

# SUPPORT MATRIX

Applies to Actifio software version 10.0.5

## 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</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  | Added support for <ul style="list-style-type: none"><li>● PostgreSQL 15.0</li></ul>  |
| January, 2024   | Added support for <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  | Added support for <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>  |

## Table of Contents

|   |           |
|---|-----------|
| Deployment Information .....                                  | 1         |
| <b>1.1 Deploying Actifio.....</b>                             | <b>1</b>  |
| 1.1.1 Supported configuration topologies .....                | 1         |
| <b>1.2 Supported hypervisors for Sky Deployment .....</b>     | <b>2</b>  |
| <b>1.3 Object Storage Compatibility for OnVault .....</b>     | <b>3</b>  |
| <b>1.4 Storage Compatibility .....</b>                        | <b>4</b>  |
| 1.4.1 Storage guidelines for Actifio dedup pool .....         | 4         |
| 1.4.2 Sky .....   | 6         |
| 1.4.3 CDS .....   | 6         |
| 1.4.4 CDX .....   | 10        |
| <b>1.5 External Snapshot Pool .....</b>                       | <b>11</b> |
| 1.5.1 Supported Storage Arrays.....                           | 11        |
| 1.5.2 Supported Application Types .....                       | 12        |
| Application Data Virtualization with Actifio Connector .....  | 14        |
| <b>2.1 Actifio Connector Operating System Support.....</b>    | <b>15</b> |
| 2.1.1 Microsoft Windows .....                                 | 15        |
| 2.1.2 Linux .....   | 15        |
| 2.1.2.1 Linux Change Block Tracking support .....             | 18        |
| 2.1.3 IBM AIX .....   | 21        |
| 2.1.4 HP-UX .....   | 22        |
| 2.1.5 Oracle Solaris .....                                    | 23        |
| 2.1.6 Host Multipath Software Support .....                   | 24        |
| 2.1.7 Actifio Global Catalog .....                            | 24        |
| <b>2.2 Application aware data management.....</b>             | <b>25</b> |
| 2.2.1 Cloud Mobility .....                                    | 25        |
| 2.2.2 Microsoft Enterprise Applications.....                  | 25        |
| 2.2.3 Oracle .....  | 28        |
| 2.2.4 File Systems .....                                      | 32        |
| 2.2.5 SAP .....   | 33        |
| 2.2.6 SAP HANA.....   | 33        |
| 2.2.7 IBM Db2 .....   | 34        |
| 2.2.8 SAP ASE (formerly Sybase ASE).....                      | 35        |
| 2.2.9 MySQL .....   | 36        |
| 2.2.10 MariaDB .....  | 36        |
| 2.2.11 SAP IQ (formerly Sybase IQ) .....                      | 37        |
| 2.2.12 SAP MaxDB .....  | 38        |
| 2.2.13 PostgreSQL.....  | 38        |
| 2.2.14 NAS .....  | 39        |
| 2.2.15 Test Data Management with Containers.....              | 39        |
| <b>2.3 Data Management with Actifio Generic Apps .....</b>    | <b>40</b> |
| 2.3.1 Generic Apps with Actifio Connector .....               | 40        |
| 2.3.2 Generic Apps OS support without Actifio connector ..... | 40        |
| Data Virtualization for Virtual Environments .....            | 46        |
| <b>3.1 VMware.....</b>  | <b>46</b> |
| <b>3.2 VMware Virtual Volumes.....</b>                        | <b>48</b> |
| <b>3.3 Microsoft Hyper-V .....</b>                            | <b>48</b> |
| Actifio product interoperability .....                        | 51        |
| <b>4.1 Replication.....</b>                                   | <b>51</b> |

**4.2 Actifio Global Manager .....51**  
**4.3 Actifio Report Manager .....51**  
**4.4 Actifio Resiliency Director .....52**  
**4.1 Actifio NAS Director.....52**  
4.1.1 Actifio NAS Director – Virtual appliance..... 52  
4.1.2 Actifio NAS Director - Physical appliance ..... 52

## Deployment Information

Actifio VDP (Virtual Data Pipeline) technology is packaged in two form factors. Actifio CDS & CDX product line is the physical form factor and Sky product line is the virtual form factor.

### 1.1 Deploying Actifio

#### 1.1.1 Supported configuration topologies

Actifio 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
  - **In-band:** In this configuration, Actifio appliance is configured in the data path between the production host and the production storage
  - **LAN-Free (also known as sideband):** In this configuration, the Actifio appliance is zoned into the production storage. However, the Actifio appliance is not in the data path. During the data capture process, the Actifio appliance reads the data directly from the production storage to the storage configured behind Actifio
  - **External Snapshot Pools (ESP) In-place Capture:** This is similar to an “In-band” configuration with CDS in that the storage array does snapshots off of production volumes and tracks changes on production blocks, but is different in that 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 CDS/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                     | CDS                           | Sky   | CDX   |
|------------------------------|-------------------------------|---|---|
| Out of Band                  | FC, IP <sup>2</sup> and iSCSI | IP <sup>2</sup> , iSCSI and NFS <sup>3, 4</sup> | FC, IP <sup>2</sup> , iSCSI and NFS <sup>3, 4</sup> |
| In-band                      | FC Only                       | Not Supported                                   | Not Supported                                       |
| LAN-Free <sup>1</sup>        | FC only                       | Not Supported                                   | Not Supported                                       |
| ESP In-place <sup>5</sup>    | Not supported                 | FC, iSCSI                                       | FC, iSCSI   |
| ESP Out of Band <sup>5</sup> | Not supported                 | FC, iSCSI                                       | FC, iSCSI   |

<sup>1</sup> Only VMware Virtual machines (excluding applications running in the VM which are captured with Actifio connector) can be configured to capture in sideband topology

<sup>2</sup> Supported for VMware Network Block Device (NBD) based data capture only

<sup>3</sup> NFS support is available for Actifio supported Linux & Solaris operating systems, HP-UX, and IBM AIX from VDP 10.0.5 onwards. Also note that only NFS version v3 is supported

<sup>4</sup> Actifio software version 10.0.5 (and above) supports presenting NFS datastore to all the supported VMware vSphere servers

<sup>5</sup> iSCSI needs to be configured between Sky and external storage array

## 1.2 Supported hypervisors for Sky Deployment

Below table list 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 2012, 2012 R2, 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.

