IT 4100: File Systems

EXT 1

Due according to date on Canvas

Assignment

The following should be done on the 10G machine that you created in an earlier assignment. (If you don't have any free space within your extended partition, you could follow this video to perhaps fix it.

Create Partitions

Create a directory named `/mounts`. You will mount all the directories below under this directory.

Create 5 x 100 MB ext4 partitions as described below:

- Block size 1024, no reserved blocks (`/mounts/d1`, `/dev/sda6`)
- Block size 2048, 5% reserved blocks (`/mounts/d2`, `/dev/sda7`)
- Block size 1024, 1024 bytes per inode (`/mounts/d3`, `/dev/sda8`)
- Block size 4096, 128 inodes (`/mounts/d4`, `/dev/sda9`)
- Inode size 128, block size 1024 (`/mounts/d5`, `/dev/sda10`)

Mount Partitions

Put entries in `/etc/fstab` so that these directories will automatically be mounted at boot time. Make sure it actually works. Just use the default options for each.

Exercise the file systems

Be sure that your file systems are all correctly mounted before proceeding.

Be sure NOT to run these tests in your root file system.

Download the following utilities here

- Using the `diskhog` program, find the largest file that can be created in each of the 5 file systems.

- Using the `inodehog` program, find the largest number of files that can be created in each of the file systems.

Understanding file systems

- Make a chart of the largest file size for each of the file systems.

- Make a chart of the largest number of small files for each of the file systems.

- Make a chart of the '1K-blocks' field in the output of `df` for each of the file systems.

- Make a chart of the 'Available' field in the output of `df` after the `diskhog` test for each of the file systems.

- Make a chart of the 'Available' field in the output of `df` after the `inodehog` test for each of the file systems.

Submission File Format

This assignment has an additional submission requirement of submitting the charts described above in PDF format.

The submission file is a UNIX text file, and must have this format, *exactly*!

The file must be named `fs_info.txt`.

```
ip:          ip_address_of_your_file_system_machine
```

For example, my file would look like this:

```
ip:          144.38.214.8
```

Submission and Passoff

- Use the [Submisions link](#) at the top of the page to submit your text file to the $\boxed{\text{EXT}}$ assignment.

- Also submit your PDF file(s) with your charts.

- Check back at the submissions site for feedback on the completeness of your work. Fix anything that's wrong. Repeat.