the WebSphere Application Server (WAS) Network Deployment  
Manager (contains setup, application files, and configuration information) or the Application Server from  
the Tivoli Storage Manager server.

-schedule

Starts the client scheduler on the workstation.

Examples

```
#!/usr/tivoli/tsm/client/ba/bin/dsmc -optfile=/tsmha1/tsmhacmp/dsm.opt
```

```
tsm> query filespace
```

```
tsm> query backup /home/lchen/
```

```
tsm> restore /home/lchen/tools.profile -pick - inactive
```

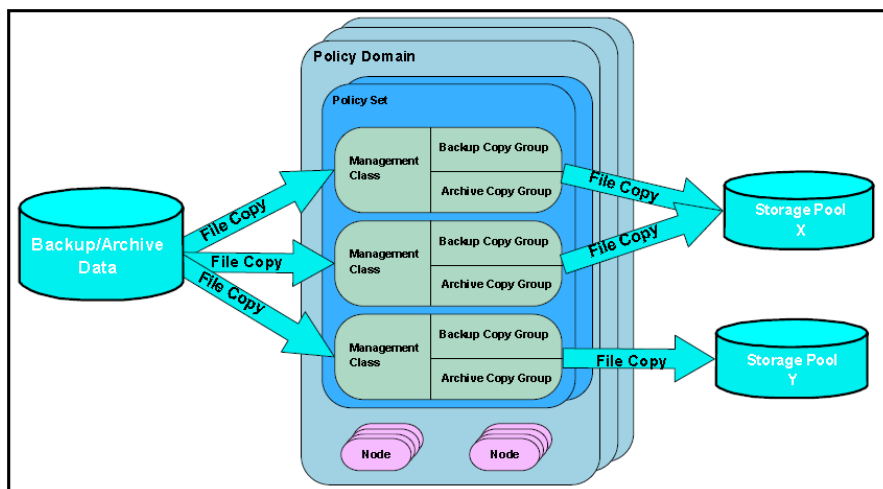
```
root@admsrv1:/tsmha1/tsmhacmp # ls -l
```

```
total 0
```

-rw-----	1	root	system	187	Dec 19 2011	TSM.PWD
-rw-r--r--	1	root	system	761	Jan 18 2006	dsm.opt
-rw-r--r--	1	root	system	2876653	May 17 07:51	dsmererror.log
-rw-r--r--	1	root	system	124873334	May 17 07:51	dsmsched.log
-rw-r--r--	1	root	system	1569412471	Feb 05 06:39	dsmsched.log.old
-rw-r--r--	1	root	system	3986993	May 17 07:51	dsmwebcl.log

## Policy Domain

Policy Domain, Policy Set, Management Class define the connection between Backup/Archive data (nodes) to Storage Pools



#### query domain

Policy Domain Name	Activated Policy Set	Activated Default Mgmt Class	Number of Registered Nodes	Description
BA	BA_PS	BA_MC	4	BA Policy Domain
DB2	DB2_PS	DB2_MC	1	DB2 Policy Domain
STANDARD	STANDARD	STANDARD	0	Installed default policy domain.

#### query policyset

Policy Domain Name	Policy Set Name	Default Mgmt Class Name	Description
BA	ACTIVE	BA_MC	BA Policy Set
BA	BA_PS	BA_MC	BA Policy Set
DB2	ACTIVE	DB2_MC	DB2 Policy Set
DB2	DB2_PS	DB2_MC	DB2 Policy Set
STANDARD	ACTIVE	STANDARD	Installed default policy set.
STANDARD	STANDARD	STANDARD	Installed default policy set.

#### query MGMTclass

Policy Domain Name	Policy Set Name	Mgmt Class Name	Default Mgmt Class ?	Description
BA	ACTIVE	BA_MC	Yes	BA Management Class
BA	BA_PS	BA_MC	Yes	BA Management Class
DB2	ACTIVE	DB2_MC	Yes	DB2 Management Class
DB2	DB2_PS	DB2_MC	Yes	DB2 Management Class
STANDARD	ACTIVE	STANDARD	Yes	Installed default management class.
STANDARD	STANDARD	STANDARD	Yes	Installed default management class.

#### Backup Copy Groups

Policy Domain Name:	BA	DB2
Policy Set Name:	BA_PS	DB2_PS
Mgmt Class Name:	BA_MC	DB2_MC
Copy Group Name:	STANDARD	STANDARD
Copy Group Type:	Backup	Backup
Versions Data Exists:	2	1
Versions Data Deleted:	1	0
Retain Extra Versions:	30	0
Retain Only Version:	60	0
Copy Mode: Modified	Modified	Modified



Copy Serialization: Shared Static	Shared Static	Shared Static
Copy Frequency:	0	0
Copy Destination:	BKUPDISKPOOL (filesystem backup for all nodes)	BKUPDISKPOOL (db2 database full backup)

#### Archive Copy Groups

Policy Domain Name	BA	DB2
Policy Set Name	BA_PS	DB2_PS
Mgmt Class Name	BA_MC	DB2_MC
Copy Group Name	STANDARD	STANDARD
Retain Version	365	365
Copy Serialization	SHRSTATIC	SHRSTATIC
Copy Destination	ARCHDISKPOOL	ARCHDISKPOOL (db2 archive logs)

#### query copygroup type=backup f=d

##### Policy Domain Name: BA

```

Policy Set Name: ACTIVE
Mgmt Class Name: BA_MC
Copy Group Name: STANDARD
Copy Group Type: Backup
Versions Data Exists: 2
Versions Data Deleted: 1
Retain Extra Versions: 30
Retain Only Version: 60
Copy Mode: Modified
Copy Serialization: Shared Static
Copy Frequency: 0
Copy Destination: BKUPDISKPOOL
Table of Contents (TOC) Destination:
Last Update by (administrator): ADMIN
Last Update Date/Time: 01/18/06 11:29:14
Managing profile:
Changes Pending: No

```

##### Policy Domain Name: BA

```

Policy Set Name: BA_PS
Mgmt Class Name: BA_MC
Copy Group Name: STANDARD
Copy Group Type: Backup
Versions Data Exists: 2
Versions Data Deleted: 1
Retain Extra Versions: 30
Retain Only Version: 60
Copy Mode: Modified
Copy Serialization: Shared Static
Copy Frequency: 0
Copy Destination: BKUPDISKPOOL
Table of Contents (TOC) Destination:
Last Update by (administrator): ADMIN
Last Update Date/Time: 01/18/06 11:29:14
Managing profile:
Changes Pending: No

```

##### Policy Domain Name: DB2

```

Policy Set Name: ACTIVE
Mgmt Class Name: DB2_MC
Copy Group Name: STANDARD
Copy Group Type: Backup
Versions Data Exists: 1
Versions Data Deleted: 0
Retain Extra Versions: 0
Retain Only Version: 0
Copy Mode: Modified
Copy Serialization: Shared Static
Copy Frequency: 0
Copy Destination: BKUPDISKPOOL
Table of Contents (TOC) Destination:
Last Update by (administrator): ADMIN

```

Last Update Date/Time: 02/06/06 10:22:44  
Managing profile:  
Changes Pending: No

**Policy Domain Name: DB2**

Policy Set Name: DB2\_PS  
Mgmt Class Name: DB2\_MC  
Copy Group Name: STANDARD  
Copy Group Type: Backup  
Versions Data Exists: 1  
Versions Data Deleted: 0  
Retain Extra Versions: 0  
Retain Only Version: 0  
Copy Mode: Modified  
Copy Serialization: Shared Static  
Copy Frequency: 0  
Copy Destination: BKUPDISKPOOL  
Table of Contents (TOC) Destination:  
Last Update by (administrator): ADMIN  
Last Update Date/Time: 02/06/06 10:22:44  
Managing profile:  
Changes Pending: No

**Policy Domain Name: STANDARD**

Policy Set Name: ACTIVE  
Mgmt Class Name: STANDARD  
Copy Group Name: STANDARD  
Copy Group Type: Backup  
Versions Data Exists: 2  
Versions Data Deleted: 1  
Retain Extra Versions: 30  
Retain Only Version: 60  
Copy Mode: Modified  
Copy Serialization: Shared Static  
Copy Frequency: 0  
Copy Destination: BACKUPPOOL  
Table of Contents (TOC) Destination:  
Last Update by (administrator): SERVER\_CONSOLE  
Last Update Date/Time: 01/17/06 14:16:48  
Managing profile:  
Changes Pending: No

**Policy Domain Name: STANDARD**

Policy Set Name: STANDARD  
Mgmt Class Name: STANDARD  
Copy Group Name: STANDARD  
Copy Group Type: Backup  
Versions Data Exists: 2  
Versions Data Deleted: 1  
Retain Extra Versions: 30  
Retain Only Version: 60  
Copy Mode: Modified  
Copy Serialization: Shared Static  
Copy Frequency: 0  
Copy Destination: BACKUPPOOL  
Table of Contents (TOC) Destination:  
Last Update by (administrator): SERVER\_CONSOLE  
Last Update Date/Time: 01/17/06 14:16:48  
Managing profile:  
Changes Pending: No

query copygroup type=archive f=d

**Policy Domain Name: BA**

Policy Set Name: ACTIVE  
Mgmt Class Name: BA\_MC  
Copy Group Name: STANDARD  
Copy Group Type: Archive  
Retain Version: 365  
Retention Initiation: Creation  
Retain Minimum Days:  
Copy Serialization: Shared Static  
Copy Frequency: CMD  
Copy Mode: Absolute

Copy Destination: ARCHDISKPOOL  
Last Update by (administrator): ADMIN  
Last Update Date/Time: 01/18/06 11:29:48  
Managing profile:  
Changes Pending: No