Select models from the following vendors are supported

| Vendor                 | CDS | CDX |
|------------------------|-----|-----|
| Brocade                | Yes | Yes |
| Cisco MDS, Nexus Lines | Yes | Yes |
| McData                 | Yes | No  |
| Qlogic                 | Yes | No  |
| Dell                   | No  | 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                       | V10.0.5                  | V10.0.5 |
|                     | S3-IAS                   | V10.0.5                  | V10.0.5 |
| Google              | Archive                  | V10.0.5                  | V10.0.5 |
|                     | Coldline                 | V10.0.5                  | V10.0.5 |
|                     | Nearline                 | V10.0.5                  | V10.0.5 |
|                     | Standard                 | V10.0.5                  | V10.0.5 |
| IBM                 | IBM Cloud Object Storage | V10.0.5                  | V10.0.5 |
| Microsoft           | Azure-blob <sup>3</sup>  | V10.0.5                  | V10.0.5 |



|                               |                                       |         |         |
|-------------------------------|---------------------------------------|---------|---------|
| Scality                       | Scality Object Storage                | V10.0.5 | V10.0.5 |
| Hitachi                       | Hitachi Content Platform              | V10.0.5 | V10.0.5 |
| EMC                           | ECS – Object Store                    | V10.0.5 | V10.0.5 |
| Wasabi                        | Wasabi Object Store                   | V10.0.5 | V10.0.5 |
| Western Digital               | ActiveScale                           | V10.0.5 | V10.0.5 |
| NetApp                        | StorageGRID                           | V10.0.5 | V10.0.5 |
| Catalyst Cloud                | Container Service (S3 buckets)        | V10.0.5 | V10.0.5 |
| Oracle                        | Oracle Cloud<br>Infrastructure Object | V10.0.5 | V10.0.5 |
| SwiftStack                    | SwiftStack Storage                    | V10.0.5 | V10.0.5 |
| Huawei                        | FusionStorage                         | V10.0.5 | V10.0.5 |
| Fujitsu Cloud<br>Technologies | NIFCLOUD Object Storage               | V10.0.5 | V10.0.5 |
| iland                         | iland Secure Cloud Object<br>Storage  | V10.0.5 | V10.0.5 |
| Pure Storage <sup>5</sup>     | FlashBlade                            | V10.0.5 | V10.0.5 |

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

<sup>2</sup> Integration with the IBM COS retention feature requires Actifio VDP 10.0.5 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.

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1. Best practice recommendation is to configure the dedup pool on a 1 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 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> |          |          |                |
|--|---------------------------------------|----------|----------|----------------|
|  | CDS                                   | Sky-50TB | Sky-30TB | Sky-10TB       |
| SSD<br>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<br><br><b>Reference system:</b> Pure Storage AFS   | 12                                    | 9        | 6        | N/A            |
| 10k/15k SAS<br>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<br><br><b>Reference system:</b> NetApp E5600<br>30x800GB 10,000 rpm SAS drives, RAID-6 DDP | 8                                     | 6        | 4        | 3 <sup>1</sup> |

|   |   |   |   |                  |
|---|---|---|---|------------------|
| 7.2k NL-SAS/SATA<br>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<br><br><b>Reference system:</b> IBM Storwize v3700<br>12x4TB 7200 rpm SAS drives, RAID 6 | 5 | 3 | 2 | 1.5 <sup>1</sup> |
|---|---|---|---|------------------|

<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 CDS and 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 CDS

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.

Table 1.5b: Storage support information

| Vendor | Family          | Models  |
|--------|-----------------|---|
| Bull   | StoreWay Optima | For Specific models & firmware versions contact Actifio account manager |
| Dell   | Compellent      | SC8000, SC400 series  |
|        | MD              | MD36xxf and MD38xxf series  |
| EMC    | Symmetrix       | VMAX, DMX and 8000 series models  |
|        | Midrange        | CLARiiON CX-series models and FC4700                                    |
|        | VNX             | VNX 5x00, 7500 (Code level 05.31.xx)                                    |
|        | XtremelIO       | Code levels 2.4.3.0 and 4.0   |

|                 |  |   |
|-----------------|--|---|
| Fujitsu         | Eternus  | For specific models & firmware versions contact Actifio account manager |
| HP              | EVA  | EVA P6000   |
|                 | MSA  | MSA1000, MSA MSA2000, 1500, MSA P2000 G3                                |
|                 | XP   | For Specific models & firmware versions contact Actifio account manager |
|                 | 3PAR   | For Specific models & firmware versions contact Actifio account manager |
|                 | Nimble   | For Specific models & firmware versions contact Actifio account manager |
| Hitachi Systems | Data<br>Thunder<br>Lightning<br>Tagmastore<br>AMS<br>WMS<br>Universal Storage Platform<br>HUS<br>HUS VM<br>VSP Gxxxx | For Specific models & firmware versions contact Actifio account manager |
| Huawei          | Oceanstor  | For Specific models & firmware versions contact Actifio account manager |

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|              |  |  |                          |
|--------------|--|--|--------------------------|
| IBM          | XIV                                    | For Specific models & versions contact Actifio account manager | firmware account manager |
|              | FlashSystem                            | For Specific models & versions contact Actifio account manager | firmware account manager |
|              | TotalStorage Enterprise Storage Server | For Specific models & versions contact Actifio account manager | firmware account manager |
|              | System Storage                         | DS3000, DS4000TM, DS6000TM, DS8000                             | DS5000,                  |
|              | N Series                               | For Specific models & versions contact Actifio account manager | firmware account manager |
|              | Storwize                               | V7000, V5000, V3700  |                          |
|              | SAN Volume Controller                  | 6.3 or higher  |                          |
| Infinidat    | F-Series                               | F2000, F4000, F6000  |                          |
| NEC          | iStorage                               | Contact Actifio account manager                                |                          |
| Netapp       | E-Series                               | E5400, EF550, E2760, R2724, E2712, E2800                       |                          |
|              | FAS <sup>1</sup>                       | All models   |                          |
|              | IBM N Series                           | For Specific models & versions contact Actifio account manager | firmware account manager |
| Nexsan       | E-series                               | E18, E48, E60  |                          |
| Pillar Data  | Axiom                                  | For Specific models & versions contact Actifio account manager | firmware account manager |
| Pure Storage | FA-Series                              | FA-405, FA-420, FA-450   |                          |

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|                      |            |                               |                          |                  |
|----------------------|------------|-------------------------------|--------------------------|------------------|
| Sun Microsystems     | StorEdge   | For Specific versions manager | models & contact Actifio | firmware account |
|                      | StorageTek | For Specific versions manager | models & contact Actifio | firmware account |
|                      | FlexLine   | For Specific versions manager | models & contact Actifio | firmware account |
| Texas Memory Systems | RAMSAN     | For Specific versions manager | models & contact Actifio | firmware account |
| Toshiba              | FL-Series  | FL 6000                       |                          |                  |
| Violin Memory        | All        | For Specific versions manager | models & contact Actifio | firmware account |
| Xiotech              | X-IO       | For Specific versions manager | models & contact Actifio | firmware account |

<sup>1</sup> Netapp cluster mode (CDOT) configurations are supported only with Actifio Sky and NAS Director and not with CDS

#### 1.4.4 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 10.0.5 (and above) supports External Snapshot pools (a.k.a ESP).

### 1.5.1 Supported Storage Arrays

With VDP 10.0.5, 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.

