**TECHNOLOGY BRIEF**
DiskSafe™ Technology

# Achieve RPO ZERO

## Application-aware DiskSafe™ technology gives you 0% data loss for 100% peace-of-mind.

FalconStor® DiskSafe™ is a host-based replication software agent that delivers block-level data protection for a broad base of software and hardware platforms.

Continuous access to mission-critical data is essential to the success and operations of businesses. Loss of data, no matter how brief, has negative financial ramifications. The FalconStor DiskSafe agent protects data by replicating block-level data, either by partition or by entire disk, to the FalconStor server solution. FalconStor DiskSafe offers two modes of data protection; continuous or periodic. FalconStor DiskSafe delivers real-time data protection for either DAS or SAN storage. When combined with FalconStor servers, it provides a comprehensive solution to meet your need for end-to-end data protection, remote disaster recovery (DR), and backup.

### HIGHLIGHTS

- Supports Microsoft Windows Server and Linux operating systems
- Flexible architecture integrates seamlessly with storage infrastructure
- Simplified block-level data protection
- Support for both Fibre Channel (FC) and iSCSI
- Cluster support for continuous protection
- Minimal host overhead
- Encryption capabilities for optimal security
- Flexible protection configuration
- Wide range of application-aware snapshot agents to ensure 100% transactional integrity
- Agents certified for Microsoft Windows, Microsoft Exchange, and Microsoft SQLServer
- Continuous or periodic data protection
- Instant local recovery, 30-minute remote recovery

In addition to eliminating the backup window, FalconStor DiskSafe dramatically increases the granularity of data protection. Instead of being protected once a day or once a week, application data can be protected continuously.

## NEW APPROACH TO DATA PROTECTION

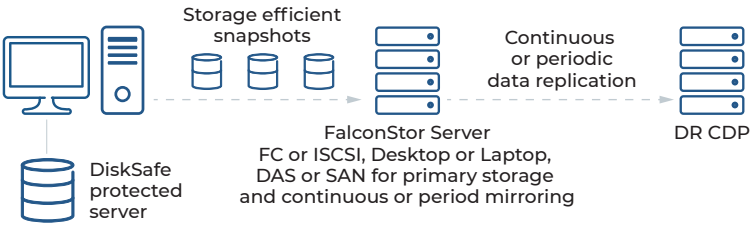
Traditional DAS or SAN data protection environments load each server with lengthy periods of downtime for backup operations. Associated recovery methods are cumbersome, often go untested, and cause significant downtime for business application operations. As data volumes grow, administrators have increased difficulty completing backup operations within accepted backup windows; typically nights or weekends.

In contrast to this method, the FalconStor DiskSafe agent transfers business data to secondary storage, where backup operations are executed without any impact to production environments, completely eliminating the backup window and providing local or remote recovery of data volumes. In addition to eliminating the backup window, FalconStor DiskSafe dramatically increases the granularity of data protection. Instead of being protected once a day or once a week, application data can be protected continuously.

## FALCONSTOR DISKSAFE OPERATION

FalconStor DiskSafe functions as a block-level I/O WRITE-Splitter. That is, every WRITE operation of a server, file system, or application to primary storage is duplicated to secondary storage behind a FalconStor server appliance. This block-level WRITE copy supports Fibre Channel (FC) or iSCSI protocols. Therefore, FalconStor DiskSafe and FalconStor servers easily fit into customers' existing network infrastructures.

This WRITE copy functionality can be set up in either continuous or periodic mode, accommodating any business requirement or network infrastructure. Data protection can extend from entire disks, disk partitions, or applications to target FalconStor server solutions in local or remote data centers. FalconStor Data Mastery Platform includes full backup, file or directory recovery, and individual email or database object recovery. DiskSafe protection can use a local or remote disk as the copy target. DiskSafe provides reliable data protection and rapid data recovery of folders and files, data disks or partitions, or the entire system.




## CLUSTER SUPPORT

FalconStor DiskSafe supports multi-node Microsoft Cluster Service in active-active or active-passive configurations. When a Microsoft Windows cluster node fails, FalconStor DiskSafe seamlessly continues mirroring fusing the remaining nodes. When the failed node is restored, mirroring resumes on that node automatically.

## THIN PROVISIONING

FalconStor DiskSafe provides data protection via secondary storage from any vendor, provisioned by FalconStor servers. The FalconStor server solution provides an abstraction layer, effectively eliminating single-vendor constraints often associated with array-based solutions. FalconStor technology enables customers to use thinly provisioned volumes for data protection or recovery. This standard feature greatly increases disk capacity utilization while reducing initial and ongoing costs for the customer. Thin Provisioning is the ability to define and logically provision storage volumes of any requested or expected future size, while physically allocating disk capacity only according to current real data capacity. Thin Provisioning setup is intuitive, and an alert function enables administrators to provision additional capacity as needed.

