

EMC TimeFinder Family



The most powerful suite of local replication solutions for increased application availability and faster data recovery

The Big Picture

- Minimize data exposure, recovery time by creating frequent point-in-time images
- Improve data recovery and application consistency
- Increase application availability, reduce scheduled downtime
- Enable non-disruptive access to critical data for concurrent processing activities
- Maximize performance in high demand replication environments
- Reduce replication TCO while meeting new service levels

Storage software that enables you to work smarter, not harder

The EMC TimeFinder® family of software is the most powerful suite of local storage replication solutions available. Fully leveraging the industry-leading high-end Symmetrix® hardware architecture, it offers unmatched deployment flexibility and massive scalability to deliver a wide range of in-the-system data copying capabilities to meet mixed service level requirements without operational impact. The field-proven TimeFinder family is the most widely deployed set of high-end replication solutions in the industry, with tens of thousands of installations in the most demanding environments. And, only the TimeFinder family can provide cross-volume and cross-storage system consistency, tight integration with industry leading applications, and simplified usage through automated management.

Faster and more efficient access to the increasing volume of information that floods businesses is a prerequisite for survival in today's connected world. Businesses have discovered that their customers are intolerant of delay and demand immediate access to information—with aggressive recovery-time and recovery-point objectives and with increasing pressure on cost. This no longer applies only to mission-critical data, but also to a vast range of data—from e-mail to collaborative computing to engineering development to sales proposals. The EMC TimeFinder family of local replication products for Symmetrix meets these requirements, allowing fast and flexible access to information critical to business requirements according to specific performance, availability, functional, and economic service level requirements.

Use the TimeFinder family to:

- Create instantly accessible business continuance volumes (BCVs): mirrors, clones and snapshots
- Perform backups quickly, frequently, and without disruption
- Reduce time limitations through workload compression
- Eliminate job-step copies to improve batch processing time
- Seamlessly load or update data warehouses as needed
- Provide production data for application development testing without scheduling downtime

EMC TimeFinder family

The EMC TimeFinder family of local replication allows users to non-disruptively create and manage point-in-time copies of data to allow operational processes, such as backup, reporting, and application testing to be performed independent of the source application to maximize service levels without impacting performance or availability. The TimeFinder family includes the following products:

TimeFinder/Clone: Create highly functional, high-performance, pointer-based, full-volume copies of Symmetrix DMX™ volumes that can be used as point-in-time copies for data warehouse refreshes, backups, online restores, and even volume migrations.

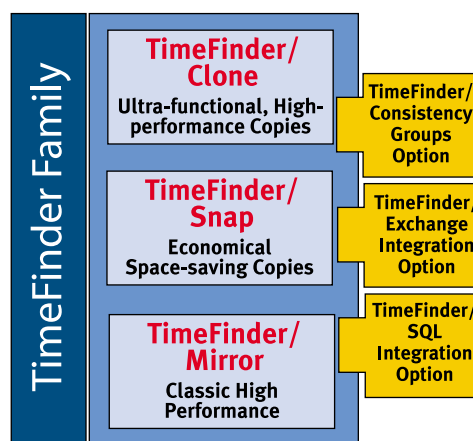
TimeFinder/Snap: Create high-function, space-saving, pointer-based copies (logical images) for Symmetrix® DMX systems that can be used for fast and efficient disk-based restore and backups.

TimeFinder/Mirror: Create classic highly-available, ultra-performance mirror images of Symmetrix volumes that can be non-disruptively split off and used as point-in-time copies for backups, restores, decision-support, or contingency uses.

TimeFinder/Consistency Groups: Enable other TimeFinder family products to coordinate cross-volume and cross-system consistency to ensure application restartability.

TimeFinder/Exchange Integration Module: Automate and simplify the process of creating and managing TimeFinder replications in a Microsoft Windows Exchange Server environment.

TimeFinder/SQL Integration Module: Automate and simplify the process of creating and managing TimeFinder replications in a Microsoft Windows SQL Server environment.



Business continuance volumes

There are several forms of copies, or business continuance volumes (BCVs), associated with the TimeFinder family—clones, snaps, and mirrors, for example—but they all share a common ability to protect from logical data corruption and provide a second, logically separate copy of your data at a specific point in time. Each type of copy mechanism offers a different service level enabling users to balance business and technical requirements such as performance, availability, functionality, and economics.

