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**OPENWORKS**

# **MARIADB SHELL: AN UPGRADED ADMIN TOOL**

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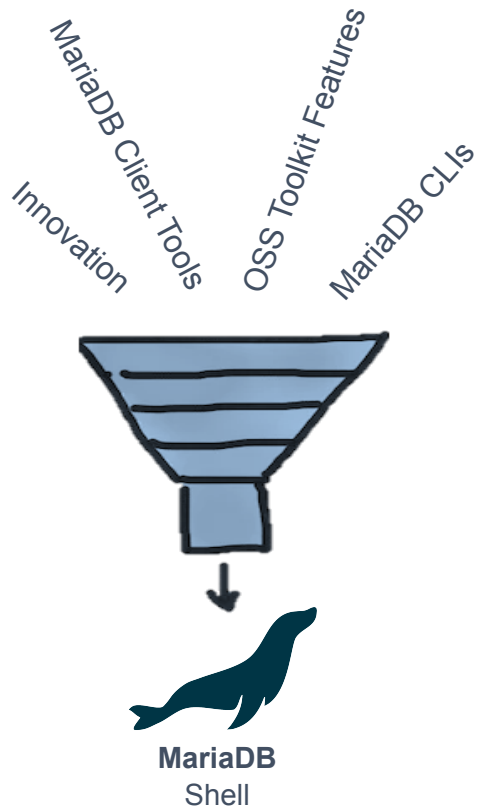
# THE LONG HISTORY OF MARIADB CLIENTS

- Some MariaDB Client tools may not have been well maintained.
- They are becoming outdated and bring home the message that we are a fork.

```
root@26cecbf2dc49:~# mariadb
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 438
Server version: 10.5.4-MariaDB-1:10.5.4+maria~focal mariadb.org binary
```

- (Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others. Maintained a loyal following in the industry to fill feature gaps but may not be compatible with modern MariaDB.
- Many customers maintain private or "one-off" scripts
- MariaDB Corporation currently has multiple command line tools for administering and using our suite of products, written in different languages and with different flags and options