**Policy Domain Name: BA**

Policy Set Name: BA\_PS  
Mgmt Class Name: BA\_MC  
Copy Group Name: STANDARD  
Copy Group Type: Archive  
Retain Version: 365  
Retention Initiation: Creation  
Retain Minimum Days:  
Copy Serialization: Shared Static  
Copy Frequency: CMD  
Copy Mode: Absolute  
Copy Destination: ARCHDISKPOOL  
Last Update by (administrator): ADMIN  
Last Update Date/Time: 01/18/06 11:29:48  
Managing profile:  
Changes Pending: No

**Policy Domain Name: DB2**

Policy Set Name: ACTIVE  
Mgmt Class Name: DB2\_MC  
Copy Group Name: STANDARD  
Copy Group Type: Archive  
Retain Version: 365  
Retention Initiation: Creation  
Retain Minimum Days:  
Copy Serialization: Shared Static  
Copy Frequency: CMD  
Copy Mode: Absolute  
Copy Destination: ARCHDISKPOOL  
Last Update by (administrator): ADMIN  
Last Update Date/Time: 02/06/06 10:24:00  
Managing profile:  
Changes Pending: No

**Policy Domain Name: DB2**

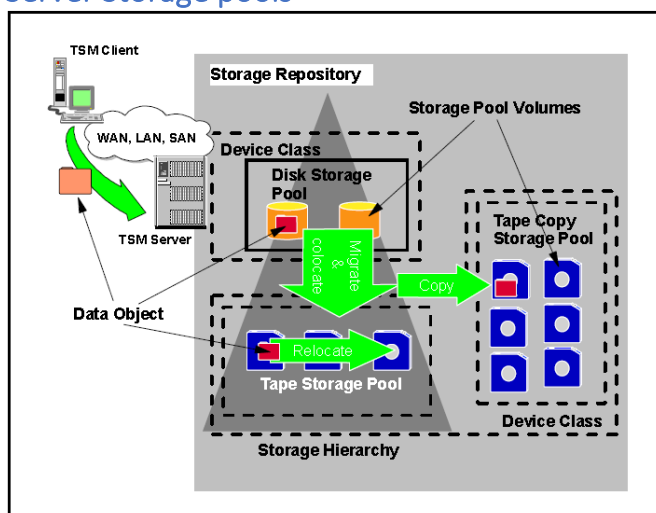
Policy Set Name: DB2\_PS  
Mgmt Class Name: DB2\_MC  
Copy Group Name: STANDARD  
Copy Group Type: Archive  
Retain Version: 365  
Retention Initiation: Creation  
Retain Minimum Days:  
Copy Serialization: Shared Static  
Copy Frequency: CMD  
Copy Mode: Absolute  
Copy Destination: ARCHDISKPOOL  
Last Update by (administrator): ADMIN  
Last Update Date/Time: 02/06/06 10:24:00  
Managing profile:  
Changes Pending: No

**Policy Domain Name: STANDARD**

Policy Set Name: ACTIVE  
Mgmt Class Name: STANDARD  
Copy Group Name: STANDARD  
Copy Group Type: Archive  
Retain Version: 365  
Retention Initiation: Creation  
Retain Minimum Days:  
Copy Serialization: Shared Static  
Copy Frequency: CMD  
Copy Mode: Absolute  
Copy Destination: ARCHIVEPOOL  
Last Update by (administrator): SERVER\_CONSOLE  
Last Update Date/Time: 01/17/06 14:16:48  
Managing profile:  
Changes Pending: No

Policy Domain Name: STANDARD  
 Policy Set Name: STANDARD  
 Mgmt Class Name: STANDARD  
 Copy Group Name: STANDARD  
 Copy Group Type: Archive  
 Retain Version: 365  
 Retention Initiation: Creation  
 Retain Minimum Days:  
 Copy Serialization: Shared Static  
 Copy Frequency: CMD  
 Copy Mode: Absolute  
 Copy Destination: ARCHIVEPOOL  
 Last Update by (administrator): SERVER\_CONSOLE  
 Last Update Date/Time: 01/17/06 14:16:48  
 Managing profile:  
 Changes Pending: No

## Server Storage pools



Data movement among storage pools



### Query stgpool

Storage Pool Name	Device Class Name	Estimated Capacity	Pct Util	Pct Migr	High Mig Pct	Low Mig Pct	Next Storage Pool
ARCHCOPYPOOL	LTOCLASS	38,147 G	1.5				
ARCHDISKPOOL	DISK	20 G	2.6	2.6	90	60	ARCHTAPEPOOL
ARCHTAPEPOOL	LTOCLASS	67,777 G	0.9	1.0	90	70	
BKUPCOPYPOOL	LTOCLASS	34,186 G	10.5				
BKUPDISKPOOL	DISK	60 G	0.0	0.0	90	60	BKUPTAPEPOOL
BKUPTAPEPOOL	LTOCLASS	38,849 G	9.3	17.0	90	70	
SPACEMGPOOL	DISK	0.0 M	0.0	0.0	90	70	

TIPS: If you want to know which volumes are in this storage pool: **query media stg=bkuptapepool**

Storage Pool Name	BKUPDISKPOOL	ARCHDISKPOOL	BKUPTAPEPOOL	ARCHTAPEPOOL	BKUPCOPYPOOL	ARCHCOPYPOOL
Storage Pool Type	PRIMARY	PRIMARY	PRIMARY	PRIMARY	COPY	COPY
Device Class Name	DISK	DISK	LTOCLASS	LTOCLASS	LTOCLASS	LTOCLASS
Estimated Capacity	60000	20000	33903875.3	38146800	33948576.1	38146800
Space Trigger Util	0	4	-	-	-	-
Pct Util	0	4	9.1	0.5	9	0.5
Pct Migr	0	4	15	1	-	-
Pct Logical	100	100	99	100	99.7	100
High Mig Pct	90	90	90	90	-	-

Low Mig Pct	60	60	70	70	-	-
Migration Processes	1	1	1	1	-	-
Next Storage Pool	BKUPTAPEPOOL	ARCHTAPEPOOL	-	-	-	-
Maximum Size Threshold	-	-	-	-	-	-
Access	READWRITE	READWRITE	READWRITE	READWRITE	READWRITE	READWRITE
Description	-	-	-	-	Backup Copy Pool	Archive Copy Pool
Overflow Location	-	-	-	-	-	-
Cache Migrated Files?	NO	NO	-	-	-	-
Collocate?	-	-	GROUP	GROUP	NO	NO
Reclamation Threshold	-	-	100	100	100	100
Maximum Scratch Volumes Allowed	-	-	100	100	100	100
Number of Scratch Volumes Used	-	-	15	1	15	2
Delay Period for Volume Reuse	-	-	0	0	0	0
Migration in Progress?	NO	NO	NO	NO	-	-
Amount Migrated (MB)	-	9.7	0	0	-	-
Elapsed Migration Time (seconds)	34	1	0	0	-	-
Reclamation in Progress?	-	-	NO	NO	NO	NO
Last Update Date/Time	50:27.0	02:27.0	59:26.0	59:26.0	59:26.0	29:26.0
Last Update by (administrator)	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN
Reclaim Storage Pool	-	-	-	-	-	-
Migration Delay	0	0	0	0	-	-
Migration Continue	YES	YES	YES	YES	-	-
Storage Pool Data Format	NATIVE	NATIVE	NATIVE	NATIVE	NATIVE	NATIVE
Copy Storage Pool(s)	-	-	-	-	-	-
Active Data Pool(s)	-	-	-	-	-	-
Continue Copy on Error?	YES	YES	YES	YES	YES	YES
CRC Data	NO	NO	NO	NO	NO	NO
Reclamation Processes	-	-	1	1	1	1
Offsite Reclamation Limit	-	-	-	-	NOLIMIT	NOLIMIT
Reclamation Type	THRESHOLD	THRESHOLD	THRESHOLD	THRESHOLD	THRESHOLD	THRESHOLD
			-	-	-	-

How the Tivoli Storage Manager server selects the first volume when **collocation** is enabled for a storage pool at the client-node, **collocation-group**, and file-space level.

*How the Server Selects Volumes When **Collocation** is Enabled*

Volume Selection Order	When <b>collocation</b> is by group	When <b>collocation</b> is by node	When <b>collocation</b> is by file space
1	A volume that already contains files from the <b>collocationgroup</b> to which the client belongs	A volume that already contains files from the same client node	A volume that already contains files from the same file space of that client node
2	An empty predefined volume	An empty predefined volume	An empty predefined volume
3	An empty scratch volume	An empty scratch volume	An empty scratch volume
4	A volume with the most available free space among	A volume with the most available free space among	A volume containing data from the same client node

### How the Server Selects Volumes When Collocation is Enabled

Volume Selection Order	When collocation is by group	When collocation is by node	When collocation is by file space
	volumes that already contain data	volumes that already contain data	
5	Not applicable	Not applicable	A volume with the most available free space among volumes that already contain data

When the server needs to continue to store data on a second volume, it uses the following selection order to acquire additional space:

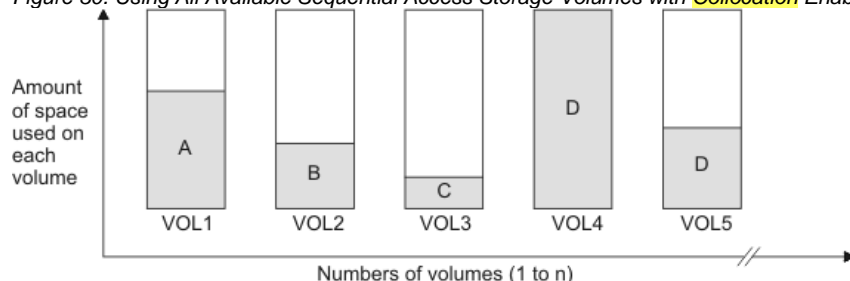
1. An empty predefined volume
2. An empty scratch volume
3. A volume with the most available free space among volumes that already contain data
4. Any available volume in the storage pool

When collocation is by client node or file space, the server attempts to provide the best use of individual volumes while minimizing the mixing of files from different clients or file spaces on volumes. This is depicted in Figure 30, which shows that volume selection is *horizontal*, where all available volumes are used before all available space on each volume is used. A, B, C, and D represent files from four different client nodes.

