Creating Automated Workflows for Oracle Databases



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Preface

This guide provides an overview of Actifio Workflows and how to use Actifio services to create a Workflow. This guide 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.

Your Actifio appliance's Documentation Library contains detailed, step-by-step, application-specific instructions on how to protect and access your data. Each guide is in PDF format and may be viewed, downloaded, and printed on demand. The following guides will be of particular interest:

- Setting Up Users and Roles With the Domain Manager
- Configuring Resources and Settings With the Domain Manager
- Connecting Hosts to Actifio Appliances
- Planning and Developing Service Level Agreements
- Virtualizing and Protecting Copy Data with the Application Manager
- Accessing and Recovering Copy Data with the Application Manager
- Replicating Data Using Actific Appliances

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 Actific appliance your Actific representative provided you with a user name and password for the Actific NOW 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 Introduction to Provisioning Environments With Workflows

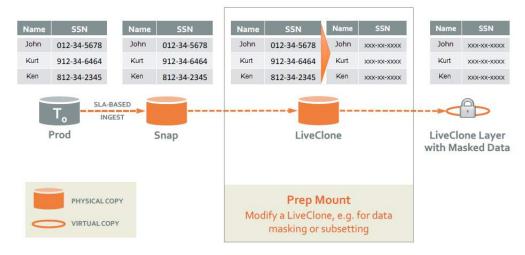
While Actifio SLA Policy Templates govern the automated capture of production data, Actifio Workflows automate access to captured data. Workflows can run according to a schedule or on demand.

Workflows are built with captured production data. Workflows can present the captured data as a LiveClone, a virtual application, or as just the application data.

For those applications that contain sensitive data, a Workflow can include a step that creates a LiveClone and then automatically runs a script to mask the sensitive data.

The LiveClone with the masked data can then be mounted as a virtual application or the LiveClone's data to provision a work environment. For example, the following figure illustrates a Workflow that:

- Captures production data that contains Social Security numbers.
- Prep-mounts the captured data as a LiveClone so a script can scrub the Social Security numbers from the data.
- Mounts the scrubbed LiveClone as a virtual application via an Application Aware mount.
- Flags the scrubbed virtual application as non-sensitive.



Once a Workflow completes, users can access the server on which the virtual application has been mounted and use the data as needed. Access to the data is controlled by the server on which the data is mounted.

This chapter provides an overview of Actifio Workflows, including:

- Workflow Uses on page 2
- Workflow Benefits on page 4
- Capturing Data for Workflows on page 5
- Workflow Data Access Methods on page 6

Workflow Uses

Some of the more common uses for Workflows include:

Provisioning Work Environments

Teams such as test and development can take advantage of a Workflow's ability to present captured production data as a virtual application. When production data contains sensitive information, the data can be scrubbed prior to making it available to users.

The ability to limit access to specific features and functions allows users to provision and re-provision their environments without putting production data at risk and without the assistance of database administrators or system administrators.

Users who have access to a virtual application provisioned by a Workflow can also capture that virtual application. The new application can be worked on and tested separately from the regularly updated data provided by the Workflow. For example, by peeling off the data as a new application, tests such as user acceptance tests can be performed on the new application. Tested applications can be updated and retested until they are ready for release.

A test and development Workflow could consist of:

- 1. Defining a schedule for updating the LiveClone with the latest production data. Scheduled Workflows can also be run on demand.
- 2. Generating a new, or updating an existing LiveClone from a selected production image that is marked as sensitive.
- 3. Employing scripts to scrub the LiveClone of sensitive data.
- 4. Marking the scrubbed application data as non-sensitive.
- 5. Mounting the scrubbed image as a virtual application (Application Aware Mount) to a specified host.
- 6. Capturing the scrubbed virtual application as a new application.

For an example of this type of Workflow, see LiveClone Workflow: Scrubbed Virtual Application on page 14.

Reporting

To analyze and report on production data without interfering with the production environment, you can define a Workflow that generates a virtual application and then executes a script that analyzes and reports on the virtual application. Once the report is generated, the mounted data can be unmounted and deleted.

A reporting Workflow could consist of:

- 1. Mounting data as a virtual application
- 2. Executing a script that analyzes the virtual application and outputs the results in a format that can be read by a third party reporting tool.
- 3. When the script is complete, unmounting and deleting the mounted image.

For an example of this type of Workflow, see Direct Mount Workflow: Virtual Application on page 25.

Data Warehousing

Teams can automate data warehousing, especially when data must be extracted, transformed, and loaded (ETL). A data warehousing Workflow could consist of:

- 1. Mounting data as a virtual application.
- 2. Executing a script that extracts, transforms, and loads the data.
- 3. When ETL is complete, unmounting and deleting the mounted image.

For an example of this type of Workflow, see Direct Mount Workflow: Virtual Application on page 25.

Copying to Removable Media

Workflows can automate copying selected data to a removable media such as tape for long-term retention. A Workflow that makes application data available for copying to removable media could consist of:

- Mounting just the application data.
- Executing a script that will initiate a third party application to copy the data to removable media.
- When the copy is complete, unmounting and deleting the mounted image.

For an example of this type of Workflow, see Direct Mount Workflow: Application Data on page 29.

Workflow Benefits

The Actific appliance allows you to capture production data via a schedule or on demand. Once the data is captured it can be used in a Workflow to provision work environments.

With Actifio Workflows:

- Work environments can be updated with production data as soon as new data is available without having to wait days or even weeks for a DBA or system administrator to do the provisioning.
- Work environments can be updated on a predefined schedule or on demand.
- User Acceptance Testing (UAT) is streamlined. Actific can provision virtual applications (virtual copies of production applications) in UAT environments using the same protocols and environments that exist in production.
- DBAs and system administrators are freed from constantly provisioning and refreshing work environments.
- Users can quickly and efficiently reproduce and address issues using the latest production data in a secure, isolated environment.
- Software updates can be applied and tested, using the latest production data before being released in to a production environment.
- Multiple teams can work in parallel and instantly access their own copy or virtual copy of production data.

Actifio Workflows take provisioning one step further by providing the ability to scrub images of sensitive data. This ability allows users to self-provision their environments with virtual applications of production data while at the same time maintaining data security.

Capturing Data for Workflows

Workflows are made up of captured application data. Data captured for other purposes can be used by an Actifio Workflow. If you are capturing data specifically for Workflow purposes, the capture operation is no different than capturing data for other purposes. From the Actifio Desktop:

- 1. Add servers that host application data.
- 2. Discover applications on the added servers.
- 3. Define Actific Policy Templates and Resource Profiles (SLAs) according to your RPOs and RTOs.
- 4. Apply Actifio Policy Templates and Resource Profiles to applications.

For details on capturing application data, see *Virtualizing and Protecting Copy Data with the Application Manager*.

Workflow Data Access Methods

Workflows present captured data as Application Aware Mounts, LiveClones, or Standard Mounts.

Application Aware Mount

The Actifio Application Aware mount function provides instant access to an application as a virtual application without actually moving data. Applications can be mounted on any application server. If the application is a database, and its logs have been captured, you can use the logs to roll the database forward to a desired point in time. Application Aware mounts are performed from the Actifio appliance and do not require manual intervention by application, database, server, or storage administrators.

Once an Application Aware Mount finishes, the virtual application can be captured like any other application. This capability is particularly useful when a problem is encountered with a virtual application. Users can roll back their copy of the virtual application to a point where the issue does not exist, while other users troubleshoot the problematic version.

LiveClone

A LiveClone is an independent copy of an application that can be refreshed on a schedule or on demand. A LiveClone can be scrubbed for sensitive data before being made available to users. This allows teams such as development and test to use production quality data without exposing sensitive data and interfering with the production environment. LiveClones are updated on demand or according to a schedule defined in the Workflow.

Direct Mount

Direct mounts present only an application's data. Direct mounts are updated on demand or according to a schedule defined in the Workflow.

2 Workflow Access Control

Actifio appliances come with a predefined Actifio Admin user. The Actifio Admin is a super user who has full control of and access to all features, functions, and resources of an Actifio appliance.

The Admin User can create users with various degrees of access.

When creating Workflows the Admin User must consider which users will have access to Workflows and what access those users will have to an Actifio appliance's:

- Features
- Functions
- Managed data including access to sensitive data.

This chapter consists of the following topics:

- Configuring Roles, Organizations, and Users on page 8
- Example Role for Limited Workflow Access on page 9
- Example Organization for Limited Workflow Access on page 10
- Example User for Limited Workflow Access on page 11

Configuring Roles, Organizations, and Users

Ultimately the users created and their degree of access to an Actifio appliance and the data it captures are driven by your corporate policies and the needs of your organizations. This section describes one of the more common approaches to creating users and assigning them the roles and organizations needed to run and view Workflows.

Although any user can be granted privileges to create and run a Workflow, team leaders are often tasked with running Workflows on demand and provisioning the work environment for their team. Team leaders typically are not the users who create Workflows, but are often responsible for running Workflows.

Giving team leaders the ability to run Workflows on demand frees DBAs and system administrators from having to update work environments.

A Workflow's on-demand capabilities allow team leaders to update their environments with refreshed production data as needed. For example, if a Workflow is scheduled to run every Sunday night, a team leader can run a Workflow on demand on a Wednesday and update the work environment with the latest production data.

Note: You can run a scheduled Workflow on-demand at any time. You cannot convert an on-demand Workflow to a scheduled Workflow after it has been created.

To create an Actifio user who has just enough access to an Actifio appliance to run Workflows and to provision their environment with the latest Actifio Workflow updates, you can create:

- A role that has the necessary privileges to log in to the Actifio appliance, access the Application Manager, manage mounts, run Workflows, and view the status of a Workflow's progress.
- An organization that limits the user to Workflow data captured from specified application servers and if necessary, specific applications.
- A user who may or may not have access to sensitive data, and is assigned to an appropriate role and organization.

New roles, organizations, and users are created in the Domain Manager service. They are created by clicking the service menu icon on the bottom left-hand side of the Domain Manager service:

| ROLES | DISK USAGE | | IRESHOLD M arning | 0% | 100% |
|-------------------------------|----------------|----------|----------------------|----|------|
| A Henry | | | | | 80% |
| New Organization | Free S | 2.32GB | fe Mode | 0% | 100% |
| New User | Capacity 5 | 8.43GB | ste htope | 0% | |
| New Role | | | | | 90% |
| Hew Host | - DEDUP POOL | | | | |
|) Join Appliance | + ACT_DED_POOL | .000 | | | |
| Certificale Exchange | DISKUSAGE | THRESHOL | MONITOR | | |
| Upload Certificate | Lised (| | 0% | | 100% |
| Download Certificate | | | | | 88% |
| L A SALE THE REAL PROPERTY OF | Free | 6 | | | 00% |
| Archive Job History | Capacity (| 6 | | | |
| Upload System Update | | | | | |
| C Delete | | | | | |

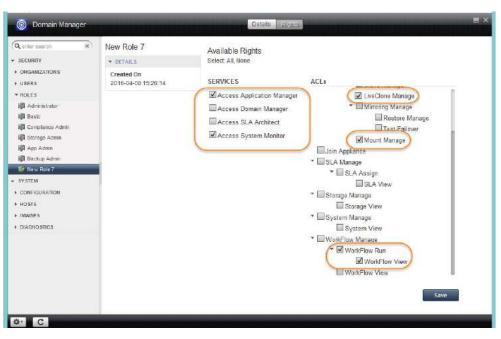
Details on creating new roles, organizations, and users can be found in the *Setting Up Users and Roles With the Domain Manager* guide.

