

# Reviewers Guide

END-USER COMPUTING

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# Novell® File Management Suite

Intelligent Management of File Storage for Maximum Business Benefit

**Novell.**

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# Intelligent Management of File Storage for Maximum Business Benefit

**Novell File Management Suite delivers intelligent storage and data management at the file level for maximum business benefit.**

While organizations need file systems to house the volumes of data that their end users create, file systems create a love/hate relationship within organizations. Unstructured data files, scattered across an organization's file systems and consuming its storage resources, represent its intellectual capital. Collaborative data—presentations, text documents, spreadsheets and videos—are the primary output of employee creativity and productivity. As remote/digital collaboration flourishes, file creation flourishes too. So it should come as no surprise that unstructured file-based data represents the fastest-growing data type according to industry analysts.

In addition to document-based collaboration, this growth is due to a variety of other factors, including the proliferation of rich media content and regulatory requirements governing data retention. As a result, unstructured files continually consume more space for longer periods of time, impacting every aspect of storage concerns within an organization.

Unfortunately, most storage management tools available today do not offer a means to stop the proliferation of unstructured data. Rather, since these traditional solutions operate at the block and volume level, they provide no intelligent way of keeping this exponential file growth under control. Instead, they instill a “buy more disk space” mentality whenever storage consumption reaches certain thresholds.

Even though buying more disk storage has become relatively cheap, managing it can be an expensive drain on an IT budgets. Many storage management tasks often rely on manual, redundant processes that divert time and money from more strategic projects.

Increased storage requirements also have a significant impact on power, cooling and space requirements in the data center.

Perhaps more importantly, this approach adds more complexity to storage management, while creating an environment of file-system chaos. It leaves organizations without the tools needed to intelligently manage their collaborative data and understand the relevance or value of their unstructured data. This inability prevents organizations from being able to get the most value and business benefit from their digital capital.

Additionally, the majority of the tools available for managing unstructured data lack the ability to help organizations automate their storage management policies, manage storage at the file-system level and provide the visibility needed to understand the true state of their storage infrastructure. They lack the means to reconcile the relationships between individual files, their owners' roles in the organization and where the files are physically stored. As a result of these inadequate tools and limited resources, unstructured user storage typically remains unmanaged and proliferates further out of control.

To address these challenges and turn file-system chaos into organized efficiency, Novell® File Management Suite delivers intelligent storage and data management at the file level for maximum business benefit. The solution enables organizations to better track and understand storage growth, allocate and manage storage based on its relevance and value to the business, save money in the administration and procurement of storage resources, and unlock the hidden value in their collaborative data.

## Solution Overview

By merging Novell file storage expertise with market-leading Novell identity technologies, Novell File Management Suite offers the most advanced, business-oriented file management solution available today. Supporting Windows\*, Linux\* and NetWare® storage infrastructures, Novell File Management Suite enables organizations to take advantage of the efficiency, compliance and cost benefits of getting their file-system chaos under control across their entire enterprise.

To accomplish this, the suite integrates the following three Novell products, which work together to provision, relocate, optimize and report on file storage based on user roles and customized business policies:

- *Novell Storage Manager*
- *Novell Dynamic File Services*
- *Novell File Reporter*

### Novell Storage Manager

From user and group storage provisioning to archiving and disposition, Novell Storage Manager leverages identity, policy and directory events to automate the full lifecycle management of file-level user and group storage<sup>†</sup>. New and existing users are provisioned storage based on their identity/role in the organization. Such provisioning includes allocating user storage in the proper location with the appropriate quotas (and appropriate rights).

When users change roles, Novell Storage Manager can automatically change storage allocations based on policy. As users change from one department to another, Storage Manager can transparently move their storage to the appropriate location associated with their new role. If a user changes his or her name, when that user object is renamed in the directory, Storage Manager can automatically rename their storage folders and make sure their directory attributes are properly updated.

Novell Storage Manager automates a comprehensive set of storage management tasks, including user storage provisioning, deprovisioning, storage rights management, quota management, file grooming storage resizing, storage relocation, file and “orphan folder” management, load balancing, archiving and storage cleanup. By automating these tasks, Storage Manager reduces manual administration, saves time and money, increases user productivity and facilitates compliance across the enterprise.