# IDEA FUNNEL

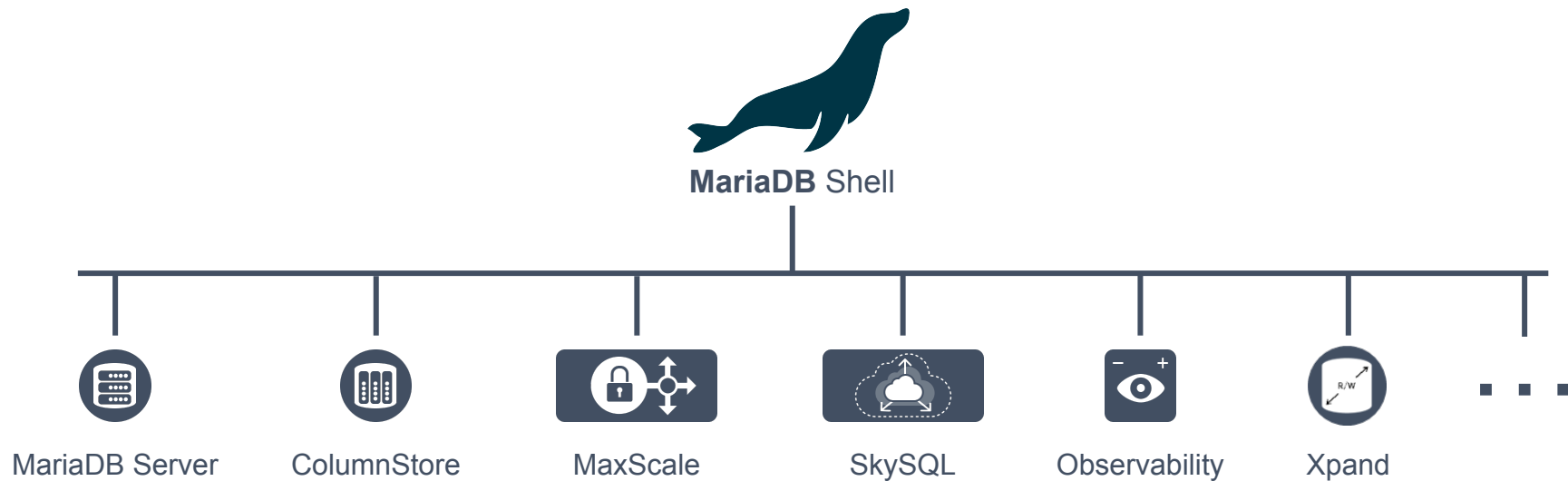


**A SINGLE INTEGRATED ENTERPRISE  
TOOL FOR EASY ADMINISTRATION,  
AUTOMATION, DATA MANAGEMENT  
AND TROUBLESHOOTING**

# WHY MARIADB SHELL?

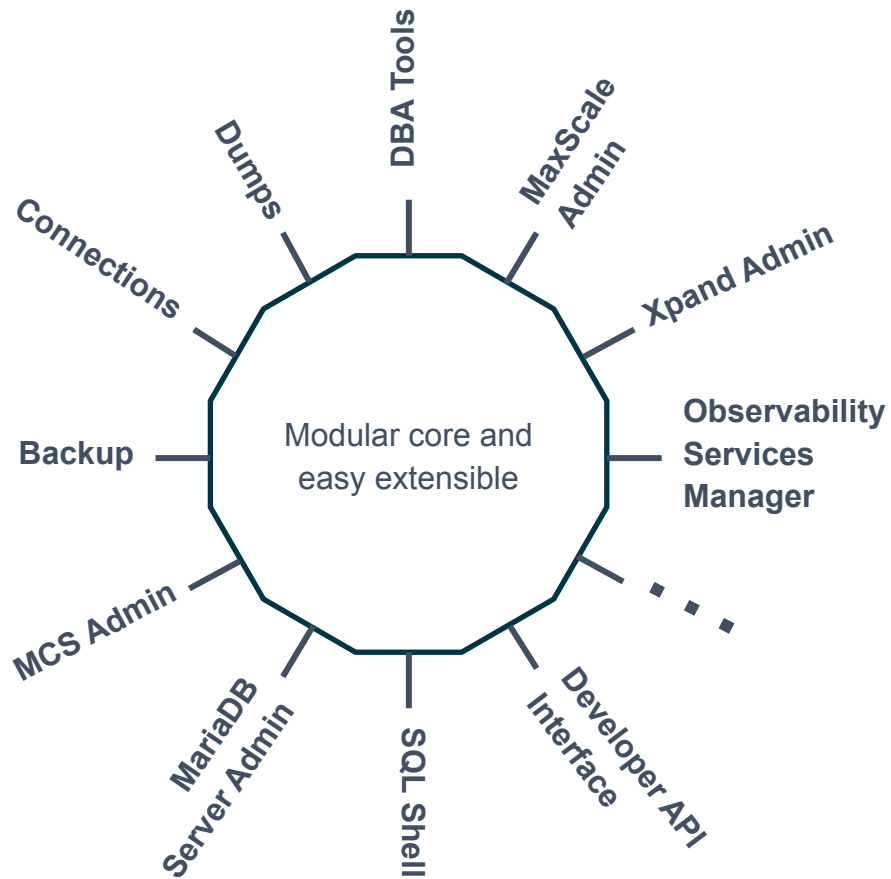
- Central “MariaDB Console”: used by Ops, DBAs and Developers
  - Smart, familiar, with modern interface
- Fully parameter driven for experts and scripts
- “Command Line Wizard” for ease of use
  - No need to know the required parameters

# INTERFACE FOR MANY MARIADB PRODUCTS



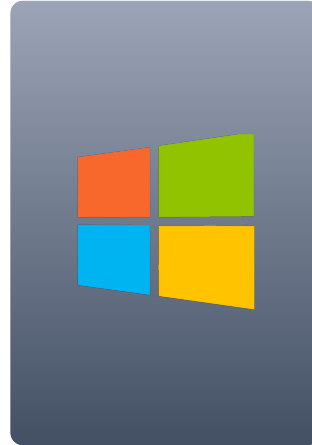
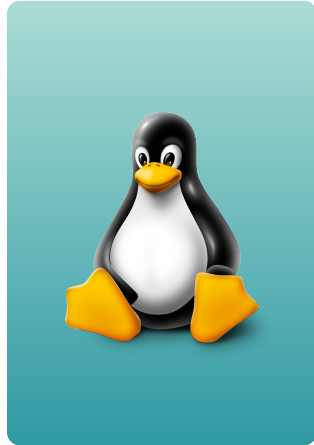