Use the following examples as a quick reference for creating users who do not have access to sensitive data, and are assigned roles and organizations in such a way that they can only use an Actifio appliance to provision their work environment.

Example Role for Limited Workflow Access

The following screen capture is an example of a user role that limits a user to accessing an Actifio appliance's Application Manager, Manage LiveClones, Manage Mounts, and to view and run Workflows. It also allows that user to monitor the progress of a Workflow via the Actifio System Monitor. A single role can be assigned to multiple users.

Note: Because a LiveClone in a LiveClone Workflow typically contains sensitive information, users assigned a role with Manage LiveClone rights must also have access to sensitive data. See Example User for Limited Workflow Access on page 11.



Example Role for Limited Workflow Access

Example Organization for Limited Workflow Access

The following screen capture is an example of an organization that limits a Workflow user to specific application servers. If necessary, the organization could limit a Workflow user to specific applications on the servers. A single organization can be assigned to multiple users.

| o Domain Manager | Details Currie inja | | E × |
|---|--|----------------|------|
| Q enter search X | Ownership and or remove objects below | | |
| SECURITY ORGANIZATIONS | All Templates Profiles Users Hests Ange Pools Groupe | | |
| Organization_2 | Select: All, None | Q enter search | × |
| PUBLIC | 🗹 🗃 172 17 136 138 | | |
| ► ROLES | ☑ ■ 172.17.137.30 | | |
| SYSTEM CONFIGURATION | □ | | |
| + HOSTS | | | |
| IMAGES DIAGNOSTICS | WIN-E2BKSVMA5PJ | | |
| | I I I I I I I I I I I I I I I I I I I | | |
| | asmracnode2 | | |
| | 🗔 🛢 asmracnode3 | | |
| | dbagproxynode | | |
| | | | |
| | | | Save |
| | | | |
| \$- C | | | |

Example Organization for Limited Workflow Access

Example User for Limited Workflow Access

The following screen capture is an example of a new user who does not have access to sensitive data.

Note: Such users do not have access to sensitive data in a Workflow even if their assigned organizations contain sensitive data.

Roles and Organizations are assigned to a user by clicking the tabs at the top of the page. A single user can be assigned multiple roles and multiple organizations.

Note: Because a LiveClone in a LiveClone Workflow typically contains sensitive information, users assigned a role with Manage LiveClone rights must also have access to sensitive data. See Example Role for Limited Workflow Access on page 9.

| Q anter search X | newuser2 | Login | Username* | |
|--|-----------------------------------|-------------------|----------------------|------------------|
| SECURITY | - DETAILS | Logui | newuser2 | |
| + ORGANIZATIONS | Created On 2016-03-30 11:13:23 | | Password | Confirm Password |
| 1 admin 1 newusar2 | CLI Access Not Authenticated | Name | First | Last |
| FROLES | | Contact | Email | 1 |
| CONFIGURATION HOSTS | | Location | Time Zone EST5EDT | |
| ▶ IMAGES ▶ DUAGNOSTICS | | Access to sensiti | | |
| Hew Organization Hew User Hew Role Hew Host | | Notes | Comments | |
| ③ Join Appliance Ø Certificate Exchange ♦ Upload Certificate ♦ Download Certificate | | | | Save |
| Download Contrate Archive Job History Dipload System Update | | | | |
| Opioad system update X Belete | | | | |

Example User for Limited Workflow Access

3 Defining Workflows

Workflows are defined in the Actific Application Manager. Workflows use captured production data as the source data from which they generate:

LiveClones: LiveClones are typically used in Workflows when an application contains sensitive data which must be scrubbed before it is mounted and made available to users. The application data can be mounted with a standard mount as just the data, as a virtual application, or as both the data and as a virtual application. Updates to the LiveClone, scrubbing, and mounting can be done automatically via a schedule or on demand.

Direct Mounts: Direct Mounts are used when application data does not need to be scrubbed before it is mounted and made available to users. The application data can be mounted with a standard mount as just the data, as a virtual application, or as both the data and as a virtual application. Direct mounts make captured data available almost instantly without actually moving data.

Note: Workflows consist of a number of options. Not specifying an option will allow a user to specify that option when running the Workflow on demand.

This chapter provides step-by-step examples for defining a:

- LiveClone Workflow: Scrubbed Virtual Application on page 14
- LiveClone Workflow: Scrubbed Application Data on page 20
- Direct Mount Workflow: Virtual Application on page 25
- Direct Mount Workflow: Application Data on page 29

LiveClone Workflow: Scrubbed Virtual Application

LiveClone Workflows are typically used when the production data to be used contains sensitive information. The LiveClone Workflow allows you to define a LiveClone from production data and then scrub the LiveClone's data before mounting it.

In the following example, a Workflow is defined that:

- Generates a new, or updates an existing LiveClone from a selected production image that is marked as sensitive.
- Defines a schedule for updating the LiveClone with the latest production data. Scheduled Workflows can also be run on demand.

Note: You can run a Scheduled Workflow on-demand at any time. You cannot convert an On-Demand Workflow to a Scheduled Workflow after it has been created.

- Employs scripts to scrub the LiveClone of sensitive data.
- Marks the scrubbed virtual application as non-sensitive.
- Mounts the scrubbed image as a virtual application (Application Aware Mount) to a specified host.

Users with the proper access rights can run this Workflow as described in LiveClone Run Now: New Scrubbed Virtual Application on page 34 and LiveClone Run Now: Re-Provisioning a Scrubbed Virtual Application on page 37.

To define this Workflow:

- 1. Open the Actifio Application Manager.
- 2. In the Navigation pane, select the application to be scrubbed of its sensitive data.
- 3. Click the **Workflow** tab and the Workflow Settings page is displayed:

Note: If the application already has a Workflow, click the Add button.

| Application Manager | 🔒 Protect 🦁 Policies 🕴 Restree 🖾 Replication 🔤 Workgrow < Orgs |
|---|--|
| APP VM GROUP HOST | |
| ALL (\$) | |
| | |
| (Q enter search (X) | Images LiveClone Mount |
| + LOCAL | Images LiveClone Mount |
| * ORACLE | |
| STESTOB (WIN-E2BKSVWA5PJ | Workflow Settings |
| S chidb (dbsgproxynode) | A service of the serv |
| S cmpdb (dbagproxynode) | Name your workflow and then select workflow type by clicking "LiveClone" Or "Direct Mount" button below. |
| S fsdb (dbagproxynode) | Workflow Name* Myl beCloneOracleVirtualApd |
| machdom (dbagproxynode) maskdb (dbagproxynode) | Workflow Name*: MyL/veCloneOracleVirtualApp |
| pompel (lava.dev.actific.com) | |
| Sadb (WIN-E2BKSVIAA5R/) | |
| 🚺 swdb (dbsgproxynode) | |
| Stendt (WIN-E2BKSVMASPJ) | |
| S xddb (WIN-E2BKSVIIASPJ) | |
| FILESYSTEM | |
| * SQL INSTANCE | |
| * ORPHAN | |
| F ORACLE | |
| | |
| | Use LiveClone OR Direct Mount Done Cancel |
| | USE LYCLIDIE ON DIRECT HOUR LONG CURLEN |
| Non- | |
| ¢- C | |

New Workflow Settings Page

4. Specify a name for the Workflow and click **Use LiveClone** and the LiveClone Settings page is displayed:

| Application Manager APP VM OROUP HOST ALL | Protect O Poll Workflow Name: MyLlveCloneOracleVirtualAp p Im | ectes O Restore Replication of yourday & Orgs |
|---|---|---|
| TESTDB (WIN-E2BKSVVASPU Cdbb (dbagproxynode) emptb (dbagproxynode) frak (dbagproxynode) mastdb (dbagproxynode) mastdb (dbagproxynode) mastdb (dbagproxynode) sedb (WIN-E2BKSVIASPU) sedb (WIN-E2BKSVIASPU) vda (dbagproxynAsPU) | Schedule * Ma Source Image Le LiveClone Label* Ora | Scheduled On Demand onthly = on 1 = at 09.50 S test from 4 hour snep = cleDBWF c.per_pool000 (55.70GB) = Mark data non-sensitive |
| Widdb (WIN-E28KSVMASPJ) FILESYSTEM SQL INSTANCE | Host Mount Drive | dbagproxynode |
| ORPHANI + ORACLE | Mount Point Preferred diskgroup name | (Previous Next) Done Cancel |

LiveClone Settings Options

5. For Schedule Type, select either **Scheduled** or **On Demand**. Scheduled Workflows can also be run on demand.

Note: You can run a Scheduled Workflow on-demand at any time. You cannot convert an On-Demand Workflow to a Scheduled Workflow after it has been created.

- 6. If you selected **Scheduled**, define a schedule to run the Workflow. The time selector uses a 24-hour clock.
- 7. For **Source Image**, select the latest snapshot image from the policy that produces the image to scrub.

Note: If you selected On Demand, the user running the Workflow can select the source snapshot image at run time.

- 8. Give the LiveClone a label to make it easily identifiable.
- Select the Snapshot Pool in which the LiveClone will reside. Ensure enough storage space is allocated to accommodate the LiveClone. See *Configuring Resources and Settings with the Domain Manager* for details on configuring Snapshot Pools.

Check **Mount for pre-processing** and the following screen provides the opportunity to mount the LiveClone to a host and then scrub the mounted image for sensitive data:

| Application Manager | a Protect Ø Polic | cles 🖸 Restore 🔲 Replication 🔗 <u>Wonsteins</u> 📽 Orgs |
|---|-------------------------------|--|
| PF VM DROUP HOST ALL ALL | | ages EliveClone |
| TESTDB (WIN-E2BKSVWA5PJ Citidb (dbagproxynode) | | a i secon estavita |
| Codo (dbagproxynode) empdb (dbagproxynode) fedb (dbagproxynode) | Mount for pre-processing | lect a Diskpool 👻 |
| S mactdom (dbagproxynode) | Host | dbagproxynode * |
| maskdb (dbagproxynode) ompei (lava dev.actific.com) | Mount Drive | |
| State (WN-E2BKSVWA5PJ) | Mount Point | |
| swdb (dbsgproxyrode) | Preferred diskgroup name | |
| S xddb (WIN-E28KSVWA5FJ) | RAC node list | (7) |
| FILE SY STEM (1) SQL INSTANCE (2) | (Provide at least one script) | |
| ORPHAII | Pre-Script | Timeout sec 🕥 |
| ORACLE | Post-Script | Timeout sec 🕤 |
| | Perform application aware | mount |
| | | {Previous Next} Done Cancel |

LiveClone Mount for Pre-Processing Options

Note: You may have to scroll down to see all options.

