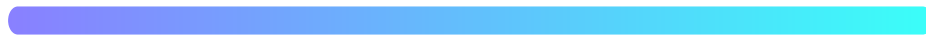




HYCU R-Cloud Hybrid Cloud Edition v5.1.0



Compatibility Matrix

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Source environments

This section provides support information for source environments.

Nutanix AOS

The following Nutanix AOS versions are compatible with HYCU:

| Nutanix AOS version ^{ab} | Notes |
|-----------------------------------|--|
| 6.5 | N/A |
| 6.8 | With these versions of Nutanix AOS, you can back up vTPM-enabled virtual machines running on Nutanix clusters. However, because vTPM device data cannot be copied and saved for security reasons, a blank vTPM device will be attached to the virtual machine during the restore. For most security features, like Secure Boot and Credential Guard, this is not an issue because they rely on the existence of the vTPM device and not the data inside. For other features, like BitLocker, the data stored in the vTPM device is critical, and a blank vTPM device may cause issues. If you use BitLocker, consider keeping a copy of the BitLocker recovery keys (stored externally or in the Active Directory) or using alternate methods like Nutanix drive encryption. |
| 6.10 | With these versions of Nutanix AOS, you can back up vTPM-enabled virtual machines running on Nutanix clusters. However, because vTPM device data cannot be copied and saved for security reasons, a blank vTPM device will be attached to the virtual machine during the restore. For most security features, like Secure Boot and Credential Guard, this is not an issue because they rely on the existence of the vTPM device and not the data inside. For other features, like BitLocker, the data stored in the vTPM device is critical, and a blank vTPM device may cause issues. If you use BitLocker, consider keeping a copy of the BitLocker recovery keys (stored externally or in the Active Directory) or using alternate methods like Nutanix drive encryption. |

^a HYCU supports AHV and ESXi.

^b Nutanix AOS support also includes all maintenance and patch releases that are applied on top of the supported Nutanix AOS versions. For example, version 6.5 covers all 6.5.x.x versions.

VMware vSphere

The following VMware vSphere versions are compatible with HYCU:

| VMware vSphere version ^{ab} | Supported |
|--------------------------------------|-----------|
| 7.0 | ✓ |
| 8.0 | ✓ |

^a Both your vCenter Server and ESXi hosts must be running the supported version.

^b The supported hardware versions of virtual machines in a vSphere environment are 4 and later.

Azure Stack HCI

The following Azure Stack HCI versions are compatible with HYCU:

| Azure Stack HCI version | Supported |
|-------------------------|-----------|
| 22H2 | ✓ |
| 23H2 | ✓ |

File servers

HYCU provides data protection for the following types of file servers:

| File server type | Supported versions | Notes |
|----------------------------|--------------------|--|
| Nutanix Files ^a | 4.4 and 5.0 | <ul style="list-style-type: none"> • Both SMB and NFS protocols are supported. • SMB3 encryption is supported. • <i>For Nutanix Files:</i> <ul style="list-style-type: none"> ◦ For the NFS protocol, the None and System authentication methods are supported. ◦ HYCU does not currently support the WORM functionality in file shares. |

| File server type | Supported versions | Notes |
|-----------------------|--|--|
| Dell PowerScale OneFS | 9.0.0.0–9.8.0.0 | <ul style="list-style-type: none"> ◦ Due to security enhancements and other fixes, it is recommended to upgrade version 4.4 to 4.4.0.3. ◦ If you plan to perform an upgrade from version 4.4 to 5.0, it is recommended to upgrade straight to version 5.0.0.1. |
| NetApp ONTAP | 9.6, 9.7, 9.8, 9.9.1, 9.10.1, 9.11.1, 9.12.1, 9.13.1, and 9.14.1 | |
| Generic | N/A | |

^aNutanix Files support also includes all maintenance and patch releases that are applied on top of the supported Nutanix Files versions. For example, version 5.0 covers all 5.0.x.x versions.

Object storage

HYCU provides data protection for the following object storage types:

| Object storage type ^a | Note |
|----------------------------------|---|
| Nutanix Objects | <i>For Amazon S3: Protecting the data stored in directory buckets is not supported.</i> |
| Amazon S3 | |
| Cloudian Object Storage | |
| Wasabi | |
| Scality | |
| MinIO | |
| Dell ECS | |

^aObject storage can be protected as an S3 compatible file server. The buckets are treated as file shares and the objects as files.

Virtual machines

This section provides support information for virtual machines.

