Learn about the new capabilities available in ONTAP 9.10.1. The release candidate version was made available on November 28, 2021. The general availability was made available on January 31, 2022.

The following features were announced with ONTAP 9.10.1:

Data protection

| **Update** | **Description** |
| --- | --- |
| [Set SnapLock retention period up to 100 years](https://docs.netapp.com/us-en/ontap/snaplock/set-retention-period-task.html) | In releases earlier than ONTAP 9.10.1, the maximum supported retention time is January 19, 2071. Beginning with ONTAP 9.10.1 SnapLock Enterprise and Compliance support a retention time up to October 26, 3058 and a retention period up to 100 years. Older policies are automatically converted when you extend retention dates. |
| [Ability to create SnapLock and non-SnapLock volumes on the same aggregate](https://docs.netapp.com/us-en/ontap/snaplock/set-retention-period-task.html) | Beginning with ONTAP 9.10.1, SnapLock and non-SnapLock volumes can exist on the same aggregate, so it is no longer necessary to create a separate SnapLock aggregate for SnapLock volumes. |
| [Consistency groups](https://docs.netapp.com/us-en/ontap/consistency-groups/index.html) | Organize volumes and LUNs in consistency groups to manage data protection policies and ensure write-order fidelity of workloads spanning multiple storage volumes. |
| [Archive backups with the public cloud](https://docs.netapp.com/us-en/ontap/concepts/snapmirror-cloud-backups-object-store-concept.html) | SnapMirror Cloud supports tiering of ONTAP backups to lower cost public cloud object storage classes in AWS and MS Azure for long-term retention. |
| [AES support for secure Netlogon channel communication](https://docs.netapp.com/us-en/ontap/authentication/enable-ad-users-groups-access-cluster-svm-task.html) | If you connect to Windows domain controllers using the Netlogon authentication service, you can use Advanced Encryption Standard (AES) for secure channel communications. |
| [Kerberos for SMB domain-tunnel authentication](https://docs.netapp.com/us-en/ontap/authentication/configure-authentication-tunnel-task.html) | Kerberos authentication is available for domain tunnel authentications for ONTAP management in addition to NTLM. This allows for more secure logins to the ONTAP CLI and System Manager GUI using Active Directory credentials. |
| [Channel binding for increased LDAP communication security](https://docs.netapp.com/us-en/ontap/nfs-config/using-ldap-concept.html) | LDAP channel binding is supported by default for both Active Directory and name services LDAP connections. This provides better protection against man-in-the-middle attacks. |

File access protocols

| **Update** | **Description** |
| --- | --- |
| [NFS over RDMA (NVIDIA only)](https://docs.netapp.com/us-en/ontap/nfs-rdma/index.html) | NFS over RDMA utilizes RDMA adapters, allowing data to be copied directly between storage system memory and host system memory, circumventing CPU interruptions and overhead. NFS over RDMA enables the use of NVIDIA GPUDirect Storage for GPU-accelerated workloads on hosts with supported NVIDIA GPUs. |

MetroCluster

| **Update** | **Description** |
| --- | --- |
| [Configuration of layer 3 MetroCluster IP address in MetroCluster IP configurations](https://docs.netapp.com/us-en/ontap-metrocluster/install-ip/task_modify_ip_netmask_gateway_properties.html) | You can edit the MetroCluster IP address, netmask, and gateway for nodes in a layer 3 configuration. |
| [Simplified controller upgrade of nodes in a MetroCluster FC configuration](https://docs.netapp.com/us-en/ontap-metrocluster/upgrade/task_upgrade_controllers_in_a_four_node_fc_mcc_us_switchover_and_switchback_mcc_fc_4n_cu.html) | The upgrade procedure for the upgrade process using switchover and switchback has been simplified. |

To learn about platform and switch configuration enhancements for MetroCluster configurations, see the [*ONTAP 9 Release Notes*](https://library.netapp.com/ecm/ecm_download_file/ECMLP2492508).

