

Storage Efficiency the NETGEAR® ReadyRECOVER™ Way



ReadyRECOVER Introduction

ReadyRECOVER is a complete backup and recovery appliance designed for small and mid-sized businesses. Next-generation file system technology guarantees data integrity, efficient use of storage capacity and minimal impact to computing resources. With ReadyRECOVER, full backups are created every 15 minutes and can independently be used to quickly and reliably restore files, folders or complete systems to any platform, physical or virtual.

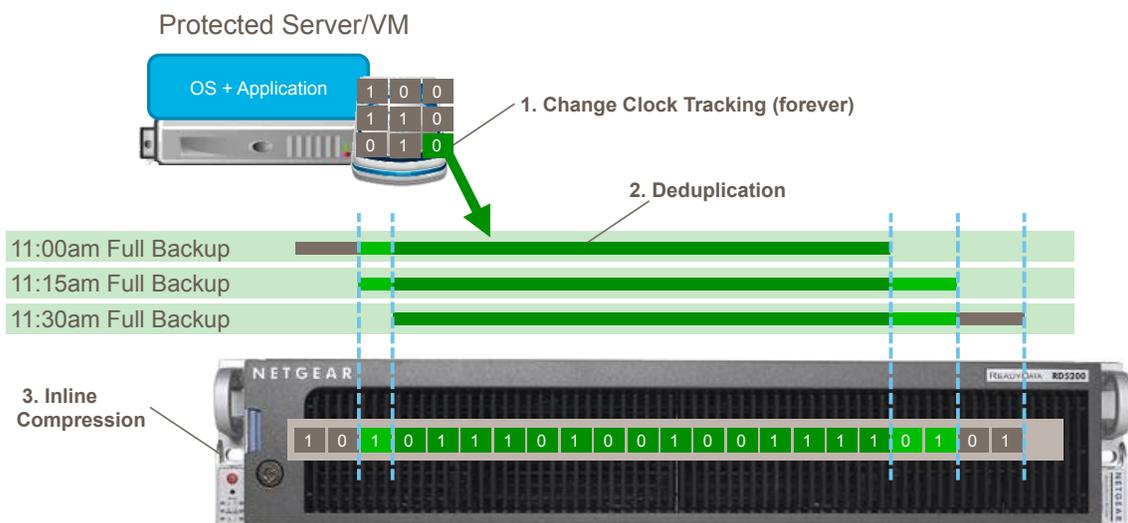
Traditional backup solutions create incremental “image chains” and require regular resource-draining full backup jobs to maintain data integrity and timely restore points. With ReadyRECOVER, each backup is a space-efficient recovery point that never requires image chain management or consolidation. In addition, each backup captures the entire target system, the Windows operating system, all services, all applications, all settings and all data for fast full system recovery.

ReadyRECOVER is a seamless integration of the ReadyDATA® unified storage platform from NETGEAR and ShadowProtect backup and recovery software from StorageCraft.

Block-level Deduplication & Inline Compression Savings

ReadyRECOVER employs a unique technique to deliver storage efficiency that saves space on disk and reduces bandwidth consumption when replicating backups offsite. These efficiencies are delivered by three complementary techniques:

1. **Change Tracking (Forever):** Only newly changes blocks ever need to be send from the source system (backup client) to the ReadyDATA onsite or the ReadyDATA offsite
2. **Block-level Deduplication:** When each full backup image is written, common blocks from previous backups are not stored twice. Because only unique blocks are written, many independent full backup images can be stored, while minimizing capacity consumption.
3. **Inline Compression:** As data is written to ReadyDATA, it is compressed and checksummed in real-time.



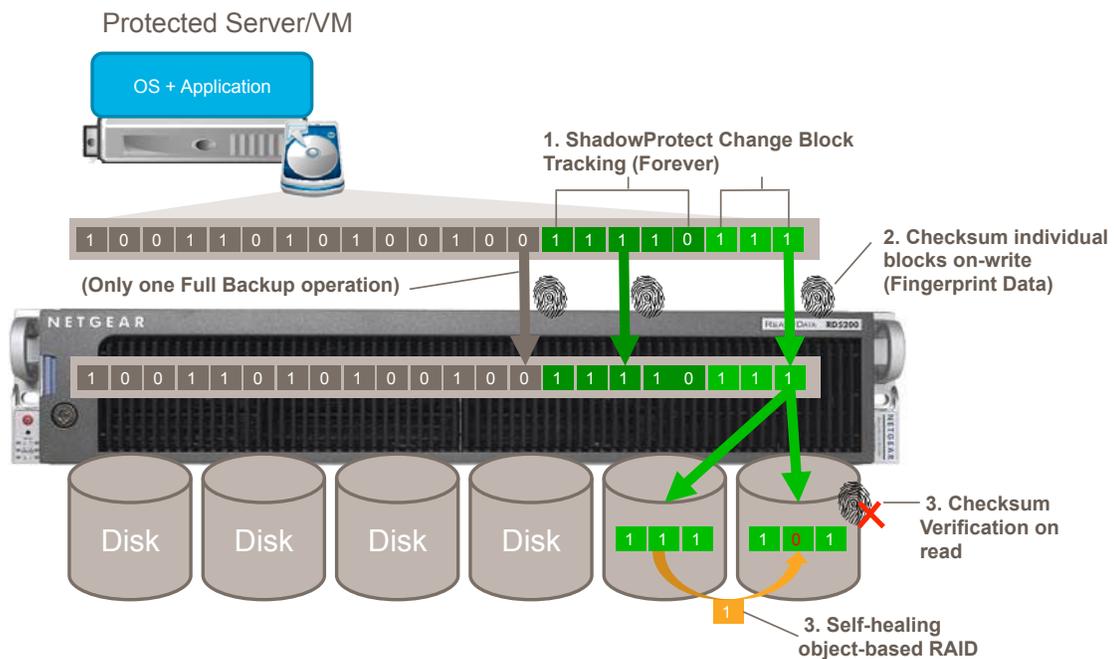
Deduplication of backup data requires end-to-end data integrity at a block level because many backups may reference the same block. In ReadyRECOVER, inline checksumming is implemented to guarantee every block is correct when restoring. If a block is corrupt, it is silently repaired using checksums and object-based RAID technology built into ReadyDATA.

