Restoring Copy Data with the Application Manager

actifio

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Preface

This guide provides general step-by-step instructions on how to restore protected application and VM data with the Actifio Application Manager.

It assumes you have read **Getting Started with Actifio Copy Data Management**, are familiar with the components of the Actifio Desktop, and have a grasp of the basic concepts associated with an Actifio appliance.

Application specific processes and procedures for Microsoft SQL Server, Oracle, and VMware VMs can be found in their respective guides:

- **An Oracle DBA's Guide to Actifio Copy Data Management**
- **An SQL Server DBA's Guide to Actifio Copy Data Management**
- **A VMware Administrator's Guide to Actifio Copy Data Management**

Actifio Appliances

Unless otherwise specified, all features and functions described in this document apply to all Actifio appliances.

The ActifioNOW Customer Portal

During the configuration and initialization of your Actifio appliance your Actifio representative provided you with a user name and password for the ActifioNOW customer portal.

From the ActifioNOW customer portal you can obtain detailed reports about your Actifio appliance, access the Actifio product documentation, including release notes, and search the 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 Restoring Copy Data

This chapter provides an overview of the components and options of the Application Manager that pertain to the restoration of application and VM data:

It assumes that you have read the **Getting Started with Actifio Copy Data Management** guide and are familiar with the basic concepts and options associated with the Application Manager service.

> **Note:** *Do not confuse the Restore operation with the other operations that can be used to access application and VM data.*
>
> *The Restore operation overwrites data and should be used with caution. Other data access methods such as Mounting, Application Aware mounts, Clones, and LiveClones are described in* **Accessing and Recovering Copy Data with the Application Manager***.*

Across the top of the Application manager are a series of tabs. The tabs are context sensitive. They appear only when they provide a valid action or information for the selected application. For example:

The Application Manager Tabs

When restoring application and VM data, you will use the Application Manager's Restore tab:

For detailed information on the:

- Other data access operations performed in the **Restore** tab see, **Accessing and Recovering Copy Data with the Application Manager**

- **Protect** tab, see **Virtualizing and Protecting Copy Data with the Application Manager**

- **Policies** tab, see **Virtualizing and Protecting Copy Data with the Application Manager**

- The **Replication** tab, see **Replicating Data Using Actifio Appliances**

- The **Workflow** tab, see **Creating Automated Workflows for SQL Server Databases** and **Creating Automated Workflows for Oracle Databases**

These documents are all available in the Actifio Documentation Library.

> **Note:** *The* **Orgs** *tab is used to identify which organizations include an application as a member. Organization membership is described in* **Getting Started with Actifio Copy Data Management***.*

Notes on the Restore Operation

Restore operations:

- Cannot be performed from a remote appliance. *However,* you can restore a remote-dedup image on the source appliance.

- Can only be performed only by users with the Restore Manage right assigned in their Actifio user role. User roles are detailed in **Setting Up Users and Roles With the Domain Manager**.

In-Band vs Out-of-Band

The Actifio appliance restores in-band and out-of-band applications in different ways. In all cases, the image replaces the identical original production data. In some cases, new data created after the image was taken may be protected from being overwritten.

| In-band applications	Restoring replaces the production application data with the backup image. This results in the loss of application data since the time when the backup image was created. This operation cannot be undone.
	Note: *In-Band storage is provided only by Actifio CDS appliances. It is not applicable to Actifio Sky appliances.*
Out-of-band applications	Restoring replaces the production application data to the time of the backup with the backup image. New data created and unmodified since the backup image was taken remains untouched. This operation cannot be undone.

Restoring an Image, General Procedure

Before You Begin

Restoring from a dedup image requires space in your snapshot pool for rehydration. The space required is equal to the full Backup Size of your application as shown in the application information in the Actifio Desktop. If you need to add a new snapshot pool see Adding Snapshot Pools in ***Configuring Resources and Settings With the Domain Manager***.

