CommVault Galaxy® Data Protection 7.0 for Enterprise Deployments

Simplified, Enterprise-Class Protection for File Systems, Applications and Database Systems

Key Benefits

▶ Improve Administrator and Operator efficiency by reducing the backup and recovery burden

▶ Simplify operations with guided recovery

▶ Dramatically improve recovery performance

▶ Find and restore individual files, email and database objects quickly and easily

▶ Complete more jobs in the time allocated for backup and recovery

▶ Recover data easily and quickly to alternate systems and locations, to enable test, staging and disaster recovery

▶ Dramatically reduce disk and tape use

▶ Rapidly find and fix gaps in data protection

▶ Easily report on the value of data management

▶ Improve media handling with built-in tape tracking and rotation management

▶ Protect all key systems, applications and databases with a single solution

▶ Benefit from CommVault® core competencies for data protection

Easily add capabilities for protection, archive, replication and snapshot recovery, all managed from the same Unified Console.

The Business Challenge

Managing data is usually about managing costs: the cost of disk and tape required to store data, the cost of the time required to manage the backup jobs to completion, the cost of delays when data cannot be found and restored quickly. Typically, data protection is more of a problem than a solution.

The CommVault® Solution

CommVault Galaxy® Backup & Recovery software delivers what you really need: reliable data recovery with maximum cost-efficiencies. CommVault Galaxy software makes it easy for you to browse and find data, select as little or as much as is needed, and then recover it quickly and efficiently. CommVault Galaxy software is application-aware and self-managing, so that you can spend your time on something more productive than double-checking backup copies. Point-and-click reporting saves time and helps you ensure that jobs complete.

The CommVault® solution is designed for fast, easy deployment with your existing infrastructure—so your time-to-better-backup can be days and not months.

Keep reading to find out what thousands of enterprise companies already know, and why CommVault Galaxy software is the fastest-emerging backup and recovery solution available.

Increased Productivity

Better Recovery Operations

Most other backup offerings start by managing devices. CommVault Galaxy software starts from the data and enables you to define what you need to do with the data, such as how many copies you need, for how long, and when to retire it. Then, CommVault Galaxy software does the work for you—managing the devices transparently to ensure efficient, cost-effective use of storage while preserving simple, one-step recovery.

Granular, object-level recovery is provided with easy, point-and-click browse and selection. Using CommVault Galaxy recovery, you find the data, select it, and recover. You do not have to start by finding the tapes or scanning jobs; CommVault Galaxy software tracks the data location to let you focus on the data.

Better Backup Operations

Completing backup and recovery jobs is often the key challenge for backup administrators. Typically, much time can be wasted verifying that jobs have run—and completed—and then diagnosing the network, server or storage problem that disrupted operations.

CommVault Galaxy software provides advanced retry and failover resume capabilities that help jobs to complete even when failures occur, along with comprehensive point-and-click reporting to make verification a snap.

Key Capabilities

▶ **Ultra-rapid deployment with existing infrastructure**—CommVault software is easy to install, configure and manage. Support for a wide range platforms and application versions makes it easier to maintain your systems environment.

▶ **Web browser-based management**—Administrators and operators can manage data from virtually any location with web access.

▶ **Fully configurable user-level security access levels**—Define and assign operational and management activities to different users and user groups.

▶ **Simple-to-operate recovery**—Out-of-box simple, guided recovery that makes it easy for operators to handle recovery tasks.

▶ **CommVault Galaxy® Job Completion**—Retries the job automatically, to help ensure completion. Failover resume capabilities use alternate systems and data paths when equipment and networks fail.

