

# Emetric

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# follow along

If you would like to follow along git clone  
`git://github.com/justinkirby/emetric.git`

# what it does

injects itself into an erlang node then starts dumping data

# inspiration

rebar

how to make things simple

# inspiration

rebar

how to make things simple

eper

- where data is hiding
- graceful code injection























# os level

- memory usage
- cpu usage
- block io



# erlang vm

- run queue
- reductions
- garbage collection
- context switches
- process count

# mnesia

- locks
- subscribers
- transactions
  - counts
  - commits
  - failures
  - restarts
  - log writes
- checkpoints
- memory
- size

# making it simple

rebar  
is as simple as it gets

# zip ebins

```
zip:create("mem",Files, [memory])
```

# pack zip into script

```
Header= "#!/usr/bin/env escript\n%%! -noshell -noinput\n",  
Script = <<Header,ZipBin/binary>>,  
file:write_file("emetric",Script)
```

# show the code

show the code

- `emetric/rebar.config`
- `emetric/priv/escripts/boot__emetric`

## adding new metrics

It is trivial to plug anything into it.

```
deps() ->[emetric_hooks].  
sup() -> ?CHILD(?MODULE,worker).  
tick(Tick,Acc) ->  
    vogon_stats(Tick,Acc).
```

# tagged proplist

illustration purposes.

```
{vogons, [{poems, 10},  
          {duration, infinity},  
          {avg_pain, 11},  
          {frobnications, 42}]}
```



# register with hook

```
emetric_hooks:add(gather_hooks,  
  fun(T,A) -> vogons:tick(T,A) end,2),
```

# show the code

- `emetric/src/emetric_stats_mnesia.erl`

# into csv file

All data goes into a csv file (only built in filter atm).

## vogon csv

```
vogons_tick,vogons_poems,vogons_duration,\  
vogons_avg_pain,vogons_frobnications  
1,0,infinity,11,42  
2,2,infinity,11,42  
3,4,infinity,11,42  
4,8,infinity,11,42  
5,16,infinity,11,42
```

# running it

- node
- cookie
- stats to gather
- where it is going

# example

```
./emetric --node=ejabberd@localhost --cookie=monster \  
start gather=sys,mnesia scatter=file \  
mods=emetric_filter_csv
```











## connect

simple rpc ping to remote node with gotchas

no net\_kernel in escript

```
net_kernel:start(['emetric@localhost',shortnames]),
```

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global:sync(),
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epmd can be out of sync

```
global:sync(),
```

need the same cookie

```
erlang:set_cookie(node(),Cookie),
```

# Finally a ping

now we can finally ping

```
pong = net_adm:ping(Node),
```

# inject

with lots of checks for sanity here

```
rpc:call(Node,code,load_binary,[Mod,Fname,Bin]).
```

# inject

with lots of checks for sanity here

```
rpc:call(Node,code,load_binary,[Mod,Fname,Bin]).
```

and here



# start

this was tough.

- rpc calls spawn a process
- no way to just start a linked supervisor

# gen server proxy

- put a gen server between rpc and supervisor



# tsung 101

- configuration is xml
- you WILL write an xml config generator/template
- it can be baroque if you want to be precise
- ...

...

but it works and works well.

# tsung gotchas

watch for ulimits.

put max user counts everywhere possible

read example configs helps a lot

## steps to running tsung

- need something to stree (ejabberd)
- create users
- write config

# a walk through tsung

the \$0.25 tour of tsung config



now it is demo time

step by step demo

now it is demo time

step by step demo

spin up ejabberd

now it is demo time

step by step demo

spin up ejabberd

spin up emetric

now it is demo time

step by step demo

spin up ejabberd

spin up emetric

run tsung











# making the data pretty

welcome to plotr, the red headed step child of emetric

to avoid the dreaded spreadsheet

I learned numpy and matplotlib

not a work of art  
but it does the job

# plotr

- extracts 'interesting' data (std deviation  $\neq 0.0$ )
- generates charts pivoting on ejd sessions
- interactive gui

# plotr

just the data please

```
plotr.py --data=/tmp/emetric_node@host_date.csv \  
--out=interesting.csv
```

# plotr

just the graphs please

```
plotr.py --data=/tmp/emetric_node@host_date.csv --graph
```

# plotr

the ui (it is ok to laugh)

```
plotr.py --data=/tmp/emetric_node@host_date.csv --ui
```









# What has this found

ulimits

do NOT store mnesia archive tables in memory

disc\_only\_copies is too slow

global shared rosters are bad  
especially with large ldap