# ARCHITECTURE

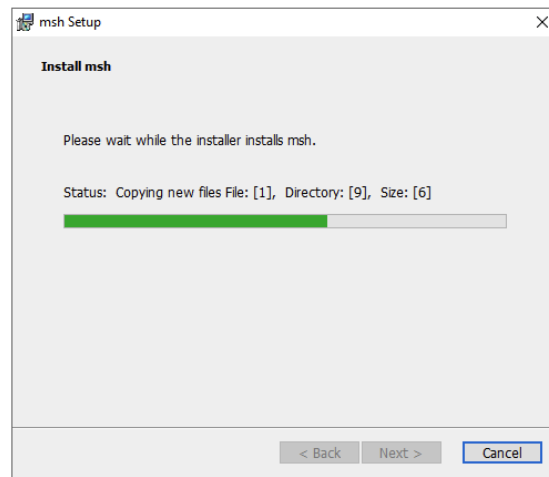
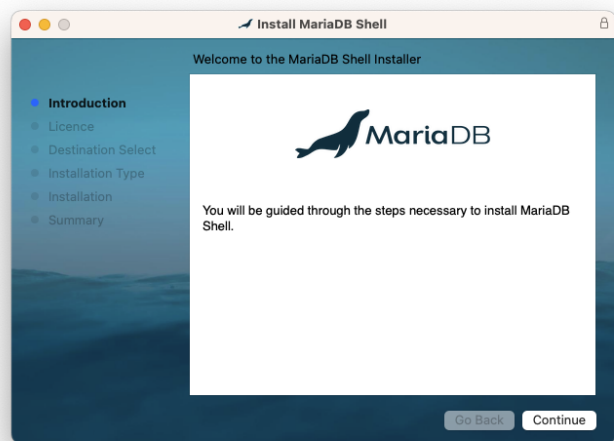




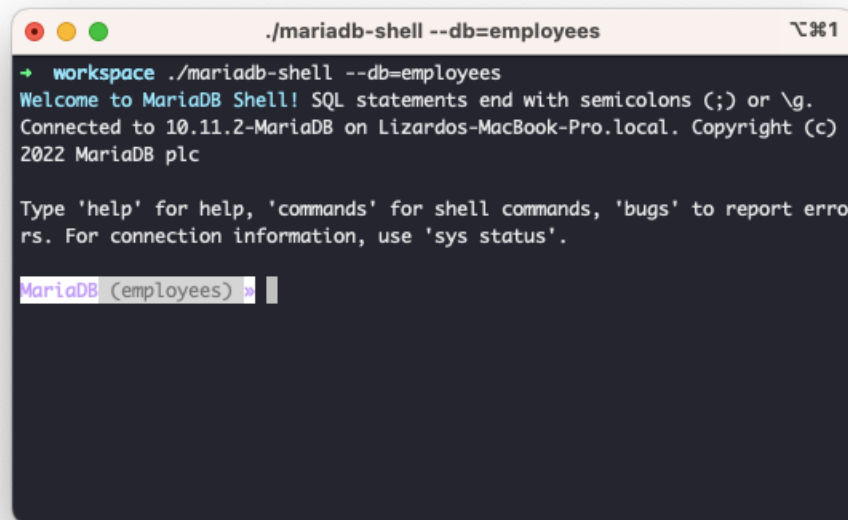
# SUPPORTED PLATFORMS



# INSTALLATION



# MODERN INTERFACE



```
./mariadb-shell --db=employees  ⌘⌘1
→ workspace ./mariadb-shell --db=employees
Welcome to MariaDB Shell! SQL statements end with semicolons (;) or \g.
Connected to 10.11.2-MariaDB on Lizardos-MacBook-Pro.local. Copyright (c)
2022 MariaDB plc

Type 'help' for help, 'commands' for shell commands, 'bugs' to report erro
rs. For connection information, use 'sys status'.

MariaDB (employees) >
```

# MODERN INTERFACE

```
mariadb --database=employees
+ workspace mariadb --database=employees
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 17
Server version: 10.11.2-MariaDB Homebrew

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [employees]> select * from departments;
+-----+-----+
| dept_no | dept_name |
+-----+-----+
| d009   | Customer Service |
| d005   | Development      |
| d002   | Finance          |
| d003   | Human Resources  |
| d001   | Marketing        |
| d004   | Production       |
| d006   | Quality Management |
| d008   | Research         |
| d007   | Sales            |
+-----+-----+
9 rows in set (0.002 sec)

MariaDB [employees]> |
```

```
./mariadb-shell --db=employees
+ workspace ./mariadb-shell --db=employees
Welcome to MariaDB Shell! SQL statements end with semicolons (;) or \g.
Connected to 10.11.2-MariaDB on Lizardos-MacBook-Pro.local. Copyright (c) 2022 MariaDB plc

Type 'help' for help, 'commands' for shell commands, 'bugs' to report errors. For connection information, use 'sys status'.

MariaDB (employees) > select * from departments;
+-----+-----+
| dept_no | dept_name |
+-----+-----+
| d009   | Customer Service |
| d005   | Development      |
| d002   | Finance          |
| d003   | Human Resources  |
| d001   | Marketing        |
| d004   | Production       |
| d006   | Quality Management |
| d008   | Research         |
| d007   | Sales            |
+-----+-----+
9 rows in set (0.000821).

MariaDB (employees) > |
```