- 10. The **Mark data as non-sensitive** option only appears if the selected application is marked as containing sensitive data. Check this option if the application will not contain sensitive data after scrubbing. This will allow users who do not have access to sensitive data to access the Workflow and provision their work environments. See Example User for Limited Workflow Access on page 11 for details.
- 11. Select a host on which the LiveClone will be mounted.
- 12. Add a **Mount Point** if you want the image mounted to a location other than the default. If you do not specify a mount point, then the Actific Connector will assign a mount location.
- 13. Enter a Preferred diskgroup name as needed.
- 14. Enter a **RAC node list** as needed in a comma separated list of IP addresses.
- 15. Specify a **Pre Script** as needed. The pre script is used to configure the environment prior to mounting or unmounting an application. This script must reside in a folder named /act/scripts on the server that will host the mounted image. See Workflow Pre and Post Scripts on page 47for scripting details.
- 16. Specify a **Post Script** as needed. The post script in this example will be used to scrub the application of sensitive information after it has been mounted. This script must reside in a folder named /act/scripts on the server that will host the mounted image. See Workflow Pre and Post Scripts on page 47 for scripting details.
- 17. Specify timeouts long enough for the scripts to complete.
- 18. Check Perform application aware mount and the following application specific options appear:

| Application Manager | a Protect Ø Policies | O Restore 🔲 Replication | of Vonitional +2 Orgs |
|---|---|-------------------------|-----------------------|
| PF UN GROUP HOST ALL : Action search (R) LOCAL P GRACLE () | Workflow Name: MyLlveCloneOracleVintualAp p Images | EiveClone | Mount |
| TESTDB (WIN-E2BKSVWA5PJ Glidb (dbsgproxynode) | Perform application aware mount | | |
| (dbegproxynode) | Target Database SID* | | |
| fsdb (dbagproxynode) mactdom (dbagproxynode) | User Name* | | 0 |
| S maskdb (dbagproxynode) pompei (lava.dev.actific.com) | Password | | 1 |
| Sedb (WN-E2BKSVNA5PJ) | Oracle Home Directory* | | |
| Standb (WIN-E28KSVI/(A5RJ) | TNS ADMIN Directory path* | | (?) |
| FILESYSTEM | Database Memory Size In MB | | 0 |
| • SQL INSTANCE | SGA % | | 0 |
| ORACLE | REDO Size | | |
| | TNS Listener IP | (| (?) |
| | | ≰ P revi | ous Next) Done Cancel |

LiveClone Application Specific Options

- 19. In the spaces provided, enter the Oracle related options. Click the question mark **?** next to an option for help text on that option.
- 20. Scroll down to view the remainder of the options

| Desktop | | | | | | | |
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| swdb (dbagproxynode) tendb (VIN-E2BKSVIA5PJ) xddb (VIN-E2BKSVIA5PJ) | TNS Listener port | | [| | ? | 05 | |
| FILESYSTEM SQL INSTANCE | Restore with Re | | | | | | |
| → ORPHAN ▶ ORACLE ② | Environment variab | | | | | | |
| | | | | ¢ Previ | ious Nox | Done | Cancel |

LiveClone Application Specific Options (Continued)

21. Check **Restore with Recovery.** Doing so leaves the database in a state where if logs are available they can be applied to bring the database to a specific point in time.

- 22. Click **Done** and the Workflow will run as scheduled. Users with proper access can run this Workflow on demand and provision and re-provision any server to which they have access with the virtual application.
- 23. Click **Next** and the Mount Settings options are displayed. Use these options to limit what a user running this Workflow on demand can specify.

| Desktop | |
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| Application Manager | 🌢 Protect 🤨 Policies 🙂 Restore 💭 Restication et Voustorie 🛫 Orgs |
| ALL 2 Q enter search X | Workflow Name: MyLkeCloneOracleVitualAp P |
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| Sado (WIN-E2BKSVMA5RJ) | asmracnode1 O |
| 🧃 swdb (dbagproxynode) | asmracnode2 O |
| V tendb (WIN-E2BKSVMA5PJ) | Mount Mode OvRDM OpRDM |
| Vir Stern (WN-E2BKSVNASPI) | Mount Drive |
| * SQL INSTANCE | Mount Point |
| ORPHAN ORACLE | Preferred diskgroup name |
| - OUNCLE | RAC node list |
| | |
| | (Previous Nexd.) Done Cancel |

LiveClone Mount Settings

- 24. Specify a **Mount label** to make the mount easily identifiable.
- 25. Click the green + icon next to a server name to specify a server on which the virtual application will be automatically mounted. Once set, users running the Workflow will not be able to specify another server.
- 26. Specify a **Mount Point** as needed. Once specified, users running the Workflow will not be able to specify these mount settings.
- 27. Pre Script in this example is a script used to prepare the environment prior to mounting the final, scrubbed virtual application. Do not confuse this script with the script you specified to scrub data. This script must reside in a folder named /act/scripts on the server that will host the mounted image. See Workflow Pre and Post Scripts on page 47 for scripting details.
- 28. Post Script in this example is a script used to act on the virtual application after it has been scrubbed and mounted. Do not confuse this script with the script you specified to scrub data. This script must reside in a folder named /act/scripts on the server that will host the mounted image. See Workflow Pre and Post Scripts on page 47 for scripting details.
- 29. Specify script timeouts long enough for the script(s) to complete.
- 30. Enter a Preferred diskgroup name as needed.
- 31. Enter a **RAC node list** as needed in a comma separated list of IP addresses.

Note: Scripts are usually used along with the Remove mounted image after processing option.

| PP VM SROUP HOST ALL : A enter search X | Workflow Namo: MyLlveCioneOracleVintualAp p | ages LiveClone |
|---|---|-----------------------------|
| TESTOB (WW-E28KSVWASPJ | Party address when the | |
| S citidb (dbagproxynode) | alaska dev.actifio.com | 0 |
| Sempdb (dbagproxynode) | asmracnode1 | 0 |
| 🔕 fsdb (dbagproxynode) | asmracnode2 | 0 |
| S macidium (dbagbroxynoide) | Mount Mode | ⊙ vRDM ⊙ pRDM |
| S maakdb (dbagproxyneda) pompei (lava dev actific com) | Mount Drive | |
| Sado (WN-E28KSVI/A5FI) | Mount Point | |
| swdb (dbagproxynode) | Preferred diskgroup name | |
| 🚫 xddb (WIN-E2BKSVIIA5PJ) | RAC node list | (?) |
| FILE SYSTEM | Pre-Script | Timeout Sec @ |
| ORPHAN | Post-Script | Timeout sec (?) |
| ORACLE 2 | Perform application aware | mount |
| | Remove mounted image a | (Previous Nort) Done Cancel |

LiveClone Mount Settings (Continued)

Note: You may have to scroll down to see all options.

- 32. Specify whether to protect the virtual application defined by this Workflow as a new application.
- 33. **Remove mounted image after processing.** This is typically checked when you employ a script to process mounted data. Once the script finishes its task this option will unmount and delete the virtual application.See Reporting on page 2, Data Warehousing on page 3, and Copying to Removable Media on page 3.
- 34. Click **Done** and the Workflow will run as scheduled. Users with proper access can run this Workflow on demand and provision and re-provision the server as specified in this section.

LiveClone Workflow: Scrubbed Application Data

LiveClone Workflows are typically used when the production data to be used contains sensitive information. The LiveClone Workflow allows you to define a LiveClone from production data and then scrub the LiveClone's data before mounting it.

In the following example, a Workflow is defined that:

- Generates a new, or updates an existing LiveClone from a selected production image that is marked as sensitive.
- Defines a schedule for updating the LiveClone with the latest production data. Scheduled Workflows can also be run on demand.
- Employs scripts to scrub the LiveClone of sensitive data.
- Marks the mounted, scrubbed data as non-sensitive.
- Mounts the scrubbed data (standard mount) to a specified host.

Users with the proper access rights can run this Workflow as described in LiveClone Run Now: Scrubbed Application Data on page 40.

To define this Workflow:

- 1. Open the Actifio Application Manager.
- 2. In the Navigation pane, select the application to be scrubbed of its sensitive data.
- 3. Click the **Workflow** tab and the Workflow Settings page is displayed:

Note: If the application already has a Workflow, click the **Add** button.

| Desktop | |
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| Application Manager | a Protect O Policies O Restore O Replication of workshow Corps |
| xPF VM DROUP HOST ALL Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constraint of the search Image: Constant of the search | Workflow Settings Name your workflow and then select workflow type by clicking "LweClone" Or "Direct Mount" button below. |
| S maskibi (dbagaroxynode) Maskibi (dbagaroxynode) maskibi (dbagaroxynode) S maskibi (dbagaroxynode) S sedb (VIN-E2B(SVIIA5P)) | Workflow Name*: MyLheCloneOracleVirtualApp |
| ORACLE | Use LiveClone OR Direct Mount Dono Cancel |

New Workflow Settings Page

4. Specify a name for the Workflow and click **Use LiveClone** and the LiveClone Settings page is displayed:

| Application Manager | à Protect Ø Policies Ø Restore Ø Replication of <u>Volumina</u> ⊂ Orgs |
|---|--|
| PP VM GROUP HOST ALL 2 Q enter search 8 LOCAL Y ORACLE 3 | Workflow Name: MyLiveCloneOracleViitualAp p Images LiveClone Mount |
| TESTDB (WRFE2BKSVMASPJ) Cháb (dhagproxynode) empdb (dbagproxynode) frab (dbagproxynode) frab (dbagproxynode) mactdbin (dbagproxynode) machab (dbagproxynode) parpel (dava dev actite com) sade (VRFE2BKSVMASPJ) tendb (YMFE2BKSVMASPJ) | LiveClone Settings Schedule Type* Schedule ① On Demand Schedule * Monthly = on 1 = at 09:50 S Source Image Latest from 4 hour snap = LiveClone Label* OracleDBWF Diskpool* act_per_paol000 (55.70GB) = Mount for pre-processing Mark data non-sensitive |
| xddb (WN-E2BKSVMA5PJ) FILESYSTEM SQL INSTANCE | Host dbagproxynode v Mount Drive |
| ORPHAN ORACLE | Mount Point Preferred diskgroup name DAC node list CPrevious Next3 Done Cancel |

LiveClone Settings Options

- 5. For Schedule Type, select either **Scheduled** or **On Demand**. Scheduled Workflows can also be run on demand.
- 6. If you selected **Scheduled**, define a schedule to run the Workflow. The time selector uses a 24-hour clock.
- 7. For **Source Image**, select the latest snapshot image from the policy that produces the image to scrub.

Note: If you selected On Demand, the user running the Workflow can select the source snapshot image at run time.

- 8. Give the LiveClone a label to make it easily identifiable.
- Select the Snapshot Pool in which the LiveClone will reside. Ensure enough storage space is allocated to accommodate the LiveClone. See *Configuring Resources and Settings with the Domain Manager* for details on configuring Snapshot Pools.
- 10. Check **Mount for pre-processing** and the following screen provides the opportunity to mount the LiveClone to a host and then scrub the mounted image for sensitive data.

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|---|--|---|
| PP VM GROUP HOST ALL 2 Q enter search X LOCAL + ORACLE (1) | | inges Q Q Q Mount |
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| chidb (dbagproxynode) condb (dbagproxynode) fisdb (dbagproxynode) | Diskpool* se ✓ Mount for pre-processing | elect a Diskpool ~ |
| () macldom (dbagproxynode) | Host | dbagproxynode * |
| S maskdb (dbagproxynode) | Mount Drive | |
| Sedo (WIN-E2BKSVMA5RJ) | Mount Point | |
| swdb (dbagproxynode) | Preferred diskgroup name | |
| 🚫 xddb (WN-E28KSVNASPJ) | RAC node list | (2) |
| FILESYSTEM | (Provide at least one script) | |
| ORPHAN | Pre-Script | Timeout sec. 🔊 |
| ORACLE 2 | Post-Script |] Timeout [] sec 💿 |
| | Perform application aware | e mount {Previous Next} Done Cancel |

LiveClone Mount for Pre-Processing Options

Note: You may have to scroll down to see all options.

