
CMake, 252
Requesting binlog dump
 thread state, 1901
REQUIRE option
 ALTER USER, 2875
 CREATE USER statement, 2888
require-row-format option
 mysqlbinlog, 626
RequireEncryptedBackup, 4182
require_row_format system variable, 886
require_secure_transport system variable, 886
reserved user accounts, 1249
reserved words, 1931
 and replication, 3719
ReservedConcurrentIndexOperations, 4133
ReservedConcurrentOperations, 4133
ReservedConcurrentScans, 4134
ReservedConcurrentTransactions, 4134
ReservedFiredTriggers, 4134
ReservedLocalScans, 4135
ReservedTransactionBufferMemory, 4135
RESET MASTER, 2766
RESET MASTER statement, 3010
RESET PERSIST statement, 939, 958, 3011
RESET QUERY CACHE
 removed features, 52
RESET REPLICA, 2803
RESET REPLICA ALL, 2803
RESET REPLICA statement, 3010
RESET SLAVE, 2805
RESET SLAVE ALL, 2805
Reset stmt
 thread command, 1893
reset-replica.pl
 NDB Cluster replication, 4702
resetconnection command
 mysql, 452
resetting expired password, 1271
RESIGNAL, 2849
resolveip
 removed features, 56
resolve_stack_dump
 removed features, 56
resource group names
 case sensitivity, 1923
resource groups, 1029
 names, 1919
resource limits
 user accounts, 852, 1298, 2876, 2890
resource management
 new features, 11
resources
 ndbinfo table, 4641
RESOURCE_GROUPS
 INFORMATION_SCHEMA table, 4880
resource_groups table
 data dictionary table, 1041, 2917
RESOURCE_GROUP_ADMIN privilege, 1222

Resource_group_supported status variable, 986
RESOURCE_GROUP_USER privilege, 1222
RESTART command (NDB Cluster), 4502
RESTART statement, 3011
restarting
 the server, 274
RestartOnErrorInsert, 4156
RestartSubscriberConnectTimeout, 4170
restart_info
 ndbinfo table, 4642
restore, 6210
restore-data option
 ndb_restore, 4450
restore-epoch option
 ndb_restore, 4450
restore-meta option
 ndb_restore, 4450
restore-privilege-tables option
 ndb_restore, 4450
restoring backups
 in NDB Cluster, 4428
restoring from backup
 in NDB Cluster replication, 4699
restoring NDB backups
 between NDB release series, 4454
 to earlier versions of NDB, 4454
 to later versions of NDB, 4455
restrictions
 character sets, 2033
 events, 4831
 InnoDB, 3420
 performance_schema database, 5184
 pluggable authentication, 1285
 resource groups, 1032
 server-side cursors, 2839
 signals, 2865
 stored routines, 4831
 subqueries, 2723
 triggers, 4831
 views, 4834
 window functions, 2456
 XA transactions, 2763
result-file option
 mysqlbinlog, 626
 mysqldump, 509
 mysqlpump, 542
resultset_metadata system variable, 887
resume option
 ndb_import, 4398
retries option
 ndb_desc, 4373
retrieving
 data from tables, 327
RETURN, 2837
return (\r), 1908, 2399, 2672
REVERSE(), 2219
REVOKE statement, 1246, 2910
revoking

privileges, 2910
revoking roles, 2910
rewrite-database option
 ndb_restore, 4450
rewrite-db option
 mysqlbinlog, 627
Rewriter functions
 load_rewrite_rules(), 1119
Rewriter query rewrite plugin, 1111
 installing, 1112
 uninstalling, 1112
rewriter_enabled system variable, 1119
rewriter_enabled_for_threads_without_privilege_checks, 1119
Rewriter_number_loaded_rules status variable, 1120
Rewriter_number_reloads status variable, 1120
Rewriter_number_rewritten_queries status variable, 1120
Rewriter_reload_error status variable, 1120
rewriter_verbose system variable, 1119
RIGHT JOIN, 1720, 2698
RIGHT OUTER JOIN, 2698
RIGHT(), 2219
RLIKE, 2229
role names, 1240
roles, 1249
 assigning, 2916
 creating, 2881
 default, 2913
 dropping, 2895
 granting, 2896
 revoking, 2910
 stored programs, 1254
 views, 1254
ROLES_GRAPHML(), 2321
ROLE_ADMIN privilege, 1223
ROLE_COLUMN_GRANTS
 INFORMATION_SCHEMA table, 4880
role_edges table
 system table, 1043, 1229
ROLE_ROUTINE_GRANTS
 INFORMATION_SCHEMA table, 4881
ROLE_TABLE_GRANTS
 INFORMATION_SCHEMA table, 4882
ROLLBACK, 2745
 XA transactions, 2760
rollback, 6210
rollback segment, 3091, 3095, 6210
ROLLBACK TO SAVEPOINT, 2749
Rolling back
 thread state, 1897
rolling restart (NDB Cluster), 4536
ROLLUP, 2430
root password, 275
root user, 1195
 password resetting, 5350
ROUND(), 2185
rounding, 2477
rounding errors, 2058
routines

stored, 4799, 4801

ROUTINES

- INFORMATION_SCHEMA table, 4883

routines option

- mysqldump, 512
- mysqlpump, 542

routines table

- data dictionary table, 1041

ROW, 2713

row, 6210

row constructors, 2713

- optimizations, 1744

row format, 6210

row lock, 6210

row size

- maximum, 1793

row subqueries, 2713

row-based replication, 6210

- advantages, 3637
- disadvantages, 3637

row-level locking, 1869, 6211

rowbatch option

- ndb_import, 4399

rowbytes option

- ndb_import, 4399

rowid option

- ndb_select_all, 4467

rowid-file option

- ndb_print_backup_file, 4421

rows

- counting, 336
- deleting, 5361
- matching problems, 5361
- selecting, 328
- sorting, 330

rows option

- ndb_config, 4354

ROW_COUNT(), 2322

ROW_FORMAT

- COMPACT, 3200
- COMPRESSED, 3182, 3202
- DYNAMIC, 3201
- REDUNDANT, 3199

ROW_NUMBER(), 2448

RPAD(), 2219

rpl_read_size system variable, 3566

Rpl_semi_sync_master_clients status variable, 986

rpl_semi_sync_master_enabled system variable, 3526

Rpl_semi_sync_master_net_avg_wait_time status variable, 986

Rpl_semi_sync_master_net_waits status variable, 986

Rpl_semi_sync_master_net_wait_time status variable, 986

Rpl_semi_sync_master_no_times status variable, 986

Rpl_semi_sync_master_no_tx status variable, 986

Rpl_semi_sync_master_status status variable, 987

Rpl_semi_sync_master_timefunc_failures status variable, 987

rpl_semi_sync_master_timeout system variable, 3526

rpl_semi_sync_master_trace_level system variable, 3527

Rpl_semi_sync_master_tx_avg_wait_time status variable, 987

Rpl_semi_sync_master_tx_waits status variable, 987
Rpl_semi_sync_master_tx_wait_time status variable, 987
rpl_semi_sync_master_wait_for_slave_count system variable, 3527
rpl_semi_sync_master_wait_no_slave system variable, 3528
rpl_semi_sync_master_wait_point system variable, 3528
Rpl_semi_sync_master_wait_pos_backtraverse status variable, 987
Rpl_semi_sync_master_wait_sessions status variable, 988
Rpl_semi_sync_master_yes_tx status variable, 988
rpl_semi_sync_replica_enabled system variable, 3567
Rpl_semi_sync_replica_status status variable, 990
rpl_semi_sync_replica_trace_level system variable, 3567
rpl_semi_sync_slave_enabled system variable, 3568
Rpl_semi_sync_slave_status status variable, 990
rpl_semi_sync_slave_trace_level system variable, 3568
Rpl_semi_sync_source_clients status variable, 988
rpl_semi_sync_source_enabled system variable, 3529
Rpl_semi_sync_source_net_avg_wait_time status variable, 988
Rpl_semi_sync_source_net_waits status variable, 988
Rpl_semi_sync_source_net_wait_time status variable, 988
Rpl_semi_sync_source_no_times status variable, 988
Rpl_semi_sync_source_no_tx status variable, 989
Rpl_semi_sync_source_status status variable, 989
Rpl_semi_sync_source_timefunc_failures status variable, 989
rpl_semi_sync_source_timeout system variable, 3530
rpl_semi_sync_source_trace_level system variable, 3530
Rpl_semi_sync_source_tx_avg_wait_time status variable, 989
Rpl_semi_sync_source_tx_waits status variable, 989
Rpl_semi_sync_source_tx_wait_time status variable, 989
rpl_semi_sync_source_wait_for_replica_count system variable, 3531
rpl_semi_sync_source_wait_no_replica system variable, 3532
rpl_semi_sync_source_wait_point system variable, 3532
Rpl_semi_sync_source_wait_pos_backtraverse status variable, 990
Rpl_semi_sync_source_wait_sessions status variable, 990
Rpl_semi_sync_source_yes_tx status variable, 990
rpl_stop_replica_timeout system variable, 3569
rpl_stop_slave_timeout system variable, 3569
RPM file, 189, 194
RPM Package Manager, 194
Rsa_public_key status variable, 990
RTRIM(), 2220
Ruby, 6211
Ruby API, 5271, 6211
running
 ANSI mode, 89
 batch mode, 341
 multiple servers, 1169
 queries, 320
running CMake after prior invocation, 227, 262
rw-lock, 6211
rwlock_instances table
 performance_schema, 5012

S

safe statement (replication)
 defined, 3639
safe-recover option
 myisamchk, 586
safe-updates mode, 461

safe-updates option
 mysql, 445, 461

safe-user-create option
 mysqld, 762

SafeNet KeySecure Appliance
 keyring_okv keyring plugin, 1458

Sakila, 8

same value wins (conflict resolution), 4715

sampling
 statement, 5113

sandbox mode
 for expired-password accounts, 1279

SASL, 3391
 authentication, 1361

SAVEPOINT, 2749

savepoint, 6211

Saving state
 thread state, 1897

scalability, 6211

Scalable Coherent Interface (NDB Cluster) (OBSOLETE), 4306

scalar
 JSON, 2108

scale
 arithmetic, 2477
 numeric, 2056

scale out, 6212

scale up, 6212

SchedulerExecutionTimer, 4185

SchedulerResponsiveness, 4185

SchedulerSpinTimer, 4186

schema, 6212
 altering, 2494
 creating, 2530
 deleting, 2635

SCHEMA Events (NDB Cluster), 4531

SCHEMA(), 2322

SCHEMATA
 INFORMATION_SCHEMA table, 4885

schemata table
 data dictionary table, 1041

SCHEMATA_EXTENSIONS
 INFORMATION_SCHEMA table, 2495, 4886

schema_auto_increment_columns view
 sys schema, 5213

schema_definition_cache system variable, 888

schema_index_statistics view
 sys schema, 5214

schema_object_overview view
 sys schema, 5215

SCHEMA_PRIVILEGES
 INFORMATION_SCHEMA table, 4887

schema_redundant_indexes view
 sys schema, 5215

schema_tables_with_full_table_scans view
 sys schema, 5221

schema_table_lock_waits view
 sys schema, 5217

schema_table_statistics view

```
    sys schema, 5218
schema_table_statistics_with_buffer view
    sys schema, 5219
schema_unused_indexes view
    sys schema, 5221
SCI (NDB Cluster) (OBSOLETE), 4306
script files, 341
scripts, 399, 407
    SQL, 428
SDI, 568, 2653, 6212, 6212
search index, 6212
searching
    and case sensitivity, 5357
    full-text, 2239
    MySQL Web pages, 84
    two keys, 347
Searching rows for update
    thread state, 1897
SECOND(), 2199
secondary index, 6212
    InnoDB, 3074
secondary passwords, 1275
secondary_engine_cost_threshold system variable, 887
Secondary_engine_execution_count status variable, 990
secure connections, 1306
    command options, 374
secure_auth
    removed features, 52
secure_file_priv system variable, 888
securing an NDB Cluster, 4674
security
    against attackers, 1199
    and malicious SQL statements, 4673
    and NDB utilities, 4675
    components, 1335
    for the InnoDB memcached interface, 3391
    new features, 9
    plugins, 1335
security system, 1207
SEC_TO_TIME(), 2199
segment, 6212
SELECT
    INTO, 2695
    LIMIT, 2689
    optimizing, 1811, 3013
SELECT INTO TABLE, 92
SELECT privilege, 1216
select-limit option
    mysql, 446
selecting
    databases, 324
selectivity, 6213
Select_full_join status variable, 991
Select_full_range_join status variable, 991
select_into_buffer_size, 889
select_into_disk_sync, 889
select_into_disk_sync_delay, 890
Select_range status variable, 991
```

Select_range_check status variable, 991
Select_scan status variable, 991
SELinux, 1659
 Document Store TCP port context, 1663
 error log file context, 1661
 file context, 1660
 Group Replication TCP port context, 1662
 LDAP authentication, 1366
 mode, 1660
 MySQL data directory context, 1661
 MySQL feature TCP port context, 1662
 MySQL Router TCP port context, 1663
 MySQL Server policies, 1660
 mysqld TCP port context, 1662
 PID file context, 1661
 secure_file_priv directory context, 1661
 status, 1659
 TCP port context, 1662
 troubleshooting, 1663
 Unix domain file context, 1661
semi-consistent read, 6213
semijoins, 1746
semisynchronous replication, 3695
 configuration, 3697
 configuring, 3699
 installation, 3697
 monitoring, 3701
SendBufferMemory, 4291, 4299
Sending binlog event to replica
 thread state, 1900
Sending binlog event to slave
 thread state, 1900
Sending to client
 thread state, 1897
SendSignalId, 4291, 4299
sensible JSON values, 2112
SENSITIVE_VARIABLES_OBSERVER privilege, 1223
SEQUENCE, 348
sequence emulation, 2321
sequences, 348
SERIAL, 2056, 2058
SERIAL DEFAULT VALUE, 2122
SERIALIZABLE, 6213
 transaction isolation level, 3120
serialized dictionary information (see [SDI](#))
serialized dictionary information (SDI), 6213
server, 6213
 connecting, 319, 381
 debugging, 1176
 disconnecting, 319
 logs, 1045
 restart, 274
 shutdown, 274
 signal handling, 648
 starting, 266
 starting and stopping, 277
 starting problems, 271
server administration, 463

server configuration, 653
server connections
 command options, 371
server plugins, 1097
server variables, 2996 (see [system variables](#))
server-id option
 mysqlbinlog, 627
server-id-bits option
 mysqlbinlog, 627
server-public-key-path option, 375
 mysql, 446
 mysqladmin, 474
 mysqlbinlog, 627
 mysqlcheck, 485
 mysqldump, 499
 mysqlimport, 525
 mysqlpump, 542
 mysqlshow, 554
 mysqlslap, 567
 mysql_migrate_keyring, 612
 mysql_upgrade, 426
server-side cursors
 restrictions, 2839
server-side prepared statement, 6213
ServerPort, 4119
servers
 multiple, 1169
servers table
 system table, 1045
server_cost
 system table, 1857
server_cost table
 system table, 1044
server_id system variable, 3511
server_id_bits system variable, 4261, 4261
server_locks
 ndbinfo table, 4645
server_operations
 ndbinfo table, 4647
server_transactions
 ndbinfo table, 4649
server_uuid system variable
 mysqld, 3511
service principal name, 6214
service ticket, 6214
service-startup-timeout option
 mysql.server, 407
services
 for plugins, 1159
SERVICE_CONNECTION_ADMIN privilege, 1223
service_get_read_locks() function
 locking service, 1164
service_get_write_locks() function
 locking service, 1164
service_release_locks() function
 locking service, 1164
servlet, 6214
SESSION

SET statement, 2940
session categories, 1258
session state
 change tracking, 1034
session state information, 890, 891, 891, 892
session temporary tablespace, 6214
session track gtids, 890
session trackers
 SESSION_TRACK_GTIDS, 1035
 SESSION_TRACK_SCHEMA, 1035
 SESSION_TRACK_STATE_CHANGE, 1035
 SESSION_TRACK_SYSTEM_VARIABLES, 1035
 SESSION_TRACK_TRANSACTION_CHARACTERISTICS, 1035
 SESSION_TRACK_TRANSACTION_STATE, 1035
session variables
 and replication, 3729
session view
 sys schema, 5222
session_account_connect_attrs table
 performance_schema, 5051
session_connect_attrs table
 performance_schema, 5052
session_ssl_status view
 sys schema, 5222
SESSION_STATUS
 removed features, 55
SESSION_TRACK_GTIDS session tracker, 1035
session_track_gtids system variable, 890, 1035
SESSION_TRACK_SCHEMA session tracker, 1035
session_track_schema system variable, 891, 1035
SESSION_TRACK_STATE_CHANGE session tracker, 1035
session_track_state_change system variable, 891, 1035
SESSION_TRACK_SYSTEM_VARIABLES session tracker, 1035
session_track_system_variables system variable, 892, 1035
SESSION_TRACK_TRANSACTION_CHARACTERISTICS session tracker, 1035
session_track_transaction_info system variable, 893
SESSION_TRACK_TRANSACTION_STATE session tracker, 1035
SESSION_USER(), 2323
SESSION_VARIABLES
 removed features, 55
SESSION_VARIABLES_ADMIN privilege, 1223
SET
 CHARACTER SET, 1990
 NAMES, 1990
 size, 2129
set action
 MySQLInstallerConsole, 160
SET CHARACTER SET statement, 2945
SET CHARSET statement, 2945
SET data type, 2079, 2087
SET DEFAULT ROLE statement, 2913
SET GLOBAL sql_slave_skip_counter, 3632
SET GLOBAL statement, 939
SET NAMES, 1996
SET NAMES statement, 2945
set operations
 SQL, 2704
Set option

thread command, 1893
SET PASSWORD statement, 2914
SET PERSIST statement, 939
SET PERSIST_ONLY statement, 939
SET RESOURCE GROUP statement, 2920
SET ROLE statement, 2916
SET SESSION statement, 939
SET sql_log_bin, 2767
SET statement
 assignment operator, 2171
 CHARACTER SET, 2945
 CHARSET, 2945
 NAMES, 2945
 variable assignment, 958, 2940
SET TRANSACTION, 2756
set-auto-increment[option
 myisamchk, 587
set-charset option
 mysqlbinlog, 628
 mysqldump, 504
 mysqlpump, 542
set-collation option
 myisamchk, 586
set-gtid-purged option
 mysqldump, 506
 mysqlpump, 542
setting
 passwords, 1267
setting passwords, 2914
setting program variables, 368
setup
 postinstallation, 265
 thread state, 1897
setup_actors table
 performance_schema, 5001
setup_consumers table
 performance_schema, 5002
setup_instruments table
 performance_schema, 5003
setup_objects table
 performance_schema, 5007
setup_threads table
 performance_schema, 5008
setup_timers
 removed features, 55
set_firewall_group_mode() MySQL Enterprise Firewall function, 1623
set_firewall_mode() MySQL Enterprise Firewall function, 1624
SET_USER_ID privilege, 1223
 orphan stored objects, 4822
 stored object creation, 4822
SET_VAR optimizer hint, 1851
SFA (see [multifactor authentication](#))
SHA(), 2308
SHA1(), 2308
SHA2(), 2308
sha256_password
 deprecated features, 47
sha256_password authentication plugin, 1341

sha256_password_auto_generate_rsa_keys system variable, 894
sha256_password_private_key_path system variable, 894
sha256_password_proxy_users system variable, 895, 1296
sha256_password_public_key_path system variable, 895
sha2_cache_cleaner audit plugin, 1341
shared lock, 3114, 6214
shared memory transporter (see [NDB Cluster](#))
shared tablespace, 6214
shared-memory-base-name option, 374
 mysql, 446
 mysqladmin, 474
 mysqlbinlog, 628
 mysqlcheck, 485
 mysqldump, 515
 mysqlimport, 526
 mysqlshow, 555
 mysqlslap, 567
 mysql_upgrade, 427
SharedGlobalMemory, 4202
shared_memory system variable, 895
shared_memory_base_name system variable, 896
sharp checkpoint, 6214
shell syntax, 4
ShmKey, 4299
ShmSize, 4300
ShmSpinTime, 4300
short-form option
 mysqlbinlog, 628
SHOW
 in NDB Cluster management client, 4078
SHOW BINARY LOGS statement, 2945, 2946
SHOW BINLOG EVENTS statement, 2945, 2947
SHOW CHARACTER SET statement, 2945, 2948
SHOW COLLATION statement, 2945, 2948
SHOW COLUMNS statement, 2945, 2949
SHOW command (NDB Cluster), 4502
SHOW CREATE DATABASE statement, 2945, 2951
SHOW CREATE EVENT statement, 2945
SHOW CREATE FUNCTION statement, 2945, 2952
SHOW CREATE PROCEDURE statement, 2945, 2952
SHOW CREATE SCHEMA statement, 2945, 2951
SHOW CREATE TABLE statement, 2945, 2953
SHOW CREATE TRIGGER statement, 2945, 2954
SHOW CREATE USER statement, 2955
SHOW CREATE VIEW statement, 2945, 2955
SHOW DATABASES privilege, 1216
SHOW DATABASES statement, 2945, 2956
SHOW ENGINE
 and NDB Cluster, 4662
SHOW ENGINE INNODB STATUS statement, 2957
SHOW ENGINE NDB STATUS, 4662
SHOW ENGINE NDBCLUSTER STATUS, 4662
SHOW ENGINE statement, 2945, 2957
SHOW ENGINES
 and NDB Cluster, 4662
SHOW ENGINES statement, 2945, 2960
SHOW ERRORS statement, 2945, 2962
SHOW EVENTS statement, 2945, 2963

SHOW extensions, 4950
SHOW FIELDS statement, 2945, 2949
SHOW FUNCTION CODE statement, 2945, 2965
SHOW FUNCTION STATUS statement, 2945, 2965
SHOW GRANTS statement, 2945, 2965
SHOW INDEX statement, 2945, 2968
SHOW KEYS statement, 2945, 2968
SHOW MASTER LOGS statement, 2945, 2946
SHOW MASTER STATUS statement, 2945, 2970
SHOW OPEN TABLES statement, 2945, 2970
show option
 my_print_defaults, 644
SHOW PLUGINS statement, 2945, 2971
SHOW PRIVILEGES statement, 2945, 2972
SHOW PROCEDURE CODE statement, 2945, 2973
SHOW PROCEDURE STATUS statement, 2945, 2973
SHOW PROCESSLIST statement, 2945, 2974
SHOW PROFILE statement, 2945, 2976
SHOW PROFILES statement, 2945, 2976, 2979
SHOW RELAYLOG EVENTS statement, 2945, 2979
SHOW REPLICA STATUS statement, 2945, 2981
SHOW REPLICAS statement, 2945, 2980
SHOW SCHEDULER STATUS, 4813
SHOW SCHEMAS statement, 2956
SHOW SLAVE HOSTS | SHOW REPLICAS statement, 2981
SHOW SLAVE | REPLICA STATUS statement, 2989
SHOW STATUS
 and NDB Cluster, 4665
SHOW STATUS statement, 2945, 2990
SHOW STORAGE ENGINES statement, 2960
SHOW TABLE STATUS statement, 2945, 2991
SHOW TABLES statement, 2945, 2994
SHOW TRIGGERS statement, 2945, 2994
SHOW VARIABLES
 and NDB Cluster, 4663
SHOW VARIABLES statement, 2945, 2996
SHOW VIEW privilege, 1216
SHOW WARNINGS statement, 2945, 2998
SHOW with WHERE, 4838, 4950
show-create-skip-secondary-engine option
 mysqldump, 509
show-ignored-rows option
 ndb_print_backup_file, 4421
show-replica-auth-info option
 mysqld, 3521
show-slave-auth-info option
 mysqld, 3521
show-table-type option
 mysqlshow, 555
show-temp-status option
 ndb_show_tables, 4477
show-warnings option
 mysql, 446
 mysqladmin, 474
showing
 database information, 548
show_compatibility_56
 removed features, 55

show_create_table_skip_secondary_engine system variable, 896
show_create_table_verbosity system variable, 897
show_gipk_in_create_table_and_information_schema system variable, 897
show_old_temporals system variable, 897
SHOW_ROUTINE privilege, 1223
SHOW_SUPPRESSED_COMPILER_WARNINGS option
 CMake, 250
shutdown, 6214
 server, 1037
Shutdown
 thread command, 1893
SHUTDOWN command (NDB Cluster), 4504
SHUTDOWN privilege, 1216
SHUTDOWN statement, 3013
shutdown-timeout option
 mysqladmin, 474
shutting down
 the server, 274
Shutting down
 thread state, 1904
SIGHUP signal
 log maintenance, 1092
 server response, 648, 3003
SIGINT signal
 client response, 650
 mysql client, 446
 server response, 648, 1179
sigint-ignore option
 mysql, 446
SIGN(), 2186
SIGNAL, 2854
signal handling, 648
signals
 client response, 650
 restrictions, 2865
 server response, 648
SigNum, 4300
SIGPIPE signal
 client response, 650
SIGTERM signal
 server response, 648, 3013
SIGUSR1 signal
 log maintenance, 1092
 server response, 648, 3003
silent column changes, 2603
silent option
 myisamchk, 583
 myisampack, 597
 mysql, 446
 mysqladmin, 474
 mysqlcheck, 485
 mysqld_multi, 409
 mysqlimport, 526
 mysqlslap, 567
 ndb_perror, 4416
 perror, 645
SIN(), 2186
single quote (\'), 1908

single user mode (NDB Cluster), 4500, 4538
 and `ndb_restore`, 4428
single-factor authentication (see [multifactor authentication](#))
single-transaction option
 `mysqldump`, 515
 `mysqlpump`, 543
single-user option
 `ndb_waiter`, 4490
SINGLEUSER Events (NDB Cluster), 4532
size of tables, 1792
sizes
 display, 2056
SKIP LOCKED, 2694
--skip option prefix, 367
skip-admin-ssl option
 `mysqld`, 746
skip-broken-objects option
 `ndb_restore`, 4451
skip-column-names option
 `mysql`, 446
skip-comments option
 `mysqldump`, 503
skip-config-file option
 `ndb_mgmd`, 4334
skip-data option
 `ibd2sdi`, 570
skip-database option
 `mysqlcheck`, 485
skip-definer option
 `mysqlpump`, 543
skip-dump-rows option
 `mysqlpump`, 543
skip-generated-invisible-primary-key option
 `mysqldump`, 512
 `mysqlpump`, 543
skip-grant-tables option
 `mysqld`, 762
skip-gtids option
 `mysqlbinlog`, 628
skip-host-cache option
 `mysqld`, 763
skip-innodb option
 `mysqld`, 763, 3247
skip-kill-mysqld option
 `mysqld_safe`, 403
skip-line-numbers option
 `mysql`, 446
skip-ndbcluster option
 `mysqld`, 4239
skip-new option
 `mysqld`, 763
skip-nodegroup option
 `ndb_error_reporter`, 4384
skip-opt option
 `mysqldump`, 514
skip-replica-start option
 `mysqld`, 3543
skip-show-database option

```
mysqld, 763
skip-slave-start option
    mysqld, 3544
skip-ssl option
    mysqld, 765
skip-stack-trace option
    mysqld, 764
skip-symbolic-links option
    mysqld, 766
skip-sys-schema option
    mysql_upgrade, 427
skip-syslog option
    mysqld_safe, 403
skip-table-check option
    ndb_restore, 4451
skip-unknown-objects option
    ndb_restore, 4452
skip_external_locking system variable, 898
skip_name_resolve system variable, 898
skip_networking system variable, 899
SKIP_QUERY_REWRITE privilege, 1224
skip_replica_start system variable, 3570
SKIP_SCAN, 1847
skip_show_database system variable, 899
skip_slave_start system variable, 3570
Slave has read all relay log; waiting for more updates
    thread state, 1903
slave-skip-errors option
    mysqld, 3544
slave-sql-verify-checksum option
    mysqld, 3545
slave_allow_batching, 4696
slave_allow_batching system variable, 4262
slave_checkpoint_group system variable, 3571
slave_checkpoint_period system variable, 3572
slave_compressed_protocol
    deprecated features, 48
slave_compressed_protocol system variable, 3573
slave_exec_mode system variable, 3573
Slave_heartbeat_period
    removed features, 55
Slave_last_heartbeat
    removed features, 55
slave_load_tmpdir system variable, 3574
slave_master_info table
    system table, 1044
slave_max_allowed_packet system variable, 3575
slave_net_timeout system variable, 3575
Slave_open_temp_tables status variable, 991
slave_parallel_type system variable, 3576
slave_parallel_workers system variable, 3577
slave_pending_jobs_size_max system variable, 3578
slave_preserve_commit_order, 3578
Slave_received_heartbeats
    removed features, 55
slave_relay_log_info table
    system table, 1044
Slave_retried_transactions
```

removed features, 55
Slave_rows_last_search_algorithm_used status variable, 991
slave_rows_search_algorithms system variable, 3580
Slave_running
 removed features, 55
slave_skip_errors system variable, 3581
slave_sql_verify_checksum system variable, 3582
slave_transaction_retries system variable, 3582
slave_type_conversions system variable, 3583
slave_worker_info table
 system table, 1044
Sleep
 thread command, 1893
sleep option
 mysqladmin, 474
SLEEP(), 2473
sleep-time option
 ndb_top, 4484
slice-id option
 ndb_restore, 4452
slow queries, 466
slow query log, 1087, 6214
slow shutdown, 6214
slow-start-timeout option
 mysqld, 764
Slow_launch_threads status variable, 991
slow_launch_time system variable, 899
slow_log table
 system table, 1043
Slow_queries status variable, 992
slow_query_log system variable, 900
slow_query_log_file system variable, 900
SMALLINT data type, 2058
snapshot, 6215
SNAPSHOTEND (START BACKUP command), 4552
SNAPSHOTSTART (START BACKUP command), 4552
socket option, 374
 mysql, 446
 mysqladmin, 474
 mysqlbinlog, 628
 mysqlcheck, 485
 mysqld, 764
 mysqldump, 499
 mysqld_safe, 403
 mysqlimport, 526
 mysqlpump, 543
 mysqlshow, 555
 mysqlslap, 567
 mysql_config, 642
 mysql_migrate_keyring, 612
 mysql_secure_installation, 415
 mysql_upgrade, 427
 ndb_top, 4484
socket system variable, 900
socket_instances table
 performance_schema, 5013
socket_summary_by_event_name table
 performance_schema, 5125

socket_summary_by_instance table
 performance_schema, 5125

Solaris
 installation, 220

Solaris installation problems, 220

Solaris troubleshooting, 263

Solaris x86_64 issues, 1801

SOME, 2711

sort buffer, 6215

sort option
 ndb_top, 4484

sort-index option
 myisamchk, 587

sort-records option
 myisamchk, 587

sort-recover option
 myisamchk, 587

sorting
 data, 330
 grant tables, 1243, 1244
 table rows, 330

Sorting for group
 thread state, 1897

Sorting for order
 thread state, 1897

Sorting index
 thread state, 1897

Sorting result
 thread state, 1898

sort_buffer_size myisamchk variable, 583

sort_buffer_size system variable, 901

sort_key_blocks myisamchk variable, 583

Sort_merge_passes status variable, 992

Sort_range status variable, 992

Sort_rows status variable, 992

Sort_scan status variable, 992

SOUNDEX(), 2220

SOUNDS LIKE, 2220

source, 6215

source (mysql client command), 342, 459

source command
 mysql, 453

source distribution
 installing, 222

Source has sent all binlog to replica; waiting for more updates
 thread state, 1900

source-data option
 mysqldump, 506

source-keyring option
 mysql_migrate_keyring, 612

source-keyring-configuration-dir option
 mysql_migrate_keyring, 612

SOURCE_POS_WAIT(), 2473, 2805

source_verify_checksum system variable, 3617

space ID, 6215

SPACE(), 2220

sparse file, 6215

spatial data type

SRID attribute, 2090
spatial data types, 2089
 storage requirements, 2129
spatial extensions in MySQL, 2089
spatial functions, 2324
 removed features, 54
SPATIAL index
 InnoDB predicate locks, 3118
SPATIAL indexes
 optimization, 1768
spatial queries
 optimization, 1770
spatial values
 syntactically well-formed, 2100
spatial window functions, 2366
speed
 increasing with replication, 3461
 inserting, 1764
 of queries, 1694
spin, 6215
spin lock polling, 3163
SpinMethod, 4186
sporadic-binlog-dump-fail option
 mysqld, 3593
Spring, 6215
sp_firewall_group_delist() MySQL Enterprise Firewall stored procedure, 1618
sp_firewall_group_enlist() MySQL Enterprise Firewall stored procedure, 1618
sp_migrate_firewall_user_to_group() MySQL Enterprise Firewall stored procedure, 1621
sp_reload_firewall_group_rules() MySQL Enterprise Firewall stored procedure, 1619
sp_reload_firewall_rules() MySQL Enterprise Firewall stored procedure, 1620
sp_set_firewall_group_mode() MySQL Enterprise Firewall stored procedure, 1619
sp_set_firewall_group_mode_and_user() MySQL Enterprise Firewall stored procedure, 1620
sp_set_firewall_mode() MySQL Enterprise Firewall stored procedure, 1621
SQL, 6215
 defined, 5
SQL injection, 1205, 1598, 2289, 2824
SQL mode, 995
 ALLOW_INVALID_DATES, 997
 and partitioning, 3722, 4787
 and replication, 3722
 ANSI, 997, 1002
 ANSI_QUOTES, 997
 ERROR_FOR_DIVISION_BY_ZERO, 997
 HIGH_NOT_PRECEDENCE, 998
 IGNORE_SPACE, 998
 NO_AUTO_VALUE_ON_ZERO, 999
 NO_BACKSLASH_ESCAPES, 999
 NO_DIR_IN_CREATE, 999
 NO_ENGINESUBSTITUTION, 999
 NO_UNSIGNED_SUBTRACTION, 999
 NO_ZERO_DATE, 1000
 NO_ZERO_IN_DATE, 1000
 ONLY_FULL_GROUP_BY, 1001, 2435
 PAD_CHAR_TO_FULL_LENGTH, 1001
 PIPES_AS_CONCAT, 1002
 REAL_AS_FLOAT, 1002
 removed features, 53
 strict, 997