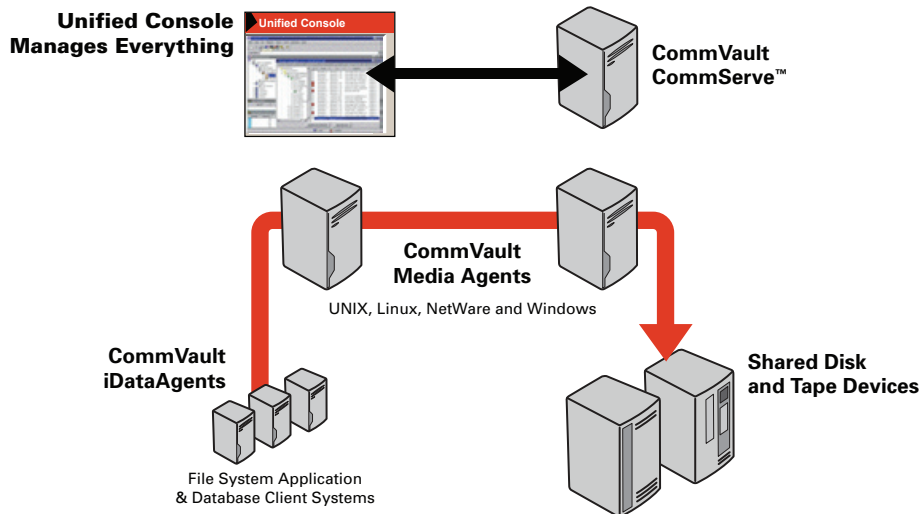▶ **Efficient Library and Device Management**—Easily share and manage disk and library devices, and manage mixed drives, for best cost-efficiencies.

▶ **Tape Spanning and Appending**—Use fewer tapes by appending partially-full tapes, and spanning tapes with a single backup job. Single-step data recovery is still preserved.

▶ **Point-and-Click Reporting**—Verify that backup jobs ran— and completed. Quickly find and fix problems, and verify CommCell™ system readiness before critical jobs are started. Audit operator and administrator tasks and activities, to find and correct human error.

Unified Console Manages Everything

CommVault CommServe™

CommVault Media Agents
UNIX, Linux, NetWare and Windows

CommVault iDataAgents
File System Application & Database Client Systems

Shared Disk and Tape Devices

More Jobs Complete with CommVault Galaxy® Failover Resume

In the event that a CommVault Galaxy backup node (called a *Media Agent*) fails, the backup and recovery jobs are automatically resumed on alternate nodes. Resume means that the job does not have to restart from the beginning, but is resumed from the point of failure. This can be critical for finishing long jobs, in particular. CommVault Galaxy software also resumes jobs using alternative network connections when networks drop. CommVault Galaxy software uses this same capability to switch backup jobs to alternative tape drives when drives fail. The advanced design of CommVault Galaxy software preserves easy, one-step recovery even when backup copies span tapes.

Better Library and Device Management

Most other backup offerings require add-on software including third-party software and complex setup to manage what should be basic configurations for data protection. CommVault Galaxy software makes it easy for you to attach and use the devices and libraries that you have in your environment.

Point-and-Click Reporting

Reports that verify that backup jobs ran—and completed—along with recovery job history, tape tracking and rotation, operator and administrator audit tracking and other key reports are available with easy point-and-click access right from the CommVault Unified Console. Reports can be saved, exported and attached to email for easy distribution. In the same point-and-click interface, reports can also be scheduled to be created and sent on email—without the administrator's assistance.

Reporting which includes analysis of the use of primary storage and secondary storage for backup copies, is also available as an easy add-on to the CommVault Galaxy solution.

Fast, Comprehensive Search and Find

CommVault software provides unique capabilities to search across all copies of managed data in a CommCell™ with a single search request. Searchable fields include file and email objects, as well as time, job and location details. Search of backup copies can be combined with search of archive copies in the same CommCell. For more information on CommVault search capabilities, see the search datasheet.

Application Benefits

CommVault offers iDataAgents (iDAs) to work with CommVault Galaxy software for business-critical applications. These iDAs integrate with application APIs to deliver on-line coherent backup and granular, object-level recovery.