# SUPPORT MULTIPLE OUTPUT FORMATS

```
./mariadb-shell --db=employees
MariaDB (employees) > output
Output format is currently xml.
Other formats supported are: json, xml, mysql, classic, csv, tsv, sqlplus, html,
modern, none.
MariaDB (employees) > output csv select * from departments;
dept_no,dept_name
d009,Customer Service
d005,Development
d002,Finance
d003,Human Resources
d001,Marketing
d004,Production
d006,Quality Management
d008,Research
d007,Sales

9 rows in set (0.000777).
```

```
./mariadb-shell --db=employees
MariaDB (employees) > output json pretty
Output format changed to json
MariaDB (employees) > select * from departments;
{
  "columns": [
    "dept_no",
    "dept_name"
  ],
  "rows": {
    "0": {
      "dept_no": "d009",
      "dept_name": "Customer Service"
    },
    "1": {
      "dept_no": "d005",
      "dept_name": "Development"
    },
    "2": {
      "dept_no": "d002",
      "dept_name": "Finance"
    }
  }
}
```

# COMMANDS FOR ADVANCED ADMINISTRATIVE OPERATIONS

## Admin

- Gives you full control of MariaDB and lets you diagnose any problems on the system

```
./mariadb-shell
MariaDB (No Database) > system
ADMIN, SYS or SYSTEM commands are the gateway to all things administration-management for MariaDB products.
Currently available commands for this tool are:
create, drop, shutdown, reload, refresh, version, processlist, status, kill, debug, variables, flush-logs, flush-hosts, flush-tables, password, ping, extended-status, replication-status, replica-status, all-replication-status, all-replica-status, flush-status, flush-privileges, start-slave, stop-slave, start-all-slaves, stop-all-slaves, start-replica, stop-replica, start-all-replicas, stop-all-replicas, flush-threads, old-password, flush-binary-log, flush-engine-log, flush-error-log, flush-general-log, flush-relay-log, flush-slow-log, flush-table-statistics, flush-index-statistics, flush-user-statistics, flush-client-statistics, flush-user-resources, flush-all-status, flush-all-statistics, flush-ssl, load-buffer-pool, dump-buffer-pool, memory-config, pre-slice
MariaDB (No Database) > system status
Uptime: 1 day, 16:28:21
Threads Created: 8
Questions: 338
Opened Tables: 27
```

## Warm

- Populates the database's in-memory cache with a table or schema to warm temporal locality

```
./mariadb-shell
MariaDB (No Database) > warm help
This command query tables in a schema or a schema.table in order to load the results into the database's in-memory cache.
Usage:
warm [schema|schema.table|schema table]
Examples:
(if a schema is in use) warm -- loads all tables in the current schema into memory.
(if a schema is not in use) warm -- ERROR: You must provide a schema
warm schema -- loads all tables in the provided schema
warm schema.table -- loads ONLY table from schema into memory
warm schema table -- loads ONLY table from schema into memory
MariaDB (No Database) > warm employees.departments
Warning: Large tables will take a significant amount of time to warm.
employees.departments has been read into memory.
MariaDB (No Database) >
```

# COMPATIBILITY

MariaDB-Shell is compatible with the MariaDB or MySQL command line client.

- Commands:  
*clear, pager, connect, delimiter, quit, status ...*
- Short commands:  
*\p, \G, \w, \g, \c, \?, \d ...*
- Command line options:  
*--delimiter, --database, --pager ...*



# ONE INTERFACE FOR ALL SKYSQL SUPPORTED SERVICES



## Enterprise Server

Deploy a cloud database service for transaction processing with persistent storage, replication, load balancing and read/write splitting all configured out of the box and ready to go.



## Serverless Analytics

Deploy Serverless Analytics powered by Apache Spark SQL with a built-in Notebook powered by Apache Zeppelin for massively scalable interactive and collaborative analytics.