Virtual machine guest operating systems

HYCU can perform backup and restore of any virtual machine regardless of the operating system that is running on it, whereas restore of applications and individual files is available only for the following virtual machine guest operating systems:

| Virtual machine guest operating system | Notes |
|---|--|
| Windows Server 2016 Windows Server 2019 Windows Server 2022 | <ul style="list-style-type: none"> • Dynamic disks are not supported. • Windows Storage Spaces (WSS) is not supported. • Windows Failover Cluster and Cluster Shared Volumes are supported. • Restoring individual files from volumes with enabled data deduplication is not supported. • WinRM must be enabled and configured by using the <code>winrm quickconfig</code> command. |
| Windows 10 (64-bit) Windows 11 (64-bit) | <ul style="list-style-type: none"> • Dynamic disks are not supported. • Windows Storage Spaces (WSS) is not supported. • Application-aware backup is not supported. • WinRM must be enabled and configured by using the <code>winrm quickconfig</code> command. |
| Linux | <ul style="list-style-type: none"> • All versions with the supported file systems are supported. For details, see “Virtual machine file systems” on the next page. • Standard LVM volumes and thin-provisioned LVM volumes are supported. Linux Cluster resource managers are not supported. |

| | |
|--|--|
| | <ul style="list-style-type: none"> • Disks without partitions are not supported. • Access to the virtual machine through SSH must be enabled. • Restoring individual files and applications with the non-root sudo user by using CIFS is supported for: <ul style="list-style-type: none"> • CentOS 7.x • Oracle Linux 7.x, 8.x, and 9.x • Red Hat Enterprise Linux 7.x, 8.x, and 9.x • <i>For migrating virtual machines to cloud:</i> The following Linux operating systems are supported: <ul style="list-style-type: none"> • CentOS 7.x • Oracle Linux 7.x, 8.x, and 9.x • Red Hat Enterprise Linux 7.x, 8.x, and 9.x • SUSE Linux Enterprise Server 12 SP3 and 15 SP4 |
|--|--|

Virtual machine file systems

HYCU can perform the backup and restore of any virtual machine regardless of the file systems used on the virtual machine, whereas restore of applications and individual files is available only for the following virtual machine file systems:

| Virtual machine operating system | Supported virtual machine file systems |
|----------------------------------|---|
| Windows | NTFS FAT FAT32 ReFS ^a |
| Linux | FAT32 xfs ext4/ext3/ext2 reiserfs btrfs |

^a Supported only if you are restoring applications, and not individual files.

Application awareness

HYCU can discover the following applications running on virtual machines:

| Application ^{ab} | Supported versions | Supported on operating systems | Notes |
|---------------------------|---|---|--|
| SQL Server | 2014 ^c 2016 2017 2019 2022 | Windows Server 2016 Windows Server 2019 Windows Server 2022 | <ul style="list-style-type: none"> Data protection for Always On Availability Groups and Always On Basic Availability Groups is supported. SQL Server failover cluster is supported. |
| Active Directory | N/A | Windows Server 2016 Windows Server 2019 Windows Server 2022 | The following roles are supported for Active Directory: Active Directory Domain Services, Active Directory Lightweight Directory Services, Active Directory Certificate Services, Active Directory Federation Services, and Active Directory Rights Management Services. |
| Exchange Server | 2013 2016 2019 | Windows Server 2016 Windows Server 2019 Windows Server 2022 | Data protection for Database Availability Groups is supported. |
| Oracle | 12c | CentOS 7.x | <ul style="list-style-type: none"> Data protection for Oracle Real |

| Application ^{ab} | Supported versions | Supported on operating systems | Notes |
|---------------------------|--------------------|--|---|
| | | Oracle Linux 7.x, 8.x, and 9.x Red Hat Enterprise Linux 7.x, 8.x, and 9.x SUSE Linux Enterprise Server 12 SP3 and 15 SP4 | Application Clusters is not supported. • Data protection for Oracle Automatic Storage Management is not supported. |
| | 19c | Oracle Linux 7.x, 8.x, and 9.x Red Hat Enterprise Linux 7.x, 8.x, and 9.x SUSE Linux Enterprise Server 12 SP3 and 15 SP4 | |
| SAP HANA | 2.0 | SUSE Linux Enterprise Server 12 SP3 and 15 SP4 | • Supported on Nutanix AHV clusters only. • SAP HANA single-host and multiple-host (distributed) configurations are supported. |

^a Discovery and data protection are supported only for 64-bit applications.

^b HYCU leverages VSS technology to create application-consistent backups of Active Directory and Exchange Server. Other VSS-based applications and services are not supported.