Email Systems Protection

CommVault Galaxy iDAs are integrated with Lotus Notes, Notes Domino, and Microsoft-certified to protect Exchange messaging systems. Granular

Built-in reporting options make finding and fixing backup problems a snap. Color-coded for easy scanning, administrators can validate that backups occurred and quickly spot incomplete backup jobs listed in red.

Reports can be created at the touch of a button right from the Unified Console interface. Reports can also be scheduled, exported and attached to email for easy distribution.
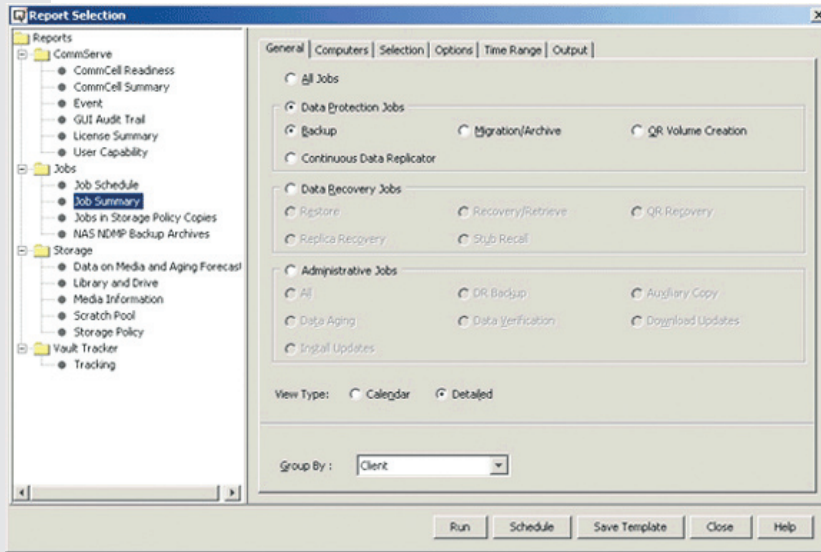
CommVault Galaxy software enables point-and-click browse and recovery of individual mail messages, mailboxes and entire mail databases—and recovers the data without requiring you to first locate tapes.
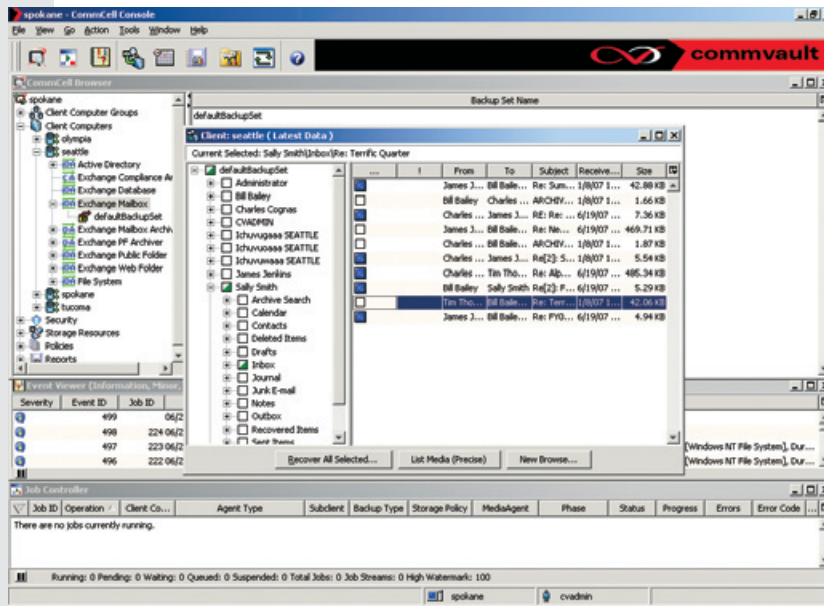
recovery of individual mail messages, mailboxes, and entire mail databases is provided. With this solution, you can find and restore individual mail messages using a single keyword, all with point-and-click ease from the Unified Console.