The BCVs are images of active production volumes that are logically or physically separate from the production volumes, with no reliance on the production host, thus providing protection against physical or logical corruption. The BCVs can be used to run tasks that cannot otherwise be performed without seriously impacting production availability. This parallel processing capability offers workload compression and significantly increases productivity while maintaining continuity needs. Once the BCV task is complete, the volume can be resynchronized with the production volume, reassigned to another production volume, or maintained “as is” for another task.

Increased information availability

The TimeFinder multi-BCV function, available in TimeFinder/Clone, TimeFinder/Snap, and the TimeFinder/Mirror option, allows the creation of up to sixteen separate BCV relationships to be paired with a single standard volume. This enables restores to be performed incrementally from any one of sixteen volumes, thus accelerating restore time and shortening recovery-point objectives (RPOs) and recovery-time objectives (RTOs).

Multiple copies of BCV data can be used for other purposes such as testing, backups, data mining, and loading of data warehouses. In addition, BCVs can themselves be RAID-protected (including RAID 5 for TimeFinder/Clone and TimeFinder/Snap), adding to the resiliency of the point-in-time copies.

When TimeFinder is used with the Symmetrix Remote Data Facility (SRDF®) family of remote replication solutions, BCVs may reside on both the source Symmetrix system and a remote target Symmetrix. TimeFinder commands can be issued across SRDF communication links enabling remote management of BCVs, making it easier to create and manipulate BCVs from a central location.

Common to the TimeFinder family base products are functions to enhance performance by making a BCV immediately available to host systems at a chosen point in time. This allows important tasks against logical volumes to start immediately. Once a command is executed, the BCV is available to the host for immediate use—both read and write activity—saving valuable production time since it’s not necessary to wait for background tasks to complete.

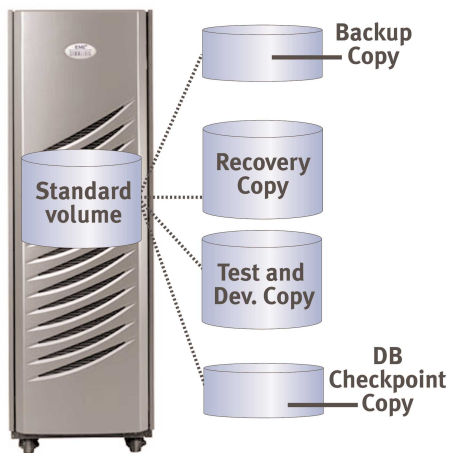
Concurrent BCVs: multiple copies at the same point in time

The EMC TimeFinder concurrent BCV feature enables two BCVs to be simultaneously attached to a standard volume. The BCV pair can be split, providing users with two copies of the source data. When split, each can be used for different applications, such as backup or query reporting.

Winning the “race to sunrise”

For global enterprises or government agencies, the amount of time available for backups is typically squeezed both at the front and back ends. The TimeFinder family puts an end to this crunch.

With the TimeFinder family, backup operations are performed against BCVs, leaving the production copy fully available for regular business needs. Applications and systems that would normally shut down, or at best slow down, remain up and running, earning revenue and serving customers. Alternatively, systems may now accommodate additional applications, gaining further productivity from your existing investment.



A backup strategy that works smarter, not harder

The TimeFinder family makes the often tedious backup function more streamlined and efficient. Backup operations can be conducted on BCVs at any point in time and as frequently as desired. Limitations and risks imposed through partial backups are drastically reduced. Normal procedures can be used to back up the BCV contents onto tape while your applications continue providing full service.

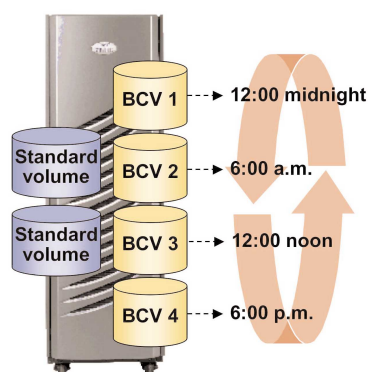
Mainframe and open systems independent software vendors (ISVs) have integrated TimeFinder with their various application management tools to non-disruptively obtain point-in-time copies of application data. This enables activities such as database backup, recovery, and reorganization to be performed automatically and efficiently using fewer host resources. Integration with open systems management tools provides TimeFinder family users with the ability to manage volumes, including BCVs, from a single platform.

Load or update data warehouses with ease

By using BCVs as the data warehouse load source, business continues as usual even as the warehouse is populated with information or refreshed. Since updates are not disruptive, they can be made more frequently, providing a more accurate basis for data analysis and smarter, timelier business decisions. “What if” scenarios can be run on more up-to-date information, which can result in more accurate business predictions.

