



#### **Jacques Butcher** IBM Tivoli Storage Technical Specialist Wednesday, 27 July 2011



# Agenda

- 1. The Basics
- 2. Planning & Preparing for Upgrade
- 3. Upgrade Methods
- 4. Performance Considerations
- 5. Example of Upgrade Timings
- 6. FAQs
- 7. Example Windows In-place Network Upgrade Using Wizard (if time permits)





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### 1. The Basics

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# **The Basics**

- Major restructuring of the TSM database DB2
- Why upgrade to TSM 6 and why use DB2?
  - TSM 5 DB is reaching its limits in terms of size, performance, and function
  - Position for long term growth
  - Position for future additional function
  - Online reorgs no need for *dumpdb*
  - Free TSM administration resources from DB maintenance saving time
- Performance goal is to provide "equivalent performance"
  - Compared to Version 5.5
- No DB2 skills required to run TSM 6
- Yes, there are new features
  - Not part of this discussion





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# **The Basics**

- Increase in <u>real</u> memory requirements
  - Min is 16 GB (for DB2/TSM)
  - 24GB or more is recommended
- Increase in TSM DB size and utilisation possible / probable
  - DB2 space will expand and contract based on workload & reorg
  - Deduplication increases DB size and utilisation but saves storage pool space
- Increase in maximum recovery log size (from 13GB to up to 128GB)
  - <u>Roll-forward mode only</u>
- DB Upgrade process includes:
  - Prepare current TSM server Database
  - Extract all DB entries from current TSM DB
  - Insert all DB entries into DB2 via TSM
  - Time consuming upgrade when compared to previous TSM software upgrades
- Fall back is re-install of previous code & possible restore of DB
  - Potentially more complex than previously experienced
  - No exposure to data loss if you plan ahead



### What you get and what you do not get

- New database
  - DB2 is included in TSM package and is installed with TSM
  - Must use the DB2 image that is installed with TSM
  - Don't install on a system with DB2 already installed
- One-to-One relationship between TSM instance & DB2 database instance
  - No merge of multiple TSM instances into one database
  - Can run multiple TSM / database instances on same OS image
- No Cross platform upgrade
  - For instance, you cannot upgrade from TSM on Windows to TSM on AIX





### What you get and what you do not get

- Theoretical DB size will increase, BUT ...
  - Recommended maximum DB size is currently 2 TB
  - Plan for equivalent number of objects
  - New function will add to DB growth
- New Recovery Log mechanism
  - DB2 logs will require more disk space
  - Active and Archive logs
  - Comprises of 512MB files
  - Size of log depends on activity & DB Backup frequency
- Can <u>NOT</u> run different versions of TSM on same OS instance
  - Same restriction as prior releases





# **Upgrade Utility**

- Upgrade utility is a separate install package
  - Download DB Server-Upgrade Utility Package (from the ftp site) <u>ftp://service.boulder.ibm.com/storage/tivoli-storage-management/maintenance/server-upgrade</u>
  - Use an upgrade utility version that is greater than, or equal to, the level of the TSM server you are upgrading, is required; eg: a TSM 5.5.2 Server requires TSM 5.5.2 Upgrade Utility or higher
  - Installed on V5 server only & co-exist with current version may require a system reboot on Windows

#### Upgrade process:

- 1. Upgrades existing DB to V5.5.x
- 2. Extracts from existing V5.5.x database
- 3. Inserts into DB2 using TSM server (not the utility itself)
- Source server is down during extract process





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## **Preparation**

- READ documentation
  - TSM Server Upgrade Guide (SC23-9554-02 for V6.2)
  - TSM Information Center
  - READMEs for the DB Upgrade (latest updates)
- OS Levels
  - Be current check web and documentation
  - Check SP and maintenance levels are different for V6.1 & V6.2
- TSM Levels
  - Recommended starting point is TSM V5.5.2
  - May need to upgrade TSM clients
  - Automatic Deployment for Windows Clients with TSM V6.2
- Preparation could also include:
  - DB unload/load might help extract process
  - DB audit
- Consider 24X7 requirements for TSM availability
  - Applications such as CDP, Content Manager, and Space Manager assume TSM server is always available
  - Customer DB Apps may need to backup or ship logs hourly



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# **Preparation**

- Disk Capacity Planning
  - Upgrade process creates new database
  - Determine & configure DB2 DB space before starting the upgrade
  - DB2 active & archive logs will need space
  - RAW logical volumes are no longer supported for the db and logs
- Time
  - How long can your TSM server be down ?
  - Estimate the extract and insert processes
  - Plan for 5-10 GB/hr for an upgrade process
    - But that assumes a "normal" TSM workload
    - Content Manager DBs have more objects per GB, so they may be considerably slower when using GB/hr estimate
- Verify your monitoring applications support TSM V6
  - TSM Operational Reporting is not supported with V6
- TSM Health Check
  - Consider a TSM Health Check prior to upgrade (snapshot)



# **Preparation - Estimating Disk Requirements**

Item	Туре	Same system Media	Same system Network	New system Media	New system Network
Active Log (1)	Disk	16GB (Min)	16GB (Min)	16GB (Min)	16GB (Min)
Log Mirror	Disk	Log Size	Log Size	Log Size	Log Size
Archive Log	Disk	Log Size +	Log Size +	Log Size +	Log Size +
V5 DB	Disk	Current DB	Current DB	0	0
V5 Rcvylog	Disk	Current Log	Current Log	0	0
DB2 DB (2)	Disk	DB Util% + 50%	DB Util% + 50%	DB Util% + 50%	DB Util% + 50%
DB Backup (2)	Seq Media	DB Util%	DB Util%	DB Util%	DB Util%
Extract(2)	Seq Media	DB Util%	0	DB Util%	0
Total Disk	Disk				
Total Seq	Seq Media				

