SAP IQ DBA's Guide to Actifio Copy Data Management

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Actifio VDP 10.0

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1 SAP IQ DBA's Introduction to Actific Copy Data Management

An Actifio 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 IQ (formerly Sybase IQ) 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 IQ application consistent database data with Actifio VDP in a Linux environment.

Actifio VDP uses these SAP IQ backup APIs:

- **File-based backups**: SAP IQ "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**: SAP IQ PITR log backup: During a PITR log backup the SAP IQ API "BACKUP DATABASE POINT IN TIME RECOVERY LOGS ONLY TO '\$TARGET_MOUNTPOINT' command is used for log backup. OS level commands are used for logs purging.



SAP IQ with File-Based Backup





SAP IQ with Volume-Based Backup

2 Preparing an SAP IQ Database for Protection

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

Before You Begin on page 3 Adding an SAP IQ Database Host and Discovering the Database on page 3

Before You Begin

Before you begin, on the SAP IQ server:

- SAP IQ PITR logging must be ON to take log backup. To configure PITR log option, you need these SAP IQ API:
 - o ALTER DBSPACE IQ_SYSTEM_LOG RENAME '/<pitr_log_location>'
 - o SET OPTION PUBLIC.IQ_POINT_IN_TIME_RECOVERY_LOGGING = 'ON'

After enabling pitr logging, a database full backup is needed.

- The utility database needs to start by specifying the username and password, and dbname should be utility_db. For example: start_iq -n utility_db -su act,passwd
- Backup username/password should be the same as the utility_db username/password.

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

Install the Actifio Connector on the SAP IQ server host (see **A Network Administrator's Guide to Actifio VDP**.)

Adding an SAP IQ Database Host and Discovering the Database

Before you can protect an SAP IQ database, you must add the host and discover the database:

- 1. Adding the Host from the AGM on page 4
- 2. Discovering the SAP IQ Database Application from the App Manager on page 5
- 3. Finding the Discovered SAP IQ Database in the App Manager on page 6

Adding the Host from the AGM

To add the host:

1. From the Manage, Hosts list, in the upper right corner, click **+Add Host**.

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Enter OS like Linux			Sybase_2		Sybase_2		sky9_caf_au	to	172.1	7.205.10		Generic		SUSE Linux E	nterprise .	No				

- 2. On the Add Host page:
 - o Name: Provide the SAP IQ database server name.
 - o IP Address: Provide the SAP IQ 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 IQ databases, including the utility database.

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▼ Applic	ation Discovery C	redentials						
User	Name							

- 3. Click **Add** at bottom right to add the host. The Host will be added.
- 4. Right-click the host and select **Edit**.

On the Edit Host page: Set the staging disk format to either **Block** or **NFS**. 5.

actific) (Dashboard	Backup & Recover 🗸	Test Data Management	🖌 App Manager 🗸	SLA Architect 🗸	Manage 🗸	Report	Monitor 🗸		Ŧ	👤 admin	ب 9
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Select **Save** at the bottom of Edit Host page. 6.

Discovering the SAP IQ Database Application from the App Manager To discover the SAP IQ database:

From the App Manager, Applications list, select **+ Add Application** in the upper right corner. 1.

actifi	0	Dashboar	d Backup & Reco	over 🗸 🛛 Test	: Data Management 🗸	App Manager 🗸	SLA Architect	• Manage •	Report	Monitor 🗸				T I	admin 🌲	•
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3.	Se	elect	the host	t and a	click Next	in the b	ottom ri	ight cori	ner. E	Discove	ry ma	y take	a wh	nile. ⁻	Then	

follow the Onboarding Wizard to completion.

Finding the Discovered SAP IQ Database in the App Manager

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

actifio	Dashboa	d	Backu	p & Recover 🗸 👘 Test Data Managemen	t 🗸 🛛 App Manag	er 🗸 SLA Architect 🗸	Manage 🗸	Report Monitor	•		▼ 👤 admi	in 🌲 🕄
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APPLICATION NAME												
HOST NAME		4 hide	e filters	Application Type: SAP ASE Database	O Application Type	SAP ASE Instance						
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SLA STATUS			Ø	one	1588450	Sybase_Dump_bug	LocalPr	Sybase_2	Sybase_2	sky9_caf	SAP ASE Instance	1159755
Managed Unmanaged			٥	inst1	1972585			j-sybase-3	j-sybase-3	caf-source	SAP ASE Instance	894840
ТҮРЕ			٢	one	1588226	Sybase_LVM	LocalPr	sybase-3	sybase-3	sky9_caf	SAP ASE Instance	1143211
Select: ALL NONE			Ø	DB2	1588254			sybase-3	sybase-3	sky9_caf	SAP ASE Database	1143225
Systems Hyper-V VM			0	DB1	1588242			sybase-3	sybase-3	sky9_caf	SAP ASE Database	1143219
System State			Ø	sybsystemdb	1972573			j-sybase-3	j-sybase-3	caf-source	SAP ASE Database	894834
Databases			Ø	sybsystemprocs	1588464			Sybase_2	Sybase_2	sky9_caf	SAP ASE Database	1160493
Db2 Database			Ø	sybsystemprocs	1588246			sybase-3	sybase-3	sky9_caf	SAP ASE Database	1143221

3 Configuring the Backup Method

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

- Using block-based volume level LVM snapshots with CBT on Linux. This option enables you to create application-aware virtual databases from the snapshot images.
- Using file-based traditional backup and recovery. This "file dump" method does not support the creation of virtual databases, and it requires Setting the Schedule for Dumps on page 12.