Rapid, reliable application restart

With either full-volume copies or snapshot images, having a recent local image available can greatly increase your options should you need to fall back to an older copy of your data. With snapshots, for example, you can create images at regular intervals throughout the day and have them available for an instant restore (without having to wait for the background copy processes to complete). This can be accomplished utilizing a fraction of the disk space required by full volume copies, enabling significant economic savings for certain applications.



Maintaining continuous application availability while reducing recovery-point and recovery-time objectives via business continuance volumes (BCVs)

Test applications faster, more reliably

The pressures of today’s business environment—reduced budgets, reduced staffing, tighter schedules—demand uptime, rapid application development, agility, and speed. And with TimeFinder/Snap, these demands can be met with a cost-effective solution requiring fewer dedicated resources (both capital and human). TimeFinder/Snap allows you to make consistent point-in-time images of your application volume sets with a minimal amount of planning and resources.

Proven investment protection

Deriving maximum performance and operational efficiencies through people, processes, and equipment is critical to success. In order to extract efficiencies out of operational processes, your underlying infrastructure must be flexible, scalable, manageable, and above all else, available. The EMC TimeFinder family is the most widely used local replication solution available, so you have the opportunity to take advantage of what’s new without disrupting long-range plans. This means that Symmetrix customers are not forced to revamp or relearn what they have already come to know. Customers who invest in the Symmetrix 8000 series or the Symmetrix DMX series of storage arrays can rest assured that their investment in software applications is protected.

Processes and procedures can be leveraged for maximum value today and in the future

This consistency is also ensured because the advanced functionality of TimeFinder is host-independent, and can even operate in mixed mainframe and open systems environments. So, even as your environment changes, the TimeFinder family will be there.

Application integration that reduces downtime and lost application availability

With the TimeFinder/Exchange and TimeFinder/SQL Integration Module options, you no longer have to worry about halting I/O or shutting down applications just to make sure that the copies of the underlying data volumes are consistent and restartable as a set. Each of these application classes has architectural restrictions which make it hard to merely take a point-in-time image of the volumes because not all of the application data is written to the volumes from host memory without specific processes being followed. These integration modules help assure minimal application impact from the process of creating point-in-time copies.

Continuous business from business continuity

EMC's SRDF family is the industry's premier remote replication business continuity solution. It mirrors data transaction-for-transaction from a source Symmetrix system to a target Symmetrix located across the hall or across the globe. In an SRDF/Synchronous (SRDF/S) environment, TimeFinder/Mirror allows BCVs to act as SRDF/S source volumes for the SRDF/S mirroring function. Local or remote BCVs can be used for data mining, e-business content delivery, application development, testing, backups, or numerous other uses.

TimeFinder/Clone

TimeFinder/Clone enables the creation of pointer-based, full-volume copies for both open systems and mainframe environments. The mainframe SNAP feature also enables dataset-level copies. Business continuity can be significantly enhanced with the addition of TimeFinder/Clone because operations such as backup, decision-support, more frequent data warehouse refreshes, and testing can proceed against production data without impacting user access or production operations. The backup window is virtually eliminated, and more tasks can be done with the same data. TimeFinder/Clone also complements also the SRDF family of remote replication products. Together, they provide a disaster failover solution that also allows customers to create BCVs against the remote copy, offloading processes from the production system. Combining these two products forms a powerful solution for online data availability and disaster recovery.

Clone copies can be made from any source to any target volume type (for example, from a RAID 1 source to a RAID 5 target) as long as the target is at least as large as the source. This makes TimeFinder/Clone extremely valuable for migrating data between protection types or even to larger volumes.

TimeFinder/Clone features include:

- Immediate BCV availability
 - Support for RAID 5-protected copies
 - Volume and dataset-level copies for mainframe
 - Incremental recreate/update and restore and up to 16 copies of a single source volume
-

TimeFinder/Clone functionality is fully supported through SymmAPI™, allowing numerous third-party software developers to incorporate TimeFinder family compatibility directly into their products. It also includes a TimeFinder/Mirror emulation mode which enables the use of existing TimeFinder/Mirror scripts with TimeFinder/Clone for simplified addition of TimeFinder/Clone management and integration into an existing TimeFinder/Mirror environment.

