# SAPASE DBA's Guide to Actifio Copy Data Management



Actifio VDP 9.0

### Copyright, Trademarks, and other Legal Matter

Copyright © 2009 - 2019 Actifio, Inc. All rights reserved.

Actifio<sup>®</sup>, AnyIT<sup>®</sup>, Dedup Async<sup>®</sup>, OnVault<sup>®</sup>, Enterprise Data-as-a-Service<sup>®</sup>, FlashScan<sup>®</sup>, AppFlash DEVOPS Platform<sup>®</sup>, Copy Data Cloud<sup>®</sup>, and VDP<sup>®</sup> are registered trademarks of Actifio, Inc.

Actifio Sky™, Actifio One™, and Virtual Data Pipeline™ are trademarks of Actifio, Inc.

All other brands, product names, goods and/or services mentioned herein are trademarks or property of their respective owners.

Actifio, Inc., is a provider of data protection and availability products. Actifio's technology is used in products sold by the company and products and services sold and offered by its commercial partners. The current list of Actifio patents is available online at: http://www.actifio.com/patents/

Actifio believes the information in this publication is accurate as of its publication date. Actifio reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

THE INFORMATION IN THIS PUBLICATION IS PROVIDED "AS IS." ACTIFIO, INC. MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WITH RESPECT TO THE INFORMATION IN THIS PUBLICATION, AND SPECIFICALLY DISCLAIMS IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

This software and the associated documentation are proprietary and confidential to Actifio. Use, copying, and distribution of any Actifio software described in this publication requires an applicable software license. Any unauthorized use or reproduction of this software and the documentation may be subject to civil and/or criminal liability.

Actifio strives to produce quality documentation and welcomes your feedback. Please send comments and suggestions to **docs@actifio.com**.

# Contents

Preface	v
The ActifioNOW Customer Portal	v
Actifio Support Centers	v
Chapter 1 - SAP ASE DBA's Introduction to Actifio Copy Data Management	1
Actifio Data Virtualization	1
Capturing Data	3
Replicating Data	3
Accessing Data	4
Introduction to Actifio SAP ASE Administration	5
Chapter 2 - Preparing an SAP ASE Database for Protection	7
Before You Begin	7
Adding an SAP ASE Database Host and Discovering the Database	8
Adding the Host from the Domain Manager	8
Discovering the SAP ASE Database Application from the Application Manager	9
Finding the Discovered SAP ASE Database in the Application Manager	10
Chapter 3 - Configuring the Backup Method	11
Configuring SLA Settings	11
Ensuring that the Backup Capture Method is Set Correctly	13
Ensuring that the Disk Preference on the Host is Set Correctly	14
Disk Preference: File-Based Traditional Backup and Recovery in NFS/Block	14
Disk Preference: LVM Snapshot with Change BlockTracking on Linux	
Setting the Schedule for Dumps	16
Chapter 4 - Protecting an SAP ASE Database and its Logs	17
Protecting an SAP ASE Database	17
Protecting SAP ASE Database Logs	19
Chapter 5 - Accessing, Recovering, or Restoring an SAP ASE Database	21
Mount and Refresh from Block-Based Volume Snapshot to a Target SAP ASE instance as a Virtution	
Restoring and Recovering an SAP ASE Database	24
	24

Recovering from a Full+Incremental Backup2
--

# Preface

The information presented in this guide is intended for users who are familiar with basic Actifio processes and procedures as described in **Getting Started with Actifio Copy Data Management** and who are qualified to administer SAP ASE databases.

# The ActifioNOW Customer Portal

During the configuration and initialization of your Actific Appliance your Actific representative provided you with a user name and password for the Actific NOW customer portal.

From the customer portal you can obtain detailed reports about your Actific Appliance as well as search the portal's knowledge base for answers to specific questions.

To log into the ActifioNOW customer portal:

- 1. Go to: https://now.actifio.com
- 2. When prompted, enter the user name and password provided by your Actifio representative.

## **Actifio Support Centers**

To contact an Actifio support representative, you can:

- Send email to: support@actifio.com
- Call:

From anywhere: +1.315.261.7501 US Toll-Free: +1.855.392.6810 Australia: 0011 800-16165656 Germany: 00 800-16165656 New Zealand: 00 800-16165656 UK: 0 800-0155019

# 1 SAP ASE DBA's Introduction to Actifio Copy Data Management

This chapter introduces Actific concepts and the procedures used to capture and access databases. It includes:

Actifio Data Virtualization on page 1 Capturing Data on page 3 Replicating Data on page 3 Accessing Data on page 4 Introduction to Actifio SAP ASE Administration on page 5

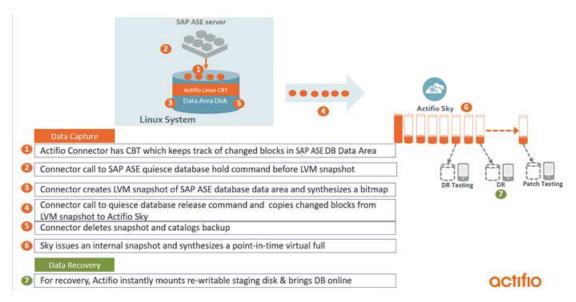
# Actifio Data Virtualization

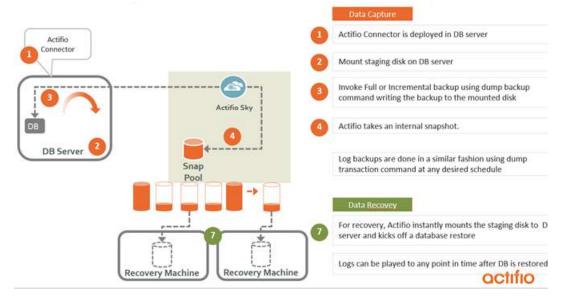
An Actific Appliance is a highly scalable copy data management platform that virtualizes application data to improve the resiliency, agility, and cloud mobility of your business. It works by virtualizing data in much the same way other technologies have virtualized servers and networks. This enables you to capture data from production systems, manage it in the most efficient way possible, and use virtual copies of the data however they are needed.

SAP ASE (formerly Sybase ASE) is a is a family of relational database management systems within SAP Information Management division that is centered on several relational database management system offerings. This DBA Guide explains how to protect SAP ASE application consistent database data with Actifio VDP in a Linux environment.

Actifio VDP uses these SAP ASE backup APIs:

- Linux CBT and LVM snapshot: SAP ASE "quiesce database hold and quiesce database release" API with Linux CBT and LVM snapshot
- **File-based backups**: SAP ASE "dump database" File-based backups API. This provides the full and incremental backups of the database in backup format. On recovery, the restore db API will recover the database by physically overwriting the data area.
- **Log backup**: During a log backup the "dump transaction" API called to dump logs to an Actifio log staging disk.





SAP ASE with Linux Change Block Tracking

SAP ASE with File-Based Backup

# **Capturing Data**

Capturing data consists of four simple steps:

- 1. Add servers that host databases.
- 2. Discover the databases.
- 3. Define Actifio Policy Templates and Resource Profiles according to your RPOs and RTOs.
- 4. Assign Actific Policy Templates and Resource Profiles to discovered databases. The jobs will run on schedule defined in the policy template.

#### The Actifio Connector

The Actific Connector is used to capture selected databases. The Actific Connector is a small-footprint, lightweight service that can be installed on either virtual or physical servers.

Specifically, the Actifio Connector:

- Uses Linux changed block tracking to capture data at block level in incremental forever fashion.
- Identifies changes to database data for VDP's incremental forever capture strategy.

# Replicating Data

Data can be replicated to a second Actifio Appliance or to the cloud for recovery, disaster recovery, or test/ development purposes.

Data replication has traditionally been an inhibitor to efficient data management in a geographically distributed environment. VDP replication addresses these issues with a global deduplication and compression approach that:

- Drives down overall network usage.
- Eliminates the need for a dedicated WAN accelerator/optimizer.
- Does not require storage array vendor licenses as data is sent from one Actifio Appliance to another.
- Is heterogeneous from any supported array to any supported array: Tier 1 to Tier 2 and/or Vendor A to Vendor B.
- Preserves write-order, even across multiple LUNs.
- Is fully integrated with VMware Site Recovery Manager (SRM) and Actifio Resiliency Director.
- Encrypts data using the AES-256 encryption standard. Authentication between Actific Appliances is performed using 1024-bit certificates.