## COMPREHENSIVE DATA PROTECTION OPTIONS

Since FalconStor DiskSafe is functionally a WRITE-splitter, users can leverage FalconStor servers for continuous data availability. Protection policies enabled by FalconStor servers include continuous mirroring, snapshots (up to 1000 per volume), journaling (for individual transaction recovery), or a combination of all three methods. Intuitive configuration wizards guide the user into setting up schedules of snapshots, retention of snapshots, and size of journals (minutes to hours of protection). For example, a protection policy could include journal protection for the most recent two hours, and 24 hourly, seven daily, four weekly, and 12 monthly snapshots. Configuration flexibility includes the ability to exclude weekends and holidays if required. Additionally, remote replication or DR protection can be achieved with multiple FalconStor servers. WAN-optimized remote replication supports any distance or transport bandwidth, and includes deduplication, compression, and encryption features.

## INSTANT DATA RECOVERY

Full integration with FalconStor servers allows FalconStor DiskSafe to provide multiple benefits and configuration options for customers. Instant recovery of disks, partitions, files, or messages is enabled, as is complete bare-metal recovery, either locally or at the DR site.

## BROAD OPERATING SYSTEM (OS) SUPPORT

There are two versions of FalconStor DiskSafe available: FalconStor DiskSafe for Microsoft Windows Server and FalconStor DiskSafe for Linux Server. Support for Linux distributions is provided on a kernel-by-kernel basis. (Certification matrix details can be found on the FalconStor website: https://www.falconstor.com/certification-matrix/operating-systems).

## MODERN DATA PROTECTION

The combination of FalconStor DiskSafe and FalconStor servers enables centralized and intuitive management of local and remote applications, file systems, servers, and databases, with the flexibility to assign different protection policies for each customer application. The simplified and comprehensive capabilities of FalconStor technology help to increase IT staff productivity for overall business value and reduce the total cost of ownership (TCO). FalconStor storage solutions help eliminate backup windows, maximize disk capacity utilization, and enable customized data protection and recovery policies that satisfy even the most demanding business and service level agreements (SLAs).

# FAQs

## WHAT IS FALCONSTOR® DISKSAFE™?

FalconStor DiskSafe is a write splitting agent that captures all block-level changes made to a protected “primary  system disk or data disk/partition and writes changed data blocks to a “mirror” device on a back-end FalconStor storage server.

## WHY WOULD I USE FALCONSTOR DISKSAFE?

DiskSafe is used to provide out-of-band, non-disruptive data protection of the desired application server. All data protection operations; journaling, snapshot processing, and mirroring are managed on the out-of-band FalconStor server, but achieved by using DiskSafe.

## IN WHAT WAYS CAN FALCONSTOR DISKSAFE PROTECT DATA?

DiskSafe provides two possible write modes for the protected device:

**Continuous mode** – changed blocks are written to the mirrored volume continuously, without a schedule.

**Periodic mode** - synchronizes the protected device and its mirror at regularly scheduled intervals defined in the policy. Synchronization is optimized as only changed blocks are copied.

## WHAT RECOVERY METHODS ARE SUPPORTED WITH FALCONSTOR DISKSAFE?

FalconStor DiskSafe offers flexible recovery options to meet any need. By using the recovery wizard file, folder, and full volume, recovery can be achieved. Physical recovery can be performed locally, remotely, or a combination of both.

## WHAT OPERATING SYSTEMS DOES FALCONSTOR DISKSAFE SUPPORT?

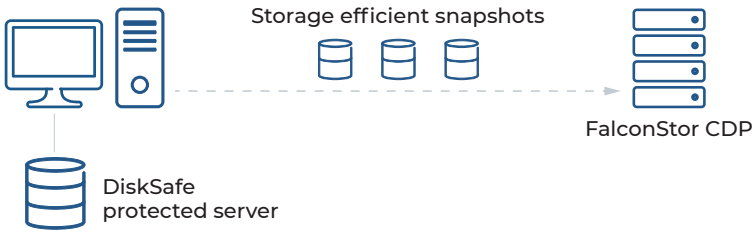
FalconStor DiskSafe supports protecting Windows and many Linux operating systems.

## CAN I INSTALL FALCONSTOR DISKSAFE ON A VIRTUAL MACHINE?

Yes, DiskSafe can be installed on the virtual operating systems that are included on the FalconStor Certification Matrix.

## DOES DISKSAFE WORK WITH ANY OTHER FALCONSTOR TECHNOLOGIES?

Yes, DiskSafe mirroring and synchronization technology can work with FalconStor RecoverTrac™ to provide automated recovery and failover capabilities of physical or virtual environments. It can also work with HyperTrac™ to allow serverless traditional backup of protected disk , and with Snapshot agents, SQL, Oracle, and IMA to facilitate application aware snapshots.

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