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

## 1.5.2 Supported Application Types

VDP 10.0.5 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 data-bbox="493 613 1284 646">For supported Oracle versions, see section <a href="#">2.2.3 Oracle</a></p> <p data-bbox="493 688 646 722">Limitations</p> <ul data-bbox="542 779 1409 1394" style="list-style-type: none"><li data-bbox="542 779 1409 890">● Logs are always copied in full regardless of whether the data capture topology is “Incremental Only” or “Full + Incremental”</li><li data-bbox="542 905 1409 1058">● 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 data-bbox="542 1073 1409 1226">● 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 data-bbox="542 1241 1409 1394">● 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></ul> |



|             |  |
|-------------|--|
|             | <ul style="list-style-type: none"><li>• Oracle ASM in-place capture is not supported when ASM is using ASM Filter Devices (AFD).</li></ul> |
| SQL Server  | For supported SQL Server versions, see section <a href="#">2.2.2.1 Microsoft SQL Server</a><br><br><b>No Limitations</b>                   |
| Filesystems | All the filesystems supported by Actifio connector are supported<br><br><b>No Limitations</b>  |

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

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# Application Data Virtualization with Actifio Connector

Actifio connector is a light weight executable that delivers advanced capabilities during the data capture and recovery processes. Actifio connectors deliver the following 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.
- Generic Application Data Capture framework: Actifio Connectors provide a generic framework to capture data from any application running on a supported platform. This framework provides hooks to call custom scripts to achieve application consistent data capture and application instantiation from backup data.

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 operation system version is supported by the Actifio connector
  3. Verify if the advanced capability is supported for the application type in context
-

## 2.1 Actifio Connector Operating System Support

The Actifio connector supports the following operating systems and configurations.

### 2.1.1 Microsoft Windows

CDS: ✓ SKY: ✓ CDX: ✓

Table 2.1: Microsoft Windows support information

| OS Version   | Supported Versions |         |
|--|--------------------|---------|
|  | Min                | Max     |
| Windows Server 2012 <sup>1, 2</sup> , 2012 R2 <sup>1, 2</sup> ,<br>2016 <sup>1, 2</sup> , 2019 <sup>3</sup> , 2022 <sup>3, 4</sup> | V10.0.5            | V10.0.5 |

<sup>1</sup> This version of OS is eligible for cloud mobility only if it's supported by the respective cloud platform

<sup>2</sup> CSV configurations only supported on these versions

<sup>3</sup> Cloud mobility is not supported

<sup>4</sup> Only for basic connector support

### 2.1.2 Linux

CDS: ✓ 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     |
|        | V7.0-7.4 | V10.0.5                      | V10.0.5 |
|        | V7.5     | V10.0.5                      | V10.0.5 |
|        | V7.6     | V10.0.5                      | V10.0.5 |
|        | V7.7     | V10.0.5                      | V10.0.5 |
|        | V7.8     | V10.0.5                      | V10.0.5 |

|                            |                    |         |         |
|----------------------------|--------------------|---------|---------|
| RHEL <sup>1, 2, 4, 5</sup> | V7.9               | V10.0.5 | V10.0.5 |
|                            | V8.0 <sup>8</sup>  | V10.0.5 | V10.0.5 |
|                            | V8.1 <sup>8</sup>  | V10.0.5 | V10.0.5 |
|                            | V8.2               | V10.0.5 | V10.0.5 |
|                            | V8.3               | V10.0.5 | V10.0.5 |
|                            | V8.4               | V10.0.5 | V10.0.5 |
|                            | V8.5               | V10.0.5 | V10.0.5 |
|                            | V8.6 <sup>7</sup>  | V10.0.5 | V10.0.5 |
|                            | V8.7 <sup>10</sup> | V10.0.5 | V10.0.5 |
|                            | V8.8 <sup>12</sup> | V10.0.5 | V10.0.5 |
|                            | V8.9 <sup>16</sup> | V10.0.5 | V10.0.5 |
|                            | V9.0               | V10.0.5 | V10.0.5 |
|                            | V9.2 <sup>14</sup> | V10.0.5 | V10.0.5 |
|                            | V9.3 <sup>16</sup> | V10.0.5 | V10.0.5 |
| SLES <sup>1, 3, 4, 5</sup> | V12 SP0-1          | V10.0.5 | V10.0.5 |
|                            | V12 SP2-3          | V10.0.5 | V10.0.5 |
|                            | V12 SP4            | V10.0.5 | V10.0.5 |
|                            | V12 SP5            | V10.0.5 | V10.0.5 |
|                            | V15                | V10.0.5 | V10.0.5 |
|                            | V15.1              | V10.0.5 | V10.0.5 |
|                            | V15.2              | V10.0.5 | V10.0.5 |
|                            | V15.3              | V10.0.5 | V10.0.5 |
|                            | V15.4              | V10.0.5 | V10.0.5 |

|   |                         |         |         |
|---|-------------------------|---------|---------|
|   | V15.5 <sup>14</sup>     | V10.0.5 | V10.0.5 |
| Rocky Linux   | V8.7 <sup>12</sup>      | V10.0.5 | V10.0.5 |
|   | V8.8 <sup>12</sup>      | V10.0.5 | V10.0.5 |
|   | V8.9 <sup>17</sup>      | V10.0.5 | V10.0.5 |
|   | V9.0 <sup>13</sup>      | V10.0.5 | V10.0.5 |
|   | V9.1 <sup>13</sup>      | V10.0.5 | V10.0.5 |
|   | V9.2 <sup>13</sup>      | V10.0.5 | V10.0.5 |
|   | V9.3 <sup>17</sup>      | V10.0.5 | V10.0.5 |
| CentOS <sup>1, 2, 4, 5</sup>                        | V7.3-7.9                | V10.0.5 | V10.0.5 |
| Ubuntu <sup>12</sup>                                | V16.04 LTS              | V10.0.5 | V10.0.5 |
|   | V18.04 LTS              | V10.0.5 | V10.0.5 |
|   | V20.04 LTS <sup>7</sup> | V10.0.5 | V10.0.5 |
|   | V22.04 LTS <sup>7</sup> | V10.0.5 | V10.0.5 |
| Oracle Enterprise<br>Linux <sup>1, 2, 4, 5, 7</sup> | V7.4, V7.5, V7.6        | V10.0.5 | V10.0.5 |
|   | V7.7                    | V10.0.5 | V10.0.5 |
|   | V7.8                    | V10.0.5 | V10.0.5 |
|   | V7.9                    | V10.0.5 | V10.0.5 |
|   | V7.4, V7.5, V7.6        | V10.0.5 | V10.0.5 |
|   | V8.0-8.4                | V10.0.5 | V10.0.5 |
|   | V8.5                    | V10.0.5 | V10.0.5 |
|   | V8.6                    | V10.0.5 | V10.0.5 |
|   | V8.7 <sup>10</sup>      | V10.0.5 | V10.0.5 |
|   | V8.8 <sup>12, 15</sup>  | V10.0.5 | V10.0.5 |

|  |                        |         |         |
|--|------------------------|---------|---------|
|  | V8.9 <sup>15, 17</sup> | V10.0.5 | V10.0.5 |
|  | V9.0                   | V10.0.5 | V10.0.5 |
|  | V9.1 <sup>14</sup>     | V10.0.5 | V10.0.5 |
|  | V9.3 <sup>15, 17</sup> | V10.0.5 | V10.0.5 |

<sup>1</sup> Symantec (Veritas) Dynamic Multi Pathing (DMP) is NOT supported

<sup>2</sup> When 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 10.0.5 or above

<sup>4</sup> Actifio software version 10.0.5 is required for cloud mobility to GCP infrastructures.

