XFS Practical Exercises

09 – Dump and Restore

Overview

The xfsdump and xfsrestore utilities can be used for back up and restore data using local or remote storage media. Filesystems, directories, and/or individual files could be independently dumped and restored. xfsdump also allows "live" (mounted, in-use) filesystem back up.

A dump or restore can be interrupted at any time, and then resumed. xfsdump and xfsrestore support incremental dumps and multiple dumps can be placed on a single storage media. The utilities can automatically divide a dump among multiple storage media, and can restore a dump from multiple storage media.

Goals

The goal of this lab is to give a basic xfsdump and xfsrestore utility description and show how to use them to back up and recover XFS filesystem. For further more advanced usage and features please refer to the utilities reference pages.

Prerequisites

- Empty XFS filesystem
- Installed XFS dump utilities.

Setup

A backup file will be used as a storage media, no tape drives are required.

Exercises

Exercise 1 – Dump an XFS Filesystem

Before the dump, the filesystem is remounted to ensure that all data and metadata has been flushed to disk. A sync does not guarantee this with XFS, since the metadata changes may be in the log on disk but not yet in the inodes on disk. This should not be an issue for nightly backups since its only the most recent changes that may still be outstanding.

Setup

1. Create a directory with files on a XFS filestem:

```
> mkdir a b
> touch a/1 b/1 a/2 b/2
> echo "first dump" >> a/1
> cat a/1
first dump
> ls -R
.:
a  b

./a:
1  2

./b:
1  2
```

Exercise

2. Sync the filesystem by mounting/unmounting:

```
> cd /
> sudo umount /mnt/xfs_filesystem
> sudo mount /dev/sdb2 /mnt/xfs_filesystem
> cd /mnt/xfs_filesystem
```

3. Dump the XFS filesystem to a back up file:

```
> sudo /usr/sbin/xfsdump -f /test_backup_file -L test_backup_session -M
test_media_lable /mnt/xfs_filesystem
```

4. Check that the backup file was created:

```
> ls -al /test_backup_file*
```

Exercise 2 – Incremental Dump an XFS Filesystem

1. Update a file for an incremental back up:

```
> echo "second dump" >> a/1
> cat a/1
first dump
second dump
```

2. Sync the filesystem by mounting/unmounting:

```
> cd /
> sudo umount /mnt/xfs_filesystem
> sudo mount /dev/sdb2 /mnt/xfs_filesystem
> cd /mnt/xfs_filesystem
```

3. Create an incremental back up:

```
> sudo /usr/sbin/xfsdump -f /test_backup_file_incr -l 1 -L
test_backup_session_incr -M test_media_lable_incr /mnt/xfs_filesystem
```

4. Check the backup files have been created:

```
> ls -al /test_backup_file*
```

Exercise 3 – Query the dump archive

xfsdump tracks its transactions in an inventory archive directory `/var/lib/xfsdump/inventory`.

1. Examine xfsdump archive:

```
> /usr/sbin/xfsdump -I
```

Notice that the dump inventory records are presented sequentially and are indented to illustrate the hierarchical order of the dump information.

Exercise 4 – Restore an XFS filesystem

Restore the XFS filesystem from the two backup files created in previous exercises.

1. To check the content of the dump files run:

```
> /usr/sbin/xfsrestore -f /test_backup_file -t -v silent
> /usr/sbin/xfsrestore -f /test_backup_file_incr -t -v silent
```

2. Empty the XFS filesystem:

```
> rm -rf /mnt/xfs_filesystem/*
> ls -R
.:
```

3. Restore the filesystem from the first back up:

```
> sudo /usr/sbin/xfsrestore -f /test_backup_file .
```

4. Check the files have been restored:

```
> ls -R
> cat a/1
```

3. Restore the files from the incremental back up:

```
> sudo /usr/sbin/xfsrestore -f /test_backup_file_incr .
> ls -R
> cat a/1
```