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Oracle DIVArchive Storage Plan Manager

Feature Description

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Introduction: What Is a Storage Plan?

Storage plans are policies managing the lifecycle of objects within the Oracle DIVArchive solution. Based on specific criteria—for example, the elapsed time since the object was archived, its size, or its name—actions such as copying, restoring, deleting, and transcoding can be automatically triggered.

Each object is assigned one and only one storage plan. This can be done explicitly in the archive request or by using assignment rules based on object name and category patterns, size, initial storage medium, or source server used. A given storage plan can be assigned to as many objects as desired.

Each storage plan can trigger a variety of actions, from very simple workflows, such as copying between disk and tape, to more complex workflows, including copying to several tape groups, transcoding, and restoring. These workflows are described in individual rules called *slots*. A storage plan can implement any number and combination of slot types. The two types of slots are as follows:

- » **One-time action slots.** These trigger actions to transcode, restore, or archive metadata.
- » **Storage-tier management slots.** These trigger actions such as automated migration between storage types.

If no storage plan is specified during an archive and the assignment rules do not match, the object will be assigned the SP_DEFAULT storage plan, an inactive placeholder. Such objects can be assigned another storage plan with a simple operator action.

Storage plans are created and edited using the Configuration Utility in Oracle DIVArchive Storage Plan Manager. Oracle DIVArchive Storage Plan Manager runs as a Windows service and is in charge of operating the policies set in the Configuration Utility.

Slot Types

One-Time Action Slots

One-time action slots will trigger a restore, transcode, or metadata archive action. A metadata archive action will archive an additional companion file containing metadata. One-time action slots can trigger the action at some point in time, either immediately after archive or at any configured time delay after the archive date and time.

Storage-Tier Management Slots

Storage-tier management slots specify where an object should reside in the storage system at a particular time. A slot is created for each storage media (disk array or tape group) that will be managed by the storage plan, and it specifies the time frame (a begin time and an end time expressed in minutes since the archive) in which a copy of the object must be present in the media. For example, objects archived to disk can be defined to stay there for two days, whereas a copy created in a tape group can be kept forever. Oracle DIVArchive Storage Plan Manager will generate whatever actions are required to satisfy this copy action.

Storage-tier management slots also respond dynamically to changes in the environment. For example, if a workflow specifies that a tape copy be present at all times, and that tape copy is accidentally deleted through human error, Oracle DIVArchive Storage Plan Manager will recreate it. Conversely, an object copy created on a storage space where it should not be present will be automatically removed.

Automated Disk Space Management

Disk arrays managed by storage-tier management slots can have their object copies deleted after a given retention time—such as two days after archive—or kept forever, just like tape groups. But disk arrays have the additional option of being managed by watermarks. This feature is a per-array setting and will trigger deletions only when a configurable filling threshold is reached, for example, 90 percent. This feature generally improves the archive system's overall response times by keeping as much data online as possible. Once the filling threshold, or high-water mark, is reached, Oracle DIVArchive Storage Plan Manager will purge copies to get down to the low watermark, perhaps set at 75 percent, for example.

When a purge is triggered, the selection of the object's copies to be purged can be based either on last access time, with recently accessed copies being deleted last, or on size, with large items being deleted first. In the default setup, objects cannot be deleted; therefore, another copy must exist somewhere in the storage system—perhaps on tape—before their disk copy can be purged.

Assignment Rules

Assignment rules are used at the end of an archive request to assign a storage plan when none has been explicitly specified. The following object characteristics can be used as filters:

- » Media name, such as the disk array or tape group the object has been archived to
- » Object name pattern
- » Object category pattern¹
- » Source server, such as the server or storage location the object was archived from
- » Object size, either with minimum or maximum limits or defined by range

Here is an example of an assignment rule: A storage plan called Large News can be assigned to objects archived on a disk array called News_Disk and larger than 10 gigabytes.

For greater flexibility, several assignment rules can be used for assigning the same storage plan. That is, you can assign a given storage plan to objects with an MXF or HR category and another one to objects with an MP4 or LR category.

¹ The name fields accept wildcards such as LGOP.