<sup>5</sup> Eligible for cloud mobility to GCP only if it’s supported by the respective cloud platform

<sup>6</sup> Supports retpoline compliant kernels

<sup>7</sup> Cloud Mobility feature is not supported

<sup>8</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>9</sup> Cloud mobility recoveries are not supported if home folder or disk is encrypted

<sup>10</sup> Supported with Sky appliances running version 10.0.5.7251 (March MHR) or higher.

<sup>12</sup> Supported with Actifio connector running version 10.0.5.7567-hotfix3075 (July MHR) or higher.

<sup>13</sup> Supported with Actifio connector running version 10.0.5.7662-hotfix3105 (Sep MHR) or higher.

<sup>14</sup> Supported with Actifio connector running version 10.0.5.7692-hotfix3113 (Oct MHR) or higher.

<sup>15</sup> Supported on both Red Hat Compatible Kernel (RHCK) and Unbreakable Enterprise Kernel (UEK) versions.

<sup>16</sup> Supported with Actifio connector running version 10.0.5.7836-hotfix3156 (Jan MHR) or higher.

<sup>17</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

CDS: ✓ 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 bootvolume
- 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        | V7.0 – 7.9               | V10.0.5                      | V10.0.5 |
|             | V8.0 <sup>2</sup>        | V10.0.5                      | V10.0.5 |
|             | V8.1 <sup>2</sup>        | V10.0.5                      | V10.0.5 |
|             | V8.2- V8.5               | V10.0.5                      | V10.0.5 |
|             | V8.6                     | V10.0.5                      | V10.0.5 |
|             | V8.7 <sup>4</sup>        | V10.0.5                      | V10.0.5 |
| SLES        | 12 SP0-1                 | V10.0.5                      | V10.0.5 |
|             | 12 SP2-3                 | V10.0.5                      | V10.0.5 |
|             | 12 SP4                   | V10.0.5                      | V10.0.5 |
|             | 12 SP5                   | V10.0.5                      | V10.0.5 |
|             | 15                       | V10.0.5                      | V10.0.5 |
|             | 15 SP1                   | V10.0.5                      | V10.0.5 |
|             | 15 SP2                   | V10.0.5                      | V10.0.5 |
|             | 15 SP3                   | V10.0.5                      | V10.0.5 |
|             | 15 SP4                   | V10.0.5                      | V10.0.5 |
| Rocky Linux | V8.7 <sup>5</sup>        | V10.0.5                      | V10.0.5 |
| CentOS      | 7.3-7.9                  | V10.0.5                      | V10.0.5 |

<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. Alternatively,

customers can contact Red Hat support team for further assistance.

<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     |
| RHEL   | V7.6                     | V10.0.5                      | V10.0.5 |
| SLES   | 12 SP3 – SP4             | V10.0.5                      | V10.0.5 |
|        | 15.1                     | V10.0.5                      | V10.0.5 |

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   | V10.0.5                      | V10.0.5 |
| IBM Db2                       | 9.7, 10.1.5, 10.5, 11.1                          | V10.0.5                      | V10.0.5 |
| MySQL                         | 5.x  | V10.0.5                      | V10.0.5 |
| PostgreSQL                    | 10.x, 11.x, 12.x, 13.x & 14.x, 15.x <sup>2</sup> | V10.0.5                      | V10.0.5 |
| MaxDB                         | 7.7-7.9  | V10.0.5                      | V10.0.5 |
| MongoDB                       | 4.x <sup>1</sup>                                 | V10.0.5                      | V10.0.5 |

<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 <sup>1</sup> | Supported Connector Versions |         |
|--------------------------|------------------------------|---------|
|                          | Min                          | Max     |
| EXT2                     | V10.0.5                      | V10.0.5 |
| EXT3                     | V10.0.5                      | V10.0.5 |
| EXT4                     | V10.0.5                      | V10.0.5 |
| XFS                      | V10.0.5                      | V10.0.5 |
| ReiserFS                 | V10.0.5                      | V10.0.5 |
| BTRFS                    | V10.0.5                      | V10.0.5 |

<sup>1</sup>Catalog functionality is unavailable on Linux file systems protected through CBT

### 2.1.3 IBM AIX

CDS: ✓ SKY: ✓ CDX: X

Actifio Connectors can be installed on supported version of the IBM AIX operating system.

The connector enables transfer of data to Actifio over iSCSI and Fibrechannel 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.

Table 2.6: IBM AIX support information

| OS Version    | Config Types <sup>1</sup> | Supported Connector Versions |                      |
|---------------|---------------------------|------------------------------|----------------------|
|               |                           | Min                          | Max                  |
| V 7.1 (TL1-4) | Standalone                | V10.0.5                      | V10.0.5              |
|               | LPAR (dedicated and VIOS) | V10.0.5                      | V10.0.5              |
|               | Standalone                | V10.0.5                      | V10.0.5 <sup>2</sup> |

|             |                           |         |                      |
|-------------|---------------------------|---------|----------------------|
| V 7.1 (TL5) | LPAR (dedicated and VIOS) | V10.0.5 | V10.0.5 <sup>2</sup> |
| V 7.2 (TL2) | Standalone                | V10.0.5 | V10.0.5              |
|             | LPAR (dedicated and VIOS) | V10.0.5 | V10.0.5              |
| V 7.2 (TL3) | Standalone                | V10.0.5 | V10.0.5 <sup>2</sup> |
|             | LPAR (dedicated and VIOS) | V10.0.5 | V10.0.5 <sup>2</sup> |

<sup>1</sup> VDP release 10.0.5 and above is needed to use NFS protocol

<sup>2</sup> Supported from Actifio VDP release 10.0.5 (and above)

## 2.1.4 HP-UX

CDS: ✓ SKY: ✓ CDX: ✗

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 10.0.5 and above support for NFS protocol.

