

# SUPPORT MATRIX

Applies to Actifio software version 10.0.6

## REVISION HISTORY

Date	Changes
June, 2022	Added support for <ul style="list-style-type: none"> <li>● VMware 7.0 U3</li> <li>● vSAN 7.0 U3</li> </ul>
July, 2022	Added support for <ul style="list-style-type: none"> <li>● RHEL 8.5 and 8.6</li> </ul>
Aug, 2022	Added support for <ul style="list-style-type: none"> <li>● OEL 8.6</li> <li>● SLES 15 SP3</li> </ul>
Mar, 2023	Added support for <ul style="list-style-type: none"> <li>● CBT for RHEL 8.6</li> <li>● Basic connector for RHEL 9.0</li> <li>● Basic connector for Oracle Linux 8.5 and 9.0</li> </ul> Removed support for <ul style="list-style-type: none"> <li>● RHEL 6.x and 7.0</li> <li>● SLES 11 Sp1-4</li> <li>● Centos 6.x</li> <li>● Centos 8.x</li> <li>● Microsoft SQL server 2012</li> <li>● PostgreSQL 9.6</li> <li>● MongoDB 3.4, 3.6, and 4.0</li> <li>● VMware 5.5 and 6.0</li> <li>● SAP ASE 15.7</li> <li>● OEL 6.x</li> <li>● Oracle 12</li> </ul>
August, 2023	Added support for <ul style="list-style-type: none"> <li>● VMware 8.0 U1</li> <li>● Basic connector for OEL 8.7</li> <li>● Basic connector and CBT for RHEL 8.7</li> <li>● Basic connector and CBT for Rocky Linux 8.7</li> </ul>
September, 2023	Added support for <ul style="list-style-type: none"> <li>● Microsoft SQL server 2022</li> <li>● Basic connector for RHEL 8.8</li> <li>● Basic connector for Rocky Linux 8.8</li> <li>● Basic connector for Rocky Linux 9.0</li> <li>● Basic connector for Rocky Linux 9.1</li> <li>● Basic connector for Rocky Linux 9.2</li> </ul>
October, 2023	Added support for <ul style="list-style-type: none"> <li>● Basic connector for OEL 9.1</li> <li>● Basic connector for SLES 15 SP5</li> <li>● Basic connector for RHEL 9.2</li> </ul>

November, 2023	<p>Added support for</p> <ul style="list-style-type: none"> <li>● PostgreSQL 15.0</li> </ul>
January, 2024	<p>Added support for</p> <ul style="list-style-type: none"> <li>● Basic connector for RHEL 8.9</li> <li>● Basic connector for RHEL 9.3</li> </ul>
February, 2024	<p>Added support for</p> <ul style="list-style-type: none"> <li>● Basic connector for OEL 8.9</li> <li>● Basic connector for OEL 9.3</li> <li>● Basic connector for Rocky Linux 8.9</li> <li>● Basic connector for Rocky Linux 9.3</li> </ul>
May 2024	<p>Deprecated</p> <ul style="list-style-type: none"> <li>● CDS hardware appliance</li> <li>● NAS Director and Cloud Mobility features</li> <li>● System State Recovery</li> <li>● Actifio Resiliency Director</li> </ul> <p>Added support for</p> <ul style="list-style-type: none"> <li>● Oracle database 21c</li> <li>● IBM Db2 11.5</li> <li>● MySQL 8.0.x</li> <li>● RHEL 8.8, 8.9, 9.1-9.3</li> <li>● Rocky Linux 8.8, 8.9, 9.1-9.3</li> <li>● CBT for SLES Linux SP0-4, V15-15.1</li> </ul> <p>Removed support for</p> <ul style="list-style-type: none"> <li>● Centos 7.x</li> <li>● Windows Server 20121, 2, 2012 R21, 2</li> <li>● Basic connector for RHEL Linux 7.0-7.9</li> <li>● Basic connector for SLES Linux SP0-4, V15-15.1</li> <li>● Basic connector for CentOS Linux V7.3-7.9</li> <li>● Basic connector for Ubuntu Linux V16.04 LTS &amp; V18.04 LTS</li> <li>● CBT for RHEL Linux 7.0-7.9</li> <li>● CBT for SLES Linux SP0-4, V12</li> <li>● CBT for CentOS Linux V7.3-7.9</li> <li>● CBT for RHEL PowerPC architecture V7.6, 8.8, 8.9, 9.1-9.3</li> <li>● CBT for SLES PowerPC architecture 12 SP3 - SP4</li> <li>● vCenter server and ESX 5.0-5.1, 5.5, 6.0, 6.5, 6.7</li> </ul>

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# 1. Deployment Information

Actifio VDP (Virtual Data Pipeline) technology is available on two appliances. Actifio CDX is the physical appliance and Sky is the virtual appliance.

## 1.1 Deploying Actifio VDP

### 1.1.1 Supported configuration topologies

Actifio VDP supports configuring the Actifio appliance in various topologies as mentioned below.

- **Out of Band:** This is the most common configuration. In this configuration, the Actifio appliance is not in the data path. Data flows from the production host to Actifio during data capture
- **External Snapshot Pools (ESP) In-place Capture:** The storage array does snapshots off of production volumes and tracks changes on production blocks, but no Actifio component is in the production data path. In this configuration, the data in the snapshot pool relies on the production volumes to be available.
- **External Snapshot Pools (ESP) Out of Band:** This is similar to an “Out-of-Band” configuration with Sky/CDX in that Actifio tracks the changed production blocks and copies them into a staging disk in the ESP, but is different in that the snapshots are managed externally. The production data can reside on the same array as the ESP or on different storage. A full copy is made into the ESP and then snapshots of that are incremental.

Table 1.1: Supported topologies (data presented to host)

Topology	Sky	CDX
Out of Band	IP <sup>1</sup> , iSCSI and NFS <sup>2,3</sup>	FC, IP <sup>1</sup> , iSCSI and NFS <sup>2,3</sup>
ESP In-place <sup>4</sup>	FC, iSCSI	FC, iSCSI
ESP Out of Band <sup>4</sup>	FC, iSCSI	FC, iSCSI

<sup>1</sup> Supported for VMware Network Block Device (NBD) based data capture only

<sup>2</sup> NFS support is available for Actifio supported Linux & Solaris operating systems, HP-UX, and IBM AIX from VDP 10.0.6 onwards. Also note that only NFS version v3 is supported

<sup>3</sup> Actifio software version 10.0.6 (and above) supports presenting NFS datastore to all the supported VMware windowsvSphere servers

<sup>4</sup> iSCSI needs to be configured between Sky and external storage array

## 1.2 Supported hypervisors for Sky Deployment

The following table lists the supported hypervisors for deploying Actifio Sky Virtual Appliance.

Table 1.2: Supported Sky deployment configurations

VMware	vSphere 6.5, 6.5 u1, 6.5 u2, u3, 6.7, 6.7 u1, 6.7 u2 <sup>1</sup> , u3, 7.0, 7.0 u1, 7.0 u2, , 7.0 u3, 8.0 u1 <sup>2</sup>
Hyper-V	Windows 2016, 2019
Cloud Hypervisors	AWS, Azure, Oracle Cloud, Google Cloud
Other	IBM SoftLayer while running in supported hypervisor on bare metal

<sup>1</sup> Deploying Actifio Sky OVA on VMware 6.7 u2 requires SHA1 hashing algorithm to be converted to SHA256 hashing algorithm using ovftool.exe provided by VMware. Get in touch with Actifio services team for more information if you want to deploy Sky appliance on VMware 6.7 u2.

<sup>2</sup> Supported with Sky appliances running version 10.0.5.7398 (March MHR) or higher and with AGM running version 10.0.5.6830 (March MHR) or higher.

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Select models from the following vendors are supported

Vendor	CDX
Brocade	Yes
Cisco MDS, Nexus Lines	Yes
McData	No
Qlogic	No
Dell	Yes

## 1.3 Object Storage Compatibility for OnVault

Actifio OnVault supports the following S3 compatible object storage backends.