ERM Systems Protection

Simplify management and coordinate data protection and recovery across complex, multi-tiered Enterprise Resource Management systems. CommVault's solution is certified with SAP R/3 and NetWeaver, and is also well-suited for deployment with other popular ERM solutions by easy embedding of pre- and post-processing commands in the CommVault Galaxy backup and recovery process.

Database Systems Protection

Integrated with key API sets to ensure coherent database protection, including:

▶ RMAN for Oracle and Oracle RAC

▶ ONBAR XBSA API set for Informix

▶ DB2/UDB API set

▶ MSDN VDI interface for SQL Server, to support parallel backup streams and best data protection performance

▶ Sybase

File Systems Protection Including Directory Services and File Sharing Capabilities

CommVault Galaxy software coordinates backup and recovery for all parts of a platform that are interconnected to deliver file system, directory services and file sharing services. For example, this enables you to simplify management and coordinate data protection of Windows platforms with document-level backup and recovery of Microsoft Active Directory with foreign character support. You can also simplify data protection for Novell NetWare platforms with document-level backup and recovery of NetWare eDirectory services, GroupWise and Open Enterprise System (OES) environments running SuSE Linux.
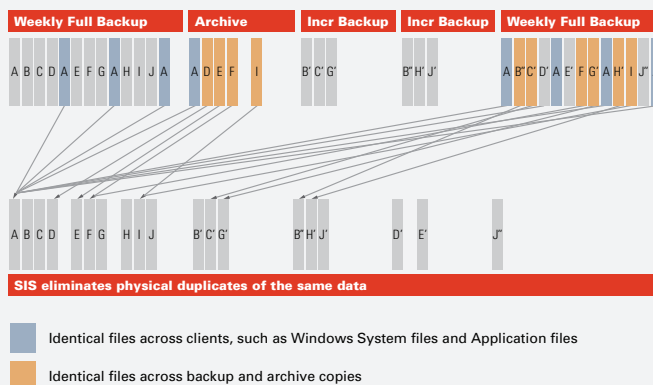
Use CommVault Galaxy software to obtain best-in-class protection and object-level recovery of all your business-critical applications and systems data. CommVault Galaxy operations are designed to be more scalable, more reliable, and more usable across hundreds of heterogeneous systems. These capabilities work with virtually any disk and library architecture you require, and divide backup and recovery loads across UNIX, Linux, NetWare and Windows systems, according to your preference and requirement.

Built-In Disaster Recovery

CommVault Galaxy software includes built-in capabilities for disaster recovery by default, making it quick and easy to recover a CommVault CommCell™ environment at a hot site following disaster. Capabilities include full and differential backup of the CommVault index stored at the CommServe™. A two-phase export-and-backup process makes index backup fast and efficient to accomplish as part of a weekly or bi-weekly cycle. Administrative time is not required to oversee this process, which is configured with default settings to avoid the typical overhead associated with index management.

CommVault® Single Instance Store (SIS) Capability

Weekly Full Backup	Archive	Incr Backup	Incr Backup	Weekly Full Backup
A B C D A E F G A H I J A	A D E F I	B' C' G'	B'' H' J'	A B'' C' D' A E' F G' A H' I J' A

A B C D   E F G   H I J   B' C' G'   B'' H' J'   D'   E'   J''

SIS eliminates physical duplicates of the same data

▢ Identical files across clients, such as Windows System files and Application files

▢ Identical files across backup and archive copies

▶ To expand on the benefits of disk-based data management, Single Instance Store (SIS) eliminates duplicate copies of files and attachments found in backups and archives stored on disk. SIS does this by comparing the contents of files to find duplicates; matches are not affected by any differences in file names, properties or attributes. This method ensures that exact digital duplicates can be matched and eliminated across data sets, applications, clients and OS platforms, maximizing compression benefits. As new backup and archive copies are made, the compression ratio continuously improves as the number of duplicate files avoided continues to increase. As shown in the figure, the SIS capability is especially helpful for:

▶ Eliminating duplicate files across backup cycles

▶ Eliminating duplicate files across backup and archive copies

▶ Consolidating tape copies of data to SIS disk copies for search and discovery

SIS capabilities can apply to primary backup and archive copies of data, as well as to secondary copies created by Storage Policies. As logical copies of data are aged and pruned, reference links to the single physical copy are eliminated until none remain, after which the physical copy is also removed.