Table 2.7: HP-UX support information

| HP-UX <sup>1, 2</sup><br>Version | Storage<br>Config     | Supported Connector Version |         |               |         |               |         |
|----------------------------------|-----------------------|-----------------------------|---------|---------------|---------|---------------|---------|
|                                  |                       | Non-virtualized<br>or nPAR  |         | vPAR          |         | IVM           |         |
|                                  |                       | Min                         | Max     | Min           | Max     | Min           | Max     |
| V11.23 <sup>3</sup>              | NPIV <sup>2</sup>     | V10.0.<br>4                 | V10.0.5 | V10.0<br>.4   | V10.0.5 | V10.0.5       | V10.0.5 |
|                                  | Non-NPIV <sup>2</sup> | V10.0.<br>4                 | V10.0.5 | Not Supported |         | Not Supported |         |
|                                  | iSCSI <sup>2</sup>    | V10.0.<br>4                 | V10.0.5 | V10.0<br>.4   | V10.0.5 | V10.0.5       | V10.0.5 |
|                                  | NFS <sup>2</sup>      | V10.0.<br>4                 | V10.0.5 | V10.0.5       | V10.0.5 | V10.0.5       | V10.0.5 |
|                                  | NPIV                  | V10.0.<br>4                 | V10.0.5 | V10.0<br>.4   | V10.0.5 | V10.0.5       | V10.0.5 |

|        |                    |         |         |               |         |               |         |
|--------|--------------------|---------|---------|---------------|---------|---------------|---------|
| V11.31 | Non-NPIV           | V10.0.4 | V10.0.5 | Not Supported |         | Not Supported |         |
|        | iSCSI <sup>2</sup> | V10.0.4 | V10.0.5 | V10.0.4       | V10.0.5 | V10.0.5       | V10.0.5 |
|        | NFS <sup>2</sup>   | V10.0.4 | V10.0.5 | V10.0.5       | V10.0.5 | V10.0.5       | V10.0.5 |

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

<sup>2</sup> Only Fibre channel connectivity to Actifio CDS is supported. For Actifio Sky & CDX, iSCSI & NFS protocol is supported

<sup>3</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 and/or in-band disks.

## 2.1.5 Oracle Solaris

CDS: ✓ SKY: ✓ CDX: ✗

Solaris support is limited to the versions and configurations mentioned below. Actifio connectors support deployments on SPARC and x86 based servers. **iSCSI protocol is not supported for use with Solaris systems and Actifio CDS.** However, iSCSI can be used with Actifio Sky & CDX and Solaris V11 systems after applying Solaris patch 11.3.21.5.0.

Note: Actifio does not support recreation of Solaris LDOM and Zones configuration. Applications running on LDOM and Zones configuration are protected using 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            | V10.0.5                     | V10.0.5 |
|                              |             | NFS <sup>2</sup> | V10.0.5                     | V10.0.5 |
|                              | LDOM        | Block            | Not supported               |         |
|                              |             | NFS <sup>2</sup> | V10.0.5                     | V10.0.5 |
|                              | Zones       | Block            | Not supported               |         |
|                              |             | NFS <sup>2</sup> | V10.0.5                     | V10.0.5 |
| V11 Updates 1-               | Standalone  | Block            | V10.0.5                     | V10.0.5 |
|                              |             | NFS <sup>2</sup> | V10.0.5                     | V10.0.5 |

|                           |            |                  |               |         |
|---------------------------|------------|------------------|---------------|---------|
| 3 <sup>3</sup>            | LDOM       | Block            | V10.0.5       | V10.0.5 |
|                           |            | NFS <sup>2</sup> | V10.0.5       | V10.0.5 |
|                           | Zones      | Block            | Not supported |         |
|                           |            | NFS <sup>2</sup> | V10.0.5       | V10.0.5 |
| V11 Update 4 <sup>5</sup> | Standalone | Block            | V10.0.5       | V10.0.5 |
|                           |            | NFS <sup>2</sup> | V10.0.5       | V10.0.5 |
|                           | LDOM       | Block            | V10.0.5       | V10.0.5 |
|                           |            | NFS <sup>2</sup> | V10.0.5       | V10.0.5 |
|                           | Zones      | Block            | Not supported |         |
|                           |            | NFS <sup>2</sup> | V10.0.5       | V10.0.5 |

<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> LDOM support is limited to SR-IOV (NPIV) configurations when deployed with Actifio CDS appliance

<sup>5</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)

## 2.1.7 Actifio Global Catalog

Actifio Global Catalog supports:

- Windows VMs running on VMware with NTFS, CIFS and ReFS file systems and captured as a VM using VMware VADP APIs. For supported Windows OS, refer table [2.1](#).

- Windows based file systems captured using Actifio connector
- Linux based file systems captured using Actifio connector. For supported Linux file systems, refer table [2.5](#)
- Indexing of images captured with Direct2OnVault backup policies.

Note: Indexing of images captured using DAR (Dedup Async Replication) and system state isn't supported yet.

## 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 Cloud Mobility

Below table captures the minimum required Actifio software version for Cloud Mobility functionality.

Table 2.9: Supported Actifio Software Versions

| Capability                            | Supported Actifio Software Versions |
|---------------------------------------|-------------------------------------|
| System State Capture <sup>1</sup>     | 10.0.5                              |
| VMware Capture                        | 10.0.5                              |
| VMware to Cloud Recovery <sup>2</sup> | 10.0.5                              |

<sup>1</sup> System State backups are an automatic grouping of all filesystem applications on a host. The data included in the backup is only the filesystem data and does not contain the information needed to perform a full server recovery.

<sup>2</sup>VMware to Cloud Recovery is only supported with operating systems listed in the [Migrate to VM Supported Operating Systems](#) page.

### 2.2.2 Microsoft Enterprise Applications

#### 2.2.2.1 Microsoft SQL Server

Actifio connectors enable database consistent data capture from MS SQL Server configured in Inband and Out-Of Band topologies.

Table 2.10: SQL Server Support Information

| Version | Supported Configurations        | Supported Connector Version |         |
|---------|---------------------------------|-----------------------------|---------|
|         |                                 | Min                         | Max     |
| 2022    | Standalone                      | V10.0.5                     | V10.0.5 |
|         | Always on Availability Groups   | V10.0.5                     | V10.0.5 |
|         | Failover Instance <sup>1</sup>  | V10.0.5                     | V10.0.5 |
| 2019    | Standalone                      | V10.0.5                     | V10.0.5 |
|         | Always on Availability Groups   | V10.0.5                     | V10.0.5 |
|         | Distributed Availability Groups | V10.0.5                     | V10.0.5 |
|         | Failover Instance <sup>1</sup>  | V10.0.5                     | V10.0.5 |
| 2017    | Standalone                      | V10.0.5                     | V10.0.5 |
|         | Always on Availability Groups   | V10.0.5                     | V10.0.5 |
|         | Distributed Availability Groups | V10.0.5                     | V10.0.5 |
|         | Failover Instance <sup>1</sup>  | V10.0.5                     | V10.0.5 |
|         | Standalone                      | V10.0.5                     | V10.0.5 |

|      |                                 |         |         |
|------|---------------------------------|---------|---------|
| 2016 | Always on Availability Groups   | V10.0.5 | V10.0.5 |
|      | Distributed Availability Groups | V10.0.5 | V10.0.5 |
|      | Failover Instance <sup>1</sup>  | V10.0.5 | V10.0.5 |
| 2014 | Standalone                      | V10.0.5 | V10.0.5 |
|      | Always on Availability Groups   | V10.0.5 | V10.0.5 |
|      | Failover Instance <sup>1</sup>  | V10.0.5 | V10.0.5 |

<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.

