

# countm

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## Abstract

**countm** is a simple utility to list, insert, and delete link entries within **mod\_countm** database files.

## 1 The Command Line

**countm** [DB4\_OPTIONS] -dbenv= -dbfile= [OPTIONS] COMMAND  
**countm** [MySQL\_OPTIONS] -user= -db= [OPTIONS] COMMAND  
OPTIONS are all command line items beginning with a dash (-), up to, but not including, COMMAND.  
COMMAND identifies the command to process.

## 2 Command Line COMMAND

COMMAND is exactly one of [L,LIST], [I,INSERT], or [D,DELETE].  
Only the first letter is significant.

## 3 Command Line COMMAND - LIST

List information from the specified database(s).  
Returns true (0) if listing is successful.

### 3.1 List DB\_COUNTER

```
countm [-x] -dbc L
```

List all links in DB\_COUNTER. Used to generate a list of links in DB\_COUNTER for scripts. The -x adds header information and the DB\_COUNTER information associated with link.

```
[apache] countm -dbenv=/var/countm/dbase -dbfile=countm.db -dbc L  
one  
two  
http://www.mydomain.com/b+ +stuff/index.html
```

```

[apache] countm -dbenv=/var/countm/dbase -dbfile=countm.db -dbc -x L
LINK:one
DB_COUNTER:
cnt=23
image=jpeg
count=norm_inc
random=false
atime=2005-03-09
width=0
point=18
bgcolor=tn_ss.jpeg
text=FFFFFF
font=FreeMono.ttf
LINK:two
DB_COUNTER:
cnt=23
image=jpeg
count=inc_nopub
random=true
atime=2005-03-09
width=6
point=18
bgcolor=tn_ss.jpeg
text=FFFFFF
font=FreeMono.ttf
LINK:http://www.mydomain.com/b+ +stuff/index.html
DB_COUNTER:
cnt=23
image=jpeg
count=norm_inc
random=false
atime=2005-03-09
width=0
point=18
bgcolor=tn_ss.jpeg
text=FFFFFF
font=FreeMono.ttf

countm [-x] -dbc -l=linkname L

```

List information for specific link linkname from DB\_COUNTER. Used to generate DB\_COUNTER information for a specific link. The -x adds header information, and the linkname itself.

```

[apache] countm -dbenv=/var/countm/dbase -dbfile=countm.db -dbc -l=one L
cnt=23
image=jpeg

```

```

count=norm_inc
random=false
atime=2005-03-09
width=0
point=18
bgcolor=tn_ss.jpeg
text=FFFFFF
font=FreeMono.ttf
\end{verbatim}

\begin{verbatim}
[apache] countm -dbenv=/var/countm/dbase -dbfile=countm.db -x -dbc -l=one L
LINK:one
DB_COUNTER:
cnt=23
image=jpeg
count=norm_inc
random=false
atime=2005-03-09
width=0
point=18
bgcolor=tn_ss.jpeg
text=FFFFFF
font=FreeMono.ttf

countm [-x] L
countm [-x] -dbc -dba L

```

List all links from DB\_COUNTER, with DB\_ACCESS information. Not really useful. The -x adds header information, the linkname, and the DB\_COUNTER information associated with each link. Used to dump the entire database.

```

[apache] countm -dbenv=/var/countm/dbase -dbfile=countm.db -x L
LINK:one
DB_COUNTER:
cnt=23
image=jpeg
count=norm_inc
random=false
atime=2005-03-09
width=0
point=18
bgcolor=tn_ss.jpeg
text=FFFFFF
font=FreeMono.ttf
DB_ACCESS:
laptop.localzone