Furthermore, Novell Storage Manager gives organizations the visibility needed to understand the true state of their storage infrastructure. It reconciles the relationship between users’ identities, roles and their storage resources so organizations can better understand the relevance and value of their files. Storage Manager is easy to implement and doesn’t change the way users work. It seamlessly and transparently works with, not against, an organization’s unstructured-storage environment to bring unstructured data under control

### How Novell Storage Manager Works

Novell Storage Manager ties together the directory, identity and file systems to enable organizations to ensure that storage resources allocated to users are always aligned with corporate storage policy. By leveraging the identities and policies stored in directory services—specifically, Novell eDirectory™ or Microsoft\* Active Directory\*, Storage Manager dynamically manages and provisions storage based on user and group events that occur in the directory, including user creations, groups assignments, moves, renames and more. In other words, when a change happens in the directory that affects a user’s storage needs or user storage policy, Storage Manager automatically makes the necessary changes at the file-system level to address those storage needs or policies.

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<sup>†</sup> **Note:** *Novell Storage Manager deployed for Active Directory does not support quota management, file grooming or group storage. These features are planned for a future release.*

## Novell Dynamic File Services dynamically allocates and optimizes storage resources based on actual data usage.

For example, when a user is provisioned in the directory, Storage Manager sees this event, reads the storage policy stored in the directory, and provisions access for this user's personal and collaborative storage resources. The policies leverage load-balancing algorithms to determine target file-system storage locations for provisioning storage. The policies also ensure that the appropriate user and group file-system rights for that storage are granted.

Novell Storage Manager automates other storage management tasks in the same way. When a directory event on a user or group object occurs (i.e., user role change, user transfer, user rename, user termination, quota assignments, etc.), Storage Manager applies the defined policy for that event, appropriately provisioning and managing the storage for that user or group. Policies can be assigned specifically to users and groups, as well as container objects, with the standard directory services inheritance model governing usage.

### Novell Storage Manager Benefits

Through its ability to manage unstructured data based on identity, roles, policies and directory events, Novell Storage Manager delivers the following benefits:

- *Eliminates thousands of hours spent on manual and redundant administrative tasks through automation, while reducing human error*
- *Exceeds standards for administrative consistency and control*
- *Enables user productivity by provisioning appropriate storage and rights on day one, while terminating rights to data upon termination*

- *Provides confidence that data is secure and available should an organization need to prove compliance with government or industry regulations.*
- *Aligns storage policies with IT and business goals*

### Novell Dynamic File Services

Novell Dynamic File Services has its roots in Dynamic Storage Technology, which was first introduced when Novell Open Enterprise Server 2 shipped. Novell File Management Suite extends this capability to Windows environments through its inclusion of Novell Dynamic File Services. Novell Dynamic File Services dynamically allocates and optimizes storage resources based on actual data usage. It transparently directs less-valuable and infrequently accessed files to less-expensive storage devices in a way that lowers hardware, power and cooling costs, streamlines back-up processes and does not impact the end user.

Dynamic data allocation and tiering can also be tied to specific user folder paths. This means that a business can create policies that cause data belonging to its most-creative and productive employees to be located on its fastest, most-expensive storage systems, while data belonging to lower-level workers be stored on less-expensive storage. Policies can become even more granular in nature so that users' spreadsheet, text document and presentation files may be stored on higher-performing storage, while MP3 and AVI files may be stored on lower-performing storage.

### How Novell Dynamic File Services Works

Novell Dynamic File Services allows organizations to create independent partitions (or "tiers") for their users' unstructured data. This tiering automatically stores newly created user data and more-frequently used data on a primary partition, which would likely be

located on higher-performance disk storage devices. Based on policy, older, static or less-active user data would be transparently moved to a secondary partition residing on less expensive storage.

Even though data is dynamically and intelligently allocated between different physical storage tiers, to users it appears as if their data is located in a single volume where they originally stored it. Novell Dynamic File Services accomplishes this by presenting to the users a virtual overlay of the independent storage partitions.

For example, if a user creates a new file called "sales presentation" in a new subfolder called "presentations," Novell Dynamic File Services will create the "presentations" subfolder on both the primary and secondary storage partitions. The file "sales presentation" will only be stored in the "presentations" subfolder on the primary partition. The subfolder on the secondary partition will be empty. However, if the file lays dormant for several months, based on the organization's defined policies, Dynamic File Services will eventually move the file to the "presentations" subfolder on the secondary partition.