#### Notes:

1. If collocation is by node and the node has multiple file spaces, the server does not attempt to collocate those file spaces.
2. If collocation is by file space and a node has multiple file spaces, the server attempts to put data for different file spaces on different volumes.

Figure 30. Using All Available Sequential Access Storage Volumes with Collocation Enabled at the Group or File Space Level

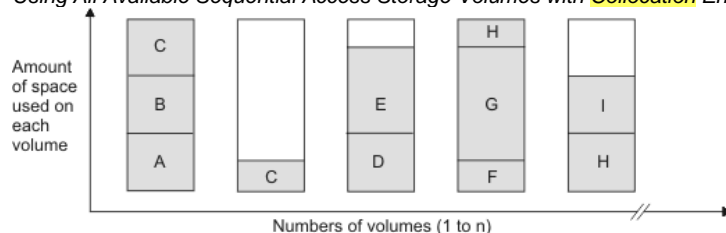


When collocation is by group, the server attempts to collocate data from nodes belonging to the same collocation group. As shown in the Figure 31, data for the following groups of nodes has been collocated:

- Group 1 consists of nodes A, B, and C
- Group 2 consists of nodes D and E
- Group 3 consists of nodes F, G, H, and I

Whenever possible, the Tivoli Storage Manager server collocates data belonging to a group of nodes on a single tape, as represented by Group 2 in the figure. Data for a single node can also be spread across several tapes associated with a group (Group 1 and 2). If the nodes in the collocation group have multiple file spaces, the server does not attempt to collocate those file spaces.

Using All Available Sequential Access Storage Volumes with Collocation Enabled at the Group Level



q media stg=bkuptapepool

Whenever possible, make sure all primary storage tape pool taps are all in tape library

Volume Name	State	Location	Automated LibName
D00003	Mountable in library		LIB3582

D00009	Mountable in library	LIB3582
D00016	Mountable in library	LIB3582
D00018	Mountable in library	LIB3582
D00019	Mountable in library	LIB3582
D00020	Mountable in library	LIB3582
D00021	Mountable in library	LIB3582
D00032	Mountable in library	LIB3582
D00038	Mountable in library	LIB3582
D00041	Mountable in library	LIB3582
D00044	Mountable in library	LIB3582
D00051	Mountable in library	LIB3582
D00060	Mountable in library	LIB3582
D00063	Mountable in library	LIB3582
D00068	Mountable in library	LIB3582
D00069	Mountable in library	LIB3582

## TSM Database

DBVOLUME(query dbv):

/tsmsrv/dbs/tsmdbs01.dsm - /tsmsrv/dbs/tsmdbs40.dsm

Available Space (MB)	80000
Assigned Capacity (MB)	78000
Maximum Extension (MB)	2000
Maximum Reduction (MB)	70916
Page Size (bytes)	4096
Total Usable Pages	19968000
Used Pages	1830013
Pct Util	9.1
Max. Pct Util	9.1
Physical Volumes	40
Buffer Pool Pages	8170
Total Buffer Requests	2046456645
Cache Hit Pct.	97.9
Cache Wait Pct.	0
Backup in Progress?	NO
Type of Backup In Progress	-
Incrementals Since Last Full	0
Changed Since Last Backup (MB)	6.2
Percentage Changed	0
Last Complete Backup Date/Time	04:32.0
Estimate of Recoverable Space (MB)	-
Last Estimate of Recoverable Space (MB)	-
Used Permanent Pages	1830013
Permanent Page Limit	-

LOGVOLUME(query logv):

/tsmsrv/dbs/reclog01.dsm - /tsmsrv/dbs/reclog04.dsm

### TSM Recovery Logs

Available Space (MB)	8000
Assigned Capacity (MB)	8000
Maximum Extension (MB)	0
Maximum Reduction (MB)	7988
Page Size (bytes)	4096
Total Usable Pages	2047488
Used Pages	2074
Pct Util	0.1
Max. Pct Util	69.9
Physical Volumes	4
Log Pool Pages	128
Log Pool Pct. Util	8.73

Log Pool Pct. Wait	0.01
Cumulative Consumption (MB)	1322116.58

Backup TSM database:

```
backup db dev=ltoclass type=full scratch=yes
```

Check TSM database backup information:

```
query volhistory type=dbbackup
```

```
delete volhistory todate=-30 type=all
```

## Automate operations

**query schedule f=d**

Policy Domain Name: BA

**Schedule Name: BANODE1\_SCHEDULE**

Description: banode1 schedule

Action: Incremental

Options:

Objects:

Priority: 3

Start Date/Time: 02/26/07 00:30:00

Duration: 1 Hour(s)

Schedule Style: Classic

Period: 1 Day(s)

Day of Week: Any

Month:

Day of Month:

Week of Month:

Expiration:

Last Update by (administrator): ADMIN

Last Update Date/Time: 04/26/13 16:26:43

Managing profile:

Policy Domain Name: BA

**Schedule Name: BANODE2\_SCHEDULE**

Description: banode2 schedule

Action: Incremental

Options:

Objects:

Priority: 3

Start Date/Time: 02/26/07 00:30:00

Duration: 1 Hour(s)

Schedule Style: Classic

Period: 1 Day(s)

Day of Week: Any

Month:

Day of Month:

Week of Month:

Expiration:

Last Update by (administrator): ADMIN

Last Update Date/Time: 04/26/13 16:26:56

Managing profile:

Policy Domain Name: BA

**Schedule Name: DB2INST1\_SCHEDULE**

Description: db2inst1 schedule

Action: Command

Options:

Objects: /tsmha1/db2inst1/bin/db2backup.ksh

Priority: 5

Start Date/Time: 02/26/07 23:30:00

Duration: 1 Hour(s)

Schedule Style: Classic

Period: 1 Day(s)

Day of Week: Any

Month:

Day of Month:

Week of Month:



Expiration:  
Last Update by (administrator): ADMIN  
Last Update Date/Time: 04/26/13 16:27:02  
Managing profile:

Policy Domain Name: BA

**Schedule Name: DB2INST2\_SCHEDULE**

Description: db2inst2 schedule  
Action: Command  
Options:  
Objects: /tsmha1/db2inst2/bin/db2backup.ksh  
Priority: 5  
Start Date/Time: 02/26/07 23:30:00  
Duration: 2 Hour(s)  
Schedule Style: Classic  
Period: 1 Day(s)  
Day of Week: Any  
Month:  
Day of Month:  
Week of Month:  
Expiration:

Last Update by (administrator): ADMIN  
Last Update Date/Time: 04/26/13 16:25:32  
Managing profile:

Policy Domain Name: BA

**Schedule Name: HANODE1\_SCHEDULE**

Description: hanode1 schedule  
Action: Incremental  
Options:  
Objects:  
Priority: 5  
Start Date/Time: 02/26/07 00:30:00  
Duration: 1 Hour(s)  
Schedule Style: Classic  
Period: 1 Day(s)  
Day of Week: Any  
Month:  
Day of Month:  
Week of Month:  
Expiration:

Last Update by (administrator): ADMIN  
Last Update Date/Time: 04/26/13 16:27:10  
Managing profile:

Policy Domain Name: BA

**Schedule Name: HANODE2\_SCHEDULE**

Description: hanode2 schedule  
Action: Incremental  
Options:  
Objects:  
Priority: 5  
Start Date/Time: 02/26/07 00:30:00  
Duration: 1 Hour(s)  
Schedule Style: Classic  
Period: 1 Day(s)  
Day of Week: Any  
Month:  
Day of Month:  
Week of Month:  
Expiration:

Last Update by (administrator): ADMIN  
Last Update Date/Time: 04/26/13 16:27:16  
Managing profile:

**query association**

Policy Domain Name: BA  
Schedule Name: BANODE1\_SCHEDULE  
Associated Nodes: BANODE1

Policy Domain Name: BA  
Schedule Name: BANODE2\_SCHEDULE  
Associated Nodes: BANODE2

Policy Domain Name: BA  
Schedule Name: DB2INST1\_SCHEDULE  
Associated Nodes: HANODE1

Policy Domain Name: BA  
Schedule Name: DB2INST2\_SCHEDULE  
Associated Nodes: HANODE1

Policy Domain Name: BA  
Schedule Name: HANODE1\_SCHEDULE  
Associated Nodes: HANODE1

Policy Domain Name: BA  
Schedule Name: HANODE2\_SCHEDULE  
Associated Nodes: HANODE2

**TIPS: Add a node(client) for lots of scheduled jobs: A single client scheduler process is not capable of executing multiple scheduled actions simultaneously, so if there is overlap, the second schedule to start will be missed if the first schedule does not complete before the end of the startup window of the schedule.**

