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# Linux Kernel Parameter - Dirty ; Page cache control

: [http://kakaodbe.blogspot.kr/2014/03/linux-kernel-parameters-and-mysql\\_2226.html](http://kakaodbe.blogspot.kr/2014/03/linux-kernel-parameters-and-mysql_2226.html)

## Overview

MySQL

## Definition

Linux `/proc/sys/vm` , Page Cache , dirty data disk flush 6

Kernel Parameter	description	Default
<code>dirty_background_ratio</code>	dirty page , pdflush	10(%)
<code>dirty_ratio</code>	process가 dirty page	40(%)
<code>dirty_background_bytes</code>	$\frac{\text{dirty\_background\_ratio}}{100} \times \text{dirty\_background\_ratio}$ 가	0
<code>dirty_bytes</code>	$\frac{\text{dirty\_ratio}}{100} \times \text{dirty\_ratio}$ 가	0
<code>dirty_writeback_centisecs</code>	page flush dirty	500(1/100sec)
<code>dirty_expire_centisecs</code>	page dirty page가	3000(1/100sec)

## Process

pdflush 'dirty\_writeback\_centisecs' writeback ,  
 page cache dirty page  
 'dirty\_background\_ratio' 'dirty\_expire\_centisecs'  
 dirty page disk flush .

# Opinion

## dirty\_background\_ratio

I/O . pdfflush disk flush dirty page ,  
 I/O I/O  
 가 dirty\_background\_ratio  
 . ( DB insert update !)

## dirty\_writeback\_centisecs

page 가 page

## dirty\_expire\_centisecs

30 , disk  
 30 dirty data가 disk  
 . ( InnoDB innodb\_flush\_method  
 innodb\_max\_dirty\_pages\_pct  
 .) \*\* innodb\_max\_dirty\_pages\_pct : innodb buffer fool dirty page

# Latest Issue and Kernel Parameters

i/o 가 가 가  
 Filesystem Cache dirty data , swap  
 cache unmap 가 dirty page 1 가 Cache  
 Cache data dirty data disk i/o가 가

```
/proc/sys/vm/dirty_background_ratio : 10 ==> 1
/proc/sys/vm/dirty_expire_centisecs : 3000 ==> 1000
```

dirty\_background\_ratio 1 cache 1% dirty page가  
 , dirty\_expire\_centisecs 10 dirty page가 cache

# Details of Mysql\_Cache\_Unmap

Kakao DB Team Filesystem Cache swap cache\_unmap  
 . ( url :  
<http://kakaodbe.blogspot.kr/2013/09/mysql-linux-file-system-cache-2.html>) cache  
 unmap

```
db          mysql_cache_unmap          Matt          가
            . (                  : mysql_cache_unmap.c)
cache unmapping          Crontab          .
```

```
# Crontab Setting
*/10 * * * * root LD_LIBRARY_PATH=/otp/mysql/lib:
/otp/mysql/admin/mysql_cache_unmap --defaults-file=/etc/my.cnf --
binary_os_cache_size=1024M > /otp/mysql/admin/mysql_cache_unmap.log2>&1
```

```
-defaults-file          mysql server configuration files          . cache unmap
                        binary log data file          innodb redo log
                        . -binary_os_cache_size          Linux OS Cache
cache_unmap            (          1024M) Linux OS
Cache
mysql_cache_unmap
```

```
root@host:~ 14:10:09> cat /opt/mysql/admin/mysql_cache_unmap.log
Read configuration
innodb_data_dir : /opt/mysql/data
innodb_log_dir : /opt/mysql/data
binary_log_dir : /opt/mysql/data/mysql-binary
binary_os_cache_size : 1073741824
relay_log_dir : /opt/mysql/data/mysql-relay
> unmap_file_all : datafile : /opt/mysql/data/dbname1/tablename1.ibd
> unmap_file_all : datafile : /opt/mysql/data/dbname1/tablename2.ibd
> unmap_file_all : logfile : /opt/mysql/data/ib_logfile0
> unmap_file_all : logfile : /opt/mysql/data/ib_logfile1
> skip unmap file: binary : /opt/mysql/data/mysql-binary.041728 : 0 ~
60083119
> skip unmap file: binary : /opt/mysql/data/mysql-binary.041727 : 0 ~
104857974
> skip unmap file: binary : /opt/mysql/data/mysql-binary.041726 : 0 ~
104857975
> skip unmap file: binary : /opt/mysql/data/mysql-binary.041725 : 0 ~
104857883
> skip unmap file: binary : /opt/mysql/data/mysql-binary.041724 : 0 ~
104857852
> skip unmap file: binary : /opt/mysql/data/mysql-binary.041723 : 0 ~
104857920
> skip unmap file: binary : /opt/mysql/data/mysql-binary.041722 : 0 ~
104857989
> skip unmap file: binary : /opt/mysql/data/mysql-binary.041721 : 0 ~
104857781
> skip unmap file: binary : /opt/mysql/data/mysql-binary.041720 : 0 ~
104857784
> skip unmap file: binary : /opt/mysql/data/mysql-binary.041719 : 0 ~
104857666
```