Even though the file has physically moved, the virtual view provided to the user makes the file appear to be right where it was originally stored. In other words, all movement of data back and forth between the primary and secondary volumes happens in the background, completely transparent to users. To them, they see their data the way it has always been, and they access their data in the same way they always have. The ability of Novell Dynamic File Services policies to move files from one partition to the other can be based on a variety of criteria, including when the file was last modified or accessed, file type, file size and more.

### Novell Dynamic File Services Benefits

The dynamic data tiering capabilities of Novell Dynamic File Services provides organizations the following benefits:

- *Optimizes storage resource utilization by automatically managing data's physical location based on its value and relevance to the organization*
- *Reduces spending on incremental hardware*
- *Improves back-up windows and reduces spending on back-up media*
- *Enables faster and smaller backups of important data*
- *Migrates data in the background without scheduling maintenance windows*
- *Provides access to secondary storage without the performance penalties inherent to HSM solutions*

### Novell File Reporter

Novell File Reporter inventories file systems to provide file-level visibility into an organization's storage usage resources and expose the "junk in the drawer" so they can make more-informed storage management decisions. It gives organizations an accurate assessment of their unstructured data so they can better plan for and deploy an efficient storage infrastructure, as well as execute on compliance and governance requirements. Its standard and customizable reports monitor, analyze and present information that can be used to set and fine-tune policies for automating storage management with the other components of Novell File Management Suite, as well as other complementary solutions.

Novell File Reporter delivers a comprehensive set of answers to vital storage questions to allow organizations to determine the best course of actions in bringing their unstructured data under control. For example, how much unstructured data exists on network storage volumes? How fast is data growth consuming storage capacity? What files are relevant

**Novell File Reporter delivers a comprehensive set of answers to vital storage questions to allow organizations to determine the best course of actions in bringing their unstructured data under control.**

Traditional storage vendors view storage management from the opposite end of the spectrum as Novell does. They manage storage at the device or block level, managing storage by the terabyte and attaching files to dumb devices. They treat every file the same since they have few ways to distinguish which file has more relevance to the company.

and need to be archived? What files can be moved or deleted? How much storage is being used to store non-work-related files, such as MP3 or AVI files? What departments are using most of the organization's storage capacity? Do excessive redundant files exist and who do they belong to? When were certain files last used and who owns them? Is storage being abused? If so, how and by whom?

#### How Novell File Reporter Works

Designed for the enterprise, Novell File Reporter can examine and report on terabytes of data—in other words, millions of files, folders and subfolders scattered across a network. To efficiently scale to this level of reporting, File Reporter distributes its workload between a reporting engine and multiple reporting agents.

The reporting agents can examine and report on a variety of file systems, including Novell NSS, Traditional, NCP, Windows NTFS, Reiser and ext3. Through its reporting agents, Novell File Reporter takes periodic scans of the file system of a storage resource. Storage resources can include server volumes, Novell Storage Manager policies, network folder paths or Linux mount points.

A scan includes comprehensive information on file types being stored, file size, duplicate files, file owners, when files were created or last modified and much more. Each scan is indexed and compressed so it can be stored at a fraction of its actual size. When a Novell File Reporter user runs a report, the scan file is decompressed and a report is generated based on the report parameters. File Reporter can utilize filters so that only the relevant and desired information is presented to the user.

The following represent the standard reports provided by Novell File Reporter:

- *System Inventory Report*
- *Summary Report*

- *Access Date Age Report*
- *Modification Date Age Report*
- *Filename Extension Report*
- *Owner Report*
- *Duplicate File Report*
- *Comparison Report*
- *Storage Cost Report*
- *Triggered Report*
- *Filtered Report*
- *Trending Report*
- *Aggregation Report across Multiple Storage Resources*
- *Policy-Based Report with Novell Storage Manager integration*

#### Novell File Reporter Benefits

The in-depth and comprehensive reporting capabilities of Novell File Reporter provide the following benefits:

- *Greater visibility of how storage resources are being utilized in order to facilitate proactive storage analysis and planning*
- *Enables accurate forecasting and budgeting on storage spending*
- *Delivers reports that help customers calculate the cost savings realized with Novell File Management*
- *Exposes storage "hogs" and abuses*
- *Provides data that can be useful in setting Novell Storage Manager and Dynamic File Services policies*
- *Gives organizations a better understanding of their digital assets and intellectual property*

### Intelligent Approach to File-storage Management

Traditional storage vendors view storage management from the opposite end of the spectrum as Novell does. They manage storage at the device or block level, managing storage by the terabyte and attaching files to dumb devices. They treat every file the same since they have few ways to distinguish which file has more relevance to the company.