Whichever method you select involves these steps:

SAP IQ Application Details & Settings on page 7 Ensuring that the Backup Capture Method is Set Correctly on page 8 Ensuring that the Staging Disk Format on the Host is Set Correctly on page 10 Setting the Schedule for Dumps on page 12

Setting	Block-Based LVM Snapshot with CBT on Linux	File-Based Backup and Recovery, Block <i>or</i> NFS
Use Staging Disk Granularity as Minimum Staging Disk Size	For applications that are under the grow this new option is useful to a staging disk is thin provisioned, the larger than required for immedia The values are 0 for No and the St	he size of granularity setting that tend to periodically avoid frequent costly FULL backups. Because the here is no initial cost to use a staging disk that is te use. taging Disk Granularity setting for Yes.
Staging Disk Granularity	Maximum size of each staging di application. The default value is 10	sk when multiple staging disks are used for an 000GB.
Last Staging Disk Minimum Size	Minimum size of the last staging a disks. This value is also used for a The default value is 250GB.	disk created for an application with multiple staging dditional disks allocated to accommodate growth.
Connector Options	Use this only under the direction of	of Actifio Support.
Percentage of Reserve Space in Volume Group	Needed for LVM snapshot temporary space. Recommended value is 20%	Not applicable
Backup Capture Method	Use volume level backup	Use full+incremental filesystem backup

Table 1: SAP IQ Application Details & Settings

Table 1: SAP IQ	Application	Details & Settings
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Setting	Block-Based LVM Snapshot with CBT on Linux	File-Based Backup and Recovery, Block <i>or</i> NFS
Force Full Filesystem Backup	Not applicable	Use for an on demand full 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	By default Actifio calculates this of plus 20% buffer. Default is recomm Providing a value will override the dynamically. This will become a f	as daily log generation * retention of log backup SLA mended. 9 default calculation and the log disk will not grow ixed size
Retention of Production DB Logs in Days	This value is used to purge the log Based on this setting the last dat the # days set) and the log will be value is 0 days. With default value	g backup from basepath_logbackup destination. a backup id will be selected (CURRENT_TIMESTAMP, - e purged older than the data backup id. Default e all logs prior to last data backup will be purged.
Script Timeout	The timeout value is applied to in connector. The default value is re	ternal backup and recovery scripts called by ecommended.

Ensuring that the Backup Capture Method is Set Correctly

Backup capture settings depend upon the backup capture method that you need. Be certain that you have set the right backup method for your needs:

1. In the App Manager Applications list, right-click the database and select **Manage SLA**.

actifio Dashi	boar	d	Backup	o & Recover → Test Data	Management 🗸	App Mar	nager 🗸 🦷 SLA Arc	nitect 🗸	Manage 🗸	Report	Monitor 🗸				Y.	👤 admin	٠	9
🙁 clear all filters	^	Ap	plic	ations												+ ADD AF	PLICA	лон
APPLICATION NAME																		
HOST NAME		4 hid	e filters	O Application Type: Db2 Da	tabase O Applic	ation Type:	Db2 Instance											
TEMPLATE NAME					Q								SHOW SEL	ECTED (1		111 25	v 10	: *
PROFILE NAME					-													
FRIENDLY PATH		Ξ		APPLICATION 0	HOST IP	\diamond	HOST NAME	0	GROUP		APPLIANCE	\diamond	TYPE	0	API	P TYPE		0
SLA STATUS 🔫			ø	apfsi1	172.27.58.13		ndmlpar3				weekly10c		Db2 Instance		DB	Instance		
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Unmanaged			0	db2insu	172.16.201.253		OracleDBNike				weekly10c		Db2 Instance			2Instance		
TYPE -			0	SYST ST Manage SLA			stcent76db22				weekly10c		Db2 Database		DB	2		
Select: ALL NONE			0	db2ins Access			OracleDBNike				weekly10c		Db2 Instance		DB	Instance		

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

actifio	Dashboard	Backup & Recover 🗸	Test Data Management 🗸	App Manager 🗸	SLA Architect 🗸	Manage 🗸	Report	Monitor -	Ţ	👤 admin	٠	?
ANAGE SLA	- 🛛	db2inst1 OracleDBNike	OracleDBNike Details 8	k Settings								
_												
TEMPLATE Cho	ose a template		PROFILE Choose a	profile								

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

- o LVM Snapshot with Change Block Tracking: Use volume level backup.
- o Traditional Backup and Recovery API "file-based" backups: Use full+incremental backup.

Note: System databases on a root partition can be backed up as LVM Snapshots and later mounted as virtual databases, but they cannot be used in a traditional Restore operation as the root partition cannot be unmounted. This will need manual restore and recovery from a simple mount back to the same host.