Example:

```
DEFINE SCHEDULE BA db2inst2_reschedule ACTION=COMMAND OBJECTS=/tsmha1/db2inst2/bin/db2backup.ksh PRIORITY=5  
STARTDATE=05/21/2013 STARTTIME="02:30:00" DURATION=1 DURUNITS=HOURS PERIOD=1 PERUNITS=DAYS DAYOFWEEK=ANY  
EXPIRATION=NEVER
```

```
DELETE SCHEDULE DB2 DB2INST2_RESCHEDULE
```

```
DEFINE SCHEDULE DB2 db2inst2_reschedule ACTION=COMMAND OBJECTS=/tsmha1/db2inst2/bin/db2backup.ksh  
PRIORITY=5 STARTDATE=05/21/2013 STARTTIME="02:30:00" DURATION=1 DURUNITS=HOURS PERIOD=1 PERUNITS=DAYS  
DAYOFWEEK=ANY EXPIRATION=NEVER
```

```
DEFINE ASSOCIATION DB2 DB2INST2_RESCHEDULE db2bkup  
DELETE ASSOCIATION BA DB2INST2_SCHEDULE hanode1
```

```
root@admsrv1# more /tsmha1/tsmdb2/dsm.opt
```

```
*****  
* Tivoli Storage Manager *  
* *  
* Sample Client User Options file for AIX and SunOS (dsm.opt.smp) *  
*****  
  
* This file contains an option you can use to specify the TSM  
* server to contact if more than one is defined in your client  
* system options file (dsm.sys). Copy dsm.opt.smp to dsm.opt.  
* If you enter a server name for the option below, remove the  
* leading asterisk (*).  
  
*****
```

```
Servname db2node_bkup
```

```
subdir yes
```

```
root@admsrv1:/usr/tivoli/tsm/client/ba/bin# ./dsmc query session -optfile=/tsmha1/tsmdb2/dsm.opt  
IBM Tivoli Storage Manager  
Command Line Backup/Archive Client Interface  
Client Version 5, Release 5, Level 1.0  
Client date/time: 05/24/13 10:03:19  
(c) Copyright by IBM Corporation and other(s) 1990, 2008. All Rights Reserved.
```

Node Name: DB2BKUP

Please enter your user id <DB2BKUP>:

Please enter password for user id "DB2BKUP":

```
Session established with server ADMINSESV: AIX-RS/6000  
Server Version 5, Release 5, Level 1.0  
Server date/time: 05/24/13 10:04:10 Last access: 05/24/13 10:04:10
```

TSM Server Connection Information

Server Name.....: ADMINERV  
Server Type.....: AIX-RS/6000  
Archive Retain Protect..: "No"  
Server Version.....: Ver. 5, Rel. 5, Lev. 1.0  
Last Access Date.....: 05/24/13 10:04:10  
Delete Backup Files.....: "No"  
Delete Archive Files.....: "Yes"

Node Name.....: DB2BKUP  
User Name.....: root

root@admsrv1:/usr/tivoli/tsm/client/ba/bin # cd /tsmhal/tsmdb2

root@admsrv1:/tsmhal/tsmdb2 # ls -l

```
total 0
-rw----- 1 root system 131 May 24 10:03 TSM.PWD
-rw-r--r-- 1 root system 761 May 23 11:38 dsm.opt
-rw-r--r-- 1 root system 1357 May 23 16:20 dsmerror.log
-rw-r--r-- 1 root system 632 May 23 15:34 dsmsched.log
-rw-r--r-- 1 root system 1687 May 23 15:34 dsmwebcl.log
-rwxr--r-- 1 root system 131 May 23 15:13 tsmdb2client.ksh
```

root@admsrv1:/tsmhal/tsmdb2 # more tsmdb2client.ksh

#!/bin/ksh

DSM\_DIR=/usr/tivoli/tsm/client/ba/bin

DSM\_CONFIG=/tsmhal/tsmdb2/dsm.opt

/usr/tivoli/tsm/client/ba/bin/dsmcad

exit 0

root@admsrv1:/tsmhal/tsmdb2 # ./tsmdb2client.ksh

root@admsrv1:/tsmhal/tsmdb2 # ps -ef |grep dsm

```
root 16711788      1   0 10:17:27   -   0:00 /usr/tivoli/tsm/client/ba/bin/dsmcad
root 17301652      1   0  Oct 26    -   6:16 /usr/tivoli/tsm/client/ba/bin/dsmcad
root 22085668      1   0  Apr 11    -   0:52 ./dsmcad -optfile=/tsmhal/tsmhacmp/dsm.opt
```

root@admsrv1:/tsmhal/tsmdb2 # more dsmsched.log

```
05/24/13 10:18:27 Scheduler has been started by Dsmcad.
05/24/13 10:18:27 TSM Backup-Archive Client Version 5, Release 5, Level 1.0
05/24/13 10:18:27 Querying server for next scheduled event.
05/24/13 10:18:27 Node Name: DB2BKUP
05/24/13 10:18:27 Session established with server ADMINERV: AIX-RS/6000
05/24/13 10:18:27 Server Version 5, Release 5, Level 1.0
05/24/13 10:18:27 Server date/time: 05/24/13 10:19:18 Last access: 05/24/13 10:18:18
```

05/24/13 10:18:27 --- SCHEDULEREQ QUERY BEGIN

05/24/13 10:18:27 --- SCHEDULEREQ QUERY END

05/24/13 10:18:27 Next operation scheduled:

05/24/13 10:18:27 -----

05/24/13 10:18:27 Schedule Name: DB2INST2\_RESCHEDULE

05/24/13 10:18:27 Action: Command

05/24/13 10:18:27 Objects: /tsmhal/db2inst2/bin/db2backup.ksh

05/24/13 10:18:27 Options:

05/24/13 10:18:27 Server Window Start: 02:30:00 on 05/25/13

05/24/13 10:18:27 -----

05/24/13 10:18:27 Scheduler has been stopped.

## Client Schedules

Policy Domain Name	BA	BA	BA	BA	BA	BA
Schedule Name	BANODE2_SCHEDULE	BANODE1_SCHEDULE	HANODE1_SCHEDULE	HANODE2_SCHEDULE	DB2INST1_SCHEDULE	DB2INST2_SCHEDULE
Description	banode2 schedule	banode1 schedule	hanode1 schedule	hanode2 schedule	db2inst1 schedule	db2inst2 schedule
Action	INCREMENTAL	INCREMENTAL	INCREMENTAL	INCREMENTAL	COMMAND	COMMAND
Options	-	-	-	-	-	-
Objects	-	-	-	-	/tsmha1/db2inst1/bin/db2backup.ksh	/tsmha1/db2inst2/bin/db2backup.ksh
Priority	3	3	5	5	5	5
Start date	2/26/2007	2/26/2007	2/26/2007	2/26/2007	2/26/2007	2/26/2007
Start time	0:15:00	0:15:00	0:15:00	0:15:00	23:30:00	23:30:00
Duration	1	1	1	1	1	2
Duration units	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS
Period	1	1	1	1	1	1
Period units	DAYS	DAYS	DAYS	DAYS	DAYS	DAYS
Day of Week	ANY	ANY	ANY	ANY	ANY	ANY
Expiration	-	-	-	-	-	-

### Automate Administrative command schedules

[illegible]

Expiration	-	-	-	-	-	-	-	-	-	-
Active?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Last Update Date/Time	56:21.0	58:02.0	55:02.0	57:17.0	06:47.0	10:22.0	02:39.0	07:26.0	10:56.0	12:49.0
Last Update by administrator	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN
Managing profile	-	-	-	-	-	-	-	-	-	-
Schedule Style	CLASSIC	CLASSIC	CLASSIC	CLASSIC	CLASSIC	CLASSIC	CLASSIC	CLASSIC	CLASSIC	CLASSIC
Month	-	-	-	-	-	-	-	-	-	-
Day of Month	-	-	-	-	-	-	-	-	-	-
Week of Month	-	-	-	-	-	-	-	-	-	-

(Continue)

Schedule Name	MIG_BKUPDISK_TO_BKUPTAPE_START	MIG_BKUPDISK_TO_BKUPTAPE_STOP	RECLAIM_ARCHCOPYPOOL_START	RECLAIM_ARCHCOPYPOOL_STOP	RECLAIM_ARCHTAPEPOOL_START	RECLAIM_ARCHTAPEPOOL_STOP	RECLAIM_BKUPCOPYPOOL_START	RECLAIM_BKUPCOPYPOOL_STOP	RECLAIM_BKUPTAPEPOOL_START	RECLAIM_BKUPTAPEPOOL_STOP
Description	Start from backup disk pool to backup tape pool	Stop from backup disk pool to backup tape pool	Start reclaim archive copy pool	Stop reclaim archive copy pool	Start reclaim archive tape pool	Stop reclaim archive tape pool	Start reclaim backup copy pool	Stop reclaim backup copy pool	Start reclaim backup tape pool	Stop reclaim backup tape pool
Command	update stg bkupdiskpool hi=0 lo=0	update stg bkupdiskpool hi=90 lo=60	update stg archcopypool reclaim=55	update stg archcopypool reclaim=100	update stg archtapepool reclaim=55	update stg archtapepool reclaim=100	update stg bkupcopypool reclaim=55	update stg bkupcopypool reclaim=100	update stg bkuptapepool reclaim=55	update stg bkuptapepool reclaim=100
Priority	5	5	5	5	5	5	5	5	5	5
Start date	2/7/2006	2/7/2006	2/7/2006	2/7/2006	2/7/2006	2/7/2006	2/7/2006	2/7/2006	2/7/2006	2/7/2006
Start time	5:00:00	5:50:00	22:30:00	22:59:00	23:00:00	23:29:00	19:00:00	22:29:00	17:00:00	18:59:00
Duration	1	1	1	1	1	1	1	1	1	1
Duration units	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS
Period	1	1	1	1	1	1	1	1	1	1
Period units	DAYS	DAYS	DAYS	DAYS	DAYS	DAYS	DAYS	DAYS	DAYS	DAYS
Day of Week	ANY	ANY	ANY	ANY	ANY	ANY	ANY	ANY	ANY	ANY
Expiration	-	-	-	-	-	-	-	-	-	-
Active?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Last Update Date/Time	11:24.0	11:41.0	12:46.0	00:43.0	59:46.0	00:17.0	32:33.0	14:34.0	33:00.0	33:26.0
Last Update by administrator	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN	ADMIN
Managing profile	-	-	-	-	-	-	-	-	-	-
Schedule Style	CLASSIC	CLASSIC	CLASSIC	CLASSIC	CLASSIC	CLASSIC	CLASSIC	CLASSIC	CLASSIC	CLASSIC
Month	-	-	-	-	-	-	-	-	-	-
Day of Month	-	-	-	-	-	-	-	-	-	-
Week of Month	-	-	-	-	-	-	-	-	-	-