STRICT_ALL_TABLES, 1002
STRICT_TRANS_TABLES, 997, 1002
TIME_TRUNCATE_FRACTIONAL, 1002
TRADITIONAL, 997, 1003
SQL node (NDB Cluster)
 defined, 3990
SQL nodes (NDB Cluster), 4557
SQL scripts, 428
SQL SECURITY
 effect on privileges, 4821
SQL statements
 replicas, 2767
 replication server, 2816
 replication sources, 2765
SQL statements relating to NDB Cluster, 4662
SQL-92
 extensions to, 88
sql-mode option
 mysqld, 764
 mysqlslap, 567
SQLState, 6215
sql_auto_is_null system variable, 901
SQL_BIG_RESULT
 SELECT modifier, 2695
sql_big_selects system variable, 902
SQL_BUFFER_RESULT
 SELECT modifier, 2695
sql_buffer_result system variable, 902
SQL_CACHE
 removed features, 52
 SELECT modifier, 2695
SQL_CALC_FOUND_ROWS, 1739
 deprecated features, 48
 SELECT modifier, 2695
sql_generate_invisible_primary_key, 902
sql_log_bin
 removed features, 52
sql_log_bin system variable, 3618
sql_log_off system variable, 903
sql_mode system variable, 903
sql_notes system variable, 904
SQL_NO_CACHE
 SELECT modifier, 2695
sql_quote_show_create system variable, 905
sql_replica_skip_counter system variable, 3584
sql_require_primary_key system variable, 905
sql_safe_updates system variable, 461, 906
sql_select_limit system variable, 461, 906
sql_slave_skip_counter, 3632
sql_slave_skip_counter system variable, 3584
SQL_SMALL_RESULT
 SELECT modifier, 2695
sql_warnings system variable, 907
SQRT(), 2186
square brackets, 2056
SRID attribute
 spatial data type, 2090
SRID values

handling by spatial functions, 2327

SRID()
removed features, 53

SSD, 3181, 6216

SSH, 1199, 1332

SSL, 1306, 6216
command options, 374
establishing connections, 1307
X.509 Basics, 1306

SSL library
configuring, 230

ssl option
mysqld, 765

SSL options
mysql, 447
mysqladmin, 474
mysqlbinlog, 628
mysqlcheck, 485
mysqldump, 500
mysqlimport, 526
mysqlpump, 543
mysqlshow, 555
mysqlslap, 567
mysql_migrate_keyring, 612
mysql_secure_installation, 415
mysql_upgrade, 427

SSL related options
ALTER USER, 2875
CREATE USER statement, 2888

ssl session cache
enable session reuse, 1332

ssl session data
enable session reuse, 1332

ssl-ca option, 376

ssl-capath option, 376

ssl-cert option, 376

ssl-cipher option, 376

ssl-crl option, 377

ssl-crlpath option, 377

ssl-fips-mode option, 377
mysql, 447
mysqladmin, 475
mysqlbinlog, 629
mysqlcheck, 486
mysqldump, 500
mysqlimport, 526
mysqlpump, 544
mysqlshow, 555
mysqlslap, 567
mysql_migrate_keyring, 613
mysql_secure_installation, 415
mysql_upgrade, 427

ssl-key option, 377

ssl-mode option, 377

ssl-session-data option, 379

ssl-session-data-continue-on-failed-reuse option, 379

Ssl_accepts status variable, 992

Ssl_accept_renegotiates status variable, 992

ssl_ca system variable, 907
Ssl_callback_cache_hits status variable, 992
ssl_capath system variable, 907
ssl_cert system variable, 908
Ssl_cipher status variable, 992
ssl_cipher system variable, 908
Ssl_cipher_list status variable, 992
Ssl_client_connects status variable, 992
Ssl_connect_renegotiates status variable, 992
ssl_crl system variable, 909
ssl_crlpath system variable, 909
Ssl_ctx_verify_depth status variable, 992
Ssl_ctx_verify_mode status variable, 992
Ssl_default_timeout status variable, 993
Ssl_finished_accepts status variable, 993
Ssl_finished_connects status variable, 993
ssl_fips_mode system variable, 909
ssl_key system variable, 910
Ssl_server_not_after status variable, 993
Ssl_server_not_before status variable, 993
Ssl_sessions_reused status variable, 993
Ssl_session_cache_hits status variable, 993
Ssl_session_cache_misses status variable, 993
Ssl_session_cache_mode status variable, 993
ssl_session_cache_mode system variable, 910
Ssl_session_cache_overflows status variable, 993
Ssl_session_cache_size status variable, 993
Ssl_session_cache_timeout status variable, 993
ssl_session_cache_timeout system variable, 911
Ssl_session_cache_timeouts status variable, 993
ssl_session_data_print command
 mysql, 453
Ssl_used_session_cache_entries status variable, 994
Ssl_verify_depth status variable, 994
Ssl_verify_mode status variable, 994
Ssl_version status variable, 994
staging-tries option
 ndb_move_data, 4413
standalone option
 mysqld, 766
Standard Monitor, 3369, 3371, 3374
Standard SQL
 differences from, 92, 2909
 extensions to, 88, 89
standards compatibility, 88
START
 XA transactions, 2760
START BACKUP
 NOWAIT, 4552
 SNAPSHOTEND, 4552
 SNAPSHOTSTART, 4552
syntax, 4551
WAIT COMPLETED, 4552
WAIT STARTED, 4552
START command (NDB Cluster), 4504
START GROUP_REPLICATION, 2816
START REPLICA, 2805
START SLAVE, 2809

START TRANSACTION, 2745
start-datetime option
 mysqlbinlog, 629
start-page option
 innodbchecksum, 573
start-position option
 mysqlbinlog, 629
StartConnectBackoffMaxTime, 4223
StartFailRetryDelay, 4210
StartFailureTimeout, 4159
starting
 comments, 95
 mysqld, 1201
 the server, 266
 the server automatically, 277
 thread state, 1898
Starting many servers, 1169
StartNoNodeGroupTimeout, 4159
StartPartialTimeout, 4158
StartPartitionedTimeout, 4158
StartPoint()
 removed features, 53
startup, 6216
STARTUP Events (NDB Cluster), 4527
startup options
 default, 360
 replication channel, 3644
startup parameters, 653
 mysql, 429
 mysqladmin, 467
StartupStatusReportFrequency, 4177
state-dir option
 ndb_import, 4399
statement interceptor, 6216
statement sampling, 5113
statement termination
 Control+C, 429, 446, 2740
statement-based replication, 6216
 advantages, 3635
 disadvantages, 3635
 unsafe statements, 3635
statements
 compound, 2830
 CREATE USER, 1246
 DROP USER, 1246
 GRANT, 1246
 replicas, 2767
 replication server, 2816
 replication sources, 2765
 REVOKE, 1246
statements_with_errors_or_warnings view
 sys schema, 5224
statements_with_full_table_scans view
 sys schema, 5225
statements_with_runtimes_in_95th_percentile view
 sys schema, 5226
statements_with_sorting view
 sys schema, 5227

```
statements_with_temp_tables view
    sys schema, 5228
statement_analysis view
    sys schema, 5222
STATEMENT_DIGEST(), 2308
STATEMENT_DIGEST_TEXT(), 2309
statement_performance_analyzer() procedure
    sys schema, 5249
static privileges, 1226
Statistics
    thread command, 1893
statistics, 6216
    thread state, 1898
STATISTICS
    INFORMATION_SCHEMA table, 4887
STATISTICS Events (NDB Cluster), 4530
stats option
    myisam_ftdump, 578
    ndb_import, 4399
stats_method myisamchk variable, 583
status
    tables, 2991
status action
    MySQLInstallerConsole, 161
status command
    mysql, 453
    results, 466
STATUS command (NDB Cluster), 4504
status option
    mysqlshow, 555
status variable
    Aborted_clients, 968
    Aborted_connects, 968
    Acl_cache_items_count, 969, 969
    Audit_log_current_size, 1594
    Audit_log_events, 1594
    Audit_log_events_filtered, 1594
    Audit_log_events_lost, 1594
    Audit_log_events_written, 1595
    Audit_log_event_max_drop_size, 1594
    Audit_log_total_size, 1595
    Audit_log_write_waits, 1595
    Authentication_ldap_sasl_supported_methods, 968
    Binlog_cache_disk_use, 969
    Binlog_cache_use, 969
    Binlog_stmt_cache_disk_use, 969
    Binlog_stmt_cache_use, 969
    Bytes_received, 969
    Bytes_sent, 969
    Caching_sha2_password_rsa_public_key, 969
    Compression, 970
    Compression_algorithm, 970
    Compression_level, 970
    Connections, 971
    Connection_control_delay_generated, 1429
    Connection_errors_accept, 971
    Connection_errors_internal, 971
    Connection_errors_max_connections, 971
```

Connection_errors_peer_address, 971
Connection_errors_select, 971
Connection_errors_tcpwrap, 971
Created_tmp_disk_tables, 971
Created_tmp_files, 971
Created_tmp_tables, 972
Current_tls_ca, 972
Current_tls_capath, 972
Current_tls_cert, 972
Current_tls_cipher, 972
Current_tls_ciphersuites, 972
Current_tls_crl, 972
Current_tls_crlpath, 973
Current_tls_key, 973
Current_tls_version, 973
Delayed_errors, 973
Delayed_insert_threads, 973
Delayed_writes, 973
dragnet.Status, 974, 974
Error_log_buffered_bytes, 974
Error_log_buffered_events, 974
Error_log_expired_events, 974
Error_log_latest_write, 974
Firewall_access_denied, 1625
Firewall_access_granted, 1625
Firewall_access_suspicious, 1625
Firewall_cached_entries, 1626
Flush_commands, 974
Global_connection_memory, 974
group_replication_primary_member, 974
Handler_commit, 975
Handler_delete, 975
Handler_discover, 4265
Handler_external_lock, 975
Handler_mrr_init, 975
Handler_prepare, 975
Handler_read_first, 975
Handler_read_key, 975
Handler_read_last, 975
Handler_read_next, 975
Handler_read_prev, 975
Handler_read_rnd, 975
Handler_read_rnd_next, 976
Handler_rollback, 976
Handler_savepoint, 976
Handler_savepoint_rollback, 976
Handler_update, 976
Handler_write, 976
Innodb_buffer_pool_bytes_data, 976
Innodb_buffer_pool_bytes_dirty, 976
Innodb_buffer_pool_dump_status, 976
Innodb_buffer_pool_load_status, 976
Innodb_buffer_pool_pages_data, 976
Innodb_buffer_pool_pages_dirty, 977
Innodb_buffer_pool_pages_flushed, 977
Innodb_buffer_pool_pages_free, 977
Innodb_buffer_pool_pages_latched, 977
Innodb_buffer_pool_pages_misc, 977

Innodb_buffer_pool_pages_total, 977
Innodb_buffer_pool_reads, 977
Innodb_buffer_pool_read_ahead, 977
Innodb_buffer_pool_read_ahead_evicted, 977
Innodb_buffer_pool_read_ahead_rnd, 977
Innodb_buffer_pool_read_requests, 977
Innodb_buffer_pool_resize_status, 977
Innodb_buffer_pool_resize_status_code, 977
Innodb_buffer_pool_resize_status_progress, 978
Innodb_buffer_pool_wait_free, 978
Innodb_buffer_pool_write_requests, 978
Innodb_data_fsyncs, 978
Innodb_data_pending_fsyncs, 978
Innodb_data_pending_reads, 979
Innodb_data_pending_writes, 979
Innodb_data_read, 979
Innodb_data_reads, 979
Innodb_data_writes, 979
Innodb_data_written, 979
Innodb_dblwr_pages_written, 979
Innodb_dblwr_writes, 979
Innodb_have_atomic_builtins, 979
Innodb_log_waits, 979
Innodb_log_writes, 979
Innodb_log_write_requests, 979
Innodb_num_open_files, 979
Innodb_os_log_fsyncs, 979
Innodb_os_log_pending_fsyncs, 979
Innodb_os_log_pending_writes, 980
Innodb_os_log_written, 980
Innodb_pages_created, 980
Innodb_pages_read, 980
Innodb_pages_written, 980
Innodb_page_size, 980
Innodb_redo_log_capacity_resized, 980
Innodb_redo_log_checkpoint_lsn, 980
Innodb_redo_log_current_lsn, 980
Innodb_redo_log_enabled, 980
Innodb_redo_log_flushed_to_disk_lsn, 980
Innodb_redo_log_logical_size, 981
Innodb_redo_log_physical_size, 981
Innodb_redo_log_read_only, 981
Innodb_redo_log_resize_status, 981
Innodb_redo_log_uuid, 981
Innodb_rows_deleted, 981
Innodb_rows_inserted, 982
Innodb_rows_read, 982
Innodb_rows_updated, 982
Innodb_row_lock_current_waits, 981
Innodb_row_lock_time, 981
Innodb_row_lock_time_avg, 981
Innodb_row_lock_time_max, 981
Innodb_row_lock_waits, 981
Innodb_system_rows_deleted, 982
Innodb_system_rows_inserted, 982
Innodb_system_rows_read, 982
Innodb_truncated_status_writes, 982
Innodb_undo_tablespaces_active, 982

Innodb_undo_tablespaces_explicit, 982
Innodb_undo_tablespaces_implicit, 982
Innodb_undo_tablespaces_total, 982
Key_blocks_not_flushed, 982
Key_blocks_unused, 982
Key_blocks_used, 983
Key_reads, 983
Key_read_requests, 983
Key_writes, 983
Key_write_requests, 983
Last_query_cost, 983
Last_query_partial_plans, 983
Locked_connects, 983
Max_execution_time_exceeded, 983
Max_execution_time_set, 983
Max_execution_time_set_failed, 983
Max_used_connections, 984
Max_used_connections_time, 984
mecab_charset, 984
Ndb_api_adaptive_send_deferred_count, 4265
Ndb_api_adaptive_send_deferred_count_replica, 4265
Ndb_api_adaptive_send_deferred_count_session, 4265
Ndb_api_adaptive_send_deferred_count_slave, 4265
Ndb_api_adaptive_send_forced_count, 4265
Ndb_api_adaptive_send_forced_count_replica, 4266
Ndb_api_adaptive_send_forced_count_session, 4266
Ndb_api_adaptive_send_forced_count_slave, 4266
Ndb_api_adaptive_send_unforced_count, 4266
Ndb_api_adaptive_send_unforced_count_replica, 4266
Ndb_api_adaptive_send_unforced_count_session, 4266
Ndb_api_adaptive_send_unforced_count_slave, 4266
Ndb_api_bytes_received_count, 4268
Ndb_api_bytes_received_count_replica, 4267
Ndb_api_bytes_received_count_session, 4267
Ndb_api_bytes_received_count_slave, 4267
Ndb_api_bytes_sent_count, 4267
Ndb_api_bytes_sent_count_replica, 4267
Ndb_api_bytes_sent_count_session, 4267
Ndb_api_bytes_sent_count_slave, 4267
Ndb_api_event_bytes_count, 4269
Ndb_api_event_bytes_count_injector, 4269
Ndb_api_event_data_count, 4268
Ndb_api_event_data_count_injector, 4268
Ndb_api_event_nodata_count, 4268
Ndb_api_event_nodata_count_injector, 4268
Ndb_api_pk_op_count, 4269
Ndb_api_pk_op_count_replica, 4269
Ndb_api_pk_op_count_session, 4269
Ndb_api_pk_op_count_slave, 4269
Ndb_api_pruned_scan_count, 4270
Ndb_api_pruned_scan_count_replica, 4270
Ndb_api_pruned_scan_count_session, 4270
Ndb_api_pruned_scan_count_slave, 4270
Ndb_api_range_scan_count, 4271
Ndb_api_range_scan_count_replica, 4271
Ndb_api_range_scan_count_session, 4270
Ndb_api_range_scan_count_slave, 4271
Ndb_api_read_row_count, 4272

Ndb_api_read_row_count_replica, 4271
Ndb_api_read_row_count_session, 4271
Ndb_api_read_row_count_slave, 4272
Ndb_api_scan_batch_count, 4273
Ndb_api_scan_batch_count_replica, 4272
Ndb_api_scan_batch_count_session, 4272
Ndb_api_scan_batch_count_slave, 4273
Ndb_api_table_scan_count, 4274
Ndb_api_table_scan_count_replica, 4273
Ndb_api_table_scan_count_session, 4273
Ndb_api_table_scan_count_slave, 4273
Ndb_api_trans_abort_count, 4274
Ndb_api_trans_abort_count_replica, 4274
Ndb_api_trans_abort_count_session, 4274
Ndb_api_trans_abort_count_slave, 4274
Ndb_api_trans_close_count, 4275
Ndb_api_trans_close_count_replica, 4275
Ndb_api_trans_close_count_session, 4274
Ndb_api_trans_close_count_slave, 4275
Ndb_api_trans_commit_count, 4276
Ndb_api_trans_commit_count_replica, 4275
Ndb_api_trans_commit_count_session, 4275
Ndb_api_trans_commit_count_slave, 4276
Ndb_api_trans_local_read_row_count, 4277
Ndb_api_trans_local_read_row_count_replica, 4276
Ndb_api_trans_local_read_row_count_session, 4276
Ndb_api_trans_local_read_row_count_slave, 4276
Ndb_api_trans_start_count, 4277
Ndb_api_trans_start_count_replica, 4277
Ndb_api_trans_start_count_session, 4277
Ndb_api_trans_start_count_slave, 4277
Ndb_api_uk_op_count, 4278
Ndb_api_uk_op_count_replica, 4278
Ndb_api_uk_op_count_session, 4277
Ndb_api_uk_op_count_slave, 4278
Ndb_api_wait_exec_complete_count, 4279
Ndb_api_wait_exec_complete_count_replica, 4278
Ndb_api_wait_exec_complete_count_session, 4278
Ndb_api_wait_exec_complete_count_slave, 4278
Ndb_api_wait_meta_request_count, 4280
Ndb_api_wait_meta_request_count_replica, 4279
Ndb_api_wait_meta_request_count_session, 4279
Ndb_api_wait_meta_request_count_slave, 4279
Ndb_api_wait_nanos_count, 4280
Ndb_api_wait_nanos_count_replica, 4280
Ndb_api_wait_nanos_count_session, 4280
Ndb_api_wait_nanos_count_slave, 4280
Ndb_api_wait_scan_result_count, 4281
Ndb_api_wait_scan_result_count_replica, 4281
Ndb_api_wait_scan_result_count_session, 4281
Ndb_api_wait_scan_result_count_slave, 4281
Ndb_cluster_node_id, 4281
Ndb_config_from_host, 4281
Ndb_config_from_port, 4281
Ndb_config_generation, 4282
Ndb_conflict_fn_epoch, 4282
Ndb_conflict_fn_epoch2, 4282
Ndb_conflict_fn_epoch2_trans, 4282

Ndb_conflict_fn_epoch_trans, 4282
Ndb_conflict_fn_max, 4282
Ndb_conflict_fn_max_del_win, 4282
Ndb_conflict_fn_max_del_win_ins, 4283
Ndb_conflict_fn_max_ins, 4283
Ndb_conflict_fn_old, 4283
Ndb_conflict_last_conflict_epoch, 4283
Ndb_conflict_last_stable_epoch, 4283
Ndb_conflict_reflected_op_discard_count, 4283
Ndb_conflict_reflected_op_prepare_count, 4283
Ndb_conflict_refresh_op_count, 4283
Ndb_conflict_trans_conflict_commit_count, 4284
Ndb_conflict_trans_detect_iter_count, 4284
Ndb_conflict_trans_reject_count, 4284
Ndb_conflict_trans_row_conflict_count, 4284
Ndb_conflict_trans_row_reject_count, 4284
Ndb_epoch_delete_delete_count, 4284
Ndb_execute_count, 4284
Ndb_last_commit_epoch_server, 4284
Ndb_last_commit_epoch_session, 4284
Ndb_metadata_blacklist_size (OBSOLETE), 4285
Ndb_metadata_detected_count, 4285
Ndb_metadata_excluded_count, 4285
Ndb_metadata_synced_count, 4285
Ndb_number_of_data_nodes, 4285
Ndb_pruned_scan_count, 4285
Ndb_pushed_queries_defined, 4285
Ndb_pushed_queries_dropped, 4285
Ndb_pushed_queries_executed, 4285
Ndb_pushed_reads, 4285
Ndb_replica_max_replicated_epoch, 4286
Ndb_scan_count, 4286
Ndb_slave_max_replicated_epoch, 4286
Ndb_system_name, 4286
Ndb_trans_hint_count_session, 4286
Not_flushed_delayed_rows, 984
Ongoing_anonymous_gtid_violating_transaction_count, 984
Ongoing_anonymous_transaction_count, 984
Ongoing_automatic_gtid_violating_transaction_count, 984
Opened_files, 984
Opened_tables, 984
Opened_table_definitions, 984
Open_files, 984
Open_streams, 984
Open_tables, 984
Open_table_definitions, 984
Performance_schema_accounts_lost, 5175
Performance_schema_cond_classes_lost, 5175
Performance_schema_cond_instances_lost, 5176
Performance_schema_digest_lost, 5176
Performance_schema_file_classes_lost, 5176
Performance_schema_file_handles_lost, 5176
Performance_schema_file_instances_lost, 5176
Performance_schema_hosts_lost, 5176
Performance_schema_index_stat_lost, 5176
Performance_schema_locker_lost, 5176
Performance_schema_memory_classes_lost, 5176
Performance_schema_metadata_lock_lost, 5176

Performance_schema_mutex_classes_lost, 5176
Performance_schema_mutex_instances_lost, 5176
Performance_schema_nested_statement_lost, 5176
Performance_schema_prepared_statements_lost, 5177
Performance_schema_program_lost, 5177
Performance_schema_rwlock_classes_lost, 5177
Performance_schema_rwlock_instances_lost, 5177
Performance_schema_session_connect_attrs_longest_seen, 5177
Performance_schema_session_connect_attrs_lost, 5177
Performance_schema_socket_classes_lost, 5177
Performance_schema_socket_instances_lost, 5177
Performance_schema_stage_classes_lost, 5177
Performance_schema_statement_classes_lost, 5177
Performance_schema_table_handles_lost, 5178
Performance_schema_table_instances_lost, 5178
Performance_schema_table_lock_stat_lost, 5178
Performance_schema_thread_classes_lost, 5178
Performance_schema_thread_instances_lost, 5178
Performance_schema_users_lost, 5178
Prepared_stmt_count, 985
Queries, 985
Questions, 985
Replica_open_temp_tables, 985
Replica_rows_last_search_algorithm_used, 985
Resource_group_supported, 986
Rewriter_number_loaded_rules, 1120
Rewriter_number_reloads, 1120
Rewriter_number_rewritten_queries, 1120
Rewriter_reload_error, 1120
Rpl_semi_sync_master_clients, 986
Rpl_semi_sync_master_net_avg_wait_time, 986
Rpl_semi_sync_master_net_waits, 986
Rpl_semi_sync_master_net_wait_time, 986
Rpl_semi_sync_master_no_times, 986
Rpl_semi_sync_master_no_tx, 986
Rpl_semi_sync_master_status, 987
Rpl_semi_sync_master_timefunc_failures, 987
Rpl_semi_sync_master_tx_avg_wait_time, 987
Rpl_semi_sync_master_tx_waits, 987
Rpl_semi_sync_master_tx_wait_time, 987
Rpl_semi_sync_master_wait_pos_backtraverse, 987
Rpl_semi_sync_master_wait_sessions, 988
Rpl_semi_sync_master_yes_tx, 988
Rpl_semi_sync_replica_status, 990
Rpl_semi_sync_slave_status, 990
Rpl_semi_sync_source_clients, 988
Rpl_semi_sync_source_net_avg_wait_time, 988
Rpl_semi_sync_source_net_waits, 988
Rpl_semi_sync_source_net_wait_time, 988
Rpl_semi_sync_source_no_times, 988
Rpl_semi_sync_source_no_tx, 989
Rpl_semi_sync_source_status, 989
Rpl_semi_sync_source_timefunc_failures, 989
Rpl_semi_sync_source_tx_avg_wait_time, 989
Rpl_semi_sync_source_tx_waits, 989
Rpl_semi_sync_source_tx_wait_time, 989
Rpl_semi_sync_source_wait_pos_backtraverse, 990
Rpl_semi_sync_source_wait_sessions, 990

Rpl_semi_sync_source_yes_tx, 990
Rsa_public_key, 990
Secondary_engine_execution_count, 990
Select_full_join, 991
Select_full_range_join, 991
Select_range, 991
Select_range_check, 991
Select_scan, 991
Slave_open_temp_tables, 991
Slave_rows_last_search_algorithm_used, 991
Slow_launch_threads, 991
Slow_queries, 992
Sort_merge_passes, 992
Sort_range, 992
Sort_rows, 992
Sort_scan, 992
Ssl_accepts, 992
Ssl_accept_renegotiates, 992
Ssl_callback_cache_hits, 992
Ssl_cipher, 992
Ssl_cipher_list, 992
Ssl_client_connects, 992
Ssl_connect_renegotiates, 992
Ssl_ctx_verify_depth, 992
Ssl_ctx_verify_mode, 992
Ssl_default_timeout, 993
Ssl_finished_accepts, 993
Ssl_finished_connects, 993
Ssl_server_not_after, 993
Ssl_server_not_before, 993
Ssl_sessions_reused, 993
Ssl_session_cache_hits, 993
Ssl_session_cache_misses, 993
Ssl_session_cache_mode, 993
Ssl_session_cache_overflows, 993
Ssl_session_cache_size, 993
Ssl_session_cache_timeout, 993
Ssl_session_cache_timeouts, 993
Ssl_used_session_cache_entries, 994
Ssl_verify_depth, 994
Ssl_verify_mode, 994
Ssl_version, 994
Table_locks_immediate, 994
Table_locks_waited, 994
Table_open_cache_hits, 994
Table_open_cache_misses, 994
Table_open_cache_overflows, 994
Tc_log_max_pages_used, 994
Tc_log_page_siz, 995
Tc_log_page_waits, 995
Telemetry_traces_supported, 995
Threads_cached, 995
Threads_connected, 995
Threads_created, 995
Threads_running, 995
Tls_library_version, 995
Uptime, 995
Uptime_since_flush_status, 995

validate_password.dictionary_file_last_parsed, 1436
validate_password.dictionary_file_words_count, 1436
validate_password_dictionary_file_last_parsed, 1440
validate_password_dictionary_file_words_count, 1440
status variables, 968, 2990
NDB Cluster, 4265
NDB Cluster replication conflict detection, 4722
STD(), 2428
STDDEV(), 2429
STDDEV_POP(), 2429
STDDEV_SAMP(), 2429
stemming, 6217
STOP command (NDB Cluster), 4504
STOP GROUP_REPLICATION, 2817
STOP REPLICA, 2810
STOP SLAVE, 2811
stop-datetime option
 mysqlbinlog, 629
stop-never option
 mysqlbinlog, 629
stop-never-slave-server-id option
 mysqlbinlog, 630
stop-position option
 mysqlbinlog, 630
StopOnError, 4156
stopping
 the server, 277
stopword, 6217
stopword list
 user-defined, 2253
stopwords, 2250
storage engine, 6217
 ARCHIVE, 3441
 InnoDB, 3032
 PERFORMANCE_SCHEMA, 4954
storage engines
 and application feature requirements, 4032
 applications supported, 4032
 availability, 4030
 choosing, 3423
 differences between NDB and InnoDB, 4031
 usage scenarios, 4032
storage nodes - see data nodes, ndbd (see [data nodes, ndbd](#))
storage nodes - see data nodes, ndbd, ndbmt (see [data nodes, ndbd, ndbmt](#))
storage requirements
 data types, 2125
 date data types, 2127
 InnoDB tables, 2125
 NDB Cluster, 2125
 numeric data types, 2126
 spatial data types, 2129
 string data types, 2127
 time data types, 2127
storage space
 minimizing, 1783
stored functions, 4801
stored generated column, 6217
stored object, 6217

stored object privileges, 4821
stored objects, 4799
 orphan, 4822
stored procedures, 4801
stored program, 6217
stored programs, 2830, 4799
 reparsing, 1867
 roles, 1254
stored routine, 6217
stored routines, 4799, 4801
 and replication, 3714
 LAST_INSERT_ID(), 4803
 metadata, 4803
 restrictions, 4831
stored_program_cache system variable, 911
stored_program_definition_cache system variable, 912
STRAIGHT_JOIN, 1721, 1811, 1825, 2698, 3016
 join type, 1748
 SELECT modifier, 1748, 2695
STRCMP(), 2228
strict mode, 6217
 default, 96
strict SQL mode, 997
strict-check option
 ibd2sdi, 571
 innodb_checksum, 574
STRICT_ALL_TABLES SQL mode, 1002
STRICT_TRANS_TABLES SQL mode, 997, 1002
string
 JSON, 2108
string collating, 2037
string comparison functions, 2225
string comparison operators, 2225
string comparisons
 case sensitivity, 2225
string concatenation, 1907, 2213
string data types, 2076
 storage requirements, 2127
string functions, 2209
string literal introducer, 1908, 1985
string literals, 1907
string operators, 2209
string types, 2076
StringMemory, 4126
strings
 defined, 1907
 escape sequences, 1907
 nondelimited, 1913
 repertoire, 1977
striping
 defined, 1877
STR_TO_DATE(), 2199
ST_Area(), 2344
ST_AsBinary(), 2334
ST_AsGeoJSON(), 2364
ST_AsText(), 2334
ST_Buffer(), 2348
ST_Buffer_Strategy(), 2349