Application Details & Settir	ngs	Settings He	elp
Settings			
USE STAGING DISK GRANULARITY AS MINIMUM STAGING DISK SIZE	🔿 Yes 🔘 No		
STAGING DISK GRANULARITY (GB)			
LAST STAGING DISK MINIMUM SIZE			
CONNECTOR OPTIONS			
PERCENTAGE OF RESERVE SPACE IN VOLUME GROUP	20		
BACKUP CAPTURE METHOD	 Use volume level backup Use full+incremental backup 		
FORCE FULL FILESYSTEM BACKUP	⊖ Yes ● No		
DATABASE FILESYSTEM STAGING DISK SIZE IN GB			
			_

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

Ensuring that the Staging Disk Format on the Host is Set Correctly

Choose between:

- Staging Disk Format: File-Based Traditional Backup and Recovery in NFS/Block on page 10
- Staging Disk Format: LVM Snapshot with Change Block Tracking on Linux on page 11

Staging Disk Format: File-Based Traditional Backup and Recovery in NFS/Block To set the staging disk format for storage snapshots:

1. From the Manage, Hosts list, right-click the host and select **Edit**.

actifio	Dashboar	d	Backup & Recover 🗸	Test Da	ita Manageme	nt 🖌 App Ma	nager 🗸	SLA Architect	ſ	Manage 🗸	Apport	Monitor 🗸				Υ.	admin		9
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OS RELEASE	•		hpvm5 :tifio.com	hpvmS	.sqa.actifi	stskinnysky3		172.16.159.170				B.11.31			HPUX				
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Enter OS like Linux					Delete														

2. Set Staging Disk Format to either **NFS** or to **Block**.

act	ifio	Dashboard	Backup & Recover 🗸	Test Data Management 🗸	App Manager 🗸	SLA Architect 🗸	Manage 🗸	Report	Monitor 🗸		T	👤 admin	≜ 0
		hpvr	m5.sqa.actifio.com		Edit Host								
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					Description Appliances*	type to	search		Q				
							APPLIANCE al2sky81			IP 172.16.6.79			
							itskinnysky3 itsky2			172.16.125.63			
					Host Type	Generic	CDXLTS2	Ŧ		172.16.17.140			
					Staging Disk Forma	Block Block NFS)				

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 12.

Staging Disk Format: LVM Snapshot with Change Block Tracking on Linux

To set the staging disk format for storage snapshots:

1. From the Manage, Hosts list, right-click the host and select **Edit**.

								_									
actifio	Dashboar	d	Backup & Recover 🗸	Test Data Manageme	snt 🖌 🛛 App Mar	nager	 SLA Architect - 	ſ	Manage 🗸	Report	Monitor 🗸				Y,	👤 admin	≜ 9
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Enter OS like Linux			hpqavm18	hiq Edit)	172.16.159.72		Generic		B.11.31	No		HPUX		U	
OS TYPE	-			Edit Organ	zations												
Enter OS like Linux				Delete													
THE	_																

2. Set Staging Disk Format to **Block**.

actifio	Dashboard Backup & Reco	wer 🗸 🛛 Test Data Management 🗸	App Manager 🗸	SLA Architect 🗸	Manage 🗸	Report	Monitor 🗸		د ۲	admin	≜ 0
	hpvm5.sqa.actifio.co	m	Edit Host								
IP FRIENDLY PATH UNIQUE NAME OS RELEASE OS VERSION OS TYPE	172.16.159.170 hpvm5.sqa.act/fio.com hpvm5.sqa.act/fio.com_402274 B.11.31 U HPUX	1_nuli	Name * Friendly Name IP Address *	hpvm5.sq hpvm5.sq 172.16.	a.actifio.com a.actifio.com 159.170	0					
			Description Appliances *	type to	search		Q	19			
					2sky81 skinnysky3			172.16.6.79 172.16.125.63			
					sky2 DXLTS2			172.16.125.83 172.16.17.140			
			Host Type	Generic		٧					
			Staging Disk Forma	Block Block NFS		•	J				

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 'l'
- 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 MaxDB application.

Replace "FIIIII" 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 IQ Database and its Logs

Protecting an SAP IQ database includes both:

Protecting an SAP IQ Database on page 13 Protecting SAP IQ Database Logs on page 14

Protecting an SAP IQ Database

To protect the database:

1. From the AGM App Manager, Applications list, right-click the database and select Manage SLA.

actifio	Dashbo	oard	Backu	p & Reco	ver↓ Te	st Data Management 🗸	App Manage	r v	SLA Architect		Manage 🖌 🛛 Report	Monitor 🗸				¥ 1
🙁 clear all filter	5	Â	oplic	ation	s											+
APPLICATION NAME	•															
HOST NAME	•	4 his	de filters	O App	lication Type:	SAP IQ										
TEMPLATE NAME	•	typ	e to sea			Q								SHOV	V SELECTED (1	1)
PROFILE NAME	•															
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SLA STATUS	•	⊠	0	cand		1588148	IQ_logpurge		LocalProfile		iq3_test	iq3_test		sky9_caf_auto	SAP IQ	
Managed			-													
Unmanaged			Ū.	xyz	Manage SI	LA	_dump		LocalProfile		iq-1	iq-1		sky9_caf_auto	SAPIQ	
TYPE					Access											
					Edit Orgar	nization Membership	, I									
Select: ALL NONE																
Systems		_			Import On	vault images										
Hyper-V VM					Manage E	xpirations										
System State					Manage W	lorkflows										
U VM					manage m											
Databases					Add To Lo	gical Group										
Db2 Database					Mark Sens	itive										

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



3. Click **Apply** or **Save Changes**. The database will be protected when the job runs according to the schedule in the template. The database appears in the Application Manager with a green shield icon, and it is protected after the first successful snapshot job.