Note: "Versioning" feature should be disabled on buckets used with OnVault for all the below supported object storage.

Table 1.3: Object storage support information

Vendor	Storage Type	Required Actifio Version	
		Min	Max
Amazon <sup>1</sup>	S3	V10.0.6	V10.0.6
	S3-IAS	V10.0.6	V10.0.6
Google	Archive	V10.0.6	V10.0.6
	Coldline	V10.0.6	V10.0.6
	Nearline	V10.0.6	V10.0.6
	Standard	V10.0.6	V10.0.6
IBM	IBM Cloud Object Storage	V10.0.6	V10.0.6
Microsoft	Azure-blob <sup>3</sup>	V10.0.6	V10.0.6
Scality	Scality Object Storage	V10.0.6	V10.0.6



Hitachi	Hitachi Content Platform	V10.0.6	V10.0.6
EMC	ECS – Object Store	V10.0.6	V10.0.6
Wasabi	Wasabi Object Store	V10.0.6	V10.0.6
Western Digital	ActiveScale	V10.0.6	V10.0.6
NetApp	StorageGRID	V10.0.6	V10.0.6
Catalyst Cloud	Container Service (S3 buckets)	V10.0.6	V10.0.6
Oracle	Oracle Cloud Infrastructure Object	V10.0.6	V10.0.6
SwiftStack	SwiftStack Storage	V10.0.6	V10.0.6
Huawei	FusionStorage	V10.0.6	V10.0.6
Fujitsu Cloud Technologies	NIFCLOUD Object Storage	V10.0.6	V10.0.6
iland	iland Secure Cloud Object Storage	V10.0.6	V10.0.6
Pure Storage <sup>5</sup>	FlashBlade	V10.0.6	V10.0.6

<sup>1</sup> Amazon Glacier not supported

<sup>2</sup> Integration with the IBM COS retention feature requires Actifio VDP 10.0.6 or above

<sup>3</sup> Archive object storage is not supported

<sup>4</sup> Using S3 compatibility API

<sup>5</sup> Requires FlashBlade Purity/FB v3.1 or higher

## 1.4 Storage Compatibility

### 1.4.1 Storage guidelines for Actifio dedup pool

The dedup pool is a critical part of the Actifio appliance. Sizing the dedup pool is critical to achieving the RPO/RTO as dictated by the business. This section contains the general guidelines for provisioning storage for the Actifio Dedup pool.

1. Best practice recommendation is to configure the dedup pool on a I shelf/shelves with dedicated I/O paths from the storage controller to the storage shelf/shelves on which the dedup pool is configured.
  2. Actifio appliance should be presented with a storage pool configured with a minimum of
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RAID 5. Best practice recommendation is to present a pool configured with RAID 6.

3. Dedup performance is affected by the number of spindles in the dedup storage pool. Best practice recommendation is to use smaller capacity drives to increase the spindle count.
4. Best practice guidelines is to disable any storage Tiering functionality on the pools on which dedup is configured.
5. Dedup performance is affected by the type of drives used in the storage pool. Please refer to Table 1.4 for general guidelines on expected performance with different tiers of drives.

Table 1.5a: Dedup storage performance guideline

Disk Type	Max Ingest Rate (TB/day) <sup>2</sup>		
	Sky-50TB	Sky-30TB	Sky-10TB
SSD Required IOPS (of 64KB): 15,000 random reads and 15,000 sequential reads with 50 threads; 15,000 random writes and 15,000 sequential writes with 100 threads  <b>Reference system:</b> Pure Storage AFS	9	6	N/A
10k/15k SAS Required IOPS (of 64KB): 4,000 random reads and 15,000 sequential reads with 50 threads; 2,000 random writes and 10,000 sequential writes with 100 threads  <b>Reference system:</b> NetApp E5600 30x800GB 10,000 rpm SAS drives, RAID-6 DDP	6	4	3 <sup>1</sup>

7.2k NL-SAS/SATA Required IOPS (of 64KB): 2,200 random reads and 4,000 sequential reads with 50 threads; 380 random writes and 2,800 sequential writes with 100 threads  <b>Reference system:</b> IBM Storwize v3700 12x4TB 7200 rpm SAS drives, RAID 6	5	3	2	1.5 <sup>1</sup>
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<sup>1</sup> All throughput numbers in this table include the use of SSD for dedup index acceleration. This is required for Sky 50TB and Sky 30TB, and optional for Sky models smaller than 30TB. If no SSD is used for dedup acceleration for these smaller models then throughput numbers will be lower than those listed here

<sup>2</sup> The above throughput numbers are for system-wide performance and assume that work can be sufficiently parallelized to leverage all system resources. In particular, each volume of each application is

handled as a separate thread. For Sky 50, there are 7 cores that are available for concurrent dedup work (so 7 volumes can be deduplicated in parallel), while fewer cores are available in smaller Sky models.

## **1.4.2 Sky**

Please refer to hypervisor's datastore compatibility guide for more information.

### 1.4.3 CDX

For support information about specific models of the following storage systems please contact your Actifio account manager for details. This is a partial list and subject to change.

Vendor	Family	Models
IBM	System Storage	DS5000
	Storwize	V3700, V5000
	FlashSystem	Contact Actifio account manager
	TotalStorage Enterprise Storage Server	Contact Actifio account manager
	XIV	Contact Actifio account manager
	N Series	Contact Actifio account manager
	SAN Volume Controller	Contact Actifio account manager
NetApp	E-Series	E2700, E2800
	FAS	Contact Actifio account manager
	IBM N Series	Contact Actifio account manager
Pure Storage	Flash Array	Contact Actifio account manager
Lenovo	ThinkSystem	Contact Actifio account manager
Dell/EMC	SC Series	Contact Actifio account manager
	Unity	Unity 300
	VPLEX	Contact Actifio account manager
	MD	MD3800

## 1.5 External Snapshot Pool

Actifio software version 10.0.6 (and above) supports External Snapshot pools (a.k.a ESP).

### 1.5.1 Supported Storage Arrays

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With VDP 10.0.6, Actifio provides ESP support for the following storage arrays:

- IBM Storwize models and SAN Volume Controller with firmware 7.5 and later
- Pure Storage FlashArray models with Purity 4.8.8 or later
- Dell EMC Unity storage arrays running UnityOS 4.5 (and above).

Actifio supports FC & iSCSI communication protocol between host and the array. However, iSCSI configuration needs to be in place for Actifio Sky appliance and the storage array.

Note: ESP is supported only on Windows and Linux versions of operating systems supported by Actifio connector.

## 1.5.2 Supported Application Types

VDP 10.0.6 release supports ESP with Oracle, Microsoft SQL Server, Db2 (on Linux and AIX), SAP HANA, SAP ASE, SAP IQ, SAP MaxDB, MySQL, MariaDB, and PostgreSQL databases, and File System applications.

Application	Versions & Limitations
Oracle	<p>For supported Oracle versions, see section <a href="#">2.2.3 Oracle</a> Limitations</p> <ul style="list-style-type: none"><li>• Logs are always copied in full regardless of whether the data capture topology is “Incremental Only” or “Full + Incremental”</li><li>• Oracle databases running on ASM storage on Linux supports both “Incremental Only” and “Full + Incremental” data capture method. However, Oracle databases running on ASM on non-Linux only supports “Full + Incremental”</li><li>• Oracle databases running on file systems does not support in-place restore, app-aware mount and consistency group creation when captured using “Incremental Only” scheme</li><li>• In-place restore is supported if the mapped disk has only one filesystem containing a single database. In-place restore is not supported in case of multiple databases or multiple filesystem on a mapped disk</li><li>• Oracle ASM in-place capture is not supported when ASM is using ASM Filter Devices (AFD).</li></ul>
SQL Server	<p>For supported SQL Server versions, see section <a href="#">2.2.2.1 Microsoft SQL Server</a></p> <p><b>No Limitations</b></p>
Filesystems	<p>All the filesystems supported by Actifio connector are supported</p> <p><b>No Limitations</b></p>

Note: For application data capture, you can use either a regular snapshot pool or ESP but not both.