ST_Centroid(), 2345
ST_Collect(), 2366
ST_Contains(), 2356
ST_ConvexHull(), 2350
ST_Crosses(), 2356
ST_Difference(), 2350
ST_Dimension(), 2335
ST_Disjoint(), 2356
ST_Distance(), 2356
ST_Distance_Sphere(), 2368
ST_EndPoint(), 2340
ST_Envelope(), 2336
ST_Equals(), 2357
ST_ExteriorRing(), 2346
ST_FrechetDistance(), 2357
ST_GeoHash(), 2363
ST_GeomCollFromText(), 2329
ST_GeomCollFromWKB(), 2331
ST_GeometryCollectionFromText(), 2329
ST_GeometryCollectionFromWKB(), 2331
ST_GeometryFromText(), 2329
ST_GeometryFromWKB(), 2331
ST_GeometryN(), 2347
ST_GeometryType(), 2336
ST_GEOMETRY_COLUMNS
 INFORMATION_SCHEMA table, 4890
ST_GeomFromGeoJSON(), 2365
ST_GeomFromText(), 2329
ST_GeomFromWKB(), 2331
ST_HausdorffDistance(), 2358
ST_InteriorRingN(), 2346
ST_Intersection(), 2351
ST_Intersects(), 2359
ST_IsClosed(), 2340
ST_IsEmpty(), 2336
ST_IsSimple(), 2336
ST_IsValid(), 2370
ST_LatFromGeoHash(), 2363
ST_Latitude(), 2338
ST_Length(), 2342
ST_LineFromText(), 2329
ST_LineFromWKB(), 2331
ST_LineInterpolatePoint(), 2351, 2352
ST_LineInterpolatePoints(), 2351
ST_LineStringFromText(), 2329
ST_LineStringFromWKB(), 2331
ST_LongFromGeoHash(), 2363
ST_Longitude(), 2339
ST_MakeEnvelope(), 2371
ST_MLineFromText(), 2330
ST_MLineFromWKB(), 2331
ST_MPointFromText(), 2330
ST_MPointFromWKB(), 2331
ST_MPolyFromText(), 2330
ST_MPolyFromWKB(), 2331
ST_MultiLineStringFromText(), 2330
ST_MultiLineStringFromWKB(), 2331
ST_MultiPointFromText(), 2330

ST_MultiPointFromWKB(), 2331
ST_MultiPolygonFromText(), 2330
ST_MultiPolygonFromWKB(), 2331
ST_NumGeometries(), 2347
ST_NumInteriorRing(), 2346
ST_NumInteriorRings(), 2346
ST_NumPoints(), 2343
ST_Overlaps(), 2359
ST_PointFromGeoHash(), 2363
ST_PointFromText(), 2330
ST_PointFromWKB(), 2332
ST_PointN(), 2343
ST_PolyFromText(), 2330
ST_PolyFromWKB(), 2332
ST_PolygonFromText(), 2330
ST_PolygonFromWKB(), 2332
ST_Simplify(), 2371
ST_SPATIAL_REFERENCE_SYSTEMS
 INFORMATION_SCHEMA table, 4890
st_spatial_reference_systems table
 data dictionary table, 1041
ST_SRID(), 2337
ST_StartPoint(), 2343
ST_SwapXY(), 2335
ST_SymDifference(), 2353
ST_Touches(), 2359
ST_Transform(), 2353
ST_Union(), 2354
ST_UNITS_OF_MEASURE
 INFORMATION_SCHEMA table, 4892
ST_Validate(), 2372
ST_Within(), 2359
ST_X(), 2339
ST_Y(), 2340
SUBDATE(), 2201
sublist, 6217
SUBPARTITION BY KEY
 known issues, 4792
subpartitioning, 4754
subpartitions, 4754
 known issues, 4791
subqueries, 2709
 correlated, 2715
 errors, 2722
 in FROM clause (see [derived tables](#))
 optimization, 1745, 1751
 restrictions, 2723
 with ALL, 2712
 with ANY, IN, SOME, 2711
 with EXISTS, 2714
 with NOT EXISTS, 2714
 with row constructors, 2713
subquery (see [subqueries](#))
subquery materialization, 1749
subselects, 2709
SUBSTR(), 2220
SUBSTRING(), 2220
SUBSTRING_INDEX(), 2221

SUBTIME(), 2201
subtraction (-), 2177
SUDO_USER environment variable, 5050
suffix option
 mysql_ssl_rsa_setup, 418
SUM(), 2429
SUM(DISTINCT), 2429
SUPER privilege, 1216
super-large-pages option
 mysqld, 766
superuser, 275
super_read_only system variable, 913
support
 for operating systems, 108, 108
 for platforms, 108
supremum record, 6217
surrogate key, 6218
symbolic links, 1878, 1880
 databases, 1879
 tables, 1879
 Windows, 1880
symbolic-links option
 mysqld, 766
synchronization of source and replica
 in NDB Cluster Replication, 4702
Syncing ndb table schema operation and binlog
 thread state, 1904
sync_binlog system variable, 3618
sync_frm
 removed features, 52
sync_master_info system variable, 3585
sync_relay_log system variable, 3585
sync_relay_log_info system variable, 3586
sync_source_info system variable, 3586
syntactically well-formed
 GIS values, 2100
 spatial values, 2100
syntax
 regular expression, 2228
syntax conventions, 2
synthetic key, 6218
sys schema, 4955
 create_synonym_db() procedure, 5235
 diagnostics() procedure, 5236
 execute_prepared_stmt() procedure, 5238
 extract_schema_from_file_name() function, 5253
 extract_table_from_file_name() function, 5254
 format_bytes() function, 5254
 format_path() function, 5255
 format_statement() function, 5255
 format_time() function, 5256
 host_summary view, 5196
 host_summary_by_file_io view, 5197
 host_summary_by_file_io_type view, 5197
 host_summary_by_stages view, 5197
 host_summary_by_statement_latency view, 5198
 host_summary_by_statement_type view, 5199
 innodb_buffer_stats_by_schema view, 5200

innodb_buffer_stats_by_table view, 5200
innodb_lock_waits view, 5201
io_by_thread_by_latency view, 5203
io_global_by_file_by_bytes view, 5204
io_global_by_file_by_latency view, 5204
io_global_by_wait_by_bytes view, 5205
io_global_by_wait_by_latency view, 5206
latest_file_io view, 5207
list_add() function, 5256
list_drop() function, 5257
memory_by_host_by_current_bytes view, 5207
memory_by_thread_by_current_bytes view, 5208
memory_by_user_by_current_bytes view, 5209
memory_global_by_current_bytes view, 5209
memory_global_total view, 5210
metrics view, 5210
object ownership, 5185
processlist view, 5211
ps_check_lost_instrumentation view, 5213
ps_is_account_enabled() function, 5257
ps_is_consumer_enabled() function, 5258
ps_is_instrument_default_enabled() function, 5258
ps_is_instrument_default_timed() function, 5259
ps_is_thread_instrumented() function, 5259
ps_setup_disable_background_threads() procedure, 5238
ps_setup_disable_consumer() procedure, 5238
ps_setup_disable_instrument() procedure, 5239
ps_setup_disable_thread() procedure, 5239
ps_setup_enable_background_threads() procedure, 5240
ps_setup_enable_consumer() procedure, 5240
ps_setup_enable_instrument() procedure, 5240
ps_setup_enable_thread() procedure, 5241
ps_setup_reload_saved() procedure, 5241
ps_setup_reset_to_default() procedure, 5242
ps_setup_save() procedure, 5242
ps_setup_show_disabled() procedure, 5243
ps_setup_show_disabled_consumers() procedure, 5243
ps_setup_show_disabled_instruments() procedure, 5244
ps_setup_show_enabled() procedure, 5244
ps_setup_show_enabled_consumers() procedure, 5245
ps_setup_show_enabled_instruments() procedure, 5245
ps_statement_avg_latency_histogram() procedure, 5245
ps_thread_account() function, 5259
ps_thread_id() function, 5260
ps_thread_stack() function, 5260
ps_thread_trx_info() function, 5261
ps_trace_statement_digest() procedure, 5246
ps_trace_thread() procedure, 5247
ps_truncate_all_tables() procedure, 5249
quote_identifier() function, 5262
schema_auto_increment_columns view, 5213
schema_index_statistics view, 5214
schema_object_overview view, 5215
schema_redundant_indexes view, 5215
schema_tables_with_full_table_scans view, 5221
schema_table_lock_waits view, 5217
schema_table_statistics view, 5218
schema_table_statistics_with_buffer view, 5219

schema_unused_indexes view, 5221
session view, 5222
session_ssl_status view, 5222
statements_with_errors_or_warnings view, 5224
statements_with_full_table_scans view, 5225
statements_with_runtimes_in_95th_percentile view, 5226
statements_with_sorting view, 5227
statements_with_temp_tables view, 5228
statement_analysis view, 5222
statement_performance_analyzer() procedure, 5249
sys_config table, 5193
sys_get_config() function, 5263
table_exists() procedure, 5252
user_summary view, 5229
user_summary_by_file_io view, 5229
user_summary_by_file_io_type view, 5230
user_summary_by_stages view, 5230
user_summary_by_statement_latency view, 5231
user_summary_by_statement_type view, 5231
version view, 5232
version_major() function, 5264
version_minor() function, 5264
version_patch() function, 5264
waits_by_host_by_latency view, 5234
waits_by_user_by_latency view, 5234
waits_global_by_latency view, 5235
wait_classes_global_by_avg_latency view, 5233
wait_classes_global_by_latency view, 5233
x\$ views, 5195
x\$host_summary view, 5196
x\$host_summary_by_file_io view, 5197
x\$host_summary_by_file_io_type view, 5197
x\$host_summary_by_stages view, 5197
x\$host_summary_by_statement_latency view, 5198
x\$host_summary_by_statement_type view, 5199
x\$innodb_buffer_stats_by_schema view, 5200
x\$innodb_buffer_stats_by_table view, 5200
x\$innodb_lock_waits view, 5201
x\$io_by_thread_by_latency view, 5203
x\$io_global_by_file_by_bytes view, 5204
x\$io_global_by_file_by_latency view, 5204
x\$io_global_by_wait_by_bytes view, 5205
x\$io_global_by_wait_by_latency view, 5206
x\$latest_file_io view, 5207
x\$memory_by_host_by_current_bytes view, 5207
x\$memory_by_thread_by_current_bytes view, 5208
x\$memory_by_user_by_current_bytes view, 5209
x\$memory_global_by_current_bytes view, 5209
x\$memory_global_total view, 5210
x\$processlist view, 5211
x\$schema_flattened_keys view, 5215
x\$schema_index_statistics view, 5214
x\$schema_tables_with_full_table_scans view, 5221
x\$schema_table_lock_waits view, 5217
x\$schema_table_statistics view, 5218
x\$schema_table_statistics_with_buffer view, 5219
x\$session view, 5222
x\$statements_with_errors_or_warnings view, 5224

x\$statements_with_full_table_scans view, 5225
x\$statements_with_runtimes_in_95th_percentile view, 5226
x\$statements_with_sorting view, 5227
x\$statements_with_temp_tables view, 5228
x\$statement_analysis view, 5222
x\$user_summary view, 5229
x\$user_summary_by_file_io view, 5229
x\$user_summary_by_file_io_type view, 5230
x\$user_summary_by_stages view, 5230
x\$user_summary_by_statement_latency view, 5231
x\$user_summary_by_statement_type view, 5231
x\$waits_by_host_by_latency view, 5234
x\$waits_by_user_by_latency view, 5234
x\$waits_global_by_latency view, 5235
x\$wait_classes_global_by_avg_latency view, 5233
x\$wait_classes_global_by_latency view, 5233

sys-check option
 ndb_index_stat, 4407

sys-create option
 ndb_index_stat, 4407

sys-create-if-not-exist option
 ndb_index_stat, 4407

sys-create-if-not-valid option
 ndb_index_stat, 4407

sys-drop option
 ndb_index_stat, 4407

sys-skip-events option
 ndb_index_stat, 4407

sys-skip-tables option
 ndb_index_stat, 4407

SYSCONFDIR option
 CMake, 245

SYSDATE(), 2202

sysdate-is-now option
 mysqld, 767

syseventlog.facility system variable, 913

syseventlog.include_pid system variable, 914

syseventlog.tag system variable, 914

syslog option
 mysql, 447
 mysqld_safe, 403

syslog-tag option
 mysqld_safe, 403

system
 privilege, 1207
 security, 1194

system account
 account categories, 1256

system command
 mysql, 453

System lock
 thread state, 1898

system option
 ndb_config, 4354

system session
 session categories, 1258

system table
 optimizer, 1816, 2695

system tables
audit_log_filter table, 1044
audit_log_user table, 1044
columns_priv table, 1043, 1229
column_statistics table, 1040, 1860
component table, 1043
db table, 275, 1042, 1229
default_roles table, 1043, 1229
engine_cost, 1857
engine_cost table, 1044
firewall_groups table, 1045
firewall_group_allowlist table, 1045
firewall_membership table, 1045
firewall_users table, 1045
firewall_whitelist table, 1045
func table, 1043, 1169
general_log table, 1043
global_grants table, 1042, 1227, 1229
gtid_executed table, 1044, 3478
help tables, 1044
help_category table, 1044
help_keyword table, 1044
help_relation table, 1044
help_topic table, 1044
innodb_dynamic_metadata table, 1045
innodb_index_stats table, 1044, 3166
innodb_table_stats table, 1044, 3166
ndb_binlog_index table, 1044
password_history table, 1043, 1229
plugin table, 1043
procs_priv table, 1043, 1229
proxies_priv table, 275, 1043, 1229
role_edges table, 1043, 1229
servers table, 1045
server_cost, 1857
server_cost table, 1044
slave_master_info table, 1044
slave_relay_log_info table, 1044
slave_worker_info table, 1044
slow_log table, 1043
tables_priv table, 1042, 1229
time zone tables, 1044
time_zone table, 1044
time_zone_leap_second table, 1044
time_zone_name table, 1044
time_zone_transition table, 1044
time_zone_transition_type table, 1044
user table, 275, 1042, 1229
system tablespace, 6218
system variable
activate_all_roles_on_login, 773
admin_address, 774
admin_port, 775
admin_ssl_ca, 775
admin_ssl_capath, 776
admin_ssl_cert, 776
admin_ssl_cipher, 776
admin_ssl_crl, 777

admin_ssl_crlpath, 777
admin_ssl_key, 777
admin_tls_ciphersuites, 778
admin_tls_version, 778
audit_log_buffer_size, 1583
audit_log_compression, 1584
audit_log_connection_policy, 1584
audit_log_current_session, 1585
audit_log_disable, 1585
audit_log_encryption, 1585
audit_log_exclude_accounts, 1585
audit_log_file, 1545, 1586
audit_log_filter_id, 1586
audit_log_flush, 1587
audit_log_format, 1587
audit_log_format_unix_timestamp, 1587
audit_log_include_accounts, 1588
audit_log_max_size, 1588
audit_log_password_history_keep_days, 1589
audit_log_policy, 1590
audit_log_prune_seconds, 1591
audit_log_read_buffer_size, 1549, 1592
audit_log_rotate_on_size, 1592
audit_log_statement_policy, 1593
audit_log_strategy, 1594
authentication_fido_rp_id, 1406
authentication_kerberos_service_key_tab, 1406
authentication_kerberos_service_principal, 1407
authentication_ldap_sasl_auth_method_name, 1407
authentication_ldap_sasl_bind_base_dn, 1408
authentication_ldap_sasl_bind_root_dn, 1409
authentication_ldap_sasl_bind_root_pwd, 1410
authentication_ldap_sasl_ca_path, 1410
authentication_ldap_sasl_group_search_attr, 1410
authentication_ldap_sasl_group_search_filter, 1411
authentication_ldap_sasl_init_pool_size, 1411
authentication_ldap_sasl_log_status, 1412
authentication_ldap_sasl_max_pool_size, 1413
authentication_ldap_sasl_referral, 1413
authentication_ldap_sasl_server_host, 1414
authentication_ldap_sasl_server_port, 1414
authentication_ldap_sasl_tls, 1414
authentication_ldap_sasl_user_search_attr, 1415
authentication_ldap_simple_auth_method_name, 1415
authentication_ldap_simple_bind_base_dn, 1416
authentication_ldap_simple_bind_root_dn, 1416
authentication_ldap_simple_bind_root_pwd, 1417
authentication_ldap_simple_ca_path, 1417
authentication_ldap_simple_group_search_attr, 1418
authentication_ldap_simple_group_search_filter, 1418
authentication_ldap_simple_init_pool_size, 1419
authentication_ldap_simple_log_status, 1419
authentication_ldap_simple_max_pool_size, 1420
authentication_ldap_simple_referral, 1420
authentication_ldap_simple_server_host, 1421
authentication_ldap_simple_server_port, 1422
authentication_ldap_simple_tls, 1423
authentication_ldap_simple_user_search_attr, 1423

authentication_policy, 778, 1283
authentication_windows_log_level, 782
authentication_windows_use_principal_name, 782
autocommit, 783
automatic_sp_privileges, 783
auto_generate_certs, 784
auto_increment_increment, 3522
auto_increment_offset, 3524
avoid_temporal_upgrade, 784
back_log, 785
basedir, 785
big_tables, 786
bind_address, 786
binlog_cache_size, 3593
binlog_checksum, 3594
binlog_direct_non.Transactional_updates, 3595
binlog_encryption, 3595
binlog_error_action, 3596
binlog_expire_logs_auto_purge, 3598
binlog_expire_logs_seconds, 3597
binlog_format, 3598
binlog_group_commit_sync_delay, 3600
binlog_group_commit_sync_no_delay_count, 3601
binlog_gtid_simple_recovery, 3620
binlog_max_flush_queue_time, 3601
binlog_order_commits, 3601
binlog_rotate_encryption_master_key_at_startup, 3602
binlog_rows_query_log_events, 3606
binlog_row_event_max_size, 3602
binlog_row_image, 3603
binlog_row_metadata, 3604
binlog_row_value_options, 3605
binlog_stmt_cache_size, 3606
binlog_transaction_compression, 3607
binlog_transaction_compression_level_zstd, 3608
binlog_transaction_dependency_history_size, 3610
binlog_transaction_dependency_tracking, 3609
block_encryption_mode, 788
build_id, 788
bulk_insert_buffer_size, 789, 3430
caching_sha2_password_auto_generate_rsa_keys, 790
caching_sha2_password_digest_rounds, 789
caching_sha2_password_private_key_path, 790
caching_sha2_password_public_key_path, 791
character_sets_dir, 794
character_set_client, 791
character_set_connection, 792
character_set_database, 792
character_set_filesystem, 792
character_set_results, 793
character_set_server, 793
character_set_system, 793
check_proxy_users, 794, 1296
clone_autotune_concurrency, 1152
clone_block_ddl, 1153
clone_buffer_size, 1153
clone_ddl_timeout, 1154
clone_delay_after_data_drop, 1154

clone_donor_timeout_after_network_failure, 1155
clone_enable_compression, 1155
clone_max_concurrency, 1156
clone_max_data_bandwidth, 1156
clone_max_network_bandwidth, 1157
clone_ssl_ca, 1157
clone_ssl_cert, 1157
clone_ssl_key, 1158
clone_valid_donor_list, 1158
collation_connection, 794
collation_database, 795
collation_server, 795
completion_type, 795
concurrent_insert, 796
connection_control_failed_connections_threshold, 1428
connection_control_max_connection_delay, 1428
connection_control_min_connection_delay, 1429
connection_memory_chunk_size, 797
connection_memory_limit, 798
connect_timeout, 797
core_file, 798
create_admin_listener_thread, 799
cte_max_recursion_depth, 799
daemon_memcached_enable_binlog, 3247
daemon_memcached_engine_lib_name, 3247
daemon_memcached_engine_lib_path, 3247
daemon_memcached_option, 3248
daemon_memcached_r_batch_size, 3248
daemon_memcached_w_batch_size, 3248
datadir, 799
debug, 800
debug_sync, 800
default_authentication_plugin, 801, 1283
default_collation_for_utf8mb4, 802
default_password_lifetime, 803
default_storage_engine, 803
default_table_encryption, 804
default_tmp_storage_engine, 804
default_week_format, 805
delayed_insert_limit, 806
delayed_insert_timeout, 806
delayed_queue_size, 807
delay_key_write, 805, 3430
disabled_storage_engines, 807
disconnect_on_expired_password, 808
div_precision_increment, 808
dragnet.log_error_filter_rules, 809
end_markers_in_json, 811
enterprise_encryption.maximum_rsa_key_size, 810
enterprise_encryption.rsa_support_legacy_padding, 810
error_count, 812
event_scheduler, 812
expire_logs_days, 3611
explain_format, 812
explicit_defaults_for_timestamp, 813
external_user, 815
flush, 815
flush_time, 816

foreign_key_checks, 816
ft_boolean_syntax, 817
ft_max_word_len, 817
ft_min_word_len, 818
ft_query_expansion_limit, 818
ft_stopword_file, 818
general_log, 819
general_log_file, 819
generated_random_password_length, 819
global_connection_memory_limit, 820
global_connection_memory_tracking, 820
group_concat_max_len, 820
group_replication_advertise_recovery_endpoints, 3860
group_replication_allow_local_lower_version_join, 3861
group_replication_autorejoin_tries, 3863
group_replication_auto_increment_increment, 3862
group_replication_bootstrap_group, 3863
group_replication_clone_threshold, 3864
group_replication_communication_debug_options, 3865
group_replication_communication_max_message_size, 3866
group_replication_communication_stack, 3866
group_replication_components_stop_timeout, 3867
group_replication_compression_threshold, 3868
group_replication_consistency, 3869
group_replication_enforce_update_everywhere_checks, 3870
group_replication_exit_state_action, 3871
group_replication_flow_control_applier_threshold, 3872
group_replication_flow_control_certifier_threshold, 3873
group_replication_flow_control_hold_percent, 3873
group_replication_flow_control_max_quota, 3874
group_replication_flow_control_member_quota_percent, 3874
group_replication_flow_control_min_quota, 3875
group_replication_flow_control_min_recovery_quota, 3875
group_replication_flow_control_mode, 3875
group_replication_flow_control_period, 3876
group_replication_flow_control_release_percent, 3876
group_replication_force_members, 3877
group_replication_group_name, 3877
group_replication_group_seeds, 3878
group_replication_gtid_assignment_block_size, 3879
group_replication_ip_allowlist, 3879
group_replication_ip_whitelist, 3881
group_replication_local_address, 3881
group_replication_member_expire_timeout, 3883
group_replication_member_weight, 3884
group_replication_message_cache_size, 3885
group_replication_paxos_single_leader, 3886
group_replication_poll_spin_loops, 3887
group_replication_recovery_complete_at, 3887
group_replication_recovery_compression_algorithms, 3887
group_replication_recovery_get_public_key, 3888
group_replication_recovery_public_key_path, 3888
group_replication_recovery_reconnect_interval, 3889
group_replication_recovery_retry_count, 3889
group_replication_recovery_ssl_ca, 3890
group_replication_recovery_ssl_capath, 3890
group_replication_recovery_ssl_cert, 3891
group_replication_recovery_ssl_cipher, 3891

group_replication_recovery_ssl_crl, 3891
group_replication_recovery_ssl_crlpath, 3892
group_replication_recovery_ssl_key, 3892
group_replication_recovery_ssl_verify_server_cert, 3893
group_replication_recovery_tls_ciphersuites, 3893
group_replication_recovery_tls_version, 3894
group_replication_recovery_use_ssl, 3895
group_replication_recovery_zstd_compression_level, 3895
group_replication_single_primary_mode, 3896
group_replication_ssl_mode, 3897
group_replication_start_on_boot, 3897
group_replication_tls_source, 3898
group_replication_transaction_size_limit, 3898
group_replication_unreachable_majority_timeout, 3899
group_replication_view_change_uuid, 3900
gtid_executed, 3622
gtid_executed_compression_period, 3623
gtid_purged, 3625
have_compress, 821
have_dynamic_loading, 821
have_geometry, 821
have_openssl, 821
have_profiling, 821
have_query_cache, 821
have_rtree_keys, 821
have_ssl, 821
have_statement_timeout, 822
have_symlink, 822
histogram_generation_max_mem_size, 822
hostname, 824
identity, 824
immediate_server_version, 3525
information_schema_stats_expiry, 824
init_connect, 824
init_file, 826
init_replica, 3546
init_slave, 3546
innodb_adaptive_flushing, 3249
innodb_adaptive_flushing_lwm, 3249
innodb_adaptive_hash_index, 3250
innodb_adaptive_hash_index_parts, 3250
innodb_adaptive_max_sleep_delay, 3250
innodb_api_bk_commit_interval, 3251
innodb_api_disable_rowlock, 3251
innodb_api_enable_binlog, 3252
innodb_api_enable_mdl, 3252
innodb_api_trx_level, 3252
innodb_autoextend_increment, 3253
innodb_autoinc_lock_mode, 3253
innodb_background_drop_list_empty, 3254
innodb_buffer_pool_chunk_size, 3254
innodb_buffer_pool_debug, 3255
innodb_buffer_pool_dump_at_shutdown, 3255
innodb_buffer_pool_dump_now, 3256
innodb_buffer_pool_dump_pct, 3256
innodb_buffer_pool_filename, 3257
innodb_buffer_pool_instances, 3258
innodb_buffer_pool_in_core_file, 3257

innodb_buffer_pool_load_abort, 3258
innodb_buffer_pool_load_at_startup, 3259
innodb_buffer_pool_load_now, 3259
innodb_buffer_pool_size, 3259
innodb_change_buffering, 3261
innodb_change_buffering_debug, 3262
innodb_change_buffer_max_size, 3261
innodb_checkpoint_disabled, 3262
innodb_checksum_algorithm, 3262
innodb_cmp_per_index_enabled, 3264
innodb_commit_concurrency, 3264
innodb_compression_failure_threshold_pct, 3265
innodb_compression_level, 3266
innodb_compression_pad_pct_max, 3266
innodb_compress_debug, 3265
innodb_concurrency_tickets, 3266
innodb_data_file_path, 3267
innodb_data_home_dir, 3268
innodb_ddl_buffer_size, 3268
innodb_ddl_log_crash_reset_debug, 3268
innodb_ddl_threads, 3269
innodb_deadlock_detect, 3269
innodb_dedicated_server, 3269
innodb_default_row_format, 3270
innodb_directories, 3271
innodb_disable_sort_file_cache, 3272
innodb_doublewrite, 3272
innodb_doublewrite_batch_size, 3273
innodb_doublewrite_dir, 3273
innodb_doublewrite_files, 3273
innodb_doublewrite_pages, 3274
innodb_extend_and_initialize, 3274
innodb_fast_shutdown, 3275
innodb_file_per_table, 3275
innodb_fill_factor, 3276
innodb_fil_make_page_dirty_debug, 3275
innodb_flushing_avg_loops, 3281
innodb_flush_log_at_timeout, 3277
innodb_flush_log_at_trx_commit, 3277
innodb_flush_method, 3278
innodb_flush_neighbors, 3280
innodb_flush_sync, 3280
innodb_force_load_corrupted, 3281
innodb_force_recovery, 3281
innodb_fsync_threshold, 3282
innodb_ft_aux_table, 3282
innodb_ft_cache_size, 3283
innodb_ft_enable_diag_print, 3283
innodb_ft_enable_stopword, 3284
innodb_ft_max_token_size, 3284
innodb_ft_min_token_size, 3285
innodb_ft_num_word_optimize, 3285
innodb_ft_result_cache_limit, 3285
innodb_ft_server_stopword_table, 3286
innodb_ft_sort_pll_degree, 3286
innodb_ft_total_cache_size, 3287
innodb_ft_user_stopword_table, 3287
innodb_idle_flush_pct, 3288