Replication is controlled by Actific Policy Template policies:

- Production to Mirror policies have several options to replicate data to a second Actifio Appliance.
- Dedup Backup to Dedup DR policies use a fixed, Actifio-proprietary replication engine to replicate data to a second Actifio Appliance. In addition, Dedup Backup to Dedup DR policies allow you to replicate data to two locations.
- Production to Vault policies use a fixed, Actifio-proprietary replication engine to replicate data to the cloud.

# Accessing Data

The Actifio Appliance can instantly present a copy of the database rolled forward to a specific point of time. The roll forward operation is performed from the Actifio Global Manager (AGM). Accessing protected data is discussed in Chapter 5, Accessing, Recovering, or Restoring an SAP ASE Database.

Access options include:

Mounts LiveClones Restores Workflows

#### Mounts

The VDP mount function provides instant access to data without moving data. Captured copies of databases can be rolled forward via the Actifio user interface and mounted on any database server. Application Aware mounts are described in Mount and Refresh from Block-Based Volume Snapshot to a Target SAP ASE instance as a Virtual Application on page 21.

#### LiveClones

The LiveClone is an independent copy of data that can be refreshed when the source data changes. The advantage of LiveClones is that they are independent copies of data that can be incrementally refreshed and masked before being made available to users. This allows teams such as development and test to ensure they are working on the latest set of data without having to manually manage the data and not access or interfere with the production environment.

#### Restores

The restore function reverts the production data to a specified point in time. Restore operations actually move data. Typically restore operations are performed to restore a database to a valid state after a massive data corruption or storage array failure. The amount of time required to complete a restore operation depends on the amount of data involved. Restores are described in Restoring and Recovering an SAP ASE Database on page 24.

### Workflows

While SLAs govern the automated *capture* of a production database, Workflows automate *access* to the captured database.

Workflows are built with captured data. Workflows can present data as either a direct mount or as a LiveClone:

- Direct mounts (standard or application aware) work well for data that does not need to be masked prior to being presented. A mounted copy of data can be refreshed manually or on automatically on a schedule. Direct mounts allow you to instantly access captured data without actually moving the data.
- A LiveClone is a copy of your production data that can be updated manually or on a scheduled basis. You can mask sensitive data in a LiveClone prior to making it available to users.

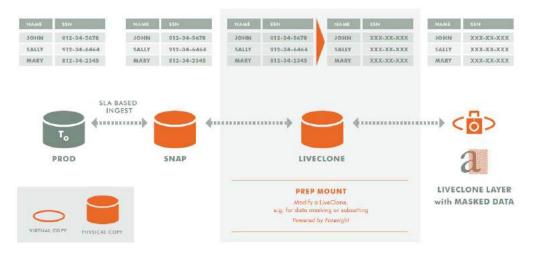
Combining VDP's automated data capture and access control with Workflows and their optional data masking capabilities allows you to create self-provisioning environments. Now, instead of having to wait for DBAs to update test and development environments, users can provision their own environments almost instantly.

For example, an Actific administrator can create an SLA Template Policy that captures data according to a specified schedule. Optionally, the administrator can mark the captured production data as sensitive and only accessible by users with the proper access rights.

After access rights have been defined and data has been captured, the administrator can create a Workflow that:

- Makes the captured data available as a LiveClone or as a direct mount
- Updates the LiveClone or mountable data on a scheduled or on-demand basis
- (Optional) Automatically applies scripts to the LiveClone's data after each update. This is useful for masking sensitive data.

Once the Workflow completes, users with proper access can provision their environments with the LiveClone or mountable data via the AGM.



**Workflow With Masked Social Security Data** 

# Introduction to Actifio SAP ASE Administration

## Actifio Benefits: SAP ASE Platform

Activity	Actifio Benefits
Backup	Manual and/or scheduled online backups (incremental forever full snapshots).
Test/Dev Copy	Multiple point in time copies and instant Test/Dev refresh.
	Accelerate and automate Test/Dev provisioning.
	Migration of SAP ASE from a physical to a virtualized environment.
Recovery	Recovery of a database to its most recent state.
	Recovery of a database to a specific point in time of data backup, or log backup.
	Recovery to the original host or an alternate host.
Backup Catalog view	Actifio Global Manager (AGM)

# SAP ASE Configurations Support

SAP ASE Primary and Standby protection can be set from Primary or the Standby. Protection is at the database level residing on protected LVM. Transaction log protection is from Primary database only.

# 2 Preparing an SAP ASE Database for Protection

This section details the steps involved in preparing an SAP ASE database for Actific protection and management:

Before You Begin on page 7

Adding an SAP ASE Database Host and Discovering the Database on page 8

# **Before You Begin**

Before you begin, on the SAP ASE server:

- To enable transaction log backup, TRUNCATE ON CHKPT FALSE must be set at the database level for each database of SAP ASE instance.
- The SAP ASE database must reside under LVM and it must not be the boot volume.
- The LVM volume from which the SAP ASE volumes are provisioned should have at least 20% free space.
- A database backup user account must be created with backup privilege (oper\_role/sa\_role). Backup username/password must be configured with host configuration. Create the user without a password to run the quiesce command on the source with sa\_role/or with quiesce privileges. To create the user, run:

```
isql -Usa -P<password> -S<SAP ASE_Server_Name>
1>sp addlogin actuser, '<password>'
2>go
1>grant role sa_role to actuser
2>go
To set the password to null, run the below command.
1>sp_configure "minimum password length", 0
2>go
1>sp_modifylogin actuser, "min passwd length", "0"
2>go
3>exit
isql -Uactuser -P'<password>' -S<server_name>
> sp_password '<password>', NULL
>go
>sp_configure "minimum password length", 8
>go
```

**Note:** If there are multiple SAP ASE instances running on a server, then the backup username/password must be common for all SAP ASE instance running on that server.

Install the Actifio Connector on the SAP ASE server host (see Connecting Hosts to Actifio Appliances.)

# Adding an SAP ASE Database Host and Discovering the Database

Before you can protect an SAP ASE database, you must add the host and discover the database. This requires:

- 1. Adding the Host from the Domain Manager on page 8
- 2. Discovering the SAP ASE Database Application from the Application Manager on page 9
- 3. Finding the Discovered SAP ASE Database in the Application Manager on page 10

#### Adding the Host from the Domain Manager

Add the host to Domain Manager. If the host is already added, then edit the host and make sure to set the Disk Preference correctly as detailed in Ensuring that the Disk Preference on the Host is Set Correctly on page 14.

1. From the AGM Domain Manager, Hosts tab, click +Add Host.

			F	lter by Applia	ces 🕶	Organizations 🔻								Americ	/New_Yor	adm	in 🌲	1
Appliances	Users	Roles	Organ	izations LDAP	Hosts	Storage Pools	Storage	e Arrays Web Certifi	cate							-		
F	ILTER BY		Но	sts												+	add H	0
HOST NAME																_		1
filter by ho	stname			filters to search		Q									a	11 25		
IP ADDRESS			type	to searon		ч									P	m 4,		
filter by IP	address			NAME	¢	FRIENDLY PATH	0	APPLIANCE	0	IP	0	TYPE	0	OS RELEASE	VIRT	UAL MAC	HINE	
os				LDAPHYD.QA.CO	м	LDAPQA		lastbulld903.sqa.act	ifi	172.16.200.8		Generic		Microsoft Windows S	No			
Enter OS III	ke Linux			Sybase_autoZ_re	mote	Sybase_auto2_rem	note	DB2-Local		172,16.200.81		Generic		3.10.0-327.el7.x86_64	No			
				remote-rhel-2		remote-rhel-2		DB2-Remote		172.16.201.207		Generic		3.10.0-957.27.2.el7.x8	No			
ТҮРЕ			1															

- 2. On the Add Host page:
  - o **Name**: Provide the SAP ASE database server name.
  - o **IP Address**: Provide the SAP ASE database server IP and click the + sign on the right corner.
  - o **Appliances**: Select the check box for the Actifio Appliance.
  - o **Host Type**: Make sure this is Generic.
  - o Provide Application Discovery Credentials to discover SAP ASE databases

MAIN MANAGER	Filter by Appliances   Organizations	
Add Host	Organizations LDAP Hists Storage Pools Storage Arr	ays Web Certificate
Name *		
Friendly Name		
IP Address *	0	
Description		
Appliances*	type to search	
	APPLIANCE	LP.
	Sky-Catalog-vvol.	172.28.6.92
	□ Sky-7.0.x	172.17.205.227
Host Type	Generic 0	
▼ Application Discovery C	redentials	
User Name		
Password		

3. Click **Add** at bottom right to add the host. The Host will be added.

- 4. Right-click the host and select **Edit**.
- 5. On the Edit Host page: Select the disk preference:
  - o For block-based backup with CBT, select **Block**.
  - o For file-based backup with Full+Incremental file system backup: select Block or NFS.