Protecting SAP IQ Database Logs

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

1. From the SLA Architect, Templates list, right-click the template for SAP IQ database protection and click **Edit**.

actifio	Dashboar	d	Backup & Recover 🗸	Test Data Manago	ement 🗸	App Manager 🗸	SLA Architect +	Manage	Report	Monitor 🗸		
🙁 clear all filte	ers	Те	mplates									
TEMPLATE NAME	·	4 hid	e filters 🔘 Name: Iq									
DESCRIPTION	-										🗆 ѕно	W SELECTED
Search by description	1	Ξ	NAME		0	DESCRIPTION		٥	OVERRIDE			MANAGEI
OVERRIDE			IQ_LVM									Yes
			Iqdblog Edit						Yes			Yes
			Iq_dum Clone						Yes			Yes
			Edit Org	anizations					Yes			Yes

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

actifio	Dashboard	Backup & Recover 🗸	Test Data Management 🗸	App Manager	SLA Architect 🗸	Munage 🗸	Report	Monitor 🗸	
				C					
TEMPLATE*	IQ_LVM		ALLOW OVERRIDES ON	N POLICY SETTINGS?*	● YES ⊖ NO				Save Template
DESCRIPTION	Descripti	on							
								Policie Snapshot nap Schedulunc FRQUENCY TIME WINDOW REPEAT VALUE EXPIRE AFTER POLICY ID Direct to Dedup	S Windowed Everyday 19:00 to 07:00 Once per window 2 days 1157397 Edit Policy

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

a attifica a sur sur sur sur	
CIIIIO Dashboard Backup & Re	over • Test Data Management • App Manager • SLA Architect • Manage • Report Monitor •
	Production To Snapshot
	Create/Edit Policy
	POLICY NAME* snap
○ Policies	SCHEDULING Windowed
Snapshot 1	ON THESE DAYS Everyday
≂ snap	EVERATE Manager
SCHEDULING Windowed	EACEP1 NEWER
FREQUENCY Everyday	WITHIN THIS WINDOW 19:00 TO 07:00
TIME WINDOW 19:00 to 07:00	
REPEAT VALUE Once per window	RUN ONCE PER WINDOW
EXPIRE AFTER 2 days	
POLICI D TISISSI	
Edit Policy	RETAIN FOR 2 Day(s)
Direct to Dedup 0	
Direct to OnVault 0	SLA COMPLIANCE DETAILS
OnVault Replication 0	PRIORITY Modium
Dedup 0	
Dedup DR 0	Advanced Policy Settings
Mirror 0	

- 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.
 - o Set **Send Logs to OnVault Pool** to **Yes** if you want the database logs to be sent to an OnVault Pool, enabling for point-in-time recoveries from OnVault on another site.

Policy Settings	Settings Help	
TRUNCATE/PURGE LOG AFTER BACKUP	Do not truncate/purge log after backup Truncate/Purge log after backup	Reset to Defau
SKIP OFFLINE APPLICATIONS	 Fail backup when offline applications are found Skip offline applications during backup 	
MAP STAGING DISK TO ALL ESX HOSTS IN A CLUSTER	Map staging disk to ESX host for VM only Map staging disk to all ESX hosts in the cluster Map staging disk to 2 ESX hosts in the cluster	
NODE BACKUP PREFERENCE FOR SQL AVAILABILITY GROUP	Use Availability Group Backup Preferences Primary Node Secondary Node Only Prefer Secondary Node Any Node	
ALLOW MIGRATING FROM OUT-OF- BAND TO IN-BAND DATA MOVEMENT	🔘 Yes 🖲 No	
FORCE OUT-OF-BAND BACKUP	⊙ Yes ⊛ No	
BACKUP SQL SERVER USER LOGINS	© Yes ⊛ No	
ENABLE DATABASE LOG BACKUP	🖲 Yes 🔘 No	Reset to Defau
RPO (MINUTES) *	60	
LOG BACKUP RETENTION PERIOD (IN DAYS) *	3	Reset to Defau

5. Click Save Changes.

5 Restoring, Accessing, or Recovering an SAP IQ Database

This section describes:

Mount and Refresh from Block-Based Volume Snapshot to a Target Server as a Virtual Database on page 17

Restoring and Recovering an SAP IQ Database to the Source

- o Recovering from a Block-Based Volume Snapshot to the Source on page 19
- o Recovering from a File-Based Full+Incremental Backup to the Source on page 21

Restoring an SAP IQ Database to a New Target

- o Restoring from a Block-Based Volume Snapshot to a New Target on page 22
- o Restoring from a File-Based Full+Incremental Backup to a New Target on page 24

Mount and Refresh from Block-Based Volume Snapshot to a Target Server as a Virtual Database