- **Reliable change tracking:** The StorageCraft backup agent (called ShadowProtect), can reliably track incremental sector changes on servers and PCs. StorageCraft started as a storage driver vendor in 2004. It has since created backup software with deep VSS integration and sector level change tracking using a Microsoft-certified driver in the Windows I/O stack. Every piece of data written (saved) on a PC or Server must pass through the StorageCraft driver, allowing it to track every change.
- **Data integrity forever:** ReadyDATA employs a next-generation file system that checksums all data inline. When new backup data is written, it is checksummed at the block level. When that data is read (for recovery), the checksum is verified. If the checksum indicates an issue, ReadyDATA uses self-healing RAID technology (object based RAID) to find a copy of the same data elsewhere on disk and repair the broken copy.
 - All storage devices that use RAID keep redundant data (extra copies) on disk. However, most of these devices do not checksum data and are unable to tell if the data being read back is valid. Additionally, they are unable to heal corrupted data.

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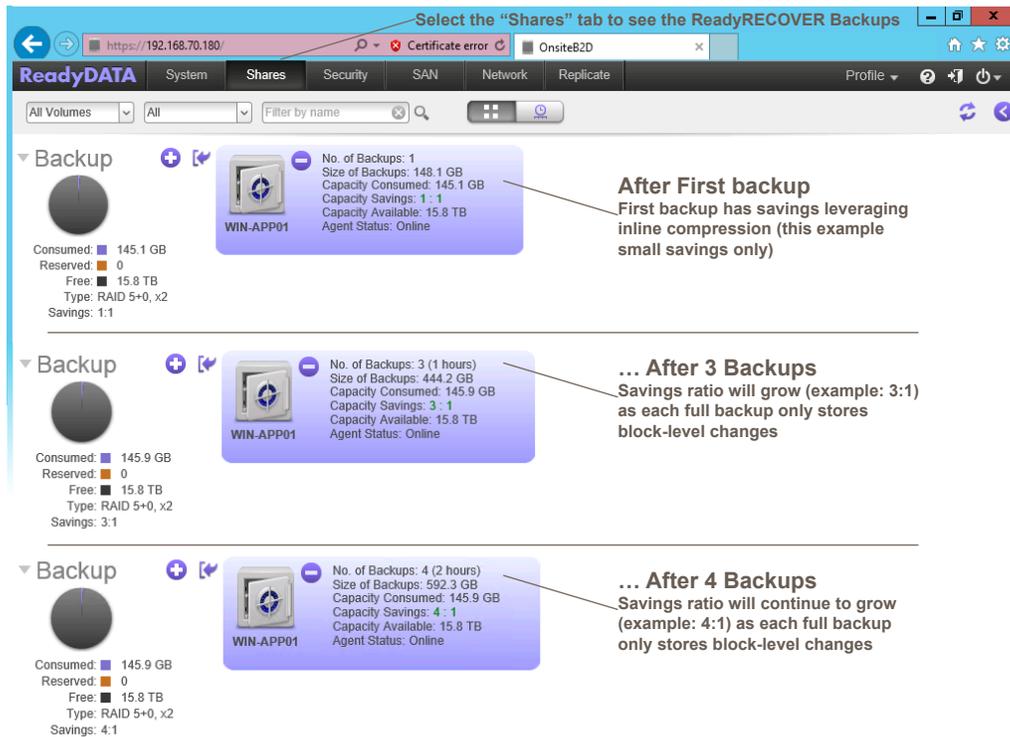
Below is a depiction of ReadyRECOVER's technical architecture, which shows holistic, end-to-end integrity.

- 1) The StorageCraft ShadowProtect agent reliably tracks changes on the server/PC.
- 2) It sends changed data to ReadyDATA, where the data is immediately "fingerprinted" (checksummed) and redundant copies (mirror or parity) are written to ReadyDATA's object-based RAID.
- 3) The ShadowProtect agent reads data from ReadyDATA. Before the data is given to the agent, ReadyDATA confirms that the data is valid using the fingerprint (checksum). If the checksum proves the data to be valid, it is sent to the agent, which can trust the validity of the data. If the fingerprint (checksum) shows the data to be invalid, ReadyDATA automatically heals the data by using an alternate copy from one of the other disks in the system.



View Storage Savings

Existing backups and storage consumption metrics are displayed in the ReadyDATA administration console.



First Backup Savings – Storage savings on the first backup operation will be based on inline compression at the block-level. These savings vary based on the data type of the source server/client.

Ongoing Backup Savings – The ongoing savings will increase as more backups occur. Each backup stores only block changes, while keeping fully independent backup images.

Conclusion

Protecting business data is a top concern for IT administrators. Today, administrators who seek to deliver granular recovery points as part of a disaster recovery strategy must do so with flat IT budgets. To address this challenge, ReadyRECOVER offers high storage efficiency without compromising backup integrity.

With ReadyRECOVER, full backups are created every 15 minutes and can independently be used to quickly and reliably restore files, folders or complete systems to any platform, physical or virtual.

For additional assistance or product information, reach out to an authorized NETGEAR reseller (<http://www.netgear.com/business/buy/#tab-authorizedresellers>).