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## 2. Application Data Virtualization with the Actifio Connector

The Actifio connector is a lightweight executable that delivers advanced capabilities during the data capture and recovery processes. Actifio connectors deliver these advanced capabilities:

- **Application Discovery:** Actifio connectors enable deep discovery of databases and file systems configured on a production host
- **API integration:** Where possible, Actifio connectors integrate with the native API's for efficient capture of application data
- **Change Block Tracking:** In situations where the production applications do not have a built-in change block tracking, Actifio connector introduces change block tracking on select platforms
- **Application aware recovery/mount:** Actifio connectors have built in application awareness. The connector enables users of Actifio to leverage this awareness to instantiate usable instances of applications during recovery mount operations thereby eliminating the need for performing manual/scripted actions postmount.

In order to understand the advanced capabilities as it relates to an application type, follow the steps recommended below in sequence

1. Determine the Processor architecture, Operating system and application version in context
  2. Verify if the processor architecture and the operating system version is supported by the Actifio connector
  3. Verify if the advanced capability is supported for the application type in context
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## 2.1 Actifio Connector Operating System Support

The Actifio connector supports the following operating systems and configurations.

### 2.1.1 Microsoft Windows

SKY: ✓ CDX: ✓

Table 2.1: Microsoft Windows support information

OS Version	Supported Versions	
	Min	Max
2016 <sup>1,2</sup> , 2019, 2022 <sup>2</sup>	V10.0.6	V10.0.6

<sup>1</sup> CSV configurations only supported on these versions

<sup>2</sup> Only for basic connector support

### 2.1.2 Linux

SKY: ✓ CDX: ✓

This section provides detailed information about the Linux operating systems supported on x86 and Power PC architecture by the Actifio connector.

Note: For Linux operating systems supported on Power PC, please refer [table 2.3b \(Linux CBT support for PowerPC architecture\)](#).

Table 2.2: Linux basic connector support for x86

Vendor	Version	Supported Connector Versions	
		Min	Max
	V8.0 - 8.1 <sup>5</sup>	V10.0.6	V10.0.6
	V8.2 - 8.5	V10.0.6	V10.0.6
	V8.6	V10.0.6	V10.0.6
	V8.7 <sup>6</sup>	V10.0.6	V10.0.6

RHEL <sup>1,2</sup>	V8.8 <sup>7</sup>	V10.0.6	V10.0.6
	V8.9 <sup>11</sup>	V10.0.6	V10.0.6
	V9.0	V10.0.6	V10.0.6
	V9.2 <sup>9</sup>	V10.0.6	V10.0.6
	V9.3 <sup>11</sup>	V10.0.6	V10.0.6
SLES <sup>1,3</sup>	V12 SP5	V10.0.6	V10.0.6
	V15.2 - 15.4	V10.0.6	V10.0.6
	V15.5 <sup>9</sup>	V10.0.6	V10.0.6
Rocky Linux	V8.7 - 8.8 <sup>7</sup>	V10.0.6	V10.0.6
	V8.9 <sup>12</sup>	V10.0.6	V10.0.6
	V9.0 - 9.2 <sup>8</sup>	V10.0.6	V10.0.6
	V9.3 <sup>12</sup>	V10.0.6	V10.0.6
Ubuntu <sup>1,2</sup>	V20.04 LTS	V10.0.6	V10.0.6
	V22.04 LTS	V10.0.6	V10.0.6
Oracle Enterprise Linux <sup>1,2</sup>	V7.4 - 7.9	V10.0.6	V10.0.6
	V8.0-8.6	V10.0.6	V10.0.6
	V8.7 <sup>6</sup>	V10.0.6	V10.0.6
	V8.8 <sup>7, 10</sup>	V10.0.6	V10.0.6
	V8.9 <sup>10, 12</sup>	V10.0.6	V10.0.6
	V9.0	V10.0.6	V10.0.6
	V9.1 <sup>9</sup>	V10.0.6	V10.0.6
	V9.2 <sup>9</sup>	V10.0.6	V10.0.6



	V9.3 <sup>10, 12</sup>	V10.0.6	V10.0.6
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<sup>1</sup> Symantec (Veritas) Dynamic Multi Pathing (DMP) is NOT supported

<sup>2</sup> When the Actifio connector is deployed on RHEL /OEL 4.x-5.8, the “Do Not unmap” advanced SLA setting should be set.

<sup>3</sup> Protection of BTRFS file systems requires VDP version 10.0.6 or above

<sup>4</sup> Supports retpoline compliant kernels

<sup>5</sup> In rare cases, LVM snapshot command on this OS version may cause the VDP backups to hang. This is a known Red Hat issue. Internal bug ID for this bug as maintained by Red Hat is **1758605**. Actifio recommends that you upgrade the Linux kernel to the latest available one on RHEL 8.1 release. For more information, visit <https://access.redhat.com/solutions/5049041>. Alternatively, customers can contact Red Hat support team for further assistance.

<sup>6</sup> Supported with Sky appliances running version 10.0.5.7251 (March MHR) or higher.

<sup>7</sup> Supported with Actifio connector running version 10.0.5.7567-hotfix3075 (July MHR) or higher.

<sup>8</sup> Supported with Actifio connector running version 10.0.5.7662-hotfix3105 (Sep MHR) or higher.

<sup>9</sup> Supported with Actifio connector running version 10.0.5.7692-hotfix3113 (Oct MHR) or higher.

<sup>10</sup> Supported on both Red Hat Compatible Kernel (RHCK) and Unbreakable Enterprise Kernel (UEK) versions.

<sup>11</sup> Supported with Actifio connector running version 10.0.5.7836-hotfix3156 (Jan MHR) or higher.

<sup>12</sup> Supported with Actifio connector running version 10.0.5.7871-hotfix3167 (Feb MHR) or higher.

### 2.1.2.1 Linux Change Block Tracking support

SKY: ✓ CDX: ✓

Actifio supports an optional methodology to protect applications running on the Linux operating system using the out of band generic app framework. This method leverages the Actifio Linux Change Block Tracking (CBT) driver, which tracks block level changes to application volumes. The solution requirements for this method are:

- The volumes used by the Linux application are managed by the Linux LVM
- The Linux LVM snapshotting is enabled
- The LVM volume group from which the application volumes are provisioned has at least 20% free space
- The volume being protected is NOT the boot volume
- The host is running a supported version of the Linux operating system as documented in the table below

Note: Actifio does not support CBT on secure boot enabled VMs.

Table 2.3a: Linux CBT support for x86 architecture

Vendor	Supported Configurations	Supported Connector Versions	
		Min	Max
RHEL	V8.0 <sup>2</sup>	V10.0.6	V10.0.6
	V8.1 <sup>2</sup>	V10.0.6	V10.0.6
	V8.2- V8.6	V10.0.6	V10.0.6
	V8.7 <sup>4</sup>	V10.0.6	V10.0.6
	8.8	V10.0.6	V10.0.6
	8.9 (kernel version <= 4.18.0 - 513.18.1)	V10.0.6	V10.0.6
	9.1-9.3 (kernel version <= 5.14.0 - 362.18.1)	V10.0.6	V10.0.6
SLES	12 SP5	V10.0.6	V10.0.6
	15 SP2-5	V10.0.6	V10.0.6
Rocky Linux	V8.7 <sup>5</sup>	V10.0.6	V10.0.6

<sup>1</sup> Requires kernel version 2.6.32-642.3.1 or above

<sup>2</sup> In rare cases, LVM snapshot command on these OS versions may cause the VDP backups to hang. This is a known Red Hat issue. Internal bug ID for this bug as maintained by Red Hat is **1758605**. Actifio recommends to upgrade the Linux kernel to the latest available one on RHEL release.

<sup>3</sup> Not supported on Actifio CDX appliances

<sup>4</sup> Supported with Sky appliances running version 10.0.5.7251 (March MHR) or higher.