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

1. From the App Manager Applications list, right-click the protected database and select **Access**. You can use the Managed SLA Status filter to show only protected databases.

actifio	Dashboar	ď	Backup	p & Recov	er 🗸 🛛 Tesl	t Data Manag	jement 🗸	App Manager 🗸	SLA Architec	t • Manage • I	Report Monitor -		Ŧ	💄 admin	≜ (?
 clear all filters 	Î	Ap	plic	ations	5									+ ADD API	PLICATION
APPLICATION NAME															
HOST NAME		4 hide	e filters	O SLA:	Managed	Application	Type: MaxDB								
TEMPLATE NAME		max	db			6	3						G SHOW SELECTED (2)	III 25 v	- C +
PROFILE NAME															C7 88
FRIENDLY PATH				APPLIC	ATION	0	ID	TEMPLATE 🗘	PR 0	FRIENDLY PATH 🗘	HOST NAME 🗘	APPLI 🗘	TYPE 🗘	PROTE	APPLIA
SLA STATUS	-		0	ACTDB			1587994	MYSQLLogS		maxdb-1	maxdb-1	sky9_caf	MaxDB		16847
Unmanaged	-1		Ø	DEMO	Manage	SLA		Default	LocalPr	maxdb-2	maxdb-2	sky9_caf	MaxDB	yes	16856
ТҮРЕ			Ø	XDE	Access			Fault	LocalPr	maxdb-1	maxdb-1	sky9_caf	MaxDB	yes	228032
Select: ALL NONE			Ø	MAXD	Edit Org	anization M	/lembership	Default	LocalPr	maxdb-2	maxdb-2	sky9_caf	MaxDB	yes	16857
Systems			Ø	MAXG	import C	nvauttim	ages	Default	LocalPr	maxdb-1	maxdb-1	sky9_caf	MaxDB	yes	244148
System State				- 1	Manage	Expiration									
				- 1	Manage	Workflows									
				- 1	Add To L	ogical Gro	up								
🗖 Db2 Database				- 1	Mark Cor	-									
Db2 Instance				- 1	Mark Ser	ISILIVE									
MariaDB Database								_							
MariaDB Instance	\supset														
MySQL Instance https://172.17.206.75/#sla		1	- 5 of .	5 applicat	ions				HI 4	H 1 of 1 pag	e 🕪 🕬			Manage SLA	•

2. Select a snapshot image and choose Mount.

actifio	Dashboard	Backup & Recover 🗸	Test Data Management 🗸	App Manager 🗸	SLA Architect 🗸	Manage 🗸	Report	Monitor 🗸	🝸 👤 admin 🌲 🕄
ACCESS	- 0	MYDB j-max_auto1	j-max_auto1 Details & Setting	JS					TIMELINE TABLE
Jump to: 🔳 2020-	2020 02-15								2020-03-17 13:22:55 Snapshot Image
2020-03-1 2020-03-18	17	D							NAME Image_2998306 STATUS_Available TRANSPORT SAN Based, Out-Of-Band Scorage IMAGE SZE_27.50C8 EXPIRES ON 2020-03-17 14:25.33 APPLIANCE Caf-Source RECOVERY 03-17 14:09 To 03-17 14:24
12.10	pshot	Dedup	Remote Dedup Re	mote Snapshot	OnVault				ARACE CATALOG STATE Not Applicable POOL NAME Act_per_pool000 Mount Live Clone Clone Restore

- 3. If you see a choice to select Host or VM or Container, then the appliance is attached to Kubernetes storage and the Containers feature is configured. Select **Host or VM**.
- 4. On the Mount page, from Target, choose the desired target SAP IQ server from the dropdown.
- 5. Under Application Options, enable **Create New Virtual Application**.

actifio	Dashboard	Backup & Recover 🗸	Test Data Mana	gement 🗸	App Manager 🗸	SLA Architect 🗸	Manage 🗸	Report	Monitor 🗸	T	👤 admin	A 6	
ACCESS	- 0	cand iq-auto1_105P1	iq-auto1_105P1	Details & Se	ttings								
2020 Span	+05-21_23:04:01		Mount ®	HOST OR VM	© CONTAINER								
NAME IMAGE SIZE	Image_1576212 25.30GB		TARGET*	P1 •									
EXPIRES ON APPLIANCE RECOVERY RANGE	2020-05-22 00:04 Sky10sp1 05-22 00:03 To 0	4:53 5-22 00:05	▼ Applicati	on Options	5								
More Details			CREATE N	W VIRTUAL A	PPLICATION								
			TARGET D	TABASE NAM	E *	myvirtualdt)						
	ounc		SAP IQ TAI	GET OS USER	NAME *	os-usernam	e						
			SAP IQ TAP	GET DB USER	NAME *	db-usernam	ie						
			SAP IQ TAI	GET DB PASS	WORD *								
			SAP IQ HO	ME DIRECTOR	Y *	\SAP-IQ_Di	ectory						
			MANAGE	EW APPLICAT	ION								
			TEMPLATE			auto_strea	msnap_aregsky1	13 🔻		Ĵ			
			PROFILE *			remote		•					

- 6. For a database protected with log roll-forward, choose a target point in time.
- 7. Fill in:

TARGET DATABASE NAME: The name of the target SAP IQ database SAP IQ TARGET OS USER NAME: OS user for target SAP IQ database SAP IQ TARGET DB USER NAME: dbm user for target SAP IQ SAP IQ TARGET DB PASSWORD: dbm user password for target SAP IQ SAP IQ HOME DIRECTORY: Specify the directory path of SAP IQ binaries

- 8. Manage New Application:
 - o To protect the new virtual database, enable Manage New Application.
 - o Choose a template and a resource profile to protect the database.
- 9. Under Mapping Options:
 - o Storage Pool: The image will be mounted in the Snapshot Pool unless you select one.
 - o Mount Location: specify a target mount point for the new virtual database.
- 10. Click Submit.