Networking

| **Update** | **Description** |
| --- | --- |
| [RDMA cluster interconnect](https://docs.netapp.com/us-en/ontap/concepts/rdma-concept.html) | With the A400 or ASA A400 storage system and an X1151A cluster NIC you can accelerate high-performance workloads in a multi-node cluster leveraging RDMA for intra-cluster traffic |
| Confirmation is required before setting status admin to down for a LIF in a system SVM | This protects you from accidentally taking down LIFs that are critical for proper cluster operation. If you have scripts that invoke this behavior at the CLI, you must update them to account for the confirmation step. |
| [Automatic detection and repair recommendations for network wiring issues](https://docs.netapp.com/us-en/ontap/networking/auto-detect-wiring-issues-task.html) | When a port reachability issue is detected, ONTAP System Manager recommends a repair operation to resolve the issue. |
| [Internet Protocol security (IPsec) certificates](https://docs.netapp.com/us-en/ontap/networking/configure_ip_security_@ipsec@_over_wire_encryption.html) | IPsec policies support pre-shared keys (PSKs) in addition to certificates for authentication. |
| [LIF service policies](https://docs.netapp.com/us-en/ontap/networking/lifs_and_service_policies96.html) | Firewall policies are deprecated and replaced with LIF service policies. A new NTP LIF service policy has also been added to provide more control over which LIFs are used for outbound NTP requests. |

S3 object storage

| **Update** | **Description** |
| --- | --- |
| [S3 object data protection, backup and disaster recovery](https://docs.netapp.com/us-en/ontap/s3-snapmirror/index.html) | S3 SnapMirror provides data protection services for ONTAP S3 object storage, including buckets mirroring to ONTAP S3 configurations, and bucket backup to NetApp and non-NetApp destinations. |
| [S3 audit](https://docs.netapp.com/us-en/ontap/s3-audit/index.html) | You can audit data and management events in ONTAP S3 environments. S3 audit functionality is similar to existing NAS auditing capabilities, and S3 and NAS auditing can coexist in a cluster. |

SAN

| **Update** | **Description** |
| --- | --- |
| [NVMe namespace](https://docs.netapp.com/us-en/ontap/nvme/resize-namespace-task.html) | You can use the ONTAP CLI to increase or decrease the size of a namespace. You can use System Manager to increase the size of a namespace. |
| [NVMe protocol support for TCP](https://docs.netapp.com/us-en/ontap/concept_nvme_provision_overview.html) | The non-volatile memory express (NVMe) protocol is available for SAN environments over an TCP network. |

Security

| **Update** | **Description** |
| --- | --- |
| [Autonomous Ransomware Protection](https://docs.netapp.com/us-en/ontap/anti-ransomware/index.html) | Using workload analysis in NAS environments, Autonomous Ransomware Protection alerts you about abnormal activity that might indicate a ransomware attack. Autonomous Ransomware Protection also creates automatic Snapshot backups when an attack is detected, in addition to existing protection from scheduled Snapshot copies. |
| [Encryption key management](https://docs.netapp.com/us-en/ontap/encryption-at-rest/manage-keys-azure-google-task.html) | Use Azure Key Vault and Google Cloud Platform Key Management Service to store, protect, and utilize ONTAP keys, streamlining key management and access. |

Storage efficiency

| **Update** | **Description** |
| --- | --- |
| [Temperature-sensitive storage efficiency](https://docs.netapp.com/us-en/ontap/volumes/enable-temperature-sensitive-efficiency-concept.html) | You can enable temperature-sensitive storage efficiency using either "default" mode or "efficient" mode on new or existing AFF volumes. |
| [Ability to non-disruptively move SVMs between clusters](https://docs.netapp.com/us-en/ontap/svm-migrate/index.html) | You can relocate SVMs between physical AFF clusters, from a source to a destination, for load balancing, performance improvements, equipment upgrades, and data center migrations. |