<sup>5</sup> Supported with Actifio connector running version 10.0.5.7567-hotfix3075 (July MHR) or higher.

Table 2.3b: Linux CBT support for PowerPC architecture

Vendor	Supported Configurations	Supported Connector Versions	
		Min	Max
SLES	15.1	V10.0.6	V10.0.6
Rocky Linux	8.4, 8.5	V10.0.6	V10.0.6

Actifio generic application framework when coupled with the Linux CBT provides a powerful

mechanism for protecting applications running on the Linux operating system. Below is the list of all the applications that have been qualified by Actifio using this mechanism.

Table 2.4: Linux CBT validated databases

Database	Supported Versions	Supported Connector Versions	
		Min	Max
SAP ASE formerly Sybase ASE)	16.0.x	V10.0.6	V10.0.6
SAP HANA	2.0.sp4	V10.0.6	V10.0.6
IBM Db2	9.7, 10.1.5, 10.5, 11.1	V10.0.6	V10.0.6
MySQL	5.x	V10.0.6	V10.0.6
PostgreSQL	10.x, 11.x, 12.x, 13.x & 14.x, 15.x <sup>2</sup>	V10.0.6	V10.0.6
MaxDB	7.7-7.9	V10.0.6	V10.0.6
MongoDB	4.x <sup>1</sup>	V10.0.6	V10.0.6
Maria	10.3 -10.5	V10.0.6	V10.0.6
IQ	16.1 and above	V10.0.6	V10.0.6

<sup>1</sup> MongoDB Enterprise version (sharded and non-sharded cluster config) is supported only with Ops Manager 5.0.14+

<sup>2</sup> Supported with Actifio connector running version 10.0.5.7769-hotfix3131 (Nov MHR) or higher.

Table 2.5: CBT support for Linux file systems

File System	Supported Connector Versions	
	Min	Max
EXT2	V10.0.6	V10.0.6
EXT3	V10.0.6	V10.0.6

EXT4	V10.0.6	V10.0.6
XFS	V10.0.6	V10.0.6
ReiserFS	V10.0.6	V10.0.6
BTRFS	V10.0.6	V10.0.6

### 2.1.3 IBM AIX

SKY: ✓ CDX: X

Actifio Connectors can be installed on supported versions of the IBM AIX operating system. The connector enables transfer of data to Actifio over iSCSI and Fibre Channel protocols.

Additionally, for LPAR based configurations, Actifio connectors also enable discovery of AIX hosts (Physical or LPARs) through IBM HMC V7R7.6.0.1 (Version 7.6.0, Service Pack 1).

Note: AIX does not support MPIO with iSCSI. Also, External Snapshot Pool (ESP) is not supported on AIX. The maximum size of the application protectable by Actifio is limited to 32TB unless the target disk is formatted with ASM.

Table 2.6: IBM AIX support information

OS Version	Config Types <sup>†</sup>	Supported Connector Versions	
		Min	Max
V 7.1 (TL1-4)	Standalone	V10.0.6	V10.0.6
	LPAR (dedicated and VIOS)	V10.0.6	V10.0.6
V 7.1 (TL5)	Standalone	V10.0.6	V10.0.6 <sup>2</sup>
	LPAR (dedicated and VIOS)	V10.0.6	V10.0.6 <sup>2</sup>
V 7.2 (TL2)	Standalone	V10.0.6	V10.0.6
	LPAR (dedicated and VIOS)	V10.0.6	V10.0.6
V 7.2 (TL3)	Standalone	V10.0.6	V10.0.6 <sup>2</sup>
	LPAR (dedicated and VIOS)	V10.0.6	V10.0.6 <sup>2</sup>

## 2.1.4 HP-UX

SKY: ✓ CDX: X

HP-UX support is limited to the versions and configurations mentioned below. Actifio connector supports provisioning the staging LUN (during data capture process) using LVM version 1 only. As a result, the maximum size of the application protectable by Actifio is limited to 16TB unless the target disk is formatted with ASM.

Note: VDP release 10.0.6 and above support for NFS protocol.

Table 2.7: HP-UX support information

HP-UX <sup>1</sup> Version	Storage Config	Supported Connector Version					
		Non-virtualized or nPAR		vPAR		IVM	
		Min	Max	Min	Max	Min	Max
V11.23 <sup>2</sup>	NPIV	V10.0.6	V10.0.6	V10.0.6	V10.0.6	V10.0.6	V10.0.6
	Non-NPIV	V10.0.6	V10.0.6	Not Supported		Not Supported	
	iSCSI	V10.0.6	V10.0.6	V10.0.6	V10.0.6	V10.0.6	V10.0.6
	NFS	V10.0.6	V10.0.6	V10.0.6	V10.0.6	V10.0.6	V10.0.6
V11.31	NPIV	V10.0.6	V10.0.6	V10.0.6	V10.0.6	V10.0.6	V10.0.6
	Non-NPIV	V10.0.6	V10.0.6	Not Supported		Not Supported	
	iSCSI	V10.0.6	V10.0.6	V10.0.6	V10.0.6	V10.0.6	V10.0.6
	NFS	V10.0.6	V10.0.6	V10.0.6	V10.0.6	V10.0.6	V10.0.6

<sup>1</sup> Actifio Connector support limited to Itanium (ia64) architecture only

<sup>2</sup> This version supports up to 8 paths to a volume. Ensure the SAN zoning is configured to have utmost 8 paths per staging LUN.

## 2.1.5 Oracle Solaris

SKY: ✓ CDX: X

Solaris support is limited to the versions and configurations mentioned below. Actifio connectors

support deployments on SPARC and x86 based servers. iSCSI can be used with Actifio Sky, CDX, and Solaris V11 systems after applying Solaris patch 11.3.21.5.0.

Note: Actifio VDP does not support recreation of Solaris LDOM and Zones configuration. Applications running on LDOM and Zones configuration are protected using the Actifio connector.

Table 2.8: Oracle SUN Solaris support information

Solaris <sup>1</sup> Version	Config Type	Storage Protocol	Supported Connector Version	
			Min	Max
V10 Updates 7-11	Standalone	Block	V10.0.6	V10.0.6
		NFS <sup>2</sup>	V10.0.6	V10.0.6
	LDOM	Block	Not supported	
		NFS <sup>2</sup>	V10.0.6	V10.0.6
	Zones	Block	Not supported	
		NFS <sup>2</sup>	V10.0.6	V10.0.6
V11 Updates 1-3 <sup>3</sup>	Standalone	Block	V10.0.6	V10.0.6
		NFS <sup>2</sup>	V10.0.6	V10.0.6
	LDOM	Block	V10.0.6	V10.0.6
		NFS <sup>2</sup>	V10.0.6	V10.0.6
	Zones	Block	Not supported	
		NFS <sup>2</sup>	V10.0.6	V10.0.6
V11 Update 4 <sup>4</sup>	Standalone	Block	V10.0.6	V10.0.6
		NFS <sup>2</sup>	V10.0.6	V10.0.6
	LDOM	Block	V10.0.6	V10.0.6

		NFS <sup>2</sup>	V10.0.6	V10.0.6
	Zones	Block	Not supported	
		NFS <sup>2</sup>	V10.0.6	V10.0.6

<sup>1</sup> ZFS/UFS encryption is NOT supported

<sup>2</sup> NFS support is limited to Actifio Sky & CDX only. Also, only v3 of NFS protocol is supported

<sup>3</sup> Use of iSCSI is supported with Actifio Sky & CDX and Solaris V11 only and requires Solaris patch 11.3.21.5.0 to be installed

<sup>4</sup> Only SPARC based servers are supported

## 2.1.6 Host Multipath Software Support

The following Host Multipath software are supported by Actifio:

- IBM System Storage Multipath Subsystem Device Driver (SDD)
- Symantec/Veritas Volume Manager 5.1, 6.0, 6.0.1, 6.1
- PVLinks for HP-UX (pre 11.31 v1), HP-UX native
- MPIO for Windows and IBM AIX
- MpxIO for Solaris
- Native VMware multipathing driver for VMware ESX 4.X and later
- Native multipathing drivers for OpenVMS and Linux(DM-MPIO)

## 2.2 Application-aware data management

Actifio connectors deliver application awareness to data capture and virtual copy provisioning processes. The following sections describe the advanced capabilities that the connector enables for the following application types.