### 2.2.2.2 Microsoft Exchange

Table 2.11: Microsoft Exchange Support Information

| Version | Supported Configuration | Supported Connector Version |         |
|---------|-------------------------|-----------------------------|---------|
|         |                         | Min                         | Max     |
| 2019    | Standalone              | V10.0.5                     | V10.0.5 |
|         | DAG                     | V10.0.5                     | V10.0.5 |
| 2016    | Standalone              | V10.0.5                     | V10.0.5 |
|         | DAG                     | V10.0.5                     | V10.0.5 |
| 2013    | Standalone              | V10.0.5                     | V10.0.5 |
|         | DAG                     | V10.0.5                     | V10.0.5 |

### 2.2.2.3 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               | V10.0.5                     | V10.0.5 |
| 2013    | Standalone               | V10.0.5                     | V10.0.5 |

### 2.2.3 Oracle

Actifio connectors enable database consistent data capture from Oracle in In-band and Out- of-Band topologies. 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 Datagaurd and Active Datagaurd configurations. Data capture from Oracle databases using ASM disk group running on HP-UX requires a connector version 10.0.5 or later.

Table 2.13: Oracle Support Information

| Oracle Family                           | Config Types         | Supported OS Versions   | Supported Connector Versions |         |
|---|----------------------|---|------------------------------|---------|
|   |                      |   | Min                          | Max     |
| Oracle 19c <sup>7</sup><br>All Versions | Standalone           | CentOS 7.3-7.9<br>OEL 7.x, 8.x, 9.0<br>RHEL 7.x<br>RHEL 8.0-8.7<br>Rocky Linux 8.7<br>SLES 12, 15<br>Windows 2012, 2016, 2019 | V10.0.5                      | V10.0.5 |
|   | RAC <sup>8</sup>     | CentOS 7.3-7.9<br>OEL 7.x, 8.x, 9.0<br>RHEL 7.x<br>RHEL 8.0-8.7<br>Rocky Linux 8.7<br>SLES 12, 15<br>Windows 2012, 2016, 2019 | V10.0.5                      | V10.0.5 |
|   | Exadata <sup>3</sup> | CentOS 7.3-7.9<br>OEL 7.x, 8.x, 9.0<br>RHEL 7.x<br>RHEL 8.0-8.7<br>Rocky Linux 8.7  | V10.0.5                      | V10.0.5 |



|   |                                       |  |         |         |
|---|---------------------------------------|--|---------|---------|
|   |                                       | SLES 12, 15<br>Windows 2012, 2016,<br>2019   |         |         |
|   | Non Active<br>Data Guard <sup>4</sup> | CentOS 7.3-7.9<br>OEL 7.x, 8.x, 9.0<br>RHEL 7.x<br>RHEL 8.0-8.7<br>Rocky Linux 8.7<br>SLES 12, 15<br>Windows 2012, 2016,<br>2019 | V10.0.5 | V10.0.5 |
|   | Active Data<br>Guard <sup>4</sup>     | CentOS 7.3-7.9<br>OEL 7.x, 8.x, 9.0<br>RHEL 7.x<br>RHEL 8.0-8.7<br>Rocky Linux 8.7<br>SLES 12, 15<br>Windows 2012, 2016,<br>2019 | V10.0.5 | V10.0.5 |
| Oracle 18c <sup>1</sup><br>All Versions | Standalone                            | CentOS 7.3-7.9<br>OEL 7.x, 8.x, 9.0<br>RHEL 7.x<br>RHEL 8.0-8.7<br>Rocky Linux 8.7<br>SLES 12, 15<br>Windows 2012, 2016,<br>2019 | V10.0.5 | V10.0.5 |
|   | RAC <sup>8</sup>                      | CentOS 7.3-7.9<br>OEL 7.x, 8.x, 9.0<br>RHEL 7.x<br>RHEL 8.0-8.7<br>Rocky Linux 8.7<br>SLES 12, 15<br>Windows 2012, 2016,<br>2019 | V10.0.5 | V10.0.5 |
|   | Exadata <sup>3</sup>                  | CentOS 7.3-7.9<br>OEL 7.x, 8.x, 9.0<br>RHEL 7.x<br>RHEL 8.0-8.7<br>Rocky Linux 8.7<br>SLES 12, 15<br>Windows 2012, 2016,<br>2019 | V10.0.5 | V10.0.5 |
|   | Non Active<br>Data Guard <sup>4</sup> | CentOS 7.3-7.9<br>OEL 7.x, 8.x, 9.0<br>RHEL 7.x<br>RHEL 8.0-8.7<br>Rocky Linux 8.7<br>SLES 12, 15<br>Windows 2012, 2016,<br>2019 | V10.0.5 | V10.0.5 |

|  |                                |   |         |         |
|--|--------------------------------|---|---------|---------|
|  | Active Data Guard <sup>4</sup> | CentOS 7.3-7.9<br>OEL 7.x, 8.x, 9.0<br>RHEL 7.x<br>RHEL 8.0-8.7<br>Rocky Linux 8.7<br>SLES 12, 15<br>Windows 2012, 2016, 2019 | V10.0.5 | V10.0.5 |
|--|--------------------------------|---|---------|---------|

<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 10.0.5 or above

<sup>7</sup> Supported on Linux and AIX from VDP release 10.0.5 onwards.

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

### 2.2.3.1 Exadata Support

Actifio supports the following configurations of Oracle Exadata starting from VDP 10.0.5 and above.

- 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 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

| <b>Production DB Configuration</b> | <b>Capture Format<sup>1, 5</sup></b> | <b>Presentation Format<sup>2</sup></b> |
|------------------------------------|--------------------------------------|--|
| 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                         | V10.0.5                     | V10.0.5 |
|                    | CIFS              | NTFS                         | V10.0.5                     | V10.0.5 |
|                    | ReFS              | ReFS                         | V10.0.5                     | V10.0.5 |
| Linux <sup>1</sup> | EXT2              | EXT2 or NFS <sup>4</sup>     | V10.0.5                     | V10.0.5 |
|                    | EXT3              | EXT3 or NFS <sup>4</sup>     | V10.0.5                     | V10.0.5 |
|                    | EXT4              | EXT4 or NFS <sup>4</sup>     | V10.0.5                     | V10.0.5 |
|                    | XFS               | XFS or NFS <sup>4</sup>      | V10.0.5                     | V10.0.5 |
|                    | ReiserFS          | ReiserFS or NFS <sup>4</sup> | V10.0.5                     | V10.0.5 |
|                    | NFS               | EXT3 or NFS <sup>4</sup>     | V10.0.5                     | V10.0.5 |
|                    | BTRFS             | EXT3 or NFS <sup>4</sup>     | V10.0.5                     | V10.0.5 |
| AIX                | JFS <sup>3</sup>  | JFS <sup>3</sup>             | V10.0.5                     | V10.0.5 |
|                    | JFS2 <sup>3</sup> | JFS2 <sup>3</sup>            | V10.0.5                     | V10.0.5 |
| HP-UX              | HFS               | HFS                          | V10.0.5                     | V10.0.5 |
|                    | VxFS <sup>2</sup> | VxFS <sup>2</sup>            | V10.0.5                     | V10.0.5 |
|                    | NFS               | EXT3                         | V10.0.5                     | V10.0.5 |

|                      |                  |                                      |         |         |
|----------------------|------------------|--------------------------------------|---------|---------|
| Solaris <sup>1</sup> | UFS <sup>3</sup> | UFS <sup>3</sup> or NFS <sup>4</sup> | V10.0.5 | V10.0.5 |
|                      | ZFS <sup>3</sup> | ZFS <sup>3</sup> or NFS <sup>4</sup> | V10.0.5 | V10.0.5 |
|                      | NFS              | EXT or NFS <sup>4</sup>              | V10.0.5 | V10.0.5 |

<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 is supported only with Actifio Sky and CDS from 10.0.5 (and above). Only V3 of NFS protocol is supported. Actifio CDS do not support NFS.