Note 1: Active log is a function of daily activity – increase to 48 GB for Deduplication Note 2: V6 DB, DBB, & Extract are a function of current DB utilization



#### **Preparation – Recommended for 100GB utilized DB**

Item	Disk Size (allowing for growth)
Instance Directory	
(dsmserv.opt etc)	
TSM Database	200 GB
Active Log	128 GB
Archive Log	300 GB
Optional: Log mirror for the	
active log	
Optional: Secondary archive log	
(failover location for archive log)	

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## **Preparation**

- Pick the first TSM instance to upgrade
  - Ideal first candidate is small, stand-alone TSM
  - Do you use Library Sharing ?
    - Library Manager must be at a higher level that Library Clients
    - Library Clients must be at a supported level (V5.5 for TSM 6.2)
  - Do you use LAN-Free ?
    - Storage Agents must be at a supported level
- Multiple TSM instances
  - How many upgrades can you do in a weekend ?
  - IP Address and Interconnectivity considerations
  - If upgrade in place, must upgrade all TSM instances
- Test if you can
  - Have a real test system
  - Test the upgrade process
    - Test upgrade with a large DB to make your own estimate of time
  - Test the back-out procedure
  - Test the upgraded database





### **TSM Storage Agent & Library Client Compatibility**

If you have a TSM Server at this level:	It is compatible and is supported with these TSM Storage Agent and Library Client Levels
Tivoli Storage Manager Version 6.2	Versions 6.2, 6.1, and 5.5
Tivoli Storage Manager Version 6.1	Versions 6.1, 5.5, and 5.4
Tivoli Storage Manager Version 5.5	Versions 5.5, 5.4, and 5.3
Tivoli Storage Manager Version 5.4 **an extended-support contract is except for the 5.3.6.3 storage as RHEL3, and Windows 2000.	Versions 5.4, and 5.3 ** s required for 5.3 storage agents, gents for Sun Solaris 8, Linux x86
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# **TSM Client/Server Compatibility**

It is compatible and is supported with these TSM Servers/Storage Agents Levels
Versions 6.2, 6.1 and 5.5
Versions 6.2, 6.1 and 5.5
Versions 6.2, 6.1, 5.5 and 5.4
Versions 6.1, 5.5 and 5.4 special 5.3.6-level clients (Window 36 RHEL 3) until 90 days after the nt OS levels ends regular support
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## **Recommended Memory Requirements**

• TSM 6.2 requires significantly more memory per instance than TSM 5

Server	Non Dedup	Dedup
* Windows 32 bit	8 GB	n/a
Windows 64 bit	12 GB	16 GB
AIX 64 bit	12 GB	16 GB
Linux 64 bit	12 GB	16 GB
Solaris 64 bit	12 GB	16 GB

\* only 1 instance allowed

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## **Preparing for the Upgrade**

- 1. Check upgrade documentation for changes.
- 2. Check prerequisites (CPU/Memory/Disk & OS).
- 3. Download and install the TSM Upgrade Utilities (V5 server only).
- 4. Prepare space for upgrade V6 will require more space than V5.
- 5. Modify server before upgrade.
  - *reusedelay* settings on storage pools may need to go back to V5
  - delete volhist type=dbb todate=-(number of days to go back to)
- 6. Disable sessions.
- 7. Backup storage pools.
- 8. Backup TSM database.
- 9. Backup volhist and devconfig.
- 10. Make copies of dsmserv.opt, dsmserv.dsk, devconig and volhist.
- 11. Stop TSM server Halt.





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# **Upgrade Methods**

The following methods can be used to upgrade a TSM 5.x DB to TSM V6:

- 1. Upgrade to new system, using external media (seq disk or tape)
- 2. Upgrade to new system, using network
- 3. Upgrade in place (on same system), using external media (seq disk or tape)
- 4. Upgrade in place (on same system) using network
- 5. TSM Export/Import from 5.x -> 6
  - TSM Export/Import supported from 5.x -> V6 (server-to-server or external media to new system only)
  - Not backward compatible. (V6 -> 5.x export/import is <u>not</u> supported)





# **Upgrade Methods**

- Upgrading the DB and not doing TSM Export/Import, you have 2 choices:
  - Upgrade using command line utilities manual process
    - DB2 utilities
    - dsmupgrd preparedb, dsmupgrd extractdb, dsmserv insertdb
  - Upgrade using TSM Upgrade Wizards
    - **Highly** recommended to use the wizards!
    - Less complex than command line utilities
    - Not only is the DB upgrade done, but the ability to do DB Backups is also mostly configured.
    - Wizard will also create & configure your server/database instance for you prior to doing the upgrade
    - Wizards are supported on all TSM Server platforms





### Phases of the Database (DB) Upgrade Process

PHASE	NOTES
DB Backup	
(Occurs on Source Server)	
DSMUPGRD PREPAREDB	Prepares 5.x DB for upgrade, Does the
(Occurs on Source Server)	
	1. Does an upgrade of DB to 5.5.
	<ol><li>Checks for known Database problems.</li></ol>
	<ol> <li>Backs up devconfig file to configured devconfig files.</li> </ol>
	Should finish in around 10 minutes





### **Phases of the DB Upgrade Process**

PHASE	NOTES
DSMUPGRD EXTRACTDB (Occurs on Source Server)	Extracts DB to either media or sends it over the network.
	If writing to media, this step takes about as long as a DB Backup.
	If writing to network, it depends on network speed or speed of insertdb process.
DSMSERV LOADFORMAT (Occurs on Target Server)	Creates the instance, Initializes the new DB, and does an initial backup
· · · · · ·	This step takes around 10 minutes.