Key Features and Benefits

Features	Benefits
Easy, fast recovery of file system, database and application data using object-level recovery capability	Fast data recovery and business resumption. No need to recover an entire Exchange database, SharePoint database, or volume—which could take days—when all you need is a single data object which restores in minutes.
Easy right-click select among multiple file versions	See multiple versions of the same file, and easily select all, some or one to recover the exact version that your business-user requires.
One-Pass Restore volume-level recovery	Speeds recovery and reduces tape wearing, by restoring all data using a single pass through the tape without needing to recover multiple versions of the same file like other backup offerings do. Same capability works on disk, to offer faster restore.
Skip Errors and Continue	Obtains and restores files and information that are possible to restore, even when some files requested may not be found. When selected, this option causes CommVault Galaxy software to Ignore media errors and continue the restore operation without going into pending mode. This option will also provide a file list (full path names) that failed to restore due to "seek" errors, for easy troubleshooting.
Distributed relational index	Eliminates issues typically associated with managing other backup software catalogs. Relational structure ensures high-speed performance for index look-ups. Double-commit store of index ensures recoverability, and eliminates the need for administrative management of the index.
Built-in Disaster Recovery Backup	Built-in capabilities ensure that the meta-data stored at the CommServe™ is self-managed and easy to restore at hot sites.
Full, incremental, differential and Synthetic Full backup options	Enables most efficient data protection possible, and with appropriate use of storage media to ensure just as rapid recovery from synthetics as from fulls.
Easy Auxiliary Copies, configurable for in-line, selective, synchronous or cascading	Ensures compliance with your policies for data protection and retention, and ensures recoverability since a copy of the data is always available.
Granular backup job control and management	Fine-tune your operation by controlling all jobs by queue, pre-emption, priority, on-demand restart, and update interval. Suspend, resume or kill any job using the Job Controller Window at will.
Multi-streaming and multi-plexing	Depending on backup needs, such as when managing many small files or when writing to fast-performing drives, these capabilities can offer improved performance and efficiencies to perform backups more quickly and fit into smaller windows.
Round-robin load balancing of backup loads using available systems	Perform backups more quickly and fit into smaller windows, by dividing backup loads among UNIX, Linux, NetWare and Windows systems.
Efficient port utilization when backing up through firewalls	Depending on your needs and configuration, as few as two ports are required to backup through a firewall, saving you money and resources.

Key Features and Benefits (continued)

Features	Benefits
Shared library management	Increase ROI on expansive library equipment, by providing shared access to libraries and built-in robot management from multiple backup servers. Because library sharing is built-in, it is easier to deploy, manage and maintain than with other backup offerings.
Shared drive management	Append data and fill removable media such as tape, rather than wasting tape and increasing your costs if tapes are not filled when you need to rotate them off-site.
Data aging, which is the automated pruning of older data from disk	Avoid the need for expensive add-on or third-party software to manage different types of tape drives in the same library.
Rapid, Easy Install	CommVault Galaxy software is rapid and easy to install, locally or remotely, saving time and money that is typically required for deployment services. Silent installs are offered for most CommVault Galaxy agents, preventing the need for disruptive server reboots and enabling deployments and updates to occur during normal business hours. Remote library configuration is supported, preventing the need for on-site visits to remote locations as part of the deployment or upgrade process.