Workflow Control

Oracle DIVArchive Storage Plan Manager will issue various requests—including transcode archived, restore, copy, delete instance, or archive—to the archive system in order to process the storage plans. By configuration, it is possible to control this workflow with the following options:

- » **Use the Global setting to limit the number of simultaneous requests sent to the archive system.** For example, you can define parameters so that Oracle DIVArchive Storage Plan Manager requests are only sent to the archive system if the archive system is running fewer than 20 requests.
- » **Use the Global setting to limit the number of simultaneous requests sent to the archive system per request type.** For example, you might ensure that no more than three transcodes initiated by Oracle DIVArchive Storage Plan Manager are sent at a time.
- » **Use the Per-Slot setting to set time restrictions for sending requests.** For example, you might want to only schedule secondary tape copies during the night.
- » **Use the Per-Slot setting to define execution priority of requests.** For example, you can ensure that restores triggered by Oracle DIVArchive Storage Plan Manager receive a lower priority than other restores.

Workflow Examples

The following are examples of workflows that can be set up using the Configuration Utility within Oracle DIVArchive Storage Plan Manager.

- » **Archive to disk, keep for one week, and secure to tape.** Oracle DIVArchive Storage Plan Manager will have two storage-tier management slots—one for disk and one for tape. The disk rule will request a copy to be on a particular disk array for one week, and the tape rule will request a copy on a particular tape group to be there at all times. After the object is archived to the disk array, Oracle DIVArchive Storage Plan Manager will detect that the disk rule is satisfied and will schedule a disk copy deletion one week later. It will also detect that the tape rule is not satisfied—because there is no tape copy at this point—and will send a copy request to the archive system to generate it.
- » **Archive to disk, keep as long as space allows, and secure to tape.** The workflow is the same as the previous example, but watermarks will be configured for the disk medium.
- » **Archive to disk and keep as long as space allows; secure to primary and secondary tape groups.** The workflow is the same as the first example, but an additional tape-storage tier slot is configured.
- » **Archive to disk and keep as long as space allows, secure to primary and secondary tape groups, and restore to proxy server with transcode to low resolution.** The workflow is the same as the first example, but an additional one-time action to restore with transcode slot is configured.

Storage Plans GUI

The storage plans are created using the Configuration Utility. Figure 1 shows the main screen, where the storage plans' names are defined, along with the media used and the assignment rules—labeled Filters—in charge of assigning objects to the right storage plan:

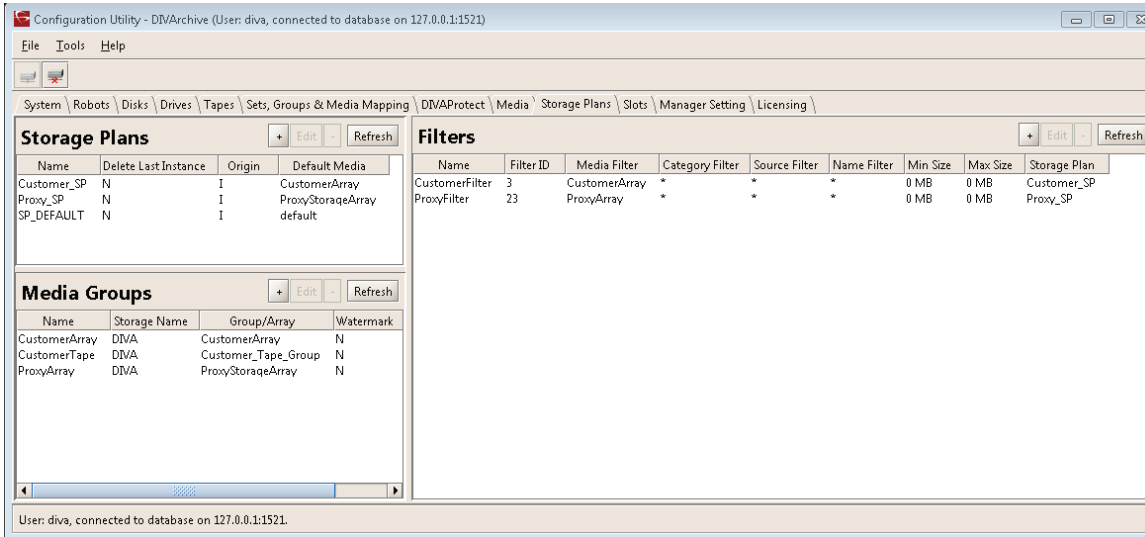


Figure 1. The Configuration Utility's main screen is where storage plans' names, media groups, and assignment rules (Filters) are defined.

Slot Configuration

The rules of each storage plan are also defined within the Configuration Utility, as shown in Figure 2.