IF 172.16.216.123			
INDUE NAME 3694a304-a330-a2C3-92ae-cdf42af9cc01_6778	Name *	sybase-autovm2	
OS RELEASE: Red Hat Enterprise Linux Server 7.5 (Maips) OS VEJGION: 3.10.0-652.e(7.x86_54	Friendly Name	sybase-autovm2	
OSTYPE Unu	IP Address	0	
TAGING DISK BLOCK FORMAT		172.16.216.123	
		192.168.122.1	
	Description		
	Appliances*	type to search	
			IP.
		Sky-Catalogravol	172.28.6.92
		□ Sky=7.0.x	172.17.205.227
	Host Type	Generic P	
	Staging Disk Format	V micci E NFS	
	Enable Auto Discovery	00	
	Use Oracle Database Authentication	0	

6. Select **Save** at the bottom of Edit Host page.

#### Discovering the SAP ASE Database Application from the Application Manager

To discover the SAP ASE database:

1. From the AGM Application Manager, Applications tab, select + Add Application in the upper right corner.

APPLICATION MANAGER			ter by			Organizations *						America/Ne		- sestime	
Applications Consistence	Groups	Log	ical G	roups Active Imag	pes	Workflows									
🙁 clear all filters		App	lica	ations							+ ADD	APPLICATION +	ADD VIR	TUAL M	ACHIN
APPLICATION NAME											_				
HOST NAME	•	+ hidel	lters	O Type: SAP ASE D	lataba	se									
TEMPLATE NAME	•	type t	o sea	rch		Q							Ш	25 🗸	13
PROFILE NAME	•	-		APPLICATION	6	TEMPLATE	ċ	PROFILE	ö	FRIENDLY PATH	HOST NAME	APPLIANCE 0	TYPE		0
FRIENDLY PATH	:			APPLICATION	Υ.	TEMPLATE	, v	PROFILE	, Y	FRIENDLY PATH V	HOST NAME U	APPLIANCE	TTPI		
			0	CH09DB2						Sybase_All_db	172.17.204.62	DB2-Local	SAP	SE Dat	abase
Managed Unmanaged			0	CH09DB3						Sybase_All_db	172.17.204.62	DB2-Local	SAP	SE Dat	abase
ТУРЕ	•		0	CH09DB1						Sybase_All_db	172.17.204.62	DB2-Local	SAP	SE Dat	abase
splect: ALL [ NONE			0	SM2						sybase_auto1	sybase_auto1	DB2-Local	SAP	ASE Dat	abase
CIFS			0	5M3						sybase_auto1	sybase_auto1	DB2-Local	SAP	SE Dat	abase
Db2 Database			0	DB4						Sybase_auto2_remote	Sybase_auto2_remote	DB2-Local	SAP	ASE Dat	abase
Db2 Instance															abase

2. On the Add Application page, select **Discover connector supported applications** and **Using existing host**, then select the SAP ASE database host. If you have many hosts, you can use the search feature or use the filter to see only hosts that are managed by a specific Actifio Appliance.

فليعلم ورقية البعد مستخللتك والبلا فاستعر البالسان السرجي	rted Applications 🛞 Using ex	and the second		
Out of band Generic Appl vailable Hosts (3)	ication 🔘 Using IP	address		
ranable Hoads (5)		Appliance		
sy	Host •	All		
Host †	IP	Friendly Path	Appliance	
Sybase_auto2_remote	172.16.200.81	Sybase_auto2_remote	DB2-Local	
sybase_auto1	172.16.201.135	sybase_auto1	DB2-Local	
sybase_auto2	172.16.200.81	sybase_auto2	DB2-Remote	

3. Select the host and click **Add Applications** in the bottom right corner. This will run the discovery on the SAP ASE database host and will discover all SAP ASE databases running on it.

### Finding the Discovered SAP ASE Database in the Application Manager

To find the newly-discovered database, go to the AGM Application Manager Applications tab. All applications known to the AGM of all types are listed. Use the Type application filter on left pane to show only SAP ASE databases.

The new SAP ASE instance will appear in the list as unmanaged (the red shield icon).

Consistency (	iroops	.10	gical G	roups Active images	Workflow	43												
Clear all filters		App	plic	ations										+ ADD APPL	CATION	+ ADD VIRTUA	L MACHI	NES
PPLICATION NAME	•																	
IOST HAME		e hide	filers.	O Type: SYBASE Instance	Cer.													
EMPLATE NAME	2	type	tó sev	irch	۹												25 +	1
RIENDLY PATH		0		APPLICATION	÷	TEMPLATE	0	PROFILE	ċ.	FRIENDLY PATH	0	HOST NAME	ò	APPLIANCE	÷.	TYPE		
LA STATUS		0		QKR						sybase-autovm3		sybase-aucovm3		Sky-Catalog-vvol		SYBASE Instance		
Managed		<b>W</b>	*							syvese euvymita		sydesered sound		and remember and		and the implainte		
Urmanaged				ECP		DB2 - Logsmart		LocalProfile		sybase-autovm3		sybase-autovm3		Sky-Catalog-vvol		SYBASE Instance		
			•	QK1		Sybase LogSmart		LocalProfile		sybase-autovm2		sybase-autowm2		Sky-Catalog-vvol		SYBASE Instance		
HIRCT: ALL   NONE			9	ECP		Sybase LogSmart		LocalProFile		sybase-autovm2		sybase-autovm2		Sky Catalog vvol		SYBASE Instance		
CIFS		0		ASE1		D82 - Logsmart		LocalProfile		sybase-autovm1		sybase-autown1		Sky-Catalog-vvol		SYBASE Instance		
D DB2 Database				AVM4ONE		DB2 - Logimart		local profile		sybase-autovm4		sybase-autovm4		5ky-7.0 x				

# 3 Configuring the Backup Method

After the database is prepared and discovered as explained in Chapter 2, Preparing an SAP ASE Database for Protection, you can configure an Actifio backup method for the database:

- Using Block-Based LVM Snapshots with CBT on Linux
- Using File-Based Traditional Backups and Recovery

Whichever method you select involves three steps:

Configuring SLA Settings on page 11 Ensuring that the Backup Capture Method is Set Correctly on page 13 Ensuring that the Disk Preference on the Host is Set Correctly on page 14

# **Configuring SLA Settings**

To configure the database SLA settings:

1. In the AGM Application Manager, right-click the database and select **Manage SLA**.

Consistency Group			cal Cn	100	Active images	Workflav	92 - C											
Clear all filters	1	App	lica	tio	ns											+ ADD APPLI	CATION	+ ADD VIRTUAL N
APPLICATION NAME																		
HOST NAME	•	hide fi	ters.	03	per SYBASE Instance													
TEMPLATE NAME	16	ype to	2 S.B.M	th.		Q												
PROFILE NAME																		
RIENDLY PATH		B		APP	LICATION	0	TEMPLA	TE	Ô.	PROFILE	0	FRIENDLY PATH	0	HOST NAME	0	APPLIANCE	0	TYPE
SLA STATUS		8 1		1	-		_					sybase-autovm3		sybase-autovm3		Sky-Cetalog-wol		SYBASE Instance
Managed Unmanaged			0	cc	Manage SLA			smat		LocalProfile		sybase-autown3		sybase-autovm3		Sky-Cetalog-vvol		SYBASE Instance
TYPE -	-		•	QF	Access			gSmart		LocalProfile		sybase-autovm2		sybase-autovm2		Sky-Catalog-vvol		SYBASE Instance
Select: ALL   NONE	1	0	0	εc	Edit Organizatio			gSmart		LocalProfile		sybase-autovm2		sybase-autovm2		Sky-Catalog-vvol		SYBASE Instance
Consistency Group			0	AS	Manage Expirat	005		smart		LocalProfile		sybase-autovm1		sybase-autovm1		Sky-Catalog-vvol		SYBASE Instance
DB2 Database	l	0	•	AV	Delete Applicati			smart		local profile		sybase-autovm4		sybase-autovm4		5ky-7.0.x		SYBASE Instance
Exchange					Ignore Applicati													
Generic LVM					Add To Logical C	aroup (												

2. At the top of the Manage SLA page, select the **Details & Settings** link:

APPLICATION MANAGER Filter by	Appliances   Organizations	America/New_York 1 admi
Applications Consistency Groups Logical Group	s Active Images Workflows	
Ge MANAGESLA 😯 inst2 Sybas	e_auto2_remote   Sybase_auto2_remote   Details & Settings	
TEMPLATE Choose a template	PROFILE Choose & profile	Apply SLA
Database Inclusion Rule		○ Policies
RULE All Databases		Snapshot 0
	,, 🐸	Direct to Dedup 0
TOTAL DATABASES 7		
DATABASES INCLUDED 7	PRODUCTION	Direct to OnVault 0
DATABASES INCLUDED 7 DATABASES EXCLUDED 0	PRODUCTION	HIRON Direct to OnVault 0 OnVault Replication 0
DATABASES INCLUDED 7	PRODUCTION	Diffect to Diffyault 0

This opens the specific details and settings for this database. Of particular importance is Backup Capture Method.

