Learn about the new capabilities available in ONTAP 9.11.1. The release candidate version was made available on June 7, 2022. The general availability was made available on August 1, 2022.

The following features were announced with ONTAP 9.11.1:

Data protection

| **Update** | **Description** |
| --- | --- |
| [Cluster external key servers](https://docs.netapp.com/us-en/ontap/encryption-at-rest/configure-cluster-key-server-task.html) | Clustered external key management servers support is added for NetApp partners who provide a clustered KMIP server solution. This allows primary and secondary KMIP servers to be added preventing duplication of encryption key data. For supported partners, see the [Interoperability Matrix Tool](https://imt.netapp.com/matrix/#welcome). |
| [SnapMirror asynchronous policy in System Manager](https://docs.netapp.com/us-en/ontap/task_dp_create_custom_data_protection_policies.html) | You can use System Manager to add pre-created and custom mirror and vault policies, display legacy policies, and override the transfer schedules defined in a protection policy when protecting volumes and storage VMs. You can also use System Manager to edit your volume and storage VM protection relationships.   |  |  | | --- | --- | |  | If you are running ONTAP 9.8P12 or a later ONTAP 9.8 patch release, have configured SnapMirror using System Manager, and plan to upgrade to ONTAP 9.9.1 or ONTAP 9.10.1 releases, use ONTAP 9.9.1P13 or later and ONTAP 9.10.1P10 or later patch releases for your upgrade. | |
| [SnapMirror Cloud single directory restore](https://docs.netapp.com/us-en/ontap/data-protection/restore-contents-volume-snapshot-task.html) | Enables cluster administers at the admin privilege level to perform a single directory restore operation from a cloud endpoint. The source endpoint UUID must be provided to identify the backup endpoint from which you are restoring. Because multiple backups can use the same cloud\_endpoint\_name as the destination, the UUID associated with the backup must be provided for the restore command. You can use the snapmirror show command to obtain the source\_endpoint\_uuid. |
| [Enhanced support for SnapMirror active sync](https://docs.netapp.com/us-en/ontap/snapmirror-active-sync/interoperability-reference.html) | * SnapMirror active sync supports AIX as a host * SnapMirror active sync supports single-file SnapRestore, enabling you to restore an individual LUN or normal file in a SnapMirror active sync configuration. |
| [SVM data replication quick resync](https://docs.netapp.com/us-en/ontap/data-protection/reactivate-original-source-svm-task.html) | SVM data replication quick resync provides storage admins with the ability to bypass a full data warehouse rebuild and to recover more quickly from a disaster recovery rehearsal. |
| [SVM data replication support with MetroCluster](https://docs.netapp.com/us-en/ontap/data-protection/snapmirror-svm-replication-concept.html#support-details) | SVM-DR source is supported on both ends of a MetroCluster configuration. |
| [Two-phase consistency group Snapshot copy creation](https://docs.netapp.com/us-en/ontap/consistency-groups/protect-task.html) | In the REST API, consistency groups support a two-phase Snapshot procedure, enabling you to conduct a precheck before committing the Snapshot. |

File access protocols

| **Update** | **Description** |
| --- | --- |
| [TLSv1.3 support](https://docs.netapp.com/us-en/ontap/networking/configure_network_security_using_federal_information_processing_standards_@fips@.html) | ONTAP supports TLS 1.3 for HTTPS and REST API management protocols. TLS 1.3 is not supported with SP/BMC or with Cluster Peering Encryption. |
| [LDAP fast bind support](https://docs.netapp.com/us-en/ontap/nfs-admin/ldap-fast-bind-nsswitch-authentication-task.html) | If supported by the LDAP server, you can use LDAP fast bind to authenticate ONTAP admin users quickly and simply. |

MetroCluster

| **Update** | **Description** |
| --- | --- |
| [ONTAP Mediator 1.4 support](https://docs.netapp.com/us-en/ontap/mediator/index.html) | ONTAP Mediator software version 1.4 is supported in MetroCluster IP configurations. |
| [Consistency group support](https://docs.netapp.com/us-en/ontap/consistency-groups/index.html#metrocluster) | Consistency groups are supported in MetroCluster configurations. |
| [Transitioning from a MetroCluster FC configuration to an AFF A250 or FAS500f MetroCluster IP configuration](https://docs.netapp.com/us-en/ontap-metrocluster/transition/task_move_cluster_connections.html#which-connections-to-move) | You can transition from a MetroCluster FC configuration to an AFF A250 or FAS500f MetroCluster IP configuration. |