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### **Phases of the DB Upgrade Process**

PHASE	NOTES
<b>DSMSERV INSERTDB</b> Insert records (Occurs on Target Server)	Inserts information into DB using the DB2 load utility. Speed is hardware dependent. See performance section. Expect 5-10 GB/hr for this part
<b>DSMSERV INSERTDB</b> Integrity Check (Occurs on Target Server)	Builds the table Indices and verifies the integrity of the tables. This phase may take as long as the previous phase.
DSMSERV INSERTDB Update phase (Occurs on Target Server)	The update phase updates selected records in the TSM 6 database to conform to the requirements of TSM 6. Mostly used to merge information from multiple TSM 5.5 tables into a single TSM 6 table. Again, this phase takes about as long as the previous insertdb phases.



#### **Upgrade to New System - External Media Method**



Extractdb/dsmserv insertdb done in separate steps





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#### **Upgrade to New System - Network Method**





#### **Upgrade In-Place Process - External Media Method**





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#### **Upgrade In-Place Process - Network Method**



Extractdb dsmserv insertdb done at same time



#### **TSM Export/Import to New System Method**







# Why Use the DB Upgrade Wizards?

- They greatly simplify the upgrade process! Here is a portion of the process flow for one of the upgrade methods (upgrade to new system using network) after V6 install completed for Windows:
  - 1. Run the *dsmupgrd preparedb* command on source TSM 5.x system, check for errors.
  - 2. Create the userid, instance directories, DB/LOG for the instance.
  - 3. Login with instance user.
  - 4. For all the directories that were created, ensure the access permissions are set correctly.
  - 5. Change the access permissions for the storage disk pools so that the instance ID can write to them.
  - 6. Create the DB2 instance using the db2icrt command





### Why use the DB Upgrade Wizards?

- 7. Copy the original V5 dsmserv.opt, devconfig and volhist file to new TSM server. Remove any obsolete options from dsmserv.opt
- 8. Set the DB2 default path variable using the following db2 command: *db2 update dbm cfg using dftdbpath*
- 9. Format the new database using dsmserv loadformat, check for errors
- 10. Start the insert process on target server (*dsmserv insertdb*), wait for message ANR1336I indicating source server can be started.
- 11. When ANR1336I issued, now start source server (*dsmupgrd extractdb*)
- 12. Monitor for completion, and then check for errors.
- 13. Configure DB backup for TSM V6.
- 14. Create a Windows service for the TSM instance.

OR ...Just use the DB Upgrade Wizard!





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### Estimating time for the Upgrade of the DB

- Dependent on many factors
  - -Size & utilization of DB being upgraded
  - -Number of processors & cores
  - -Storage device speed & configuration
  - -Network speed
  - -Upgrade method chosen (network)
- Plan for 5-10 GB/hr for DB upgrade.





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## Items to consider for your DB Configuration

- Use fast disk. Using the slow internal disk included by default in most AIX servers, or using consumer grade Parallel Advanced Technology Attachment (PATA) / Serial Advanced Technology Attachment (SATA) disk in a Linux or Windows system will slow everything down.
- Use multiple database containers. (This is DB2 terminology for what TSM calls database directories). Make sure each database directory is on a different filesystem / LUN. This improves performance because DB2 will stripe the database data across the various directories. TSM supports up to 128 directories for the DB.

Recommend using 4-8 directories for large TSM DB.

- Separate your TSM Components (DB LUNs, Log LUNs, Storage Pool LUNs)
- Enable read cache for the database file systems, & enable write cache for log if the disk subsystem supports it.



## Items to consider for the V6 Logs

- The Logs have sequential I/O access.
- Use dedicated disks for the active & archive logs. If these are shared with other applications you will experience slowdowns when logs are being copied for archiving purposes.





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### **Example of customers upgrade timings**

Туре	V5 DB size (actual used)	Extract Size	Extract Time	Insert Time
AIX	225 GB	130 GB	2hr 49min	26hr 12min
Windows	62 GB	30 GB	42 min	27hr 54min
Windows	64 GB	33 GB	37 min	3hr 9min
Windows	94 GB	52 GB	1hr 19min	7hr 44 min
Windows	183 GB	94 GB	1hr 55 min	12hr 33min

Every customer is different ! So test if possible



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# **TSM V6 Install / Upgrade FAQs**

**Q**:I am currently running my TSM Server on a 32-bit Windows® platform. Can I move to a 64-bit platform as part of the V6 upgrade?

A:Yes

- *Q:* When upgrading a TSM server V5.5.x to TSM V6, is it possible to omit the *dsmupgrd preparedb*. Is it sufficient to issue a *dsmupgrd extractdb*?
- *A:* No, DSMUPGRD PREPAREDB is required first. It's especially important if you're upgrading from a version earlier than 5.5, as it will upgrade the database version to 5.5. But even if you are already at 5.5, we require that it be run.... it just doesn't have quite as much to do in that case.