Аррисаціон імате	UNCL A	
APPLICATION TYPE	SYBASEInstance	
HOST	Sybase_auto1	
HOST IP ADDRESS	172.16.201.135	
PATH	Sybase_auto*	
OPERATING SYSTEM	Linux	
APPLIANCE	082 Remota	
APPLIANCE IF ADDRESS	172.16.200.243	
Settings		Reset All to Defiel
CONNECTOR OPTIONS		
PERCENTAGE OF RESERVE SE VOLUME GROUP	ACE IN 20	
BACKUP CAPTURE METHOD	<ul> <li>Use volume level backup</li> <li>Use full+incremental backup</li> </ul>	$\supset$
FORCE FULL FILESYSTEM BA	DELIP () Ves () No	
DATABASE FILESYSTEM STAC DISK SIZE IN G8	100	
LOG BACKUP STAGING DISK S GB	15 IN	Reset to Defau
SCRIPT TIMEOUT	172800	
NUMBER OF STRIPES	4	
		_

3. Fill in the details and settings according to the backup method that you need, according to this table:

Setting	Linux CBT and LVM Snapshot	File-Based Traditional Backup & Recovery
Percentage of Reserve Space in Volume Group	20% is recommended for LVM snapshot temporary space.	Not applicable
Backup Capture Method	Use volume level backup	Use full+incremental backup
Force Full File System Backup	Not applicable	Use for an on-demand backup
Database Filesystem Staging Disk Size in GB	Not applicable	Use the default calculation: (database size * 1.5) + 10% The disks will grow dynamically.
Log Backup Staging Disk Size in GB	SLA) + 20% for a buffer. If you prov	daily log generation * retention of log backup vide a value, then it will override the default grow dynamically. This will become a fixed nstructed by Actifio Support.
Script Timeout		kup and recovery scripts called by the Actifio nless instructed by Actifio Support.
Number of Stripes	Number of stripes used by the bac	kup server. Default value is 4.

## SLA Settings for Each Backup Method

# Ensuring that the Backup Capture Method is Set Correctly

Backup capture settings depend upon the backup capture method that you need. It is important to be certain that you have set the right backup method for your needs:

1. In the AGM Application Manager, right-click the database and select **Manage SLA**.

APPLICATION MANAGES			iter by		Appliances *	Organiza	- energy											neritables, York 1 ad
Consistent	cy Groups	Lo	gical G	roups	Active images	Work/lie	ws											
Clear all filters		Ap	plic	atio	ns											+ ADD APPEN	ATION	+ ADD VIRTUA
APPLICATION NAME																		
IDST HAME	1	+ hide	fibers.	0	ype: SYBASE Instance													
TEMPLATE NAME		type		and a		q												
BOFILE NAME		1304	10 263															
BIENDLY PATH	•	8		APP	LICATION	0	TEMPL	ATE	Ò.	PROFILE	0	FRIENDLY PATH	0	HOST NAME	0	APPLIANCE	0	TYPE
LA STATUS				-	-							sybase-autovm3		nybase-autowm3		Sky-Catalog-wol		SYBASE Instance
Managed Unmanaged	10		0	CC.	Manage SLA			Smar		LocalProfile		sybase-autown3		sybase-autovm3		Sky-Catalog-vvol		SYBASE Instance
<b>71</b>		۵	•	Qr	Access			gSmart		LocalProfile		sybase-autovm2		sybase-autovm2		Sky-Catalog-vvol		SYBASE Instance
INCE ALL I NONE		٥		εc	Edit Organizatio			gSmart		LocalProfile		sybase-autovm2		sybase-autovm2		Sky-Catalog-vvol		SYBASE Instance
Consistency Group			٥	AS	Manage Expirat			umart		LocalProfile		sybase-autovm1		sybase-autovm1		Sky-Catalog-vvol		SYBASE Instance
DB2 Database			۰	AV	Delete Applicat	lon		smart		local profile		sybase-autovm4		sybase-autovm4		5ky-7.0.x		SYBASE Instance
Exchange					Innorm Applicati	inn												

2. At the top of the Manage SLA page, select the **Details & Settings** link:

DEIM

APPLICATION MANAGER Filter by	Appliances  Organizations	Americ	a/New_York 👤 adm
Applications Consistency Groups Logical Gro	ups Active Images Workflows		
🔆 MANAGESLA 🔹 😵 inst2 Sy	pase_auto2_remote   Sybase_auto2_remote   Details & Settings		
TEMPLATE Choose a template	PROFILE Choose a profile	Apply SLA	
Database Inclusion Rule		○ Policies	
RULE All Databases		Snapshot 0	
TOTAL DATABASES 7	🗧 🗧	Direct to Dedup 0	
DATABASES INCLUDED 7	PRODUCTION	Direct to DrVault (0)	
DATABASES EXCLUDED 0			

This opens the specific details and settings for this database. Check the Backup Capture Method:

- o SAP ASE Traditional Backup and Recovery API "File-based" Backups: Use full+incremental backup
- o LVM Snapshot with Change Block Tracking: Use volume level backup

Аррисаціон мате	: INSL2		
APPLICATION TYPE	SYBASE	ntance	
	Sabase.		
HOST IP ADDRESS			
PATH	Sybase .	rote	
OPERATING SYSTEM	Linux		
APPLIANCE	082 Ref	ste	
APPLIANCE IF ADDRESS	172.16.2	0.243	
Settings			Reset All to Defaul
CONNECTOR OPTIONS			
PERCENTAGE OF RESERVE SA VOLUME GROUP	ACEIN	20	
BACKUP CAPTURE METHOD		<ul> <li>Use volume level backup</li> <li>Ose full+incremental backup</li> </ul>	)
FORCE FULL FILESYSTEM BAR	scur.	© Yes 🛞 No	
DATABASE FILESYSTEM STAC DISK SIZE IN G8	ang	100	
LOG BACKUP STAGING DISK S GB	22E (N	15	Reset to Defai
SCRIPT TIMEOUT		172800	
NUMBER OF STRIPES		4	

3. Click **Save** at the bottom of the page if you had to change anything.

# Ensuring that the Disk Preference on the Host is Set Correctly

Choose between:

- Disk Preference: File-Based Traditional Backup and Recovery in NFS/Block on page 14
- Disk Preference: LVM Snapshot with Change Block Tracking on Linux on page 15

#### Disk Preference: File-Based Traditional Backup and Recovery in NFS/Block

To set disk preference for storage snapshots:

1. From AGM Domain Manager, Hosts tab, right-click the host and select **Edit**.

OMAIN MANAGER		itter by	Appliar	ces *	Organizations											nerica/Ne	6,7078	1 adm	11
opliances Users Roles	Orga	izations I	DAP	Pantis	Storage Pools	Storage Array	6	Web Ce	rtificate										
FILTER BY	Ho	sts																+	g
OST NAME 🗸 🗸																			
Uter by host name	+ 140	Filtern																	
ADDRESS -	sy.	_			0										SHOW SELECTED (1	6 8	3 111	1 23 -	1
User by IP address	8	NAME			C FRIEND	LY PATH		0. 9	PPLIANCE	30	1P	0	TYPE	0	OS RELEASE 0	VIRTI	IAL MJ	ACHINE	
•	0	sybase-aut	ovm3		sybase-a	iutovm3		5	ky-Catalog-vvol		172.16.216.124		Generic		Red Hat Enterprise Linux Serv	No			
Inter OS like Linux.		sybase-aut	ovenis.		sybered	iutovm2			ky-Catalog-wol				Generic		Red Hot Enterprise Linux Serv				
****		sybase-aut	ov	Edit		town1		3	ky Catalog-vvol		172.16.216.122		Generic		Red Hat Enterprise Linux Serv	No			
lect: ALL   NONE Ceneric	0	testSybase	100	Edit Organi	zations	кАрр		5	ky-Catalog-vvol		10.11.12.13		Generic			No			
🗆 vCenter		sybase-aut	ov	Delete		tovm5		5	ky-7.0.x		172.16.216.126		Generic		Red Hat Enterprise Linux Serv	No			
C ESX Server C SCVMM C Hyper-V	۰	sybase-aut	ovm4		sybase-i	iutovm4		5	ky-7.0.x		172.16.216.125		Generic		Red Hat Enterprise Linux Serv	No			

#### 2. Set Disk Preference to **NFS** or to **Block**.

remote-rhel-2	Edit Host		
(P) 172.16.201.207			
FRIENDLY PATH remote-rhel-2	Name *	remote-rhel-2	
UNIQUE NAME remote-rhei-2_817350_null OS RELEASE 3.10.0-957.27.2.ei7.x86_64			
OS VERSION #1 SMP Tue Jul 9 16:53:14 UTC 2019	Friendly Name	remote-rhel-2	
OS TYPE: Linux	IP Address *	0	
STAGING DISK BLOCK FORMAT		172.16.201.207	
	Description		
	Appliances*	type to search	
		APPLIANCE	IP
		DB2_Brad	172.16.200.113
		DB2-Remote	172.16.200.243
		DB2-Local	172.16.201.174
		Generic *	
	Host Type	Contraction (1)	

3. Then click **Save** at the bottom of the page.

*Note:* File-based backup also requires the DB dump schedule be configured. See Setting the Schedule for Dumps on page 16.

## Disk Preference: LVM Snapshot with Change Block Tracking on Linux

To set disk preference for storage snapshots:

1. From AGM Domain Manager, Hosts tab, right-click the host and select **Edit**.

DOMAIN MANAGER Appliances Users Roles		Filter by Appl nizations LDAP	Concession of the local division of the loca	ganizations *	Storage Arrays	Web	Certificate							nerisa/New,		admin
FILTER BY		osts	Noveed 77		See of a second											+ 4
litter by host name		e filtern														
PADDRESS	ų			0									SHOW SELECTED (1	2	=	25 -
filter by IP address	•	NAME	0	FRIENDL	Y PATH	0.	APPLIANCE	30	19.	: (Ø.)	TYPE	10	OS RELEASE	VIRTU	IL MACI	ONE
55	0	sybase-autovm	3	sybase-au	stovm3		Sky-Catalog-vvol		172.16.216.124		Generic		Red Hat Enterprise Linux Serv	No		
Enter OS like Linus		sybase-autown	n.,	syberees	stovm2		Sky-Catalog-wol		172.16.216.123		Generic		Red Het Enterprise Linux Serv	No		
YPE .	0	sybase-autovr	Edit		town1		Sky-Catalog-vvol		172.16.216.122		Generic		Red Hat Enterprise Linux Serv	No		
elect: ALL   NONE Generic	0	testSybaseAp		loris:	лАрр		Sky-Catalog-wol		10.11.12.13		Generic			No		
C vCenter		sybase-autovi	Delete		tovmS		Sky-7.0.x		172.16.216.126		Generic		Red Hat Enterprise Linux Serv	No		
C ESX Server	۰	sybase-autovm	н	sybase-au	itovm4		Sky-7.0.x		172.16.216.125		Generic		Red Hat Enterprise Linux Serv	No		

2. Set Disk Preference to **Block**.

Applances       Uses       Roles       Organizations       LDD       Excess PArrys       Web Certificate         Emoto-rhel-2         UN QUE NAME       remote-rhel-2       remote-rhel-2       remote-rhel-2         UN QUE NAME       remote-rhel-2, 217250, null       remote-rhel-2       remote-rhel-2         OS YEE JONN       remote-rhel-2       remote-rhel-2       remote-rhel-2         OS YEE JONN       remote-rhel-2       remote-rhel-2       remote-rhel-2         PORMAT       remote-rhel-2       remote-rhel-2       remote-rhel-2         Description       remote-rhel-2       remote-rhel-2       remote-rhel-2         Appliances*       repeace-rhel-2       remote-rhel-2       remote-rhel-2         DB2-Local       172.16.200.113       remote-rhel-2       remote-rhel-2         DB2-Local       172.16.201.174       remote-rhel-2       remote-rhel-2	AIN MANAGER Filter by Appliances Org	Janizations 🔻		America/New_1
IP       172.16.201.207         PRIENDLYPATH remote-rhel-2       INAME         UNIQUE RAME tempte-rhel-2       INAME *         OS VELEASE, 3.10.0.957.272.et/7.86_64       Image: state tempte-rhel-2         OS VELEASE, 3.10.0.957.272.et/7.86_64       Image: state tempte-rhel-2         OS VELEASE, 1.10.0.957.272.et/7.86_64       Image: state tempte-rhel-2         OS VELEASE, 1.10.0557. tLinux       Image: state tempte-rhel-2         IP Address *       Image: state tempte-rhel-2         IP Bilances *       Image: state tempte-rhel-2         IP Bilances *       Image: state tempte-rhel-2 <t< td=""><td>ances Users Roles Organizations LDAP (H055) Stor</td><td>age Pools Storage Arrays W</td><td>leb Certificate</td><td></td></t<>	ances Users Roles Organizations LDAP (H055) Stor	age Pools Storage Arrays W	leb Certificate	
FREIDDLYPATH remote-rhel-2         UNIQUE RAME: remote-rhel-2, 91730_mull         OS/RELEASE       310.0957.272.e07.866_44         OS/RELEASE       310.0957.272.e07.866_44         OS/RELEASE       100.957.272.e07.866_44         OS/RELEASE       100.957.272.e07.866_44         OS/RELEASE       100.957.272.e07.866_44         OS/RELEASE       102.16201.207         Description	remote-rhel-2	Edit Host		
	FRIENDLY PATH         remote-rhel-2           UNIQUE NAME         remote-rhel-2, 817350_null           OS RELEASE         3:10:957,27.2 ei7.366_64           OS VERSION         #1 SMP Tue Jul 9 16:53:14 UTC 2019           OS TYPE         Unix           STAGING DRS, BLOCK         BLOCK	Friendly Name IP Address * Description	remote-thel-2  Tremote-thel-2  Tremote-thel-2	172.16.200.113 172.16.200.243
Host Type Generic: •		Host Type	Generic •	
Staging Disk Format Block     Block		Staging Disk Format	Block	

3. Then click **Save** at the bottom of the page.

# Setting the Schedule for Dumps

The database dump schedule is set by the Actifio CLI policy parameter dumpschedule. The default value of dumpschedule="FIIIIII":

- The string must be seven characters either an 'F' or an 'I'
- Each position within the string represents a weekday, starting with Sunday.
- **F** represents a full db dump
- I represents an incremental db dump

For example, "FIIIIII" results in:

- Sunday: Full backup
- Monday through Saturday: Incremental backups
- The following Sunday: Full backup again

To check the dump schedule, run this CLI command from the Actifio Appliance:

udsinfo lspolicyoption -filtervalue appid=<appid> | grep dumpschedule

If this does not return any value, then the dumpschedule is set to default.

To modify the dump schedule run this CLI command from the Actifio Appliance:

udstask mkpolicyoption -appid <appid> -name "dumpschedule" -value "FIIIIII" Replace <appid> with the application id of the SAPHANA application. Replace "FIIIIII" as needed.

## Example

To run full backup on Saturday and Tuesday, set dumpschedule="IIFIIIF"

For more information, refer to the *Actifio CLI Reference*.