## 2.2.5 SAP

Actifio supports SAP on the 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 7.x<br>RHEL 8.0-8.7<br>SLES 12, 15 | V10.0.5                     | V10.0.5 |
| MDC: Multiple-Container Systems (HANA 2.0) with one tenant database <sup>1</sup>                      | HANA Storage Snapshot API <sup>2, 8</sup>    | RHEL 7.x<br>RHEL 8.0-8.7<br>SLES 12, 15 | V10.0.5                     | V10.0.5 |
| 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 7.x<br>RHEL 8.0-8.7<br>SLES 12, 15 | V10.0.5                     | V10.0.5 |
| 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 7.x<br>RHEL 8.0-8.7<br>SLES 12, 15 | V10.0.5                     | V10.0.5 |

|  |   |   |         |         |
|--|---|---|---------|---------|
| Scale-out MDC<br>Local HA (N active<br>host + 1 or more<br>standby nodes) <sup>4,6</sup> | HANA File-based<br>(HDBSQL) API <sup>3, 5</sup> | RHEL 7.x<br>RHEL 8.0-8.7<br>SLES 12, 15 | V10.0.5 | V10.0.5 |
|--|---|---|---------|---------|

<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 7.2 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

Below 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 7.2 <sup>1</sup>                                       | >= RHEL 7.2 <sup>2</sup>                  |
|      | PowerPC                | RHEL 7.6   | RHEL 7.6                                  |
| SLES | PowerPC                | SLES 12 SP3 – SP4, SLES 15.1                                   | SLES 12 SP3 – SP4, 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   | Centos 7.3-7.9<br>RHEL 7.x<br>RHEL 8.0-8.7<br>SLES 12 and 15 | V10.0.5                      | V10.0.5 |

<sup>1</sup> Note: Actifio Global Manager 10.0.5 and above is required to manage DB2 database applications

## 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 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 2.18: Supported SAP ASE Versions

| Database                                      | Supported Versions | Supported OS Versions  | Supported Connector Versions |         |
|---|--------------------|--|------------------------------|---------|
|   |                    |  | Min                          | Max     |
| SAP ASE <sup>1</sup><br>(formerly Sybase ASE) | 16.0.x             | Centos 7.3-7.9<br>RHEL 7.x<br>RHEL 8.0-8.7<br>SLES 12 and 15 | V10.0.5                      | V10.0.5 |

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

## 2.2.9 MySQL

Actifio enhanced its out-of-the-box support for data management of MySQL database applications and 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 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 MySQL Versions

| Database | Supported Versions | Supported OS Versions                      | Supported Connector Versions |         |
|----------|--------------------|--|------------------------------|---------|
|          |                    |  | Min                          | Max     |
| MySQL    | 5.7, 8.0           | Centos 7.3-7.9<br>RHEL 7.x<br>RHEL 8.0-8.7 | V10.0.5                      | V10.0.5 |

<sup>1</sup> Note: Actifio Global Manager 10.0.5 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<br>10.4<br>10.5 | Centos 7.3-7.9<br>RHEL 7.x<br>RHEL 8.0-8.7 | V10.0.5                      | V10.0.5 |

<sup>1</sup> Note: Actifio Global Manager 10.0.5 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     | Centos 7.3-7.9<br>RHEL 7.x<br>RHEL 8.0-8.7<br>SLES 12 and 15 | V10.0.5                      | V10.0.5 |
| SAP IQ (LVM + CBT) <sup>1</sup> | 16.1 and above     | Centos 7.3-7.9<br>RHEL 7.x<br>RHEL 8.0-8.7<br>SLES 12 and    | V10.0.5                      | V10.0.5 |

|  |  |    |  |  |
|--|--|----|--|--|
|  |  | 15 |  |  |
|--|--|----|--|--|

<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 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 2.22: Supported SAP MaxDB Versions

| Database | Supported Versions | Supported OS Versions  | Supported Connector Versions |         |
|----------|--------------------|--|------------------------------|---------|
|          |                    |  | Min                          | Max     |
| MaxDB    | 7.9 and above      | Centos 7.3-7.9<br>RHEL 7.x<br>RHEL 8.0-8.7<br>SLES 12 and 15 | V10.0.5                      | V10.0.5 |

<sup>1</sup> Note: Actifio Global Manager 10.0.5 and above 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 |         |
|--------------------------|---|--|------------------------------|---------|
|                          |   |  | Min                          | Max     |
| PostgreS QL <sup>1</sup> | 10.x, 11.x & 12.x 13.x & 14.x & 15.x <sup>2</sup> | Centos 7.3-7.9<br>RHEL 7.x<br>RHEL 8.0-8.7<br>SLES 12 and 15 | V10.0.5                      | V10.0.5 |

<sup>1</sup> Note: Actifio Global Manager 10.0.5 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 NAS

NAS Director is a specialized Actifio solution targeted at capturing unstructured data from large NAS filers from Netapp and EMC Isilon. The following support matrix lists the supported NAS filer firmware versions in Actifio NAS Director version V 10.0.5.

Table 2.22: NAS Director Support

| Vendor | Configuration | Firmware Version                           |
|--------|---------------|--|
| Netapp | 7-mode        | ONTAP 7.x, 8.x                             |
|        | Cluster Mode  | ONTAP 8.x, 9.0, 9.1, 9.2, 9.7 <sup>1</sup> |
| EMC    | Isilon        | OneFS 7.1.x, 7.2.x, 8.0                    |

<sup>1</sup> Supported from NAS-D 10.0.5 onwards

## 2.2.15 Test Data Management with Containers

VDP 10.0.5 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. Generic Apps are compatible with Actifio CDS appliances ONLY.

### 2.3.1 Generic Apps with Actifio Connector

CDS: ✓ SKY: ✗ CDX: ✗

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 configures as Generic Apps can be managed using Actifio management tools. Generic Apps are supported on CDS platform only and requires the CDS to be configured in an inband topology.

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

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

### 2.3.2 Generic Apps OS support without Actifio connector

CDS: ✓ SKY: ✗ CDX: ✗

Deploying Actifio CDS without a connector enables crash consistent data capture. In this configuration, Actifio CDS is in the data path between the production host and the production storage. Actifio acts as a snapshot manager of the production volumes and enables efficient movement of the production data to other storage pools (dedup/OnVault).