# **TSM V6 Upgrade FAQs**

**Q:** How large will the TSM V6 DB be after the upgrade ?

**A:** During the beta, over 200 customers participated and approximately 80 databases were tested with the upgrade process across multiple platforms. In general, the DB size after the upgrade was completed was roughly the same size. In some cases a 2x increase in size was seen. For planning purposes, customers should use a value of 50% larger than the original utilized space value of their V5 database.

**Q:** Can I use the 6.2 version of the Administration Center with my 5.5 or 5.4 server without installing a 6 server?

*A:*Yes. The 6.2 Administration Center will work with server versions 6.2.x, 6.1.x, 5.5.x and 5.4.x.

*Q:* Can I get the 6.2 version of the TSM Reporting and Monitoring for use with my 5.5 or 5.4 server without installing a 6 server?

A:Yes. The 6.2 TSM Reporting and Monitoring will work with server versions 6.2.x, 6.1.x, 5.5.x and 5.4.x.



# **TSM V6 Install / Upgrade FAQs**

- **Q.** How does the database upgrade utility react if the existing database has corruption? Will the update utility detect the corruption? Is it necessary to audit the DB first then do the upgrade?
- A. The TSM V6 Database Upgrade Utility will detect database corruption and attempt to repair the faulty items. The upgrade utility will generate messages when corruption is detected.





#### **TSM V6 Install / Upgrade FAQs**

**Q:** DSMSERV INSERTDB repeatedly issues status message ANR15251 with no sign that any progress is being made?

*A:* This lack of change in status is not the sign of a problem. The repeated issuance of the ANR1525I is an indication that INSERTDB is still running, even if the statistics that the messages report do not change.





# **TSM V6 Install / Upgrade FAQs**

- **Q:** What do I need to do if I need to restart the upgrade process?
- A: The upgrade process is **not** a checkpoint restartable process. If for any reason the process fails or is cancelled, it needs to be restarted from the beginning.

If you are using the *extract to media* method for upgrade and have completed the extract, you can restart the upgrade from the *insertdb* step after cleaning up directories and reformatting the DB:

db2 start database manager db2 drop db TSMDB1

Clean up directories, logs, database





# **TSM V6 Install / Upgrade FAQs**

**Q:** What if I for some reason need to go back to my previous V5 TSM?

A: If source server is TSM 5.3 or 5.4 when dsmupgrd preparedb is done:
1. You need to re-install TSM 5.3 or 5.4 from installation media if using in-place upgrade methods

- 2. You need to restore your DB from backups prior to the prepare DB
- *A:* If source server is TSM 5.5.x when *dsmupgrd preparedb* is done:

1. You will need to re-install TSM 5.5 from installation media if using inplace upgrade methods

You will **<u>NOT</u>** need to restore your DB from backups prior to restarting





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# **Example – Windows In-Place Network Upgrade**

This example assumes that the following steps have already been completed;

- •TSM Upgrade Utility has been installed (~5 mins)
- •TSM V5 software has been uninstalled (~5 mins)
- •TSM V6 software had been installed (~20 mins)





#### **Create New TSM Instance Directory Structure**

C:\IBM\Tivoli\TSM\Serv	er1			_ 🗆 🗙
	li\TSM\Server1	💌 🛃 Search		
File Edit View Tools H	lelp			
🕘 Organize 🔻 📗 Views	👻 💷 Explore 🛛 👧 Sha	are		0
Favorite Links	Name ACTLOG	Date modified      Type     25/07/2011 11:2 File Folder	▼ Size ▼	
Documents	ARCLOG	25/07/2011 11:2 File Folder		
Fictures	🐌 DB	25/07/2011 11:2 File Folder		
🚯 Music				
More >>				
Folders 🗸				
🧾 Desktop				
Administrator				
Public				
Computer				
Floppy Disk Drive (A				
Network				
Control Panel				
🔄 Recycle Bin				
1 item selected			j 🚆 Computer	





#### Run the TSM upgrade wizard – dsmupgdx.exe

🔄 C:\Program Files\Tivoli\TSM\server					
Eile Edit View Favorites Tools Help					
🔇 Back 👻 🕘 👻 🏂 🔎 Search 🛛	🍺 Folders 🛛 😰 🍞 🗙 🍤 🛛 🖪	].			
Address 🛅 C:\Program Files\Tivoli\TSM	l\server			💌 🄁 Go	
Folders ×	Name 🔺	Size	Туре	Date Modified 📃 🔺	
🗉 🗀 Common Files 🔺	dsmserv.opt.smp	70 KB	SMP File	5/12/2010 12:16 PM	
	dsmserv.pdb	299 KB	PDB File	5/12/2010 12:16 PM	
E 🛅 IBM	dsmsnmp.exe	113 KB	Application	5/12/2010 12:16 PM	
🗄 🫅 Internet Explore	dsmsnmp.pdb	691 KB	PDB File	5/12/2010 12:16 PM	
🗄 🖂 Java	dsmsutil.exe	66 KB	Application	5/12/2010 12:16 PM	
🗉 🧰 Mozilla Firefox	dsmsvc.err	1 KB	ERR File	8/10/2009 11:58 PM	
1 T T T T T T T T T T T T T T T T T T T	dsmsvc.exe	33 KB	Application	5/12/2010 12:16 PM	
🔁 NetMeeting	dsmsvc.pdb	323 KB	PDB File	5/12/2010 12:16 PM	
Online Services	📲 dsmupgdx.exe	47,298 KB	Application	5/12/2010 12:16 PM	
Outlook Express	📃 fullvolcapacity.pl	5 KB	PL File	5/12/2010 12:16 PM 💳	
🗄 🦳 Phone Book Serv	BAAPI.dll	71 KB	Application Extension	5/12/2010 12:16 PM	
Dutty	ibmtsm.baroc	5 KB	BAROC File	5/12/2010 12:16 PM	
E C Symantec	ibmtsm.mac	59 KB	MAC File	5/12/2010 12:16 PM	
E 🔂 Symantec AntiVir	ibmtsm.rls	28 KB	RLS File	5/12/2010 12:16 PM	
	itsmdpex.baroc	2,828 KB	BAROC File	5/12/2010 12:16 PM	
🔄 🗖 🦳 TSM, 📃	🗔 itsmuniq.baroc	787 KB	BAROC File	5/12/2010 12:16 PM 💌	