Storage resource management enhancements

| **Update** | **Description** |
| --- | --- |
| [Activity tracking for hot objects with File System Analytics (FSA)](https://docs.netapp.com/us-en/ontap/task_nas_file_system_analytics_view.html) | To improve system performance assessment, FSA can identify hot objects: files, directories, users, and clients with the most traffic and throughput. |
| [Global file-read locking](https://docs.netapp.com/us-en/ontap/flexcache/global-file-locking-task.html) | Enable a read lock from a single point across all caches and the origin; affected article in migration. |
| [NFSv4 support for FlexCache](https://docs.netapp.com/us-en/ontap/flexcache/supported-unsupported-features-concept.html) | FlexCache volumes support NFSv4 protocol. |
| [Create clones from existing FlexGroup volumes](https://docs.netapp.com/us-en/ontap/flexgroup/supported-unsupported-config-concept.html) | You can create a FlexClone volume using existing FlexGroup volumes. |
| [Convert a FlexVol volume to a FlexGroup in an SVM disaster recovery source](https://docs.netapp.com/us-en/ontap/flexgroup/supported-unsupported-config-concept.html) | You can convert FlexVol volumes to FlexGroup volumes in an SVM disaster recovery source. |

SVM management enhancements

| **Update** | **Description** |
| --- | --- |
| [Ability to nondisruptively move SVMs between clusters](https://docs.netapp.com/us-en/ontap/svm-migrate/index.html) | You can relocate SVMs between physical AFF clusters, from a source to a destination, for load balancing, performance improvements, equipment upgrades, and data center migrations. |

System Manager

| **Update** | **Description** |
| --- | --- |
| [Enable performance telemetry logging in System Manager logs](https://docs.netapp.com/us-en/ontap/task_admin_view_submit_support_cases.html) | Administrators can enable telemetry logging if they experience performance issues with System Manager, and then contact support to analyze the issue. |
| [NetApp License Files](https://docs.netapp.com/us-en/ontap/system-admin/manage-licenses-concept.html) | All license keys are delivered as NetApp License Files instead of individual 28-character license keys, making it possible to license multiple features using one file. |
| [Update firmware automatically](https://docs.netapp.com/us-en/ontap/task_admin_update_firmware.html) | System Manager administrators can configure ONTAP to automatically update firmware. |
| [Review risk mitigation recommendations and acknowledge the risks reported by Active IQ](https://docs.netapp.com/us-en/ontap/task_admin_monitor_risks.html) | System Manager users can view the risks reported by Active IQ and review recommendations about mitigating the risks. Beginning with 9.10.1, users can also acknowledge risks. |
| [Configure administrator reception of EMS event notifications](https://docs.netapp.com/us-en/ontap/error-messages/configure-ems-events-send-email-task.html) | System Manager administrators can configure how Event Management System (EMS) event notifications are delivered so they are notified of system issues that require their attention. |
| [Manage certificates](https://docs.netapp.com/us-en/ontap/authentication/manage-certificates-sm-task.html) | System Manager administrators can manage trusted certificate authorities, client/server certificates, and local (onboard) certificate authorities. |
| [Use System Manager to view historical use of capacity and to predict future capacity needs](https://docs.netapp.com/us-en/ontap/concept_capacity_measurements_in_sm.html) | Integration between Active IQ and System Manager allows administrators to view data about historical trends in capacity use for clusters. |
| [Use System Manager to back up data to StorageGRID using the Cloud Backup Service](https://docs.netapp.com/us-en/ontap/task_cloud_backup_data_using_cbs.html) | As a Cloud Backup Service administrator, you can back up to StorageGRID if you have Cloud Manager deployed on premises. You can also archive objects using Cloud Backup Service with AWS or Azure. |
| Usability enhancements | Beginning with ONTAP 9.10.1, you can:   * Assign QoS policies to LUNs instead of the parent volume (VMware, Linux, Windows) * Edit LUN QoS policy group * Move a LUN * Take a LUN offline * Perform a rolling ONTAP image upgrade * Create a port set and bind it to an igroup * Automatic detection and repair recommendations for network wiring issues * Enable or disable client access to Snapshot copy directory * Calculate reclaimable space before deleting Snapshot copies * Access continuously available field changes in SMB shares * View capacity measurements using more accurate display units * Manage host-specific users and groups for Windows and Linux * Manage AutoSupport settings * Resize volumes as a separate action |