### 2.2.1 Microsoft Enterprise Applications

#### 2.2.1.1 Microsoft SQL Server

Actifio connectors enable database consistent data capture from MS SQL Server databases.

Table 2.10: SQL Server Support Information

Version	Supported Configurations	Supported Connector Version
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		<b>Min</b>	<b>Max</b>
2022	Standalone	V10.0.6	V10.0.6
	Always on Availability Groups	V10.0.6	V10.0.6
	Failover Instance <sup>1</sup>	V10.0.6	V10.0.6
2019	Standalone	V10.0.6	V10.0.6
	Always on Availability Groups	V10.0.6	V10.0.6
	Distributed Availability Groups	V10.0.6	V10.0.6
	Failover Instance <sup>1</sup>	V10.0.6	V10.0.6
2017	Standalone	V10.0.6	V10.0.6
	Always on Availability Groups	V10.0.6	V10.0.6
	Distributed Availability Groups	V10.0.6	V10.0.6
	Failover Instance <sup>1</sup>	V10.0.6	V10.0.6
2016	Standalone	V10.0.6	V10.0.6



	Always on Availability Groups	V10.0.6	V10.0.6
	Distributed Availability Groups	V10.0.6	V10.0.6
	Failover Instance <sup>1</sup>	V10.0.6	V10.0.6
2014	Standalone	V10.0.6	V10.0.6
	Always on Availability Groups	V10.0.6	V10.0.6
	Failover Instance <sup>1</sup>	V10.0.6	V10.0.6

<sup>1</sup> No support for app-aware mounts into a SQL Server Instance running on a Microsoft Failover Cluster if any of its nodes have been discovered as a virtual machine.

### 2.2.1.2 Microsoft Exchange

Table 2.11: Microsoft Exchange Support Information

Version	Supported Configuration	Supported Connector Version	
		Min	Max
2019	Standalone	V10.0.6	V10.0.6
	DAG	V10.0.6	V10.0.6
2016	Standalone	V10.0.6	V10.0.6
	DAG	V10.0.6	V10.0.6
2013	Standalone	V10.0.6	V10.0.6
	DAG	V10.0.6	V10.0.6

### 2.2.1.3 Microsoft SharePoint

Microsoft SharePoint is supported only in standalone configurations. SharePoint deployments in farm topologies are not supported.

Table 2.12: Microsoft SharePoint Support Information

Version	Supported Configurations	Supported Connector Version	
		Min	Max
2016	Standalone	V10.0.6	V10.0.6
2013	Standalone	V10.0.6	V10.0.6

### 2.2.3 Oracle

Actifio connectors enable database consistent data capture from Oracle databases. Oracle must be run in ARCHIVELOG mode. Data capture supports capturing data to staging disks formatted as file system or presented as ASM disk group targets. Data can also be captured from Oracle Non Active Data Guard and Active Data Guard configurations. Data capture from Oracle databases using ASM disk group running on HP-UX requires a connector version 10.0.6 or later.

Table 2.13: Oracle Support Information

Oracle Family	Config Types	Supported OS Versions	Supported Connector Versions	
			Min	Max
Oracle 21c <sup>7</sup>  All Versions	same as Oracle 19c (refer to the Config Types for 19c)	RHEL 8.x0	V10.0.6	V10.0.6
Oracle 19c <sup>7</sup>  All Versions	Standalone	OEL 7.x, 8.x, 9.0 RHEL 8.0-8.7 Rocky Linux 8.7 SLES 12, 15 Windows 2016, 2019	V10.0.6	V10.0.6
	RAC <sup>8</sup>	OEL 7.x, 8.x, 9.0 RHEL 8.0-8.7	V10.0.6	V10.0.6

		Rocky Linux 8.7 SLES 12, 15 Windows 2016, 2019		
	Exadata <sup>3</sup>	OEL 7.x, 8.x, 9.0 RHEL 8.0-8.7 Rocky Linux 8.7 SLES 12, 15 Windows 2016, 2019	V10.0.6	V10.0.6
	Non Active Data Guard <sup>4</sup>	OEL 7.x, 8.x, 9.0 RHEL 8.0-8.7 Rocky Linux 8.7 SLES 12, 15 Windows 2016, 2019	V10.0.6	V10.0.6
	Active Data Guard <sup>4</sup>	OEL 7.x, 8.x, 9.0 RHEL 8.0-8.7 Rocky Linux 8.7 SLES 12, 15 Windows 2016, 2019	V10.0.6	V10.0.6
Oracle 18c <sup>1</sup>  All Versions	Standalone	OEL 7.x, 8.x, 9.0 RHEL 8.0-8.7 Rocky Linux 8.7 SLES 12, 15 Windows 2016, 2019	V10.0.6	V10.0.6
	RAC <sup>8</sup>	OEL 7.x, 8.x, 9.0 RHEL 8.0-8.7 Rocky Linux 8.7 SLES 12, 15 Windows 2016, 2019	V10.0.6	V10.0.6
	Exadata <sup>3</sup>	OEL 7.x, 8.x, 9.0 RHEL 8.0-8.7 Rocky Linux 8.7 SLES 12, 15 Windows 2016, 2019	V10.0.6	V10.0.6
	Non Active Data Guard <sup>4</sup>	OEL 7.x, 8.x, 9.0 RHEL 8.0-8.7 Rocky Linux 8.7 SLES 12, 15	V10.0.6	V10.0.6

		Windows 2016, 2019		
	Active Data Guard <sup>4</sup>	OEL 7.x, 8.x, 9.0 RHEL 8.0-8.7 Rocky Linux 8.7 SLES 12, 15 Windows 2016, 2019	V10.0.6	V10.0.6

<sup>1</sup> Oracle 18c is not supported on HP-UX

<sup>2</sup> App aware mounts require a minimum version of 12.1.0.2 with patch 19404068

<sup>3</sup> Oracle Exadata system is supported with iSCSI and NFS

<sup>4</sup> Oracle database CBT is enabled on ActiveDG only by Oracle

<sup>5</sup> Capturing databases in pdb configuration requires Actifio connector 10.0.6 or above

<sup>7</sup> Supported on Linux and AIX from VDP release 10.0.6 onwards.

<sup>8</sup> RAC databases in a "policy managed" configuration are not supported

### 2.2.3.1 Exadata Support

Actifio VDP supports the following configurations of Oracle Exadata starting from VDP 10.0.6.

- Exadata Database Machine versions: X4 and higher
- Oracle versions: 18c and 19c

Please note that Actifio support is limited to Exadata machines running the Oracle Enterprise Linux version 6.0 and above (refer table 2.2 in "[Linux](#)" section) and Solaris version 11 and above (see table 2.8 in "[Solaris](#)" section).

**Note:** Actifio VDP version 10.0.5 and above is needed for Oracle Exadata.

### 2.2.3.2 Supported Data Capture and Data presentation methods

Actifio supports a variety of capture and presentation methods for Oracle databases under various configurations. This includes backup, recovery and Appaware mount operations of Oracle database with TDE (Transparent Data Encryption). For Oracle databases with TDE, the wallet for TDE can be captured by setting the Oracle Configuration file location advanced setting for the Oracle app. App aware mounts for TDE enabled databases requires the wallet to be copied to the appropriate location on the mount host.

Note: Cross platform presentation of Oracle images captured over NFS is not supported. For example, Oracle data captured from the Solaris system cannot be presented on a Linux system. Also, recovery of Oracle data captured from a Big endian machine on to a Little endian machine (or vice versa) is not supported.

Also note that dNFS with Oracle is supported on Linux and Solaris operating systems.