#### **TSM Upgrade Wizard – Language Screen**







#### **TSM upgrade wizard – intro screen**

🖳 Tivoli Storage Manager Server 🛙	Upgrade Wizard		
	Welcome		
Introduction	Welcome to the Tivoli Storage Manager Version 6.2 server upgrade.		
Select Server to Upgrade	Before you begin you must have installed the upgrade utilities backage on the system		
▷ Select Upgrade Phase	where the original Version 5.3 (or later) server database is located.		
▷ Prepare Database			
▷ Select Upgrade Method	1. Go to "ftp://ftp.software.ibm.com/storage/tivoli-storage-management/maintenance/s		
Extract Database	erver-upgrade . 2 Navigate to the directory that names the platform that your V5 server runs on		
▷ Create New Instance	3. Open the lastest directory under that.		
▷ Load New Database	4. Download the tar or exe file to a convenient location on the server system.		
	If you are using the media method for moving the database, you must also define a new device class, or identify an existing device class for the extracted database. You will specify the device class later in this wizard. The device class definition must be stored in the database, not only in the device configuration file. Click Next to begin. To change something on a previous step, click Previous. Cancel the upgrade at any time by clicking Cancel.		
InstallAnywhere			
Cancel <u>H</u> elp	Previous Next		



#### **TSM upgrade wizard – select upgrade type**

<ul> <li>Inroduction</li> <li>Select Server to Upgrade</li> <li>Select Upgrade Phase</li> <li>Prepare Database</li> <li>Select Upgrade Method</li> <li>Extract Database</li> <li>Create New Instance</li> <li>Load New Database</li> <li>Create New Instance</li> <li>Load New Database</li> <li>Most name of remote system:         <ul> <li>Administrator or root user ID:</li> <li>Administrator or root user ID:</li> <li>Administrator or root user ID:</li> <li>Most New Dutabase</li> </ul> </li> <li>Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.</li> </ul>		🖳 Tivoli Storage Manager Server Upgrade Wizard
<ul> <li>Introduction</li> <li>Select Server to Upgrade</li> <li>Select Upgrade Phase</li> <li>Prepare Database</li> <li>Select Upgrade Method</li> <li>Extract Database</li> <li>Create New Instance</li> <li>Load New Database</li> <li>The server being upgraded is on this system</li> <li>The server being upgraded is on a remote system</li> <li>Host name of remote system:</li> <li>Administrator or root user ID:</li> <li>Administrator or root password:</li> <li>Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.</li> </ul>	tion	Target System Authenticati
<ul> <li>Specify the system on which the server to be upgraded resides. If the system is not the local system, specify the necessary credentials with which to log in.</li> <li>Specify the system on which the server to be upgraded resides. If the system is not the local system, specify the necessary credentials with which to log in.</li> <li>Specify the system on which the server to be upgraded resides. If the system is not the local system, specify the necessary credentials with which to log in.</li> <li>Specify the system on which the server to be upgraded resides. If the system is not the local system, specify the necessary credentials with which to log in.</li> <li>Specify the system on which the server to be upgraded is on this system.</li> <li>The server being upgraded is on this system</li> <li>The server being upgraded is on a remote system.</li> <li>Host name of remote system:</li> <li>Administrator or root user ID:</li> <li>Administrator or root user ID:</li> <li>Administrator or root password:</li> <li>Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.</li> </ul>		
<ul> <li>Select Server to Opgrade</li> <li>Select Upgrade Phase</li> <li>Prepare Database</li> <li>Select Upgrade Method</li> <li>Extract Database</li> <li>Create New Instance</li> <li>Load New Database</li> <li>The server being upgraded is on this system</li> <li>The server being upgraded is on a remote system</li> <li>Host name of remote system:</li> <li>Administrator or root user ID:</li> <li>Administrator or root user ID:</li> <li>Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.</li> </ul>		Specify the system on which the server to be upgraded resides. If the system is not
<ul> <li>Select Upgrade Phase</li> <li>Prepare Database</li> <li>Select Upgrade Method</li> <li>Extract Database</li> <li>Create New Instance</li> <li>Load New Database</li> <li>The server being upgraded is on this system</li> <li>Host name of remote system:</li> <li>Administrator or root user ID:</li> <li>Administrator or root password:</li> <li>Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.</li> </ul>		Select Server to Upgrade the local system, specify the necessary credentials with which to log in.
<ul> <li>Prepare Database</li> <li>Select Upgrade Method</li> <li>Extract Database</li> <li>Create New Instance</li> <li>Load New Database</li> <li>The server being upgraded is on this system</li> <li>The server being upgraded is on a remote system</li> <li>Host name of remote system:</li> <li>Administrator or root user ID:</li> <li>Administrator or root password:</li> <li>Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.</li> </ul>		Select Upgrade Phase
<ul> <li>Select Upgrade Method</li> <li>Extract Database</li> <li>Create New Instance</li> <li>Load New Database</li> <li>The server being upgraded is on a remote system</li> <li>Host name of remote system:</li> <li>Administrator or root user ID:</li> <li>Administrator or root password:</li> <li>Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.</li> </ul>		▷ Prepare Database
<ul> <li>Extract Database</li> <li>Create New Instance</li> <li>Load New Database</li> <li>The server being upgraded is on this system</li> <li>The server being upgraded is on a remote system</li> <li>Host name of remote system:</li> <li>Administrator or root user ID:</li> <li>Administrator or root password:</li> <li>Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.</li> </ul>		Select Upgrade Method
<ul> <li>Create New Instance</li> <li>Load New Database</li> <li>The server being upgraded is on a remote system         <ul> <li>Host name of remote system:</li> <li>Administrator or root user ID:</li> <li>Administrator or root password:</li> <li>Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.</li> </ul> </li> </ul>		▷ Extract Database
<ul> <li>Load New Database</li> <li>The server being upgraded is on a remote system         <ul> <li>Host name of remote system:</li> <li>Administrator or root user ID:</li> <li>Administrator or root password:</li> <li>Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.</li> </ul> </li> </ul>		Create New Instance The server being upgraded is on this system
Host name of remote system:         Administrator or root user ID:         Administrator or root password:         Mote: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.		Load New Database C The server being upgraded is on a remote system
Administrator or root user ID: Administrator or root password: Administrator or root password: Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.		Host name of remote system:
Administrator or root user ID: Administrator or root password: Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.		
Administrator or root password: Administrator or root password: Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.		Administrator or root user ID:
Administrator or root password: Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.		
Administrator or root password: Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.		
Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.	_	Administrator or root password:
Note: When you click Next, the wizard will attempt to establish a connection to the lo machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.		
machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.	al 🧃	Note: When you click Next, the wizard will attempt to establish a connection to the local
connections to port 445.		machine. Ensure that File and Print Sharing is enabled and that your firewall allows
		connections to port 445.
	-	
InstallAnywhere		InstallAnywhere
Cancel Help Previous Nex		Cancel Help Previous Next