- 11. The **Mark data as non-sensitive** option only appears if the selected application is marked as containing sensitive data. Check this option if the application will not contain sensitive data after scrubbing. This will allow users who do not have access to sensitive data to access the Workflow and provision their work environments. See Example User for Limited Workflow Access on page 11 for details.
- 12. Select a host on which the LiveClone will be mounted.
- 13. Add a **Mount Point** if you want the image mounted to a location other than the default. If you do not specify a mount point, then the Actific Connector will assign a mount location.
- 14. Enter a Preferred diskgroup name as needed.
- 15. Enter a **RAC node list** as needed in a comma separated list of IP addresses.
- 16. Specify a **Pre Script** as needed. The pre script is used to configure the environment prior to mounting or unmounting an application. This script must reside in a folder named /act/scripts on the server that will host the mounted image. See Workflow Pre and Post Scripts on page 47 for scripting details.
- 17. Specify a **Post Script** as needed. The post script in this example used to scrub the application of sensitive information after it has been mounted. This script must reside in a folder named /act/scripts on the server that will host the mounted image. See Workflow Pre and Post Scripts on page 47 for scripting details.
- 18. Specify timeouts long enough for the scripts to complete.
- Click **Done** and the Workflow will run as scheduled. Users with proper access can run this Workflow on demand and provision and re-provision any server to which they have access with the application data.
- 20. Click **Next** and the Mount Settings options are displayed. Use these options to limit what a user running this Workflow on demand can specify.

| Application Manager Appl VM GROUP HOST ALL | Protect © Polit Workflow Name: MyLiveCloneOracleVirtualAp P | 9 😜 | EiveClone | Kouletoue < 0 | <u>g</u> s | |
|--|---|---------|------------------|---------------|------------|-----|
| ORACLE ORACLE ORACLE TESTDB (WIN-E2BKSVMASH) Chidb (dbagproxynode) empdb (dbagproxynode) fisdb (dbagproxynode) | Mount Settings Mount Label | [| | | | |
| Station (dbagproxynode) | Hosts | Add All | (1) Selected Hos | 3 | Remove All | |
| S msskdb (dbagproxynode) | WIN-E28KSVMA5PJ | 01 | UT-Win2K8-SQL | | 0 | |
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| Sadb (WIN-E2BKSVI/ASPJ) | asmracnode1 | 0 | | | | |
| 🚦 swdb (dbagproxynode) | asmracnode2 | 0 | | | | |
| Viendb (WIN-E2BKSVMA5PJ) | Mount Mode | | | | | |
| VAdb (WIN-E2BKSVNASPI) | Mount Drive | [| 1 | 1 | | Т. |
| * SQL INSTANCE | Mount Point | ľ. | | 1 | | |
| ORPHAN ORACLE | Preferred diskgroup name | [| | | | |
| | RAC node list | ť. | | 0 | | |
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| | | | themous | INCH 17 | Can | Jei |

LiveClone Mount Settings

- 21. Specify a **Mount label** to make the mount easily identifiable.
- 22. Click the green + icon next to serve names to specify the servers on which the application data will be automatically mounted. Users running the Workflow will be able to specify additional servers.
- 23. Specify a **Mount Point** as needed. Once specified, users running the Workflow will not be able to specify these mount settings.
- 24. Enter a **Preferred diskgroup name** as needed.
- 25. Enter a **RAC node list** as needed in a comma separated list of IP addresses.

| Application Manager | à Protect Ø Policies O Restore Ø Replication of Wolfdeine ⊂ Orgs |
|---|--|
| ALL 2 Q, enter search (x) LOCAL | Workflow Name: MyLlveCloneOracleVirtualAp p Images |
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| fedb (dbagproxynode) mactdom (dbagproxynode) | |
| maskdb (dbagproxynode) | Mount Mode O vRDM O pRDM |
| pompei (lava dev actifio com) | Mount Drive |
| S ssdb (WN-E28KSVNA5PJ) | Mount Point |
| swdb (dbagproxynode) | Proferred diskgroup name |
| Q xddb (WN-E2BKSVIIA5PJ) | RAC node list |
| | |
| * SQL INSTANCE | Pre-Script Timeout sec (?) |
| ORPHAN | Post-Script Timeout Sec (7) |
| ORACLE | Perform application aware mount |
| | |
| | Remove mounted image after processing (?) |
| | (Previous Rest) Done Cancel |

LiveClone Mount Settings (Continued)

Note: You may have to scroll down to see all options.

- 26. **Pre Script** in this example is a script used to prepare the environment prior to mounting or unmounting the final, scrubbed virtual application. Do not confuse this script with the script you specified to scrub data. This script must reside in a folder named /act/scripts on the server that will host the mounted image. See Workflow Pre and Post Scripts on page 47 for scripting details.
- 27. **Post Script** in this example is a script used to act on the virtual application after it has been scrubbed and mounted or unmounted. Do not confuse this script with the script you specified to scrub data. This script must reside in a folder named /act/scripts on the server that will host the mounted image. See Workflow Pre and Post Scripts on page 47 for scripting details.
- 28. Specify script timeouts long enough for the script(s) to complete.

Note: Scripts are usually used along with the Remove mounted image after processing option.

- 29. **Remove mounted image after processing.** This is typically checked when you employ a script to process mounted data. Once the script finishes its task this option will unmount and delete the virtual application. See Reporting on page 2, Data Warehousing on page 3, and Copying to Removable Media on page 3.
- 30. Click **Done** and the Workflow will run as scheduled. Users with proper access can run this Workflow on demand and provision and re-provision the servers to which they have access as specified in this section.

Direct Mount Workflow: Virtual Application

Direct Mount Workflows are used when the application image involved does not contain sensitive data. This allows the Workflow to mount an application's data as a virtual application or as just application data without first having to define a LiveClone and then scrub the LiveClone. Direct Mounts make application data and virtual applications available almost instantly.

In the following example, a Workflow is defined that:

- Generates new, or updates a virtual application from a single selected production image.
- Defines a schedule for updating the virtual application with the latest production data. Scheduled Workflows can also be run on demand.
- Mounts the data as a virtual application. A virtual application can be used and captured like any other application.
- Captures the mounted virtual application as a new application.

Users with the proper access rights can run this Workflow as described in Direct Mount Run Now: Virtual Application on page 42.

To define this Workflow:

- 1. Open the Actifio Application Manager.
- 2. In the Navigation pane, select the application to be scrubbed of its sensitive data.
- 3. Click the **Workflow** tab and the Workflow Settings page is displayed:

If the selected application already has a Workflow, click Add and the Workflow Settings page is displayed:

| Desktop | |
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| Application Manager | A Protect O Rolicies O Restore O Replication of Workford C Orgs |
| APP VM GROUP HOST | |
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| + LOCAL | Images LiveClone Mount |
| * ORACLE | |
| © TESTD8 (WH-E2BKSVMASR: cbdb (dlagproxynode) © cmdb (dlagproxynode) © fadb (dlagproxynode) © fadb (dlagproxynode) © macidlan (dlagproxynode) © macidlan (dlagproxynode) © macidlan (dlagproxynode) © macidlan (dlagproxynode) © sado (twr.E2BKSVMASPI) © sado (twr.E2BKSVMASPI) © sado (twr.E2BKSVMASPI) © sado (twr.E2BKSVMASPI) © sado (twr.E2BKSVMASPI) © sado (twr.E2BKSVMASPI) © sado (twr.E2BKSVMASPI) | Workflow Settings Name your workflow and then select workflow type by clicking "LiveClone" Dr "Direct Mount" button below Workflow Name*: |
| * SQL IN STANCE | |
| T ORPHAN | |
| + ORACLE | Use LiveClone OR Direct Mount Done Cancel |
| \$- C | |

New Workflow Settings Page

4. In the Workflow Settings page, specify a name for the Workflow and click **Direct Mount** and the Mount Settings page is displayed:

| Application Manager | a Protect Ø Pol | icles O Restore I | Replication of V | enation < 0 | rgs | |
|---|---|-------------------|--------------------|-------------|------------|--------|
| APP VM GROUP HOGT ALL Q enter search COCAL CORACLE 3 | Workflow Name: MyOracleDirectMount | agos U | LiveCione | Mount | | |
| TESTDB (WN-E2BKSVWASP) Chidb (dbagproxynode) empdb (dbagproxynode) fob (dbagproxynode) | Mount Settings Schedule Type* Mount Label | ⊙ Scheduled ⊃ C | Dn Demand | | | -[|
| S mactdom (dbagproxynode) maakdb (dbagproxynode) | Hosts | Add All | (1) Selected Hosts | 1 | Remove All | |
| pompel (Isva dev actric com) sadb (VVN-E2BKSVMASPJ) swdb (dbagproxynode) tendb (V/N-E2BKSV/MASPJ) | WIN-E28KSVMA5PJ alaska.dev.actifio.com asmracnode1 asmracnode2 | 0 | UT-Win2K8-SQL | | 0 | |
| xddb (WIN-E2BKSVMA5PJ) FILE SYSTEM | Mount Mode | | | | | 4 |
| * SQL INSTANCE | Mount Drive | | | | | |
| ORPHAN | Mount Point | | | | | |
| F ORACLE | Preferred diskgroup name | | | | | |
| | | | (Previous | Nox13 | Done | Cancel |

Mount Settings Options

- 5. For Schedule Type, select **Scheduled**. Scheduled Workflows can also be run on demand.
- 6. In **Schedule**, define a schedule to run the Workflow. The time selector uses a 24-hour clock.
- 7. For **Source Image**, select the latest snapshot image from the policy that produces the image to scrub.
- 8. Give the mount a label to make it easily identifiable.
- 9. In the **Hosts** section, click the green + icon to select the servers on which the data will be mounted. This ensures data will be mounted to those servers when the Workflow runs. The user who runs the Workflow will be given the option of mounting the data to other servers as needed.
- 10. For Mount Mode, select a pRDM mount.
- 11. Add a **Mount Point** as needed if you want the image mounted to a location other than the default. If you do not specify a mount option, then the Actific Connector will choose a mount location.

| Application Manager | Protect © Policies © Restore © Replication • Workhow € Orgs | |
|--|--|--|
| PF VM GROUP HOST ALL () Q enter search (X) LOCAL Y ORACLE () | Workflow Name: MyOracleDirectMount Imnges Or Cone | |
| TESTDB (WIN-E2BKSV/MA5PJ) | | |
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| () smpdb (dbsgproxynode) | asmracnode1 O | |
| S fadb (dbagproxynode) | asmracnode2 O | |
| S mscldbm (dbagproxynode) | Mount Mode @vRDM @pRDM | |
| S maskdb (dbagproxynode) S pompei (lava dev actific.com) | Mount Drive | |
| Sadb (WIN-E2BKSVMA5PJ) | Mount Point | |
| swdb (dbagproxynode) | Preferred diskgroup name | |
| 🚫 xddb (WIN-E2BKSVMA5PJ) | RAC node list | |
| FILESYSTEM (1) | Pre-Script Timeout sec (7) | |
| ORPHAN | Post-Script Sec (?) | |
| F ORACLE | Perform application aware mount | |
| | Remove mounted image after processing (?) (Previous Next) Done Cancel | |
| | A SAMARA SAMARA CONCERNING | |

Mount Settings Options (Continued)

Note: You may have to scroll down to see all options.

