



Symantec LiveState™ Recovery

Rapid and reliable system and data recovery

INSIDE

- › Introduction
- › The Symantec solution to system and data recovery
- › Product scenarios
- › Features and benefits
- › Summary

Table of Contents

Introduction	1
The Symantec solution to system and data recovery	1
Symantec LiveState Recovery product scenarios	3
Scenario 1 – Bare metal recovery	3
Scenario 2 – Recover individual files	3
Scenario 3 – Facilitate change management	3
Scenario 4 – Database backup	3
Features and benefits	4
Summary	5

> Introduction

Even under the best circumstances, performing a bare metal recovery from tape is tedious. Traditional tape backup software has been designed for file backup and recovery. If rebuilding a system were as simple as a file transfer, then file recovery alone would serve the purpose. Including a systems boot structure, file tables, embedded settings and applications requires a more comprehensive approach than traditional file backup tools to enable full bare metal recovery.

In addition to speed issues, tape also has problems with reliability. The May 2004 CMP-Reality Research survey stated that 59% of IT managers were concerned about their company's ability to reliably back up and recover data. Part of the concern is due to the fact that tape is not a sealed medium. Tape media is subject to dust particles and wear both in office and factory environments. During cartridge transport, they are susceptible to temperature, shock, and magnetic fields.

More commonly, the data is not even backed up correctly as a result of human error. This comment is typical of recovery attempts, especially in smaller organizations with no dedicated IT staff. 'When we went to recover the data, we found that the backups had not been performed regularly or at all.'¹ In these cases there is little to do but start from the beginning and hope that critical data can be recuperated from corporate systems.

> The Symantec solution to system and data recovery

Symantec provides system administrators with a fast and reliable system and data recovery disk-to-disk solution. Users can recover files in the time it takes to browse to them through Windows® and perform bare metal recovery in the time it takes to copy a file from the network.

Symantec LiveState™ Recovery is patented technology that allows users to achieve this unprecedented speed and reliability in recovering systems and data. LiveState images are not file system copies of the contents of a hard drive; rather they are low-level images of the entire logical disk structure, serialized and written to a single file. Symantec LiveState Recovery products are used for the following:

- Bare metal system recovery
- File recovery
- Change management
- Database backups

In the process of making a LiveState image, the complete structure of a disk (sector and cluster) is compressed and written in a special format to a single file. For example, if you had a drive volume named "SYS (c:)", the file system, OS files, settings, applications, and data (including those in-use, hidden, or encrypted) are encapsulated into a single image file. This file can then be stored on any disk storage device such as a SAN, NAS, RAID, local disk, external drive, and CD or DVD. Once this file is created, it can be moved, stored, copied, and managed like any file accessible by the resident file system.

Unlike other snapshot technologies, LiveState does not require translation maps from the real to the virtual, removing the need for complex viewing software and extensive map protection. Once the image is captured, snapshot mappings are no longer needed.

Incremental updates to the image can be captured on a regular basis eliminating the need to capture an

¹CMP-Reality Research survey, May 2004

entire LiveState image each time. Because an incremental backup only includes the changed sectors on disk, it is usually small and uses very little processing power and disk I/O.

Three versions of Symantec LiveState Recovery are available:

- Symantec LiveState Recovery Advanced Server
- Symantec LiveState Recovery Standard Server
- Symantec LiveState Recovery Desktop

Symantec LiveState Recovery significantly decreases the amount of time required to get systems back up and running.

Disaster recovery methods*

Traditional backup methods	Time	Symantec LiveState Recovery	Time
Repair hardware		Repair hardware	
REBOOT		REBOOT	
Collect all necessary media		Boot using Symantec Recovery Disk (included on the product CD)	2 Min
Re-load OS from CD ROM (manual)	2.5 Hrs	Select backup image file to restore	Seconds
REBOOT		Restore the backup image file	3.5 Min (about 2GB data)
Download and apply patches	2 Hrs	REBOOT	
REBOOT (multiple based on patches applied)		Complete	< 40 Min
Reload backup software from CD ROM	30 Min		
REBOOT			
Apply any patches to backup software	20 Min		
REBOOT			
Load recovery tape and restore	1.5 Hrs (20 GB)		
REBOOT			
Complete	6 Hrs 50 Min		