innodb_io_capacity, 3288
innodb_io_capacity_max, 3289
innodb_limit_optimistic_insert_debug, 3289
innodb_lock_wait_timeout, 3289
innodb_log_buffer_size, 3290
innodb_log_checkpoint_fuzzy_now, 3291
innodb_log_checkpoint_now, 3291
innodb_log_checksums, 3291
innodb_log_compressed_pages, 3292
innodb_log_files_in_group, 3293
innodb_log_file_size, 3292
innodb_log_group_home_dir, 3294
innodb_log_spin_cpu_abs_lwm, 3294
innodb_log_spin_cpu_pct_hwm, 3294
innodb_log_wait_for_flush_spin_hwm, 3295
innodb_log_writer_threads, 3296
innodb_log_write_ahead_size, 3295
innodb_lru_scan_depth, 3296
innodb_max_dirty_pages_pct, 3297
innodb_max_dirty_pages_pct_lwm, 3297
innodb_max_purge_lag, 3298
innodb_max_purge_lag_delay, 3298
innodb_max_undo_log_size, 3298
innodb_merge_threshold_set_all_debug, 3299
innodb_monitor_disable, 3299
innodb_monitor_enable, 3299
innodb_monitor_reset, 3300
innodb_monitor_reset_all, 3300
innodb_numa_interleave, 3301
innodb_old_blocks_pct, 3301
innodb_old_blocks_time, 3301
innodb_online_alter_log_max_size, 3302
innodb_open_files, 3302
innodb_optimize_fulltext_only, 3303
innodb_page_cleaners, 3304
innodb_page_size, 3305
innodb_parallel_read_threads, 3306
innodb_print_ddl_logs, 3307
innodb_purge_batch_size, 3307
innodb_purge_rseg_truncate_frequency, 3308
innodb_purge_threads, 3307
innodb_random_read_ahead, 3308
innodb_read_ahead_threshold, 3308
innodb_read_io_threads, 3309
innodb_read_only, 3310
innodb_redo_log_archive_dirs, 3310
innodb_redo_log_capacity, 3311
innodb_redo_log_encrypt, 3311
innodb_replication_delay, 3312
innodb_rollback_on_timeout, 3312
innodb_rollback_segments, 3312
innodb_saved_page_number_debug, 3313
innodb_segment_reserve_factor, 3313
innodb_sort_buffer_size, 3313
innodb_spin_wait_delay, 3314
innodb_spin_wait_pause_multiplier, 3314
innodb_stats_auto_recalc, 3315
innodb_stats_include_delete_marked, 3168, 3315

innodb_stats_method, 3316
innodb_stats_on_metadata, 3316
innodb_stats_persistent_sample_pages, 3317
innodb_stats_transient_sample_pages, 3318
innodb_status_output, 3318
innodb_status_output_locks, 3318
innodb_strict_mode, 3319
innodb_sync_array_size, 3319
innodb_sync_debug, 3320
innodb_sync_spin_loops, 3320
innodb_table_locks, 3320
innodb_temp_data_file_path, 3321
innodb_temp tablespaces_dir, 3322
innodb_thread_concurrency, 3322
innodb_thread_sleep_delay, 3324
innodb_tmpdir, 3324
innodb_trx_purge_view_update_only_debug, 3325
innodb_trx_rseg_n_slots_debug, 3325
innodb_undo_directory, 3325
innodb_undo_log_encrypt, 3326
innodb_undo_log_truncate, 3326
innodb_undo tablespaces, 3327
innodb_use_fdatasync, 3327
innodb_use_native_aio, 3327
innodb_validate_tablespace_paths, 3328
innodb_version, 3329
innodb_write_io_threads, 3329
insert_id, 826
interactive_timeout, 827
internal_tmp_disk_storage_engine, 827
internal_tmp_mem_storage_engine, 827
join_buffer_size, 828
keep_files_on_create, 829
keyring_aws_cmk_id, 1496
keyring_aws_conf_file, 1496
keyring_aws_data_file, 1497
keyring_aws_region, 1497
keyring_encrypted_file_data, 1499
keyring_encrypted_file_password, 1500
keyring_file_data, 1501
keyring_hashicorp_auth_path, 1502
keyring_hashicorp_caching, 1503
keyring_hashicorp_ca_path, 1502
keyring_hashicorp_commit_auth_path, 1503
keyring_hashicorp_commit_caching, 1504
keyring_hashicorp_commit_ca_path, 1503
keyring_hashicorp_commit_role_id, 1504
keyring_hashicorp_commit_server_url, 1504
keyring_hashicorp_commit_store_path, 1505
keyring_hashicorp_role_id, 1505
keyring_hashicorp_secret_id, 1505
keyring_hashicorp_server_url, 1506
keyring_hashicorp_store_path, 1506
keyring_oci_ca_certificate, 1506
keyring_oci_compartment, 1507
keyring_oci_encryption_endpoint, 1507
keyring_oci_key_file, 1507
keyring_oci_key_fingerprint, 1508

keyring_oci_management_endpoint, 1508
keyring_oci_master_key, 1509
keyring_oci_secrets_endpoint, 1509
keyring_oci_tenancy, 1509
keyring_oci_user, 1510
keyring_oci_vaults_endpoint, 1510
keyring_oci_virtual_vault, 1511
keyring_okv_conf_dir, 1511
keyring_operations, 1512
key_buffer_size, 829
key_cache_age_threshold, 831
key_cache_block_size, 831
key_cache_division_limit, 831
large_files_support, 832
large_pages, 832
large_page_size, 832
last_insert_id, 833
lc_messages, 833
lc_messages_dir, 833
lc_time_names, 833
license, 833
local_infile, 834, 1203
locked_in_memory, 835
lock_order, 1184
lock_order_debug_loop, 1184
lock_order_debug_missing_arc, 1184
lock_order_debug_missing_key, 1185
lock_order_debug_missing_unlock, 1185
lock_order_dependencies, 1185
lock_order_extra_dependencies, 1186
lock_order_output_directory, 1186
lock_order_print_txt, 1186
lock_order_trace_loop, 1187
lock_order_trace_missing_arc, 1187
lock_order_trace_missing_key, 1187
lock_order_trace_missing_unlock, 1187
lock_wait_timeout, 834
log_bin, 3611
log_bin_basename, 3612
log_bin_index, 3612
log_bin_trust_function_creators, 3612
log_bin_use_v1_row_events, 3613
log_error, 835
log_error_services, 835
log_error_suppression_list, 836
log_error_verbosity, 836
log_output, 837
log_queries_not_using_indexes, 837
log_raw, 838
log_replica_updates, 3613
log_slave_updates, 3614
log_slow_extra, 838
log_slow_replica_statements, 3547
log_slow_slave_statements, 3548
log_statements_unsafe_for_binlog, 3614
log_syslog, 839
log_syslog_facility, 839
log_syslog_include_pid, 839

log_syslog_tag, 840
log_throttle_queries_not_using_indexes, 840
log_timestamps, 840
long_query_time, 841
lower_case_file_system, 842
lower_case_table_names, 842
low_priority_updates, 841
mandatory_roles, 843
master_info_repository, 3548
master_verify_checksum, 3615
max_allowed_packet, 844
max_binlog_cache_size, 3615
max_binlog_size, 3616
max_binlog_stmt_cache_size, 3616
max_connections, 845
max_connect_errors, 845
max_delayed_threads, 846
max_digest_length, 846
max_error_count, 847
max_execution_time, 847
max_heap_table_size, 848
max_insert_delayed_threads, 849
max_join_size, 461, 849
max_length_for_sort_data, 849
max_points_in_geometry, 850
max_prepared_stmt_count, 850
max_relay_log_size, 3549
max_seeks_for_key, 851
max_sort_length, 851
max_sp_recursion_depth, 851
max_user_connections, 852
max_write_lock_count, 852
mecab_rc_file, 853
metadata_locks_cache_size, 853
metadata_locks_hash_instances, 854
min_examined_row_limit, 854
myisam_data_pointer_size, 854
myisam_max_sort_file_size, 855, 3430
myisam_mmap_size, 855
myisam_recover_options, 856, 3431
myisam_repair_threads, 857
myisam_sort_buffer_size, 857, 3431
myisam_stats_method, 857
myisam_use_mmap, 858
mysqli_bind_address, 3959
mysqli_compression_algorithms, 3961
mysqli_connect_timeout, 3962
mysqli_deflate_default_compression_level, 3962
mysqli_deflate_max_client_compression_level, 3962
mysqli_document_id_unique_prefix, 3963
mysqli_enable_hello_notice, 3963
mysqli_idle_worker_thread_timeout, 3963
mysqli_interactive_timeout, 3964
mysqli_lz4_default_compression_level, 3964
mysqli_lz4_max_client_compression_level, 3964
mysqli_max_allowed_packet, 3965
mysqli_max_connections, 3965
mysqli_min_worker_threads, 3965

mysqlx_port, 3966
mysqlx_port_open_timeout, 3966
mysqlx_read_timeout, 3966
mysqlx_socket, 3967
mysqlx_ssl_ca, 3967
mysqlx_ssl_capath, 3968
mysqlx_ssl_cert, 3968
mysqlx_ssl_cipher, 3968
mysqlx_ssl_crl, 3969
mysqlx_ssl_crlpath, 3969
mysqlx_ssl_key, 3969
mysqlx_wait_timeout, 3969
mysqlx_write_timeout, 3970
mysqlx_zstd_default_compression_level, 3970
mysqlx_zstd_max_client_compression_level, 3971
mysql_firewall_mode, 1625
mysql_firewall_trace, 1625
mysql_native_password_proxy_users, 858, 1296
named_pipe, 858
named_pipe_full_access_group, 859
ndbinfo_database, 4263
ndbinfo_max_bytes, 4263
ndbinfo_max_rows, 4263
ndbinfo_offline, 4264
ndbinfo_show_hidden, 4264
ndbinfo_table_prefix, 4264
ndbinfo_version, 4265, 4265
ndb_autoincrement_prefetch_sz, 4239
ndb_cache_check_time, 4239
ndb_clear_apply_status, 4240
ndb_conflict_role, 4240
ndb_data_node_neighbour, 4241
ndb_dbg_check_shares, 4241
ndb_default_column_format, 4242
ndb_deferred_constraints, 4242
ndb_distribution, 4242
ndb_eventbuffer_free_percent, 4243
ndb_eventbuffer_max_alloc, 4243
ndb_extra_logging, 4243
ndb_force_send, 4244
ndb_fully_replicated, 4244
ndb_index_stat_enable, 4244
ndb_index_stat_option, 4245
ndb_join_pushdown, 4246
ndb_log_apply_status, 4248
ndb_log_bin, 4248
ndb_log_binlog_index, 4248
ndb_log_empty_epochs, 4249
ndb_log_empty_update, 4249
ndb_log_exclusive_reads, 4249
ndb_log_orig, 4250
ndb_log_transaction_compression, 4250
ndb_log_transaction_compression_level_zstd, 4251
ndb_log_transaction_id, 4250
ndb_metadata_check, 4252
ndb_metadata_check_interval, 4252
ndb_metadata_sync, 4252
ndb_optimized_node_selection, 4253

ndb_read_backup, 4254
ndb_recv_thread_activation_threshold, 4254
ndb_recv_thread_cpu_mask, 4254
ndb_replica_batch_size, 4260
ndb_replica_blob_write_batch_bytes, 4261
ndb_report_thresh_binlog_epoch_slip, 4255
ndb_report_thresh_binlog_mem_usage, 4255
ndb_row_checksum, 4256
ndb_schema_dist_lock_wait_timeout, 4256
ndb_schema_dist_timeout, 4256
ndb_schema_dist_upgrade_allowed, 4257
ndb_show_foreign_key_mock_tables, 4257
ndb_slave_conflict_role, 4257
ndb_table_no_logging, 4258
ndb_table_temporary, 4258
ndb_use_copying_alter_table, 4259
ndb_use_exact_count, 4259
ndb_use_transactions, 4259
ndb_version, 4260
ndb_version_string, 4260
net_buffer_length, 859
net_read_timeout, 860
net_retry_count, 860
net_write_timeout, 861
new, 861
ngram_token_size, 861
offline_mode, 862
old, 862
old_alter_table, 863
open_files_limit, 863
optimizer_prune_level, 864
optimizer_search_depth, 864
optimizer_switch, 865
optimizer_trace, 869
optimizer_trace_features, 869
optimizer_trace_limit, 870
optimizer_trace_max_mem_size, 870
optimizer_trace_offset, 870
original_commit_timestamp, 3617
original_server_version, 3525
parser_max_mem_size, 871
partial_revokes, 871
password_history, 872
password_require_current, 872
password_reuse_interval, 873
performance_schema, 5157
performance_schema_accounts_size, 5157
performance_schema_digests_size, 5158
performance_schema_error_size, 5158
performance_schema_events_stages_history_long_size, 5158
performance_schema_events_stages_history_size, 5159
performance_schema_events_statements_history_long_size, 5159
performance_schema_events_statements_history_size, 5159
performance_schema_events_transactions_history_long_size, 5160
performance_schema_events_transactions_history_size, 5160
performance_schema_events_waits_history_long_size, 5161
performance_schema_events_waits_history_size, 5161
performance_schema_hosts_size, 5161

performance_schema_max_cond_classes, 5162
performance_schema_max_cond_instances, 5162
performance_schema_max_digest_length, 5162
performance_schema_max_digest_sample_age, 5163
performance_schema_max_file_classes, 5163
performance_schema_max_file_handles, 5164
performance_schema_max_file_instances, 5164
performance_schema_max_index_stat, 5165
performance_schema_max_memory_classes, 5165
performance_schema_max_metadata_locks, 5165
performance_schema_max_mutex_classes, 5166
performance_schema_max_mutex_instances, 5166
performance_schema_max_prepared_statements_instances, 5166
performance_schema_max_program_instances, 5167
performance_schema_max_rwlock_classes, 5167
performance_schema_max_rwlock_instances, 5168
performance_schema_max_socket_classes, 5168
performance_schema_max_socket_instances, 5168
performance_schema_max_sql_text_length, 5169
performance_schema_max_stage_classes, 5169
performance_schema_max_statement_classes, 5170
performance_schema_max_statement_stack, 5170
performance_schema_max_table_handles, 5171
performance_schema_max_table_instances, 5171
performance_schema_max_table_lock_stat, 5171
performance_schema_max_thread_classes, 5172
performance_schema_max_thread_instances, 5172
performance_schema_session_connect_attrs_size, 5173
performance_schema_setup_actors_size, 5173
performance_schema_setup_objects_size, 5174
performance_schema_show_processlist, 5174
performance_schema_users_size, 5175
persisted_globals_load, 873, 958
persist_only_admin_x509_subject, 874
persist_sensitive_variables_in_plaintext, 874
pid_file, 875
plugin_dir, 875
port, 876
preload_buffer_size, 876
print_identified_with_as_hex, 876
profiling, 877
profiling_history_size, 877
protocol_compression_algorithms, 877
protocol_version, 878
proxy_user, 878
pseudo_slave_mode, 878, 879
pseudo_thread_id, 880
query_alloc_block_size, 880
query_prealloc_size, 880
rand_seed1, 881
rand_seed2, 881
range_alloc_block_size, 882
range_optimizer_max_mem_size, 882
rbr_exec_mode, 882
read_buffer_size, 883
read_only, 884
read_rnd_buffer_size, 885
regexp_stack_limit, 885

regexp_time_limit, 886
relay_log, 3549
relay_log_basename, 3550
relay_log_index, 3550
relay_log_info_file, 3551
relay_log_info_repository, 3551
relay_log_purge, 3552
relay_log_recovery, 3552
relay_log_space_limit, 3553
replication_optimize_for_static_plugin_config, 3564
replication_sender_observe_commit_only, 3565
replica_allow_batching, 4260
replica_checkpoint_group, 3553
replica_checkpoint_period, 3554
replica_compressed_protocol, 3555
replica_exec_mode, 3555
replica_load_tmpdir, 3556
replica_max_allowed_packet, 3557
replica_net_timeout, 3557
replica_parallel_type, 3558
replica_parallel_workers, 3559
replica_pending_jobs_size_max, 3560
replica_preserve_commit_order, 3561
replica_skip_errors, 3581
replica_sql_verify_checksum, 3562
replica_transaction_retries, 3563
replica_type_conversions, 3564
report_host, 3565
report_password, 3565
report_port, 3566
report_user, 3566
require_row_format, 886
require_secure_transport, 886
resultset_metadata, 887
rewriter_enabled, 1119
rewriter_enabled_for_threads_without_privilege_checks, 1119
rewriter_verbose, 1119
rpl_read_size, 3566
rpl_semi_sync_master_enabled, 3526
rpl_semi_sync_master_timeout, 3526
rpl_semi_sync_master_trace_level, 3527
rpl_semi_sync_master_wait_for_slave_count, 3527
rpl_semi_sync_master_wait_no_slave, 3528
rpl_semi_sync_master_wait_point, 3528
rpl_semi_sync_replica_enabled, 3567
rpl_semi_sync_replica_trace_level, 3567
rpl_semi_sync_slave_enabled, 3568
rpl_semi_sync_slave_trace_level, 3568
rpl_semi_sync_source_enabled, 3529
rpl_semi_sync_source_timeout, 3530
rpl_semi_sync_source_trace_level, 3530
rpl_semi_sync_source_wait_for_replica_count, 3531
rpl_semi_sync_source_wait_no_replica, 3532
rpl_semi_sync_source_wait_point, 3532
rpl_stop_replica_timeout, 3569
rpl_stop_slave_timeout, 3569
schema_definition_cache, 888
secondary_engine_cost_threshold, 887

secure_file_priv, 888
select_into_buffer_size, 889
select_into_disk_sync, 889
select_into_disk_sync_delay, 890
server_id, 3511
server_id_bits, 4261, 4261
session_track_gtids, 890, 1035
session_track_schema, 891, 1035
session_track_state_change, 891, 1035
session_track_system_variables, 892, 1035
session_track_transaction_info, 893
sha256_password_auto_generate_rsa_keys, 894
sha256_password_private_key_path, 894
sha256_password_proxy_users, 895, 1296
sha256_password_public_key_path, 895
shared_memory, 895
shared_memory_base_name, 896
show_create_table_skip_secondary_engine, 896
show_create_table_verbosity, 897
show_gipk_in_create_table_and_information_schema, 897
show_old_temporals, 897
skip_external_locking, 898
skip_name_resolve, 898
skip_networking, 899
skip_replica_start, 3570
skip_show_database, 899
skip_slave_start, 3570
slave_allow_batching, 4262
slave_checkpoint_group, 3571
slave_checkpoint_period, 3572
slave_compressed_protocol, 3573
slave_exec_mode, 3573
slave_load_tmpdir, 3574
slave_max_allowed_packet, 3575
slave_net_timeout, 3575
slave_parallel_type, 3576
slave_parallel_workers, 3577
slave_pending_jobs_size_max, 3578
slave_preserve_commit_order, 3578
slave_rows_search_algorithms, 3580
slave_skip_errors, 3581
slave_sql_verify_checksum, 3582
slave_transaction_retries, 3582
slave_type_conversions, 3583
slow_launch_time, 899
slow_query_log, 900
slow_query_log_file, 900
socket, 900
sort_buffer_size, 901
source_verify_checksum, 3617
sql_auto_is_null, 901
sql_big_selects, 902
sql_buffer_result, 902
sql_generate_invisible_primary_key, 902
sql_log_bin, 3618
sql_log_off, 903
sql_mode, 903
sql_notes, 904

sql_quote_show_create, 905
sql_replica_skip_counter, 3584
sql_require_primary_key, 905
sql_safe_updates, 461, 906
sql_select_limit, 461, 906
sql_slave_skip_counter, 3584
sql_warnings, 907
ssl_ca, 907
ssl_capath, 907
ssl_cert, 908
ssl_cipher, 908
ssl_crl, 909
ssl_crlpath, 909
ssl_fips_mode, 909
ssl_key, 910
ssl_session_cache_mode, 910
ssl_session_cache_timeout, 911
stored_program_cache, 911
stored_program_definition_cache, 912
super_read_only, 913
sync_binlog, 3618
sync_master_info, 3585
sync_relay_log, 3585
sync_relay_log_info, 3586
sync_source_info, 3586
syseventlog.facility, 913
syseventlog.include_pid, 914
syseventlog.tag, 914
system_time_zone, 914, 1024
tablespace_definition_cache, 917
table_definition_cache, 915
table_encryption_privilege_check, 916
table_open_cache, 916
table_open_cache_instances, 917
temptable_max_mmap, 918
temptable_max_ram, 918
temptable_use_mmap, 918
terminology_use_previous, 3587
thread_cache_size, 919
thread_handling, 919
thread_pool_algorithm, 920
thread_pool_dedicated_listeners, 920
thread_pool_high_priority_connection, 921
thread_pool_max_active_query_threads, 921
thread_pool_max_transactions_limit, 922
thread_pool_max_unused_threads, 922
thread_pool_prio_kickup_timer, 923
thread_pool_query_threads_per_group, 923
thread_pool_size, 924
thread_pool_stall_limit, 924
thread_pool_transaction_delay, 925
thread_stack, 925
timestamp, 926
time_zone, 926, 1024
tls_ciphersuites, 927
tls_version, 927
tmpdir, 929
tmp_table_size, 928

transaction_alloc_block_size, 929
transaction_allow_batching, 4262
transaction_isolation, 930
transaction_prealloc_size, 931
transaction_read_only, 932
transaction_write_set_extraction, 3619
unique_checks, 933
updateable_views_with_limit, 933
use_secondary_engine, 934
validate_password.check_user_name, 1433
validate_password.dictionary_file, 1433
validate_password.length, 1434
validate_password.mixed_case_count, 1434
validate_password.number_count, 1435
validate_password.policy, 1435
validate_password.special_char_count, 1436
validate_password_check_user_name, 1437
validate_password_dictionary_file, 1438
validate_password_length, 1438
validate_password_mixed_case_count, 1438
validate_password_number_count, 1439
validate_password_policy, 1439
validate_password_special_char_count, 1439
version, 934
version_comment, 934
version_compile_machine, 935
version_compile_os, 935
version_compile_zlib, 935
version_tokens_session, 1132
version_tokens_session_number, 1133
wait_timeout, 935
warning_count, 936
windowing_use_high_precision, 936
xa_detach_on_prepare, 936
system variables, 772, 936, 2996
 and replication, 3729
 enforce_gtid_consistency, 3621
 gtid_mode, 3623
 gtid_next, 3624
 gtid_owned, 3625
 htable, 1851
 mysqld, 653
 nonpersistible, 963
 persist-restricted, 963
 privileges required, 939
 SET_VAR optimizer hint, 1851
systemd
 CMake SYSTEMD_PID_DIR option, 245
 CMake SYSTEMD_SERVICE_NAME option, 246
 CMake WITH_SYSTEMD option, 259
 managing mysqld, 215
 mysqld daemonize option, 748
 mysqld exit codes, 1038
SYSTEMD_PID_DIR option
 CMake, 245
SYSTEMD_SERVICE_NAME option
 CMake, 246
system_time_zone system variable, 914, 1024

SYSTEM_USER privilege, 1224
SYSTEM_USER privileges, 1256
SYSTEM_USER(), 2323
SYSTEM_VARIABLES_ADMIN privilege, 1225
sys_config table
 sys schema, 5193
sys_get_config() function
 sys schema, 5263

T

tab (\t), 1908, 2399, 2672
tab option
 mysqldump, 509
 ndb_restore, 4452
table, 6218
 changing, 2505, 2516, 5364
 deleting, 2639
 rebuilding, 312
 repair, 312
 row size, 2125
TABLE, 2724
table aliases, 2691
table aliases and DELETE
 new features, 29
table cache, 1786
table comment options (NDB), 2616
table description
 myisamchk, 587
table encryption
 new features, 12
table is full, 786, 5346
table lock, 6219
table names
 case sensitivity, 90, 1923
table option
 mysql, 447
 ndb_desc, 4373
 ndb_import, 4399
table pullout
 semijoin strategy, 1748
table reference
 INFORMATION_SCHEMA, 4841
 Performance Schema, 4996
table scan, 3151
TABLE statement
 new features, 35
 with INTO, 2696
table type, 6219
 choosing, 3423
table value constructors
 TABLE, 2724
 VALUES statement, 2731
table-id option
 ndb_print_backup_file, 4421
table-level locking, 1869
tables
 BLACKHOLE, 3443
 checking, 584

cloning, 2589
closing, 1786
compressed, 595
compressed format, 3433
const, 1816
constant, 1696
copying, 2590
counting rows, 336
creating, 325
CSV, 3440
defragment, 3433
defragmenting, 1690, 2930
deleting rows, 5361
displaying, 548
displaying status, 2991
dumping, 487, 528
dynamic, 3433
error checking, 1686
EXAMPLE, 3456
FEDERATED, 3450
flush, 466
fragmentation, 2930
HEAP, 3435
importing, 3054
improving performance, 1783
information, 588
information about, 340
InnoDB, 3032
loading data, 326
maintenance, 476
maintenance schedule, 1689
maximum size, 1792
MEMORY, 3435
MERGE, 3445
merging, 3445
multiple, 338
MyISAM, 3427
names, 1919
open, 1786
opening, 1786
optimizing, 1689
partitioning, 3445
repair, 476
repairing, 1687
retrieving data, 327
selecting columns, 329
selecting rows, 328
sorting rows, 330
symbolic links, 1879
system, 1816
TEMPORARY, 2588
too many, 1788

TABLES

 INFORMATION_SCHEMA table, 4892

tables option

 mysqlcheck, 486

 mysqldump, 512

tables table

data dictionary table, 1041
tablespace, 3084, 6219
tablespace encryption
 monitoring, 3237
TABLESPACES
 INFORMATION_SCHEMA table, 4896
tablespaces table
 data dictionary table, 1041
TABLESPACES_EXTENSIONS
 INFORMATION_SCHEMA table, 4897
tablespace_definition_cache system variable, 917
tablespace_files table
 data dictionary table, 1041
TABLES_EXTENSIONS
 INFORMATION_SCHEMA table, 4896
tables_priv table
 system table, 1042, 1229
TABLE_CONSTRAINTS
 INFORMATION_SCHEMA table, 4897
TABLE_CONSTRAINTS_EXTENSIONS
 INFORMATION_SCHEMA table, 4898
table_definition_cache system variable, 915
table_distribution_status
 ndbinfo table, 4650
TABLE_ENCRYPTION_ADMIN privilege, 1225
table_encryption_privilege_check variable, 916
table_exists() procedure
 sys schema, 5252
table_fragments
 ndbinfo table, 4651
table_handles table
 performance_schema, 5087
table_info
 ndbinfo table, 4652
table_io_waits_summary_by_index_usage table
 performance_schema, 5122
table_io_waits_summary_by_table table
 performance_schema, 5121
Table_locks_immediate status variable, 994
Table_locks_waited status variable, 994
table_lock_waits_summary_by_table table
 performance_schema, 5123
table_open_cache, 1786
table_open_cache system variable, 916
Table_open_cache_hits status variable, 994
table_open_cache_instances system variable, 917
Table_open_cache_misses status variable, 994
Table_open_cache_overflows status variable, 994
table_partitions table
 data dictionary table, 1041
table_partition_values table
 data dictionary table, 1041
TABLE_PRIVILEGES
 INFORMATION_SCHEMA table, 4898
table_replicas
 ndbinfo table, 4653
table_stats table
 data dictionary table, 1041

TAN(), 2186
tar
 problems on Solaris, 220, 220
tc-heuristic-recover option
 mysqld, 767
Tcl, 6219
Tcl API, 5272
TCP parameters (NDB)
 NodeldServer, 4289
 Proxy, 4290
tcp-ip option
 mysqld_multi, 409
TCP/IP, 165, 170, 251, 251, 381, 403, 414, 444, 611, 625, 642, 645, 761, 1007, 1170, 1199, 1300, 5013, 5339
TcpSpinTime, 4292
TCP_MAXSEG_SIZE, 4292
TCP_RCV_BUF_SIZE, 4292
TCP SND_BUF_SIZE, 4293
Tc_log_max_pages_used status variable, 994
Tc_log_page_size status variable, 995
Tc_log_page_waits status variable, 995
tc_time_track_stats
 ndbinfo table, 4654
tee command
 mysql, 453
tee option
 mysql, 447
Telemetry_traces_supported status variable, 995
tempdelay option
 ndb_import, 4399
temperrors option
 ndb_import, 4400
temporal interval syntax, 1965
temporal values
 deprecated features, 50
 JSON, 2108
temporary files, 5355
temporary table, 6220
TEMPORARY table privileges, 1213, 2589, 2906
temporary tables
 and replication, 3722
 internal, 1788
 problems, 5364
TEMPORARY tables, 2588
 renaming, 2643
temporary tablespace, 6220
temptable_max_mmap system variable, 918
temptable_max_ram system variable, 918
temptable_use_mmap
 deprecated features, 49
temptable_use_mmap system variable, 918
terminal monitor
 defined, 319
terminology_use_previous system variable, 3587
test option
 myisampack, 597
testing
 connection to the server, 1240
 installation, 266

postinstallation, 265
test_plugin_server authentication plugin, 1403
TEXT
 size, 2128
text collection, 6220
TEXT columns
 default values, 2083
 indexes, 2537, 2537
 indexing, 1769, 2566
TEXT data type, 2078, 2082
text files
 importing, 459, 517, 2666
text option
 ndb_top, 4485
TGS, 6220
thread, 6220
thread cache, 1007
thread command
 Binlog Dump, 1891
 Change user, 1891
 Close stmt, 1892
 Connect, 1892
 Connect Out, 1892
 Create DB, 1892
 Daemon, 1892
 Debug, 1892
 Delayed insert, 1892
 Drop DB, 1892
 Error, 1892
 Execute, 1892
 Fetch, 1892
 Field List, 1892
 Init DB, 1892
 Kill, 1892
 Long Data, 1892
 Ping, 1892
 Prepare, 1892
 Processlist, 1893
 Query, 1893
 Quit, 1893
 Refresh, 1893
 Register Slave, 1893
 Reset stmt, 1893
 Set option, 1893
 Shutdown, 1893
 Sleep, 1893
 Statistics, 1893
 Time, 1893
thread commands, 1891
thread observability
 mysqld, 5006
thread pool plugin
 resource groups, 1032
thread pool table reference
 INFORMATION_SCHEMA, 4947
thread state
 After create, 1893
 altering table, 1893