```

```
techguy.localzone
waiter.localzone
LINK:two
DB_COUNTER:
cnt=23
image=jpeg
count=inc_nopub
random=true
atime=2005-03-09
width=6
point=18
bgcolor=tn_ss.jpeg
text=FFFFFF
font=FreeMono.ttf
DB_ACCESS:
laptop.localzone
techguy.localzone
waiter.localzone
LINK:http://www.mydomain.com/b+ +stuff/index.html
DB_COUNTER:
cnt=23
image=jpeg
count=norm_inc
random=false
atime=2005-03-09
width=0
point=18
bgcolor=tn_ss.jpeg
text=FFFFFF
font=FreeMono.ttf
DB_ACCESS:
laptop.localzone
techguy.localzone
waiter.localzone

[apache] countm -dbenv=/var/countm/dbase -dbfile=countm.db L
one
laptop.localzone
techguy.localzone
waiter.localzone
two
laptop.localzone
techguy.localzone
waiter.localzone
http://www.mydomain.com/b+ +stuff/index.html
laptop.localzone
```

```
techguy.localzone
waiter.localzone
```

```
countm [-x] -l=linkname L
countm [-x] -dbc -dba -l=linkname L
```

List all information from DB\_COUNTER for specific linkname, with DB\_ACCESS information. Not really useful. The -x add header information, and outputs the linkname. Used to edit a specific links information by creating a text file to edit, then inserted back into the database.

```
[apache] countm -dbenv=/var/countm/dbase -dbfile=countm.db -l=one L
cnt=23
image=jpeg
count=norm_inc
random=false
atime=2005-03-09
width=0
point=18
bgcolor=tn_ss.jpeg
text=FFFFFF
font=FreeMono.ttf
laptop.localzone
techguy.localzone
waiter.localzone
```

```
[apache] countm -dbenv=/var/countm/dbase -dbfile=countm.db -x -l=one L
LINK:one
DB_COUNTER:
cnt=23
image=jpeg
count=norm_inc
random=false
atime=2005-03-09
width=0
point=18
bgcolor=tn_ss.jpeg
text=FFFFFF
font=FreeMono.ttf
DB_ACCESS:
laptop.localzone
techguy.localzone
waiter.localzone
```

### 3.2 List DB\_ACCESS

```
countm -dba L
```

List all links in DB\_ACCESS. Used by scripts to get a list of all links in DB\_ACCESS.

```
[apache] countm -dbenv=/var/countm/dbase -dbfile=countm.db -dba L
one
two
http://www.mydomain.com/b+ +stuff/index.html

countm -x -dba L
```

List all links in DB\_ACCESS and the hostnames associated with each link. Also adds header information. Used to dump DB\_ACCESS but rarely required.

```
[apache] countm -dbenv=/var/countm/dbase -dbfile=countm.db -dba -x L
LINK:one
DB_ACCESS:
laptop.localzone
techguy.localzone
waiter.localzone
LINK:two
DB_ACCESS:
laptop.localzone
techguy.localzone
waiter.localzone
LINK:http://www.mydomain.com/b+ +stuff/index.html
DB_ACCESS:
laptop.localzone
techguy.localzone
waiter.localzone

countm [-x] -dba -l=linkname L
```

List all the host names associated with linkname. Used by scripts to list all hostnames associated with a link. -x adds some headers, and outputs the linkname. Rarely used.

```
[apache] countm -dbenv=/var/countm/dbase -dbfile=countm.db -dba -l=one L
laptop.localzone
techguy.localzone
waiter.localzone
```

```
[apache] countm -dbenv=/var/countm/dbase -dbfile=countm.db -x -dba -l=one L
LINK:one
DB_ACCESS:
laptop.localzone
techguy.localzone
waiter.localzone
```

## 4 Command Line COMMAND - INSERT

Insert information from a formatted text file into database. Return true (0) if insertion succeeds, false (error code) otherwise. Normally, this file is created with the L(ist) command.

```
countm -f=filename I
```

Returns true (0) if insertion is successful, false (error code) otherwise. If the link(s) are currently in DB\_COUNTER, the data from filename overwrites the data currently in DB\_COUNTER. The hostnames associated with a link are added to the DB\_ACCESS list for associated link(s). The values currently associated with a links DB\_ACCESS list remain unchanged.