^c Not supported for Always On Basic Availability Groups.

Nutanix Database Service

The following Nutanix Database Service (NDB) versions are compatible with HYCU:

| NDB version | Supported |
|-------------------|-----------|
| 2.5.5.1 and later | ✓ |

The following Nutanix AOS versions are compatible with HYCU and NDB:

| Nutanix AOS version | Supported |
|---|-----------|
| 6.5.6.6 and all subsequent 6.5 versions | ✓ |
| 6.8.1.5 and all subsequent 6.8 versions | ✓ |
| 6.10 ^a | ✓ |

^a Nutanix AOS support also includes all maintenance and patch releases that are applied on top of the supported Nutanix AOS versions. For example, version 6.10 covers all 6.10.x.x versions.

Targets

The following targets are supported for storing data protected by HYCU:

| Target type | Supported | Notes |
|------------------------------|---|--|
| NFS | ✓ Versions: 3 and 4 | A Nutanix Files share can be used as an NFS target. |
| SMB | ✓ Versions: 1.0, 2.0, 2.1, 3.0, and 3.1.1 | <ul style="list-style-type: none"> A Nutanix Files share can be used as an SMB target. SMB3 encryption is supported. |
| Nutanix | AOS versions: 6.5 and later | N/A |
| Nutanix Objects ^a | ✓ Versions: 3.6, 4.1, 4.2, 4.3, 4.4, and 5.0 | <ul style="list-style-type: none"> Backing up data to a Nutanix Objects target that has WORM enabled is supported. Restoring data from targets for which cloud tiering is configured is supported. |
| iSCSI | ✓ | HYCU can use iSCSI targets with one or more storage processors for storing data. |

| | | |
|--|--------------------------------|---|
| <p>Amazon S3 and S3 compatible AWS GovCloud (US) AWS China</p> | <p>✓</p> | <ul style="list-style-type: none"> • The S3 compatible cloud storage solutions that are currently certified by HYCU are Scality, Cloudian, MinIO, Tencent Cloud, Alibaba Cloud, Snowball, Wasabi, and DataCore Swarm. • Using Object Lock (WORM) is supported for Amazon S3 targets, as well as for Cloudian, Scality, Wasabi, and DataCore Swarm S3 compatible targets. • Storing data to an Amazon S3 target in Amazon Virtual Private Cloud (VPC) is supported. |
| <p>Azure Azure Government Azure China</p> | <p>✓</p> | <p>Backing up data to an Azure target that has the immutability policy (WORM) set is supported.</p> |
| <p>Google Cloud</p> | <p>✓</p> | <p>Backing up data to a Google Cloud target that has Bucket Lock (WORM) enabled is supported.</p> |
| <p>QStar NFS</p> | <p>✓</p> | <p>QStar ASM software version 6 or 7 must be installed on the system to which tape is connected.</p> |
| <p>QStar SMB</p> | <p>✓</p> | |
| <p>Data Domain</p> | <p>✓ Versions: 7.8–8.x</p> | <p>Backing up data to a Data Domain target that has retention lock (WORM) enabled is supported.</p> |

^aNutanix Objects support also includes all maintenance and patch releases that are applied on top of the supported Nutanix Objects versions. For example, version 3.6 covers all 3.6.x.x versions.

Servers

This section provides support information for servers.

Server operating systems

HYCU can perform the backup and restore of servers (including the restore of applications and individual files) that are running the following operating systems:

| Server operating system | Notes |
|---|--|
| Windows Server 2016 Windows Server 2019 Windows Server 2022 | <ul style="list-style-type: none"> • The VSS service must be enabled and running, and the VSS writer status must be stable. • WinRM must be enabled and configured by using the <code>winrm quickconfig</code> command. • The latest Windows Server updates must be installed. • MBR basic disks and GPT basic disks are supported (MBR supports only primary partitions). • Dynamic disks are not supported. • Windows failover clusters are not supported. • Windows Storage Spaces (WSS) is not supported. • Restoring individual files from volumes with enabled data deduplication is not supported. • <i>For servers that use UEFI firmware:</i> Restoring individual files is supported for Windows Server 2019 and later. |
| Red Hat Enterprise Linux 7.x | <ul style="list-style-type: none"> • Access to the server through SSH must be enabled. |

| | |
|------------------------------|---|
| Red Hat Enterprise Linux 8.x | <ul style="list-style-type: none"> • Only LVM volumes are supported.^a • Encrypted volumes are not supported. |
| Red Hat Enterprise Linux 9.x | |
| Oracle Linux 7.x | |
| Oracle Linux 8.x | |
| Oracle Linux 9.x | |
| CentOS 7.x | |

^a This does not apply to the boot disk.