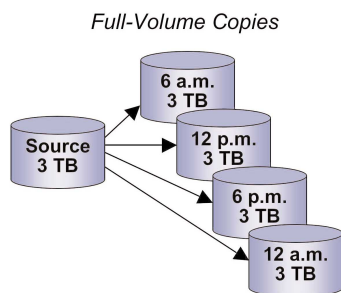
TimeFinder/Snap

TimeFinder/Snap software offers economic, space-saving, pointer-based copies (logical images) for Symmetrix DMX series systems. With TimeFinder/Snap, you can significantly reduce capacity requirements while improving both recovery-point and recovery-time objectives. It is appropriate when service-level requirements make economics more important than absolute performance. For example, in applications where storage resources are constrained, or there is a need to reduce RPOs, and performance is not a primary consideration, TimeFinder/Snap may be the best solution since it allows for more point-in-time copies for a given amount of disk space.

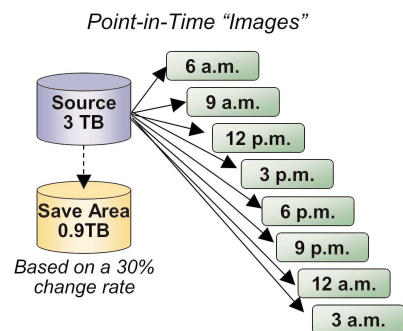
Benefits of TimeFinder/Snap include:

- Minimize data exposure and recovery time through more frequent point-in-time images of data
- Non-disruptive access to critical data for concurrent processing for backup, reporting, testing, migrations, and data warehousing
- Improved data recovery and application consistency versus traditional backup solutions and other disk-based solutions
- Reduced replication TCO while meeting new service levels for economics and RPO/RTO

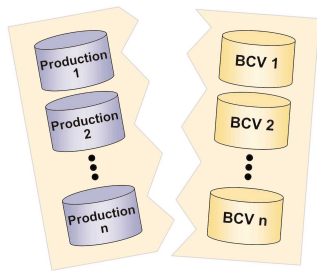
Database checkpoints every six hours in a 24-hour period



Database checkpoints every three hours in a 24-hour period



The TimeFinder family also contains several family options to help meet specific service-level requirements by enabling increased application availability, automation, and application consistency.



TimeFinder/Consistency Groups: ensuring data consistency across volumes, databases, and even multiple systems

TimeFinder/Mirror

TimeFinder/Mirror is functional software for Symmetrix that creates full-volume mirrors of production data allowing you to run simultaneous tasks in parallel with one another. In addition to realtime, non-disruptive backup and restore, TimeFinder is used to compress the cycle times for such processes as application testing, software development, and loading or updating a data warehouse. This significantly increases efficiency and productivity while maintaining continuous support for the production needs of the enterprise.

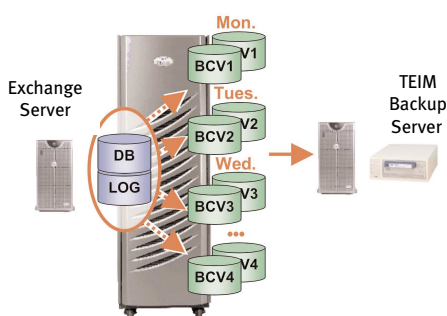
TimeFinder/Mirror is the industry-leading local replication solution with tens of thousands of licenses sold since 1997. It offers the best performance and functionality of any solution available today. As part of the Symmetrix local replication family of solutions, TimeFinder/Mirror also enjoys a high degree of integration and interoperability with the EMC SRDF family of remote replication products.

TimeFinder/Mirror features include incremental establish and restore, instant split, concurrent copy, and instant restore. TimeFinder/Mirror functionality is fully supported through SymmAPI, allowing numerous third-party software developers to incorporate TimeFinder family compatibility directly into their products.

TimeFinder/Mirror is the best choice when demanding production requirements stress overall system performance, functionality, and scalability while still meeting high levels of service. Included with TimeFinder/Mirror are two alternatives to creating RAID 1 full-volume copies.

TimeFinder/Consistency Groups

TimeFinder/Consistency Groups is software for Symmetrix systems which enables other TimeFinder family products to create multi-volume sets of point-in-time copies at the same instant, ensuring that as a set they are consistent and restartable, even when spread out across multiple Symmetrix volumes and even when application data is spread across multiple storage systems. Without this capability, applications would have to quiesce or shut down in order to ensure that all devices are copied at the same point in time.