## 5 Command Line COMMAND - DELETE

Permanently deletes information associated with a link from the database(s). The -x parameter is ignored.

```
countm -l=linkname D  
countm -dbc -dba -l=linkname D
```

Deletes all information associated with a specific link from DB\_COUNTER and the links access list from DB\_ACCESS. If the link is in neither DB\_COUNTER or DB\_ACCESS, CM\_NO\_LINK is returned. This is the normal use of **countm** delete.

```
countm -dbc -l=linkname D
```

Deletes all the information associated with a specific link from DB\_COUNTER. If linkname is not in DB\_COUNTER, CM\_NO\_LINK is returned.

```
countm -dba -l=linkname D
```

Deletes all the access list information associated with a specific link from DB\_ACCESS. If linkname is not in DB\_COUNTER, CM\_NO\_LINK is returned.

```
countm -dba -h=hostname -l=linkname D
```

Deletes the specific hostname from the links DB\_ACCESS access list. If link and/or hostname is not in DB\_ACCESS, CM\_NO\_LINK is returned.

```
countm -dba -h=hostname D
```

Deletes the the specific hostname from all links (in DB\_ACCESS) DB\_ACCESS access list. If hostname is not associated with any link in DB\_ACCESS, CM\_NO\_LINK is returned.

## 6 DB4\_OPTIONS

The two required DB4\_OPTIONS are:

-dbenv identifies the DB4 environment to use.

-dbfile identifies the DB4 database file (within dbenv) to use.

## 7 MySQL\_OPTIONS

The MySQL\_OPTIONS (two are required) are:

-user= (Required) Identifies the MySQL user ID.

-db= (Required) Identifies the MySQL database to use.

-host= Identifies the MySQL host name.

-passwd= Identifies the MySQL user ID password.

-port= The port to connect. Normally not required.

-unix\_socket= The socket to connect. Normally not required.

-opt\_group= The group name of extra options within a file.

-opt\_file= The file name to access when connecting to database with options.

## 8 Command Line Options

### 8.1 -dba

-dba Apply operation to DB.ACCESS.

### 8.2 -dbc

-dbc Apply operation to DB.COUNTER.

### 8.3 -l=linkname

-l=linkname Use this linkname. A -l= empty string is the same as not using the -l option.

### 8.4 -l=hostname

-h=hostname Use this hostname. A -h= empty string is the same as not using the -h option. Only valid with the -dba option.

### 8.5 -x

-x Extended listing.

- List all info from DB.COUNTER, not just the link.
- Adds header information and used to produce a file for INPUT.



## 8.6 -f=filename

**-f=filename** Use this file as an input file. A -f= empty string is the same as not using the -f option.

## 8.7 -dbenv=/path/to/dbenv

**-dbenv=/path/to/dbenv**

- Absolute path to dbenv.
- Same as directive CountmEnvironmentHome.
- Required for all commands.

## 8.8 -dbfile=database\_file

**-dbfile=database\_file** The name of the counter database file, within dbenv.

- Same as directive CountmDB.
- Required for all commands.

## 8.9 -V

**-V** print version information and exit.

## 8.10 -?

**-?** Print help message and exit.

# 9 Return Codes

RETURN CODES

- 0 = success (true)
- 1 = no link in database(s)/ database(s) empty. (false)
- 2 = database error. (false)
- 3 = Invalid parameter given. (false)
- 4 = A duplicate parameter was given. (false)
- 5 = No host was in database. (false)
- 6 = File error. (false)
- 7 = Input file syntax error. (false)
- 8 = Invalid linkname. (false)
- 9 = Memory error. (false)

# 10 Usage Notes

Some important utility usage notes.

## 10.1 The Database

See the **mod\_countm** manual for a complete description of the database. To summarize, within an environment, one or more database files may exist. Each database file contains two sub databases: DB.COUNTER and DB.ACCESS. Sub database DB.COUNTER maintains, for each link, the count value and default parameter values. Sub database DB.ACCESS maintains, for each link, an access list ( a listing of all accessing remote hosts.)

## 10.2 DB4 Database Locking

The **countm** utility process and the **mod\_countm** threads of control coordinate database access via a “countm utility master lock” and a environment file lock.

