

v1.14_MySQL

-
- | Service | Count (Dots) |
|------------|--------------|
| rsyslog | 1 |
| GUI EMS | 1 |
| mysql c | 1 |
| MySQLTuner | 1 |

, SoftWLC , . mysql-server-5.5.

$$\vdots$$

eltex_ems	, , EMS, EMS . / eltex-ems-db.
eltex_alert	EMS . / eltex-ems-db.
wireless	SSID. / eltex-ems-db.
eltex_auth_service	, eltex-auth-service , NBI. / eltex-auth-service-db.
radius	Wi-Fi , . / freeradius-eltex-db.
ELTEX_PORTAL	, . / eltex-portal-mysql.
payments	Wi-Fi . / eltex-portal-mysql.
eltex_doors	JWT eltex-doors.

	service mysql status	 mysql start/running, process <pid>  mysql stop/waiting
	service mysql start	 mysql start/running, process <pid>  start: Job is already running: mysql

	service mysql stop	 mysql stop/waiting
	service mysql restart	 mysql stop/waiting mysql start/running, process <pid>

MySQL `/etc/mysql/my.cnf` (, mysql-server) `/etc/mysql/conf.d/eltex-ems.cnf` (, , eltex-ems-db).

, . `max_connections.` `/etc/mysql/mysql.conf.d/mysqld.cnf` , . , :

```
max_connections          = 500
```

()

MyISAM eltex_alert syslog. InnoDB , radius.radacct

, MyISAM InnoDB (`/etc/mysql/conf.d/eltex-ems.cnf` `key_buffer_size innodb_buffer_pool_size`).

- , 30-40% RAM .
- , , , Java (eltex-ems), - tomcat6, NBI, , eltex-apb, . . .
- , InnoDB, 2-3 , MyISAM , syslog .

, SoftWLC , :

16G:

```
key_buffer_size = 2G
innodb_buffer_pool_size = 4G
```

64G:

```
key_buffer_size=8G
innodb_buffer_pool_size=24G
```

`/etc/mysql/conf.d/eltex-ems.cnf` MySQL :

```
service mysql restart
```



key_buffer_size innodb_buffer_pool_size . *MySQL* .

rsyslog

DHCP RADIUS rsyslog.

:

```
CREATE USER 'rsyslog'@'HOST' identified by 'root';
GRANT ALL on Syslog.* TO 'rsyslog'@'HOST' identified by 'root';
```

HOST – RADIUS DHCP . . .

GUI EMS

EMS , , MySQL:

:

```
GRANT ALL PRIVILEGES ON *.* TO 'root'@'HOST' IDENTIFIED BY 'root';
FLUSH PRIVILEGES;
```

HOST – EMS VRRP. . .

		50	50 200	200 500	500 4 .
SoftWLC ()					
nbi ()		16	38	78	156
	radius	4	12	24	48
	ems	4	10	22	48
	wireless	4	10	22	48
	logs	2	4	6	8
	eltex_auth_service	2	2	4	4
ems ()		20	40	92	186
	event	4	8	16	32
	tree	4	8	20	40
	syslog	2	4	4	4
	radius	4	8	20	40
	wireless	3	6	14	30
PCRF ()		6	12	24	48

	radius	2	4	8	16
	sql.ems	2	4	8	16
	sql.wireless	2	4	8	16
radius		5	10	15	32
eltex-auth		2	2	2	5
eltex-portal		10	10	15	32
eltex-portal-constructor		10	10	10	10
rsyslog-mysql		2	4	6	10
		2	2	2	2
		8	8	8	8
MySQL (,)		78	130	234	449

mysql c MySQLTuner

MySQLTuner — perl-, MySQL MySQL .
! MySQL , MySQLTuner 24.
 :

```
/usr/lib/eltex-ems-db/tools/mysqltuner.pl -- user root --pass root
```

:

```

>> MySQLTuner 1.2.0 - Major Hayden <major@mhtx.net>
>> Bug reports, feature requests, and downloads at http://mysqltuner.com/
>> Run with '--help' for additional options and output filtering
[OK] Logged in using credentials from debian maintenance account.
----- General Statistics -----
[--] Skipped version check for MySQLTuner script
[OK] Currently running supported MySQL version 5.5.43-0ubuntu0.14.04.1-log
[OK] Operating on 64-bit architecture

----- Storage Engine Statistics -----
[--] Status: +Archive BDB -Federated +InnoDB -ISAM -NDBCluster
[-] Data in PERFORMANCE_SCHEMA tables: 0B (Tables: 17)
[--] Data in InnoDB tables: 3G (Tables: 39)
[--] Data in MyISAM tables: 22G (Tables: 5)
[!!] Total fragmented tables: 10

----- Security Recommendations -----
[OK] All database users have passwords assigned

----- Performance Metrics -----
[--] Up for: 127d 22h 20m 14s (746M q [67.539 qps], 25M conn, TX: 302B, RX: 411B)
[--] Reads / Writes: 21% / 79%
[--] Total buffers: 48.1G global + 2.7M per thread (151 max threads)
[OK] Maximum possible memory usage: 48.5G (77% of installed RAM)
[OK] Slow queries: 0% (13K/746M)
[!!] Highest connection usage: 100% (152/151)
[OK] Key buffer size / total MyISAM indexes: 24.0G/9.9G
[OK] Key buffer hit rate: 99.9% (4B cached / 5M reads)
[OK] Query cache efficiency: 33.6% (114M cached / 340M selects)
[!!] Query cache prunes per day: 735211
[OK] Sorts requiring temporary tables: 0% (1K temp sorts / 5M sorts)
[OK] Temporary tables created on disk: 0% (3K on disk / 394K total)
[OK] Thread cache hit rate: 99% (8K created / 25M connections)
[!!] Table cache hit rate: 8% (324 open / 3K opened)
[OK] Open file limit used: 19% (3K/16K)
[OK] Table locks acquired immediately: 99% (9B immediate / 9B locks)
[OK] InnoDB data size / buffer pool: 3.6G/24.0G

----- Recommendations -----
General recommendations:
Run OPTIMIZE TABLE to defragment tables for better performance
Enable the slow query log to troubleshoot bad queries
Reduce or eliminate persistent connections to reduce connection usage
Increase table_cache gradually to avoid file descriptor limits
Variables to adjust:
max_connections (> 151)
wait_timeout (< 28800)
interactive_timeout (< 28800)
query_cache_size (> 16M)
table_cache (> 400)

```



, [!!], "Maximum possible memory usage" (RAM) Recommendations.