

Working with Tape Libraries

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Tape libraries automate tape media handling which, in conjunction with the Yosemite Server Backup backup schedules, allows hands-off backup operations. A tape library contains one or more tape drives, some number of storage slots for tape media, and, in some cases, import/export slots to add or remove media from the library.

Yosemite Server Backup support for tape libraries allows you to automate and consolidate backup in network environments and manage media efficiently. Yosemite Server Backup has a built in media rotation schemes to help take advantage of the features of your library. Yosemite Server Backup tape library support includes managing media using barcodes, using the on-board memory in some tape cartridges, such as Ultrium Memory in Cartridge, and user-configurable tape media load ports (mail slots).

Always manage your tape media from the Yosemite Server Backup interface. Your tape library may provide a front panel that allows you to carry out various media management tasks but if you use this for media operations the Yosemite Server Backup catalog will not have the up-to-date media location information. For this reason, front panel media operations will require time-consuming inventory processes to update the catalog.

If your library supports multiple tape devices and you want to use a specific device, you must select that device to use it. If you select the library, Yosemite Server Backup will use the first available device in the library it finds.

Installation and Configuration

If the tape library is installed correctly, Yosemite Server Backup automatically detects the tape library. When detected, the tape library is added as an available device to the Yosemite Server Backup catalog.

Once you have installed Yosemite Server Backup, expand the **Devices** view to locate the tape library. Note how the components of the tape library are displayed so that you can see how many devices (tape drives), import-export Slots (mail slots), and storage slots are associated with the library.

Devices The tape drives in a tape library are viewed and managed in the same way as stand-alone tape drives.

Storage Slots The Storage Slots folder displays the number of available slots. Each slot may contain blank (new) media, media containing Yosemite Server Backup data, or media containing unknown (non-Yosemite Server Backup) data. Yosemite Server Backup inventories the media in the slots and displays the information about the media and its status in the view. This allows you to view all kinds of media, not just the media used by Yosemite Server Backup, but you will not be able to select non-Yosemite Server Backup media for a backup or restore job.

It can take a long time to inventory the tape media in a tape library, which is why Yosemite Server Backup usually performs a "light inventory" rather than running an identify job on all the slots in a loader. See the "Inventory Process" section below for more information.

Additional media slot configuration is accessed via the Element Status dialog for that slot, which is accessed by a right click on the desired slot. For example, you can use this to disable slots (using the 'Reserve' option) and identify a cleaning cartridge.

Import/Export Slots Some library devices provide special import/export mail slots an operator uses to enter or eject media to or from the device without removing the whole media repository or magazine. Depending on the device, more than one import/export slot can be provided. In case of a single mail slot, media are inserted one by one, while in case of multiple mail slots, a particular number of slots can be used in one enter/eject operation.

Barcodes and MIC (Memory in Cartridge)

If the tape library supports barcode and/or MIC (memory in cartridge), the details are added to the Yosemite Server Backup catalog. The barcode information is hidden by default; to display this detail, right-click anywhere in the column title row to see available column headings and click on **Media barcode** to make the barcode information visible in the slots view.

Barcode and MIC (memory in cartridge) technologies are used to reduce the time spent organizing and managing media in a library or an autoloader. In these devices, each medium is identified with a unique barcode or, where MIC is used, a chip is embedded in the tape cartridge which holds a unique identifier (as well as other information).

Barcodes and MIC enable Yosemite Server Backup to significantly reduce media recognition, labeling and cleaning tape detection times.

- Scanning the barcode or MIC of the media is faster than reading the medium header, because Yosemite Server Backup does not need to actually load the media into a drive.
- A barcode or MIC is a unique identifier for media in the Yosemite Server Backup catalog. You should not have duplicate barcodes in your environment.

Barcode Filters

The barcode filter allows users to control access to media by barcode. The user can specify ranges, wildcards, or explicit barcodes that either include or exclude media for use by the product. This property only applies to libraries. Stand alone devices are not restricted in any way by it.

The filter rules may be set for the whole domain and will be applied automatically to all tasks. Or, they may be set and applied at job level. Any filter rules applied at job level overwrite the default domain settings.

For more information on setting barcode filters, see [Barcode Job Filters](#).

Initialization Process

The traditional loader inventory mechanism is accomplished by running an identify job on all the slots in a library. This complete inventory can take a very long time, so Yosemite Server Backup uses a "light inventory" process, which is known as an initialization process. This initialization process consists of ...

- Checking that the loader is ready for use. If the magazine door is open, this step will fail, and initialization will fail as a result.
- Querying the number of physical storage, import/export and device elements that the library contains. (These elements will be displayed in the Tape Library view.)
- Binding the loader to its physical devices. This ensures that the devices are associated with the library in the Yosemite Server Backup catalog.
- Updating the status for each element in the loader. Barcodes are read at this time, and are associated with each element regardless of status (i.e. both Invalid and Valid elements get a barcode shown in the loader status pane).

Initialization occurs when the library driver starts (at service startup or when the driver is manually started), when the user selects the Initialize command on the loader object or when Yosemite Server Backup detects that a user has changed the state of the loader (either by opening the front door or by using the front panel).

During initialization, the library will attempt to perform barcode based identification of media. If a match is found, the loader will set that element's status to Probably Valid. This means that if a user is using barcodes with their tape library, they will almost never need to run an identification job.

When the job loads the tape it makes sure that the tape is really what the catalog says it is and, if

necessary, updates the catalog to indicate what is really there. If the tape is, in fact, not usable because of the supplied media rules, the tape is re-stowed and another media is tried.

An Identify job will always physically mount media, and reassociate media to barcodes. This provides a mechanism for users to update barcodes on their media, should they ever need to. It also handles the case where barcodes are added to media after they have been used without barcodes.

Tape Media Management

One benefit of using Yosemite Server Backup with tape libraries is the ease with which you can schedule different backups for different days of the week/month/year. There are no specific media tasks that must be carried out before you run a backup job. As long as the library has valid media loaded in it, Yosemite Server Backup will automatically use it.

Media is invalid if it has been used by another backup product, is dirty or has been corrupted, or simply has not been identified.

Similarly, if you are restoring data from media that is already within the Yosemite Server Backup catalog, there are no media management tasks. However, if you are restoring media from a different domain, you must first import it so that Yosemite Server Backup can add the media to the database and associate all data objects on the tape with that media.

For a detailed description of all media management jobs, please refer to [Device Commands](#).

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