The **countm** utility may only acquire the master lock when no **mod\_countm** thread of control has been granted the master lock. The **mod\_countm** threads of control are always granted the master lock unless the **countm** utility has been granted the master lock. This means that while the **countm** utility is running, no **mod\_countm** thread of control may access the database.

A possible lock conflict may arise if the **countm** utility and a **mod\_countm** thread of control attempt to create the environment and databases simultaneously.

If the **countm** utility and/or the **mod\_countm** server crashes (shuts down incorrectly, or other reason) the env.lck file or the environment must be removed manually.

## 10.3 DB4 Creating Databases

When run with the same permissions as the Apache runtime server, the **countm** utility may create environment and databases. Due to the environment lockfile access situation, however, avoid using the **countm** utility to create environments and databases.

## 10.4 MySQL Database Locking

Each query acquires a lock on both DB.ACCESS and DB.COUNTER tables. Locks are automatically released on connection close.

## 10.5 MySQL Creating the Database

The **countm** utility will attempt to create the MySQL database and tables if the **countm** utility successfully connects to the MySQL database, but cannot select the -db= database. The -user= must have create table permissions. Just as a note, if an existing database was deleted incorrectly, any create database attempt will fail. When deleting databases manually, always delete the table entries first, then the tables, then the database. By looking at the physical location on the filesystem of the MySQL server database files, and existing

directory with the deleted database name is a sure sign that the database was deleted improperly.

The help option will print out the MySQL statements used to create the database and tables.

The **countm** utility does not have to be run with any special user permissions.

Using the **countm** utility to create the MySQL database and tables is recommended.

After a new install, running the **countm** utility with just the L command will create the database and tables, the list nothing.

## 10.6 MySQL Database - Fine Tuning

Unlike **mod\_countm**, the **countm** utility, depending on the command, may access the entire DB\_COUNTER and/or DB\_ACCESS table. To control, to some extent, the amount of information requested per statement, use the `countm_util.h` compile time `COUNTM_MYSQL_SELECT_ROWS` option.

The compile time option `COUNTM_MYSQL_SELECT_ROWS` determines the number of rows retrieved from the MySQL Database each request. A 0 setting will select all results in one request (excellent for low traffic sites.) A larger number will create larger network packets, but result in fewer database requests. Smaller numbers will result in smaller packets, but more database requests. Use this in conjunction with the MySQL Database Administration System Server Variable `max_allowed_packet`.

In some situations, the MySQL C API data type `my_ulonglong` is printed out using the `printf` “%llu” format. If a particular libc implementation does not implement this, all instances should be changed to “%lu”.

## 10.7 Linkname and Hostname encoding

**countm** does not encode, decode, or process in any manner linkname and hostname parameter values. The command line linkname and hostname parameter values should be stated exactly as their actual values, without any encoding. A generated listing of all entries in the database will print the linkname and hostname exactly as they should be entered on the commandline.

## 10.8 Editing A Database Entry

The most common usage of **countm** is editing a database entry.

First, generate a complete listing for the linkname.

```
countm -dbenv=/var/countm/dbase -dbfile=countm.db -dbc -dba -l=linkname -x LIST > out.txt
```

Next, use a favorite text editor to edit each line in `out.txt` as desired, then insert the entry back into database.

```
countm -dbenv=/var/countm/dbase -dbfile=countm.db -f=filename INSERT
```

The values currently in the database will be overwritten with the new values from the text file.

## 10.9 Deleting A Database Entry

See Delete A Specific Link.

## 10.10 Inserting A Database Entry

**Countm** may be used to insert link entries. The easiest method is to edit a listing of a link already in the database, being certain to alter **LINK:** to the new value, then use that listing as the **-f** parameter of the **INSERT** command.

## 10.11 Output

All database errors are output to **stderr**.  
All program output is to **stdout**.

# 11 INPUT File Format

The following is a brief definition of the **INPUT (-f=)** file.

## 11.1 Basic Format

The basic format of the input command (**-f=**) file is as follows:

- A text file.
- All blank lines are silently ignored.
- All lines beginning with a **#** are silently ignored.
- All lines not recognized as a valid statement line are ignored, but noted to **stderr**.
- Consists of 1,2,3 .. N sections.