#### **TSM upgrade wizard – select new upgrade**

🛃 Ti	voli Storage Manager Server I	Upgrade Wizard	_
		Sel	ect Upgr
~	Introduction	Relact how to proceed with the upgrade	
	Select Server to Upgrade		
$\triangleright$	Select Upgrade Phase		
$\triangleright$	Prepare Database		
$\triangleright$	Select Upgrade Method		
$\triangleright$	Extract Database		
$\triangleright$	Create New Instance	Segin a new upgrade process for an existing server database.	
$\triangleright$	Load New Database	Continue the upgrade process for an existing server database.	
		,	
Ins	allAnywhere		
	Cancel Hein	Previous	Nevt
_			





#### **TSM upgrade wizard – select prepare db**

🖳 Tivoli Storage Manager Server l	Upgrade Wizard
	Select Upgrade Phase
✓ Introduction	
Select Server to Upgrade	Select the upgrade phase to be performed
<ul> <li>Select Upgrade Phase</li> </ul>	
Prepare Database	
Select Upgrade Method	
Extract Database	
▷ Create New Instance	Prepare the database for the upgrade
▷ Load New Database	Select the upgrade method to use (media or network)
	Extract the existing database to media (media method only)
	Configure the new server instance
	Insert the data into the new server instance
and a subscription of the	
InstallAnywhere	
Cancel <u>H</u> elp	Previous Next





#### **TSM upgrade wizard – select server to prepare**

🖳 Tivoli Storage Manager Server l	Upgrade Wizard	
	Select	Server
A later duction		
<ul> <li>Introduction</li> <li>Colorit Conjunction</li> </ul>	All known servers are shown in the selection box. Select the server to upgrade.	
Select Server to Opgrade		
Select Opgrade Phase     Droporo Dotobooo		
Prepare Database		
Select Opgrade Method		
Extract Database	*Colort conjecto unarodo: Conject	
Create New Instance	"Select server to upgrade.	
Load New Database		
		-
InstallAnywhere	·	
Cancel <u>H</u> elp	Previous	Next



#### **TSM upgrade wizard – verify V5 db and log files**

🖫 Tivoli Storage Manager Server	Upgrade Wizard	
	Verify Server Se	lection
later de chien		
<ul> <li>Introduction</li> <li>Solution</li> </ul>	Verify that the paths of the database and log files being upgraded are correct.	
<ul> <li>Select Server to Upgrade</li> <li>Select Verwerde Dhara</li> </ul>	Click Next to prepare this database for the upgrade	
Select Upgrade Phase		
Prepare Database		
Select Upgrade Method		
Extract Database		
Create New Instance		<b></b>
▷ Load New Database		
	4	×
InstallAnywhere		
Cancel <u>H</u> elp	Previous	Next