Administrator ADMIN issued command: UPDATE SCHEDULE BA DB2INST1\_SCHEDULE DESCRIPTION="db2inst1 schedule" ACTION=COMMAND OBJECTS=/tsmha1/db2inst1/bin/db2backup.ksh  
PRIORITY=5 STARTDATE=02/26/2007 STARTTIME=23:30:00 DURATION=1 DURUNITS=HOURS PERIOD=1 PERUNITS=DAYS DAYOFWEEK=ANY

## TSM backup processing timeline (schedules) with DRM

Clients back up to the Tivoli Storage Manager server.

The primary storage pools are backed up to copy storage pools.

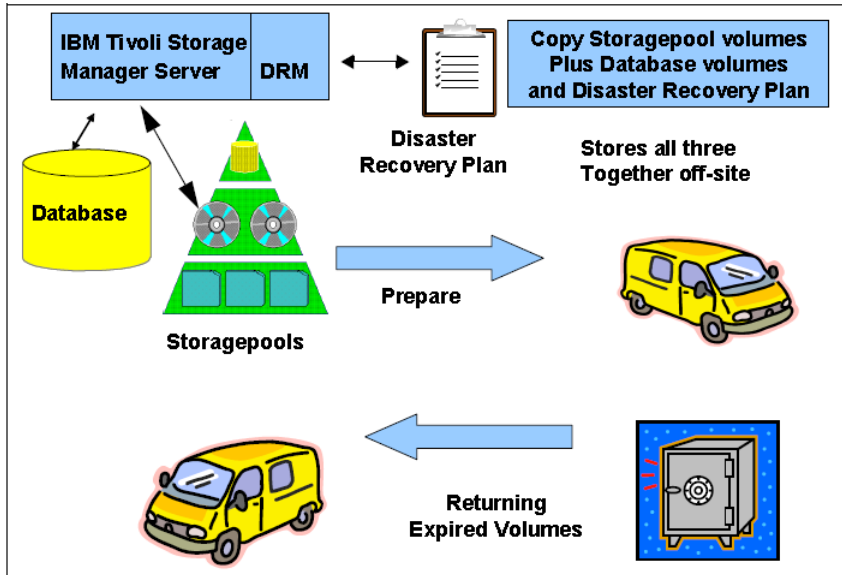
The Tivoli Storage Manager database is backed up.

The resultant tapes, known as DR Media, are checked out of the library and sent off-site for storage.

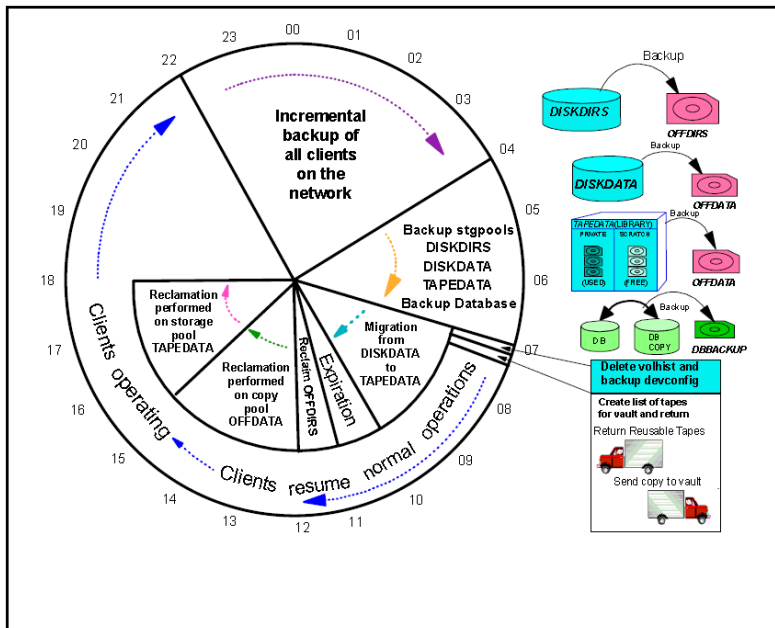
A new disaster recovery plan is generated by the server prepare command. The plan is also shipped offsite with the DR media.

Off-site tapes are tracked by DRM as the data on them expire.

Expired off-site tapes are returned on-site for reuse.



The **database backup volumes** can be for full plus incremental or snapshot backups. You cannot specify virtual volumes (backup objects stored on another server). You can change volumes through each state, or you can use the TOSTATE parameter and skip states to simplify the movements.



## Tape(s) Management

Use **MOVE DRMEDIA** command to track database backup and copy storage pool volumes that are to be moved offsite and to identify the expired or empty volumes that are to be moved onsite.

Remember: The MOVE DRMEDIA command always processes copy storage-pool volumes. (For more information, see the description of the COPYSTGPPOOL parameter on this command). By default, volumes in active-data pools are not eligible for processing by the disaster recovery manager. To process active-data pool volumes, you must issue the SET DRMACTIVEDATASTGPPOOL command, or you must use the ACTIVEDATASTGPPOOL parameter on the MOVE DRMEDIA command. To control whether the command processes database backup volumes, you can use the SOURCE parameter on this command.

```
#!/bin/ksh
#####
# /usr/local/bin/tapeadmin.ksh      #
#####
#
### initialize paths
#
```

```
listpath=/home/tsmopr/logs/lists
workpath=/home/tsmopr/logs/work
logpath=/home/tsmopr/logs/logs
reportpath=/home/tsmopr/logs/reports
MAILLIST=tsmopr
```

```
#####
#                                     #
#  FUNCTIONS START HERE              #
#                                     #
#####
```

```
function security_section {
```

```
#####
# SECURITY SECTION: #####
#~~~~~#
# PART 1: Insures that this utility is not being run by a user      #
#         that has logged into the server directly as 'root'.        #
#                                                                     #
# Part 2: Obtain the users name from DCE and print title bar.       #
#                                                                     #
# PART 3: Select which TSM server to connect to and                #
#         log into that TSM server.                                  #
#####
```

```
#
```

```
### PART 1:
```

```
#
```

```
if [ "$LOGNAME" = "root" ]
```

```
then
```

```
clear
```

```
echo " "
```

```
echo " "
```

```
echo " "
```

```
echo " "
```

```
banner Security
```

```
echo "-.-.-.-.-|-.-----"
```

```
echo "SECURITY ALERT | SECURITY ALERT"
```

```
echo "-.-.-.-.-|-.-----"
```

```
sleep 1
```

```
banner Alert
```

```
print " "
```

```
print " You may not run this utility while using roots profile"
```

```
print " "
```

```
exit
```

```

fi

#
### PART 2:
umask 013
user=$LOGNAME
se=" no TSM server connected at this time"
lib="No library specified"

title_bar

#
### PART 3:
#

ls="bad"
while [[ "$ls" = "bad" ]]
do
    if [[ $LOGNAME = tsmopr ]]; then
        TSM_password=tsmstg2007
        TSM_user=tsmstg
    else
        TSM_user=admin
        echo ""
        stty -echo
        read TSM_password?"$user please enter your TSM administrator password:"
        stty echo
        ls=good
    fi
fi

admc(){
    dsmadmc -itemcommit -id=$TSM_user -password=$TSM_password $@
}

# Testing TSM server connection
suc=$(admc q proc | grep password)
if [[ "$suc" = "" ]]
then
    ls="good"
    echo " "
    echo "login to TSM Server at Matheson Data Center successful. Welcome!"
    sleep 1
else
    echo " "
    ls="bad"
    echo "Invalid password. Please try again."
fi

se="TSM server at Data Center."
lib="ts3310"
done
}

#####
function return_menu {

    echo " "
    echo "Press 'E n t e r' to return to previous menu"
    read i
    title_bar
    $menu
}

#####
function title_bar {
    clear
    echo " *****"
    echo " *          Livingston TSM          *"
}