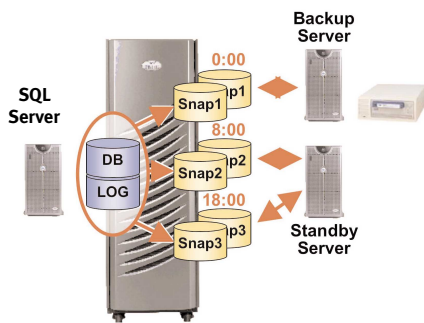
TimeFinder/Exchange Integration Module: Maintaining continuous application availability in MS Exchange environments

Consistent, restartable, point-in-time images with EMC's patented Consistency Assist technology

When copying or cloning multiple interdependent logical volumes, it is absolutely critical that all volumes be "captured" at precisely the same instance. With EMC TimeFinder family products, the Symmetrix system has the ability to momentarily pause all I/O from the host, allowing the point-in-time image to be fully consistent and restartable from an application integrity perspective without impacting the host application. TimeFinder's consistency features, available with the TimeFinder/Consistency Groups option, allow the simultaneous creation of a group of BCVs from different standard volumes in one or more Symmetrix systems. When used with EMC SRDF/S or SRDF/A, consistent copies can be created on remote Symmetrix systems. The automation tools for the TimeFinder family make this process easy to manage.

TimeFinder/Exchange Integration Module and TimeFinder/SQL Integration Module

TimeFinder/Exchange Integration Module software automates and simplifies the process of creating and managing TimeFinder replications in a Microsoft Windows Exchange Server environment. Windows is a vital part of many companies' mission-critical information delivery systems for database applications and mail communications.



TimeFinder/SQL Integration Module: maintaining continuous application availability in Microsoft SQL Server environments

Take the Next Step

For more information on the EMC TimeFinder family of local replication products and how it can accelerate your IT operations and business processes, contact your EMC sales representative or authorized EMC value-added systems integrator. Or visit our website at www.EMC.com.



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Data Sheet
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TimeFinder/Exchange Integration Module enables complete enterprise backup for Exchange 5.5, Exchange 2000 and 2003 Servers, and SharePoint Portal Server (SPS) systems that use Symmetrix. TimeFinder/Exchange Integration Module produces exact copies of the production volumes that contain the Exchange Server information stores and logs, enabling Exchange administrators to perform both full- and single-mailbox restores in a fraction of the usual time. Both basic and dynamic disks are supported. Dynamic disk support requires VERITAS Volume Manager.

TimeFinder/Exchange Integration Module includes the Systems Integration Utility (SIU) which provides command-line support that makes TimeFinder use easier in a Windows 2000/2003 Server environment. Both basic and dynamic disks are supported.

TimeFinder/SQL Integration Module for Windows software automates and simplifies the process of creating and managing TimeFinder replications in a Microsoft Windows SQL Server environment. It provides fast point-in-time, production database backups, initialization of a standby database on the mirror host, and production database restoration in the event of disaster in an SQL Server 2000 environment. Both basic and dynamic disks are supported. Windows 2000 Dynamic Disk Support requires VERITAS Volume Manager for Windows 2000.

TimeFinder/SQL Integration Module ships with the Systems Integration Utility (SIU) which provides command line support that makes TimeFinder use easier in a Windows 2000/2003 Server environment. Both basic and dynamic disks are supported. Dynamic Disk Support for Windows 2000 requires VERITAS Volume Manager.

Maximize TimeFinder family benefits with EMC Services

EMC Services delivers expert implementation of TimeFinder family products, leveraging EMC's extensive storage deployment best practices and proven methodology, to accelerate business results without straining your resources. Our services professionals have the technical expertise, skills, and resources needed to help you quickly realize the value of TimeFinder family software in your Symmetrix environment without the risks associated with self-implementation. The EMC Global Delivery Model ensures rapid, flawless service delivery to every customer in every engagement, regardless of location.

EMC Services for the IT lifecycle

EMC Services delivers results to our customers throughout the IT lifecycle—Plan, Build, Manage. Strategic storage consulting services from Information Solutions Consulting help companies achieve the maximum value from their information, at the lowest total cost, at every point in the information lifecycle. EMC delivers product-specific point solutions in addition to comprehensive custom planning, design, implementation, and integration services for EMC technology—everything from consolidation of your current resources to a transformation of your environment to achieve information lifecycle management. EMC Customer Service—three-time winner of the SSPA STAR Award for outstanding mission-critical support—helps you keep your information available 24/7 to deliver competitive advantage and drive revenue. And EMC Global Education drives the value of your investment with a comprehensive portfolio of customer courses.

Ask your EMC sales representative about the full spectrum of services from EMC that can benefit your organization.

Installation Specification:

This product, if entitled to EMC installation, will be installed within one hundred twenty (120) days after shipment unless otherwise delayed by (i) customer's acts or omissions, (ii) mutual agreement, or (iii) conditions beyond EMC's control.