Analyzing, 1894
Changing master, 1903
Changing replication source, 1904
Checking master version, 1901
checking permissions, 1894
Checking source version, 1901
Checking table, 1894
cleaning up, 1894
Clearing, 1905
closing tables, 1894
committing alter table to storage engine, 1894
Committing events to binlog, 1904
Connecting to master, 1901
Connecting to source, 1901
converting HEAP to ondisk, 1894
copy to tmp table, 1894
Copying to group table, 1894
Copying to tmp table, 1894
Copying to tmp table on disk, 1894
Creating index, 1894
Creating sort index, 1894
creating table, 1894
Creating tmp table, 1895
deleting from main table, 1895
deleting from reference tables, 1895
discard_or_import_tablespace, 1895
end, 1895
executing, 1895
Execution of init_command, 1895
Finished reading one binlog; switching to next binlog, 1900
freeing items, 1895
FULLTEXT initialization, 1895
init, 1895
Initialized, 1905
Killed, 1895
Killing slave, 1904
Locking system tables, 1895
logging slow query, 1896
login, 1896
Making temporary file (append) before replaying LOAD DATA INFILE, 1902
Making temporary file (create) before replaying LOAD DATA INFILE, 1902
manage keys, 1896
Master has sent all binlog to slave; waiting for more updates, 1900
Opening master dump table, 1904
Opening mysql.ndb_apply_status, 1904
Opening system tables, 1896
Opening tables, 1896
optimizing, 1896
preparing, 1896
preparing for alter table, 1896
Processing events, 1904
Processing events from schema table, 1904
Purging old relay logs, 1896
query end, 1896
Queueing master event to the relay log, 1901
Queueing source event to the relay log, 1901
Reading event from the relay log, 1902
Reading master dump table data, 1904

Rebuilding the index on master dump table, 1904
Receiving from client, 1896
Reconnecting after a failed binlog dump request, 1901
Reconnecting after a failed master event read, 1901
Reconnecting after a failed source event read, 1901
Registering replica on source, 1901
Registering slave on master, 1901
Removing duplicates, 1896
removing tmp table, 1896
rename, 1896
rename result table, 1897
Reopen tables, 1897
Repair by sorting, 1897
Repair done, 1897
Repair with keycache, 1897
Replica has read all relay log; waiting for more updates, 1903
Requesting binlog dump, 1901
Rolling back, 1897
Saving state, 1897
Searching rows for update, 1897
Sending binlog event to replica, 1900
Sending binlog event to slave, 1900
Sending to client, 1897
setup, 1897
Shutting down, 1904
Slave has read all relay log; waiting for more updates, 1903
Sorting for group, 1897
Sorting for order, 1897
Sorting index, 1897
Sorting result, 1898
Source has sent all binlog to replica; waiting for more updates, 1900
starting, 1898
statistics, 1898
Syncing ndb table schema operation and binlog, 1904
System lock, 1898
update, 1898
Updating, 1898
updating main table, 1898
updating reference tables, 1898
User lock, 1898
User sleep, 1898
Waiting for allowed to take ndbcluster global schema lock, 1904
Waiting for an event from Coordinator, 1903
Waiting for commit lock, 1898
Waiting for event from ndbcluster, 1904
Waiting for first event from ndbcluster, 1904
Waiting for global read lock, 1899
waiting for handler commit, 1898
Waiting for its turn to commit, 1901
Waiting for master to send event, 1901
Waiting for master update, 1901
Waiting for ndbcluster binlog update to reach current position, 1904
Waiting for ndbcluster global schema lock, 1904
Waiting for ndbcluster to start, 1904
Waiting for next activation, 1905
Waiting for replica mutex on exit, 1901, 1903
Waiting for Replica Workers to free pending events, 1903
Waiting for scheduler to stop, 1905

Waiting for schema epoch, 1904
Waiting for schema metadata lock, 1899
Waiting for slave mutex on exit, 1901, 1903
Waiting for Slave Workers to free pending events, 1903
Waiting for source to send event, 1901
Waiting for source update, 1901
Waiting for stored function metadata lock, 1899
Waiting for stored procedure metadata lock, 1899
Waiting for table flush, 1899
Waiting for table level lock, 1899
Waiting for table metadata lock, 1899
Waiting for tables, 1899
Waiting for the next event in relay log, 1903
Waiting for the replica SQL thread to free enough relay log space, 1902
Waiting for the slave SQL thread to free enough relay log space, 1902
Waiting for trigger metadata lock, 1899
Waiting on cond, 1899
Waiting on empty queue, 1905
Waiting to finalize termination, 1900
Waiting to reconnect after a failed binlog dump request, 1902
Waiting to reconnect after a failed master event read, 1902
Waiting to reconnect after a failed source event read, 1902
Waiting until MASTER_DELAY seconds after master executed event, 1903, 1903
Writing to net, 1899
thread states, 1889
 event scheduler, 1905
 general, 1893
 NDB Cluster, 1904
 removed features, 52
 replication, 1900, 1902, 1903
 replication source, 1900
thread table
 performance_schema, 5144
thread/sql/compress_gtid_table, 3479
threadblocks
 ndbinfo table, 4655
ThreadConfig, 4194
ThreadPool (see [DiskIOThreadPool](#))
threads, 466, 2974
 display, 2974
 monitoring, 1889, 2974, 4877, 5144
 ndbinfo table, 4656
threadstat
 ndbinfo table, 4657
Threads_cached status variable, 995
Threads_connected status variable, 995
Threads_created status variable, 995
Threads_running status variable, 995
thread_cache_size system variable, 919
thread_handling system variable, 919
thread_pool_algorithm system variable, 920
thread_pool_dedicated_listeners system variable, 920
thread_pool_high_priority_connection system variable, 921
thread_pool_max_active_query_threads system variable, 921
thread_pool_max_transactions_limit system variable, 922
thread_pool_max_unused_threads system variable, 922
thread_pool_prio_kickup_timer system variable, 923
thread_pool_query_threads_per_group system variable, 923

thread_pool_size system variable, 924
thread_pool_stall_limit system variable, 924
thread_pool_transaction_delay system variable, 925
thread_stack system variable, 925
three-factor authentication (see [multifactor authentication](#))
ticket-granting server, 6220
ticket-granting ticket, 6220
Time
 thread command, 1893
TIME data type, 2067, 2069
time data types
 storage requirements, 2127
time literals, 1910
time representation
 Event Scheduler, 4812
time zone problems, 5356
time zone support
 new features, 34
time zone tables, 418
 system tables, 1044
time zones
 and replication, 3724
 leap seconds, 1027
 support, 1024
 upgrading, 1026
TIME(), 2202
TimeBetweenEpochs, 4164
TimeBetweenEpochsTimeout, 4164
TimeBetweenGlobalCheckpoints, 4163, 4208
TimeBetweenGlobalCheckpointsTimeout, 4164
TimeBetweenInactiveTransactionAbortCheck, 4166
TimeBetweenLocalCheckpoints, 4163
TimeBetweenWatchDogCheck, 4157
TimeBetweenWatchDogCheckInitial, 4157
TIMEDIFF(), 2203
timeout, 797, 2310
timeout option
 ndb_waiter, 4490
timeouts (replication), 3723
TIMESTAMP
 and NULL values, 5360
 and replication, 3704
 indexes, 1781
 initialization and updating, 2070
TIMESTAMP data type, 2066, 2067
timestamp system variable, 926
TIMESTAMP(), 2203
timestamp-printouts option
 ndb_restore, 4452
TIMESTAMPADD(), 2203
TIMESTAMPDIFF(), 2203
timezone option
 mysqld_safe, 403
time_format
 removed features, 53
TIME_FORMAT(), 2204
TIME_TO_SEC(), 2204
TIME_TRUNCATE_FRACTIONAL SQL mode, 1002

time_zone
 new features, 31
time_zone system variable, 926, 1024
time_zone table
 system table, 1044
time_zone_leap_second table
 system table, 1044
time_zone_name table
 system table, 1044
time_zone_transition table
 system table, 1044
time_zone_transition_type table
 system table, 1044
TINYBLOB data type, 2078
TINYINT data type, 2057
TINYTEXT data type, 2078
tips
 optimization, 1766
TLS, 1306
 command options, 374
 establishing connections, 1307
TLS related options
 ALTER USER, 2874
 CREATE USER statement, 2888
tls-ciphersuites option, 379
 mysql, 447
 mysqladmin, 475
 mysqlbinlog, 630
 mysqlcheck, 486
 mysqldump, 500
 mysqlimport, 527
 mysqlpump, 544
 mysqlshow, 555
 mysqlslap, 568
 mysql_migrate_keyring, 613
 mysql_secure_installation, 415
 mysql_upgrade, 428
tls-version option, 380
 mysql, 448
 mysqladmin, 475
 mysqlbinlog, 630
 mysqlcheck, 486
 mysqldump, 500
 mysqlimport, 527
 mysqlpump, 544
 mysqlshow, 556
 mysqlslap, 568
 mysql_migrate_keyring, 613
 mysql_secure_installation, 415
 mysql_upgrade, 428
tls_channel_status table
 performance_schema, 5149
tls_ciphersuites system variable, 927
Tls_library_version status variable, 995
tls_version system variable, 927
TMPDIR environment variable, 357, 646, 5355
TMPDIR option
 CMake, 246

tmpdir option
 myisamchk, 587
 myisampack, 597
 mysqld, 768
tmpdir system variable, 929
tmp_table_size system variable, 928
to-last-log option
 mysqlbinlog, 630
Tomcat, 6220
too many open files, 5348
tools
 command-line, 153, 428
 list of, 103
 mysqld_multi, 407
 mysqld_safe, 399
torn page, 3205, 6220
TotalSendBufferMemory
 API and SQL nodes, 4221
 data nodes, 4209
 management nodes, 4116
Touches()
 removed features, 53
Townsend Alliance Key Manager
 keyring_okv keyring plugin, 1459
TO_BASE64(), 2221
TO_DAYS(), 2204
TO_SECONDS(), 2205
TPS, 6221
TP_CONNECTION_ADMIN privilege, 1225
TP_THREAD_GROUP_STATE
 INFORMATION_SCHEMA table, 4947
tp_thread_group_state table
 performance_schema, 5095
TP_THREAD_GROUP_STATS
 INFORMATION_SCHEMA table, 4948
tp_thread_group_stats table
 performance_schema, 5096
TP_THREAD_STATE
 INFORMATION_SCHEMA table, 4948
tp_thread_state table
 performance_schema, 5098
trace DBI method, 1179
trace files
 ndbmtd, 4323
trace files (NDB Cluster), 4316
TRADITIONAL SQL mode, 997, 1003
trailing spaces
 CHAR, 2077, 2079
 ENUM, 2085
 in comparisons, 2079
 SET, 2087
 VARCHAR, 2078, 2079
trailing spaces in comparisons, 2004
transaction, 6221
transaction access mode, 2756
transaction consistency guarantees
 understanding, 3783
transaction ID, 6221

transaction isolation level, 2756
 NDB Cluster, 4037
 READ COMMITTED, 3119
 READ UNCOMMITTED, 3120
 REPEATABLE READ, 3118
 SERIALIZABLE, 3120
transaction memory usage
 NDB Cluster, 4662
transaction state
 change tracking, 1034
transaction-isolation option
 mysqld, 767
transaction-read-only option
 mysqld, 768
transaction-safe tables, 3032
transactional option
 `ndb_delete_all`, 4364
TransactionBufferMemory, 4132
TransactionDeadlockDetectionTimeout, 4166
TransactionInactiveTimeout, 4166
TransactionMemory, 4135
transactions, 3113
 and replication, 3723, 3726
 isolation levels, 3118
 metadata locking, 1873
 support, 3032
transaction_alloc_block_size system variable, 929
transaction_allow_batching session variable (NDB Cluster), 4262
transaction_isolation system variable, 930
transaction_prealloc_size system variable, 931
transaction_read_only system variable, 932
transaction_write_set_extraction, 3619
Translators
 list of, 101
transparent data encryption, 3230
transparent page compression, 6221
transportable tablespace, 6221
Transportable Tablespaces, 3054
transporters
 `ndbinfo` table, 4658
TRIGGER privilege, 1218
triggers, 2629, 2641, 2994, 4799, 4803
 and replication, 3714, 3728
 `LAST_INSERT_ID()`, 4803
 metadata, 4808
 restrictions, 4831
TRIGGERS
 `INFORMATION_SCHEMA` table, 4899
triggers option
 mysqldump, 512
 mysqlpump, 544
triggers table
 data dictionary table, 1041
TRIM(), 2221
troubleshooting, 5335, 6221
 ALTER TABLE problems, 5364
 compiling MySQL server, 262
 connection problems, 1300

InnoDB deadlocks, 3131, 3135
InnoDB errors, 3418
InnoDB recovery problems, 3416
InnoDB table fragmentation, 3207
replication, 3734
startup problems, 271
with MySQL Enterprise Monitor, 5273
with MySQL Performance Schema, 5179
TRUE, 1910, 1919
testing for, 2167, 2167
true literal
 JSON, 2108
truncate, 6221
TRUNCATE TABLE, 2643
 and NDB Cluster, 4036
 and replication, 3729
 performance_schema database, 4995, 5184
TRUNCATE(), 2186
truststore, 6222
tuning, 1692
 InnoDB compressed tables, 3183
tuple, 6222
tupscan option
 ndb_delete_all, 4364
 ndb_select_all, 4467
tutorial, 319
twiddle option
 ndb_redo_log_reader, 4427
two-factor authentication (see [multifactor authentication](#))
two-phase commit, 975, 975, 6222
TwoPassInitialNodeRestartCopy, 4187
tx_isolation
 removed features, 52
tx_read_only
 removed features, 52
type conversions, 2157, 2163
type option
 ibd2sdi, 571
 ndb_config, 4354
 ndb_show_tables, 4477
types
 columns, 2055, 2129
 data, 2055
 date and time, 2064
 numeric, 2056
 of tables, 3423
 portability, 2130
 string, 2076
typographical conventions, 2
TZ environment variable, 217, 646, 1024, 5356
tz-utc option
 mysqldump, 509
 mysqlpump, 544

U

UCASE(), 2222
UCS-2, 1974
ucs2

- deprecated features, 46
- ucs2 character set, 2012
 - as client character set, 1991
- UDFs (see [loadable functions](#))
- uid option
 - mysql_ssl_rsa_setup, 418
- ulimit, 5348
- UMASK environment variable, 646, 5349
- UMASK_DIR environment variable, 646, 5349
- unary minus (-), 2177
- unlocking blocked hosts, 1014
- unbuffered option
 - mysql, 448
- UNCOMPRESS(), 2309
- UNCOMPRESSED_LENGTH(), 2309
- undo, 6222
 - undo log, 3091, 3095, 6222
 - undo log segment, 6222
 - undo tablespace, 3095, 6222
 - undo tablespaces, 3091
- UndoDataBuffer, 4172
- UndoIndexBuffer, 4171
- unexpected halt
 - replication, 3552, 3681
- UNHEX(), 2222
- UNICODE
 - deprecated features, 47
- Unicode, 1974, 6223
- Unicode character (\U), 2399
- Unicode Collation Algorithm, 2017
- UNINSTALL COMPONENT statement, 2938
- UNINSTALL PLUGIN statement, 2938
 - uninstalling components, 1093, 2938
 - uninstalling loadable functions, 1168
 - uninstalling plugins, 1098, 2938
- UNION, 347, 2730
 - deprecated features, 48
 - parenthesized query expressions, 2684
 - set operations, 2704
- UNIQUE, 2516
- unique constraint, 6223
- unique index, 6223
- unique key, 6223
 - constraint, 95
- unique keys
 - and partitioning keys, 4793
- unique_checks system variable, 933
- unique_subquery join type
 - optimizer, 1817
- Unix signal handling, 648
- UNIX_TIMESTAMP(), 2206
- UNKNOWN
 - testing for, 2167, 2167
- Unknown column ... in 'on clause', 2703, 2703
- Unknown or incorrect time zone
 - error, 1025
- unloading
 - tables, 327

UNLOCK INSTANCE, 2750
UNLOCK TABLES, 2751
unnamed views, 2716
unpack option
 myisamchk, 587
unqualified option
 ndb_desc, 4373
 ndb_show_tables, 4477
unsafe statement (replication)
 defined, 3639
unsafe statements (replication), 3640
UNSIGNED, 2056, 2061
UNTIL, 2836
updatable views, 4817
updatable_views_with_limit system variable, 933
UPDATE, 92, 2727
update
 thread state, 1898
update action
 MySQLInstallerConsole, 162
update option
 ndb_index_stat, 4407
UPDATE privilege, 1218
update-state option
 myisamchk, 585
UpdateXML(), 2283
Updating
 thread state, 1898
updating main table
 thread state, 1898
updating reference tables
 thread state, 1898
upgrade action
 MySQLInstallerConsole, 162
upgrade option
 mysqld, 769
upgrade-system-tables option
 mysql_upgrade, 428
upgrades
 NDB Cluster, 4070, 4536
upgrades and downgrades
 NDB Cluster, 4070
upgrading, 278
 a Docker installation of MySQL, 311
 different architecture, 313
 new features, 9
 with MySQL SLES Repository, 309, 310
 with MySQL Yum Repository, 308
upgrading MySQL, 419
UPPER(), 2223
uptime, 466
Uptime status variable, 995
Uptime_since_flush_status status variable, 995
URI-like connection string, 384
URLs for downloading MySQL, 109
usage option
 ndbd, 4315
 ndbinfo_select_all, 4322

ndbxfrm, 4498
ndb_blob_tool, 4345
ndb_config, 4355
ndb_delete_all, 4364
ndb_desc, 4373
ndb_drop_index, 4377
ndb_drop_table, 4382
ndb_import, 4400
ndb_index_stat, 4407
ndb_mgm, 4340
ndb_mgmd, 4334
ndb_move_data, 4413
ndb_print_backup_file, 4421
ndb_print_file, 4423
ndb_restore, 4453
ndb_secretsfile_reader, 4461
ndb_select_all, 4467
ndb_select_count, 4472
ndb_show_tables, 4477
ndb_top, 4485
ndb_waiter, 4490
USAGE privilege, 1218
USE, 3021
use command
 mysql, 453
USE INDEX, 1854
USE KEY, 1854
use-default option
 mysql_secure_installation, 416
use-frm option
 mysqlcheck, 486
use-threads option
 mysqlexport, 527
useHexFormat option
 ndb_select_all, 4467
user
 root, 275
user accounts
 altering, 2866
 creating, 1246, 2882
 dual passwords, 1275
 renaming, 2909
 reserved, 1249
 resource limits, 852, 1298, 2876, 2890
USER environment variable, 384, 646
User lock
 thread state, 1898
user management, 1207
user name length
 and replication, 3729
user names
 and passwords, 1208
 in account names, 1238
 in default account, 275
 in role names, 1240
user option, 374
 mysql, 448
 mysqladmin, 475

- mysqlbinlog, 630
- mysqlcheck, 486
- mysqld, 771
- mysqldump, 500
- mysqld_multi, 409
- mysqld_safe, 404
- mysqlimport, 527
- mysqlpump, 545
- mysqlshow, 556
- mysqlslap, 568
- mysql_migrate_keyring, 613
- mysql_secure_installation, 416
- mysql_upgrade, 428
- ndb_top, 4485
- user principal name, 6223
- user privileges
 - adding, 1246
 - checking, 1248
 - deleting, 2895
 - dropping, 2895
 - revoking, 1248
- User sleep
 - thread state, 1898
- user table
 - account_locked column, 1233
 - sorting, 1243
 - system table, 275, 1042, 1229
- user variables
 - and replication, 3729
 - removed features, 58
- USER(), 2323
- user-defined functions (see [loadable functions](#))
- user-defined variables, 1960
- users
 - deleting, 1249, 2895
- users option
 - mysqlpump, 545
- users table
 - performance_schema, 5048
- USER_ATTRIBUTES
 - INFORMATION_SCHEMA table, 4901
- user_defined_functions table
 - performance_schema, 1169, 5150
- USER_PRIVILEGES
 - INFORMATION_SCHEMA table, 4902
- user_summary view
 - sys schema, 5229
- user_summary_by_file_io view
 - sys schema, 5229
- user_summary_by_file_io_type view
 - sys schema, 5230
- user_summary_by_stages view
 - sys schema, 5230
- user_summary_by_statement_latency view
 - sys schema, 5231
- user_summary_by_statement_type view
 - sys schema, 5231
- user_variables_by_thread table

- performance_schema, 5053
- UseShm, 4157
- use_invisible_indexes flag
 - optimizer_switch system variable, 1779
- USE_LD_GOLD option
 - CMake, 252
- USE_LD_LLD option
 - CMake, 252
- use_secondary_engine system variable, 934
- USING HASH
 - with NDB tables, 2547
- using multiple disks to start data, 1880
- using NDB Cluster programs, 4306
- USING versus ON
 - joins, 2702
- UTC_DATE(), 2207
- UTC_TIME(), 2207
- UTC_TIMESTAMP(), 2207
- UTF-8, 1974
 - database object metadata, 1979
- utf16 character set, 2012
 - as client character set, 1991
- utf16le character set, 2013
 - as client character set, 1991
- utf16_bin collation, 2023
- utf32 character set, 2013
 - as client character set, 1991
- utf8 character set, 2011
 - alias for utf8mb3, 2010, 2011
- utf8mb3
 - deprecated features, 46
- utf8mb3 character set, 2010
 - utf8 alias, 2010, 2011
- utf8mb4 character set, 2010
- utf8mb4 collations, 2019
- utf8mb4_0900_bin
 - versus utf8mb4_bin, 2017
- utf8mb4_bin
 - versus utf8mb4_0900_bin, 2017
- utilities
 - program-development, 357
- utility programs, 356
- UUID(), 2474
- UUID_SHORT(), 2475
- UUID_TO_BIN(), 2475

V

- valid
 - GIS values, 2100
 - spatial values, 2100
- valid JSON values, 2109
- valid numbers
 - examples, 1910
- validate-config option
 - mysqld, 771
- validate-password option
 - mysqld, 1437
- validate-user-plugins option

mysqld, 771
validate_password component, 1429
installing, 1431
status variables, 1436
system variables, 1432
uninstalling, 1431
validate_password plugin, 1429
configuring, 1432
deprecated features, 47
options, 1436
status variables, 1439
system variables, 1437
transitioning to validate_password component, 1440
validate_password.check_user_name system variable, 1433
validate_password.dictionary_file system variable, 1433
validate_password.dictionary_file_last_parsed status variable, 1436
validate_password.dictionary_file_words_count status variable, 1436
validate_password.length system variable, 1434
validate_password.mixed_case_count system variable, 1434
validate_password.number_count system variable, 1435
validate_password.policy system variable, 1435
validate_password.special_char_count system variable, 1436
validate_password_check_user_name system variable, 1437
validate_password_dictionary_file system variable, 1438
validate_password_dictionary_file_last_parsed status variable, 1440
validate_password_dictionary_file_words_count status variable, 1440
validate_password_length system variable, 1438
validate_password_mixed_case_count system variable, 1438
validate_password_number_count system variable, 1439
validate_password_policy system variable, 1439
validate_password_special_char_count system variable, 1439
VALIDATE_PASSWORD_STRENGTH(), 2309
VALUES statement, 2731
 new features, 35
 with INTO, 2696
VALUES(), 2477
 deprecated features, 49
VARBINARY data type, 2078, 2081
VARCHAR
 size, 2128
VARCHAR data type, 2076, 2078
VARCHARACTER data type, 2078
variable option
 mysql_config, 642
variable-length type, 6223
variables
 and replication, 3729
 environment, 357
 server, 2996
 status, 968, 2990
 system, 772, 936, 2996
 user defined, 1960
VARIANCE(), 2430
VAR_POP(), 2429
VAR_SAMP(), 2429
verbose option
 innodbchecksum, 572
 myisamchk, 583

myisampack, 597
myisam_ftdump, 578
mysql, 448
mysqladmin, 475
mysqlbinlog, 630
mysqlcheck, 486
mysqld, 772
mysqldump, 503
mysqldumpslow, 641
mysqld_multi, 409
mysqlimport, 527
mysqlshow, 556
mysqlslap, 568
mysql_config_editor, 605
mysql_migrate_keyring, 613
mysql_ssl_rsa_setup, 418
mysql_upgrade, 428
my_print_defaults, 644
ndbd, 4316
ndbmttd, 4316
ndb_blob_tool, 4346
ndb_import, 4400
ndb_index_stat, 4408
ndb_mgmd, 4334
ndb_move_data, 4413
ndb_perror, 4416
ndb_print_backup_file, 4421
ndb_print_file, 4423
ndb_restore, 4453
perror, 645
verify-binlog-checksum option
 mysqlbinlog, 631
version
 choosing, 108
 latest, 109
VERSION file
 CMake, 264
version option
 comp_err, 412
 ibd2sdi, 569
 innchecksum, 572
 myisamchk, 583
 myisampack, 597
 mysql, 448
 mysqladmin, 475
 mysqlbinlog, 631
 mysqlcheck, 486
 mysqld, 772
 mysqldump, 504
 mysqld_multi, 409
 mysqlimport, 527
 mysqlpump, 545
 mysqlshow, 556
 mysqlslap, 568
 mysql_config, 642
 mysql_config_editor, 605
 mysql_migrate_keyring, 613
 mysql_ssl_rsa_setup, 418

my_print_defaults, 644
ndbd, 4316
ndbinfo_select_all, 4322
ndbxfrm, 4498
ndb_blob_tool, 4346
ndb_config, 4355
ndb_delete_all, 4364
ndb_desc, 4373
ndb_drop_index, 4377
ndb_drop_table, 4382
ndb_import, 4400
ndb_index_stat, 4408
ndb_mgm, 4340
ndb_mgmd, 4334
ndb_move_data, 4414
ndb_perror, 4416
ndb_print_backup_file, 4421
ndb_print_file, 4423
ndb_restore, 4453
ndb_secretsfile_reader, 4462
ndb_select_all, 4467
ndb_select_count, 4472
ndb_show_tables, 4477
ndb_waiter, 4490
perror, 645
version system variable, 934
Version Tokens, 1122
Version Tokens functions
 version_tokens_delete(), 1130
 version_tokens_edit(), 1130
 version_tokens_lock_exclusive(), 1131
 version_tokens_lock_shared(), 1131
 version_tokens_set(), 1131
 version_tokens_show(), 1131
 version_tokens_unlock(), 1131
Version Tokens plugin
 elements, 1123
 installing, 1123
 reference, 1129
 uninstalling, 1123
 using, 1124
version view
 sys schema, 5232
VERSION(), 2323
version-check option
 mysql_upgrade, 428
version_comment system variable, 934
version_compile_machine system variable, 935
version_compile_os system variable, 935
version_compile_zlib system variable, 935
version_major() function
 sys schema, 5264
version_minor() function
 sys schema, 5264
version_patch() function
 sys schema, 5264
version_tokens_delete() Version Tokens function, 1130
version_tokens_edit() Version Tokens function, 1130

version_tokens_lock_exclusive() Version Tokens function, 1131
version_tokens_lock_shared() Version Tokens function, 1131
version_tokens_session system variable, 1132
version_tokens_session_number system variable, 1133
version_tokens_set() Version Tokens function, 1131
version_tokens_show() Version Tokens function, 1131
version_tokens_unlock() Version Tokens function, 1131
VERSION_TOKEN_ADMIN privilege, 1225
vertical option
 mysql, 448
 mysqladmin, 475
victim, 6223
Vietnamese, 5312
view, 6223
views, 2631, 4799, 4816
 algorithms, 4816
 and replication, 3731
 limitations, 4835
 materialization prevention, 1756
 metadata, 4821
 optimization, 1746, 1755
 privileges, 4835
 problems, 4835
 restrictions, 4834
 roles, 1254
 updatable, 2632, 4817
VIEWS
 INFORMATION_SCHEMA table, 4902
VIEW_ROUTINE_USAGE
 INFORMATION_SCHEMA table, 4904
view_routine_usage table
 data dictionary table, 1041
VIEW_TABLE_USAGE
 INFORMATION_SCHEMA table, 4904
view_table_usage table
 data dictionary table, 1041
virtual generated column, 6224
virtual index, 6224
Visual Studio, 6224

W

wait, 6224
WAIT COMPLETED (START BACKUP command), 4552
wait option
 myisamchk, 583
 myisampack, 597
 mysql, 448
 mysqladmin, 475
WAIT STARTED (START BACKUP command), 4552
wait-nodes option
 ndb_waiter, 4490
Waiting for allowed to take ndbcluster global schema lock
 thread state, 1904
Waiting for an event from Coordinator
 thread state, 1903
Waiting for commit lock
 thread state, 1898
Waiting for event from ndbcluster

```
    thread state, 1904
Waiting for event metadata lock
    thread state, 1899
Waiting for event read lock
    thread state, 1899
Waiting for first event from ndbcluster
    thread state, 1904
waiting for handler commit
    thread state, 1898
Waiting for its turn to commit
    thread state, 1901
Waiting for master to send event
    thread state, 1901
Waiting for master update
    thread state, 1901
Waiting for ndbcluster binlog update to reach current position
    thread state, 1904
Waiting for ndbcluster global schema lock
    thread state, 1904
Waiting for ndbcluster to start
    thread state, 1904
Waiting for next activation
    thread state, 1905
Waiting for replica mutex on exit
    thread state, 1901, 1903
Waiting for Replica Workers to free pending events
    thread state, 1903
Waiting for scheduler to stop
    thread state, 1905
Waiting for schema epoch
    thread state, 1904
Waiting for schema metadata lock
    thread state, 1899
Waiting for slave mutex on exit
    thread state, 1901, 1903
Waiting for Slave Workers to free pending events
    thread state, 1903
Waiting for source to send event
    thread state, 1901
Waiting for source update
    thread state, 1901
Waiting for stored function metadata lock
    thread state, 1899
Waiting for stored procedure metadata lock
    thread state, 1899
Waiting for table flush
    thread state, 1899
Waiting for table level lock
    thread state, 1899
Waiting for table metadata lock
    thread state, 1899
Waiting for tables
    thread state, 1899
Waiting for the next event in relay log
    thread state, 1903
Waiting for the replica SQL thread to free enough relay log space
    thread state, 1902
Waiting for the slave SQL thread to free enough relay log space
```

thread state, 1902
Waiting for trigger metadata lock
 thread state, 1899
Waiting on cond
 thread state, 1899
Waiting on empty queue
 thread state, 1905
Waiting to finalize termination
 thread state, 1900
Waiting to reconnect after a failed binlog dump request
 thread state, 1902
Waiting to reconnect after a failed master event read
 thread state, 1902
Waiting to reconnect after a failed source event read
 thread state, 1902
Waiting until MASTER_DELAY seconds after master executed event
 thread state, 1903, 1903
waits_by_host_by_latency view
 sys schema, 5234
waits_by_user_by_latency view
 sys schema, 5234
waits_global_by_latency view
 sys schema, 5235
wait_classes_global_by_avg_latency view
 sys schema, 5233
wait_classes_global_by_latency view
 sys schema, 5233
WAIT_FOR_EXECUTED_GTID_SET(), 2419
wait_timeout system variable, 935
WAIT_UNTIL_SQL_THREAD_AFTER_GTIDS(), 2420
Wan, 4115, 4222
warm backup, 6224
warm up, 6224
warnings command
 mysql, 453
warning_count system variable, 936
watch-progress option
 mysqlpump, 545
WatchdogImmediateKill, 4178
WEEK(), 2207
WEEKDAY(), 2209
WEEKOFYEAR(), 2209
WEIGHT_STRING(), 2223
well-formed
 GIS values, 2100
 spatial values, 2100
Well-Known Binary format
 geometry values, 2098
Well-Known Text format
 geometry values, 2097
WHERE, 1695
 with SHOW, 4838, 4950
where option
 mysqldump, 512
WHILE, 2837
 labels, 2831
widths
 display, 2056