- 12. Enter a Preferred diskgroup name as needed.
- 13. Enter a **RAC node list** as needed in a comma separated list of IP addresses.
- 14. Specify a **Pre Script** as needed. The pre script is used to configure the environment prior to mounting or unmounting an application. This script must reside in a folder named /act/scripts on the server that will host the mounted image. See Workflow Pre and Post Scripts on page 47 for scripting details.
- 15. Specify a **Post Script** as needed. The post script is used to perform an operation on the data after it is mounted or unmounted, for example, initiating a copy to tape operation for long-term storage. This script must reside in a folder named /act/scripts on the server that will host the mounted image. See Workflow Pre and Post Scripts on page 47 for scripting details.
- 16. If you specified scripts, specify timeouts long enough for the scripts to complete.
- 17. Check **Perform application aware mount** and the application specific options to perform an application aware mount are displayed.

Note: The **Remove mounted image after processing** option disappears when you select **Perform application aware mount.** The **Remove mounted image after processing** option is typically used with pre and/or post scripts. It unmounts the image from target server, and deletes it after the script(s) finish. This option is typically used when scripts perform operations on the mounted data. See Reporting on page 2, Data Warehousing on page 3, and Copying to Removable Media on page 3.

| Application Manager | a Protect C | 9 Policies | U Restore | Replication | of Won | | Drgs | |
|--|---|------------|-----------|-------------|--------|-------|------|--------|
| VM GROUP HOST ALL ALL | Workflow Name: MyOracleDirectMount | Images | • | LiveClone | 0 | Mount | | |
| TESTDB (WN-E2BKSVWA5PJ chidb (dbagproxynode) empdb (dbagproxynode) | Perform application a Target Database SID* | ware mount | | | |]? | | |
| 🔞 fedb (dbagproxynode) 🛇 mactdibm (dbagproxynode) | User Name* | | | | | ? | | |
| maskób (doagproxynode) pompei (lava dev achfo.com) | Password | | (| | 0 | | | |
| ssdb (WIN-E2BKSVIA5PJ) | Oracle Home Directory | r | [| | | 0 | | |
| tendb (WIN-E2BKSVI(A5PJ) xddb (WIN-E2BKSVI(A5PJ) | TNS ADMIN Directory p | oath* | [| | | 0 | | |
| FILE SYSTEM | Database Memory Size | e in MB | (| | | 0 | | |
| SQL INSTANCE | SGA % | | [| | | 0 | | |
| ORACLE | REDO Size | | (| | | 0 | | |
| | TNS Listener IP | | | | | 0 | | 6 |
| | | | | (Pre | vious | Nexta | Done | Cancel |

Application Aware Mount Options

- 18. In the spaces provided, enter the Oracle related options. Click the question mark **?** next to an option for help text on that option.
- 19. Scroll down to view the remainder of the options.

| Desktop | | | | | | | | |
|---|---------------------------------------|----------------|------------------|---------------|---------|-------------|------|-------|
| Application Manager | à Protect | © Policies | O Restore | 🗆 Replication | of Wenn | taur 😌 Orga | | |
| APP VM GROUP HOST ALL Genter search LOCAL ORACLE | Workflow Name: MyOracleDirectMount | Images | 0 | LiveClone | 0 | Mount | | |
| STESTOB (WIN-E2BKSVWASPJ Cidb (dbagproxynode) | SGA % | | | | | • | | |
| 🞯 empdb (dbsgproxynode) 🎯 fadb (dbsgproxynode) | REDO Size | | | | | 1 | | |
| o mactdom (dbegproxynode) | TNS Listener IP | | (| | | Ŷ | | |
| S maskib (dbagproxynode) pompei (lava dev actific.com) | TNS Listener port | | | |) | ? | | |
| Swdb (WN-E2BKSVNASPJ) | TNS Domain Name | | | |) | (?) | | |
| C tondb (WIN-E2BKSVMASPJ) | Restore with Rec | covery (?) | | | | | | |
| FILESYSTEM | Stand Alone Non | RAC 🕐 | | | | | | |
| * SQL INSTANCE | Environment variabl | e | (| | | ۲ | | |
| F ORACLE | Protect new appl | ication? 🧿 | | | | | | |
| | Remove mounted in | mage after pro | ocessing (?) | | | | | |
| | | | | (Prev | ious I | lext.) | Done | Cance |

Application Aware Mount Options (Continued)

20. Check **Restore with Recovery**. Doing so leaves the database in a state where if logs are available they can be applied to bring the database to a specific point in time.

21. At this point you can:

Check the **Protect new application** option. This allows you to apply an SLA Policy Template and a Resource Profile to protect the virtual application as a new application. For details on SLA Policy Templates and Resource Profiles see **Planning and Developing Service Level Agreements**.

Click **Done** and the Workflow will run as scheduled. Users with proper access can run this Workflow on demand to provision and re-provision their environments with the virtual application.

Direct Mount Workflow: Application Data

Direct Mount Workflows are used when the application image involved does not contain sensitive data. This allows the Workflow to mount an application's data as a virtual application or as just application data without first having to define a LiveClone and then scrub the LiveClone. Direct Mounts make application data and virtual applications available almost instantly.

In the following example, a Workflow is defined that:

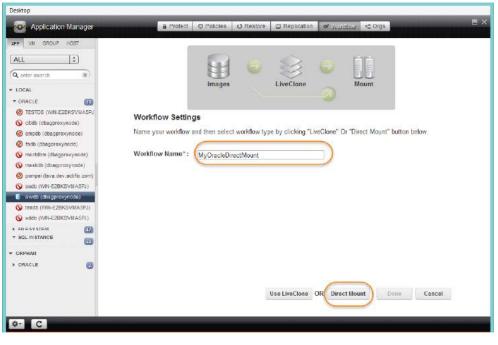
- Generates new, or updates mounted application data from a single selected production image.
- Defines a schedule for updating the application data with the latest production data. Scheduled Workflows can also be run on demand.
- Mounts the application data.

Users with the access rights can run this Workflow as described in Direct Mount Run Now: Application Data on page 45.

To define this Workflow:

- 1. Open the Actifio Application Manager.
- 2. In the Navigation pane, select the application.
- 3. Click the **Workflow** tab and the Workflow Settings page is displayed:

If the selected application already has a Workflow, click Add and the Workflow Settings page is displayed:



New Workflow Settings Page

4. In the Workflow Settings page, specify a name for the Workflow and click **Direct Mount** and the Mount Settings page is displayed:

| Desktop | | | | | | |
|---|--|----------------------|----------------------|-----------------|------------|--------|
| Application Manager | A Protect | © Policies U Restore | C Replication & | laddaa ii ii oo | Q5 | |
| APP VM GROUP HOST ALL | Workflow Name: MyOracleDirectMount | Imoges | LiveClone 2 | Mount | | |
| TESTDB (WW-E2BKSVMASRU citidb (dbagproxymode) citidb (dbagproxymode) fisdb (dbagproxymode) mschdbu (dbagproxymode) w mschdbu (dbagp | Mount Settings Schedule Type* Mount Label Hosts WIN-E2EKSVMASPJ alaska dev actific com asmracnode1 | | II (1) Selected Host | 8 | Remove All | |
| vidb (WN-22BKSVI/ASPI) FILESYSTEM SQL INSTANCE 22 ORPHAIL | asmracnode2 Mount Mode Mount Drive Mount Point | | | | | |
| F ORACLE | Preferred diskgroup | name | (Previous | flext (| Done | Cancel |

Mount Settings Options

- 5. For Schedule Type, select **Scheduled**. Scheduled Workflows can also be run on demand.
- 6. In **Schedule**, define a schedule to run the Workflow. The time selector uses a 24-hour clock.
- 7. For **Source Image**, select the latest snapshot image from the policy.
- 8. Give the mount a label to make it easily identifiable.
- 9. In the **Hosts** section, click the green + icon to select the servers on which the data will be mounted. This ensures data will be mounted to those servers when the Workflow runs. The user who runs the Workflow will be given the option of mounting the data to other servers as needed.

Note: For scheduled Direct Mount Workflows that just mount the data, you must select at least one host.

- 10. For Mount Mode, select a pRDM mount.
- 11. Add a a **Mount Point** as needed if you want the image mounted to a location other than the default. If you do not specify a mount, then the Actifio Connector will choose a mount location.

| Desktop Application Manager | Protect © Policies © Restore © Replication of worriging ** Orgs |
|--|---|
| PF VM OROUF HOST ALL (1) Q enter search (X) | Workflow Name: MyOracleDirectMount |
| ORACLE III ORACLE III OF TESTDB (WR-E2BKSVWA5PJ Cbidb (dbagproxynode) Ge empdb (dbagproxynode) Stafb (dbagproxynode) | alaska.dev.actific.com |
| rede (doagproxynoce) mactdom (dbagproxynode) maskdb (dbagproxynode) | Nount Mode @vRDM @pRDM |
| pompei (lava. dev.actific.com) sodb (WN-E2BKSVMA5PI) awdb (dbapproxynode) | Mount Point |
| tendb (WIN-E2BKSVMA5PJ) vddb (WIN-E2BKSVMA5PJ) | Preferred diskgroup name RAC node list (?) |
| FILE SY STEM SQL INSTANCE | Pre-Script Timeout sec @ |
| ORPHAN | Post-Script Timeout Eec @ |
| | Remove mounted image after processing (?) (Previous Next) Done Cancel |

Mount Settings Options (Continued)

Note: You may have to scroll down to see all options.

- 12. Enter a Preferred diskgroup name as needed.
- 13. Enter a **RAC node list** as needed in a comma separated list of IP addresses.
- 14. Specify a **Pre Script** as needed. The pre script is used to configure the environment prior to mounting or unmounting the application. This script must reside in a folder named /act/scripts on the server that will host the mounted image. See Workflow Pre and Post Scripts on page 47 for scripting details.
- 15. Specify a **Post Script** as needed. The post script used to perform an operation on the data after it is mounted or unmounted, for example, initiating a copy to tape operation for long-term storage. This script must reside in a folder named /act/scripts on the server that will host the mounted image. See Workflow Pre and Post Scripts on page 47 for scripting details.
- 16. If you specified scripts, specify timeouts long enough for the scripts to complete.
- 17. Because you are only mounting the data, you will not select **Perform application aware mount**.
- 18. Remove mounted image after processing. This is typically checked when you employ a script to process mounted data. Once the script finishes its task, this option will unmount and delete the virtual application. See Reporting on page 2, Data Warehousing on page 3, and Copying to Removable Media on page 3.
- 19. Click **Done** and the Workflow will run as scheduled. Users with proper access can run this Workflow on demand to provision and re-provision their environments with the application data.

4 Running Workflows On Demand

Workflows can be configured to run according to a schedule or run on demand only. Scheduled Workflows can be run on demand.

Running a Workflow on demand is particularly useful when the Workflow's data source has been updated but the Workflow is not scheduled to run for a while. The Workflow can be run on demand to provision/re-provision an environment without having to wait for the next scheduled run of the Workflow.

To run Workflows on demand:

- Users must be assigned a role with the necessary rights, and assigned to the proper organizations to access an Actific appliance. For details on Roles, Organizations, and Users, see Configuring Roles, Organizations, and Users on page 8.
- User's rights also determine whether they can update a LiveClone as part of running a LiveClone Workflow.
- The options that were or were not specified when the Workflow was defined determines which options a user can specify when they run a Workflow.

This chapter provides step-by-step examples for:

- LiveClone Run Now: New Scrubbed Virtual Application on page 34
- LiveClone Run Now: Re-Provisioning a Scrubbed Virtual Application on page 37
- LiveClone Run Now: Scrubbed Application Data on page 40
- Direct Mount Run Now: Virtual Application on page 42
- Direct Mount Run Now: Application Data on page 45

LiveClone Run Now: New Scrubbed Virtual Application

This section shows how to run a LiveClone Workflow like the one created in LiveClone Workflow: Scrubbed Virtual Application on page 14.