## Observability Services

Automate and observe your database instances across AWS, Google and on-premises from a single pane of glass within SkySQL.



## Columnar Analytics

Deploy a cloud data warehouse service for ad hoc, interactive analytics on billions of rows with data stored in a columnar format on low-cost object storage and massively parallel processing.



## Distributed SQL

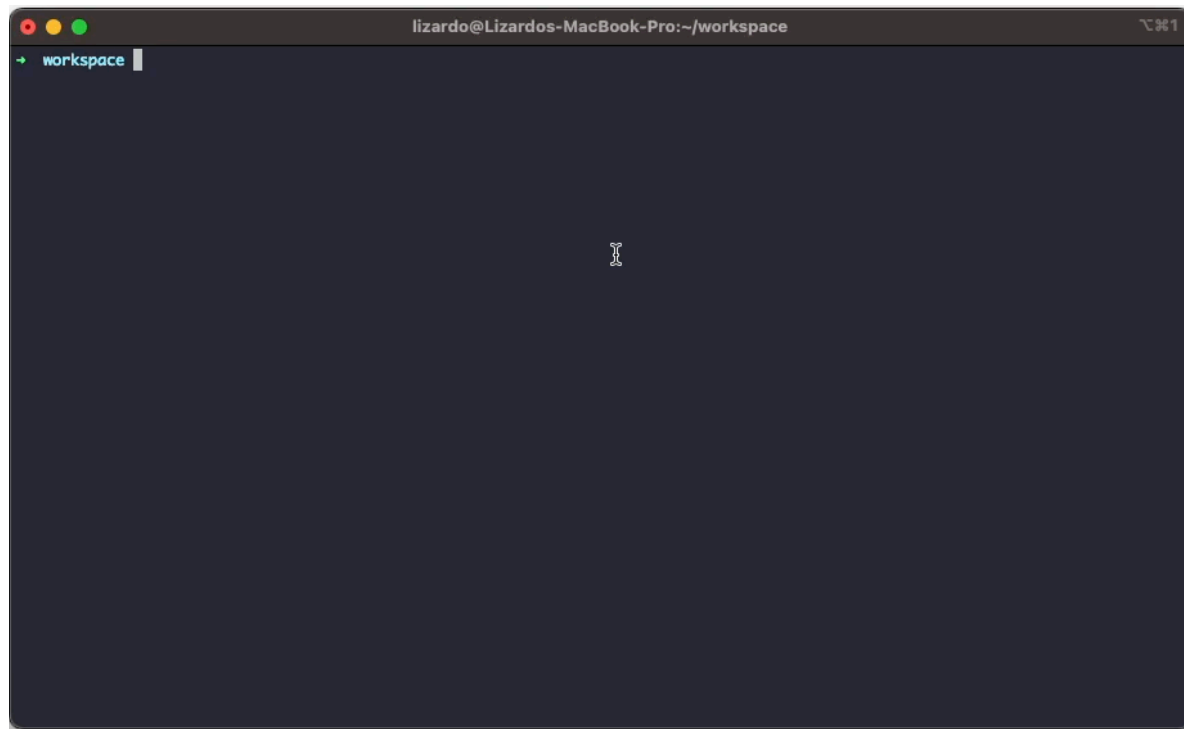
Deploy a distributed SQL database service to elastically scale with full performance and availability. Xpand enables larger databases in terms of size, user engagement and global reach.

# REAL WORLD USE CASES

- Self-service guidance to slice tables
  - MariaDB Shell can also pre-slice tables and warm them into memory
- Monitor and administer replication streams
- Install and configure Remote Observability Service
- Use the Grants Module to frequently audit, compare and alert on user and grant changes

# DEMOS

# BASIC COMMANDS



# FISH

# FISH - FULL INTERNAL SYSTEM HISTOGRAM

- Collects **system** (CPU, RAM, Disk usage ..) and **MariaDB** (status, current load, running queries, cache status..) metrics and definitions.
- Stores the data in a Sqlite DB or offloads to a dedicated MariaDB schema.
- Provides data to support tickets for a system administrator.
- Generates HTML documents to allow the same level of information as the Oracle AWR or pgBadger.
- Allows DB admins to monitor a system before a crash or to finetune performances.


