## Subject: Re: Suggestions on the use of lockfiles? Posted by rmoss4 on Sun, 09 Feb 2003 20:08:06 GMT

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There is probably 100 different ways to approach this, but I prefer to start simple. Try this: when the lockfile is created, write some unique identifier into the lock file (e.g. the host name of the machine doing the locking). Just before you actually start writing the DB, confirm that the first line in the lockfile corresponds to the machine that is getting ready to alter the DB. If it does not, it can go back to the wait loop.

Robert Moss, PhD rmoss4@houston.rr.com

## Jonathan Greenberg wrote:

- > I am having some troubles using lockfiles to do simple database read/writes
- > without getting a database corruption (I'm trying to hack my way around
- > buying Dataminer):
- > I have two or more computers running this code:
- dblockname is the name of the lockfile for the database
- > \*\*\* >

>

- > while [program is still running] do begin
- ; Waits for the lockfile to not exist
- while (file test(dblockname) eq 1) do begin >
- wait.1 >
- endwhile
- > ; Creates a lockfile
- openw,dblocklun,dblockname,/GET\_LUN >
- printf,dblocklun,"
- free\_lun,dblocklun >
- > [gets the database, reads and writes to it]
- > ; Deletes the lockfile, and returns to the top of the loop
- file delete, dblockname >
- > endwhile
- > >

>

>

- > The problem I'm having is that from time to time (depending on the speed of
- > the database I/O), I'm getting errors where, and this is a guess, one
- > computer manages to check for a nonexistant lockfile at the same time as
- > another, and so both computers break out of the loop at the same time and

- > start fooling around with the database at the same time. At the end,
- > whichever computer deletes the lockfile first can reenter the loop, but the
- > 2nd computer gets an error since the file was already deleted (and the
- > database is likely to be corrupted at this point).

>

- > Ideas? The astronomy lockfile procedures appear to be unix only, and I'm
- > trying to design this for any platform (Windows, Mac, UNIX). Apparently I
- > can openw the same file from two computers without error (I wish that I
- > could override this fact). Help!

>

> --j

>

Subject: Re: Suggestions on the use of lockfiles?
Posted by Jonathan Greenberg on Mon, 10 Feb 2003 06:16:24 GMT
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## Robert:

Thanks! That sounds fine, and is almost what I had come up with (incidentally, I finally found out the term for this is a "race condition", since I'm not a programmer it took some searching so I could find an official term for what was happening) -- here's the only possible issue that I was concerned about:

If two computers openw,/APPEND and printf the same file, let's say their ID (computer #1 = 100 and #2 = 200), do we only have 2 possibilities in IDL:

## Lockfile contains:

100

200

Or

200

100

Or is it possible to have both writing at the same time, giving some corrupted ID like:

210000 (200 with "100" inside of it)?

If the corrupted id is possible, it makes the situation a bit more confusing, since the lockfile needs to be deleted before it can move on, an this brings up some other issues (who gets to delete the file?)

--j

On 2/9/03 12:08 PM, in article Gyy1a.7580\$yn1.672904@twister.austin.rr.com, "Robert Moss" <rmoss4@houston.rr.com> wrote:

```
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> that the first line in the lockfile corresponds to the machine that is
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> Robert Moss, PhD
> rmoss4@houston.rr.com
> Jonathan Greenberg wrote:
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    openw,dblocklun,dblockname,/GET_LUN
    printf,dblocklun,"
    free lun,dblocklun
>>
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    file delete, dblockname
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>> --j
>> --j
>>>>

Subject: Re: Suggestions on the use of lockfiles?
Posted by Craig Markwardt on Tue, 11 Feb 2003 04:01:15 GMT
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Jonathan Greenberg <greenberg@ucdavis.edu> writes:

> Robert:

>

- > Thanks! That sounds fine, and is almost what I had come up with
- > (incidentally, I finally found out the term for this is a "race condition",
- > since I'm not a programmer it took some searching so I could find an
- > official term for what was happening) -- here's the only possible issue that
- > I was concerned about:

>

- > If two computers openw,/APPEND and printf the same file, let's say their ID
- > (computer #1 = 100 and #2 = 200), do we only have 2 possibilities in IDL:
- ... examples of two processes overwriting each other...

What you need to do is make an atomic operation. One way to do that is write the data to a temporary file, then use rename or "mv" to rename the temp file to the lockfile name. Since "mv" should be atomic, there will be no race condition, and the file will be moved complete. Then proceed from there.

Craig	
,	craigmnet@cow.physics.wisc.edu Remove "net" for better response