Running this Workflow allows a user with the proper privileges to provision a selected server with a new virtual application.

- 1. Open the Application Manager to the **Workflow** tab.
- 2. In the Navigation pane, select the application that will be used to provision the virtual application. The associated Workflow schedule appears in the Workflow screen.

| Desktop Application Manager | a Protect Ø | Policies 🙂 Restore 💷 I | Replication of would | e Orga | = > |
|---|---|-----------------------------|----------------------|---------------------|---------|
| APP VM BROUP HOST ALL C Ashter askarch X | | MyOracleLiveClone | P., | | |
| LOCAL ORACLE ORACLE ORACLE ORACLE OS CEIdb (WN-E2BKSVWA5PJ OS cEidb (dbagproxynode) | Workflow Name: Type: MyOracleLiveClone livectore | Schedule Type: scheduled | | | |
| S ampdb (dbagproxynode) | Previous Run | Current Run | | NextRun | |
| S mactdom (dbegproxynode) | | Not running | | | |
| maskib (dbagproxynode) pomper (lava dev actrio com) sedo (VIN-E2BKSVII/ASPJ) swdb (dbagproxynode) tondb (VIN-E2BKSVII/ASPJ) xddb (VIN-E2BKSVI/ASPJ) | There are no previous runs | | | 2016-05-01 11-00:00 | |
| ► FILE SYSTEM | | | | | |
| SQL INSTANCE ORPHAN | | | | | |
| F ORACLE | | | | | Run Now |
| 8- C | <u></u> | | | | |

Workflow For Selected Application

- 3. Click **Run Now** and the Run Now Settings page is displayed.
- 4. Users assigned **Manage LiveClone** rights in their assigned role will have the option of selecting a new image for the Workflow's LiveClone. Such users can check the **Refresh LiveClone** option and from the drop down menu, select an image to be scrubbed.

Note: Users assigned a role with *Manage LiveClone* rights must also have access to sensitive data. See Example User for Limited Workflow Access on page 11.

At this point, if you click **Done**, then only the LiveClone will be updated.

| Run Now Settings | | | |
|----------------------|-------------------------------------|---|---|
| Refresh LiveClone ? | | | |
| Source Image* | 2016-02-07 10:45:14 (Image_0385810) | ~ | 0 |
| Create/Refresh a mou | nted image or a virtual application | | |

5. Check **Create/Refresh a mounted image or virtual application** and more Run Now Settings are displayed:

| Application Manager | ê Pro | otect Ø Policies | O Restore | 🖸 Replication 🛛 😽 💯 | | Drgs | |
|---|--|---|--------------------|---------------------------|------------|------------|---|
| PP W GROUP HOST ALL : Q enter search (X) LOCAL | Workflow Name: MyOracleLiveClone | Images | 0 | LiveClone | Mount | | |
| ORACLE III TESTDB (WIN-E2BKSVMASPJ Clidb (dbsgproxynode) cmodb (dbsgproxynode) fadb (dbsgproxynode) fadb (dbsgproxynode) | Run Now Se | ettings ish a mounted image | e or a virtual app | dication | | | |
| S macidom (dbagproxynode) | Hosts | | | (1) Selected Hosts | | Remove All | 1 |
| | | 20000022100 EEEE | | | | | |
| 🚫 maskdb (dbagproxynode) | WIN-E2BKSV/ | JASP. | 0 | UT-Win2K8-SQL | | 0 | |
| ter a companya da ser | WIN-E2BKSVN | | | UT-Win2K8-SQL | | 0 | |
| 🔕 pompei (lava dev actific com) | alaska.dev.acti | | 0 | UT-Win2K8-SQL | | 0 | |
|) pompei (lava. dev. actific.com) 9 sadb (VVIV-E2BKS/VIVASPJ) | alaska.dev.acti asmracnode1 | | 0 | UT-Win2K8-SQL | | 0 | |
| pompei (lava dev actific.com) sado (WN-E2BKSVNASPI) swdb (dbapproxynode) | alaska.dev.actr asmracnode1 asmracnode2 | fio.com | 0 | UT-Win2K8-SQL | | 0 | |
| maskdb (dbagproxynode) pomper (lava. dev. acófio. com) sedo (WIN-E2BKSVIIASPI) swdo (dbagproxynode) tends (WIN-E2BKSVIIASPI) vddb (WIN-E2BKSVIIASPI) | alaska.dev.acti asmracnode1 asmracnode2 | fio.com lication aware moun | 0 | | | 0 | |
| pompei (lava.dev.actifio.com) badto (VIN-E2BKSVI/ASPJ) swdb (dba.gprokynode) tends (VIII-E2BKSVI/ASPJ) xddb (VIII-E2BKSVI/ASPJ) | alaska.dev.acti asmracnode1 asmracnode2 II Perform app © Create New | fio.com lication aware moun v Virtual Application | 0 | UT-Win2K8-SQL | | 0 | |
| compet (lava.dev.actife.com) sedb (VM-E2BKSVMASPJ) swdb (dbagproxynode) tendb (VM-E2BKSVMASPJ) xddb (VM-E2BKSVMASPJ) FILE6YSTEM | alaska.dev.acti asmracnode1 asmracnode2 | fio.com lication aware moun v Virtual Application | 0 | | un] () | 0 | |
| Openper (Bvs. dev. actric.com) Openper (Bvs. dev. actrin) Openper (Bvs. dev. actric.c | alaska.dev.acti asmracnode1 asmracnode2 I Perform app O Create New Target Databa | fio.com lication aware moun v Virtual Application | 0 | | 0 | 0 | |
| Compet (Biva, devi addfiel.com) Sado (VIII-E2BKSVIIIASPI) Swdo (ORUBPONYOGO) tends (VIIII-E2BKSVIIIASPI) Waddi (VIIII-E2BKSVIIIASPI) fillEsysteit add. INSTANCE COPHANI | alaska.dev.acti asmracnode1 asmracnode2 II Perform app © Create New | fio.com lication aware moun v Virtual Application | 0 | | | 0 | |
| compet(lava.dev.addfo.com) sadb (VVN-E2BKSVIIA55)) swdb (dbapproxymode) tendb (VVN-E2BKSVIIA59)) tendb (VVN-E2BKSVIIA59)) FILESYSTEM sqL INSTANCE competition | alaska.dev.acti asmracnode1 asmracnode2 I Perform app O Create New Target Databa | fio.com lication aware moun v Virtual Application | 0 | isting Virtual Applicatio | 0 | 0 | |
| pompei (Biva, dev addfie.com) sodo (VIN-E2BKSVIIASPI) sodo (dosgoro-synodo) tende (VIN-E2BKSVIIASPI) vide (VIN-E2BKSVIIASPI) fillEsystem rad, INSTANCE converting | alaska.dvv.act asmracnode1 asmracnode2 I Perform app @ Create New Target Databa User Name* | fio.com lication aware moun v Virtual Application | 0 | | 0 | • | |

Run Now Settings

- 6. From the drop down menu, select the source (scrubbed) image to use for the virtual application.
- 7. If the application is a database and it is captured along with its logs, then the log recovery pane appears with a slider above the target host selection pane. Select whether to use the time of the host or the time of your workstation, and then select the recovery point by using the slider, the calendar and arrows, or by simply typing a value into the field.

If the creator of the Workflow did not specify Oracle specific options then:

- 8. Select the host to be provisioned in the Workflow, click the green + icon next to a host name to add it to the list of hosts to be provisioned. When provisioning/re-provisioning a virtual application, only one host can be selected.
- 9. Scroll down to view the remainder of the options

| Application Manager | a Protect | 9 Policies | U Restore | 🖾 Replication | of Webblan C | Orgs | E |
|---|-------------------------------------|----------------------|-----------|---------------|---------------------------|------|--------|
| P VN GROUP HOST | Workflow Name: MyOracleLiveCione | Images | 0 | LiveClone | Mount | t | |
| TESTDB (WIN-E2BKSVWASPJ chidb (dbagproxynodé) empdb (dbagproxynode) | Database Memory Siz | e <mark>in</mark> MB | (| | 0 | | 1 |
| S fsdb (dbagproxynode) | SGA % | | I. | | 0 | | |
| 🛇 mactdom (dbagproxynode) 🛇 maskdb (dbagproxynoda) | REDO Size | | (| | 0 | | |
| Ø pompei (lava dev actific com) Sadb (WIN-E28KSVMASFJ) | TNS Listener IP | | [| |) (?) | | |
| swdb (dbagproxynode) | TNS Listener port | | [| | | | |
| 🛇 xddb (WIN-E2BKSVMA5PJ) | TNS Domain Name | | [| |) (?) | | |
| FILE SY STEM | Restore with Reco | very 🕐 | | | | | |
| ORPHAN | Stand Alone Non-F | AC 🕐 | | | | | |
| ORACLE 🛛 🕑 | Environment variable | | [| | 0 | | |
| | | | | | | Done | Cancel |

Application Aware Mount Options

Note: You may have to scroll down to see all options.

If the creator of the Workflow did not specify the options for the virtual application:

- 10. Check the box for **Perform application aware mount**.
- 11. In the spaces provided, enter the Oracle related options. Click the question mark **?** next to an option for help text on that option.
- 12. Click **Done** and the new virtual application will be mounted as defined. Access to the virtual application is controlled by the server on which it is mounted.

LiveClone Run Now: Re-Provisioning a Scrubbed Virtual Application

This section shows how to run a LiveClone Workflow like the one created in LiveClone Workflow: Scrubbed Virtual Application on page 14.

Running this Workflow allows a user with the proper privileges to re-provision a server with an updated virtual application.

To run a Workflow to refresh a previously provisioned virtual application with a new image:

- 1. Open the Application Manager to the **Workflow** tab.
- 2. In the Navigation pane, select the application. The Workflows available for the application and their run schedules appear in the Workflow screen.

| UM GROUP HOST | Workflows Add | | | | |
|---|--|---------------------------------|---------|---------------------|---------|
| enter search 💉 | MyOracleDirectMount O Net running | MyOracleLive O Not running | Clone | | |
| OCAL ORACLE () TESTDB (WIF-E28KSVMASP) chidb (dbegproxymode) | Workflow Name: Typ MyDracleLiveClone live | de: Schedule clone scheduled | | | |
| empdb (dbagproxynode) fedb (dbagproxynode) | | Cum | ent Run | | |
| mactdom (dbegproxynode) | Previous Run | Not | unning | Next Run | |
| maakdb (dbagproxynode) | There are no previous runs | | dining | 2016-05-01 11:00:00 | |
| S pompei (lava dev actifio com) | | | | | |
| ssdb (WN-E28KSVNASPJ) | | | | | |
| swdb (dbagproxynode) | | | | | |
| tendb (WIN-E2BKSWIAA5PJ) | | | | | |
| xddb (WN-E2BKSVMASRJ) | | | | | |
| FILE SYSTEM | | - | | | |
| 620 | | | | | |
| DRPHAN | | | | | Run Now |
| ORACLE | | | | | |
| | | | | | |

Workflow For Selected Application

- 3. Select the Workflow to execute and click **Run Now**.
- 4. Users assigned **Manage LiveClone** rights in their assigned role will have the option of selecting a new image for the Workflow's LiveClone. Such users can check the **Refresh LiveClone** option and from the drop down menu, select an image to be scrubbed.