Restoring an Application

To restore an application from an image:

1. Open the Actifio Desktop to the **Application Manager**.

2. Disable protection to prevent a new backup job from starting during the restore job. To disable protection for an application, select it and then set **Run Schedule** to **No** in the application SLA Options.
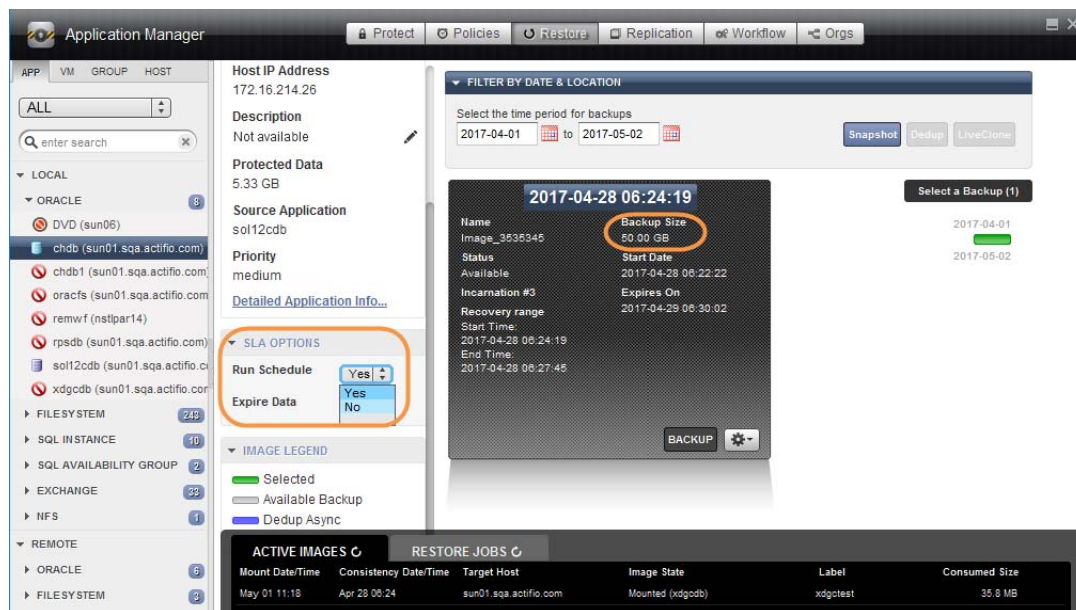
Disabling Application Protection

3. In the navigation pane, select APP or VM and set the filter to **Protected**.

4. Select the image to restore and click the **Restore** tab.

5. If the image that you need is not shown in the graphic list on the right (because it is from an earlier date), then use the calendar tool at the top of the screen to include the period that has the desired image.

6. Select the image type by clicking on the corresponding Snapshot or Dedup button.

7. Select the backup image to restore from the list on the right. The selected image icon turns green and detailed information about it is displayed in the image box at the center of the display.

8. From the pull-down menu, select **Restore**. The Restore Job window is displayed.

Restoring an Image
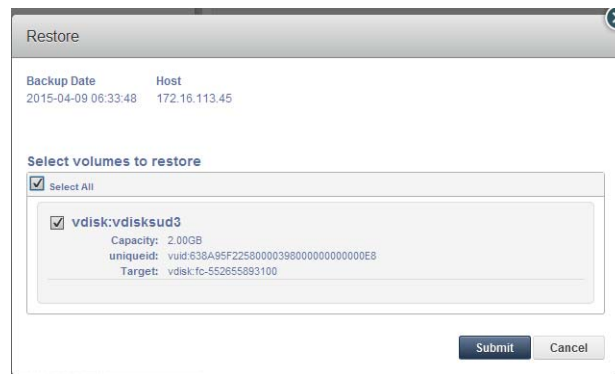
A Sample Restore Job Screen

9. The Restore Job window always shows the backup date and the host that will get the restored application or VM, and asks for a single volume or multiple volumes to restore. By default all volumes are selected. For databases and VMs, there are additional options.

10. Click **Submit**. A warning dialog appears. Read it and then enter **DATA LOSS** to confirm.

11. Click **Start Restore**. The image is restored.

Note: *When you restore an image, the SLA options (Run Schedule, Expire Data) of the protected application are turned off.*

Restoring Applications to Windows Mount Points without Using Any Drive Letters

The following procedure requires familiarity with the Actifio CLI. For details see the **Actifio CLI Reference** in the Actifio Documentation Library.

When mounting to a Windows host, you can specify a mount point without specifying a drive letter:

e.g. D:\hostname\dbrestore

    D:\hostname\dbrestore_1

    D:\hostname\dbrestore_2

    D:\hostname\dbrestore_3

But the Actifio appliance will automatically also assign a drive letter to each mount point.

Windows allows up to 26 drive letters. If you are concerned about running out of drive letters, you may wish to use only mount points, and prohibit the use of drive letters.

