Introduction to AFS
IMSA Intersession 2003

Managing AFS Services

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Creating `bos` *jobs*

- The `bosserver` process controls the various AFS servers, and can also manage other processes. As noted before, jobs can be of the type simple, fs, or cron. Simple jobs use a single command, fs joins multiple commands together, and cron jobs are ones that run at a particular time.
- The `bos create` command creates new jobs.
- To create simple jobs, use:
  ```
  bos create <server> <instance name> simple
  <command>
  ```
  For instance, to create an instance of a process called "imsaserver":
  ```
  bos create machine1 imsaserver simple
  /usr/afs/bin/imsaserver
  ```

Creating `bos` *jobs, continued*

- To create fs jobs, use:
  `bos create <server> <instance name> fs <command>`
- You will only usually use fs types for file server processes, as shown in the documentation.
- To create cron jobs, use:
  `bos create <server> <instance name> cron <command> <time>`
  For instance, to run a cron job called "backupafs" to run at midnight, you would type:
  `bos create machine1 backupafs cron "/usr/bin/vos backup root.afs –localauth" 0:00`
- Note that cron jobs usually need to use the –localauth flag, since they are being run as root on the AFS servers without a token.
- Also note that each server has a separate `bosserver` configuration stored in the `BosConfig` file, and most servers will have a different set of `bos` jobs.

More about `bos`

- To get the status of the various bos jobs, use the `bos status <server>` command.
- The `-long` switch will give you more information about your jobs.
- You can control the status of processes normally by using the `bos` subcommands `restart, shutdown, startup, stop,` and `start.`
- The `restart` command restarts specified processes (or all of them if the `-all` flag is given.)
- The `shutdown` command shuts down the processes.
- The `startup` command will start processes after they have been shutdown.
- The `stop` command will permanently stop a process.
- The `start` command will start a process that has been sent the shutdown or stop commands.

An aside about command options

- Many of the AFS server commands will require additional options for use.
- Using the `-noauth` flag with the AFS server processes and administration commands will use them without using authentication. You normally only use this when creating a new cell and in extreme emergencies.
- Using the `-localauth` flag when root on an AFS server will allow you to perform administrative tasks on the files and databases on that server without authenticating. Processes will use the key in the local `KeyFile` to authenticate to the servers. This is normally used with AFS cron jobs to allow them to run without having to authenticate manually.
- For most `kas` commands, you must use the `-admin <admin>` command to tell kas to use your admin account for authentication. By default, kas will use your local username, which often is the same as your non-admin AFS account, even if you have an administrator token.

Server encryption keys

- The encryption keys for a server are stored in the `/usr/afs/etc/KeyFile` file.
- You can list the checksums of the keys by issuing the `bos listkeys` command. (You must be a member of the `UserList` to run this.)
- You can examine the current key's checksum in the authentication database by using the `kas examine` command on the "afs" entry. (You must have the ADMIN flag set to do this.)
- Changing the server key is a two-part process.
- First, you must issue the `bos addkey` command with a version number 1 higher than the one given by `listkeys`. Then you will set a new password for the key.
- Then, you must do a `kas setpasswd` for the "afs" entity with the same version number you set in `addkey`.
- Finally, check the checksums of both entries to ensure that they match.

Three types of Superuser access

- There are three types of AFS superuser access.
- The first type allows you to modify the authentication database and issue any `kas` commands. To have this, your account must have the ADMIN field set in the authentication database. You can do this by using the `kas setfields` command:
  ```
  kas setfields <user> ADMIN
  ```
- The second type allows you to execute any `fs` or `pts` commands. To do this, you must be in the group `systems:administrators`. To be in the list, execute the `pts adduser` command:
  ```
  pts adduser <user> system:administrators
  ```
- The final type allows you to run `vos`, `bos`, and `backup` commands on the server. To do this, you must be in the server's `UserList` file. To add yourself to the list, execute the `bos adduser` command. Note that this must be run for each database or file server:
  ```
  bos adduser <server> <user>
  ```

Creating a new AFS account

- You can create a new AFS account using the `uss` command suite, but you need to have a template set up first to do this. Please read the documentation for `uss` to learn how to use that method.
- Creating an account by hand is a three-step process.
- First, create an entry in the authentication database by using the `kas create <user>` command. You will be prompted to enter the user's initial password.
- Next, create an entry in the protection database by using the `pts createuser <name> <UID>` command. You will normally want to match the UID to the user's Unix UID.
- Finally, create a home directory volume, and mount it in the proper place. Generally, home directory volumes are prepended with "user" or "home" and end with the user's login name, such as "user.bob".
- If you are creating an administrator account, be sure to add the correct superuser permissions.

Conclusion –
Additional Commands

- There are a few more administrative commands in the various command suites, but you normally do not need to use them.
- In the `bos` suite, you will find subcommands to change the time the server restarts, run commands on servers, etc.
- In the `fs` suite, you will find commands to modify the behavior of the cache manager, such as flushing the cache and verifying volume mappings.
- In the `pts` suite you will find commands to create users and groups, and modify entries to add fields, change the group quota, etc.
- In the `vos` suite you can modify the names of file servers, create backup volumes en masse, find information about partitions, etc.
- In the `kas` suite you can change ticket lifetimes, add fields to users, lock their accounts, etc.
- Please see the information given by the "`help`" subcommands or read the *AFS Administrator's Guide* in the AFS documentation collection at http://www.openafs.org/doc/index.htm .