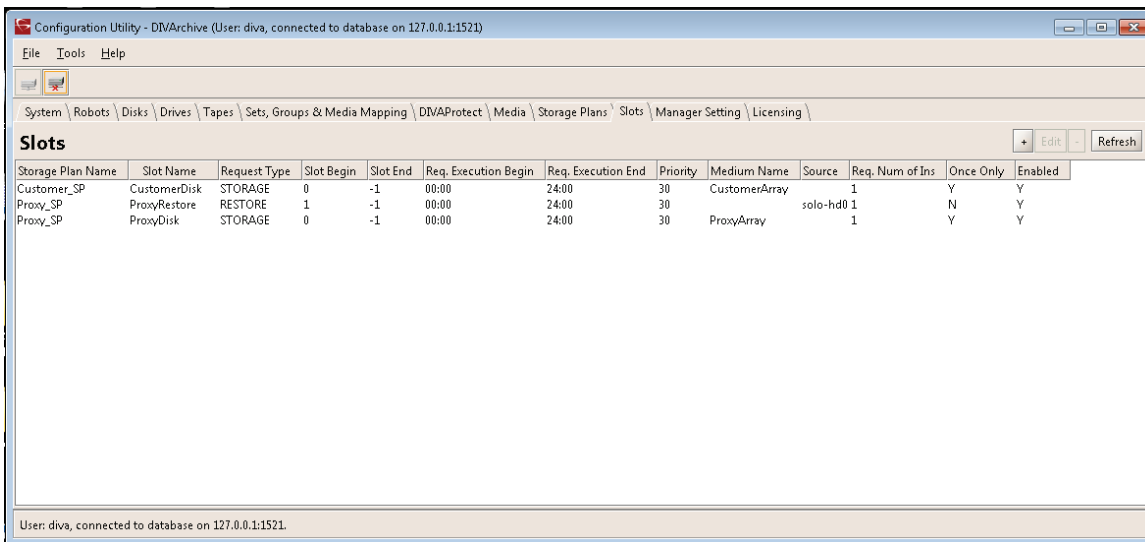


Figure 2. The rules of each storage plan and its related slots are defined within the Configuration Utility.



The slot editor window is shown in Figure 3.

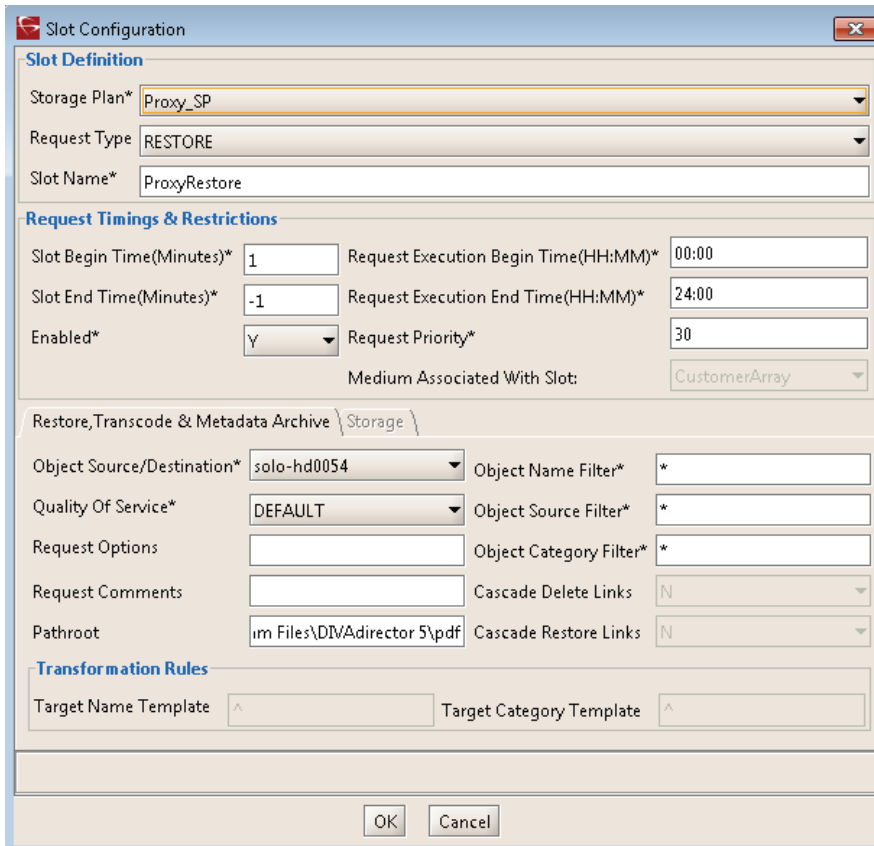


Figure 3. The Slot Configuration dialog box is where slots, timings, and transformation rules are defined.







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