**关于limits生效的四个案例**

**简介：** 进程大量too many open file 的报错，修改/etc/security/limits.conf未生效

第一个问题  
limits.conf的限制在/proc/pid/limits中未生效

# cat /proc/3606/limits

Limit Soft Limit Hard Limit Units

Max processes 31202 31202 processes

Max open files 1024 4096 files

在Centos7 & ubuntu 系统中，使用Systemd替代了之前的SysV。/etc/security/limits.conf文件的配置作用域缩小了。  
/etc/security/limits.conf的配置，只适用于通过PAM认证登录用户的资源限制，它对systemd的service的资源限制不生效。因此登录用户的限制，通过/etc/security/limits.conf与/etc/security/limits.d下的文件设置即可。

对于systemd service的资源设置，则需修改全局配置，  
全局配置文件放在/etc/systemd/system.conf和/etc/systemd/user.conf，  
同时也会加载两个对应目录中的所有.conf文件/etc/systemd/system.conf.d/*.conf和/etc/systemd/user.conf.d/*.conf  
system.conf是系统实例使用的，user.conf是用户实例使用的。

vim /etc/systemd/system.conf

DefaultLimitNOFILE=100000

DefaultLimitNPROC=65535

修改并重启即可

# cat /proc/3613/limits

Limit Soft Limit Hard Limit Units

Max processes 65535 65535 processes

Max open files 100000 100000 files

第二个问题  
在服务里面设置LimitNOFILE=infinity为什么不是无穷大？  
在服务里面设置LimitNOFILE=infinity 后，通过查看pid的limit发现openfile是65536 ，而不是无穷大  
查看服务配置

[root@iZwz98aynkjcxvtra0f375Z ~]*# cat /etc/systemd/system/multi-user.target.wants/docker.service |grep -vi "^#"|grep -vi "^$"*

[Unit]

Description=Docker Application Container Engine

Documentation=https://docs.docker.com

BindsTo=containerd.service

After=network-online.target firewalld.service containerd.service

Wants=network-online.target

Requires=docker.socket

[Service]

Type=notify

ExecStart=/usr/bin/dockerd -H fd://

ExecStartPost=/usr/sbin/iptables -P FORWARD ACCEPT

ExecReload=/bin/kill -s HUP $MAINPID

TimeoutSec=0

RestartSec=2

Restart=always

StartLimitBurst=3

StartLimitInterval=60s

LimitNOFILE=infinity

LimitNPROC=infinity

LimitCORE=infinity

TasksMax=infinity

Delegate=yes

KillMode=process

[Install]

WantedBy=multi-user.target

查看配置效果

*# cat /proc/11019/limits*

Limit Soft Limit Hard Limit Units

Max cpu time unlimited unlimited seconds

Max file size unlimited unlimited bytes

Max data size unlimited unlimited bytes

Max stack size 8388608 unlimited bytes

Max core file size 0 unlimited bytes

Max resident set unlimited unlimited bytes

Max processes 31202 31202 processes

Max open files 65536 65536 files

Max locked memory 65536 65536 bytes

Max address space unlimited unlimited bytes

Max file locks unlimited unlimited locks

Max pending signals 31202 31202 signals

Max msgqueue size 819200 819200 bytes

Max nice priority 0 0

Max realtime priority 0 0

Max realtime timeout unlimited unlimited us

这个是systemd的bug，低于240的版本需要手动设置才可以生效  
LimitNOFILE=102400  
<https://github.com/systemd/systemd/issues/6559>

第三个问题  
为什么openfile不能设置为unlimited

[root@iZwz98aynkjcxvtra0f375Z ~]*# ulimit -n*

65535

[root@iZwz98aynkjcxvtra0f375Z ~]*# ulimit -n unlimited*

-bash: ulimit: open files: cannot modify limit: Operation not permitted

原因是 centos7里 openfile不能大于nr\_open

[root@iZwz98aynkjcxvtra0f375Z ~]*# cat /proc/sys/fs/nr\_open*

1048576

[root@iZwz98aynkjcxvtra0f375Z ~]*# ulimit -n 1048577*

-bash: ulimit: open files: cannot modify limit: Operation not permitted

[root@iZwz98aynkjcxvtra0f375Z ~]*# ulimit -n 1048576*

[root@iZwz98aynkjcxvtra0f375Z ~]*# ulimit -n*

1048576

关于file-max nr\_open file\_nr的解释 可参考  
<https://www.kernel.org/doc/Documentation/sysctl/fs.txt>

第四个问题  
使用supervisor管理进程（测试环境ubuntu 1604）启动进程后，maxfile是1024  
需要修改配置文件

*#cat /etc/supervisor/supervisord.conf*

[supervisord]

logfile=/var/log/supervisor/supervisord.log ; (main log file;default $CWD/supervisord.log)

pidfile=/var/run/supervisord.pid ; (supervisord pidfile;default supervisord.pid)

childlogdir=/var/log/supervisor ; ('AUTO' child log dir, default $TEMP)

下面这两行

minfds=655350 ; min. avail startup file descriptors; default 1024

minprocs=65535 ; min. avail process descriptors;default 200

*# cat /proc/2423/limits*

Limit Soft Limit Hard Limit Units

Max cpu time unlimited unlimited seconds

Max file size unlimited unlimited bytes

Max data size unlimited unlimited bytes

Max stack size 8388608 unlimited bytes

Max core file size 0 unlimited bytes

Max resident set unlimited unlimited bytes

Max processes 65535 65535 processes

Max open files 655350 655350 files ------------修改成功

Max locked memory 65536 65536 bytes

Max address space unlimited unlimited bytes

Max file locks unlimited unlimited locks

Max pending signals 61946 61946 signals

Max msgqueue size 819200 819200 bytes

Max nice priority 0 0

Max realtime priority 0 0

Max realtime timeout unlimited unlimited us

外部文档  
<https://www.cnblogs.com/zengkefu/p/5635153.html>  
<https://blog.csdn.net/google0802/article/details/52304776>  
<http://blog.cloud.360.cn/post/tuning-your-system-for-high-concurrency.html>  
<https://blog.csdn.net/qq_38165374/article/details/104881340>