

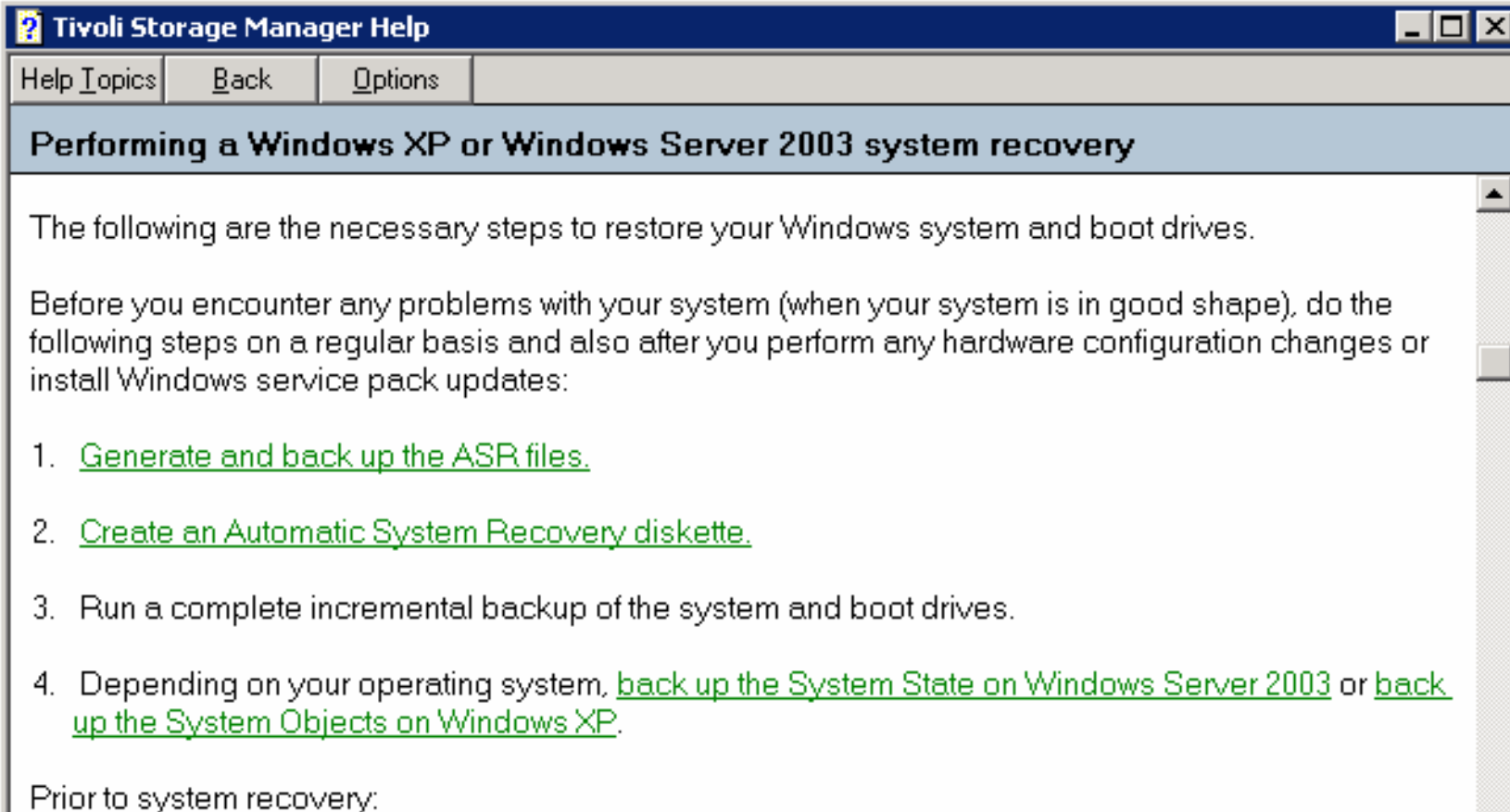
TSM symposium 2005, Oxford

Pitfalls in complex system recovery

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Sept '05

TSM DR help



Tivoli Storage Manager Help

Help Topics Back Options

Performing a Windows XP or Windows Server 2003 system recovery

The following are the necessary steps to restore your Windows system and boot drives.

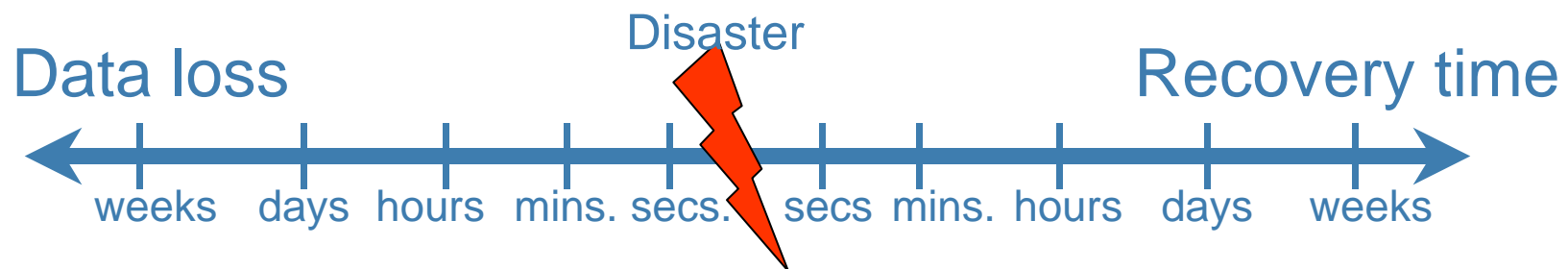
Before you encounter any problems with your system (when your system is in good shape), do the following steps on a regular basis and also after you perform any hardware configuration changes or install Windows service pack updates:

1. [Generate and back up the ASR files.](#)
2. [Create an Automatic System Recovery diskette.](#)
3. Run a complete incremental backup of the system and boot drives.
4. Depending on your operating system, [back up the System State on Windows Server 2003](#) or [back up the System Objects on Windows XP.](#)

Prior to system recovery:

The dream ... (the perfect recovery)

- 1-button D:R
- Zero data-loss
- Zero down time
- No stress
- Business continuity
- Experienced
- Fail-over



Disaster Recovery elements

“a DR test is a functional live demonstration of a complete system recovery”

Typical pitfalls

- Single-file restore
- Negligence of system interconnectivity
- Restore functionality still immature (“beta”)
- IS admins lack recovery experience
- Time overlocks

The perfect backup

A perfect backup consists of...

- The drives
- System state
 - Active Directory
 - Registry
 - Etc.
- Online Databases
 - Exchange
 - SQL Server
 - Etc..

...Or what?

Imperfect Backup

- Including incorrect directories
 - Exchange database directory
- Conflicts - scheduling TDPs and BAs
- Excluding critical objects
 - Profile settings
 - System state
 - "Program Files" directory, etc.
- BA client: Ver. ?? required
- Corruption of database

```
EXCLUDE "*/documents and settings\...\ntuser.dat.LOG"  
EXCLUDE "*/documents and settings\...\ntuser.dat"  
EXCLUDE "*/documents and settings\...\usrclass.dat.LOG"  
EXCLUDE "*/documents and settings\...\usrclass.dat"
```

D:R site scenarios

- Permanent test site
 - Dedicated test server setup
 - Latest TSM client release
 - Separate from production environment
 - Extra: VMware
- Ad-hoc test environment
 - Server with sufficient disk capacity
 - The test: replace production unit with recovered replica

Optimizing TSM setup for DR

- Increase size and retention of disk pools
- Reduce usage of tape pools
- Use virtual tape volumes, ie. disk
- Optimize for streaming operations
- Increase mount points

- Dedicated fast recovery pools for mission critical systems

Recovery process

- Correct TSM client version
- Recovery according to DR procedures
 - Files
 - System state, AD, certificates etc.
 - Databases
 - SQL
 - Exchange
 - DB2










Recovery - showstoppers

- TSM recovery fails – system error – can't restore sysvol
- Missing ...
 - login or encryption passwords
 - license files for mission critical apps
 - database for Citrix Terminal
 - dongle
 - certificates
- ACL – no restore

```
ANS4034E Error processing '': unknown system error
```

OS - Reconfiguration

- ASR, misc. HW setup tools, “install/repair”
- Remunerate the HW devices:

 (Default)	REG_SZ	(value not set)
 CmdLine	REG_SZ	setup -newsetup -Mini
 OsLoaderPath	REG_SZ	\
 SetupType	REG_DWORD	0x00000001 (1)
 SystemPartition	REG_SZ	{Device}\HarddiskVolume1
 SystemPrefix	REG_BINARY	c2 1b 00 00 00 a0 38 8a
 SystemSetupInProgress	REG_DWORD	0x00000000 (0)
 MiniSetupInProgress	REG_DWORD	0x00000001 (1)
 MiniSetupDoPnp	REG_DWORD	0x00000001 (1)

- Recover the AD, databases, etc
- Reinstall network, setup identity, AD ...

Guidelines

- Complete backups - omitting the right objects !
- Restore every server entity
 - Restore files using the BA-client
 - Alter configuration
 - Restart server
 - Trial-and-error, repair BSOD, network, AD, video, etc.
 - Restore TDP's
- Semantic comparison – production with recovered replica
- Track time – verify DR plan and schedule
- Update documentation – repeat recovery test

Ultimately - functional test

- Pull the plugs to the primary server(s)
- Ask end-users to verify availability
- Query the databases through client applications
- Have system owners verify apps and data integrity
- Don't forget site recovery

Our experiences

- Rarely face a perfect backup nor recovery
- Backup & Recovery faults are difficult to solve and fatal in recovery mode
- DR plans are mostly paper ware, need updating – if they exist
- Lack of management awareness to DR planning and testing
- DR found too complex and manual
- Recovery must be blended into daily routine

Thank You

QUESTIONS ?

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