Wildcard character (%), 1909
Wildcard character (_), 1909
wildcards
 and LIKE, 1773
 in account names, 1239
 in mysql.columns_priv table, 1245
 in mysql.db table, 1244
 in mysql.procs_priv table, 1245
 in mysql.tables_priv table, 1245
window
 window functions, 2449
window functions, 344, 2442
 EXPLAIN, 1744
 named windows, 2455
 new features, 28
 optimization, 1743
 restrictions, 2456
 spatial, 2366
 syntax, 2448
windowing_use_high_precision system variable, 936
Windows
 interactive history, 460
 MySQL restrictions, 174
 path name separators, 364
 pluggable authentication, 1357
 upgrading, 310
WIN_DEBUG_NO_INLINE option
 CMake, 252
WITH ROLLUP, 2430
with-apply-status option
 ndb_restore, 4453
Within()
 removed features, 53
WITHOUT_SERVER option
 CMake, 249
WITH_ANT option
 CMake, 252
WITH_ASAN option
 CMake, 252
WITH_ASAN_SCOPE option
 CMake, 252
WITH_AUTHENTICATION_CLIENT_PLUGINS option
 CMake, 252
WITH_AUTHENTICATION_LDAP option
 CMake, 252
WITH_AUTHENTICATION_PAM option
 CMake, 253
WITH_AWS_SDK option
 CMake, 253
WITH_BOOST option
 CMake, 253
WITH_BUILD_ID option
 CMake, 242
WITH_BUNDLED_LIBEVENT option
 CMake, 261
WITH_BUNDLED_MEMCACHED option
 CMake, 261
WITH_CLASSPATH option

 CMake, 261
WITH_CLIENT_PROTOCOL_TRACING option
 CMake, 253
WITH_CURL option
 CMake, 254
WITH_DEBUG option
 CMake, 254
WITH_DEFAULT_COMPILER_OPTIONS option
 CMake, 260
WITH_DEFAULT_FEATURE_SET option
 CMake, 254
WITH_DEVELOPER_ENTITLEMENTS option
 CMake, 251
WITH_EDITLINE option
 CMake, 254
WITH_ERROR_INSERT option
 CMake, 262
WITH_FIDO option
 CMake, 254
WITH_GMOCK option
 CMake, 254
WITH_ICU option
 CMake, 255
WITH_INNODB_EXTRA_DEBUG option
 CMake, 255
WITH_INNODB_MEMCACHED option
 CMake, 255
WITH_JEMALLOC option
 CMake, 255
WITH_KEYRING_TEST option
 CMake, 256
WITH_LIBEVENT option
 CMake, 256
WITH_LIBWRAP option
 CMake, 256
WITH_LOCK_ORDER option
 CMake, 256
WITH_LSAN option
 CMake, 256
WITH_LTO option
 CMake, 256
WITH_LZ4 option
 CMake, 256
WITH_LZMA option
 CMake, 256
WITH_MEcab option
 CMake, 257
WITH_MSAN option
 CMake, 257
WITH_MSCRT_DEBUG option
 CMake, 257
WITH_MYSQLX option
 CMake, 257
WITH_NDB option
 CMake, 262
WITH_NDBAPI_EXAMPLES option
 CMake, 262
WITH_NDBCLUSTER option

CMake, 262
WITH_NDBCLUSTER_STORAGE_ENGINE option
 CMake, 262
WITH_NDBMTD option
 CMake, 262
WITH_NDB_DEBUG option
 CMake, 262
WITH_NDB_JAVA option
 CMake, 262
WITH_NDB_PORT option
 CMake, 262
WITH_NDB_TEST option
 CMake, 262
WITH_NUMA option
 CMake, 257
WITH_PACKAGE_FLAGS option
 CMake, 257
WITH_PLUGIN_NDBCLUSTER option
 CMake, 262
WITH_PROTOBUF option
 CMake, 257
WITH_RAPID option
 CMake, 258
WITH_RAPIDJSON option
 CMake, 258
WITH_RE2 option
 CMake, 258
WITH_ROUTER option
 CMake, 258
WITH_SSL option
 CMake, 258
WITH_SYSTEMD option
 CMake, 259
WITH_SYSTEMD_DEBUG option
 CMake, 259
WITH_SYSTEM_LIBS option
 CMake, 259
WITH_TCALLOC option
 CMake, 259
WITH_TEST_TRACE_PLUGIN option
 CMake, 259
WITH_TSAN option
 CMake, 260
WITH_UBSAN option
 CMake, 260
WITH_UNIT_TESTS option
 CMake, 260
WITH_UNIXODBC option
 CMake, 260
WITH_VALGRIND option
 CMake, 260
WITH_WIN_JEMALLOC option
 CMake, 255
WITH_ZLIB option
 CMake, 260
WITH_ZSTD option
 CMake, 260
WKB format

```
geometry values, 2098
WKT format
    geometry values, 2097
wolfSSL, 1306
workload, 6225
wrappers
    Eiffel, 5272
write combining, 6225
write option
    innochecksum, 574
write-binlog option
    mysqlcheck, 487
    mysql_upgrade, 428
write_buffer_size myisamchk variable, 583
Writing to net
    thread state, 1899
```

X

```
X Plugin, 3951
X Plugin option
    mysqlx, 3959
x$ views
    sys schema, 5195
x$host_summary view
    sys schema, 5196
x$host_summary_by_file_io view
    sys schema, 5197
x$host_summary_by_file_io_type view
    sys schema, 5197
x$host_summary_by_stages view
    sys schema, 5197
x$host_summary_by_statement_latency view
    sys schema, 5198
x$host_summary_by_statement_type view
    sys schema, 5199
x$innodb_buffer_stats_by_schema view
    sys schema, 5200
x$innodb_buffer_stats_by_table view
    sys schema, 5200
x$innodb_lock_waits view
    sys schema, 5201
x$io_by_thread_by_latency view
    sys schema, 5203
x$io_global_by_file_by_bytes view
    sys schema, 5204
x$io_global_by_file_by_latency view
    sys schema, 5204
x$io_global_by_wait_by_bytes view
    sys schema, 5205
x$io_global_by_wait_by_latency view
    sys schema, 5206
x$latest_file_io view
    sys schema, 5207
x$memory_by_host_by_current_bytes view
    sys schema, 5207
x$memory_by_thread_by_current_bytes view
    sys schema, 5208
x$memory_by_user_by_current_bytes view
```

```
    sys schema, 5209
x$memory_global_by_current_bytes view
    sys schema, 5209
x$memory_global_total view
    sys schema, 5210
x$processlist view
    sys schema, 5211
x$schema_flattened_keys view
    sys schema, 5215
x$schema_index_statistics view
    sys schema, 5214
x$schema_tables_with_full_table_scans view
    sys schema, 5221
x$schema_table_lock_waits view
    sys schema, 5217
x$schema_table_statistics view
    sys schema, 5218
x$schema_table_statistics_with_buffer view
    sys schema, 5219
x$session view
    sys schema, 5222
x$statements_with_errors_or_warnings view
    sys schema, 5224
x$statements_with_full_table_scans view
    sys schema, 5225
x$statements_with_runtimes_in_95th_percentile view
    sys schema, 5226
x$statements_with_sorting view
    sys schema, 5227
x$statements_with_temp_tables view
    sys schema, 5228
x$statement_analysis view
    sys schema, 5222
x$user_summary view
    sys schema, 5229
x$user_summary_by_file_io view
    sys schema, 5229
x$user_summary_by_file_io_type view
    sys schema, 5230
x$user_summary_by_stages view
    sys schema, 5230
x$user_summary_by_statement_latency view
    sys schema, 5231
x$user_summary_by_statement_type view
    sys schema, 5231
x$waits_by_host_by_latency view
    sys schema, 5234
x$waits_by_user_by_latency view
    sys schema, 5234
x$waits_global_by_latency view
    sys schema, 5235
x$wait_classes_global_by_avg_latency view
    sys schema, 5233
x$wait_classes_global_by_latency view
    sys schema, 5233
X()
    removed features, 53
X.509/Certificate, 1306
```

XA, 6225
XA BEGIN, 2760
XA COMMIT, 2760
XA PREPARE, 2760
XA RECOVER, 2760
XA ROLLBACK, 2760
XA START, 2760
XA transactions, 2759
 restrictions, 2763
 transaction identifiers, 2760
xa_detach_on_prepare system variable, 936
XA_RECOVER_ADMIN privilege, 1225
xid
 XA transaction identifier, 2760
xml option
 mysql, 448
 mysqldump, 510
 ndb_config, 4355
XOR
 bitwise, 2300
 logical, 2170
XPath code injection, 2288

Y

Y()
 removed features, 53
YEAR data type, 2067, 2069
YEAR(), 2209
YEARWEEK(), 2209
Yen sign (Japanese), 5312
young, 6225
Your password does not satisfy the current policy requirements
 password error, 1430

Z

ZEROFILL, 2056, 2061
zlib_decompress, 357, 645
zstd-compression-level option, 381
 mysql, 449
 mysqladmin, 476
 mysqlbinlog, 631
 mysqlcheck, 487
 mysqldump, 500
 mysqlimport, 527
 mysqlpump, 545
 mysqlshow, 556
 mysqlslap, 568
 mysql_upgrade, 428

C Function Index

mysql_affected_rows()

[Section 13.2.1, “CALL Statement”](#)
[Section 12.16, “Information Functions”](#)
[Section 13.2.7, “INSERT Statement”](#)
[Section 13.2.12, “REPLACE Statement”](#)

[mysql_bind_param\(\)](#)

[Section 9.6, “Query Attributes”](#)

[mysql_change_user\(\)](#)

[Section 4.5.1.2, “mysql Client Commands”](#)

[mysql_close\(\)](#)

[Section B.3.2.9, “Communication Errors and Aborted Connections”](#)

[mysql_errno\(\)](#)

[Section 6.4.5.4, “Audit Log File Formats”](#)

[Section B.2, “Error Information Interfaces”](#)

[Section 13.6.7.5, “SIGNAL Statement”](#)

[mysql_error\(\)](#)

[Section B.2, “Error Information Interfaces”](#)

[Section 13.6.7.5, “SIGNAL Statement”](#)

[mysql_escape_string\(\)](#)

[Section 6.1.7, “Client Programming Security Guidelines”](#)

[mysql_fetch_row\(\)](#)

[Section 16.8.1, “FEDERATED Storage Engine Overview”](#)

[mysql_free_result\(\)](#)

[Section B.3.2.12, “Commands out of sync”](#)

[mysql_get_character_set_info\(\)](#)

[Section 10.14.2, “Choosing a Collation ID”](#)

[mysql_info\(\)](#)

[Section 13.1.9, “ALTER TABLE Statement”](#)

[Section 13.2.7, “INSERT Statement”](#)

[Section 13.2.9, “LOAD DATA Statement”](#)

[Section 1.6.3.1, “PRIMARY KEY and UNIQUE Index Constraints”](#)

[Section 13.2.17, “UPDATE Statement”](#)

[mysql_insert_id\(\)](#)

[Section 13.1.20, “CREATE TABLE Statement”](#)

[Section 12.16, “Information Functions”](#)

[Section 13.2.7, “INSERT Statement”](#)

[Section 5.1.8, “Server System Variables”](#)

[Section 3.6.9, “Using AUTO_INCREMENT”](#)

[mysql_next_result\(\)](#)

[Section 13.2.1, “CALL Statement”](#)

[mysql_options\(\)](#)

[Section 6.2.1, “Account User Names and Passwords”](#)

[Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication”](#)

[Section 2.10.4, “Changes in MySQL 8.0”](#)

[Section 6.4.1.4, “Client-Side Cleartext Pluggable Authentication”](#)

[Section 10.4, “Connection Character Sets and Collations”](#)

[Section 4.2.8, “Connection Compression Control”](#)

[Section B.3.2.7, “MySQL server has gone away”](#)

[Section 27.12.9, “Performance Schema Connection Attribute Tables”](#)
[Section 6.2.17, “Pluggable Authentication”](#)
[Section 6.1.6, “Security Considerations for LOAD DATA LOCAL”](#)
[Section 6.2.16, “Server Handling of Expired Passwords”](#)
[Section 6.4.1.3, “SHA-256 Pluggable Authentication”](#)
[Section 5.8.4, “Using Client Programs in a Multiple-Server Environment”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

mysql_options4()

[Section 6.2.18, “Multifactor Authentication”](#)
[Section 27.12.9, “Performance Schema Connection Attribute Tables”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

mysql_ping()

[Section B.3.2.7, “MySQL server has gone away”](#)

mysql_query()

[Section 13.2.1, “CALL Statement”](#)

mysql_real_connect()

[Section 13.2.1, “CALL Statement”](#)
[Section 4.2.6, “Connecting to the Server Using DNS SRV Records”](#)
[Chapter 12, *Functions and Operators*](#)
[Section 12.16, “Information Functions”](#)
[Section 13.2.7.2, “INSERT ... ON DUPLICATE KEY UPDATE Statement”](#)
[Section 13.2.7, “INSERT Statement”](#)
[Section 4.5.1.1, “mysql Client Options”](#)
[Section 13.5, “Prepared Statements”](#)
[Section 6.2.16, “Server Handling of Expired Passwords”](#)
[Section 5.1.8, “Server System Variables”](#)
[Section 25.2.1, “Stored Routine Syntax”](#)
[Section 4.10, “Unix Signal Handling in MySQL”](#)
[Section 5.8.4, “Using Client Programs in a Multiple-Server Environment”](#)

mysql_real_connect_dns_srv()

[Section 4.2.6, “Connecting to the Server Using DNS SRV Records”](#)
[Section 4.5.1.1, “mysql Client Options”](#)

mysql_real_escape_string_quote()

[Section 6.1.7, “Client Programming Security Guidelines”](#)
[Section 11.4.7, “Populating Spatial Columns”](#)
[Section 9.1.1, “String Literals”](#)

mysql_real_query()

[Section 13.2.1, “CALL Statement”](#)
[Section 16.8.1, “FEDERATED Storage Engine Overview”](#)

mysql_session_track_get_first()

[Section 5.1.18, “Server Tracking of Client Session State”](#)

mysql_session_track_get_next()

[Section 5.1.18, “Server Tracking of Client Session State”](#)

mysql_shutdown()

[Section 6.2.2, “Privileges Provided by MySQL”](#)
[Section 13.7.8.9, “SHUTDOWN Statement”](#)

mysql_sqlstate()

Section B.2, “Error Information Interfaces”
Section 13.6.7.5, “SIGNAL Statement”

mysql_stmt_attr_set()

Section 13.6.6.5, “Restrictions on Server-Side Cursors”

mysql_stmt_close()

Section 27.12.6.4, “The prepared_statements_instances Table”

mysql_stmt_errno()

Section B.2, “Error Information Interfaces”

mysql_stmt_error()

Section B.2, “Error Information Interfaces”

mysql_stmt_execute()

Section 27.12.6.4, “The prepared_statements_instances Table”

mysql_stmt_next_result()

Section 13.2.1, “CALL Statement”

mysql_stmt_prepare()

Section 8.10.3, “Caching of Prepared Statements and Stored Programs”
Section 13.5, “Prepared Statements”
Section 27.12.6.4, “The prepared_statements_instances Table”

mysql_stmt_send_long_data()

Section 5.1.8, “Server System Variables”

mysql_stmt_sqlstate()

Section B.2, “Error Information Interfaces”

mysql_store_result()

Section B.3.2.12, “Commands out of sync”
Section 16.8.1, “FEDERATED Storage Engine Overview”
Section 4.5.1, “mysql — The MySQL Command-Line Client”

mysql_use_result()

Section B.3.2.12, “Commands out of sync”
Section 4.5.1, “mysql — The MySQL Command-Line Client”
Section B.3.2.6, “Out of memory”

mysql_warning_count()

Section B.2, “Error Information Interfaces”
Section 13.7.7.42, “SHOW WARNINGS Statement”

Command Index

[A](#) | [B](#) | [C](#) | [D](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [R](#) | [S](#) | [T](#) | [U](#) | [V](#) | [W](#) | [X](#) | [Y](#) | [Z](#)

A

[\[index top\]](#)

Access

[Section 13.2.2, “DELETE Statement”](#)

addgroup

[Section 23.3.1.1, “Installing an NDB Cluster Binary Release on Linux”](#)

[Section 2.2, “Installing MySQL on Unix/Linux Using Generic Binaries”](#)

addr2line

[Section 5.9.1.5, “Using a Stack Trace”](#)

adduser

[Section 23.3.1.1, “Installing an NDB Cluster Binary Release on Linux”](#)

[Section 2.2, “Installing MySQL on Unix/Linux Using Generic Binaries”](#)

ALTER TABLE

[Section 23.6.12, “Online Operations with ALTER TABLE in NDB Cluster”](#)

ant

[Section 2.8.7, “MySQL Source-Configuration Options”](#)

APF

[Section 23.6.20.1, “NDB Cluster Security and Networking Issues”](#)

apt-get

[Section 2.5.7, “Installing MySQL on Linux from the Native Software Repositories”](#)

[Section 2.5.5, “Installing MySQL on Linux Using Debian Packages from Oracle”](#)

[Section 15.20.5, “Security Considerations for the InnoDB memcached Plugin”](#)

audit2allow

[Section 6.7.6, “Troubleshooting SELinux”](#)

B

[\[index top\]](#)

bash

[Section 1.1, “About This Manual”](#)

[Section 6.1.2.1, “End-User Guidelines for Password Security”](#)

[Section 2.4.1, “General Notes on Installing MySQL on macOS”](#)

[Section 4.2.1, “Invoking MySQL Programs”](#)

[Section 17.1.6.3, “Replica Server Options and Variables”](#)

[Section 13.7.8.8, “RESTART Statement”](#)

[Section 4.2.9, “Setting Environment Variables”](#)

bison

[Section 1.7.1, “Contributors to MySQL”](#)

[Section 2.8.8, “Dealing with Problems Compiling MySQL”](#)

[Section 2.8.2, “Source Installation Prerequisites”](#)

C

[\[index top\]](#)

cat

[Section 15.14, “InnoDB Startup Options and System Variables”](#)

Section 4.5.1.1, “mysql Client Options”

cd

Resetting the Root Password: Windows Systems

chkconfig

Section 23.3.1.1, “Installing an NDB Cluster Binary Release on Linux”

Section 4.3.3, “mysql.server — MySQL Server Startup Script”

chmod

Section 6.4.4.14, “Migrating Keys Between Keyring Keystores”

chown

Section 6.4.4.14, “Migrating Keys Between Keyring Keystores”

CMake

Section 10.13, “Adding a Character Set”

Section 23.3.1.4, “Building NDB Cluster from Source on Linux”

Section B.3.2.15, “Can’t initialize character set”

Section 23.3.2.2, “Compiling and Installing NDB Cluster from Source on Windows”

Section 10.5, “Configuring Application Character Set and Collation”

Section 2.8.6, “Configuring SSL Library Support”

Section 14.1, “Data Dictionary Schema”

Section 2.8.8, “Dealing with Problems Compiling MySQL”

Section 4.9, “Environment Variables”

Section 23.1, “General Information”

Section B.3.3.6, “How to Protect or Change the MySQL Unix Socket File”

Section 15.14, “InnoDB Startup Options and System Variables”

Section 2.8.5, “Installing MySQL Using a Development Source Tree”

Section 2.8.4, “Installing MySQL Using a Standard Source Distribution”

Section 6.4.4.19, “Keyring System Variables”

Section 2.5.9, “Managing MySQL Server with systemd”

Section 23.6.10, “MySQL Server Usage for NDB Cluster”

Section 2.8.7, “MySQL Source-Configuration Options”

Section 27.2, “Performance Schema Build Configuration”

Section 5.8.3, “Running Multiple MySQL Instances on Unix”

Section 6.1.6, “Security Considerations for LOAD DATA LOCAL”

Section 10.3.2, “Server Character Set and Collation”

Section 5.1.7, “Server Command Options”

Section 5.1.8, “Server System Variables”

Section 2.8.2, “Source Installation Prerequisites”

Section 16.5, “The ARCHIVE Storage Engine”

Section 16.6, “The BLACKHOLE Storage Engine”

Section 16.9, “The EXAMPLE Storage Engine”

Section 16.8, “The FEDERATED Storage Engine”

Section 5.9.3, “The LOCK_ORDER Tool”

Section 1.2.2, “The Main Features of MySQL”

Section 27.12.21.6, “The processlist Table”

Section 6.3, “Using Encrypted Connections”

Section 4.2.2.2, “Using Option Files”

Section 1.3, “What Is New in MySQL 8.0”

Section B.3.3.3, “What to Do If MySQL Keeps Crashing”

cmake

Section 2.8.10, “Generating MySQL Doxygen Documentation Content”

Section 2.8.4, “Installing MySQL Using a Standard Source Distribution”

Section 2.8.7, “MySQL Source-Configuration Options”

[Section 15.20.5, “Security Considerations for the InnoDB memcached Plugin”](#)

cmd

[Resetting the Root Password: Windows Systems](#)

cmd.exe

[Section 1.1, “About This Manual”](#)

[Section 4.6.2, “innosummary — Offline InnoDB File Checksum Utility”](#)

[Section 4.2.1, “Invoking MySQL Programs”](#)

command.com

[Section 1.1, “About This Manual”](#)

[Section 4.2.1, “Invoking MySQL Programs”](#)

comp_err

[Section 4.4.1, “comp_err — Compile MySQL Error Message File”](#)

[Section 4.1, “Overview of MySQL Programs”](#)

configure

[Section 1.1, “About This Manual”](#)

[Section 1.5, “How to Report Bugs or Problems”](#)

copy

[Creating a Data Snapshot Using Raw Data Files](#)

coreadm

[Section 2.7, “Installing MySQL on Solaris”](#)

[Section 5.1.7, “Server Command Options”](#)

cp

[Section 17.1.2.8, “Adding Replicas to a Replication Environment”](#)

[Section 17.4.1.2, “Backing Up Raw Data from a Replica”](#)

[Section 7.1, “Backup and Recovery Types”](#)

[Creating a Data Snapshot Using Raw Data Files](#)

[Section 23.3.7, “Upgrading and Downgrading NDB Cluster”](#)

cron

[Section B.3.2.2, “Can't connect to \[local\] MySQL server”](#)

[Section 13.7.3.2, “CHECK TABLE Statement”](#)

[Section 16.2.1, “MyISAM Startup Options”](#)

[Section 5.4.6, “Server Log Maintenance”](#)

[Section 7.6.5, “Setting Up a MyISAM Table Maintenance Schedule”](#)

[Section 3.5, “Using mysql in Batch Mode”](#)

csh

[Section 1.1, “About This Manual”](#)

[Section 4.2.1, “Invoking MySQL Programs”](#)

[Section 4.2.9, “Setting Environment Variables”](#)

curl

[Section 2.8.7, “MySQL Source-Configuration Options”](#)

D

[\[index top\]](#)

daemon_memcached

Section 15.20.6.2, “Adapting a memcached Application for the InnoDB memcached Plugin”
Section 15.20.2, “InnoDB memcached Architecture”

date

Section 4.3.2, “mysqld_safe — MySQL Server Startup Script”

df

Section B.3.1, “How to Determine What Is Causing a Problem”

dig

Section 1.3, “What Is New in MySQL 8.0”

Directory Utility

Section 2.4.1, “General Notes on Installing MySQL on macOS”

dnf

Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”
Section 2.5.1, “Installing MySQL on Linux Using the MySQL Yum Repository”
Section 23.3.1.2, “Installing NDB Cluster from RPM”
Section 2.10.7, “Upgrading MySQL with the MySQL Yum Repository”

dnf config-manager

Section 2.5.1, “Installing MySQL on Linux Using the MySQL Yum Repository”

dnf upgrade

Section 2.5.1, “Installing MySQL on Linux Using the MySQL Yum Repository”

docker exec

Section 2.5.6.1, “Basic Steps for MySQL Server Deployment with Docker”

docker images

Section 2.5.6.1, “Basic Steps for MySQL Server Deployment with Docker”

docker inspect

Section 2.5.6.2, “More Topics on Deploying MySQL Server with Docker”

docker logs mysqld-container

Section 2.5.6.2, “More Topics on Deploying MySQL Server with Docker”

docker ps

Section 2.5.6.1, “Basic Steps for MySQL Server Deployment with Docker”

docker pull

Section 2.5.6.1, “Basic Steps for MySQL Server Deployment with Docker”
Section 2.5.6.2, “More Topics on Deploying MySQL Server with Docker”

docker rm

Section 2.5.6.1, “Basic Steps for MySQL Server Deployment with Docker”

docker run

Section 2.5.6.1, “Basic Steps for MySQL Server Deployment with Docker”
Section 2.5.6.2, “More Topics on Deploying MySQL Server with Docker”

docker stop

Section 2.5.6.1, “Basic Steps for MySQL Server Deployment with Docker”

dot

Section 2.8.10, “Generating MySQL Doxygen Documentation Content”

doxygen

Section 2.8.10, “Generating MySQL Doxygen Documentation Content”

dpkg

Section 2.5.5, “Installing MySQL on Linux Using Debian Packages from Oracle”

dump

Creating a Data Snapshot Using Raw Data Files

F

[index top]

flex

Section 2.8.7, “MySQL Source-Configuration Options”

Section 5.9.3, “The LOCK_ORDER Tool”

fwbackups

Section 23.3.7, “Upgrading and Downgrading NDB Cluster”

G

[index top]

gcc

Section 2.12.3, “Problems Using the Perl DBI/DBD Interface”

Section 1.7.4, “Tools that were used to create MySQL”

gdb

Section 5.9.1.1, “Compiling MySQL for Debugging”

Section 5.9.1.4, “Debugging mysqld under gdb”

Section 1.7.4, “Tools that were used to create MySQL”

Section B.3.3.3, “What to Do If MySQL Keeps Crashing”

getcap

Section 5.1.16, “Resource Groups”

getenforce

Section 6.7.2, “Changing the SELinux Mode”

git branch

Section 2.8.5, “Installing MySQL Using a Development Source Tree”

git checkout

Section 2.8.5, “Installing MySQL Using a Development Source Tree”

gmake

Section 2.8.4, “Installing MySQL Using a Standard Source Distribution”

Section 2.8.2, “Source Installation Prerequisites”

GnuPG

[Section 2.1.4.2, “Signature Checking Using GnuPG”](#)

gnutar

[Section 2.2, “Installing MySQL on Unix/Linux Using Generic Binaries”](#)

[Section 2.8.2, “Source Installation Prerequisites”](#)

gogoc

[Section 5.1.13.5, “Obtaining an IPv6 Address from a Broker”](#)

gold

[Section 2.8.7, “MySQL Source-Configuration Options”](#)

gpg

[Section 2.1.4.2, “Signature Checking Using GnuPG”](#)

grep

[Section 4.6.10, “mysqldumpslow — Summarize Slow Query Log Files”](#)

[Section 3.3.4.7, “Pattern Matching”](#)

groupadd

[Section 23.3.1.1, “Installing an NDB Cluster Binary Release on Linux”](#)

[Section 2.7, “Installing MySQL on Solaris”](#)

[Section 2.2, “Installing MySQL on Unix/Linux Using Generic Binaries”](#)

gtar

[Section 2.7, “Installing MySQL on Solaris”](#)

[Section 2.2, “Installing MySQL on Unix/Linux Using Generic Binaries”](#)

[Section 2.8.2, “Source Installation Prerequisites”](#)

gunzip

[Section 6.4.5.5, “Configuring Audit Logging Characteristics”](#)

[Section 2.8.4, “Installing MySQL Using a Standard Source Distribution”](#)

gzip

[Section 6.4.5.5, “Configuring Audit Logging Characteristics”](#)

[Section 23.4.3.6, “Defining NDB Cluster Data Nodes”](#)

[Section 1.5, “How to Report Bugs or Problems”](#)

[Section 2.4, “Installing MySQL on macOS”](#)

H

[\[index top\]](#)

help contents

[Section 4.5.1.4, “mysql Client Server-Side Help”](#)

host

[Section 1.3, “What Is New in MySQL 8.0”](#)

hostname

[Section B.3.2.2, “Can’t connect to \[local\] MySQL server”](#)

I

[\[index top\]](#)

ibd2sdi

[Section 4.6.1, “ibd2sdi — InnoDB Tablespace SDI Extraction Utility”](#)

[MySQL Glossary](#)

[Section 14.6, “Serialized Dictionary Information \(SDI\)”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

icc

[Section 2.1.6, “Compiler-Specific Build Characteristics”](#)

ifconfig

[Section 5.1.13.1, “Verifying System Support for IPv6”](#)

innoschecksum

[Section 13.7.3.2, “CHECK TABLE Statement”](#)

[Section 4.6.2, “innoschecksum — Offline InnoDB File Checksum Utility”](#)

[MySQL Glossary](#)

[Section 4.1, “Overview of MySQL Programs”](#)

ip

[Section 5.1.14, “Network Namespace Support”](#)

iptables

[Section 18.10, “Frequently Asked Questions”](#)

[Section 23.6.20.1, “NDB Cluster Security and Networking Issues”](#)

J

[\[index top\]](#)

java

[Section 6.4.4.8, “Using the keyring_okv KMIP Plugin”](#)

K

[\[index top\]](#)

kill

[Section B.3.2.2, “Can't connect to \[local\] MySQL server”](#)

[Section 23.5.1, “ndbd — The NDB Cluster Data Node Daemon”](#)

[Section 23.6.5, “Performing a Rolling Restart of an NDB Cluster”](#)

[Section 4.10, “Unix Signal Handling in MySQL”](#)

kinit

[Section 6.4.1.8, “Kerberos Pluggable Authentication”](#)

[Section 6.4.1.7, “LDAP Pluggable Authentication”](#)

[Section 4.5.1.1, “mysql Client Options”](#)

[Section 4.5.4, “mysqldump — A Database Backup Program”](#)

klist

[Section 6.4.1.8, “Kerberos Pluggable Authentication”](#)

[Section 6.4.1.7, “LDAP Pluggable Authentication”](#)

ksh

[Section 4.2.1, “Invoking MySQL Programs”](#)