To get around this, set the config parameter `truepathdefaultdriveletter` parameter to 0. When this parameter is set to zero, if you have only specified a mount point then the Actifio Connector will not assign a drive letter to those mounted volumes.

If you do not provide either a mount point or a drive letter, the Actifio Connector will still assign any available drive letter, even if the `truepathdefaultdriveletter` config parameter is set to 0.

The default value for this parameter is 1 (which means by default the Actifio Connector will assign a drive letter AND a mount point).

To confirm the value of the parameter use this CLI command:

`udsinfo getparameter | grep truepathdefaultdriveletter`

The response will be either:

`truepathdefaultdriveletter 0`

or

`truepathdefaultdriveletter 1`

To set the parameter off use this command:

`udstask setparameter -param truepathdefaultdriveletter -value 0`

To turn the parameter back on, use this command:

`udstask setparameter -param truepathdefaultdriveletter -value 1`

2 Restoring File Systems

You can restore a file system to its original host or to a replacement host at the same IP address, overwriting the existing file system.

Restoring always involves risk of data loss. The Actifio appliance offers other options for recovering data. Before committing to a restore operation, please read Chapter 1, Restoring Copy Data.

This chapter contains:

Before You Begin

Restoring from a dedup image requires space in your snapshot pool for rehydration. The space required is equal to the full Backup Size of your application as shown in the application information in the Actifio Desktop. If you need to add a new snapshot pool see Adding Snapshot Pools in **Configuring Resources and Settings With the Domain Manager**.

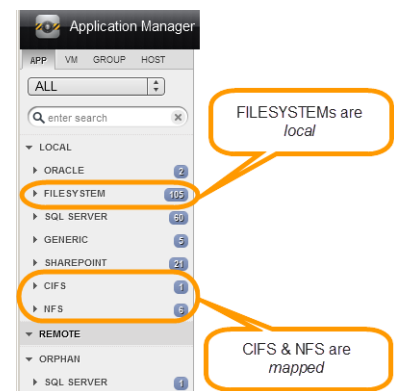**A Note About File Systems**

Actifio appliances refer to:

- Local File Systems as FILESYSTEM
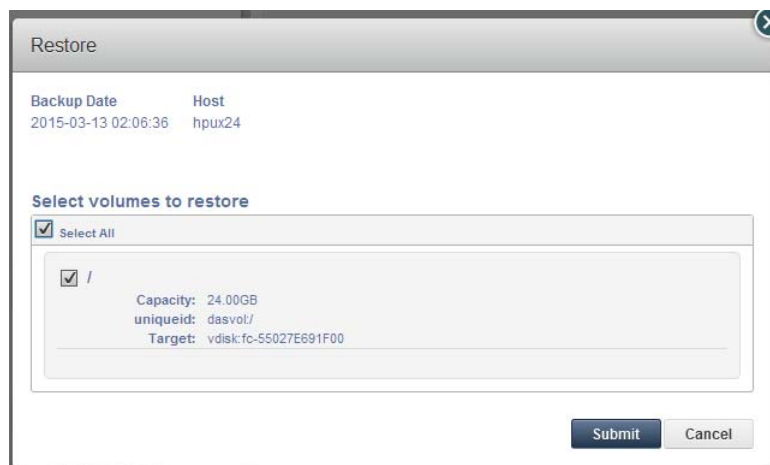
- Mapped File Systems as NFS and CIFS.

Restoring a Local File System

This procedure is for restoring local file systems. To restore mapped NFS file systems, see Restoring a Mapped NFS File System on page 8. To restore mapped CIFS file systems see Restoring a Mapped CIFS File System on page 9.

To restore a local file system:

1. Open the Actifio Desktop to the **Application Manager**.

2. In the navigation pane, select **APP** and set the filter to **Protected**.

3. Under **Filesystem**, select the file system to restore and click the **Restore** tab.

4. In the application details under SLA Options, set **Run Schedule** to **No**. This is to prevent a new protection job from starting.

5. Select the image type by clicking on the corresponding Snapshot or Dedup button.

6. If the image that you need is not shown in the graphic list on the right (because it is from an earlier date), then use the calendar tool at the top of the screen to include the period that has the desired image.

7. Select the backup image to restore from the graphical list on the right. The selected image icon turns green and detailed information about it is displayed in the image box at the center of the display.