# **TSM upgrade wizard – prepare db completes**

🖫 Tivoli Storage Manager Server L	Jpgrade Wizard
	Prepare Database
Introduction	The existing database will now be prepared for upgrade. Monitor the preparation
<ul> <li>Select Server to Upgrade</li> </ul>	process by viewing messages in the display area below.
Select Upgrade Phase	
Prepare Database	
Select Upgrade Method	
▷ Extract Database	
▷ Create New Instance	ANR1305I Disk volume C:\PROGRAM FILES\TIVOLI\TSM\SERVER1\DISK1.DSM vari
▶ Load New Database	online. ANR1305I Disk volume C:\PROGRAM FILES\TIVOLI\TSM\SERVER1\DISK2.DSM vari online. ANR2718W Schedule manager disabled. ANR1305I Disk volume C:\PROGRAM FILES\TIVOLI\TSM\SERVER1\DISK3.DSM vari online. ANR0129I Database upgrade completed successfully. ANR0993I Server initialization complete. ANR09916I TIVOLI STORAGE MANAGER distributed by Tivoli is now ready for use. ANR0991I Server shutdown complete.
	Preparation completed with return code 0
InstallAnywhere	
Cancel <u>H</u> elp	Previous <u>N</u> ext





#### TSM upgrade wizard – select upgrade method

🖳 Ti	voli Storage Manager Server l	Upgrade Wizard	IX
		Select Upgrade Pha	se
	ludus du chi su		
	Introduction	Select the upgrade phase to be performed	
ľ.	Select Server to Opgrade		
	Select Opgrade Phase		
	Prepare Database		
	Select Opgrade Method		
	Extract Database		
	Create New Instance	<ul> <li>Prepare the database for the upgrade</li> </ul>	
$\triangleright$	Load New Database	Select the upgrade method to use (media or network)	
		Extract the existing database to media (media method only)	
		Configure the new server instance	
		Insert the data into the new server instance	
			1
			-
			_
Inst	allAnywhere		
(	ancel <u>H</u> elp	Previous <u>Previous</u>	





#### TSM upgrade wizard – select 'Use the network'

Tivoli Storage Manager Server Upgrade Wizard			
		Select Upgrad	le Method
<ul> <li>Introduction</li> <li>Select Server to Upgrade</li> <li>Select Upgrade Phase</li> <li>Prepare Database</li> <li>Select Upgrade Method</li> <li>Extract Database</li> <li>Create New Instance</li> <li>Load New Database</li> </ul>	Choose the method to use for the upgrade.  Cuse media  Use the network		
InstallAnwyhere			
Cancel <u>H</u> elp		Previous	Next



#### **TSM upgrade wizard – configure new instance**

🖳 Tivo	Tivoli Storage Manager Server Upgrade Wizard		
		Select Upgrade Ph	ase
	ntraduction		
	Relact Cower to Lingrado	Select the upgrade phase to be performed	
	Select Jerver to Opgrade Select Lingrade Phace		
	Prenare Database		
	Polort Lingrado Mothod		
	Evtrart Natahase		
	Create New Instance	C Prepare the database for the upgrade	
$\triangleright$ L	_oad New Database	O Select the upgrade method to use (media or network)	
		Extract the existing database to media (media method only)	
		Configure the new server instance	
		Insert the data into the new server instance	
			12
			-
Insta	IIAnywhere		
Ca	ancel <u>H</u> elp	Previous Next	





# TSM upgrade wizard – new disk structure must be in place before continuing





#### **TSM upgrade wizard – enter instance userid**

✓ Introduction	Specify the instance name of the new instance. Also, specify the user ID and	
<ul> <li>Select Server to Upgrade</li> <li>Select Upgrade Phase</li> <li>Prepare Database</li> <li>Select Upgrade Method</li> <li>Extract Database</li> <li>Create New Instance</li> <li>Load New Database</li> </ul>	password under which the database manager for this instance will run.         Instance:       Server1         User ID:       tsmsvr1         Password:       *********         8 characters         Note: When you click Next, the wizard will attempt to establish a connection to the local machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.	<ul> <li>UNIX; Unique user id per Instance</li> <li>Windows; Can use same user ID for all instances</li> </ul>
InstallAnywhere Cancel Help	<u>Previous</u>	



# **TSM upgrade wizard – select server instance DIR**

🐙 Tivoli Storage Manager Server l	Jpgrade Wizard	
	Instance	Directory
( Introduction		
<ul> <li>Introduction</li> <li>Coloct Converte Linewords</li> </ul>	The instance directory stores all of the server instance information, such as	s the server
<ul> <li>Select Server to Opgrade</li> <li>Select Userver to Disease</li> </ul>	options me, trace mes, and other mes specific to this instance.	
Select Opgrade Phase		
Prepare Database		
Select Upgrade Method		
<ul> <li>Extract Database</li> </ul>	2	
Create New Instance	*Instance Directory:	
Load New Database	c:\program files\tivoli\tsm\server1	Choose
	systems.	ciusierea
InstallAnywhere		
Cancel <u>H</u> elp	<u>Previous</u>	Next





#### **TSM upgrade wizard – enter tsm db directories**

🖳 Tivoli Storage Manager Server Upgrade Wizard		
	Database	Directories
<ul> <li>Introduction</li> <li>Select Server to Upgrade</li> <li>Select Upgrade Phase</li> <li>Prepare Database</li> <li>Select Upgrade Method</li> </ul>	Specify a list of directories to use for the Tivoli Storage Manager database either specify a file containing the list of database directories to use or ent directory per line in the field.	. You can ter one
<ul> <li>Extract Database</li> <li>Create New Instance</li> </ul>	C The list of database directories are in this file:	
	The database directories are the following: C:tsmdatatdb	Choose
Cancel <u>H</u> elp	Previous	Next