Restoring and Recovering an SAP IQ Database to the Source

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

Recovering from a Block-Based Volume Snapshot to the Source on page 19 Recovering from a File-Based Full+Incremental Backup to the Source on page 21

Recovering from a Block-Based Volume Snapshot to the Source

Use this procedure to restore and recover the source database from a volume-based LVM snapshot image. This procedure uses physical recovery of the source data area.

Note: System databases on a root partition backed up as LVM Snapshots can be mounted as virtual databases, but they cannot be used in a traditional Restore operation as the root partition cannot be unmounted. This will need manual restore and recovery from a simple mount back to the same host.

To recover a block-based image back to the source:

1. From the App Manager Applications list, right-click the protected database and select **Access**. You can use the Managed SLA Status filter to show only protected databases.

actifio	Dashboar	d	Backup	p & Recow	er 🗸 🛛 Test Data Ma	inagement 🗸	App Manager 🗸	SLA Architec	t • Manage • F	Report Monitor -		T	💄 admin	A 🕄
⊗ clear all filters	Î	Ap	plica	ations	5								+ ADD APP	PLICATION
APPLICATION NAME														
HOST NAME		4 hide	e filters	O SLA:	Managed O Applica	tion Type: MaxDB								
TEMPLATE NAME		max	db			0						SHOW SELECTED (2)	111 25 ¥	n +
PROFILE NAME														C7 88
FRIENDLY PATH		Ξ		APPLIC	ATION	0 ID	TEMPLATE 🗘	PR 🗘	FRIENDLY PATH 🗘	HOST NAME 🗘	APPLI 🗘	түре 🗘	PROTE	APPLIA
SLA STATUS	_	Ø	0	ACTDB	~	1587994	MYSQLLogS	LocalPr	maxdb-1	maxdb-1	sky9_caf	MaxDB	yes	16847
Managed	_		0	DEMO	Manage SLA		Default	LocalPr	maxdb-2	maxdb-2	sky9_caf	MaxDB	yes	16856
туре			٢	XDE	Access		Default	LocalPr	maxdb-1	maxdb-1	sky9_caf	MaxDB	yes	228032
Select: ALL NONE			0	MAXD	Edit Organizatio	n Membership Images	Default	LocalPr	maxdb-2	maxdb-2	sky9_caf	MaxDB	yes	16857
Hyper-V VM System State VM			Ø	MAXG	Manage Expirati Manage Workflo	ons	Default	LocalPr	maxdb-1	maxdb-1	sky9_caf	MaxDB	yes	244148
					Add To Logical C	iroup								
Db2 Database Db2 Instance				- 1	Mark Sensitive									
🗖 MariaDB Database							-							
MariaDB Instance	\supset											-		
MvSOL Instance		1	- 5 of 9	5 applicat	ions		_	144 - 4	ii 1 of 1 page	2 00 00		_	Manage SLA	

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.

actifio	Dashboard Ba	ackup & Recover ~	- Test Data Management ~	App Manager 🗸	SLA Architect 🗸	Monitor +	Manage ~	Report		
201 Sna	P-10-29 20:11:25 pshot image	Re	store	=		TAKINI .				
TRANSPORT	Image_0239146 Available SAN Based, Out-Of-Band Storage 2.00GB		Select volumes to restore	Deselect AI Volur	nes Add AE Volumes	103135	OHOSTTIME	OUSERTIME		
EXPIRES ON APPLIANCE RECOVERY RANGE CATALOG STATE POOL NAME	2019-10-31 20:37:50 Skydev1 10-29 15:02 To 10-30 10:51 None Act. per. pool000		CAPACITY 2 GB UNIQUE ID dasvol:23037 VOLUME TYPE Non-Boot TARGET vdisk:fc-5D88	I_D8Dump 4FA86100						
R	estore -						Cancel	Submit		

4. Select one or more volumes to restore and click **Submit**.

Recovering from a File-Based Full+Incremental Backup to the Source

Use this procedure to restore and recover the source database from a traditional file-based full+incremental backup image. This procedure overwrites the source data. To recover a volume-base backup with CBT, see Recovering from a Block-Based Volume Snapshot to the Source on page 19.