For instance, SAN and other storage hardware vendors offer solutions to help better manage their own block devices. While these solutions can provide some increased efficiencies, they tend to treat all data the same as they allocate it to huge blocks of storage. Novell File Management Suite not only complements these offerings, it significantly adds value to them by enabling organizations to gain significantly greater efficiencies through its identity-driven, file-level management capabilities.

One of the biggest challenges in controlling unstructured data and file system chaos is that organizations typically lack a logical or intelligent means for understanding the relevance or value of the millions of individual files scattered across their network. Too many unanswered file storage, usage, importance and ownership questions exist, making it difficult to even know where to begin. Novell File Management Suite not only provides answers to these questions through the reporting capabilities in Novell File Reporter, but it enables organizations to intelligently act on those answers by leveraging Novell Storage Manager and Novell Dynamic File Services to bring order to file system storage for maximum business benefit.

For example, an organization can run an inventory report with Novell File Reporter, which scans their systems, collects detailed information on stored files and then provides sizing recommendations. Novell File Reporter also provides reports that give an overview of how storage space is being used by different file types, including total number of files of each type, their cumulative size and the percentage of disk space that each file type uses.

These initial reports assist in creating policies for better managing those files using Novell Storage Manager. For example, they can enable administrators and managers to assess the difference in home directory sizes

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for typical users and power users. With that sizing information, they can create storage-quota policies that provide appropriate storage capacity for different user types, while preventing unnecessary storage consumption by individual users.

Novell File Reporter also provides more detailed reports that provide aging information on file access or file modifications, as well as reporting on filename extensions. This type of information can help an organization figure out how they might tier their physical storage for optimal use and cost savings using Novell Dynamic File Services. As an example, an IT manager might decide that all files that haven't been accessed or modified in over 18 months should be moved to less-expensive secondary storage. It might also be decided that all multimedia files should be moved to secondary storage unless they belong to executives or marketing and sales personnel. These aging and file-type reports help organizations make informed decisions on how to best use their existing secondary and primary storage, and if they actually need to increase it.

Report results can also help organizations to fine-tune their existing storage policies or completely re-evaluate their current file management strategies to be more in line with actual storage usage and business objectives. To facilitate ongoing fine-tuning, reports can be scheduled to run on a regular basis to identify real-time changes in user storage practices.

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# Novell File Management Suite can help ensure that organizations stay in compliance and their unstructured data stays under control.

**Organizations have greater power and ability to consistently and automatically address their compliance requirements for their storage resources.**

The trending reports in Novell File Reporter enable organizations to identify potential problems or abusive behavior. The solution's triggered reports proactively monitor storage capacity thresholds, automatically notifying IT personnel when certain thresholds have been met. Additionally, the integration between Novell Storage Manager and Novell File Reporter lets organizations run reports against the policies they've created in Storage Manager. All of these storage-reporting and management capabilities work together to make it easier to intelligently create, manage and fine-tune policies for optimal file-storage management in a way that delivers the greatest benefit to the business.

## **Bringing Storage Under Control and into Compliance**

One of the most powerful aspects of Novell File Management Suite is its ability to help organizations quickly bring their unstructured data storage under control and into compliance with corporate, industry and government regulations. The solution's reporting capabilities enable organizations to get a better understanding of the current state of their storage.

With this understanding, organizations then have a reference point that can help them determine the types of storage policies they should create to govern what happens when new users come onboard, move to another location or leave the organization. Policies can address a wide range of compliance concerns, including appropriate access rights, protection of sensitive data, blocking of inappropriate file types, vaulting or archival of aging data and more.

With the policies in place, the organization can run action operations that will leverage these policies to bring existing users and their associated storage into compliance with policy. Finally, the organization can run an array of reports that can show and demonstrate that they are in fact in compliance.