#### **TSM upgrade wizard – enter log size and dirs**

🖳 Tivoli Storage Manager Server Upgrade Wizard		
	Recovery Log	Directories
( Judan du china		
<ul> <li>Introduction</li> <li>Option Remember 1 in supplication</li> </ul>	Specify the directories for the database recovery logs.	
<ul> <li>Select Server to Opgrade</li> </ul>		
<ul> <li>Select Opgrade Phase</li> <li>Branara Databasa</li> </ul>		
<ul> <li>Prepare Database</li> <li>Colorit University Method</li> </ul>		
<ul> <li>Select Opgrade Method</li> <li>Schedt Database</li> </ul>		
Create New Instance	*Active log size (GB): 16	
Create New Instance		
Coau New Database	*Active log directory:	Chaosa
		Choose
	*Primary archive log directory:	
	C:\tsmdata\archivelog	Choose
	Active log mirror directory:	
		Choose
	Secondary archive log directory:	
		Choose 🧹
		-
		-
InstallAnywhere		
Cancel <u>H</u> elp	Previous	<u>N</u> ext





#### **TSM upgrade wizard – review configuration**

🖫 Tivoli Storage Manager Server l	Jpgrade Wizard	
		Configuration Summary
<ul> <li>Introduction</li> <li>Select Server to Upgrade</li> <li>Select Upgrade Phase</li> <li>Prepare Database</li> <li>Select Upgrade Method</li> <li>Extract Database</li> <li>Create New Instance</li> <li>Load New Database</li> </ul>	Review the configuration settings, then click Next.         Instance user ID:       tsmsvr1         Instance directory:       c:tprogram filesttivolittsmtserver1         Database directories:       c:ttsmdataldb         Active log directory:       C:ttsmdatallog         Primary archive log directory:       C:ttsmdatalarchivelog	Configuration Summary
InstallAnywhere		
Cancel Help		Previous Next





#### **TSM upgrade wizard – create new instance**

🛛 Tivoli Storage Manager Server Upgrade Wizard		
	Configure I	nstance
1 Interduction		
<ul> <li>Introduction</li> <li>Option Option to Upgrade</li> </ul>	This instance is now being configured. Configuration consists of many steps,	, and will
Select Server to Opgrade     Select Ungrade Rhoop	Take several minutes. The progress of the configuration is shown below.	
Select Opgrade Phase     Brancia Database		
Prepare Database     Action of the second seco		
Select Opgrade Method     Select Optrace Method		
Extract Database     Out to blow instance		
Create New Instance	U.S. Government Users Restricted Rights - Use, duplication or disclosure	
Load New Database	restricted by GSA ADF Schedule Conduct with IBM Corporation.	
	ANR4726I The ICC support module has been loaded.	
	ANR0152I Database manager successfully started.	
	ANR01521 Database manager successiony staned.	
	ANR1004I Server formatting complete, database ready for loading.	
	ANR0369I Stopping the database manager because of a server shutdown.	
	ANR29761 Offline DB backup for database TSMDB1 started.	
	Format completed with return code 0	-
		-
InstallAnwhere		
Cancel Hein	Previous	Novt
	Treaded	





#### **TSM upgrade wizard – select insert data**

🖳 Ti	Tivoli Storage Manager Server Upgrade Wizard		
		Select Upgrade Phas	e
	Introduction		
	Select Server to Lingrade	Select the upgrade phase to be performed	
Ď	Select Ungrade Phase		
	Prenare Database		
⊳	Select Upgrade Method		
$\triangleright$	Extract Database		
$\triangleright$	Create New Instance	O Prepare the database for the upgrade	
$\triangleright$	Load New Database	O Select the upgrade method to use (media or network)	
		Extract the existing database to media (media method only)	
		O Configure the new server instance	
		Insert the data into the new server instance	
			000
			-
Inst	allAnywhere		
(	Cancel <u>H</u> elp	Previous <u>Next</u>	





# TSM upgrade wizard – load new db screen

Tivoli Storage Manager Server Upgrade Wizard		
	Load New Database	
<ul> <li>Introduction</li> <li>Select Server to Upgrade</li> <li>Select Upgrade Phase</li> <li>Prepare Database</li> <li>Select Upgrade Method</li> <li>Extract Database</li> <li>Create New Instance</li> <li>Load New Database</li> </ul>	This is the final phase of the server upgrade. The contents of the existing database will now be loaded into the new database. If you are using the network method, the new server will be started first, then the existing server will be started and the data will be transferred. If you are using the media method, the data will be loaded from the media to which it was previously extracted. You might need to edit the device configuration file in the new instance directory to ensure that all device addresses on DEFINE PATH statements are correct before proceeding. Click Next to begin the load process.	
Cancel Help	Previous Next	





#### **TSM upgrade wizard – load new db status**



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#### **TSM upgrade wizard – completion screen**

🖳 Tivoli Storage Manager Server L	Ipgrade Wizard
	Upgrade Complete
<ul> <li>Introduction</li> <li>Select Server to Upgrade</li> <li>Select Upgrade Phase</li> <li>Prepare Database</li> <li>Select Upgrade Method</li> <li>Extract Database</li> <li>Create New Instance</li> <li>Load New Database</li> </ul>	The upgrade wizard is complete. If the upgrade was successful, the new server starts in the background. If the upgrade failed, correct the problems indicated in the messages, and run the wizard again.
InstallAnywhere Cancel <u>H</u> elp	Previous Done



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