To recover back to the source, overwriting the source data:

1. From the App Manager Applications list, right-click the protected database and select **Access**. You can use the Managed SLA Status filter to show only protected databases.

actifio	Dashboar	d	Backup	& Recover	, т	ist Data Man	agement 🗸	App Manager 🗸	SLA Architec	t 🗸 Manage 🗸 🛛	Report Monit	or 🗸			🖌 👤 admin	≜ 0
clear all filters		Ap	plica	ations											+ ADD AP	PLICATION
APPLICATION NAME	•															
HOST NAME	•	4 hide	e filters	O SLA: M	naged	O Applicati	on Type: MaxDi	в								
TEMPLATE NAME	•	max	db				0							SHOW SELECTED (2)	111 25 •	0 1
PROFILE NAME	•						-									
FRIENDLY PATH	•	Ξ		APPLICA	ION	0	ID	TEMPLATE 🗘	PR 0	FRIENDLY PATH 🗘	HOST NAME	0	APPLI 0	ТҮРЕ	PROTE	APPLIA
SLA STATUS	_	Ø	0	ACTDB			1587994	MYSQLLogS	LocalPr	maxdb-1	maxdb-1		sky9_caf	MaxDB	yes	16847
Managed			Ø	DEMO	Manag	e SLA		Default	LocalPr	maxdb-2	maxdb-2		sky9_caf	MaxDB	yes	16856
туре			Ø	XDE	Access			Default	LocalPr	maxdb-1	maxdb-1		sky9_caf	MaxDB	yes	228032
Select: ALL NONE			Ø	MAXD	Edit Or	ganization	Membershi	PDefault	LocalPr	maxdb-2	maxdb-2		sky9_caf	MaxDB	yes	16857
Systems Hyper-V VM			Ø	MAXG	mport Manag	OnVault Ir e Expiratio	nages ns	Default	LocalPr	maxdb-1	maxdb-1		sky9_caf	MaxDB	yes	244148
System State					Manag	e Workflov	vs									
Databases				_	dd To											

2. Select a snapshot image and choose Restore.

OCTIFIO Dashboard Backup & Recover	Test Data Management 🗸 App Manager 🤟	SLA Architect + Manage	✓ Report Monitor ✓	🝸 👤 admin 🌲 🕄
ACCESS MYDB j-max_auto1	j-max_auto1 Details & Settings			TIMELINE TABLE
Jump to: 🗰 2020-03-17				2020-03-17 13:22:55 Snapshot Image
2020-03-16				NAME Image 2998306 STATUS Available TRANSPORT SAN Based, Out Of Band Storage
2020 03-18				IMAGE SIZE 27 5008 EXPIRES ON 2020 03-17 14:25:33 APPLIANCE Caf-Source RECOVERY 03-17 14:09 To 03-17 14:24 RANGE
				CATALOG STATE Not Applicable POOL NAME Act_per_pool000
12.10				Mount - Live Clone Clone
Snapshot Dedup	Remote Dedup Remote Snapshot	OnVault		Restore D
41 4	* **			Manage Expirations
Snapshot Dedup	15 DAYS	1111111	30 DAYS	Mark Sensitive

3. For a database with multiple volumes, select some or all volumes to restore.



4. Click **Submit**. This will start the source database physical recovery.

Restoring an SAP IQ Database to a New Target

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

Restoring from a Block-Based Volume Snapshot to a New Target on page 22 Restoring from a File-Based Full+Incremental Backup to a New Target on page 24

Restoring from a Block-Based Volume Snapshot to a New Target

To restore a block-based Volume Level backup image to a new target:

- 1. From the App Manager Applications list, right-click the protected database and select **Access**. You can use the Managed SLA Status filter to show only protected databases.
- 2. Select the snapshot to recover, and choose **Mount**.



3. Create a new virtual application and provide a target mount point under Mount Location, for example, /MR. The database backup will be mounted under /MR and the log backup will be mounted under /MR_archivelog.

OCTIFIO Dashboard Backup & Recover	 Test Data Management App Manager 	SLA Architect • Manage • Report Monitor •	🝸 👤 admin 🌲 😧
Access • 🗊 cand iq-auto1_105	P1 Iq-auto1_10SP1 Details & Settings		
2020-05-21 23:04:01 OnVault Image	Mount Host or VM Container	-	
NAME Image_1871813	TARGET LAB	IEL .	
IMAGE SIZE 25.30GB	iq_del_1	IR	
EXPIRES ON 2020-05-31 11:27:04 APPLIANCE Sky10xp1			
RECOVERY 05-22 00:03 To 05-22 00:05	 Application Options 		
RANGE			
POOL NAME 77local-SybaselQ-Merge- 1422490	CREATE NEW VIRTUAL APPLICATION		
OWNERSHIP Yes	TARGET DATABASE NAME *	RestoredDB	
More Details	SAP IQ TARGET OS USER NAME *	os-username	
Mount -	SAP IQ TARGET DB USER NAME *	db-username	
	SAP IQ TARGET DB PASSWORD *		
	SAP IQ HOME DIRECTORY *	\SAP-IQ_Directory	
	MANAGE NEW APPLICATION		
	 Mapping Options 		
	STORAGE POOL *	act_per_pool000 (493C 💌	
	MOUNT LOCATION	/MR	
	 Performance & Consumption Opt 	ions	
			_
		Cancel Submit	