# 4 Protecting an SAP ASE Database and its Logs

Protecting an SAP ASE database includes both:

Protecting an SAP ASE Database on page 17 Protecting SAP ASE Database Logs on page 19

# Protecting an SAP ASE Database

To protect the database:

1. From the AGM Application Manager, right-click the database and select Manage SLA.

O clear all filters	Ap	oplic	atio	ons									+ ADD APPL	CATION	+ ADD VIRTUAL M
IPPLICATION NAME	• 24	te filteri	0	Type: SYBASE instance											
EMPLATE NAME	typ	e to se	ersh.	- Q											
RENDLY PATH	8		AP	PLICATION	TEMPLATE	0	PROFILE	0	FRIENDLY PATH	0	HOST NAME	0	APPLIANCE	0	TYPE
A STATUS			1		_				sybase-autovm3		sybase-autovm3		Sky-Catalog-wol		SYBASE Instance
] Managed ] Unmanaged		-	10	Manage SLA	umar		LocalProfile		sybase-autovm3		sybase-autovm3		Sky-Catalog-vvol		SYBASE Instance
M S	0		QK		gSmart		LocalProfile		sybase-autovm2		sybase-autovm2		Sky-Catalog-vvol		SYBASE Instance
Int ALL   NONE		8	EC	Edit Organization Memb Import OnVault Images	g5mart		LocalProFile		sybase-autovm2		sybase-autovm2		Sky-Catalog-vvol		SYBASE Instance
Consistency Group		0	AS	Manage Expirations	smart		LocalProFile		sybase-autovm1		sybase-autovm1		Sky-Catalog-vvol		SYBASE Instance
DB2 Database	0	0	AV	Delete Application	smart		local profile		sybase-autovm4		sybase-autovm4		5ky-7.0.x		SYBASE Instance
Exchange ] FileSystem ] Generic LVM ] Hyper-V				Ignore Application Add To Logical Group Mark Sensitive											
NPS     Oracle     SAP HANA     SQL Database     SQL Instance     SYBASE Database     SYBASE Database     SYBASE Database     SYBASE Database															

2. On the Manage SLA page, select a template and a resource profile, then click Apply SLA.



3. On the Apply SLA page, make sure that the backup capture method matches the type of backup set in Chapter 3, Configuring the Backup Method. Click **Apply SLA** or **Save Changes**.

Application Deta	2.54	O Settings Help
Аррисасіоп мате	INSLE	
APPLICATION TYPE	SYBASEInstance	
HDST	Sybase_site 5	
HOST IP ADDRESS	172.16.201.135	
PATH	Sybese_auto5	
OPERATING SYSTEM	Linux	
APPLIANCE	082 Remote	
APPLIANCE IF ADORESS	172.16.200.243	
Settings		Reset All to Default
CONNECTOR OPTIONS		
PERCENTAGE OF RESERVE SI VOLUME GROUP	ACE IN 20	
BACKUP CAPTURE METHOD	<ul> <li>Use volume level backup</li> <li>Use full+incremental backup</li> </ul>	$\supset$
FORCE FULL PILESYSTEM BAR	CUP O Ves & No	
DATABASE FILESYSTEM STAD DISK SIZE IN G8	100	
LOG BACKUP STAGING DISK S GB	2E 01 15	Reset to Defaul
SCRIPT TIMEOUT	172800	
NUMBER OF STRIPES	4	

The database will be protected when the snapshot job runs according to the schedule in the template. After the first successful snapshot job the database appears in the Application Manager with a green shield icon.

4. You can include or exclude specific databases during backup. From the Application Manager, select the SAP ASE Instance. You can use the SAP ASE Instance checkbox to filter the list. Select **Manage SLA**.

APPLICATION MANAGER		F12	ter by	Appliances 🖛	Organiz	ations 🕶									~	renica/New_No	s 1 adm
Consistency (	Groups	Log	ical Gr	oups Active Images	Workfie	ws											
O clear all filters		App	lica	itions										+ ^	DD APPLICATION	+ ADD	VIRTUAL
APPLICATION NAME	•																
HOST NAME		e histe f	intern.	O Type: SYBASE instan	CR.												
TEMPLATENAME	•				a										SHOW SELECT	-	III 25 -
PROFILE NAME	•	type t	0 100	ch											C) SHOW SELECT	10 (1)	III 03
FRIENDLY MITH	٠			APPLICATION	0	TEMPLATE	Ő.	PROFILE	0	FRIENDLY PATH	0	HOST NAME	¢.	APPLIANCE	0	TYPE	
SLA STATUS		0	0	OKR						sybase-autovm3		sybase-autovm3		Sky-Catalog-v	m	SYBASE	on Fance
Managed		9	۰.	dune						synase-annovina		synase autovina		asy-causiog v	-01	stence	incance
Unmanaged		σ	0	ECP		DB2 - Logsmart		LocalProfile		sybase-autovm3		sybase-autovm3		Sky-Catalog-v	lov	SYBASE	nstance
TYPE		8		QK1		Sybase Loosiniart		LocalProfile		sybase-autovm2		typase-autovm2		Sky-Cetalog-v	юl	SYBASE	nitance
SELECT ALL I NONE		0	0	102	and the second	age SLA		LocalProfile		sybase-autovm2		sybase-autovm2		Sky-Catalog-v		SYBASE	angeorgi al

5. Under Database Inclusion Rule, click **Edit**.

TIMELAR Subsets   Warning Associated State	Accilections Consistency Grow	n Tonical Cinuns Active Images Manage Membership	Workflow				
Image: Search and the search and t		INCLUSION RULE: Exclude Selected below will be excluded below will b	luded from data capture (or snapshot) if a policy template is applied to this	SQL mitance.	meligible databases cannot be Management for one of the fo • The statutuse is a member of a	Bowing reasons: cansistence grave	
Database Inclusion     Databases     O       NULE Locus     a syboystemdb     CP       NON Databases 6     CP     CP       Databases 100000 3     CP     No Databases Found       Diminandias Inclusion 3     a syboystemprocs     No Databases Found	· ·	type to search	Q SHOW SELECTED (1)		type to search	۹	
No Database Inclusion     sybrystemdb       No Databases Found     No Databases Found       Ontravalases Inclusion 1     spbrystemprocs       University 5     spbrystemprocs				0	0	DATABASES	0
NULL Exclus         sybhystemdb         No Databases Found          ToTAL, DATABASES          C/P         No Databases Found          DATABASES IXCULDED 1         Image: sybhystemprocs         Image: sybhystemprocs	Database Inclusio	D PCE					
ICUID (CARANSES 6 C CCP CARANSES FOLODIO 3 Sybystemprocs DATAMASK 0		sybsystemdb					
DMARAKSE SKCLUDED 1 Sybsystemprocs	CALIFORNIA CONTRACTOR AND A DECEMBER OF A	ECP ECP				No Databases Found	
	DATABASES EXCLUDED 1	sybsystemprocs					
	INELIGIBLE DATABASES 0	E master					

6. Select an Inclusion Rule (Include All, Include Selected, or Exclude Selected). Select the databases to include or exclude, then click **Save**.

# Protecting SAP ASE Database Logs

To enable and set up the SAP ASE database log backup:

1. From the AGM SLA Architect page, right-click the template for SAP ASE database protection and click Edit.

Templifies Profiles								
clear all filters		ſem	plates					
TEMPLATE NAME	•							
Syba	•	hide N	O Name: Syba					
DESCRIPTION	-							SHOW SELECTED
Search by description		1 1	IAME	0	DESCRIPTION	Q.	OVERRIDE	MANAGED BY AGM
OVERRIDE		8 5	ybase LogSmart		new description		Yes	
			Edit					
			Clone					
			Concentration of the second se					

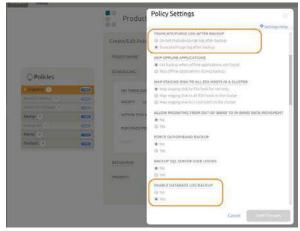
2. Click the arrow beside the Snapshot policy to open up the details, then click Edit Policy.

and the second se	Filter by	Appliances 👻	Organizations 💌	
Profiles				
TEMPLATE	Logsmart Snap		ALLOW OVERHOES ON POLICY SETTINGS?" * VES 💿 ND	Save Template
DESCRIPTION	Description			
				O Policies
		9		iog
		PRODUCTION		SCHEDGLINC Continuous
		PRODUCTION	0	SCHEDULEHC Continuous REPEAT VALUE Every 24 hours EXPIRE AFTER 2 days POLICY ID: 858167

3. Near the bottom, select **Advanced Policy Settings**.

SLA A	RCHITECT	Filter by	Appliances 🔻 Organizations 👻
Templa	tes Profiles		
			Production To Snapshot
			Create/Edit Policy
			POLICY NAME*
	○ Policies		SCHEDULING Windowed
	E Snapshot	(BA+)	ON THESE DAYS Everyday
	Direct to Dedup 0	(1255)	
	Direct to OnVault 0	(1155)	EXCEPT Never ×
	OnVault Replication 0	(260)	WITHIN THIS WINDOW 19:00 TO 07:00
	Dedup 0	<b>CZ</b> 255)	
	Dedup DR 0	(22.55)	
	Mirror 0	CTATED	EVERY 👄 Z4 🕀 Hours
	OnVault 0	G1150	
			RETAIN FOR 🕒 2 🕀 Day(s)
			PRIORITY Medium
			Advanced Policy Settings
			Advanced Folicy Sectings

- 4. Set the log policy options (you will have to scroll to see them all):
  - o Enable Truncate/Purge log after backup.
  - o Set Enable Database Log Backup to Yes.
  - o For **RPO (Minutes)**, enter the desired frequency of log backup.
  - o Set Log Backup Retention Period (in Days) for point in time recovery.
  - o Set **Replicate Logs (Uses StreamSnap Technology)** to **Yes** if you want to enable StreamSnap replication of log backup to a DR site.