```



```

echo " *      DRM Tape Management UTILITY      *"
echo " *****"
echo " Welcome user: $user you have $LOGIN privledges"
echo " Connected to Server: $se "
}

#####
function clean_up {

rm $workpath/dsmadmin* > /dev/null 2>&1
}

#####
function check_tape_admin_time { #tape check in should start after 14:00
CURRENT_TIME=`date +%H%M`
if (( $CURRENT_TIME < 1400 )); then
print "\n\nIt is not 14:00 yet.\n\n"
print "\tPlease reenter your selection after 14:00"
return_menu
break
fi
}

#####
function mail_offsite_list {
echo ""
echo "*****" >> $listpath/tapetobevault.list
echo "*****" >> $listpath/tapetobevault.list
echo "***** This list of tape volumes will be *****" >> $listpath/tapetobevault.list
echo "***** moved to your DR site. *****" >> $listpath/tapetobevault.list
echo "*****" >> $listpath/tapetobevault.list
echo "*****" >> $listpath/tapetobevault.list
echo "*****" >> $listpath/tapetobevault.list
echo "*****" >> $listpath/tapetobevault.list
echo "*****" >> $listpath/tapetobevault.list

admc q drmedia wherestate=mountable |grep E0 >> $listpath/tapetobevault.list
mail -s "$(date +%D) Offsite Tape Report LOIS" $MAILLIST < $listpath/tapetobevault.list
echo ""
echo "Please read the mail and print it"
rm $listpath/tapetobevault.list
}

#####
function mail_tape_list {
echo ""
echo "*****" >> $listpath/tapetobereturned.list
echo "*****" >> $listpath/tapetobereturned.list
echo "***** This list of tape volumes must be *****" >> $listpath/tapetobereturned.list
echo "***** recalled from your DR site. *****" >> $listpath/tapetobereturned.list
echo "*****" >> $listpath/tapetobereturned.list
echo "***** These tapes are empty, and once *****" >> $listpath/tapetobereturned.list
echo "***** received should be placed into *****" >> $listpath/tapetobereturned.list
echo "***** the TSM_Matheson library I/O slot *****" >> $listpath/tapetobereturned.list
echo "***** AFTER the morning removal for *****" >> $listpath/tapetobereturned.list
echo "***** outgoing tapes. *****" >> $listpath/tapetobereturned.list
echo "*****" >> $listpath/tapetobereturned.list
echo "*****" >> $listpath/tapetobereturned.list
echo "*****" >> $listpath/tapetobereturned.list
echo "*****" >> $listpath/tapetobereturned.list

admc q drmedia wherestate=vaultretrieve |grep E0 >> $listpath/tapetobereturned.list
mail -s "$(date +%D) Onsite Tape Report LOIS" $MAILLIST < $listpath/tapetobereturned.list
echo ""
echo "Please read the mail and print it"
rm $listpath/tapetobereturned.list
}

#####

```

```

function daily_tape_checkin {
    dsmadm -id=tsmstg -password=tsmstg2007 \
    "move drmedia * wherestate=vaultre tostate=onsitere"
    fill="yes"
    while [[ "$fill" = "yes" ]]
    do
        echo "Please insert returned tape into I/O station. After ready, press Enter to continue"
        read i
        sleep 30
        admc checkin libv ts3310 search=bulk checklabel=barcode status=scratch
        sleep 30
        replyno=$(admc q request | grep LTO | awk '{ print $2 }' | cut -f 1 -d ":")
        admc reply $replyno
        sleep 30
        read continue?"Do you want to continue <y/n>? "
        if [[ "$continue" = "y" ]]
        then
            fill="yes"
        else
            fill="no"
        fi
    done
}

```

```

#####
function daily_tape_checkout {
    read tout?"Offsite tapes will move to the bulk, want to continue <y/n> ? "
    if [[ "$tout" = "y" ]]
    then
        dsmadm -id=tsmstg -password=tsmstg2007 \
        "move drmedia * wherestate=mountable tostate=vault remove=yes"
        while [[ "$tout" = "y" ]]
        do
            sleep 60
            echo "Please take out the offsite tape from the I/O station. After ready, press Enter to continue"
            read i
            replyno=$(admc q request | egrep "LTO" | awk '{ print $2 }' | cut -f 1 -d ":")
            if [[ "$replyno" = "" ]]
            then
                tout="n"
            else
                admc reply $replyno
            fi
        done
    else
        echo ""
        echo "Will quit from tape out"
    fi
}

```

```

#####
# Selection and Menu Function Section #
#####

```

```

function offsite_admin_menu {
    menu="offsite_admin_menu"
    echo " "
    echo "      OFFSITE/ONSITE TAPE ADMINISTRATION MENU"
    echo "      ====="
    echo " "
    PS3="Select, number from above choices: "

```

```

    select choice in 'Get a List of Offsite Tape(s)' 'Check Out the Tape(s)' 'Get a List of Returned Tape(s)' 'Check In the Tape(s)' QUIT
    do
        case $choice in
            ('Get a List of Offsite Tape(s)')
                title_bar
                mail_offsite_list
                return_menu

```

```

        break
        ;;
        ('Check Out the Tape(s)')
        title_bar
        daily_tape_checkout
        return_menu
        break
        ;;
        ('Get a List of Returned Tape(s)')
        title_bar
        mail_tape_list
        return_menu
        break
        ;;
        ('Check In the Tape(s)')
        title_bar
        daily_tape_checkin
        return_menu
        break
        ;;
        (QUIT)
        print "$user has left the utility"
        clean_up
        exit
        ;;
        ( " )
        print " "
        print " - - - Invalid Entry - - -"
        print " "
        return_menu
        break
        ;;
    esac
done
}

```

```

#####
function main_menu {
    menu="main_menu"
    echo " "
    echo "      TSM ADMINISTRATION MAIN MENU"
    echo "      ====="
    echo " "
    PS3="Select, number from above choices: "
    select choice in 'Offsite Tape Administration' 'Second Choice' 'Third Choice' 'Sixth Choice' QUIT
    do
        case $choice in
            ('Offsite Tape Administration')
            title_bar
            offsite_admin_menu
            return_menu
            break
            ;;
            ('Second Choice')
            under_construction
            break
            ;;
            ('Third Choice')
            under_construction
            break
            ;;
            (QUIT)
            echo " "
            print "$user has left the utility"
            clean_up
            exit
            ;;
            ( " )
            print " "
            print " - - - Invalid Entry - - -"

```

```

        print " "
        return_menu
        break
        ;;
    esac
done
}

#####
function under_construction {
    title_bar
    echo " "
    echo "THIS SECTION UNDER CONSTRUCTION"
    echo " "
    return_menu
}

#####
#                               #
#   MAIN LINE                   #
#                               #
#####

security_section
title_bar
offsite_admin_menu

clean_up

tapeadmin.c
#include <stdio.h>

main(){
    system("/usr/local/bin/tapeadmin.ksh");
    return 0;
}

```

A summary of the procedure is shown in following figure and described here:

Obtain the latest recovery plan.

Break out the various sections of the plan for general preliminary instructions, Tivoli Storage Manager Server recovery scripts, and client recovery instructions.

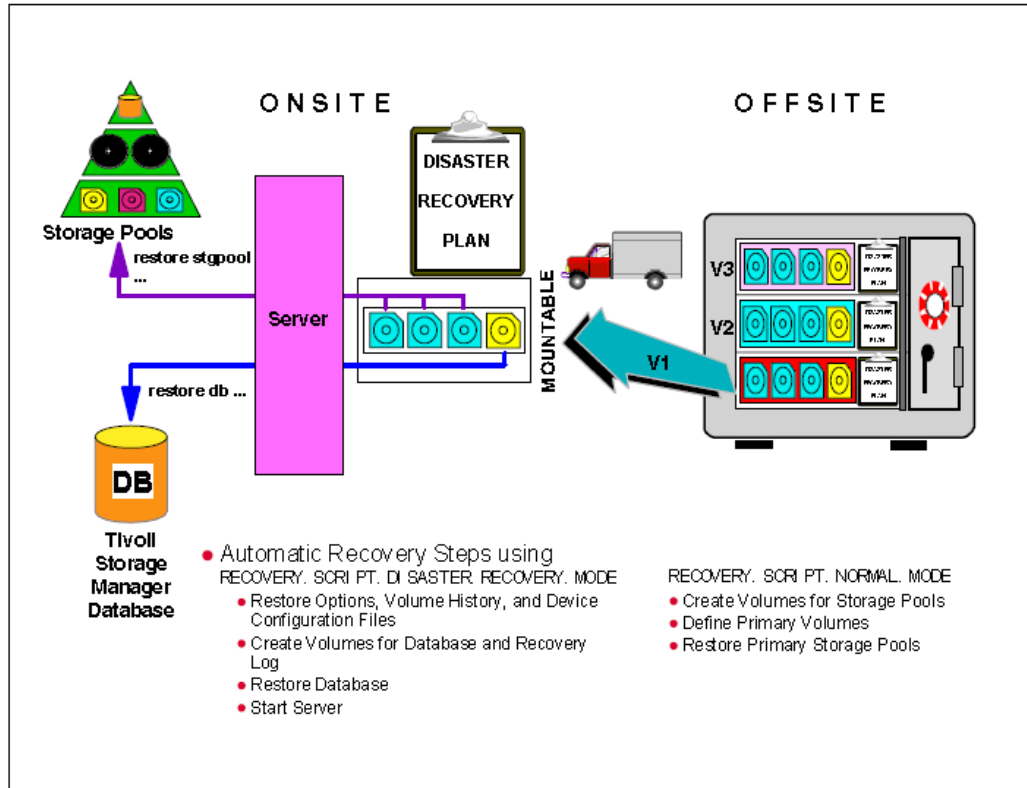
Retrieve all required recovery volumes (as listed in the plan) from the vault.

Set up replacement hardware for Tivoli Storage Manager Server, including operating system and Tivoli Storage Manager basic installation.

Run the Tivoli Storage Manager Server recovery scripts from the recovery plan. The RECOVERY.SCRIPT.DISASTER.RECOVERY.MODE and RECOVERY.SCRIPT.NORMAL.MODE stanzas contain executable command files that can be used to drive the recovery of the Tivoli Storage Manager server by calling other command files that were generated in the plan. The RECOVERY.SCRIPT.DISASTER.RECOVERY.MODE script recovers the server to the point where clients can begin restores directly from the copy storage pool volumes.