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** |
| --- | --- |
| [Link Layer Discovery Protocol (LLDP)](https://docs.netapp.com/us-en/ontap/networking/display_network_connectivity_with_neighbor_discovery_protocols.html) | The cluster network supports LLDP to allow ONTAP to work with cluster switches that do not support Cisco Discovery Protocol (CDP). |
| [LIF services](https://docs.netapp.com/us-en/ontap/networking/lifs_and_service_policies96.html) | New client-side LIF services provide more control over which LIFs are used for outbound AD, DNS, LDAP, and NIS requests. |

S3 object storage

| **Update** | **Description** |
| --- | --- |
| [Additional support for S3 object actions](https://docs.netapp.com/us-en/ontap/s3-config/ontap-s3-supported-actions-reference.html) | The following actions are supported by ONTAP APIs: CreateBucket, DeleteBucket, DeleteObjects. In addition, ONTAP S3 supports object versioning and associated actions with the PutBucketVersioning, GetBucketVersioning, ListBucketVersions. |

SAN

| **Update** | **Description** |
| --- | --- |
| [iSCSI LIF failover](https://docs.netapp.com/us-en/ontap/san-admin/asa-iscsi-lif-fo-task.html) | The new iSCSI LIF failover feature supports automatic and manual migration of iSCSI LIFs in an SFO partner failover and in a local failover. iSCSI LIF failover is available on All SAN Array (ASA) platforms. |
| Non-destructive migration from LUN to NVMe namespace and from NVMe namespace to LUN | Use the ONTAP CLI to in-place convert an [existing LUN to an NVMe namespace](https://docs.netapp.com/us-en/ontap/san-admin/convert-lun-to-namespace.html) or an [existing NVMe namespace to a LUN](https://docs.netapp.com/us-en/ontap/nvme/convert-namespace-to-lun-task.html). |

Security

| **Update** | **Description** |
| --- | --- |
| [Autonomous Ransomware Protection (ARP) enhancements](https://docs.netapp.com/us-en/ontap/anti-ransomware/index.html) | The ARP detection algorithm has been enhanced to detect additional malware threats. Also, a new license key is used to activate Autonomous Ransomware Protection. For ONTAP systems upgrades from ONTAP 9.10.1 the previous license key still provides the same functionality. |
| [Multi-admin verification](https://docs.netapp.com/us-en/ontap/multi-admin-verify/index.html) | When multi-admin verification is enabled, certain operations — such as deleting volumes or Snapshot copies — can be executed only after approvals from designated administrators. This prevents compromised, malicious, or inexperienced administrators from making undesirable changes or deleting data. |

Storage efficiency

| **Update** | **Description** |
| --- | --- |
| [View physical footprint savings](https://docs.netapp.com/us-en/ontap/volumes/view-footprint-savings-task.html) | When you have temperature sensitive storage efficiency enabled on a volume, you can use the volume show-footprint command to display the physical footprint savings. |
| [SnapLock support for FlexGroup volumes](https://docs.netapp.com/us-en/ontap/flexgroup/supported-unsupported-config-concept.html) | SnapLock includes support for data stored on FlexGroup volumes. FlexGroup volumes support is available with SnapLock Compliance and SnapLock Enterprise modes. |
| [SVM data mobility](https://docs.netapp.com/us-en/ontap/svm-migrate/index.html) | Increases the number of AFF arrays supported to three and adds support for SnapMirror relationships when the source and the destination are both running ONTAP 9.11.1 or later. External key management (KMIP) is also introduced and is available for both Cloud and on-premises installations. |