With existing user and group storage in compliance and policies in place to govern an organization's storage management lifecycle, Novell File Management Suite can help ensure that organizations stay in compliance and their unstructured data stays under control. And since the solution ties storage policy to user and group-based identity and roles, organizations have greater power and ability to consistently and automatically address their compliance requirements for their storage resources.

## **Key Benefits**

- **Better Understand Your Data.** *Novell File Management Suite allows customers to get a handle on the chaos of their unstructured data amid the explosive growth of collaborative files. With a clearer picture of its data, an organization can better plan for and deploy an efficient storage infrastructure, and execute on compliance and governance requirements.*
- **Enhance Existing Storage Management with Easy Implementation and Administration, Even in Mixed Environments.** *Novell File Management Suite improves most existing network storage architectures. With its easy installation and graphical user interface, File Management interoperates across Linux, Windows and NetWare platforms, driving efficiencies across the entire enterprise.*
- **Automate Data Storage Administration in Today's Regulated Business Environment.** *Novell File Management Suite saves money and time by*

eliminating tedious and redundant manual administration tasks. Information governance is a pillar of smart storage management and with File Management enterprises can achieve demand-side compliance, giving security officers and auditors the ability to easily locate, monitor and retrieve files based on employee identities.

- **Control Data by its Relevance to the Business while Leveraging Existing File System and Directory Investments.**

Novell File Management Suite enables organizations to finally manage their data at the source: the users and their files. It controls files based on users and user groups, using policies that can be customized to support business policies.

- **Unlock Hidden Value Buried in File Systems to Enrich Collaboration.**

Novell File Management Suite allows organizations to unlock the hidden value of their data that is buried deep within their file systems. In addition to providing more intelligent management of data, the solution enables organizational knowledge to be better identified, accessed, leveraged and stored. This in turn makes collaboration efforts richer and more efficient. As the industry's only identity-driven, policy-based automated collaboration data management solution, it enables organizations to put their information assets to the greatest use, while minimizing the administrative burden of costly storage management activities.

## Key Features at a Glance

### Novell Storage Manager Key Features

- Automates provisioning and de-provisioning of storage
- Automates the assignment, removal and retention of rights to shared storage based on location
- Automates quota management
- Automates file grooming and orphan management
- Automates vaulting/archiving

- Automates load balancing
- Intuitive and easy-to-use GUI for creating, editing and managing policies
- Supports file management on Windows, Linux and NetWare file servers

### Novell Dynamic File Services Key Features

- Automatically offloads stale data to less-expensive storage devices, based on policies set by the organization
- Identifies and relocates files from expensive storage to less expensive storage
- Policy execution can be scheduled or on-demand
- Policy criteria can be based on last time file accessed, last time file modified, file size, file type and directory path.
- No impact on end user experience by presenting a virtual overlay or merged view of primary and secondary storage
- Administrators can maintain separate backup/restore policies and procedures for their different physical storage tiers (e.g., primary storage versus secondary storage)
- Intuitive and easy-to-use GUI for creating, editing and managing policies

### Novell File Reporter Key Features

- Assesses and reports on the file storage infrastructure, providing a clear picture upon which policies and automated activities can be planned
- Agents on file systems collect information on files and folders, such as owner, modifier, date stamps, location and more
- Provides viewing and reporting of files on Windows, Linux and NetWare file servers
- Reports on millions of files and folders
- Provides reports on system inventory, aging, filename extensions, owners, duplicate files, storage costs, triggered events, trends, policies and more
- Intuitive and easy-to-use GUI for creating, editing and managing policies

**Novell File Management Suite allows organizations to unlock the hidden value of their data that is buried deep within their file systems.**

To evaluate Novell File Management Suite, as well as to get installation and system requirement details, visit: [www.novell.com/file-management-suite](http://www.novell.com/file-management-suite)

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## Conclusion

Novell File Management Suite addresses the pain of growing data storage costs and chaos. With the integration of three Novell storage solutions—Novell Storage Manager, Novell Dynamic File Services and Novell File Reporter—Novell File Management Suite intelligently manages unstructured data based on identity-driven policies.

With Novell File Management, organizations can finally get a handle on the unchecked proliferation of data, while enhancing collaboration and regulatory compliance, and driving down infrastructure costs.

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