## 11.2 Section Definition

A section consists of three subsections; The linkname section, the **DB\_COUNTER** section, and the **DB\_ACCESS** section.

The linkname subsection is exactly one statement: "**LINK:linkname**".

The **DB\_COUNTER** subsection begins with (exactly) the statement "**DB\_COUNTER:**", and ends when the **DB\_ACCESS** subsection begins.

The **DB\_ACCESS** subsection begins with (exactly) the statement "**DB\_ACCESS:**", and ends at EOF or the beginning of a new section.

### 11.3 Subsection linkname

A section must begin with a "LINK:linkname" statement. The linkname is associated with all data in the section. This implies that the first line of a file must be a LINK:linkname statement.

### 11.4 Subsection DB\_COUNTER

The DB\_COUNTER subsection immediately follows the linkname subsection. The first statement of a DB\_COUNTER subsection must be "DB.COUNTER:". This implies that the second line in a file must be a DB\_COUNTER: statement. Each line in the DB\_COUNTER subsection is a item=value statement. A "notdef" value is the same as a missing statement. Valid items are:

- cnt=counting\_number  
A missing value, missing statement, a "notdef" value, or invalid counting\_number means cnt=0.
- font=ascii\_string  
A missing value or a missing statement means use counter default font, or font will be given on the query command line. No attempt is made to verify if font exists.
- image=[notdef, jpeg, png]  
A missing statement or a missing value means notdef, and, if an image is not specified on the query command line, the default is jpeg.
- count=[notdef, inc, inc\_nopub, dec, dec\_nopub, norm\_inc, norm\_dec]  
A missing statement or a missing value means count\_notdef, and, if a value is not specified on the query command line, the default is norm\_inc.
- random=[notdef, true, false]  
A missing statement or a missing value means notdef, and, if value is not specified on the query command line, then the default is false.
- width=counting\_number  
An incorrect value means zero (use exactly the correct number of chars to display the image). A missing statement means not defined, and, if a value is not specified in the query command line, the default is zero.
- point=counting\_number  
A missing value means DEFAULT\_FONT\_POINT\_SIZE (20). A missing statement means not defined, and, if a value is not specified on the query command line, the default is DEFAULT\_FONT\_POINT\_SIZE (20). A zero value is DEFAULT\_FONT\_POINT\_SIZE (20).

- `bgcolor=000000`  
`bgcolor=ascii_filename.jpeg`  
`bgcolor=ascii_filename.png`  
 A missing value means 000000. A missing statement means not defined, and, if a value is not specified on the query command line, the default is 000000 (black). If value contains a valid `COUNTM_EXTENSIONS_JPEG` or `COUNTM_EXTENSIONS_PNG` extension, it is assumed to be a valid background image file name within `CountmBgfileDir`. Otherwise, it is assumed to be a RGB hex value. An invalid value is 000000.
- `text=FFFFFF`  
 A missing value means FFFFFFFF. A missing statement means not defined, and, if a value is not specified on the query command line, the default is FFFFFFFF (white). This a rgb HEX triplet. An invalid value is 000000.
- `atime=anystring`  
 An `atime` statement is always silently ignored. The `atime` is set when the data is inserted into `DB_COUNTER`.

## 11.5 Subsection `DB_ACCESS`

Immediately following the `DB_COUNTER` subsection is the `DB_ACCESS` subsection. The first statement of a `DB_ACCESS` subsection is "`DB_ACCESS:`". All subsequent statements, upto, but not including the EOF or the next linkname subsection statement (which begins a new section), will be assumed to be a hostname, and inserted directly into the links `DB_ACCESS` access list.

## 12 A Minimal Input File

```
LINK:linkname
DB_COUNTER:
DB_ACCESS:
```

## 13 A Typical Input File

```
LINK:linkname
DB_COUNTER:
cnt=0
font=FreeMono.ttf
image=img_jpeg
count=norm_inc
random=random_false
width=0
point=20
bgcolor=9933FF
```

```
text=FFFFFF
DB_ACCESS:
localhost
localhost.localdomain
```