Table 2.14: Supported Data Capture and presentation methods

Production DB Configuration	Capture Format <sup>1, 5</sup>	Presentation Format <sup>2</sup>
DB files on filesystem/raw devices	Filesystem (Block Device)	Standalone Filesystem
	Filesystem (NFS)	Standalone Filesystem (NFS)
	ASM Disk Group <sup>3, 6, 7</sup>	Standalone ASM
	ASM Disk Group <sup>3, 6, 7</sup>	ASM RAC (one or more nodes)
DB files on ASM/RAC	Filesystem (Block Device)	Standalone Filesystem
	Filesystem (NFS)	Standalone Filesystem (NFS)
	Filesystem (NFS)	RAC Filesystem (NFS)
	ASM Disk Group <sup>3, 7</sup>	Standalone ASM
	ASM Disk Group <sup>3, 7</sup>	ASM RAC (one or more nodes)

<sup>1</sup> For databases using ASM diskgroups running on AIX and HP-UX OS, if iSCSI is being used, data will be captured from one node only

<sup>2</sup> While performing app aware mounts using ASM diskgroups to AIX and HP-UX hosts over iSCSI protocol, the mounts can be done to one host only

<sup>3</sup> Capture from ASM to ASM and presentation of backups in ASM format not supported on Windows operating systems

<sup>5</sup> Capture Format is the resulting format of the copy managed by Actifio

<sup>6</sup> Oracle ASM instance required on the source system for this capture method

<sup>7</sup> The combination of ASM Disk (capture format) is not supported when data is captured over NFS

Table 2.15: Supported Data Capture and presentation methods for Oracle Exadata

Supported Data Capture formats	Using File System
	Using ASM Disk Group
Backup support	HCC or Non HCC Data

Traditional Recovery using RMAN	HCC or non HCC
App-Aware Mount <sup>1</sup>	Exadata to non Exadata

<sup>1</sup> Accessing data from virtual copies of HCC compressed data will require the data to be uncompressed before access

## 2.2.4 File Systems

Actifio connectors discover each volume/network mount point as a protectable application. For each of these discovered applications, Actifio connector orchestrates the process of achieving consistency (through VSS/LVM snapshots), presents a staging disk which will be formatted with a file system of the same type as source or a compatible file system type as documented below.

Table 2.16: Filesystem Support Information

Operating System	Source FS	Staging Disk FS	Supported Connector Version	
			Min	Max
Windows	NTFS	NTFS	V10.0.6	V10.0.6
	CIFS	NTFS	V10.0.6	V10.0.6
	ReFS	ReFS	V10.0.6	V10.0.6
Linux <sup>1</sup>	EXT2	EXT2 or NFS	V10.0.6	V10.0.6
	EXT3	EXT3 or NFS	V10.0.6	V10.0.6
	EXT4	EXT4 or NFS	V10.0.6	V10.0.6
	XFS	XFS or NFS	V10.0.6	V10.0.6
	ReiserFS	ReiserFS or NFS	V10.0.6	V10.0.6
	NFS	EXT3 or NFS	V10.0.6	V10.0.6
	BTRFS	EXT3 or NFS <sup>4</sup>	V10.0.6	V10.0.6
AIX	JFS <sup>3</sup>	JFS <sup>3</sup>	V10.0.6	V10.0.6
	JFS2 <sup>3</sup>	JFS2 <sup>3</sup>	V10.0.6	V10.0.6
	HFS	HFS	V10.0.6	V10.0.6

HP-UX	VxFS <sup>2</sup>	VxFS <sup>2</sup>	V10.0.6	V10.0.6
	NFS	EXT3	V10.0.6	V10.0.6
Solaris <sup>1</sup>	UFS <sup>3</sup>	UFS <sup>3</sup> or NFS	V10.0.6	V10.0.6
	ZFS <sup>3</sup>	ZFS <sup>3</sup> or NFS	V10.0.6	V10.0.6
	NFS	EXT or NFS	V10.0.6	V10.0.6

<sup>1</sup> LVM snapshot is used as source, if present. LVM mount back to same server is supported

<sup>2</sup> Built in versions only

<sup>3</sup> Encryption not supported

<sup>4</sup> NFS V3 is supported only with Actifio Sky from 10.0.6 (and above).

## 2.2.5 SAP

Actifio supports SAP on all the databases covered/supported in this document.

## 2.2.6 SAP HANA

Supported Configuration	Recommended Capture Mode	Supported OS Version	Supported Connector Version	
			Min	Max
Single Container System <sup>1</sup>	HANA Storage Snapshot API <sup>2,8</sup>	RHEL 8.0-8.7 SLES 12, 15	V10.0.6	V10.0.6
MDC: Multiple-Container Systems (HANA 2.0) with one tenant database <sup>1</sup>	HANA Storage Snapshot API <sup>2,8</sup>	RHEL 8.0-8.7 SLES 12, 15	V10.0.6	V10.0.6
MDC: Multiple-Container Systems (HANA 2.0) with more than one tenant database <sup>1</sup>	HANA Storage Snapshot API <sup>2,7,8</sup>	RHEL 8.0-8.7 SLES 12, 15	V10.0.6	V10.0.6
Scale-out MDC: Multiple-Container Systems (HANA 2.0) with one or more tenant database <sup>4,6</sup>	HANA File-based (HDBSQL) API <sup>3,5</sup>	RHEL 8.0-8.7 SLES 12, 15	V10.0.6	V10.0.6

Scale-out MDC Local HA (N active host + 1 or more standby nodes) <sup>4,6</sup>	HANA File-based (HDBSQL) API <sup>3,5</sup>	RHEL 8.0-8.7 SLES 12, 15	V10.0.6	V10.0.6
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<sup>1</sup> Supports both Actifio block and NFS disk mapping options

<sup>2</sup> HANA storage snapshot API leverages Actifio CBT and supports incremental-forever and app-aware instant mount feature with log roll forward option. Actifio supports CBT with HANA on RHEL 8.x and above. For full list of CBT qualified RHEL & SLES versions see table 2.3

<sup>3</sup> HANA File-based (HDBSQL) API only supports weekly full with daily incremental. Supports traditional recovery using HANA HDBSQL commands

<sup>4</sup> Supports only Actifio NFS disk mapping option. NFS disk is always mapped to all HANA nodes

<sup>5</sup> App-aware instant mount capability is not supported with HANA File-based (HDBSQL) API

<sup>6</sup> Is supported only with HANA File-based API

<sup>7</sup> Requires SAP HANA 2.0 SPS 04

<sup>8</sup> App aware mount is not supported for child databases.

Note: HANA log backup is integrated with database backup policies and is handled automatically in all the above configurations.

### 2.2.6.1 SAP HANA – Supported Operating Systems & Architectures

The following table captures VDP support for SAP HANA supported operating systems on different architectures.

OS	Supported Architecture	Supported Backup Type	
		HANA Storage Snapshot API (Leverages Actifio CBT) <sup>1</sup>	HANA File-based (HDBSQL) API <sup>2</sup>
RHEL	x86	>= RHEL 8.x <sup>1</sup>	>= RHEL 8.x <sup>2</sup>
	PowerPC	RHEL 8.x	RHEL 8.x
SLES	PowerPC	SLES 15.1	SLES 15.1

<sup>1</sup> For the full list of CBT qualified RHEL & SLES versions and minimum required VDP versions, see table 2.3

<sup>2</sup> For Non-CBT qualified RHEL & SLES versions, see table 2.2

### 2.2.7 IBM Db2

Actifio enhanced its out-of-the-box support for data management of IBM Db2 database applications and supports the following data capture methods:



- Db2 on Linux can be captured at the volume level in an incremental-forever fashion with instant access and virtual clone creation for Test Data Management (TDM). This leverages Linux LVM and Actifio's Changed Block Tracking capabilities and is the recommended alternative.
- For customers not using LVM or who cannot use volume level capture, Db2 on Linux can alternatively be captured using full + incremental backup. This uses the databases traditional dump-based backup and typically run as a weekly full and daily incremental. Recovery involves reconstructing the incrementals on top of the latest full backup.
- Db2 on AIX can be captured at the volume level in an incremental-forever fashion with instant access and virtual clone creation for TDM. This leverages GPFS or JFS snapshots and synthesizes the incremental captures by running a full scan of the database to look for changed blocks. This alternative is recommended for TDM.
- For customers not using GPFS or JFS or who cannot use volume level capture, Db2 on AIX can alternatively be captured using full + incremental backup. This uses the databases' traditional dump-based backup and typically run as a weekly full and daily incremental. Recovery involves reconstructing the incrementals on top of the latest full backup and therefore is not recommended for TDM.