The operating systems supported for configuration in this mode are listed below.

- Windows 2008 Server using MPIO Fibre Channel
  - Windows 2008 Direct Attach Fibre Channel
  - Red Hat EL 5.0 Fibre Channel
  - Red Hat EL 5.0 Fibre Channel IBM Power Systems
  - Red Hat EL 5.0 Fibre Channel IBM z Systems
  - Red Hat EL 6.0 Fibre Channel
  - Red Hat EL 6.0 Fibre Channel IBM Power Systems
-

- Red Hat EL 6.0 Fibre Channel IBM z Systems
  - Red Hat EL 6.0 Direct Attach Fibre Channel
  - Red Hat EL 7.0 Fibre Channel
  - SLES11 Fibre Channel
  - SLES11 Fibre Channel IBM Power Systems
  - SLES11 Fibre Channel IBM z Systems
  - SLES11 SP2 Direct Attach Fibre Channel
  - HP-UX 11i v1 Fibre Channel
  - HP-UX 11i v2 Fibre Channel
  - HP-UX 11i v3 Fibre Channel
  - Sun Solaris 8, 9, 10,11
  - Oracle Linux Fibre Channel
  - VMware Fibre Channel
  - VMware 5.0/5.1 Direct Attach Fibre Channel
  - VMware 5.5 Direct Attach Fibre Channel
  - VMware 6.0 Direct Attach Fibre Channel
  - OpenVMS 8.2, 8.3, 8.4
-

## Data Virtualization for Virtual Environments

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

### 3.1 VMware

CDS: ✓ SKY: ✓  
CDX: ✓

With software version 10.0.5, 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>• 6.5, 6.5 U1, 6.5 U2, 6.5 U3</li> <li>• 6.7, 6.7 U1, 6.7 U2, 6.7 U3</li> <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>• 6.5, 6.5 U1, 6.5 U2, 6.5 U3</li> <li>• 6.7, 6.7 U1, 6.7 U2, 6.7 U3</li> <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's  |
| 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  |

<sup>1</sup> Minimum version of ESX required is 6.0 Update 1 with a build number 3247720

Note: Protection of VMware view virtual machines not supported

<sup>2</sup> vSphere/ESX 6.0 u3 requires Actifio software version 10.0.5 or higher

<sup>3</sup> vSAN 6.0-6.6 requires a minimum Actifio CDS/Sky version 10.0.5

<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> NVMEController 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 10.0.5 (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 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 CDS/Sky/CDX versions

| <b>vCenter/ESX Versions<sup>1</sup></b> | <b>Minimum Required Actifio CDS/Sky/CDX Version</b> |
|---|---|
| 6.5                                     | 10.0.5  |
| 6.5 U1                                  | 10.0.5  |
| 6.5 U2                                  | 10.0.5  |
| 6.5 U3                                  | 10.0.5  |
| 6.7                                     | 10.0.5  |
| 6.7 U1                                  | 10.0.5  |
| 6.7 U2                                  | 10.0.5  |
| 6.7 U3                                  | 10.0.5  |
| 7.0                                     | 10.0.5  |
| 7.0 U1                                  | 10.0.5  |
| 7.0 U2                                  | 10.0.5  |
| 7.0 U3                                  | 10.0.5  |
| 8.0.1 U <sup>2</sup>                    | 10.0.5  |

<sup>1</sup> Actifio CDX appliances only support VMware vSphere 7.0 and above.

<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 10.0.5 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 perform the following:

- 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.

## 3.3 Microsoft Hyper-V

CDS: ✓ SKY: ✓ CDX: ✓

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

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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> <li>• Windows 2012, 2012 R2, including Server Core installations (leveraging 2012 R2 or SCVMM),</li> <li>• Windows 2008 R2 (leveraging 2008 R2 SCVMM)</li> </ul> |
| VM Type                           | <p>Gen 1 VMs on Windows 2008 R2, 2012, 2012 R2</p> <p>Gen 2 VMs on Windows 2012 R2</p>  |
| 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 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:

- iSCSI is supported on Windows 2012, 2012 R2 starting with CDS 6.1
- Pre and post scripting within Guest VM is not supported
- Incremental backups supported for CSV volumes on Hyper-V servers running Windows 2019, 2016, 2012 and Windows 2012 R2 only
- Actifio connector required for Out of Band capture
- Functionality to capture specific individual disks for Hyper-V based VM's is not supported

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

| <b>Hyper-V Versions</b>  | <b>Minimum Required Actifio CDS/Sky/CDX Version</b> |
|--|---|
| Windows 2019<br>(leveraging 2019 SCVMM)  | 10.0.5  |
| Windows 2016<br>(leveraging 2016 SCVMM)  | 10.0.5  |
| Windows 2012, 2012 R2, including<br>Server Core installations (leveraging<br>2012 R2 or SCVMM) | 10.0.5  |
| Windows 2008 R2<br>(leveraging 2008 R2 SCVMM)  | 10.0.5  |

## Actifio product interoperability

### 4.1 Replication

CDS: ✓ SKY: ✓ CDX: ✓

Actifio replication guarantees backward compatibility between Sky, CDS & 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

CDS: ✓ SKY: ✓ CDX: ✓

Table 4.2 : Actifio Global Manager Interop Information

| VDP Version | AGM Version           |       |
|-------------|-----------------------|-------|
|             | Minimum Compatability | Max   |
| V10.0.x     | V10.0.5               | V10.x |

### 4.3 Actifio Report Manager

CDS: ✓ SKY: ✓ CDX: ✓

Table 4.3 : Actifio Report Manager Interop Information

| VDP Version | Report Manager Version             |         |
|-------------|------------------------------------|---------|
|             | Minimum Compatibility <sup>1</sup> | Max     |
| V10.0.x     | V10.0.5                            | V10.0.5 |

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

## 4.4 Actifio Resiliency Director

CDS: ✓ SKY: ✓ CDX: ✓

Table 4.4: Actifio Resiliency Director Interop Information

| VDP Version | RD Version        |         |
|-------------|-------------------|---------|
|             | Min Compatibility | Max     |
| V10.0.5     | V10.0.5           | V10.0.5 |
| V10.0.5     | V10.0.5           | V10.0.5 |

## 4.1 Actifio NAS Director

The Big Data Director (BDD) product has been rebranded to NAS Director. In addition to this NAS Director will be available as a virtual version and will support Sky as the backend. The following sections capture the support matrix for the physical and virtual appliances.

### 4.1.1 Actifio NAS Director – Virtual appliance

CDS: ✗ SKY: ✓ CDX: ✗

Version of Actifio virtual NAS Director appliance should be the same as the Sky appliance version used in the backend.

### 4.1.2 Actifio NAS Director - Physical appliance

CDS: ✓ SKY: ✗ CDX: ✗

Version of Actifio physical NAS Director appliance should be the same as the CDS appliance version used in the backend.

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