8. From the pull-down menu, select **Restore**. The Restore Job window is displayed.

Restoring a Local File System

9. Select a single volume or multiple volumes to restore. By default all the volumes are selected.

10. Click **Submit**. A warning dialog appears. Read it and then enter **DATA LOSS** to confirm.

11. Click **Start Restore**. The image is restored.

Note: When you restore an image, the SLA options (Run Schedule, Expire Data) of the protected application are turned off.

Restoring a Mapped NFS File System

This procedure is for restoring mapped NFS file systems. To restore mapped CIFS file systems, see Restoring a Mapped CIFS File System on page 9, and to restore local file systems see Restoring a Local File System on page 7.

To restore a mapped NFS file system:

1. Open the Actifio Desktop to the **Application Manager**.

2. In the navigation pane, select APP and set the filter to **Protected**.

3. Under **NFS**, select the mapped NFS file system to restore and click the **Restore** tab.

4. In the application details under SLA Options, set **Run Schedule** to **No**. This is to prevent a new protection job from starting.

5. Select the image type by clicking on the corresponding Snapshot or Dedup button.

6. If the image that you need is not shown in the graphic list on the right (because it is from an earlier date), then use the calendar tool at the top of the screen to include the period that has the desired image.

7. Select the backup image to restore from the graphical list on the right. The selected image icon turns green and detailed information about it is displayed in the image box at the center of the display.

8. From the pull-down menu, select **Restore**. The Restore Job window is displayed.

Restoring a Mapped File System

9. Select a single volume or multiple volumes to restore. By default all the volumes are selected.

10. Click **Submit**. A warning dialog appears. Read it and then enter **DATA LOSS** to confirm.

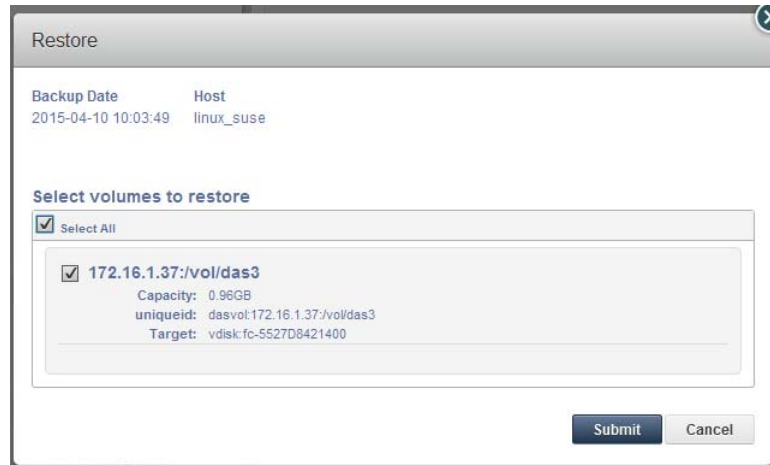11. Click **Start Restore**. The image is restored.

Note: When you restore an image, the SLA options (Run Schedule, Expire Data) of the protected application are turned off.
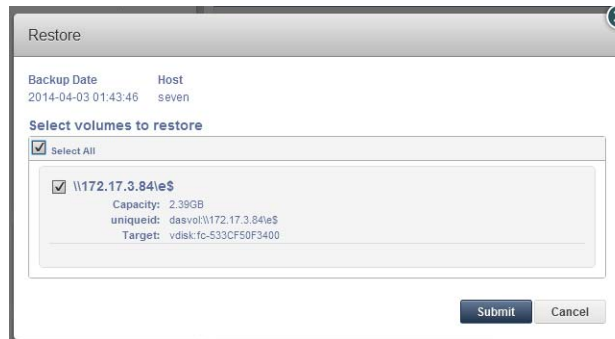

Restoring a Mapped CIFS File System

This procedure is for restoring mapped CIFS file systems. To restore mapped NFS file systems, see Restoring a Mapped NFS File System on page 8, and to restore local file systems see Restoring a Local File System on page 7.

To restore a CIFS share image:

1. Open the Actifio Desktop to the **Application Manager**.

2. In the navigation pane, select **APP** and set the filter to **Protected**.

3. From the navigation pane, under **CIFS**, select the mapped file system to restore and click the **Restore** tab.

4. In the application details under SLA Options, set **Run Schedule** to **No**. This is to prevent a new protection job from starting.

5. Select the image type by clicking on the corresponding Snapshot or Dedup button.

6. If the image that you need is not shown in the graphic list on the right (because it is from an earlier date), then use the calendar tool at the top of the screen to include the period that has the desired image.