### 5. Click **Save Changes**.

6. Include or exclude database logs to match the database settings. From the Application Manager, select the SAP ASE Instance. You can use the SAP ASE Instance checkbox to filter the list. Select **Manage SLA**.

Antilizations Consistency Gr	7.80	1 1 1 1	cal Cr	roups Active images	Workfle											
Consistency Gr	oupe	Log	cal Gr	oups Active images	Workfle	net										
C clear all filters		App	lica	ations										+/	DD APPLICATION	+ ADD VIRTUA
APPLICATION NAME	•															
IOST NAME		e hide 7	llen,	O Type: SYBASE Instan	PICAL											
EMPEATE NAME		type t		Arb.	c										SHOW SELECT	ED (1) III 2
PROFILE NAME	•	19994													CI SHOW SELECT	LO CO INC
FRIENOLY PATH		8		APPLICATION	0	TEMPLATE	0	PROFILE	0	FRIENDLY PATH	0	HOST NAME	0	APPLIANCE	0	TYPE
SLA STATUS	٠		0	QKR						sybase-autovm3		sybase-autovm3		Sky-Catalog-v	vol	SYBASE Instance
Managed																
Managed Unmanaged			0	ECP		D82 - Logsmart		LocalProfile		sybase-autovm3		sybase-autovm3		Sky-Catalog-	wol	SYBASE Instance
TYPE		8	•			SybeseckooSmart				sybase-autovm2				Sky-Cetalog		SYBASE Instance
RELECT ALL TNONE		0	0	ECP	Mar	age SLA		LocalProfile		sybase-autovmZ		sybase-autovmZ		Sky-Catalog-	wel	SYBASE Instance
CIFS		ALC: N	~													

7. Under Database Inclusion Rule, click **Edit**.

INCLUS All data				ineligible Databases		
Warning T		rom data capture (or snabshot) if a policy template is applied to th g this option will be included in data capture (or snapshot) autome		meligible databases cannot b Management for one of the fo • The database is a member of a • The database was created by	i constituence preva	
P	INCLUSION RULE: Distude Selected All databases selected below will be excluded from	Q SHOW SELECTED (1)		type to search	Q	
		DATABASES	0	0	DATABASES	.0
Database Inclusio	PCE					
RULE Exclu	sybsystemdb					
TOTAL DATABASES 6	ECP				No Databases Found	
ATABASES EXCLUDED 1	sybsystemprocs					
VELIGIBLE DATABASES 0	master					

8. Select an Inclusion Rule (Include All, Include Selected, or Exclude Selected). Select the databases to include or exclude, then click **Save**.

# 5 Accessing, Recovering, or Restoring an SAP ASE Database

There are two ways to access a protected database:

Mount and Refresh from Block-Based Volume Snapshot to a Target SAP ASE instance as a Virtual Application on page 21

Restoring and Recovering an SAP ASE Database on page 24

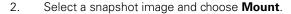
# Mount and Refresh from Block-Based Volume Snapshot to a Target SAP ASE instance as a Virtual Application

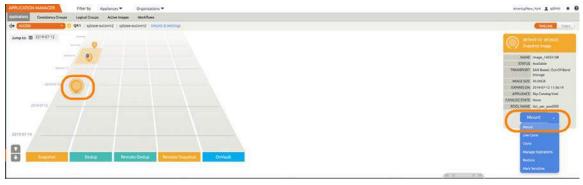
To mount the database image as a virtual application (an application aware mount) to a new target:

1. From the AGM Application Manager, right-click the protected database and select **Access**.

Note: You can use the Managed SLA Status filter to show only protected databases.

Applications Consiste	ncy Groups		ilter by		Active Im								America/New_Yo	
Consiste	ncy Groups	Log	gical Gri	oups	Active Im	ages wonknows								
elear all filters		App	plica	atio	าร							+ ADD APPLICAT	10N + ADD	D VIF
APPLICATION NAME	•													
HOST NAME	•	4 hide	filters	0 51	Managed	O Type: SAP ASE I	Instance							
TEMPLATE NAME	•	type	to sear	ich		Q						SHOW SE	LECTED (2)	- HI
PROFILE NAME	•	la l												
FRIENDLY PATH	•	Θ	-	APPI	ICA 0	TEMPLATE O	PROFILE 0	FRIENDL 0	HOST IP 0	HOST NA 0	APPLIANCE O	TYPE 0	APP TYPE	0
SLA STATUS		8	0	one	ş	entre solution	toosProfile	172.17.205.254	172.17.205.254	172.17.205.254	D82-Local	SAP ASE Inst	SYBASEInst	a
Managed			-	10	Manage	5LA	Pro	Sybase_All_db	172.17.204.62	172.17.204.62	D82-Local	SAP ASE Inst	SYBASEInst	a
Unmanaged		-	×.	1	Access			Syrase ji made	11211-201-02	THETHER LOL	DECISI	STIT FOR INSEN	STO GENER	
TYPE			•	LC			Pro	Sybase_Dum	172.17.201.110	172,17,201,110	DB2-Local	SAP ASE Inst	SYBASEInst	ta
		and the second second		0.0	Edit Urgi	anization memoe				172.17.201.141		SAP ASE Inst		
select: ALL [ NONE			•	ODE			e Pro	Sybase_CBT	172.17.201.141		DB2-Local		SYBASEInst	





3. On the Mount page, from Target, choose the desired target SAP ASE server from the dropdown.

- 4. Under Application Options, enable **Create New Virtual Application**.
- 5. At Included Databases, Select Items, choose one or more databases to virtualize:
  - o A single database will be managed as standalone virtual copy
  - o Multiple databases will be managed as a consistency group

2019-07-22 11:03:48 Shapshot Image	Mount		
NAME Image_14212068 STATUS Available TRANSPORT SAN Based, Out-Of-Band Scrope IMAGE SSZ 104-57C8 MAGE SSZ 104-57C8 MAGE SSZ 104-57C8 MAGE SSZ 104-722130-851 APPLIANCE SSy-Catalog-Virol	TARGET*  sybase-autovm2  Application Options  CREATE NEW VIRTUAL APPLICAT		
RECOVERY 07-22 11:03 To 07-22 11:03 RANGE TALOG STATE None POOL NAME Act. per. pool000	INCLUDED DATABASES	Q	Database Options * are mandatory
Mount +			Database Options
	E ECP		
	ROLL FORWARD TIME TARGET SYBASE INSTANCE USER TARGET SYBASE INSTANCE PASS TARGET SYBASE ASE INSTANCE P	word •	113258 • HOST TIME USER TIME
	MANAGE NEW APPLICATION	QK1	
	Mapping Options		

#### **Selecting a Single Database**

TARGET *	ABEL				
sybase-autovm2 🔹					
<ul> <li>Application Options</li> </ul>					
CREATE NEW VIRTUAL APPLICATION					
INCLUDED DATABASES				Database Opt	ions * are mandatory
type to search	Q,			D SH	OW SELECTED (2)
SELECT ITEMS					
PCE PCE					vatabase Options •
E ECP					atabase Options
ROLL FORWARD TIME		2019-07-22	0 11:32:58	HOST TIME	O USER TIME
NAME OF CONSISTENCY GROUP *					
TARGET SYBASE INSTANCE USER *					
TARGET SYBASE INSTANCE PASSWOP	D.				
TARGET SYBASE ASE INSTANCE NAM	E.,	OK1	-		
		QK1			