*based on Symantec testing process

> Symantec LiveState Recovery product scenarios

Scenario 1—Bare metal recovery

In the event of system hardware or software failure, or user error, Symantec LiveState Recovery enables administrators to recover a system up to 80% faster than traditional methods*. Depending on the amount of data, a server with applications, settings, and data can often be recovered in less time than it would take to reinstall the operating system alone. The requirements are to repair hardware if necessary and boot the system with the Symantec LiveState Recovery product CD. When the product CD boots, it will automatically detect the hardware with Windows 32 bit device drivers. The user then has the option of running a virus scan and file system checking. Finally, the user can browse to the LiveState™ image whether on a local or network drive and choose to recover to an unformatted disk space. Once the restoration is complete, the system reboots and is back to the most recent operational state.

Scenario 2—Recover individual files

Once the initial LiveState image has been created, the administrator can mount the image with a Windows drive letter. File recovery is as simple as browsing to the file, then using drag and drop to replace it on the working drive. Because the image appears as a typical drive, users can search and sort through the directories using native Windows functionality. They can also share this 'virtual' drive for others to access over the network, scan for malware, and verify the integrity of the LiveState image.

Scenario 3—Facilitate change management

When a new device, application, patch, or hotfix must be applied to a system, Symantec LiveState Recovery gives the administrator assurance that there will be no unplanned downtime. Before applying a change, the system can be backed up while still online. An administrator can even prompt an up-to-the-minute incremental just before the change is applied. If problems occur due to the new device or patch, the Symantec LiveState Recovery CD will enable a full recovery back to the most recent incremental. Entire system and data recovery can be completed in minutes.

Scenario 4—Database backup

IT administrators can backup both Microsoft® VSS compliant databases and those that are not VSS compliant. Databases that support VSS will automatically be synchronized when the volume they reside on is imaged with Symantec LiveState Recovery. For databases that do not offer VSS support, administrators can insert commands into the GUI that will run before the snapshot is captured, after the snapshot is captured, and after the image has been created. For example, the IT administrator could use a command file to put an Oracle™ database in backup mode, take the snapshot (this takes milliseconds), take the Oracle database out of backup mode, and continue to create the LiveState image file. This allows creation of a complete system image by either quiescing or stopping the database briefly.