Server file systems

HYCU can perform the backup and restore of servers (including the restore of applications and individual files) that use the following server file systems:

| Server operating system | Supported server file systems |
|-------------------------|-------------------------------|
| Windows | NTFS ReFS ^a |
| Linux | xfs ext4/ext3/ext2 |

^a Not supported for restoring individual files.

Application awareness

HYCU can discover the following applications running on servers:

| Application ^{ab} | Supported versions | Supported on operating systems | Notes |
|---------------------------|---|---|---|
| SQL Server | 2014 ^c 2016 2017 2019 2022 | Windows Server 2016 Windows Server 2019 Windows Server 2022 | <ul style="list-style-type: none"> • Data protection for Always On Availability Groups and Always On Basic |

| Application ^{ab} | Supported versions | Supported on operating systems | Notes |
|---------------------------|----------------------|--|---|
| | | | <p>Availability Groups is supported.</p> <ul style="list-style-type: none"> SQL Server failover cluster is not supported. |
| Active Directory | N/A | <p>Windows Server 2016 Windows Server 2019 Windows Server 2022</p> | <p>The following roles are supported for Active Directory: Active Directory Domain Services, Active Directory Lightweight Directory Services, Active Directory Certificate Services, Active Directory Federation Services, and Active Directory Rights Management Services.</p> |
| Exchange Server | 2013 2016 2019 | <p>Windows Server 2016 Windows Server 2019 Windows Server 2022</p> | <p>Data protection for Database Availability Groups is supported.</p> |
| Oracle | 12c | <p>Red Hat Enterprise Linux 7.x, 8.x, and 9.x Oracle Linux 7.x, 8.x, and 9.x</p> | <ul style="list-style-type: none"> Data protection for Oracle Real Application Clusters is not supported. |
| | 19c | <p>Oracle Linux 7.x, 8.x, and 9.x Red Hat Enterprise Linux 7.x, 8.x, and 9.x</p> | <ul style="list-style-type: none"> Data protection for Oracle Automatic Storage Management is not supported. |

^a Discovery and data protection are supported only for 64-bit applications.

^b HYCU leverages VSS technology to create application-consistent backups of Exchange Server. Other VSS-based applications and services are not supported.

^c Not supported for Always On Basic Availability Groups.

Targets

The following targets are supported for storing the data protected by HYCU:

| Target type | Supported | Notes |
|-------------|------------------------|--|
| NFS | ✓ Versions: 3 and 4 | Supported only for Linux operating systems. |
| SMB | ✓ | Supported only for Windows operating systems. |
| QStar NFS | ✓ | <ul style="list-style-type: none"> Supported only for Linux operating systems. QStar ASM software version 6 or 7 must be installed on the system to which tape is connected. |
| QStar SMB | ✓ | <ul style="list-style-type: none"> Supported only for Windows operating systems. QStar ASM software version 6 or 7 must be installed on the system to which tape is connected. |

Cipher suites

HYCU supports the following cipher suites:

| Cipher suite | Supported |
|-------------------------------|-----------|
| ECDHE-ECDSA-AES128-GCM-SHA256 | ✓ |
| ECDHE-ECDSA-AES256-GCM-SHA384 | ✓ |
| ECDHE-ECDSA-CHACHA20-POLY1305 | ✓ |
| ECDHE-RSA-AES128-GCM-SHA256 | ✓ |
| ECDHE-RSA-AES256-GCM-SHA384 | ✓ |
| ECDHE-RSA-CHACHA20-POLY1305 | ✓ |
| DHE-RSA-AES128-GCM-SHA256 | ✓ |
| DHE-RSA-AES256-GCM-SHA384 | ✓ |
| AES256-GCM-SHA384 | ✓ |
| AES128-GCM-SHA256 | ✓ |

Web browsers

The following web browsers can be used to access the HYCU web user interface:

| Web browser | Supported |
|-----------------|-----------|
| Microsoft Edge | ✓ |
| Mozilla Firefox | ✓ |
| Google Chrome | ✓ |

Software availability in native languages

The following table lists the supported languages for HYCU:

| Language | Supported | Locale code |
|----------|-----------|-------------|
| English | ✓ | EN |
| Japanese | ✓ | JA |

Provide feedback

For any suggestions and comments regarding this product or its documentation, send us an e-mail to:

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We will be glad to hear from you!

