

Michael Hartung
02/12/2015
Server Process Management
Operating Systems Concepts

SPM: Design Documentation

The Server Process Management management project is comprised of three main files; mainServer.c, server.c, and process.c. These files must all be compiled as mainServer, server, and process in order for the mainServer to call the correct executables. The creation of each server is the result of a fork of the masterServer and an immediate exec call to the server executable, and each process is a fork of it's respective server and an immediate exec call to the process executable. Thus:

MainServer —> Server —> Process

Function of each file:

- mainServer.c - This process is the main process that spawns child server processes as well as sends signals to those servers to spawn child processes. This processes also includes the ability to Display the Master/Server/Process hierarchy.
- server.c - This process begins when exec is called from the master server and is responsible for handling it's own child processes.
- process.c - This process is spawned from the Child server and waits for 100 seconds and if not killed before reaching the end will signal the server to spawn a copy a new process to take it's place.

mainServer will begin by creating two server instances, FileServer (Min: 2, Max: 4) and WebServer (Min: 3, Max: 5). After the initial servers are created, the following commands can be used:

- createServer (minProcs) (maxProcs) (serverName) - Creates a new server with Min/Max Processes under the name (serverName).
- abortServer (serverName) - Aborts a server under the name (serverName).
- createProcess (serverName) - creates a new process for the server referenced as (serverName).
- abortProcess (serverName) - aborts a process for the server referenced as (serverName).
- displayStatus - Displays a hierarchical view of the current running servers and processes.