7. Select the backup image to restore from the graphical list on the right. The selected image icon turns green and detailed information about it is displayed in the image box at the center of the display.

8. From the pull-down menu, select **Restore**. The Restore Job window appears.

9. Select a single volume or multiple volumes to restore. By default all the volumes are selected.

10. Click **Submit**. A warning dialog appears. Read it and then enter **DATA LOSS** to confirm.

11. Click **Start Restore**. The image is restored.

Note: *When you restore an image, the SLA options (Run Schedule, Expire Data) of the protected application are turned off.*

Restoring a CIFS File System

Note: *If you need a different username/password to access the CIFS share during restore than was used during backup (perhaps you had to change the password between the backup and restore), you can update the application's Advanced Settings to add a new username/password.*

3 Restoring Microsoft Exchange Databases

You can restore an Exchange database to its original host. Restoring always involves risk of data loss. The Actifio appliance offers other options for recovering data. Before committing to a restore operation, please read Chapter 1, Restoring Copy Data.

Notes on Restoring Exchange Mailbox Databases

- Restoring from a dedup image requires space in your snapshot pool for rehydration. The space required is equal to the full Backup Size of your application as shown in the application information in the Actifio Desktop. If you need to add a new snapshot pool see Adding Snapshot Pools in **Configuring Resources and Settings With the Domain Manager**.

- Make sure the database that is being restored is online. If the database is offline, the restore operation will fail.

- Use this procedure to restore Exchange databases only. If an entire Exchange node goes down, rebuild it using Microsoft standard practices and then mount a database snapshot as described in **Accessing and Recovering Copy Data with the Application Manager** and copy the needed files into Exchange.

- When the Actifio appliance restores Exchange mailbox databases in an Exchange DAG configuration, the Actifio appliance targets the active Exchange database. It dismounts the active copy, restores it, then remounts the restored database. The passive database will be reseeded from the active database.

- Do not restore the server if you have copies of multiple mailbox databases on a single in-band volume. This may result in unintentional data loss as contents of entire volume get overwritten during restore of the in-band volume. Instead mount an image to the database server and restore individual files as described in **Accessing and Recovering Copy Data with the Application Manager**.

Restoring a Microsoft Exchange Database

To restore a Microsoft Exchange database:

1. Open the Actifio Desktop to the **Application Manager**.

2. In the navigation pane, select the Microsoft Exchange database to restore and click the **Restore** tab.

3. In the application details under SLA Options, set **Run Schedule** to **No**. This is to prevent a new protection job from starting.

4. Select the image type by clicking on the corresponding Snapshot or Dedup button.

5. If the image that you need is not shown in the graphic list on the right (because it is from an earlier date), then use the calendar tool at the top of the screen to include the period that has the desired image.

6. Select the image to restore from the graphical list on the right. The selected image icon turns green and detailed information about it is displayed in the image box at the center of the display.

7.   From the pull-down menu, select **Restore**. The Restore Job window is displayed.
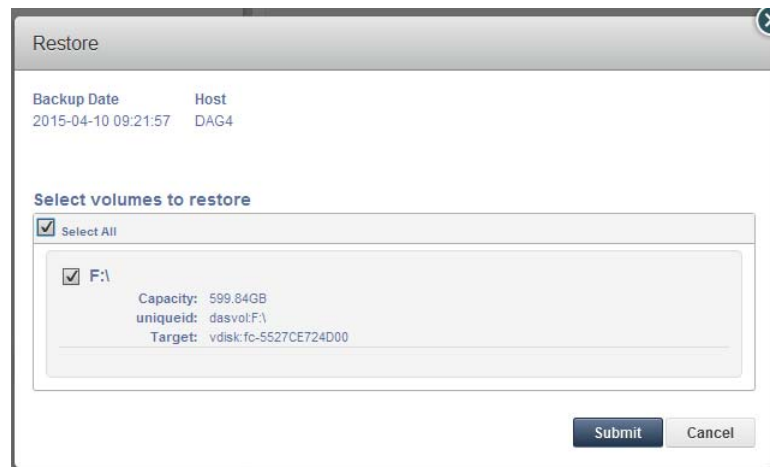
Restoring a Microsoft Exchange Database

8.   Select a single volume or multiple volumes to restore. By default all the volumes are selected.

9.   Click **Submit**. A warning dialog appears. Read it and then enter **DATA LOSS** to confirm.

10.   Click **Start Restore**. The image is restored.

Note: When you restore an image, the protected application's SLA options (Run Schedule, Expire Data) are turned off.