Single Instance Store (SIS) Key Features and Benefits

Features	Benefits
Removes Duplicate Files from Backup and Archive Copies	Finds and removes duplicate files to reduce the amount of physical disk space required to store the same amount of logical data. Increases the amount of data that can be held in short-term retention on disk, enabling faster recovery and search access using less disk.
Support for Any Disk Hardware	Use with existing disk to gain immediate SIS benefits with no changes to the hardware infrastructure. Easily migrate SIS copies to new disk technologies, and combine use of disk from multiple vendors. Use DAS, NAS, SAN and other storage architectures according to business requirements and gain immediate SIS benefits.
Supported with Compression and Encryption	Combine use of SIS with data compression and encryption to further collapse and secure data as it is sent on networks and written to disk. Unlike de-duplication which prohibits use of compression and encryption, CommVault SIS enables this use to provide maximum benefits.
Available On-Demand for Any Backup or Archive Data Copy	Can be applied at the time that the initial backup or archive operation occurs, or can be applied after that to existing data copies. This enables older data copies made with previous versions of CommVault software to benefit from SIS capabilities, such as when older copies may be copied to disk for search or staging.
Fast Restore	Preserves fast restore of individual files from disk, as compared to de-duplication technologies which must first rebuild file images from blocks.
Supported with De-Duplication	Enables SIS copies to be written to de-duplication appliances, such as the Network Appliance A-SIS device. The combination of removing file duplicates with SIS and removing block duplicates from across files with de-duplication provides the best net reduction in disk space requirements.

Additional Solutions to Use with CommVault Galaxy® Software

CommVault offers a *Singular* suite of data management software built on the same software platform so that all capabilities work together. This makes it easy to add capabilities when and how you need them. To add on to CommVault Galaxy software, consider:

▶ **Archive**
- Control cost and growth of file system and Exchange Server data
- Extend the life of storage systems
- Be prepared for legal discovery and compliance regulations

▶ **Continuous Data Replicator (CDR)**
- Remote Office Data Centralization and Protection
- Disaster Recovery
- Mount and Self-Restore of Replicated Data by Users

▶ **Quick Recovery™ Software**
- Higher Availability of Oracle, Exchange Server and SQL Server Using Snapshot Recovery
- More Frequent Points in Time of Protection
- Faster Recovery Time

▶ **Resource Management**
- Monitor and anticipate primary storage growth requirements
- Monitor and anticipate secondary storage growth requirements

System Requirements

Applications and Databases	Active Directory, DB2, Lotus Notes/Domino, Microsoft Exchange Server, Microsoft SharePoint Systems, Microsoft SQL Server, Novell GroupWise, Oracle, Oracle RAC, SAP R/3 and NetWeaver, Sybase
File Systems	AIX, FreeBSD, HP-UX, Novell OES Linux, Macintosh, Microsoft Windows and Active Directory, Microsoft Vista, NAS NDMP, NetWare and eDirectory services, Red Flag Linux, Red Hat Linux, SGI Irix, Solaris, SuSE Linux, Tru64
Media Agent Platforms	AIX, HP-UX, Solaris, NetWare, Microsoft Windows, Tru64, Red Flag Linux, Red Hat Linux, SuSE Linux. Clustering options are supported.
Single Instance Store	Windows and UNIX Media Agents
SIS Supported Backup Copies	Mac File System, Microsoft DPM, Microsoft Exchange Mailbox, Microsoft SharePoint Documents, Microsoft Windows File System, OES File system, ProxyHost, UNIX File System
SIS Supported Archive Copies	Domino Mailbox, Microsoft Exchange Compliance, Microsoft Exchange Mailbox/Public Folder, UNIX File System, Microsoft Windows File System, NAS Files, Microsoft SharePoint

Note: System Requirements are subject to change. For up-to-date System Requirements including 32- and 64-bit systems support, please refer to product documentation on the CommVault website at http://www.commvault.com

SIMPANA™
software suite

CommVault's Simpana™ suite of Data Protection, Archive, Replication, Resource Management and Search software is designed to work together seamlessly from the ground up, sharing a single code and common function set. This exclusive single-platform architecture enables unparalleled software efficiency, performance and reliability for unprecedented control over data growth, costs and risk.