Table 2.17: Supported Db2 Versions

Database	Supported Versions	Supported OS Versions	Supported Connector Versions	
			Min	Max
Db2 <sup>1</sup>	10.5, 11.1, 11.5	RHEL 8.0-8.7 SLES 12 and 15	V10.0.6	V10.0.6

<sup>1</sup> Note: Actifio Global Manager 10.0.6 and above is required to manage DB2 database applications

<sup>2</sup> All these are Db2 extended support versions

## 2.2.8 SAP ASE (formerly Sybase ASE)

Actifio enhanced its out-of-the-box support for data management of SAP ASE database applications and supports the following data capture methods:

- SAP ASE on Linux can be captured at the volume level in an incremental-forever fashion with instant access and virtual clone creation for TDM. This leverages Linux LVM and Actifio's Changed Block Tracking capabilities and is the recommended alternative.
- For customers not using LVM or who cannot use volume level capture, SAP ASE on Linux can alternatively be captured using full + incremental backup. This uses the database's traditional dump-based backup and typically run as a weekly full and daily incremental. Recovery involves reconstructing the incrementals on top of the latest full backup.

Table 2.18: Supported SAP ASE Versions

Database	Supported Versions	Supported OS Versions	Supported Connector Versions	
			Min	Max
SAP ASE <sup>1</sup> (formerly Sybase ASE)	16.0.x	RHEL 8.0-8.7 SLES 12 and 15	V10.0.6	V10.0.6

<sup>1</sup> Note: Actifio Global Manager 10.0.6 and above is required to manage SAP ASE database applications

## 2.2.9 MySQL

Actifio VDP supports the following data capture methods:

- MySQL on Linux can be captured at the volume level in an incremental-forever fashion with instant access and virtual clone creation for TDM. This leverages Linux LVM and Actifio's Changed Block Tracking capabilities and is the recommended alternative.
- For customers not using LVM or who cannot use volume level capture, MySQL on Linux can alternatively be captured using full + incremental backup. This uses the database's traditional dump-based backup and typically run as a weekly full and daily incremental. Recovery involves reconstructing the incrementals on top of the latest full backup.

Table 2.19: Supported MySQL Versions

Database	Supported Versions	Supported OS Versions	Supported Connector Versions	
			Min	Max
MySQL	5.7, 8.2, 8.3	RHEL 8.0-8.7	V10.0.6	V10.0.6

<sup>1</sup> Note: Actifio Global Manager 10.0.6 and above is required to manage MySQL database applications.

## 2.2.10 MariaDB

Actifio enhanced out-of-the-box support for data management of MariaDB database applications and supports the following data capture methods:

- MariaDB on Linux can be captured at the volume level in an incremental-forever fashion with instant access and virtual clone creation for TDM. This leverages Linux LVM and VDP Changed Block Tracking capabilities and is the recommended alternative.  
  
For customers not using LVM or who cannot use volume level capture, MariaDB on Linux can alternatively be captured using full + incremental backup. This uses the databases traditional dump-based backup and typically run as a weekly full and daily incremental. Recovery involves reconstructing the incrementals on top of the latest full backup.

Table 2.20: Supported MariaDB Versions

Database	Supported Versions	Supported OS Versions	Supported Connector Versions	
			Min	Max
MariaDB <sup>1</sup>	10.3 10.4 10.5	RHEL 8.0-8.7	V10.0.6	V10.0.6

<sup>1</sup> Note: Actifio Global Manager 10.0.6 and above is required to manage MariaDB database applications

## 2.2.11 SAP IQ (formerly Sybase IQ)

Actifio enhanced out-of-the-box support for data management of SAP IQ database applications using full + incremental capture method. This used the databases traditional dump-based backup and typically run as a weekly full and daily incremental. Recovery involved reconstructing the incremental on top of the latest full backup.

VDP supports capturing SAP IQ at the volume level in an incremental- forever fashion with instant access and virtual clone creation for TDM. This leverages Linux LVM and VDP Changed Block Tracking capabilities and is the recommended alternative.

Table 2.21: Supported SAP IQ Versions

Database	Supported Versions	Supported OS Versions	Supported Connector Versions	
			Min	Max
SAP IQ (Full + Incremental)	16.1 and above	RHEL 8.0-8.7 SLES 12 and 15	V10.0.6	V10.0.6
SAP IQ (LVM + CBT) <sup>1</sup>	16.1 and above	RHEL 8.0-8.7 SLES 12 and 15	V10.0.6	V10.0.6

<sup>1</sup> Note: Actifio Global Manager 10.0.5 and above is required to manage SAP IQ database applications

## 2.2.12 SAP MaxDB

Actifio enhanced out-of-the-box support for data management of SAP MaxDB database

applications and supports the following data capture methods:

- SAP MaxDB on Linux can be captured at the volume level in an incremental-forever fashion with instant access and virtual clone creation for TDM. This leverages Linux LVM and VDP Changed Block Tracking capabilities and is the recommended alternative.
- For customers not using LVM or who cannot use volume level capture, MaxDB on Linux can alternatively be captured using full + incremental backup. This uses the database's traditional dump-based backup and typically run as a weekly full and daily incremental backup. Recovery involves reconstructing the incrementals on top of the latest full backup.

Table 2.22: Supported SAP MaxDB Versions

Database	Supported Versions	Supported OS Versions	Supported Connector Versions	
			Min	Max
MaxDB	7.9 and above	RHEL 8.0-8.7 SLES 12 and 15	V10.0.6	V10.0.6

<sup>1</sup> Note: Actifio Global Manager 10.0.6 is required to manage SAP MaxDB database applications

### 2.2.13 PostgreSQL

Actifio enhanced its out-of-the-box support for data management of PostgreSQL database applications and supports the following data capture methods:

- PostgreSQL on Linux can be captured at the volume level in an incremental-forever fashion with instant access and virtual clone creation for TDM. This leverages Linux LVM and Actifio's Changed Block Tracking capabilities and is the recommended alternative.
- For customers not using LVM or who cannot use volume level capture, PostgreSQL on Linux can alternatively be captured using full + incremental backup. This uses the databases traditional dump-based backup and typically run as a weekly full and daily incremental. Recovery involves reconstructing the incrementals on top of the latest full backup.

Table 2.19: Supported PostgreSQL Versions

Database	Supported Versions	Supported OS Versions	Supported Connector Versions
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			Min	Max
PostgreSQL <sup>1</sup>	12.x 13.x & 14.x & 15.x <sup>2</sup>	RHEL 8.0-8.7 SLES 12 and 15	V10.0.6	V10.0.6

<sup>1</sup> Note: Actifio Global Manager 10.0.6 and above is required to manage PostgreSQL database applications

<sup>2</sup> Supported with Actifio connector running version 10.0.5.7769-hotfix3131 (Nov MHR) or higher.

## 2.2.14 Test Data Management with Containers

VDP 10.0.6 leverages Kubernetes NFS volumes to make application data captured with VDP available as NFS shares to one or more containers. This allows for creating virtual clones of supported databases that's easily accessible from within the containerized environment.

VDP supported databases on Linux platforms captured in Table 2.4 [here](#) are eligible for Test Data Management with containers.

## 2.3 Data Management with Actifio Generic Apps

Actifio Generic Apps makes the Virtual Data Pipeline (VDP) platform capability available for a large number of application types and operating systems.