*based on Symantec testing process and user experience

Symantec LiveState Recovery features and benefits	
Feature	Benefit
<p>Symantec bare metal recovery environment and NEW driver validation—From the recovery environment, an administrator can perform diagnostics on the system including scan for viruses and disk integrity checking and repair. Symantec LiveState Recovery uses a bootable CD for bare metal recovery. This recovery environment boots, auto-detects, and loads all drivers necessary for bare metal recovery. In addition to a comprehensive driver library stored on the CD, the driver validation tool will indicate whether any additional drivers must be added to support all of your systems.</p>	<p>Backups are self-contained and do not need to rely on emergency floppy disks that must continually be updated. To perform a bare metal recovery, it is as simple as using the provided recovery CD to boot, letting it detect your storage and NIC devices and restoring the most recent backup. Bare metal recovery is simpler and much faster than traditional restoration methods.</p>
<p>NEW Event driven backups—With event driven backups, an application installation, a user log on or log off, and a change in the amount of data can automatically initiate a new incremental backup.</p>	<p>Symantec LiveState Recovery automatically protects a system against potentially harmful changes. For system administrators, change management is greatly simplified knowing that a backup has been taken before the system change occurs.</p>
<p>NEW Performance throttling and speed enhancements—Symantec LiveState Recovery can backup and recover more than 2GigaBytes per minute on high-end systems with Gigabit Ethernet. In a standard system environment with 100Megabit Ethernet, it is typical to sustain 500 Megabytes to 1 Gigabyte per minute during backup and recovery. Throttling allows a user to set the proportion of system processor and disk I/O that will be used by the backup service. Performance can be throttled up or down during backup depending on user preference.</p>	<p>Disk-to-disk backup speeds assure that hitting your backup window will not be a problem. Control over system resources allows for minimal impact on users even if the backup must be done during production hours.</p>
<p>NEW Incremental consolidation—Symantec LiveState Recovery can consolidate a set of incremental backups allowing even greater flexibility in backup file management.</p>	<p>Saves storage space and allows a large number of incremental backups to be easily managed.</p>
<p>NEW Remote recovery—A pcAnywhere host is built into the Symantec LiveState Recovery boot environment. Use an existing Symantec pcAnywhere™ client to connect to the host and conduct a remote recovery.</p>	<p>Administrators can recover a remote system without traveling to the site and still be assured that the job is done right.</p>
<p>NEW VSS support—Symantec LiveState Recovery will automatically create a clean backup of databases that support VSS (Microsoft Volume Shadow Copy Service). Capturing a reliable backup of databases has never been so easy. By backing up the volume that contains a VSS compatible database, log files in memory will be written to disk and included in the backup. For non-VSS compatible databases, LiveState Recovery will allow administrators to automate commands that run before and after the backup to put databases into a quiet state.</p>	<p>Server systems and databases can be backed up seamlessly with little or no interruption.</p>
<p>NEW VVM/dynamic disk support—Systems that use Dynamic Disk volumes can be backed up and recovered. During recovery, the user can restore data volumes to an unformatted disk structure as basic disks or can convert the disk to dynamic and then restore the data volumes as dynamic volumes.</p>	<p>Allows for simple recovery of Dynamic Disk volumes.</p>
<p>Schedule backups to occur live in Windows®—With Symantec LiveState Recovery, backups run live without interrupting normal Windows operations. Full and incremental backups can be scheduled to run at regular intervals providing multiple points of the system and files that can be recovered.</p>	<p>Saves time by scheduling automated backups. Permits business continuance and shortening of the backup window.</p>
<p>Rapid file recovery—Once a LiveState backup image file is created, it can be mounted on a system as a read-only drive. The files and directories in the backup file can be explored, opened, moved and copied just as any other logical drive. Mounted image files can also be scanned for viruses, searched and shared over a network just like any Windows directory.</p>	<p>Nearly instant file recovery and access to the file system. Access to the files is as easy as browsing for them on your own computer using Windows Explorer.</p>
<p>NEW Multiple encryption levels—To assure that images are kept safe from unauthorized access, users can choose 128 bit, 192 bit, or 256 bit encryption for their backup.</p>	<p>Data is encrypted at the backup client even before it is sent to the backup storage device.</p>
<p>Backup to most any Windows® addressable location—Symantec LiveState Recovery supports backing up directly to NAS, Fibre Channel, SCSI, iSCSI, ATA, SATA, USB, 1394 (Firewire), and CD/DVD devices.</p>	<p>Rather than defining a storage pool for backups, administrators can simply attach and map a storage device using native Windows addressing.</p>

Summary

A bare metal recovery solution for Windows-based servers, desktops and laptops, Symantec LiveState Recovery provides system administrators the ability to quickly recover from hardware, software, or user errors. Symantec LiveState Recovery provides fast and reliable system restoration with easy-to-follow Wizards. Using real-time, LiveState imaging technology, administrators can create a block-level image of the system and schedule incremental images to capture only the changes since the previous incremental. Once the LiveState image is created, in the case of a system failure the administrator can quickly recover back to a specified point in time. With Symantec LiveState Recovery, administrators can reliably perform bare metal recovery or recover individual files and folders from a system image within minutes.

To find out more about Symantec LiveState Recovery or to receive a free evaluation copy, visit <http://sea.symantec.com/slsrecovery> or call 1-800-721-3934.

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WORLD HEADQUARTERS

**20330 Stevens Creek Blvd.
Cupertino, CA 95014 U.S.A.
408 517 8000
800 721 3934**

www.symantec.com

**For Product Information
in the U.S., call toll-free
800 756 7260**

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operations in 35 countries.
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offices and contact numbers
please visit our Web site.**