Start client restores in order of highest priority, as defined in your high-level planning.

Restore the primary storage pools using the RECOVERY.SCRIPT.NORMAL.MODE script.



#### DRM Plan (*query drmmstatus*):

Recovery Plan Prefix:	/admsrv/drmgr/drp/plan
Plan Instructions Prefix:	/admsrv/drmgr/drp/instruction
Replacement Volume Postfix:	@
Primary Storage Pools:	ARCHDISKPOOL; ARCHTAPEPOOL; BKUPDISKPOOL
BKUPTAPEPOOLCopy Storage Pools:	ARCHCOPYPOOL; BKUPCOPYPOOL
Not Mountable Location Name:	NOTMOUNTABLE COURIER
Courier Name:	
Vault Site Name:	VAULT
DB Backup Series Expiration Days:	3 Day(s)
Recovery Plan File Expiration Days:	3 Day(s)
Check Label?:	Yes
Process FILE Device Type?:	No
Command File Name:	

```

root@cm07# cat planexp.awk
# Explode a recovery plan file into separate files (macros,scripts,
# volume history file etc.).
#
# Invoke with:
#   awk -f planexpl.awk recoveryplanfilename
# Where:
#   recoveryplanfilename is the name of the recovery plan file created
#   by the DRM PREPARE command.

root@cm07# cat plan.RECOVERY.SCRIPT.DISASTER.RECOVERY.MODE

#!/bin/ksh
set -x

# Purpose: This script contains the steps required to recover the server
#   to the point where client restore requests can be satisfied

```

```

# directly from available copy storage pool volumes.
# Note: This script assumes that all volumes necessary for the restore have
# been retrieved from the vault and are available. This script assumes
# the recovery environment is compatible (essentially the same) as the
# original. Any deviations require modification to this script and the
# macros and shell scripts it runs. Alternatively, you can use this
# script as a guide, and manually execute each step.

if [ -z "$1" -o -z "$2" -o -z "$3" ]
then
    print "Specify the following positional parameters:"
    print "administrative client ID, password, and server ID."
    print "Script stopped."
    exit
fi

# Set the server working directory.
cd /tsmha2/files

# Restore server options, volume history, device configuration files.
cp /admsrv/drmgr/drp/plan.DSMSERV.OPT.FILE \
    /tsmha2/files/dsmserv.opt
cp /admsrv/drmgr/drp/plan.VOLUME.HISTORY.FILE \
    /usr/tivoli/tsm/server/bin/drmvolh.txt
cp /admsrv/drmgr/drp/plan.DEVICE.CONFIGURATION.FILE \
    /usr/tivoli/tsm/server/bin/drmdevc.txt

export DSMSERV_CONFIG=/tsmha2/files/dsmserv.opt

export DSMSERV_DIR=/usr/tivoli/tsm/server/bin

# Create and format log and database files.
/admsrv/drmgr/drp/plan.LOGANDB.VOLUMES.CREATE 2>&1 \
| tee /admsrv/drmgr/drp/plan.LOGANDB.VOLUMES.CREATE.log

# Initialize the log and database files.
/admsrv/drmgr/drp/plan.LOGANDB.VOLUMES.INSTALL 2>&1 \
| tee /admsrv/drmgr/drp/plan.LOGANDB.VOLUMES.INSTALL.log

# Restore the server database to latest version backed up per the
# volume history file.
/usr/tivoli/tsm/server/bin/dsmserv restore db todate=07/04/2013 totime=08:41:27 source=dbb

# Start the server.
nohup /usr/tivoli/tsm/server/bin/dsmserv &
print Please start new server console with command dsmadm -CONSOLE.
print Press enter to continue recovery script execution.
read pause

# Register Server Licenses.
dsmadm -id=$1 -pass=$2 -serv=$3 -ITEMCOMMIT \
    -OUTFILE=/admsrv/drmgr/drp/plan.LICENSE.REGISTRATION.log \
    macro /admsrv/drmgr/drp/plan.LICENSE.REGISTRATION

# Tell Server these copy storage pool volumes are available for use.
# Recovery Administrator: Remove from macro any volumes not obtained from vault.
dsmadm -id=$1 -pass=$2 -serv=$3 -ITEMCOMMIT \
    -OUTFILE=/admsrv/drmgr/drp/plan.COPYSTGPOOL.VOLUMES.AVAILABLE.log \
    macro /admsrv/drmgr/drp/plan.COPYSTGPOOL.VOLUMES.AVAILABLE

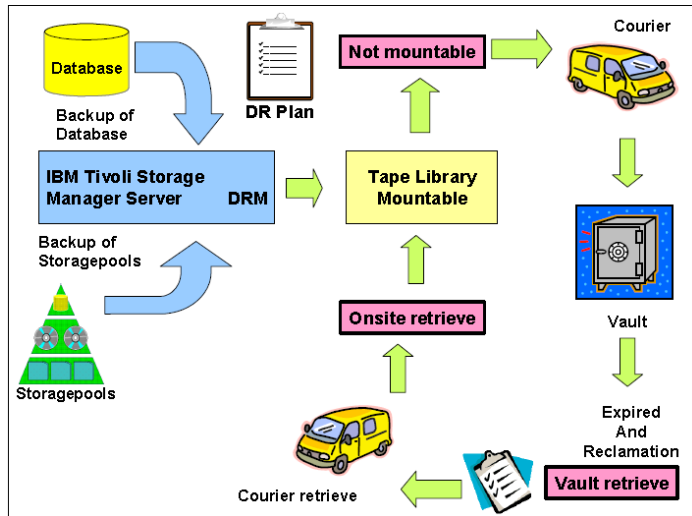
# Volumes in this macro were not marked as 'offsite' at the time
# PREPARE ran. They were likely destroyed in the disaster.
# Recovery Administrator: Remove from macro any volumes not destroyed.
dsmadm -id=$1 -pass=$2 -serv=$3 -ITEMCOMMIT \
    -OUTFILE=/admsrv/drmgr/drp/plan.COPYSTGPOOL.VOLUMES.DESTROYED.log \
    macro /admsrv/drmgr/drp/plan.COPYSTGPOOL.VOLUMES.DESTROYED

# Mark primary storage pool volumes as ACCESS=DESTROYED.
# Recovery administrator: Remove from macro any volumes not destroyed.
dsmadm -id=$1 -pass=$2 -serv=$3 -ITEMCOMMIT \
    -OUTFILE=/admsrv/drmgr/drp/plan.PRIMARY.VOLUMES.DESTROYED.log \

```

macro /admsrv/drmgr/drp/plan.PRIMARY.VOLUMES.DESTROYED

### DRM Offsite Media Status:



tsm ADMINSEV > q drm

DRM Offsite Recovery Media Status(click on the hyperlink)	
<a href="#">All</a>	20
<a href="#">Mountable</a>	0
<a href="#">Not Mountable</a>	0
<a href="#">Courier</a>	0
<a href="#">Vault</a>	20
<a href="#">Vault Retrieve</a>	0
<a href="#">Courier Retrieve</a>	0
<a href="#">Remote</a>	0

## Configuring Tivoli Storage Manager clients

Before IBM® Tivoli® Storage Manager (TSM) client to manage database or table space backup or restore operations, you must configure the TSM environment.

### Before you begin

A functioning TSM client and server must be installed and configured. In addition, the TSM client API must be installed on each DB2 database server. TSM client proxy nodes are supported if the TSM server has been configured to support them. For information on server configuration and proxy node support, see [Considerations for using Tivoli Storage Manager](#) or refer to the Tivoli documentation.

### Procedure

To configure the TSM environment for use by DB2 database systems:

Set the environment variables used by the TSM client API:

**DSMI\_DIR**

Identifies the user-defined directory path where the API trusted agent file (dsmtca) is located.

### **DSMI\_CONFIG**

Identifies the user-defined directory path to the dsm.opt file, which contains the TSM user options. Unlike the other two variables, this variable should contain a fully qualified path and file name.

### **DSMI\_LOG**

Identifies the user-defined directory path where the error log (dserror.log) will be created.

**Note:** In a multi-partition database environment, these settings must be specified in the sqllib/userprofile file.

```
#-----  
# Any user changes to the environment goes into userprofile. Modifications  
# to db2profile may be overwritten in fixpaks.  
#-----  
if [ -f ${INSTHOME?}/sqllib/userprofile ]; then  
    . ${INSTHOME?}/sqllib/userprofile  
fi
```

```
//root@admsrv1:/home/db2inst1/sqllib > more userprofile  
IBMCMROOT=/opt/IBM/db2cmv8  
ICMDLL=/home/db2fenc1  
LIBPATH=$IBMCMROOT/lib:$LIBPATH  
export IBMCMROOT ICMDLL LIBPATH
```

```
DSMI_DIR=/usr/tivoli/tsm/client/api/bin64  
DSMI_CONFIG=/usr/tivoli/tsm/client/api/bin64/dsm.opt  
DSMI_LOG=/tsmha1/db2inst1/log  
export DSMI_DIR DSMI_CONFIG DSMI_LOG
```

userprofile: END

If any changes are made to these environment variables and the database manager is running, stop and restart the database manager. For example:

Stop the database manager using the db2stop command.

Start the database manager using the db2start command.

Depending on the server's configuration, a Tivoli client might require a password to interface with a TSM server.

If the TSM environment is configured to use `PASSWORDACCESS=generate`, the Tivoli client needs to have its password established.

The executable file dsmapipw is installed in the sqllib/adsm directory of the instance owner. This executable allows you to establish and reset the TSM password.