[Section 4.2.9, “Setting Environment Variables”](#)

kswapd

[Section 23.4.3.6, “Defining NDB Cluster Data Nodes”](#)

kswitch

[Section 6.4.1.7, “LDAP Pluggable Authentication”](#)

L

[\[index top\]](#)

ldapsearch

[Section 6.4.1.7, “LDAP Pluggable Authentication”](#)

less

[Section 4.5.1.2, “mysql Client Commands”](#)

[Section 4.5.1.1, “mysql Client Options”](#)

lld

[Section 2.8.7, “MySQL Source-Configuration Options”](#)

llvm

[Section 2.8.7, “MySQL Source-Configuration Options”](#)

ln

[Section 8.12.2.2, “Using Symbolic Links for MyISAM Tables on Unix”](#)

logger

[Section 4.3.2, “mysqld_safe — MySQL Server Startup Script”](#)

ls

[Section 6.7, “SELinux”](#)

lsof +L1

[Section B.3.3.5, “Where MySQL Stores Temporary Files”](#)

lz4

[Section 4.8.1, “lz4_decompress — Decompress mysqlpump LZ4-Compressed Output”](#)

[Section 2.8.7, “MySQL Source-Configuration Options”](#)

[Section 4.5.6, “mysqlpump — A Database Backup Program”](#)

lz4_decompress

[Section 4.8.1, “lz4_decompress — Decompress mysqlpump LZ4-Compressed Output”](#)

[Section 2.8.7, “MySQL Source-Configuration Options”](#)

[Section 4.5.6, “mysqlpump — A Database Backup Program”](#)

[Section 4.1, “Overview of MySQL Programs”](#)

[Section 4.8.3, “zlib_decompress — Decompress mysqlpump ZLIB-Compressed Output”](#)

M

[\[index top\]](#)

m4

[Section 2.8.2, “Source Installation Prerequisites”](#)

make

[Section 2.8.8, “Dealing with Problems Compiling MySQL”](#)
[Section 2.8.4, “Installing MySQL Using a Standard Source Distribution”](#)
[Section 2.12.3, “Problems Using the Perl DBI/DBD Interface”](#)
[Section 2.8.2, “Source Installation Prerequisites”](#)

make && make install

[Section 23.3.1.4, “Building NDB Cluster from Source on Linux”](#)

make install

[Section 23.3.1.4, “Building NDB Cluster from Source on Linux”](#)

make package

[Section 2.8.4, “Installing MySQL Using a Standard Source Distribution”](#)
[Section 2.8.7, “MySQL Source-Configuration Options”](#)

make test

[Section 2.8.5, “Installing MySQL Using a Development Source Tree”](#)
[Section 2.12.1, “Installing Perl on Unix”](#)

make VERBOSE=1

[Section 2.8.8, “Dealing with Problems Compiling MySQL”](#)

md5

[Section 2.1.4.1, “Verifying the MD5 Checksum”](#)

md5.exe

[Section 2.1.4.1, “Verifying the MD5 Checksum”](#)

md5sum

[Section 2.1.4.1, “Verifying the MD5 Checksum”](#)

memcached

[Section 15.20.6.2, “Adapting a memcached Application for the InnoDB memcached Plugin”](#)
[Section 15.20.6.1, “Adapting an Existing MySQL Schema for the InnoDB memcached Plugin”](#)
[Section 15.20.6.5, “Adapting DML Statements to memcached Operations”](#)
[Section 15.20.1, “Benefits of the InnoDB memcached Plugin”](#)
[Section 15.20.6.4, “Controlling Transactional Behavior of the InnoDB memcached Plugin”](#)
[Section 15.20.2, “InnoDB memcached Architecture”](#)
[Section 15.20.4, “InnoDB memcached Multiple get and Range Query Support”](#)
[Section 15.20, “InnoDB memcached Plugin”](#)
[Section 15.20.8, “InnoDB memcached Plugin Internals”](#)
[Section 15.14, “InnoDB Startup Options and System Variables”](#)
[MySQL Glossary](#)
[Section 15.20.6.6, “Performing DML and DDL Statements on the Underlying InnoDB Table”](#)
[Section 15.20.5, “Security Considerations for the InnoDB memcached Plugin”](#)
[Section 15.20.3, “Setting Up the InnoDB memcached Plugin”](#)
[Section 15.20.7, “The InnoDB memcached Plugin and Replication”](#)
[Section 15.20.9, “Troubleshooting the InnoDB memcached Plugin”](#)
[Section 15.20.6.3, “Tuning InnoDB memcached Plugin Performance”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)
[Section 15.20.6, “Writing Applications for the InnoDB memcached Plugin”](#)

memcapable

[Section 15.20.2, “InnoDB memcached Architecture”](#)

memslap

Section 15.20.6.3, “Tuning InnoDB memcached Plugin Performance”

mgmd

Section 23.3.2.1, “Installing NDB Cluster on Windows from a Binary Release”

Section 23.3, “NDB Cluster Installation”

Section 23.2.4, “What is New in MySQL NDB Cluster”

mkdir

Section 13.1.12, “CREATE DATABASE Statement”

Section 14.8, “Data Dictionary Limitations”

mklink

Section 8.12.2.3, “Using Symbolic Links for Databases on Windows”

more

Section 4.5.1.2, “mysql Client Commands”

Section 4.5.1.1, “mysql Client Options”

mv

Section 5.4.2.10, “Error Log File Flushing and Renaming”

Section 5.4.6, “Server Log Maintenance”

Section 5.4.3, “The General Query Log”

Section 8.12.2.1, “Using Symbolic Links for Databases on Unix”

my_print_defaults

Section 4.7.2, “my_print_defaults — Display Options from Option Files”

Section 4.1, “Overview of MySQL Programs”

Section 4.7, “Program Development Utilities”

myisam_ftdump

Section 12.10, “Full-Text Search Functions”

Section 4.6.3, “myisam_ftdump — Display Full-Text Index information”

Section 4.1, “Overview of MySQL Programs”

myisamchk

Section 13.7.3.1, “ANALYZE TABLE Statement”

Section 8.6.2, “Bulk Data Loading for MyISAM Tables”

Section 13.7.3.2, “CHECK TABLE Statement”

Section 16.2.3.3, “Compressed Table Characteristics”

Section 16.2.4.1, “Corrupted MyISAM Tables”

Section 7.2, “Database Backup Methods”

Section 5.9.1, “Debugging a MySQL Server”

Section 13.2.2, “DELETE Statement”

Section 16.2.3.2, “Dynamic Table Characteristics”

Section 8.8.2, “EXPLAIN Output Format”

Section 8.11.5, “External Locking”

Section 12.10.6, “Fine-Tuning MySQL Full-Text Search”

Section 7.6.2, “How to Check MyISAM Tables for Errors”

Section 7.6.3, “How to Repair MyISAM Tables”

Section 1.5, “How to Report Bugs or Problems”

Section 8.3.8, “InnoDB and MyISAM Index Statistics Collection”

Section 8.4.6, “Limits on Table Size”

Section 13.7.8.5, “LOAD INDEX INTO CACHE Statement”

Section 5.9.1.7, “Making a Test Case If You Experience Table Corruption”

Section 16.2.1, “MyISAM Startup Options”
Section 7.6, “MyISAM Table Maintenance and Crash Recovery”
Section 7.6.4, “MyISAM Table Optimization”
Section 16.2.3, “MyISAM Table Storage Formats”
Section 4.6.4.2, “myisamchk Check Options”
Section 4.6.4.1, “myisamchk General Options”
Section 4.6.4.6, “myisamchk Memory Usage”
Section 4.6.4.3, “myisamchk Repair Options”
Section 4.6.4, “myisamchk — MyISAM Table-Maintenance Utility”
Section 4.6.6, “myisampack — Generate Compressed, Read-Only MyISAM Tables”
Section 4.6.4.5, “Obtaining Table Information with myisamchk”
Section 8.6.1, “Optimizing MyISAM Queries”
Section 8.6.3, “Optimizing REPAIR TABLE Statements”
Section 4.6.4.4, “Other myisamchk Options”
Section 4.1, “Overview of MySQL Programs”
Section 16.2.4.2, “Problems from Tables Not Being Closed Properly”
Section 13.7.3.5, “REPAIR TABLE Statement”
Section 5.1.8, “Server System Variables”
Section 7.6.5, “Setting Up a MyISAM Table Maintenance Schedule”
Section 13.7.7.22, “SHOW INDEX Statement”
Section 13.7.7.38, “SHOW TABLE STATUS Statement”
Section 16.2.3.1, “Static (Fixed-Length) Table Characteristics”
Section 26.3.34, “The INFORMATION_SCHEMA STATISTICS Table”
Section 26.3.38, “The INFORMATION_SCHEMA TABLES Table”
Section 1.2.2, “The Main Features of MySQL”
Section 16.2, “The MyISAM Storage Engine”
Section 7.6.1, “Using myisamchk for Crash Recovery”
Section 5.9.1.6, “Using Server Logs to Find Causes of Errors in mysqld”
Section 8.12.2.2, “Using Symbolic Links for MyISAM Tables on Unix”
Section 1.3, “What Is New in MySQL 8.0”
Section B.3.3.3, “What to Do If MySQL Keeps Crashing”

myisamchk *.MYI

Section 7.6.3, “How to Repair MyISAM Tables”

myisamchk tbl_name

Section 7.6.2, “How to Check MyISAM Tables for Errors”

myisamlog

Section 4.6.5, “myisamlog — Display MyISAM Log File Contents”
Section 4.1, “Overview of MySQL Programs”

myisampack

Section 8.6.2, “Bulk Data Loading for MyISAM Tables”
Section 16.2.3.3, “Compressed Table Characteristics”
Section 13.1.20, “CREATE TABLE Statement”
Section 8.11.5, “External Locking”
Section 8.4.6, “Limits on Table Size”
Section 16.7.1, “MERGE Table Advantages and Disadvantages”
Section 16.2.3, “MyISAM Table Storage Formats”
Section 4.6.4.3, “myisamchk Repair Options”
Section 4.6.6, “myisampack — Generate Compressed, Read-Only MyISAM Tables”
Section 4.6.4.5, “Obtaining Table Information with myisamchk”
Section 8.4.1, “Optimizing Data Size”
Section 4.1, “Overview of MySQL Programs”
Section 13.1.20.7, “Silent Column Specification Changes”
Section 16.7, “The MERGE Storage Engine”

Section 16.2, “The MyISAM Storage Engine”

mysql

- [Section 1.1, “About This Manual”](#)
- [Section 6.2.8, “Adding Accounts, Assigning Privileges, and Dropping Accounts”](#)
- [Section 17.1.5.4, “Adding Binary Log Based Replication Sources to a Multi-Source Replica”](#)
- [Section 17.1.5.3, “Adding GTID-Based Sources to a Multi-Source Replica”](#)
- [Section 23.6.7.2, “Adding NDB Cluster Data Nodes Online: Basic procedure”](#)
- [Section 23.6.7.3, “Adding NDB Cluster Data Nodes Online: Detailed Example”](#)
- [Section 23.6.7.1, “Adding NDB Cluster Data Nodes Online: General Issues”](#)
- [Section 12.20.1, “Aggregate Function Descriptions”](#)
- [Section 13.7.1.1, “ALTER USER Statement”](#)
- [Section 6.4.5.11, “Audit Log Reference”](#)
- [Section 7.1, “Backup and Recovery Types”](#)
- [Section 2.5.6.1, “Basic Steps for MySQL Server Deployment with Docker”](#)
- [Section 13.6.1, “BEGIN ... END Compound Statement”](#)
- [Section 12.13, “Bit Functions and Operators”](#)
- [Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication”](#)
- [Section 12.11, “Cast Functions and Operators”](#)
- [Section 2.10.4, “Changes in MySQL 8.0”](#)
- [Section 6.4.1.4, “Client-Side Cleartext Pluggable Authentication”](#)
- [Section 4.2.3, “Command Options for Connecting to the Server”](#)
- [Section 4.2.2.3, “Command-Line Options that Affect Option-File Handling”](#)
- [Section 23.6.1, “Commands in the NDB Cluster Management Client”](#)
- [Section 9.7, “Comments”](#)
- [Section 23.4, “Configuration of NDB Cluster”](#)
- [Section 10.5, “Configuring Application Character Set and Collation”](#)
- [Section 17.1.5.1, “Configuring Multi-Source Replication”](#)
- [Section 6.3.1, “Configuring MySQL to Use Encrypted Connections”](#)
- [Section 15.8.10.2, “Configuring Non-Persistent Optimizer Statistics Parameters”](#)
- [Section 3.1, “Connecting to and Disconnecting from the Server”](#)
- [Section 4.2.4, “Connecting to the MySQL Server Using Command Options”](#)
- [Section 4.2.6, “Connecting to the Server Using DNS SRV Records”](#)
- [Section 4.2.5, “Connecting to the Server Using URI-Like Strings or Key-Value Pairs”](#)
- [Section 5.1.13.4, “Connecting Using IPv6 Nonlocal Host Addresses”](#)
- [Section 5.1.13.3, “Connecting Using the IPv6 Local Host Address”](#)
- [Section 10.4, “Connection Character Sets and Collations”](#)
- [Section 4.2.8, “Connection Compression Control”](#)
- [Section 4.2.7, “Connection Transport Protocols”](#)
- [Section 1.7.1, “Contributors to MySQL”](#)
- [Section 15.6.1.5, “Converting Tables from MyISAM to InnoDB”](#)
- [Section 2.10.14, “Copying MySQL Databases to Another Machine”](#)
- [Section 13.1.17, “CREATE PROCEDURE and CREATE FUNCTION Statements”](#)
- [Section 3.3.1, “Creating and Selecting a Database”](#)
- [Section 2.3.4.7, “Customizing the PATH for MySQL Tools”](#)
- [Section 14.1, “Data Dictionary Schema”](#)
- [Section 5.9.2, “Debugging a MySQL Client”](#)
- [Section 23.4.3.7, “Defining SQL and Other API Nodes in an NDB Cluster”](#)
- [Section 25.1, “Defining Stored Programs”](#)
- [Section 15.17.2, “Enabling InnoDB Monitors”](#)
- [Section 12.14, “Encryption and Compression Functions”](#)
- [Section 6.1.2.1, “End-User Guidelines for Password Security”](#)
- [Section 3.2, “Entering Queries”](#)
- [Section 4.9, “Environment Variables”](#)
- [Section B.2, “Error Information Interfaces”](#)
- [Section B.1, “Error Message Sources and Elements”](#)
- [Section 23.6.2.3, “Event Buffer Reporting in the Cluster Log”](#)
- [Section 25.4.2, “Event Scheduler Configuration”](#)

Section 7.3, “Example Backup and Recovery Strategy”
Section 3.6, “Examples of Common Queries”
Section 24.3.3, “Exchanging Partitions and Subpartitions with Tables”
Section 4.5.1.5, “Executing SQL Statements from a Text File”
Section 6.4.1.11, “FIDO Pluggable Authentication”
Chapter 12, *Functions and Operators*
Section 12.18.3, “Functions That Search JSON Values”
Section 23.1, “General Information”
Section 2.4.1, “General Notes on Installing MySQL on macOS”
Section 13.6.7.3, “GET DIAGNOSTICS Statement”
Section 13.7.1.6, “GRANT Statement”
Section 13.8.3, “HELP Statement”
Section B.3.1, “How to Determine What Is Causing a Problem”
Section 15.7.5.3, “How to Minimize and Handle Deadlocks”
Section 1.5, “How to Report Bugs or Problems”
Section 6.1.5, “How to Run MySQL as a Normal User”
Section 13.2.6, “IMPORT TABLE Statement”
Section 23.6.9, “Importing Data Into MySQL Cluster”
Section 12.16, “Information Functions”
Section 23.3.2.3, “Initial Startup of NDB Cluster on Windows”
Section 15.18.2, “InnoDB Recovery”
Section 2.2, “Installing MySQL on Unix/Linux Using Generic Binaries”
Section 23.3.1.2, “Installing NDB Cluster from RPM”
Section 23.3.2.1, “Installing NDB Cluster on Windows from a Binary Release”
Section 4.2.1, “Invoking MySQL Programs”
Section 23.2.7.8, “Issues Exclusive to NDB Cluster”
Section 6.4.1.8, “Kerberos Pluggable Authentication”
Section 18.2.1.4, “Launching Group Replication”
Section 6.4.1.7, “LDAP Pluggable Authentication”
Section 8.2.1.19, “LIMIT Query Optimization”
Section 13.2.9, “LOAD DATA Statement”
Section 13.2.10, “LOAD XML Statement”
Section 7.4.5.1, “Making a Copy of a Database”
Section 6.1.3, “Making MySQL Secure Against Attackers”
Section 23.6, “Management of NDB Cluster”
Section 8.13.1, “Measuring the Speed of Expressions and Functions”
Section 12.24, “Miscellaneous Functions”
Section 2.5.6.2, “More Topics on Deploying MySQL Server with Docker”
Section 6.2.18, “Multifactor Authentication”
Section A.11, “MySQL 8.0 FAQ: MySQL Chinese, Japanese, and Korean Character Sets”
Section A.10, “MySQL 8.0 FAQ: NDB Cluster”
Section 4.5.1.2, “mysql Client Commands”
Section 4.5.1.3, “mysql Client Logging”
Section 4.5.1.1, “mysql Client Options”
Section 4.5.1.4, “mysql Client Server-Side Help”
Section 4.5.1.6, “mysql Client Tips”
Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”
MySQL Glossary
Section 2.3.3.1, “MySQL Installer Initial Setup”
Section 5.1.15, “MySQL Server Time Zone Support”
Section 23.6.10, “MySQL Server Usage for NDB Cluster”
Chapter 19, *MySQL Shell*
Section 4.5.1, “mysql — The MySQL Command-Line Client”
Section 4.3.3, “mysql.server — MySQL Server Startup Script”
Section 4.6.7, “mysql_config_editor — MySQL Configuration Utility”
Section 4.4.4, “mysql_tzinfo_to_sql — Load the Time Zone Tables”
Section 4.4.5, “mysql_upgrade — Check and Upgrade MySQL Tables”
Section 4.5.2, “mysqladmin — A MySQL Server Administration Program”

Section 4.6.9, “mysqlbinlog — Utility for Processing Binary Log Files”
Section 4.5.4, “mysqldump — A Database Backup Program”
Section 4.5.6, “mysqlpump — A Database Backup Program”
Section 4.5.7, “mysqlshow — Display Database, Table, and Column Information”
Section 23.6.15, “NDB API Statistics Counters and Variables”
Section 23.7.9, “NDB Cluster Backups With NDB Cluster Replication”
Section 23.6.11.1, “NDB Cluster Disk Data Objects”
Section 23.3.5, “NDB Cluster Example with Tables and Data”
Section 23.7, “NDB Cluster Replication”
Section 23.7.12, “NDB Cluster Replication Conflict Resolution”
NDB Cluster System Variables
Section 23.5.9, “ndb_desc — Describe NDB Tables”
Section 23.5.13, “ndb_import — Import CSV Data Into NDB”
Section 23.5.14, “ndb_index_stat — NDB Index Statistics Utility”
Section 23.5.5, “ndb_mgm — The NDB Cluster Management Client”
Section 23.5.17, “ndb_print_backup_file — Print NDB Backup File Contents”
Section 23.5.23, “ndb_restore — Restore an NDB Cluster Backup”
Section 23.6.16, “ndbinfo: The NDB Cluster Information Database”
Section 23.5.2, “ndbinfo_select_all — Select From ndbinfo Tables”
Section 23.5.31, “ndbxfrm — Compress, Decompress, Encrypt, and Decrypt Files Created by NDB Cluster”
Section 5.1.14, “Network Namespace Support”
Section 4.2.2.6, “Option Defaults, Options Expecting Values, and the = Sign”
Section B.3.2.6, “Out of memory”
Section 4.1, “Overview of MySQL Programs”
Section B.3.2.8, “Packet Too Large”
Section 6.4.1.5, “PAM Pluggable Authentication”
Section 27.12.9, “Performance Schema Connection Attribute Tables”
Section 6.2.17, “Pluggable Authentication”
Section 7.5.1, “Point-in-Time Recovery Using Binary Log”
Section 13.5, “Prepared Statements”
Section 23.7.5, “Preparing the NDB Cluster for Replication”
Section 23.6.13, “Privilege Synchronization and NDB_STORED_USER”
Section 4.2.2.4, “Program Option Modifiers”
Section 17.1.5.2, “Provisioning a Multi-Source Replica for GTID-Based Replication”
Section 9.6, “Query Attributes”
Section 24.2.3.1, “RANGE COLUMNS partitioning”
Section 6.4.5.6, “Reading Audit Log Files”
Section 2.10.13, “Rebuilding or Repairing Tables or Indexes”
Section 7.4.4, “Reloading Delimited-Text Format Backups”
Section 7.4.2, “Reloading SQL-Format Backups”
Resetting the Root Password: Generic Instructions
Restoring an NDB backup to a later version of NDB Cluster
Restoring to More Nodes Than the Original
Section 6.3.5, “Reusing SSL Sessions”
Section 13.7.1.8, “REVOKE Statement”
Section 2.9.4, “Securing the Initial MySQL Account”
Section 6.1.6, “Security Considerations for LOAD DATA LOCAL”
Section 6.2.16, “Server Handling of Expired Passwords”
Section 5.1.8, “Server System Variables”
Section 5.1.17, “Server-Side Help Support”
Section 13.2.14, “Set Operations with UNION, INTERSECT, and EXCEPT”
Section 13.1.20.12, “Setting NDB Comment Options”
Section 6.4.1.3, “SHA-256 Pluggable Authentication”
Section 13.7.7.35, “SHOW REPLICA STATUS Statement”
Section 13.7.7.42, “SHOW WARNINGS Statement”
Section 13.6.7.5, “SIGNAL Statement”
Section 6.4.1.10, “Socket Peer-Credential Pluggable Authentication”

Section 4.2.2, “Specifying Program Options”
Section 17.1.5.5, “Starting Multi-Source Replicas”
Section 2.3.4.8, “Starting MySQL as a Windows Service”
Section 23.7.6, “Starting NDB Cluster Replication (Single Replication Channel)”
Section 12.8.1, “String Comparison Functions and Operators”
Section 12.8, “String Functions and Operators”
Section 9.1.1, “String Literals”
Section 2.9.3, “Testing the Server”
Section 11.3.3, “The BINARY and VARBINARY Types”
Section 10.10.8, “The Binary Character Set”
Section 11.3.4, “The BLOB and TEXT Types”
Section 28.4.4.2, “The diagnostics() Procedure”
Section 23.6.16.3, “The ndbinfo backup_id Table”
Section 23.6.16.46, “The ndbinfo memory_per_fragment Table”
Section 23.6.16.64, “The ndbinfo transporters Table”
Section 25.3.1, “Trigger Syntax and Examples”
Section 6.2.22, “Troubleshooting Problems Connecting to MySQL”
Chapter 3, Tutorial
Section 4.10, “Unix Signal Handling in MySQL”
Section 23.3.7, “Upgrading and Downgrading NDB Cluster”
Section 2.10, “Upgrading MySQL”
Section 7.3.2, “Using Backups for Recovery”
Section 17.1.3.5, “Using GTIDs for Failover and Scaleout”
Section 18.5.6, “Using MySQL Enterprise Backup with Group Replication”
Section 6.4.7.3, “Using MySQL Enterprise Firewall”
Section 3.5, “Using mysql in Batch Mode”
Section 4.6.9.3, “Using mysqlbinlog to Back Up Binary Log Files”
Section 7.4, “Using mysqldump for Backups”
Section 4.2.2.2, “Using Option Files”
Section 4.2.2.1, “Using Options on the Command Line”
Section 4.2.2.5, “Using Options to Set Program Variables”
Section 5.9.1.6, “Using Server Logs to Find Causes of Errors in mysqld”
Section 8.12.2.3, “Using Symbolic Links for Databases on Windows”
Section 1.3, “What Is New in MySQL 8.0”
Section 23.2.4, “What is New in MySQL NDB Cluster”
Section 2.3.6, “Windows Postinstallation Procedures”
Section 13.2.20, “WITH (Common Table Expressions)”
Section 12.12, “XML Functions”

mysql ...

Section 5.9.1.1, “Compiling MySQL for Debugging”

mysql-test-run.pl

Section 4.6.7, “mysql_config_editor — MySQL Configuration Utility”
Section 5.9.3, “The LOCK_ORDER Tool”
Section 4.2.2.2, “Using Option Files”

mysql.exe

Section 23.3.2.3, “Initial Startup of NDB Cluster on Windows”
Section 23.3.2.1, “Installing NDB Cluster on Windows from a Binary Release”
Section 4.5.1.6, “mysql Client Tips”

mysql.server

Section 2.5, “Installing MySQL on Linux”
Section 23.3.1.2, “Installing NDB Cluster from RPM”
Section 6.1.3, “Making MySQL Secure Against Attackers”
Section 4.3.3, “mysql.server — MySQL Server Startup Script”

[Section 4.6.10, “mysqldumpslow — Summarize Slow Query Log Files”](#)
[Section 4.1, “Overview of MySQL Programs”](#)
[Section 5.1.7, “Server Command Options”](#)
[Section 2.9.5, “Starting and Stopping MySQL Automatically”](#)
[Section B.3.3.7, “Time Zone Problems”](#)

mysql.server stop

[Section 4.3.3, “mysql.server — MySQL Server Startup Script”](#)

mysql_client_test_embedded

[Section 1.3, “What Is New in MySQL 8.0”](#)

mysql_config

[Section 2.8.8, “Dealing with Problems Compiling MySQL”](#)
[Section 4.7.1, “mysql_config — Display Options for Compiling Clients”](#)
[Section 4.1, “Overview of MySQL Programs”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

mysql_config_editor

[Section 4.2.2.3, “Command-Line Options that Affect Option-File Handling”](#)
[Section 6.1.2.1, “End-User Guidelines for Password Security”](#)
[Section 4.9, “Environment Variables”](#)
[Section 4.7.2, “my_print_defaults — Display Options from Option Files”](#)
[Section 4.6.4.1, “myisamchk General Options”](#)
[Section 4.5.1.1, “mysql Client Options”](#)
[Section 4.6.7, “mysql_config_editor — MySQL Configuration Utility”](#)
[Section 4.6.8, “mysql_migrate_keyring — Keyring Key Migration Utility”](#)
[Section 4.4.2, “mysql_secure_installation — Improve MySQL Installation Security”](#)
[Section 4.4.5, “mysql_upgrade — Check and Upgrade MySQL Tables”](#)
[Section 4.5.2, “mysqladmin — A MySQL Server Administration Program”](#)
[Section 4.6.9, “mysqlbinlog — Utility for Processing Binary Log Files”](#)
[Section 4.5.3, “mysqlcheck — A Table Maintenance Program”](#)
[Section 4.5.4, “mysqldump — A Database Backup Program”](#)
[Section 4.5.5, “mysqlimport — A Data Import Program”](#)
[Section 4.5.6, “mysqldump — A Database Backup Program”](#)
[Section 4.5.7, “mysqlshow — Display Database, Table, and Column Information”](#)
[Section 4.5.8, “mysqlslap — A Load Emulation Client”](#)
[Section 4.1, “Overview of MySQL Programs”](#)
[Section 4.2.2.2, “Using Option Files”](#)

mysql_install_db

[Section 1.3, “What Is New in MySQL 8.0”](#)

mysql_migrate_keyring

[Section 6.4.4.18, “Keyring Command Options”](#)
[Section 6.4.4.14, “Migrating Keys Between Keyring Keystores”](#)
[Section 4.6.8, “mysql_migrate_keyring — Keyring Key Migration Utility”](#)
[Section 4.1, “Overview of MySQL Programs”](#)
[Section 6.3.5, “Reusing SSL Sessions”](#)

mysql_plugin

[Section 1.3, “What Is New in MySQL 8.0”](#)

mysql_secure_installation

[Section 2.9.1, “Initializing the Data Directory”](#)
[Section 2.5.7, “Installing MySQL on Linux from the Native Software Repositories”](#)

[Section 2.5.5, “Installing MySQL on Linux Using Debian Packages from Oracle”](#)
[Section 2.7.1, “Installing MySQL on Solaris Using a Solaris PKG”](#)
[Section 4.4.2, “mysql_secure_installation — Improve MySQL Installation Security”](#)
[Section 4.1, “Overview of MySQL Programs”](#)
[Section 6.3.5, “Reusing SSL Sessions”](#)
[Section 2.9.4, “Securing the Initial MySQL Account”](#)

mysql_setpermission

[Section 1.7.1, “Contributors to MySQL”](#)

mysql_ssl_rsa_setup

[Section 4.2.3, “Command Options for Connecting to the Server”](#)
[Section 6.3.1, “Configuring MySQL to Use Encrypted Connections”](#)
[Section 6.3.3.3, “Creating RSA Keys Using openssl”](#)
[Section 6.3.3.1, “Creating SSL and RSA Certificates and Keys using MySQL”](#)
[Section 6.3.3.2, “Creating SSL Certificates and Keys Using openssl”](#)
[Section 2.9.1, “Initializing the Data Directory”](#)
[Section 4.4.3, “mysql_ssl_rsa_setup — Create SSL/RSA Files”](#)
[Section 4.1, “Overview of MySQL Programs”](#)

mysql_stmt_execute()

[Section 5.1.10, “Server Status Variables”](#)

mysql_stmt_prepare()

[Section 5.1.10, “Server Status Variables”](#)

mysql_tzinfo_to_sql

[Section 5.1.15, “MySQL Server Time Zone Support”](#)
[Section 4.4.4, “mysql_tzinfo_to_sql — Load the Time Zone Tables”](#)
[Section 4.1, “Overview of MySQL Programs”](#)

mysql_upgrade

[Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication”](#)
[Section 18.2.1.2, “Configuring an Instance for Group Replication”](#)
[Section 4.2.8, “Connection Compression Control”](#)
[Section 4.4.5, “mysql_upgrade — Check and Upgrade MySQL Tables”](#)
[Section 4.1, “Overview of MySQL Programs”](#)
[Section 2.10.13, “Rebuilding or Repairing Tables or Indexes”](#)
[Section 17.1.3.7, “Restrictions on Replication with GTIDs”](#)
[Section 6.3.5, “Reusing SSL Sessions”](#)
[Section 5.1.8, “Server System Variables”](#)
[Section 6.4.1.3, “SHA-256 Pluggable Authentication”](#)
[Section 17.5.3, “Upgrading a Replication Topology”](#)
[Section 2.10.6, “Upgrading MySQL Binary or Package-based Installations on Unix/Linux”](#)
[Section 2.10.10, “Upgrading MySQL on Windows”](#)
[Section 2.10.7, “Upgrading MySQL with the MySQL Yum Repository”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)
[Section 2.10.3, “What the MySQL Upgrade Process Upgrades”](#)

mysqlaccess

[Section 1.7.1, “Contributors to MySQL”](#)

mysqladmin

[Section 6.2.14, “Assigning Account Passwords”](#)
[Section 17.4.1.1, “Backing Up a Replica Using mysqldump”](#)
[Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication”](#)