4 Restoring Generic Applications

Note: Generic applications are only available in-band on storage managed by an Actifio CDS appliance. Sky appliances do not support generic applications.

You can restore a generic application to its original host or to a replacement host at the same IP address, overwriting the existing file system. Restoring always involves risk of data loss. The Actifio appliance offers other options for recovering data. Before committing to a restore operation, please read Chapter 1, Restoring Copy Data.
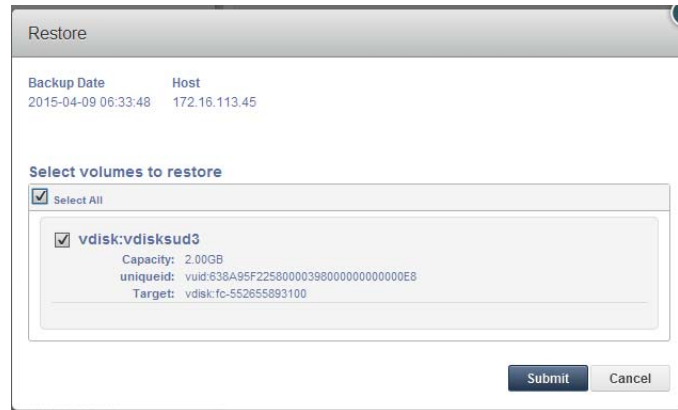
Before You Begin

Restoring from a dedup image requires space in your snapshot pool for rehydration. The space required is equal to the full Backup Size of your application as shown in the application information in the Actifio Desktop. If you need to add a new snapshot pool see Adding Snapshot Pools in **Configuring Resources and Settings With the Domain Manager**.

Restoring a Generic Application

To restore a generic application:

1. Open the Actifio Desktop to the **Application Manager**.

2. In the navigation pane, select **APP** and set the filter to **Protected**.

3. Under **Generic**, select the generic application to restore and click the **Restore** tab.

4. In the application details under SLA Options, set **Run Schedule** to **No** to prevent a new protection job from starting.

5. Select the image type by clicking the corresponding Snapshot or Dedup button.

6. If the image that you need is not shown in the graphic list on the right (because it is from an earlier date), then use the calendar tool at the top of the screen to include the period that has the desired image.

7. Select the image to restore from the graphical list on the right. The selected image icon turns green and detailed information about it is displayed in the image box at the center of the display.

8. From the pull-down menu, select **Restore**. The Restore Job window is displayed.

Restoring a Local File System

9.   Select a single volume or multiple volumes to restore. By default all the volumes are selected.

10.   Click **Submit**. A warning dialog appears. Read it and then enter **DATA LOSS** to confirm.

11.   Click **Start Restore**. The image is restored.

5 Restoring a Consistency Group that Contains No Databases

Consistency groups that include databases use the database restore options. To restore a consistency group that includes a database, see *An SQL Server DBA's Guide to Actifio Copy Data Management* or *An Oracle DBA's Guide to Actifio Copy Data Management*.

Before You Begin

Restoring from a dedup image requires space in your snapshot pool for rehydration. The space required is equal to the full Backup Size of your application as shown in the application information in the Actifio Desktop. If you need to add a new snapshot pool see Adding Snapshot Pools in *Configuring Resources and Settings With the Domain Manager*.

Restoring a Consistency Group

To restore a consistency group that contains no databases:

1. Open the Actifio Desktop to the **Application Manager**.

2. In the navigation pane, select GROUP and set the filter to **Protected**.

3. Under **CONSISTENCY**, select the consistency group to restore and click the **Restore** tab.

4. In the application details under SLA Options, set **Run Schedule** to **No**. This is to prevent a new protection job from starting.

5. Select the image type by clicking on the corresponding Snapshot or Dedup button.

6. If the image that you need is not shown in the graphic list on the right (because it is from an earlier date), then use the calendar tool at the top of the screen to include the period that has the desired image.

7. Select the image to restore from the graphical list on the right. The selected image icon turns green and detailed information about it is displayed in the image box at the center of the display.

8. From the pull-down menu, select **Restore**. The Restore Job window is displayed.

Restoring a Consistency Group with No Databases

9. Select a single volume or multiple volumes to restore. By default all the volumes are selected.

10. Click **Submit**. A warning dialog appears. Read it and then enter **DATA LOSS** to confirm.

11. Click **Start Restore**. The image is restored.

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