4. Once the new application aware mount has been completed, run this script.

/act/custom_apps/sybaseiq/lvm_migrate/ACT_SYBASEIQ_lvm_migrate_newTarget.sh DATAVOL_DISK_MAPPING=<Actifio_Mount>:<Production_LVM_device> newDBNAME=<newDBNAME> DBA_USER=<DBA_USER> DBA_PASSWD=<DBA_PASSWD> JOBID=<AppAware mount JOBID> [NSTMNT_CHECK=TRUE] [PORTNO=<port_number>] [DBFILE_LOC=<new location for DB_catalog,dblog and iqmsg files>]

Arguments to the Script

DATAVOL_DISK_MAPPING = Comma separated list of <Actifio_mount_point>:<equivalent target host lvm device name>

newDBNAME = Target database name

DBA_USER = Target instance db username

DBA_PASSWD = Target instance password

JOBID = App-Aware mount Job ID

NSTMNT_CHECK = Specify TRUE to continue migration if nested mounts are involved.

PORTNO = Port number on which the target database needs to start. By default SAP IQ starts the database at random available port

DBFILE_LOC = Location for Target db catalog file, dblog and iqmsg file. By default catalog file and iqmsg files will be on same location, dblog file will create at the catalog file's locations.

Note: At the time of migration, the database should be up and running, and target lvm devices must be empty.

Example:

/act/custom_apps/sybaseiq/lvm_migrate/ACT_SYBASEIQ_lvm_migrate_newTarget.sh DATAVOL_DISK_MAPPING=/mr/iqlog:/dev/mapper/vg3-log,/mr/iqdata:/dev/mapper/vg3-data newDBNAME=MR DBA_USER=act DBA_PASSWD=passwd JOBID=Job_123456 NSTMNT_CHECK=TRUE PORTNO=2700 DBFILE_LOC=/home/sybaseiq/chdb

5. From AGM, unmount the mounted snapshot image.



Restoring from a File-Based Full+Incremental Backup to a New Target

To restore a traditional File-Based full+incremental backup image to a new target:

1. From the App Manager Applications list, right-click the protected database and select **Access**. You can use the Managed SLA Status filter to show only protected databases.



2. Select the latest snapshot to recover, and choose Mount.

3. Provide a target mount point under mount location, for example: /iqmnh. The database backup will be mounted under /iqmnh and the log backup will be mounted under /iqmnh_archivelog.

OCTIFIO Dashboard Backup & Reco	ver 🗸 🛛 Test Data Management 🖌 🗛 App Ma	nager - SLA Architect - Ma	anage 🗸 Report Monitor 🗸	🍸 👤 admin 🌲 😧
ACCESS V ACTOB maxdb-	1 maxdb-1 Details & Settings			TIMELINE TABLE
CODE 2019-11-25 23:22:19 Snapshot Image	Mount			
NAME Image_0432417 STATUS Available TRANSPORT SAN Based, out Of Band Storage IMAGE SIZE 27.50CB EXPIRES ON 2019-117-26 052423 APPLIANCE Sky9_caf_auto RECOVERY 11-26 00:11 To 11-26 00:12 RANGE CATALOG STATE Not Applicable POOL NAME Act_per_pool000 Mount •	Application Options Application Options CREATE NEW VIRTUAL APPLICATH ROLL FORWARD TIME TARGET DATABASE NAME * MAXOB TARGET OB USER NAME * MAXOB TARGET DB USER NAME * MAXOB TARGET DB PASSWORD * MANAGE NEW APPLICATION	DN	● (00.12.57)	ε
	Mapping Options storace pool* MOUNT LOCATION	act_per_pool000 /dmpRstNew	Cancel Submit	

- 4. Create a directory structure at the mount point identical to the one at the source.
- Log into the database server as root. On the server, change the directory to /act/custom_apps/sybaseiq/dump:
 - # cd /act/custom_apps/sybaseiq/dump
- 6. On the target, from command line (as root), run the script ACT_SYBASEIQ_dumprestore_newTarget.sh with arguments:

/ACT_SYBASEIQ_dumprestore_newTarget.sh OSUSER=sybaseiq TARGET_MNT=/bkp/iqmnh SRC_DB_DBA_USER=act SRC_DB_DBA_PWD=passwd SYBIQ_HOME=/home/sybaseiq VERSION=IQ-16_1 ACT_NAME=cand CATALOG_DB_FILE=/data1/cand/cand.db LOG_BKP_MNTPT=/bkp/iqmnh_archivelog

Note: CATALOG_DB_FILE=/data1/cand/cand.db Here cand.db: cand is the database name.

Arguments to the Script:

OSUSER = <SYBASE IQ OSUSER name> ACT_NAME=<SYBASE IQ Source Database name> TARGET_MNT = <Mount point specified during mount> LOG_BKP_MNTPT= <Archive Log backup mount point name> SYBIQ_HOME=<SYBASE IQ Home Location > SRC_DB_DBA_USER=<Utility Database user name> SRC_DB_DBA_PWD= <Utility Database password > VERSION=<SYBASE IQ Home version > CATALOG_DB_FILE = <Catalog database file location >

7. Connect to the IQ Database and confirm databases are recovered and online.

dbisql -c "uid=<username>;pwd=<password>;eng=<engine name>;dbn=<database name>;"
-nogui

8. Unmount the mounted dump snapshot image.