To execute the dsmapipw command, you must be logged in as the local administrator or "root" user. When this command is executed, you will be prompted for the following information:

*Old password*, which is the current password for the TSM node, as recognized by the TSM server. The first time you execute this command, this password will be the one provided by the TSM administrator at the time your node was registered on the TSM server.

*New password*, which is the new password for the TSM node, stored at the TSM server. (You will be prompted twice for the new password, to check for input errors.)

**Note:** Users who invoke the BACKUP DATABASE or RESTORE DATABASE commands do not need to know this password. You only need to run the dsmapipw command to establish a password for the initial connection and after the password has been reset on the TSM server.

### **What to do next**

Depending on your backup and log archiving strategies, you might need to perform additional steps to configure the TSM clients if you want to use proxy nodes. Proxy nodes enable you to consolidate backups and log archives of databases existing on multiple client nodes or under multiple users to a common target nodename on the TSM server. This configuration is useful when the



administrator or computer that performs the backup can change over time, such as with a cluster. The `asnodename` option also allows data to be restored from a different computer or from a user different than the one that performed the backup.

If you do not want to use proxy nodes by default, no additional client setup is required. When you want to perform backup or restore operations using proxy nodes, specify the `asnodename` value in the `OPTIONS` parameter when invoking the `BACKUP DATABASE` or `RESTORE DATABASE` commands.

If you want to use TSM proxy nodes by default, use the following methods:

Update database configuration parameters to use different proxy nodes for different databases.

Update the `dsm.sys` file to use the same proxy node for all the users and databases on a machine. All users on the machine will appear as a unique user under the proxy node configuration. Use this method only if each user or instance uses a separate database; otherwise, some files might be overwritten, and data might be lost.

## TSM client setup using VENDOROPT, LOGARCHOPT1, and LOGARCHOPT2

You can set one or more of the following database configuration parameters to enable different proxy node settings for each database:

To enable commands using TSM (such as backup and restore) to use proxy nodes, specify the `asnodename` option in the `vendoropt` database configuration parameter, as follows:

```
db2 update db cfg for dbname using vendoropt "'-asnodename=proxynode'"
```

where `proxynode` is the name of the shared TSM proxy node.

To configure log archiving to the TSM server, set the `logarchmeth1` database configuration parameter to TSM and specify the name of the proxy node as the `asnodename` value in the `logarchopt1` database configuration parameter, as follows:

```
db2 update db cfg for dbname using logarchmeth1 tsm logarchopt1 "'-asnodename=proxynode'"
```

where `proxynode` is the name of the shared TSM proxy node.

You can make similar updates to the `logarchmeth2` and `logarchopt2` database configuration parameters.

## TSM client setup method using the dsm.sys file

Edit the `dsm.sys` file and add the proxy node information, as follows:

```
asnodename proxynode
```

where `proxynode` is the name of the shared TSM proxy node.

Ensure that the `dsm.opt` file specified in the `DSMI_CONFIG` path contains the name of the TSM server, as follows:

```
servername servername
```

where `servername` is the TSM server name.

## root@admsrv1:/admsrv/tsmhacmp/tsmclient.ksh

```
#!/bin/ksh
```

```
export DSM_DIR=/usr/tivoli/tsm/client/ba/bin
export DSM_CONFIG=/usr/tivoli/tsm/client/ba/bin/dsm.opt
export DSM_LOG=/usr/tivoli/tsm/client/ba/bin/logs
/usr/tivoli/tsm/client/ba/bin/dsmcad
```

```
exit 0
```

## root@admsrv1:/usr/tivoli/tsm/client/ba/bin # more dsm.opt

```
*****
* Tivoli Storage Manager                               *
*                                                       *
* Sample Client User Options file for AIX and SunOS (dsm.opt.smp) *
*****

* This file contains an option you can use to specify the TSM
* server to contact if more than one is defined in your client
* system options file (dsm.sys). Copy dsm.opt.smp to dsm.opt.
* If you enter a server name for the option below, remove the
* leading asterisk (*).
```

```
*****
```

```
SERvername banode1_bkup
```

```
subdir yes
```

```
root@admsrv1:/usr/tivoli/tsm/client/ba/bin # more dsm.sys
```

```
*****
```

```
* Tivoli Storage Manager
```

```
*
```

```
* Sample Client System Options file for AIX and SunOS (dsm.sys.smp)
```

```
*****
```

```
* This file contains the minimum options required to get started
```

```
* using TSM. Copy dsm.sys.smp to dsm.sys. In the dsm.sys file,
```

```
* enter the appropriate values for each option listed below and
```

```
* remove the leading asterisk (*) for each one.
```

```
* If your client node communicates with multiple TSM servers, be
```

```
* sure to add a stanza, beginning with the SERVERNAME option, for
```

```
* each additional server.
```

```
*****
```

```
SERvername banode1_bkup
```

```
COMMmethod TCPip
```

```
TCPPort 1500
```

```
TCPServeraddress admsrv2_svc.livingstonintl.com
```

```
Nodename banode1
```

```
Passwordaccess generate
```

```
schedmode polling
```

```
maxcmdretries 3
```

```
retryperiod 20
```

```
querysch 12
```

```
managedservices schedule webclient
```

```
TCPclientaddress admsrv1.livingstonintl.com
```

```
Httpport 1581
```

```
Domain /usr/var/tmp/home/opt/ibm/admsrv
```

```
SERvername hanode1_bkup
```

```
COMMmethod TCPip
```

```
TCPPort 1500
```

```
TCPServeraddress admsrv2_svc.livingstonintl.com
```

```
Nodename hanode1
```

```
Passwordaccess generate
```

```
schedmode polling
```

```
maxcmdretries 3
```

```
retryperiod 20
```

```

querysch      12

managedservices  schedule webclient

TCPclientaddress  admsrv1_svc.livingstonintl.com

Httpport      1583

* Clusternode   yes

passworddir    /tsmha1/tsmhacmp

errorlogname   /tsmha1/tsmhacmp/dsmerror.log

schedlogname   /tsmha1/tsmhacmp/dsmsched.log

Domain        /cmapp/arstmp
Domain        /db2lslogging
Domain        /db2rmlogging
Domain        /home/db2fenc1
Domain        /home/db2fenc2
Domain        /home/db2inst1
Domain        /home/db2inst2
Domain        /lbosdata01/lbosdata02/lbosdata03
Domain        /lbosdata04/lbosdata05/lbosdata06
Domain        /lbosdata07/lbosdata08/lbosdata09
Domain        /lbosdata10/lbosdata11/lbosdata12
Domain        /lbosdata10/lbosdata11/lbosdata12
Domain        /lbosdata13/lbosdata14/lbosdata15
Domain        /lbosdata16/lbosdata17/lbosdata18
Domain        /lbosdata19/lbosdata20/lbosdata21
Domain        /lbosdata22/lbosdata23/lbosdata24
Domain        /lbosdata25/lbosdata26
Domain        /tsmha1
Domain        /ubosstg

SErvername     hanode2_bkup
COMMmethod     TCPip
TCPport        1500
TCPserveraddress  admsrv2_svc.livingstonintl.com

Nodename       hanode2
Passwordaccess generate

schedmode      polling

maxcmdretries  3

retryperiod    20

querysch      12

managedservices  schedule webclient

TCPclientaddress  admsrv2_svc.livingstonintl.com

Httpport      1584

* Clusternode   yes

passworddir    /tsmha2/tsmhacmp

errorlogname   /tsmha2/tsmhacmp/dsmerror.log

schedlogname   /tsmha2/tsmhacmp/dsmsched.log

```

```
exclude /tsmsrv/*
exclude /tsmstg/*
```

```
exclude.archive /tsmsrv/*
exclude.archive /tsmstg/*
```

```
Domain /tsmha2
```

**root@admsrv1:/usr/tivoli/tsm/client/api/bin(64) # more dsm.opt**

```
*****
* Tivoli Storage Manager *
* *
* Sample Client User Options file for AIX and SunOS (dsm.opt.smp) *
*****
```

```
* This file contains an option you can use to specify the TSM
* server to contact if more than one is defined in your client
* system options file (dsm.sys). Copy dsm.opt.smp to dsm.opt.
* If you enter a server name for the option below, remove the
* leading asterisk (*).
```

```
*****
```

```
SErvername server_a
```

**root@admsrv1:/usr/tivoli/tsm/client/api/bin(64) # more dsm.sys**

```
*****
* Tivoli Storage Manager *
* *
* Sample Client System Options file for AIX and SunOS (dsm.sys.smp) *
*****
```

```
* This file contains the minimum options required to get started
* using TSM. Copy dsm.sys.smp to dsm.sys. In the dsm.sys file,
* enter the appropriate values for each option listed below and
* remove the leading asterisk (*) for each one.
```

```
* If your client node communicates with multiple TSM servers, be
* sure to add a stanza, beginning with the SERVERNAME option, for
* each additional server.
```

```
*****
```

```
SErvername server_a
COMMMethod TCPip
TCPPort 1500
TCPServeraddress admsrv2_svc.livingstonintl.com
```

```
Nodename db2node
Passwordaccess generate
```

**root@admsrv1:/tsmha1/tsmhacmp # ls -l**

```
total 0
-rw----- 1 root system 187 Dec 19 2011 TSM.PWD
-rw-r--r-- 1 root system 761 Jan 18 2006 dsm.opt
-rw-r--r-- 1 root system 2876653 May 17 07:51 dsmerror.log
-rw-r--r-- 1 root system 124873334 May 17 07:51 dsmsched.log
-rw-r--r-- 1 root system 1569412471 Feb 05 06:39 dsmsched.log.old
-rw-r--r-- 1 root system 3986993 May 17 07:51 dsmwebcl.log
```