Note: Users assigned a role with *Manage LiveClone* rights must also have access to sensitive data. See Example User for Limited Workflow Access on page 11.

At this point, if you click **Done**, then only the LiveClone will be updated.

| Run Now Settings | | |
|----------------------|-------------------------------------|--|
| Refresh LiveClone ? | | |
| Source Image* | 2016-02-07 10:45:14 (Image_0385810) | |
| Create/Refresh a mou | nted image or a virtual application | |

5. Check **Create/Refresh a mounted image or virtual application** and more Run Now Settings are displayed:

| Application Manager | a Protect | © Policies | Restore 🖾 | Replication e | e waintik < | Orgs | |
|---|-------------------------------------|---------------|-------------------|----------------------|-------------|------------|--------|
| APF VM GROUP HOOT ALL Q enter search COCAL YORACLE T | Workflow Name: MyOracleLiveCione | Images | <u>و</u> ر | iveClone | Moun | t | |
| ORACLE OFACLE OFACLE | Run Now Setting | 20 | r a virtual appli | cation | | | |
| W mactdom (dbagproxynode) | Hosts | | | (1) Selected H | osts | Remove All | |
| 🚫 maakdb (dbagproxynode) | WIN-E28KSVMA5P | 1 | 00 | UT-Win2K8-SQL | | 0 | |
| O pompei (lava dev actific com) | alaska dev actifio co | | 0 | | | | |
| Sadb (WIN-E2BKSVINA5PJ) | asmracnode1 | | 0 | | | | |
| 🧃 swdb (dbagproxyriode) | asmracnode2 | | 0 | | | | |
| tendb (WIN-E2BKSVMA5PJ) | Perform application | n awaro mount | | | | | |
| V xddb (VIN-E2BKSVNA5PJ) | Create New Virtu | | Dofrach Evic | ting Virtual Appli | ation | | |
| | Target Database SI | | y ivenesii EXis | and andar Abbi | (?) | | |
| | | | | | | | |
| ORPHAN | User Name* | | 0 | | ۲ | | |
| ORACLE | Password | | |) | • | | |
| | | | | | | Done (| Cancel |
| | | | | | | | |

- 6. In the Run Now Settings screen, select the **Source (scrubbed) Image** to use for provisioning.
- 7. If the application is a database and it is captured along with its logs, then the log recovery pane appears with a slider above the target host selection pane. Select whether to use the time of the host or the time of your workstation, and then select the recovery point by using the slider, the calendar and arrows, or by simply typing a value into the field.
- 8. If the creator of the Workflow did not specify the host to be provisioned in the Workflow, click the green + icon next to a host name to add it to the list of hosts to be provisioned. When provisioning/re-provisioning a virtual application, only one host can be selected.

| Application Manager | â Protect (Ø) | Policies O Restore | B Replication et willing | ieliu < Orgs | |
|---|------------------------|--------------------|--------------------------|---------------------|--------|
| VN GROUP HOST | Workflow Name: | | | | |
| . (1) | MyOracleLiveClone | | > | FF | |
| iter search (¥) | | | SZ 😺 | | |
| ter search × / | | Images | LiveCione | Mount | |
| AL | | | | | |
| ACLE [| | | | | |
| ESYSTEM | | Roll F | orward Time: | Grost time Groser | nme |
| L INSTANCE | | 1 | 1988 1987 1997 | | |
| ACTSOLS12014 (ACTSOLS1 | | 2016-04-12 | | | |
| ACTSOLS2 (ACTSOLS2) | 2016-04-12 05:11:51 | 2016-04-1 | 2 10:57:03 | 2015-04-12 10:57:03 | |
| ACTSQLS22014 (ACTSQLS2 | 2010-04-12:00:11:01 | | | 2010-04-12-10.07.00 | |
| ACTSQLS3 (ACTSQLS3) | | | | | _ |
| ACTSQL532014 (ACTSQL53 ACTSQL54 (ACTSQL54) | Hosts | | (1) Selected Hosts | Remove All | _ |
| ACTSQLS42014 (ACTSQLS4 | 172.16.119.90 | 00 | actsqls2 | 0 | _ |
| AdventureWorks2006R2 (AC | 172.17.177.61 | 0 | | 0.2 | _ |
| CLUSTERDB (SKY) | 172.17.177.72 | 0 | | | _ |
| DBA (SKY) | ACTCLIENT22012 ACTSF | M2.C. | | | _ |
| HRADE (SQL2012LISTNERA) | Map to all ESX hosts | | | | _ |
| RD8 (DUKEC1) | Perform application aw | are mount | | | _ |
| HRDB (DUKECLUSTER4) | Create New Virtual Ap | | ting Watural Application | | _ |
| REPOB (DUKECLUSTER4) | Application VirtualDB | | ang antaa Appication | | _ |
| REPDB (DUKEC1) | | | | | |
| ReportServer (ACTSQLS3R) | | | | Done | Cancel |
| ReportServer (ACTSQL52) | | | | | |

Run Now Settings (Continued)

Note: You may have to scroll down to see all options.

- 9. Check the box for **Perform application aware mount**.
- 10. Select Refresh Existing Virtual Application.
- 11. At the **Application** drop-down, select the application to refresh.
- 12. Click **Done** and the new virtual application will be mounted as defined by the Workflow. Access to the virtual application is controlled by the server on which it is mounted.

LiveClone Run Now: Scrubbed Application Data

This section shows how to run a LiveClone Workflow like the one created in LiveClone Workflow: Scrubbed Application Data on page 20.

Running this Workflow allows a user with the proper privileges to provision servers with scrubbed data from an application.

To provision an environment with scrubbed data from an application:

- 1. Open the Application Manager to the **Workflow** tab.
- 2. In the Navigation pane, select the application used to provision the environment. The associated Workflow schedule appears in the Workflow screen.

| Desktop | | | | |
|--|--|------------------------------------|----------------------------|-----|
| Application Manager | & Protect @ | Policies O Restore. 🖾 Repl | ication et wainthin < Orgs | E X |
| APP VM GROUP HOST | Workflows Add | | | |
| Q enter search (x) | MyOracleDirectMount O Not running | MyOracleLiveClone O Not running | | |
| ORACLE OF TESTOB (WIN-E2BKSVMASPJ Oridb (dbagproxynode) @ empdb (dbagproxynode) | Workflow Name: Type: MyDracleLiveClone livecion | Schedule Type: scheduled | | |
| S fsdb (dbagproxynode) | | Current Run | | |
| S mactdbm (dbagproxynode) | Previous Run | Not running | Next Run | |
| msekdb (dbagproxynode) pompei (lava dev actific.com) sadb (WR-E2BKSVMASFJ) swdb (dbagproxynode) | There are no previous runs | - | 2016-05-01 11:00:00 | |
| Vitendb (WIN-E2BKSVMA5PJ) | | | | |
| V xddb (WN-E2BKSVNA5PJ) | | | | |
| FILESYSTEM | | | | _ |
| | | | | |
| F ORACLE | | | Run | Now |
| Ø- C | | | | _ |

Workflow For Selected Application

3. Click **Run Now** and the Run Now Settings page is displayed:

| Application Manager | a Protect S Policies O Restore S Replication of Worldward C Orgs |
|---|---|
| VM OROUP HOST ALL 2 Q enter search % LOCAL * ORACLE 61 © TEBTOR (WH-E2BKSVUASU) % © C6bb (dbsgrowynode) % © mode (dbsgrowynode) * | Workflow Name: MyOracleLiveClone |
| S fsdb (dbagproxynode) | Create/Refresh a mounted image or a virtual application |
| macidium (dbagproxynode) maskdb (dbagproxynode) maskdb (dbagproxynode) gompel (lava.dev actife.com) sadb (WN-E2BKSVNASFJ) awdb (dbagproxynode) tendb (WN-E2BKSVNASFJ) | Hosis (1) Selected Hosis Remove All WIN-E2BIKSVMASPJ O UT-Win2K8-SQL O alaska dev actifio com O asmracnode1 O asmracnode2 O O O |
| V tendo (VIIII-LZDK-SVIIIA-SPJ) Vido (VIII-LZDK-SVIIIA-SPJ) FILE SYSTEM SIL INSTANCE ORPHAN | Perform application aware mount |
| ORACLE 🖉 | Done Car |

- 4. Select the **Source Image** to use for provisioning.
- 5. If the application is a database and it is captured along with its logs, then the log recovery pane appears with a slider above the target host selection pane. Select whether to use the time of the host or the time of your workstation, and then select the recovery point by using the slider, the calendar and arrows, or by simply typing a value into the field.
- 6. If the creator of the Workflow did not specify all the hosts to be provisioned in the Workflow, click the green + icon next to a host name to add it to the list of hosts to be provisioned.
- 7. Click **Done** and the application data will be mounted as defined. Access to the data is controlled by the server on which it is mounted.

Direct Mount Run Now: Virtual Application

This section shows how to run a Direct Mount Workflow like the one created in Direct Mount Workflow: Virtual Application on page 25. This Workflow allows a user to provision a selected server with a new virtual application.

- 1. Open the Application Manager to the **Workflow** tab.
- 2. In the Navigation pane, select the application that will be used to provision the new virtual application. The associated Workflow schedule appears in the Workflow screen.

| APP VM GROUP HOST ALL | Workflows Addr MyOracleDirectMount MyOrac O Netruning O Netrun | leLiveClone | |
|---|--|-----------------------------|---------------------|
| ORACLE ORACLE OTESTD8 (WW-E2BKSVWAG) obdb (dbsgproxynode) omegade (dbsgproxynode) | Workflow Name: Type: PJ MyDracleDirectMount directmount | Schedule Type: scheduled | |
| () fedb (dbagproxynode) | Previous Run | Current Run | Next Run |
| S mactdom (dbagproxynede | M . | Not running | |
| maakdb (dbagproxynode) @ pompel (lava dev actrie co sadb (VVN-E28KSVI/ASP) | | | 2016-05-01 11:06:00 |
| 🧃 swdb (dbagproxynode) | | | |
| W tendb (WIN-E2BKSVMA5P. | | | |
| V xddb (WIN-E2BKSVMA5PJ | | | |
| | 20 | | |
| * SQL INSTANCE | | | |
| + ORPHAN | | | |
| ORACLE | 2) | | Run Now |
| ė- C | | | |

Workflow For Selected Application

3. Click **Run Now** and the Run Now Settings page is displayed:

| ALL : Ac enter search (*) LOCAL | Workflow Name: MyOracleDirectMount | images | LiveCione | Mount | |
|--|---|---------------------------------|------------------------------|-------------|--------|
| ORACLE If TESTDB (WH-E2BKSVWASP) Oldb (dbsgproxynode) empdb (dbsgproxynode) | Run Now Setting Source Image* | S 2015-03-02 08:09:14 | (Image_0437365) | • 0 | |
| fsdb (dbagproxynode) macktlinn (dbagproxynode) maskdb (dbagproxynode) ompel (bivs.dev.acftle.com) sedb (V/M-E2BKSVII/ASPI) svdb (dbagproxynode) tonds (dbagproxynode) tonds (V/M-E2BKSVIASPI) | 2016-03-02 08:00-14 | 2016-03-02 | II Forward Time: 15:45:30 | ⊘ Host Time | Time |
| Konstanting Konstantin Konstantin Konstantin Konstantin Konstantin | Hosts | | (1) Selected Hosts | Remove All | |
| * SQL INSTANCE 20 ORPHAN > ORACLE 20 | WIN-E2BKSVMA5PJ alaska.dev.actifio.com asmracnode1 asmracnode2 | | UT-Win2K8-SQL | 0 | |
| | Defense and esting | summ marint | | Done | Cancel |