# FISH - FULL INTERNAL SYSTEM HISTOGRAM

- TODO:

<Insert here the terminal recording showing how to collect, dump and generate a report>



# FISH - REPORT



PRODUCTS SERVICES PRICING RESOURCES CUSTOMERS ABOUT US

## ANALYSED HOSTS:

- Linux\_ab9d5f56671f\_172.17.0.2

DISPLAY

STATISTICS

FOR DATE:

## CLUSTER HARDWARE AND STATUS (CPU, RAM, IO, NETWORKING):

Host ID: **Linux\_ab9d5f56671f\_172.17.0.2**

### CPU:

- CPU\_MODEL\_INFO
- CPU\_COUNT\_LOGICAL: 16
- CPU\_COUNT\_PHYSICAL: 8
- CPU\_FREQUENCY\_GHZ: 3.6

### RAM:

- MEMORY\_TOTAL\_GB: 16.66
- SWAP\_MEMORY\_GB: 16.66

### DISKS:

- /etc/resolv.conf
- /etc/hostname
- /etc/hosts

### NETWORK INTERFACES:

- lo
- tunl0
- sit0
- eth0

## GENERAL PERFORMANCE METRICS:

NODE CPU PERCENTAGE:	0%
NODE RAM FREE GBs:	13.73 GB
NODE RAM USAGE PERCENTAGE:	8.4%
NODE NETWORK READ KBs PER SECOND:	0 KBPS
NODE NETWORK WRITE KBs PER SECOND:	0 KBPS
NODE DISK READ KBs PER SECOND:	0 KBPS
NODE DISK WRITE KBs PER SECOND:	0 KBPS
NODE DISK READ IOPs PER SECOND:	0 IOPS
NODE DISK WRITE IOPs PER SECOND:	0 IOPS

## MARIADB PARAMETERS AND STATUS:

### System Variables Values

Host ID: **Linux\_ab9d5f56671f\_172.17.0.2**

Show  entries Search:

Key	Value	Modified Status	Default Value
alter_algorithm	DEFAULT	UNCHANGED	default
analyze_sample_percentage	100.000000	UNCHANGED	100.000000
aria_block_size	8192	UNCHANGED	8192
aria_checkpoint_interval	30	UNCHANGED	30
aria_checkpoint_log_activity	1048576	UNCHANGED	1048576
aria_encrypt_tables	OFF	UNCHANGED	False
aria_force_start_after_recovery_failures	0	UNCHANGED	False
aria_group_commit	none	UNCHANGED	
aria_group_commit_interval	0	UNCHANGED	False
aria_log_file_size	1073741824	UNCHANGED	1073741824

Showing 1 to 10 of 652 entries

Previous  2 3 4 5 ... 66 Next

### Global Status Values

Host ID: **Linux\_ab9d5f56671f\_172.17.0.2**

Show  entries Search:

Key	Value
Aborted_clients	46
Aborted_connects	3
Aborted_connects_psaauth	2
Access_denied_errors	92
Acl_column_grants	0
Acl_database_grants	10
Acl_function_grants	0
Acl_package_body_grants	0
Acl_package_spec_grants	0
Acl_procedure_grants	0

Showing 1 to 10 of 577 entries

Previous  2 3 4 5 ... 58 Next

# ROS

# ROS - REMOTE OBSERVABILITY SERVICE

- SkySQL Observability service functionality extends beyond SkySQL deployed databases to MariaDB enterprise customers on-premises or in private clouds.

<TODO: Insert here the terminal recording>

# MAXSCALE

# MAXSCALE

<TODO: Insert here the terminal recording>

# CONCLUSION

# WHY SHOULD YOU USE MARIADB SHELL?

- Single tool that contains everything you need to administer, automate, manage data, and troubleshoot MariaDB products
- Updates all existing MariaDB Client tools that you currently rely on
- Modern interface, easy to use, consistent flags and parameters
- Tested against MariaDB products, guaranteed to work
- Will be the future home of all newtools
  - Regular updates from MariaDB
- New features will be added here, not in separate tools



# NEXT STEPS

Check out these sources  
to learn more about MariaDB

- **MariaDB-Shell is now Generally Available on the following platforms:**
  - RHEL, CentOS, AWS 2 - 7.x
  - RHEL & Rocky Linux 3 - 8.x
  - RHEL & Rocky Linux 3 - 9.x
  - Ubuntu 18.04
  - Ubuntu 20.04
  - Ubuntu 22.04
  - Debian 10
  - Debian 11
  - Windows
  - MacOS - Intel and Apple silicon
- **Install and try it today!**
  - <https://mariadb.com/downloads/enterprise/>



**OPENWORKS**

**THANK YOU**