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Understanding Bash fork() bomb ~ :(){ :|:& }::

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Q. Can you explain following bash code or bash fork() bomb?
:(){ :|:& }::

A. This is a bash function. It gets called recursively (recursive function). This is most horrible code for any Unix / Linux box. It is often used by sys admin to test user processes limitations (Linux process limits can be configured via /etc/security/limits.conf and PAM).

Once a successful fork bomb has been activated in a system it may not be possible to resume normal operation without rebooting, as the only solution to a fork bomb is to destroy all instances of it.



[1]



WARNING! These examples may crash your computer if executed.

Understanding :(){ :|:& }:: fork() bomb code

:() - It is a function name. It accepts no arguments at all. Generally, bash function is defined as follows:

```
foo() {
  arg1=$1
  echo ''
  #do_something on $arg argument
}
```

fork() bomb is defined as follows:

```
:() {
  :|:&
};:
```

:|: - Next it call itself using programming technique called recursion and pipes the output to another call of the function '|:'. The worst part is function get called two times to bomb your system.

& - Puts the function call in the background so child cannot die at all and start eating system resources.

;- Terminates the function definition

:- Call (run) the function aka set the fork() bomb.

Here is more human readable code:

```
bomb() {
  bomb | bomb &
}; bomb
```

Properly configured Linux / UNIX box should not go down when fork() bomb sets off.

Related: [How to: Prevent a fork bomb by limiting user process under Linux](#) ^[2].

Update: Check out [comment # 5](#) ^[3] for more fork bomb examples under Perl, Windows XP and C.

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[1] Image: <http://www.cyberciti.biz/faq/faq/category/bash-shell/>

[2] How to: Prevent a fork bomb by limiting user process under Linux: <http://www.cyberciti.biz/tips/linux-limiting-user-process.html>

[3] comment # 5: [#comment-37097](#)

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