- 4. From the drop down menu, select the source image to use for the virtual application.
- 5. If the application is a database and it is captured along with its logs, then the log recovery pane appears with a slider above the target host selection pane. Select whether to use the time of the host or the time of your workstation, and then select the recovery point by using the slider, the calendar and arrows, or by simply typing a value into the field.
- 6. If the creator of the Workflow did not specify the host to be provisioned in the Workflow, click the green + icon next to a host name to add it to the list of hosts to be provisioned. When provisioning/re-provisioning a virtual application, only one host can be selected. You may have to scroll down to see all options.

| Application Manager | a Protect Ø Policies | O Restore 🖾 Replication 🔗 | Vorivitiona 🗠 Orgs | E × |
|--|--|--|--------------------|--------|
| APP VM OROUP HOST | Workflow Name: | 2 | | |
| ALL : | MyOracleDirectMount | 🖌 🎯 🖉 | | |
| ▼ LOCAL ▼ ORACLE | Image | LiveClone | Mount | |
| S TESTOB (WIN-E2BKSVMASPJ | asmracnode2 | 0 | | 1 1 |
| S clidb (dbagproxynode) | Perform application aware mo | unt | | · . |
| empdb (dbagproxynode) fedb (dbagproxynode) machdom (dbagproxynode) | Create New Virtual Application Target Database SID* | on Refresh Existing Virtual Applicat | lion (?) | |
| meskdb (dbagproxynode) ompei (lava dev actific com) | User Name* | | (?) | |
| Sedb (WN-E2BKSVI/A5PJ) | Password | 0 |) | |
| swidb (dbagproxynode) | Oracle Home Directory* | (| 0 | |
| xiddb (WIN-E2BKSVILASPJ) FILESYSTEM | TNS ADMIN Directory path* | | 0 | |
| * SQL IN STANCE | Database Memory Size in MB | \ | | 1 |
| + ORACLE | SGA % | [| 0 | |
| | REDO Size | [| 0 | 1 |
| | | | Done | Cancel |
| | | | | |

Application Aware Mount Settings

| PF VM QROUP HOST ALL (1) Q enter everth (X) | Workflow Name: MyOracleDirectMount | UveClone | Mount |
|--|---------------------------------------|---------------------------------------|-------------|
| ORACLE | | 2 | |
| TESTDB (WIN-E2BKSVWA5PJ) clidb (dbagproxynode) empdb (dbagproxynode) | Database Memory Size in MB | | 0 |
| S fadb (dbegproxynode) | SGA % | [| 0 |
| S mactdom (dbagproxynode) | REDO Size | | |
| () pompei (lava dev actific com) | TNS Listener IP | [| 0 |
| sedb (VVN-E2BKSVMASPJ) ewdb (dbagpcoxynode) tendb (VVN-E2BKSVMASPJ) | TNS Listener port | <u>.</u> | 0 |
| Winde (WIN-E28KSVMA5PJ) | TNS Domain Name | | <u>ା</u> ନ |
| FILE SY STEM | Restore with Recovery (?) | · · · · · · · · · · · · · · · · · · · | |
| ORPHAII | Stand Alone Non-RAC (?) | | |
| ORACLE | Environment variable | | 0 |
| | | | Done Cancel |

Application Aware Mount Settings (Continued)

- 7. Check the box for **Perform application aware mount**.
- 8. If you are re-provisioning an environment:
 - o Select Refresh Existing Virtual Application.
 - o Select the database name from the dropdown menu.
 - o Click **Done** and the virtual application will be updated with the new data.
- 9. If you are provisioning an environment with a new virtual application:
 - o Select Create New Virtual Application.
 - o If the creator of the Workflow did not specify some or all of the application specific options, in the spaces provided, enter the Oracle related options. Click the question mark ? next to an option for help text on that option.
- 10. Click **Done** and the new virtual application will be mounted as defined. Access to the virtual application is controlled by the server on which it is mounted.

Direct Mount Run Now: Application Data

This section shows how to run a Direct Mount Workflow like the one created in Direct Mount Workflow: Application Data on page 29.

Running this Workflow allows a user with the proper privileges to provision servers with just the data from an application.

To provisioned an environment with just the data from an application:

- 1. Open the Application Manager to the **Workflow** tab.
- 2. In the Navigation pane, select the application used to provision the environment. The associated Workflow schedule appears in the Workflow screen.

| Application Manager | a Protect Ø | Policies U Restore | Replication | of yourdance < Orgs | |
|---|---|---------------------------------|-------------|---------------------|------------------------------|
| APP VM GROUP HOST | Workflows Add | | | | |
| Q enter assirch 🛞 | | | | | |
| ORACLE ORACLE | Workflow Name: Type MyDracleDirectMount direct | : Schedule 1 mount scheduled | уре: | | |
| S empdb (dbapproxynode) | | Current Run | | | |
| fieldb (dbagproxyneda) wractdom (dbagproxyneda) | Previous Run | Not running | | Next Run | |
| (maxia/metalogramy/netal) (maxia/metalogramy/netal) (maxia/metalogramy/netal) (source) | There are no previous runs | Not running. | | 2016-05-01 11.06.00 | |
| * SQL INSTANCE | | | | | |
| ORPHAN | | | | | and the second second second |
| ORACLE 2 | | | | | Run Now |
| | | | | | |

Workflow For Selected Application

3. Click **Run Now** and the Run Now Settings page is displayed:

| Application Manager | a Protect 6 | 5 Policies U Restore | 🛛 Replication 🛛 🖝 World | 🗠 Orgs | - |
|---|---|------------------------|---|------------|--------|
| PP VM GROUP HOST | Workflow Name; MyOracleDirectMount | Images | LiveClone | Mount | |
| TESTDB (WIN-E2BKSVMASR) Cbdb (dbagproxynode) empdb (dbagproxynode) | Run Now Settings | 2015-03-02 08:09:14 (I | nage_0437365) * | | |
| § fsdb (dbagproxynode) () mscldbim (dbagproxynode) () mscldbim (dbagproxynode) () mscldbi (dbagproxynode) () pselbi (ds.a dev actifu.com) () swdh (dbagproxynode) () tendh (dbagproxynode) () tendh (dbagproxynode) | .2016-03-02 08:09:14 (| 2016-03-02 | orward Time: 15 45 30 🕃 02 15 45 30 | | |
| V xddb (WN-E2BKSVMA5PJ) FILESYSTEM | Hosts | | (1) Selected Hosts | Remove All | |
| SALINSTANCE (2) ORPHAN ORACLE (2) | WIN-E28KSVMA5PJ alaska.dev.actifio.com asmracnode1 asmracnode2 | 0 | UT-Win2K8-SQL | 0 | |
| | Defrom application a | | 1 | Done | Cancel |

- 4. Select the **Source Image** to use for provisioning.
- 5. If the application is a database that is captured along with its logs, then the log recovery pane appears with a slider above the target host selection pane. Select whether to use the time of the host or the time of your workstation, and then select the recovery point by using the slider, the calendar and arrows, or by simply typing a value into the field.
- 6. If the creator of the Workflow did not specify all of the hosts to be provisioned in the Workflow, click the green + icon next to a host name to add it to the list of hosts to be provisioned. When provisioning/reprovisioning application data, only one host can be selected.
- 7. Click **Done** and the application data will be mounted as defined. Access to the data is controlled by the server on which it is mounted.

5 Workflow Pre and Post Scripts

Workflows mount and unmount captured images according to a schedule or on demand. In a Workflow you can call:

- A pre script that runs before an image is mounted and/or unmounted
- A post script that runs after an image is mounted and/or unmounted

The ability to run a script before and after data is mounted or unmounted allows you to:

- Scrub for sensitive information
- Generate reports
- Warehouse data, especially when extracting, transforming, and loading (ETL) is required
- Copy to removable media

Scripts must reside in a folder named /act/scripts on the server that hosts the mounted Workflow image.

Note: For Workflows that involve both a database and its logs, you must configure scripts in such as way that pre and post script operations are not applied to the database's logs. See Example Script on page 48 for a script example that contains a command that will skip a database's log.

The following sections include:

- Environment Variables on page 47
- Example Script on page 48

Environment Variables

Environment variables allow you to invoke commands that apply to specific jobs, job types, or applications. Environment variables are prefixed with ACT_. For example, an environment variable for a database could look like: [\$ACT_APPNAME =="productiondb"] or an environment variable for a mount operation could look like: [\$ACT_JOBTYPE == "mount"]

The following is a list of common environment variables with sample values in parentheses.

- JOBNAME: The name of the job (e.g. Job_0123456)
- APPID: The ID of the application (e.g. 4186)
- APPNAME: Name of the application (e.g. My-DB)
- HOSTNAME: The name of the host which is the target of this job (e.g. Jupiter)
- SOURCEHOST: The name of the host that was the source for this application (e.g. Saturn)
- JOBTYPE: a text version of the job class (e.g. mount, unmount)
- PHASE: A text string that describes the job phase (e.g. pre, post)
- TIMEOUT: Define the duration of the script, how long the script is allowed to run
- OPTIONS: Policy options that apply to this job

Example Script

The following script example uses three environment variables:

- ACT_JOBTYPE Identifies whether the job is a mount or unmount operation
- ACT_PHASE Identifies whether the phase is either pre or post
- ACT_MULTI_END Used only if both a database and its log are mounted. When this is "true" the database is in a state where it can be accessed

Note: The following example script is not meant to be used in a production environment, has not been tested, and is not warranted by Actifio.

```
#!/bin/sh
set +x
echo "*** Running user script: Job - $ACT_JOBNAME Type - $ACT_JOBTYPE Phase - $ACT_PHASE***"
```

Use the first if clause to perform application specific operations during mount and in this example scrubmount operation.

Use the second if clause to perform any application specific operation during unmount and in this example, #scrub-unmount operation.

```
#if [[ $ACT_JOBTYPE == "mount" ]] || [[ $ACT_JOBTYPE == "scrub-mount" ]]; then
if [[ $ACT_JOBTYPE == "unmount" ]] || [[ $ACT_JOBTYPE == "scrub-unmount" ]]; then
    echo "NO-OP for job type $ACT_JOBTYPE"
    exit 0
fi
```

Use the first if clause to perform application specific operations during the pre phase

Use the second if clause to perform application specific operations during the post phase

```
#if [[ $ACT_PHASE == "post" ]]; then
if [[ $ACT_PHASE == "pre" ]]; then
    echo "NO-OP for phase $ACT_PHASE"
    exit 0
fi
```

For multi-phase jobs (database and logs) check if the database has been mounted and the logs applied then #skip logs.

If the operation needs to be performed in phases other than the last phase, modify the clause

```
if [[ -z "$ACT_MULTI_END" ]] && [[ $ACT_MULTI_END != "true" ]]; then
    echo "NO-OP for multi-phase operation"
    exit 0
fi
```

```
cd /act/scripts
```

```
echo "**** Running application specific logic: Job - $ACT_JOBNAME Type - $ACT_JOBTYPE Phase -
$ACT_PHASE *"
```

Any application specific commands will go here

```
echo "** Finished running application specific logic : Job - $ACT_JOBNAME Type - $ACT_JOBTYPE
Phase - $ACT_PHASE *"
```

exit \$?