Storage resource management enhancements

| **Update** | **Description** |
| --- | --- |
| [Activity tracking at the SVM level in File System Analytics](https://docs.netapp.com/us-en/ontap/file-system-analytics/activity-tracking-task.html) | Activity Tracking is aggregated at the SVM level, tracking read/write IOPS and throughputs to provide instant and actionable insights into data. |
| [Enable file access time updates](https://docs.netapp.com/us-en/ontap/flexcache/enable-file-access-time-updates-task.html) | When enabled, the access time updates at the FlexCache origin volume only if the age of the current access time is more than user-specified duration. |
| [Asynchronous directory delete](https://docs.netapp.com/us-en/ontap/flexgroup/manage-client-async-dir-delete-task.html) | Asynchronous delete is available to NFS and SMB clients when the storage administrator grants them rights on the volume. When async delete is enabled, Linux clients can use the mv command and Windows clients can use the rename command to delete a directory and move it to a hidden .ontaptrashbin directory. |
| [SnapLock support for FlexGroup volumes](https://docs.netapp.com/us-en/ontap/snaplock/snaplock-concept.html) | SnapLock includes support for data stored on FlexGroup volumes. FlexGroup volumes support is available with SnapLock Compliance and SnapLock Enterprise modes. SnapLock does not support the following operations on FlexGroup volumes: SnapLock for SnapVault, event-based retention, and Legal Hold. |

SVM management enhancements

| **Update** | **Description** |
| --- | --- |
| [SVM data mobility](https://docs.netapp.com/us-en/ontap/svm-migrate/index.html) | Increases the number of AFF arrays supported to three and adds support for SnapMirror relationships when the source and the destination are both running ONTAP 9.11.1 or later. External key management (KMIP) is also introduced and is available for both cloud and on-premises installations. |

System Manager

| **Update** | **Description** |
| --- | --- |
| [Manage SnapMirror asynchronous policies](https://docs.netapp.com/us-en/ontap/task_dp_create_custom_data_protection_policies.html) | Use System Manager to add pre-created and custom mirror and vault policies, display legacy policies, and override the transfer schedules defined in a protection policy when protecting volumes and storage VMs. You can also use System Manager to edit your volume and storage VM protection relationships.   |  |  | | --- | --- | |  | If you are using ONTAP 9.8P12 or later ONTAP 9.8 patch release and you configured SnapMirror using System Manager, and you plan to upgrade to ONTAP 9.9.1 or ONTAP 9.10.1 releases, you should use ONTAP 9.9.1P13 or later and ONTAP 9.10.1P10 or later patch releases for your upgrade. | |
| [Hardware visualization](https://docs.netapp.com/us-en/ontap/task_admin_troubleshoot_hardware_problems.html) | The hardware visualization feature in System Manager supports all current AFF and FAS platforms. |
| [System analytics insights](https://docs.netapp.com/us-en/ontap/insights-system-optimization-task.html) | On the Insights page, System Manager helps you optimize your system by displaying additional capacity and security insights and new insights about the configuration of clusters and storage VMs. |
| Usability enhancements | * [Newly created volumes are not shareable by default:](https://docs.netapp.com/us-en/ontap/task_admin_add_a_volume.html) you can specify the default access permissions, such as exporting via NFS or sharing via SMB/CIFS and specifying the permission level. * [SAN simplification:](https://docs.netapp.com/us-en/ontap/san-admin/manage-san-initiators-task.html) When adding or editing an initiator group, System Manager users can view the connection status of the initiators in the group and ensure that initiators that are connected are included in the group so LUN data can be accessed. |
| [Advanced local tier (aggregate) operations](https://docs.netapp.com/us-en/ontap/add-create-local-tier-task.html) | System Manager administrators can specify the configuration of a local tier if they don’t want to accept the recommendation from System Manager. Also, administrators can edit the RAID configuration of an existing local tier.   |  |  | | --- | --- | |  | If you are using ONTAP 9.8P12 or later ONTAP 9.8 patch release and you configured SnapMirror using System Manager, and you plan to upgrade to ONTAP 9.9.1 or ONTAP 9.10.1 releases, you should use ONTAP 9.9.1P13 or later and ONTAP 9.10.1P10 or later patch releases for your upgrade. | |
| [Manage audit logs](https://docs.netapp.com/us-en/ontap/system-admin/ontap-implements-audit-logging-concept.html) | You can use System Manager to view and manage ONTAP audit logs. |