#### **Selecting Multiple Databases**

6. Click each selected database to specify the target database details for the new virtual copy.

	APPLICATION MANAGER Filter by	Appliances      Organizations	
	Applications Consistency Groups Logical Group	os Active Images Workflows	
	♦ ACCESS	7.205.254   172.17.205.254 Details & Settings	
	2019-09-19 19:03:09 Snapshot Image	Mount	
	NAME Image_1585433 STATUS Available	TARGET* LABEL 172.17.205.254	
	TRANSPORT SAN Based, Out-Of-Band Storage		
	IMAGE SIZE 88.01GB	▼ Application Options	
8	EXPIRES ON 2019-09-21 19:04:10 APPLIANCE DB2-Local	CREATE NEW VIRTUAL APPLICATION	
8	RECOVERY 09-19 19:02 To 09-20 14:02 RANGE	INCLUDED DATABASES	Dat
#⊿	CATALOG STATE None	type to search Q	
	POOL NAME Act_per_pool000	SELECT ITEMS	
۲	Mount -	DB1	
2		ROLL FORWARD TIME	
ę		ROLL TO KWARD TIME	HOST TIME
h		TARGET SYBASE INSTANCE USER * ASE-Admin	
۲		TARGET SYBASE INSTANCE PASSWORD *	
		TARGET SYBASE ASE INSTANCE NAME *	
		two	
		MANAGE NEW APPLICATION	682-Loopi
AGM		TEMPLATE *	
		PROFILE * LocalProfile	4

7. Choose a target point in time for a database protected with log roll-forward.

NAME OF CONSISTENCY GROUP: This option appears if more than one database is selected. Provide a unique name to manage the selected databases as a virtual copy.

TARGET SAP ASE INSTANCE NAME: From the drop down, select a target SAP ASE instance to attach the selected database as a virtual copy.

Manage New Application:

- o To protect the new virtual database, click and enable Manage New Application.
- o Choose a template and a resource profile to protect the database.
- 8. Under Mapping Options, Mount Location, specify a target mount point to mount the new virtual database to.
- 9. Click Submit.

# Restoring and Recovering an SAP ASE Database

Depending on how you protected the database, you need the procedure for:

Recovering from a Volume-Based Snapshot on page 24

Recovering from a Full+Incremental Backup on page 26

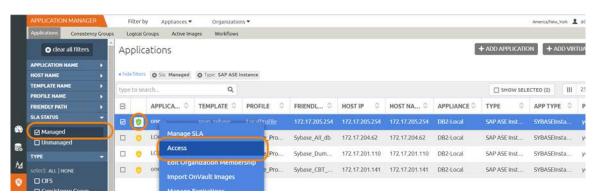
#### Recovering from a Volume-Based Snapshot

Use this procedure to restore and recover the source SAP ASE database. This procedure uses physical recovery of the source data area.

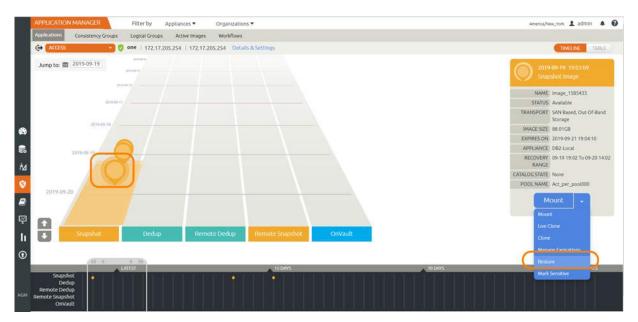
To recover back to the source:

1. From the AGM Application Manager, right-click the protected database and select Access.

Note: You can use the Managed SLA Status filter to show only protected databases.



#### 2. Select a snapshot image and choose Restore.



3. On the Restore page choose a point in time for the protected database to recover to.

pplications	Consistency Groups Logic	al Groups Active Imag	Organizations 💌		
ACCESS			ise-autovm2 Details & Settings		
a contraction					
0		Res	tore		
		Use th	is page to initiate a restore operation.	A restore will take the existing databases o	ffline and overwrite their data files.
NA	ME Image_14212688				
STAT	US Available	R	OLL FORWARD TIME	₩ 2019-07-22 O 11:32:58	HOST TIME ○ USER TIME
TRANSPO	RT SAN Based, Out-Of-Band Storage	P	A 114AA A 1810 1811		
IMAGE S	IZE 104.52GB		11:03:48		11:32:5
EXPIRES	ON 2019-07-22 13:08:51				2)
APPLIAN	ICE Sky-Catalog-Vvol		SELECT ITEMS		
RECOVE	RY 07-22 11:03 To 07-22 11:32 IGE				
CATALOG STA	ATE None				
POOL NA	ME Act_per_pool000				
	Restore	R	ESTORE WITH RECOVERY		
					Cancel Submit

- Enable Restore With Recovery to apply recovered logs.
- 5. Click **Submit**.

## Recovering from a Full+Incremental Backup

Recovering Back to the Source: Use this procedure to restore and recover the source SAP ASE database. This procedure overwrites the source data.

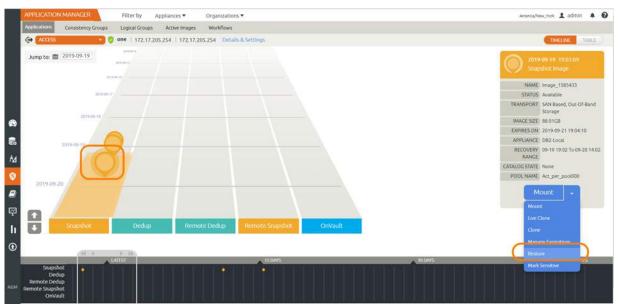
To recover back to the source:

1. From the AGM Application Manager, right-click the protected database and select **Access**.

Note: You can use the Managed SLA Status filter to show only protected databases.

APPLICATION NAME HOST NAME PROFILE NAME FRIENDLY PATH SLA STATUS FOR CONSTRUCTIONS APPLICA © TEMPLATE © PROFILE © FRIENDL © HOST IP © HOST NA © APPLIANCE © TYPE © APPLIA	+ ADD VI (2)      TYPE 0	111
APPLICATION NAME HOST NAME TEMPLATE NAME PROFILE NAME FRIENDLY PATH SLASTATUS C ONC C TYPE CAPAGE Instance C TYPE CAPA	2)	111
HOST NAME TEMPLATE NAME PROFILE NAME PROFILE NAME SLA STATUS SLA STATUS		
TEMPLATE NAME       type to search.       Q       Image: Show Selected (r         PROFILE NAME       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r         PROFILE NAME       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r         Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r         Substatus       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r         Substatus       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r         Substatus       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r         Substatus       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r         Substatus       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r         Substatus       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r         Substatus       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r       Image: Show Selected (r		
PROFILE NAME     Open to search     C     C       FRIENDLY PATH     Image: Construction of the search     APPLICA ©     TEMPLATE ©     FRIENDL ©     HOST IP     HOST NA ©     APPLIANCE ©     TYPE     APPLIANCE       SLASTATUS     Image: Construction of the search     Image: Construction of the search     Image: Construction of the search     TY2.17.205.254     172.17.205.254     172.17.205.254     DB2.Local     SAPASE Inst		
PROFILE NAME FRIENDLY PATH SLA STATUS D OR C ONC C ON		
SLA STATUS	TYPE 0	
🛛 🕑 one		9
	ASEInsta	
🛛 Managed 💦 👘 👩 LQ. Manage SLA	ASEInsta	
Unmanaged Access Tro Sybase_All_00 Tr2.17.204.62 Ub2-Ub2-Ub2-Ub2-Ub2-Ub2-Ub2-Ub2-Ub2-Ub2-	ISEINSIA	
TYPE LC ALCESSPro, Sybase_Dum 172.17.201.110 DB2-Local SAP ASE Inst SYBA	ASEInsta	-
select ALL NONE On Processing Pro., Sybase_CBT,, 172.17.201.141 172.17.201.141 DB2-Local SAP ASE Inst., SYBA	ASEInsta	
Constant Note in the intervention of the inter	CSENISUB	

#### 2. Select a snapshot image and choose **Restore**.



- 3. For a database protected with logs, on the Restore page, choose a date and a point in time.
- 4. Use Select Items to choose one or more databases to restore.
- 5. Click **Submit**. This will start the source database physical recovery using SAP ASE recover commands.