### 2.3.1 Generic Apps with Actifio Connector

SKY: X CDX: X

When deployed in this configuration with Actifio Connector, the Actifio connector provides well defined integration points where existing or custom scripts can be integrated into the data capture and mount workflows of the VDP. After the one time integration<sup>3</sup>, applications configured as Generic Apps can be managed using Actifio management tools.

The operating systems supported for deploying Generic Apps with a connector is the same as mentioned in section [“Actifio Connector Operating System Support”](#).

#### Out-of-Band Generic Applications

Actifio uses its Out-of-Band Generic App Framework to protect databases running on the Linux operating system. This method leverages the Actifio Linux Change Block Tracking (CBT) driver. The CBT driver tracks block level changes to application volumes

<sup>3</sup> Maintenance of the scripts used in the Generic Apps framework is the responsibility of the customer

# 3. Data Virtualization for Virtual Environments

Actifio supports capturing data from VMware and Microsoft Hyper-V based virtual environments.

## 3.1 VMware

SKY: ✓ CDX:

With software version 10.0.6, Actifio supports NFS protocol (in addition to FC and iSCSI protocol) to present datastore to all the Actifio supported vCenter servers. What this means is that you can now present a captured vDisk from VMware over NFS to an ESX server or present staging disk to a VM through ESX over NFS.

Note: Actifio CDX appliances only support VMware vSphere 7.0 and above.

Table 3.1: VMware support Info

vCenter	<ul style="list-style-type: none"><li>7.0<sup>9</sup>, 7.0 U1<sup>9</sup>, 7.0 U2<sup>9</sup>, 7.0 U3</li><li>8.0 U1<sup>10</sup></li></ul>
Server	<ul style="list-style-type: none"><li>7.0, 7.0 U1, 7.0 U2, 7.0 U3</li><li>8.0 U1<sup>10</sup></li></ul>
Virtual Hardware	7 to 13 <sup>7</sup> , 14 <sup>7</sup> , 15 <sup>7</sup> , 17 <sup>7</sup> , 18 <sup>7</sup> , 19 <sup>7</sup>
Guest OS	All VMware supported OS
Quiesce applications <sup>5</sup>	Yes, based on VMware Tools
vSAN Support <sup>3, 8</sup>	vSAN 6.7, vSAN 6.7 U1, vSAN 6.7 U2 & U3, 7.0 U1, 7.0 U2, 7.0 U3
Change Block Tracking <sup>6</sup>	Leverages VMware VADP API

Note: Protection of VMware view virtual machines not supported

<sup>4</sup> Actifio connector not required for Out Of Band capture

<sup>5</sup> Capability applicable to any application with a VSS Writer or pre/post scripts to achieve application consistent capture

<sup>6</sup> Not supported for disks presented to production VM's as pRDM

<sup>7</sup> NVME Controller types are not supported on Virtual Hardware version 13 (found on ESX 6.5 and above). Virtual hardware version 14 and 15 are supported only with Actifio software version 10.0.6 (and above) with ESX 6.7 U2 <sup>8</sup> Since VMware vSAN does not support RDM device access features, mounting of a VM is not supported by Actifio when using RDMs. Restores and Clones of VMs are supported. However, mounting

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of a VM is supported on Actifio Sky & CDX when using the NFS transport instead of RDM.

<sup>9</sup>Leverages VMware VDDK version 6.7.3

<sup>10</sup> Supported with Sky appliances running version 10.0.5.7398 (March MHR) or higher and with AGM running version 10.0.5.6830 (March MHR) or higher.

Table 3.2: VMware vCenter/ESX servers supported by Actifio-Sky/CDX versions

vCenter/ESX Versions	Minimum Required Actifio Sky/CDX Version
7.0	10.0.6
7.0 U1	10.0.6
7.0 U2	10.0.6
7.0 U3	10.0.6
8.0.1 U <sup>2</sup>	10.0.6

<sup>2</sup> Supported with Sky appliances running version 10.0.5.7398 (March MHR) or higher and with AGM running version 10.0.5.6830 (March MHR) or higher.

## 3.2 VMware Virtual Volumes

Actifio backup and Mount operations are transparent to VMware VVOLs. Therefore, the backup of a VM, the Mount of a backup as a new VM, and the Mount of volumes from a backup into an existing VM are fully supported with Actifio software version 10.0.6 and above. These are the most common customer operations. A Mount of a backup as a new VM is the fastest way to recover a VM, typically followed by a Storage vMotion operation to move the data online into the desired storage.

The Actifio Restore operation to a VMware VVOL datastore cannot be supported at this time. This operation overwrites the volumes of a backed-up VM with volumes from a point-in-time backup, thereby restoring the original VM to how it was in the past. Actifio has found that although all VVOL implementations by storage vendors are correct for the support of backup and mount operations, some implementations do not fully or correctly support the restore operation.

While most customers typically recover a VM with a Mount as new VM operation, this operation does create a new VM with a new UUID, MAC address, path within VMware, resource group, and similar settings. If that is unacceptable, and the original VM is still available, a workaround is to:

- Mount all the volumes from a backup to the existing, original VM (the one to be recovered).
- Use VMware edit settings to remove all the original drives.
- Reboot the VM
- Once the VM is up, use Storage vMotion to move the data back to production storage.

This will maintain all the original VM's settings.

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## 3.3 Microsoft Hyper-V

SKY: ✓ CDX: ✓

This section applies to all VDP (Sky/CDX) appliances.

Table 3.3: Hyper-V support Info

Hyper-V servers	<ul style="list-style-type: none"> <li>Windows 2019<sup>2</sup> (leveraging 2019 SCVMM)</li> <li>Windows 2016<sup>2</sup> (leveraging 2016 SCVMM)</li> </ul>
VM Type	Gen 1 VMs on Windows 2008 R2, 2012, 2012 R2, 2016 and 2019. Gen 2 VMs on Windows 2012 R2.
Guest OS	All Hyper-V supported OS's
Quiesce applications <sup>1</sup>	Yes, based on VSS, See application discovery and protection section below
Change Block Tracking	Requires Actifio Connector

<sup>1</sup> Requires Hyper-V Integration Services. Capability applicable to any application with a VSS Writer or pre/post scripts to achieve application consistent capture

<sup>2</sup> Actifio uses Windows Resilient Change Tracking (RCT) to perform backup operations if the cluster and the Hyper-V hosts on it are running Windows 2016 at the minimum and the VM version is 6.2 and above. Actifio CBT mechanism is leveraged otherwise for the backup operations.

Note:

- Pre and post scripting within Guest VM is not supported
- Incremental backups supported for CSV volumes on Hyper-V servers running Windows 2019 and 2016
- Actifio connector required
- Capture of specific individual disks for Hyper-V based VMs is not supported.

Table 3.4: Hyper-V servers supported by Actifio Sky/CDX versions

Hyper-V Version	Minimum Required Sky/CDX Version
Windows 2019 (leveraging 2019 SCVMM)	10.0.6
Windows 2016 (leveraging 2016 SCVMM)	10.0.6



## 4. Actifio product interoperability

### 4.1 Replication

SKY: ✓ CDX: ✓

Actifio replication guarantees backward compatibility between Sky & CDX appliances running N and N-1 major revisions. Actifio best practice recommendation is to upgrade the source and target clusters to the same version of firmware for best performance.

### 4.2 Actifio Global Manager

SKY: ✓ CDX: ✓

Table 4.2 : Actifio Global Manager Interop Information

VDP Version	AGM Version	
	Minimum Compatibility	Max
V10.0.5+	V10.0.6	V10.x

### 4.3 Actifio Report Manager

SKY: ✓ CDX: ✓

Table 4.3 : Actifio Report Manager Interop Information

VDP Version	Report Manager Version	
	Minimum Compatibility <sup>1</sup>	Max
V10.0.x	V10.0.6	V10.0.6

<sup>1</sup> Minimum compatibility: Reporting on a few advanced features may require upgrade to recommended version

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