Section B.3.2.2, “Can't connect to [local] MySQL server”
Section 2.10.4, “Changes in MySQL 8.0”
Section 6.4.1.4, “Client-Side Cleartext Pluggable Authentication”
Section 5.1.1, “Configuring the Server”
Section 4.2.4, “Connecting to the MySQL Server Using Command Options”
Section 10.4, “Connection Character Sets and Collations”
Section 4.2.8, “Connection Compression Control”
Section 1.7.1, “Contributors to MySQL”
Section 13.1.12, “CREATE DATABASE Statement”
Section 2.3.4.7, “Customizing the PATH for MySQL Tools”
Section 5.9.1, “Debugging a MySQL Server”
Section 13.1.24, “DROP DATABASE Statement”
Section 13.7.8.3, “FLUSH Statement”
Section 2.4.1, “General Notes on Installing MySQL on macOS”
Section B.3.1, “How to Determine What Is Causing a Problem”
Section 7.6.3, “How to Repair MyISAM Tables”
Section 1.5, “How to Report Bugs or Problems”
Section 23.3.1.2, “Installing NDB Cluster from RPM”
Section 18.4, “Monitoring Group Replication”
Section A.11, “MySQL 8.0 FAQ: MySQL Chinese, Japanese, and Korean Character Sets”
Section 2.3.3.1, “MySQL Installer Initial Setup”
Section 5.4, “MySQL Server Logs”
Section 4.6.7, “mysql_config_editor — MySQL Configuration Utility”
Section 4.5.2, “mysqladmin — A MySQL Server Administration Program”
Section 4.3.4, “mysqld_multi — Manage Multiple MySQL Servers”
Section 4.1, “Overview of MySQL Programs”
Section 27.12.9, “Performance Schema Connection Attribute Tables”
Section 6.2.17, “Pluggable Authentication”
Section 6.2.2, “Privileges Provided by MySQL”
Section 6.3.5, “Reusing SSL Sessions”
Section 5.8.3, “Running Multiple MySQL Instances on Unix”
Section 2.9.4, “Securing the Initial MySQL Account”
Section 17.1.3.4, “Setting Up Replication Using GTIDs”
Section 6.4.1.3, “SHA-256 Pluggable Authentication”
Section 2.3.4.8, “Starting MySQL as a Windows Service”
Section 2.3.4.6, “Starting MySQL from the Windows Command Line”
Section 2.9.3, “Testing the Server”
Section 1.2.2, “The Main Features of MySQL”
Section 5.1.19, “The Server Shutdown Process”
Section 2.10.10, “Upgrading MySQL on Windows”
Section 4.2.2.2, “Using Option Files”
Section 4.2.2.1, “Using Options on the Command Line”
Section 5.6.4.2, “Using the Rewriter Query Rewrite Plugin”
Section B.3.3.3, “What to Do If MySQL Keeps Crashing”

mysqladmin debug

Section 5.9.1, “Debugging a MySQL Server”
Section 25.4.5, “Event Scheduler Status”
Section 13.7.1.6, “GRANT Statement”
Section 6.2.2, “Privileges Provided by MySQL”

mysqladmin extended-status

Section 13.7.7.37, “SHOW STATUS Statement”

mysqladmin flush-hosts

Section 5.1.12.3, “DNS Lookups and the Host Cache”
Section 6.2.22, “Troubleshooting Problems Connecting to MySQL”

mysqladmin flush-logs

[Section 7.3.3, “Backup Strategy Summary”](#)
[Section 5.4.2.10, “Error Log File Flushing and Renaming”](#)
[Section 7.3.1, “Establishing a Backup Policy”](#)
[Section 4.5.2, “mysqladmin — A MySQL Server Administration Program”](#)
[Section 5.4.6, “Server Log Maintenance”](#)
[Section 17.2.4.1, “The Relay Log”](#)

mysqladmin flush-logs binary

[Section 5.4.4, “The Binary Log”](#)

mysqladmin flush-privileges

[Section 2.10.14, “Copying MySQL Databases to Another Machine”](#)
[Section 6.2.3, “Grant Tables”](#)
[Section 4.5.2, “mysqladmin — A MySQL Server Administration Program”](#)
[Section 17.3.3.3, “Recovering From Failed Replication Privilege Checks”](#)
[Section 17.3.3, “Replication Privilege Checks”](#)
[Section 5.1.7, “Server Command Options”](#)
[Section 6.2.22, “Troubleshooting Problems Connecting to MySQL”](#)
[Section 6.2.13, “When Privilege Changes Take Effect”](#)

mysqladmin flush-tables

[Section 8.6.2, “Bulk Data Loading for MyISAM Tables”](#)
[Section 8.11.5, “External Locking”](#)
[Section 8.4.3.1, “How MySQL Opens and Closes Tables”](#)
[Section 8.12.3.1, “How MySQL Uses Memory”](#)
[Section 4.6.6, “myisampack — Generate Compressed, Read-Only MyISAM Tables”](#)
[Section 7.6.1, “Using myisamchk for Crash Recovery”](#)

mysqladmin flush-xxx

[Section 6.2.8, “Adding Accounts, Assigning Privileges, and Dropping Accounts”](#)

mysqladmin kill

[Section B.3.3.4, “How MySQL Handles a Full Disk”](#)
[Section 13.7.8.4, “KILL Statement”](#)
[Section 12.15, “Locking Functions”](#)
[Section B.3.2.7, “MySQL server has gone away”](#)
[Section 6.2.2, “Privileges Provided by MySQL”](#)

mysqladmin password

[Section 4.5.2, “mysqladmin — A MySQL Server Administration Program”](#)

mysqladmin processlist

[Section 8.14.1, “Accessing the Process List”](#)
[Section 6.2.8, “Adding Accounts, Assigning Privileges, and Dropping Accounts”](#)
[Section 13.7.8.4, “KILL Statement”](#)
[Section 6.1.3, “Making MySQL Secure Against Attackers”](#)
[Section 6.2.2, “Privileges Provided by MySQL”](#)
[Section 27.12.21.6, “The processlist Table”](#)

mysqladmin processlist status

[Section 5.9.1, “Debugging a MySQL Server”](#)

mysqladmin refresh

[Section 6.2.8, “Adding Accounts, Assigning Privileges, and Dropping Accounts”](#)
[Section 8.4.3.1, “How MySQL Opens and Closes Tables”](#)

Section 5.4.6, “Server Log Maintenance”

mysqladmin reload

Section 6.2.8, “Adding Accounts, Assigning Privileges, and Dropping Accounts”
Section 6.2.3, “Grant Tables”
Section 1.5, “How to Report Bugs or Problems”
Section 17.3.3.3, “Recovering From Failed Replication Privilege Checks”
Section 17.3.3, “Replication Privilege Checks”
Section 5.1.7, “Server Command Options”
Section 6.2.21, “Setting Account Resource Limits”
Section 6.2.13, “When Privilege Changes Take Effect”

mysqladmin reload version

Section 1.5, “How to Report Bugs or Problems”

mysqladmin shutdown

Section 6.2.7, “Access Control, Stage 2: Request Verification”
Section 23.6.7.3, “Adding NDB Cluster Data Nodes Online: Detailed Example”
Section 5.9.1.2, “Creating Trace Files”
Section 13.7.1.6, “GRANT Statement”
Section 7.6.3, “How to Repair MyISAM Tables”
Section 6.1.5, “How to Run MySQL as a Normal User”
Section 2.4.2, “Installing MySQL on macOS Using Native Packages”
Section 5.9.1.7, “Making a Test Case If You Experience Table Corruption”
Section A.10, “MySQL 8.0 FAQ: NDB Cluster”
Section 4.3.3, “mysql.server — MySQL Server Startup Script”
Section 4.5.2, “mysqladmin — A MySQL Server Administration Program”
Section 23.5.13, “ndb_import — Import CSV Data Into NDB”
Section 6.2.2, “Privileges Provided by MySQL”
Section 17.5.1.31, “Replication and Temporary Tables”
Section 23.3.6, “Safe Shutdown and Restart of NDB Cluster”
Section 13.7.8.9, “SHUTDOWN Statement”
Section 2.3.4.8, “Starting MySQL as a Windows Service”
Section 5.1.19, “The Server Shutdown Process”
Section 18.8.3.2, “Upgrading a Group Replication Member”
Section B.3.3.3, “What to Do If MySQL Keeps Crashing”

mysqladmin status

Section 8.4.3.1, “How MySQL Opens and Closes Tables”
Section 4.5.2, “mysqladmin — A MySQL Server Administration Program”

mysqladmin variables

Section B.3.2.7, “MySQL server has gone away”
Section 13.7.7.41, “SHOW VARIABLES Statement”

mysqladmin variables extended-status processlist

Section 1.5, “How to Report Bugs or Problems”

mysqladmin ver

Section 5.9.1.1, “Compiling MySQL for Debugging”

mysqladmin version

Section B.3.2.2, “Can’t connect to [local] MySQL server”
Section 1.5, “How to Report Bugs or Problems”
Section B.3.2.7, “MySQL server has gone away”
Section 2.9.3, “Testing the Server”
Section B.3.3.3, “What to Do If MySQL Keeps Crashing”

mysqlanalyze

[Section 4.5.3, “mysqlcheck — A Table Maintenance Program”](#)

mysqlbackup

[Section 7.1, “Backup and Recovery Types”](#)

[Creating a Data Snapshot Using Raw Data Files](#)

[Section 18.8.3.4, “Group Replication Upgrade with mysqlbackup”](#)

[Section 15.18.1, “InnoDB Backup”](#)

[Section 2.5.6.2, “More Topics on Deploying MySQL Server with Docker”](#)

[MySQL Glossary](#)

Section 4.5.4, “mysqldump — A Database Backup Program”

Section 17.1.3.5, “Using GTIDs for Failover and Scaleout”

Section 18.5.6, “Using MySQL Enterprise Backup with Group Replication”

mysqlbinlog

Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”

Section 5.4.4.5, “Binary Log Transaction Compression”

Section 17.1.6.4, “Binary Logging Options and Variables”

Section 13.7.8.1, “BINLOG Statement”

Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication”

Section 4.2.8, “Connection Compression Control”

Section 17.4.11, “Delayed Replication”

Section 17.3.2, “Encrypting Binary Log Files and Relay Log Files”

Section 17.1.3.1, “GTID Format and Storage”

Section 17.1.3.2, “GTID Life Cycle”

Section 17.5.5, “How to Report Replication Bugs or Problems”

Section 15.18.2, “InnoDB Recovery”

Section 13.1.20.10, “Invisible Columns”

Section B.3.7, “Known Issues in MySQL”

Section 12.24, “Miscellaneous Functions”

Monitoring Binary Log Transaction Compression

Section 4.5.1.1, “mysql Client Options”

MySQL Glossary

Section 4.6.9.1, “mysqlbinlog Hex Dump Format”

Section 4.6.9.2, “mysqlbinlog Row Event Display”

Section 4.6.9, “mysqlbinlog — Utility for Processing Binary Log Files”

Section 23.7.11, “NDB Cluster Replication Using the Multithreaded Applier”

NDB Cluster System Variables

Section 24.3.5, “Obtaining Information About Partitions”

Section 4.1, “Overview of MySQL Programs”

Section 27.12.9, “Performance Schema Connection Attribute Tables”

Section 7.5.1, “Point-in-Time Recovery Using Binary Log”

Section 7.5.2, “Point-in-Time Recovery Using Event Positions”

Section 23.7.9.2, “Point-In-Time Recovery Using NDB Cluster Replication”

Section 17.3.3.1, “Privileges For The Replication PRIVILEGE_CHECKS_USER Account”

Section 6.2.2, “Privileges Provided by MySQL”

Section 17.3.3.3, “Recovering From Failed Replication Privilege Checks”

Section 17.5.1.19, “Replication and LOAD DATA”

Section 17.5.1.39, “Replication and Variables”

Section 17.3.3, “Replication Privilege Checks”

Section 6.3.5, “Reusing SSL Sessions”

Section 17.3.2.1, “Scope of Binary Log Encryption”

Section 6.1.6, “Security Considerations for LOAD DATA LOCAL”

Section 5.1.8, “Server System Variables”

Section 6.4.1.3, “SHA-256 Pluggable Authentication”

Section 13.7.7.2, “SHOW BINLOG EVENTS Statement”

Section 13.7.7.32, “SHOW RELAYLOG EVENTS Statement”

[Section 17.1.7.3, “Skipping Transactions”](#)
[Section 4.6.9.4, “Specifying the mysqlbinlog Server ID”](#)
[Section 13.4.2.8, “START REPLICA Statement”](#)
[Section 5.4.4, “The Binary Log”](#)
[Section 5.4.3, “The General Query Log”](#)
[Section 17.2.4.1, “The Relay Log”](#)
[Section 17.2.1.2, “Usage of Row-Based Logging and Replication”](#)
[Section 7.3.2, “Using Backups for Recovery”](#)
[Section 17.1.3.5, “Using GTIDs for Failover and Scaleout”](#)
[Section 4.6.9.3, “Using mysqlbinlog to Back Up Binary Log Files”](#)
[Section 5.6.4.2, “Using the Rewriter Query Rewrite Plugin”](#)

mysqlbinlog binary-log-file | mysql

[Section 5.9.1.7, “Making a Test Case If You Experience Table Corruption”](#)

mysqlbinlog|mysql

[Section B.3.7, “Known Issues in MySQL”](#)

mysqlcheck

[Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication”](#)
[Section 2.10.4, “Changes in MySQL 8.0”](#)
[Section 6.4.1.4, “Client-Side Cleartext Pluggable Authentication”](#)
[Section 10.4, “Connection Character Sets and Collations”](#)
[Section 4.2.8, “Connection Compression Control”](#)
[Section 4.7.2, “my_print_defaults — Display Options from Option Files”](#)
[Section 7.6, “MyISAM Table Maintenance and Crash Recovery”](#)
[Section 4.5.3, “mysqlcheck — A Table Maintenance Program”](#)
[Section 4.1, “Overview of MySQL Programs”](#)
[Section 2.10.5, “Preparing Your Installation for Upgrade”](#)
[Section 2.10.13, “Rebuilding or Repairing Tables or Indexes”](#)
[Section 6.3.5, “Reusing SSL Sessions”](#)
[Section 5.1.8, “Server System Variables”](#)
[Section 6.4.1.3, “SHA-256 Pluggable Authentication”](#)
[Section 1.2.2, “The Main Features of MySQL”](#)
[Section 16.2, “The MyISAM Storage Engine”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

mysqld

[Section 1.1, “About This Manual”](#)
[Section 13.1.2, “ALTER DATABASE Statement”](#)
[Section 8.2.1.23, “Avoiding Full Table Scans”](#)
[Section 2.5.6.1, “Basic Steps for MySQL Server Deployment with Docker”](#)
[Section 5.4.4.5, “Binary Log Transaction Compression”](#)
[Section 5.4.4.1, “Binary Logging Formats”](#)
[Section 17.1.6.4, “Binary Logging Options and Variables”](#)
[Section 23.3.1.4, “Building NDB Cluster from Source on Linux”](#)
[Section B.3.2.2, “Can’t connect to \[local\] MySQL server”](#)
[Section B.3.2.11, “Can’t create/write to file”](#)
[Section B.3.2.15, “Can’t initialize character set”](#)
[Section 13.4.2.2, “CHANGE REPLICATION FILTER Statement”](#)
[Section 2.10.4, “Changes in MySQL 8.0”](#)
[Section 4.2.2.3, “Command-Line Options that Affect Option-File Handling”](#)
[Section 23.6.1, “Commands in the NDB Cluster Management Client”](#)
[Section 9.7, “Comments”](#)
[Section B.3.2.9, “Communication Errors and Aborted Connections”](#)
[Section 4.4.1, “comp_err — Compile MySQL Error Message File”](#)
[Section 5.9.1.1, “Compiling MySQL for Debugging”](#)

Section 23.4, “Configuration of NDB Cluster”
Section 2.8.6, “Configuring SSL Library Support”
Section 5.1.1, “Configuring the Server”
Section 5.1.12.1, “Connection Interfaces”
Section 15.20.6.4, “Controlling Transactional Behavior of the InnoDB memcached Plugin”
Section 16.2.4.1, “Corrupted MyISAM Tables”
Section 13.1.20, “CREATE TABLE Statement”
Section 5.9.1.2, “Creating Trace Files”
Section 14.1, “Data Dictionary Schema”
Section 15.7.5, “Deadlocks in InnoDB”
Section 5.9.1, “Debugging a MySQL Server”
Section 5.9.1.4, “Debugging mysqld under gdb”
Section 5.4.2.2, “Default Error Log Destination Configuration”
Section 23.4.3.6, “Defining NDB Cluster Data Nodes”
Section 23.4.3.7, “Defining SQL and Other API Nodes in an NDB Cluster”
Section 5.1.12.3, “DNS Lookups and the Host Cache”
Section 15.6.4, “Doublewrite Buffer”
Section 15.17.2, “Enabling InnoDB Monitors”
Section 8.12.3.3, “Enabling Large Page Support”
Section 8.2.1.5, “Engine Condition Pushdown Optimization”
Section 4.9, “Environment Variables”
Section 5.4.2.3, “Error Event Fields”
Section 5.4.2.10, “Error Log File Flushing and Renaming”
Section 5.4.2.9, “Error Log Output Format”
Section 5.4.2.8, “Error Logging to the System Log”
Section 23.6.2.3, “Event Buffer Reporting in the Cluster Log”
Section 15.8.3.7, “Excluding Buffer Pool Pages from Core Files”
Section 8.11.5, “External Locking”
Section B.3.2.16, “File Not Found and Similar Errors”
Section 15.6.3.2, “File-Per-Table Tablespaces”
Section 12.10.6, “Fine-Tuning MySQL Full-Text Search”
Section 15.21.3, “Forcing InnoDB Recovery”
Section 23.1, “General Information”
Section 23.7.2, “General Requirements for NDB Cluster Replication”
Section 8.14.3, “General Thread States”
Section 8.12.3.1, “How MySQL Uses Memory”
Section B.3.1, “How to Determine What Is Causing a Problem”
Section 7.6.3, “How to Repair MyISAM Tables”
Section 1.5, “How to Report Bugs or Problems”
Section 6.1.5, “How to Run MySQL as a Normal User”
Section B.3.2.13, “Ignoring user”
Section 23.7.8, “Implementing Failover with NDB Cluster Replication”
Section 12.16, “Information Functions”
Section 23.3.3, “Initial Configuration of NDB Cluster”
Section 23.3.4, “Initial Startup of NDB Cluster”
Section 2.9.1, “Initializing the Data Directory”
Section 15.18.1, “InnoDB Backup”
Section 15.11.1, “InnoDB Disk I/O”
Section 15.20.2, “InnoDB memcached Architecture”
Section 15.8.1, “InnoDB Startup Configuration”
Section 15.14, “InnoDB Startup Options and System Variables”
Section 15.21, “InnoDB Troubleshooting”
Section 13.2.7.2, “INSERT ... ON DUPLICATE KEY UPDATE Statement”
Section 13.2.7, “INSERT Statement”
Section 23.3.1, “Installation of NDB Cluster on Linux”
Section 23.3.1.1, “Installing an NDB Cluster Binary Release on Linux”
Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”
Section 2.4.2, “Installing MySQL on macOS Using Native Packages”

Section 2.3, “Installing MySQL on Microsoft Windows”
Section 2.7, “Installing MySQL on Solaris”
Section 2.2, “Installing MySQL on Unix/Linux Using Generic Binaries”
Section 23.3.1.2, “Installing NDB Cluster from RPM”
Section 23.3.2.1, “Installing NDB Cluster on Windows from a Binary Release”
Section 23.3.2.4, “Installing NDB Cluster Processes as Windows Services”
Section 23.2.7.8, “Issues Exclusive to NDB Cluster”
Section 6.4.4.2, “Keyring Component Installation”
Section 13.7.8.4, “KILL Statement”
Section 23.7.3, “Known Issues in NDB Cluster Replication”
Section 13.2.9, “LOAD DATA Statement”
Section 13.3.6, “LOCK TABLES and UNLOCK TABLES Statements”
Section 12.15, “Locking Functions”
Section 5.9.1.7, “Making a Test Case If You Experience Table Corruption”
Section 6.1.3, “Making MySQL Secure Against Attackers”
Section 23.6, “Management of NDB Cluster”
Section 2.5.9, “Managing MySQL Server with systemd”
Section 6.4.4.14, “Migrating Keys Between Keyring Keystores”
Section 12.24, “Miscellaneous Functions”
Section 5.4.4.3, “Mixed Binary Logging Format”
Section 15.6.1.4, “Moving or Copying InnoDB Tables”
Section 16.2.1, “MyISAM Startup Options”
Section 4.6.4.2, “myisamchk Check Options”
Section 4.6.4.1, “myisamchk General Options”
Section 4.6.4, “myisamchk — MyISAM Table-Maintenance Utility”
Section 4.6.6, “mysampack — Generate Compressed, Read-Only MyISAM Tables”
Section A.1, “MySQL 8.0 FAQ: General”
Section A.11, “MySQL 8.0 FAQ: MySQL Chinese, Japanese, and Korean Character Sets”
Section A.10, “MySQL 8.0 FAQ: NDB Cluster”
Section A.3, “MySQL 8.0 FAQ: Server SQL Mode”
Section 4.5.1.6, “mysql Client Tips”
MySQL Glossary
Section 2.3.1, “MySQL Installation Layout on Microsoft Windows”
Chapter 5, *MySQL Server Administration*
Section B.3.2.7, “MySQL server has gone away”
Section 5.4, “MySQL Server Logs”
MySQL Server Options for NDB Cluster
Section 5.1.15, “MySQL Server Time Zone Support”
Section 23.6.10, “MySQL Server Usage for NDB Cluster”
Section 23.2.6, “MySQL Server Using InnoDB Compared with NDB Cluster”
Section 2.8.7, “MySQL Source-Configuration Options”
Section 1.6, “MySQL Standards Compliance”
Chapter 28, *MySQL sys Schema*
Section 4.3.3, “mysql.server — MySQL Server Startup Script”
Section 4.6.9, “mysqlbinlog — Utility for Processing Binary Log Files”
Section 4.5.3, “mysqlcheck — A Table Maintenance Program”
Section 4.3.1, “mysqld — The MySQL Server”
Section 4.3.4, “mysqld_multi — Manage Multiple MySQL Servers”
Section 4.3.2, “mysqld_safe — MySQL Server Startup Script”
Section 4.5.4, “mysqldump — A Database Backup Program”
Section 23.6.15, “NDB API Statistics Counters and Variables”
Section 23.6.20.3, “NDB Cluster and MySQL Security Procedures”
Section 23.4.3.1, “NDB Cluster Configuration: Basic Example”
Section 23.2.1, “NDB Cluster Core Concepts”
Section 23.3, “NDB Cluster Installation”
Section 23.4.2.5, “NDB Cluster mysqld Option and Variable Reference”
Section 23.2.2, “NDB Cluster Nodes, Node Groups, Fragment Replicas, and Partitions”
Section 23.2, “NDB Cluster Overview”

[Section 23.5, “NDB Cluster Programs”](#)
[Section 23.7, “NDB Cluster Replication”](#)
[Section 23.7.12, “NDB Cluster Replication Conflict Resolution”](#)
[Section 23.7.4, “NDB Cluster Replication Schema and Tables”](#)
[Section 23.7.11, “NDB Cluster Replication Using the Multithreaded Applier”](#)
[Section 23.7.10, “NDB Cluster Replication: Bidirectional and Circular Replication”](#)
[NDB Cluster Status Variables](#)
[NDB Cluster System Variables](#)
[Section 23.5.13, “`ndb_import` — Import CSV Data Into NDB”](#)
[Section 23.5.4, “`ndb_mgmd` — The NDB Cluster Management Server Daemon”](#)
[Section 23.5.23, “`ndb_restore` — Restore an NDB Cluster Backup”](#)
[Section 23.5.27, “`ndb_show_tables` — Display List of NDB Tables”](#)
[Section 23.5.29, “`ndb_top` — View CPU usage information for NDB threads”](#)
[Section 23.6.16, “`ndbinfo`: The NDB Cluster Information Database”](#)
[Section 5.1.14, “Network Namespace Support”](#)
[Section 23.2.7.1, “Noncompliance with SQL Syntax in NDB Cluster”](#)
[Section 23.6.12, “Online Operations with ALTER TABLE in NDB Cluster”](#)
[Section 13.7.3.4, “OPTIMIZE TABLE Statement”](#)
[Section B.3.5, “Optimizer-Related Issues”](#)
[Section 8.5.4, “Optimizing InnoDB Redo Logging”](#)
[Section 23.2.5, “Options, Variables, and Parameters Added, Deprecated or Removed in NDB 8.0”](#)
[Section 4.1, “Overview of MySQL Programs”](#)
[Section 23.4.2, “Overview of NDB Cluster Configuration Parameters, Options, and Variables”](#)
[Section B.3.2.8, “Packet Too Large”](#)
[Section 27.3, “Performance Schema Startup Configuration”](#)
[Section 27.12.14.2, “Performance Schema variables_info Table”](#)
[Section 23.6.5, “Performing a Rolling Restart of an NDB Cluster”](#)
[Section 23.7.5, “Preparing the NDB Cluster for Replication”](#)
[Section 16.2.4.2, “Problems from Tables Not Being Closed Properly”](#)
[Section B.3.3.1, “Problems with File Permissions”](#)
[Section 4.2.2.4, “Program Option Modifiers”](#)
[Section 13.7.3.5, “REPAIR TABLE Statement”](#)
[Section 17.1.6.1, “Replication and Binary Logging Option and Variable Reference”](#)
[Section 17.1.6, “Replication and Binary Logging Options and Variables”](#)
[Section 17.5.1.28, “Replication and Source or Replica Shutdowns”](#)
[Section 17.5.1.34, “Replication and Transaction Inconsistencies”](#)
[Section 17.2.4.2, “Replication Metadata Repositories”](#)
[Section 17.3.3, “Replication Privilege Checks”](#)
[Section 17.1.6.2, “Replication Source Options and Variables”](#)
[Section 13.4.2.5, “RESET REPLICA Statement”](#)
[Resetting the Root Password: Unix and Unix-Like Systems](#)
[Resetting the Root Password: Windows Systems](#)
[Section 5.1.16, “Resource Groups”](#)
[Section 13.7.8.8, “RESTART Statement”](#)
[Restoring an NDB backup to a later version of NDB Cluster](#)
[Restoring an NDB backup to a previous version of NDB Cluster](#)
[Restoring to More Nodes Than the Original](#)
[Section B.3.4.5, “Rollback Failure for Nontransactional Tables”](#)
[Section 5.8, “Running Multiple MySQL Instances on One Machine”](#)
[Section 2.9.4, “Securing the Initial MySQL Account”](#)
[Section 6.1.6, “Security Considerations for LOAD DATA LOCAL”](#)
[Section 6.1.4, “Security-Related mysqld Options and Variables”](#)
[Section 13.2.13.1, “SELECT ... INTO Statement”](#)
[Section 2.3.4.3, “Selecting a MySQL Server Type”](#)
[Section 6.7, “SELinux”](#)
[Section 4.3, “Server and Server-Startup Programs”](#)
[Section 10.3.2, “Server Character Set and Collation”](#)
[Section 5.1.7, “Server Command Options”](#)

Section 5.4.6, “Server Log Maintenance”
Section 5.1.10, “Server Status Variables”
Section 5.1.8, “Server System Variables”
Section 10.12, “Setting the Error Message Language”
Section 6.7.5.2, “Setting the TCP Port Context for MySQL Features”
Section 6.7.5.1, “Setting the TCP Port Context for mysqld”
Section 7.6.5, “Setting Up a MyISAM Table Maintenance Schedule”
Section 17.1.3.4, “Setting Up Replication Using GTIDs”
Section 15.20.3, “Setting Up the InnoDB memcached Plugin”
Section 13.7.7.15, “SHOW ENGINE Statement”
Section 4.2.2, “Specifying Program Options”
Section 13.4.2.8, “START REPLICA Statement”
Section 2.9.5, “Starting and Stopping MySQL Automatically”
Section 5.8.2.2, “Starting Multiple MySQL Instances as Windows Services”
Section 5.8.2.1, “Starting Multiple MySQL Instances at the Windows Command Line”
Section 2.3.4.8, “Starting MySQL as a Windows Service”
Section 2.3.4.6, “Starting MySQL from the Windows Command Line”
Section 23.7.6, “Starting NDB Cluster Replication (Single Replication Channel)”
Section 17.2.2.3, “Startup Options and Replication Channels”
Section 1.7.5, “Supporters of MySQL”
Section 17.4.8, “Switching Sources During Failover”
Section 8.11.2, “Table Locking Issues”
Section B.3.2.17, “Table-Corruption Issues”
Section 2.3.4.9, “Testing The MySQL Installation”
Section 2.9.3, “Testing the Server”
Section 5.4.4, “The Binary Log”
Section 16.6, “The BLACKHOLE Storage Engine”
Section 5.9.4, “The DBUG Package”
Section 5.4.2, “The Error Log”
Section 5.4.3, “The General Query Log”
Section 15.20.7, “The InnoDB memcached Plugin and Replication”
Section 16.2, “The MyISAM Storage Engine”
Section 5.1, “The MySQL Server”
Section 23.6.16.48, “The ndbinfo operations_per_fragment Table”
Section 23.6.16.53, “The ndbinfo server_locks Table”
Section 27.12.2.3, “The setup_instruments Table”
Section 5.4.5, “The Slow Query Log”
Section B.3.3.7, “Time Zone Problems”
Section B.3.2.5, “Too many connections”
Section 2.3.5, “Troubleshooting a Microsoft Windows MySQL Server Installation”
Section 15.21.1, “Troubleshooting InnoDB I/O Problems”
Section 6.2.22, “Troubleshooting Problems Connecting to MySQL”
Section 2.9.2.1, “Troubleshooting Problems Starting the MySQL Server”
Section 4.10, “Unix Signal Handling in MySQL”
Section 2.10.12, “Upgrade Troubleshooting”
Section 23.3.7, “Upgrading and Downgrading NDB Cluster”
Section 2.10.6, “Upgrading MySQL Binary or Package-based Installations on Unix/Linux”
Section 2.10.10, “Upgrading MySQL on Windows”
Section 5.9.1.5, “Using a Stack Trace”
Section 7.6.1, “Using myisamchk for Crash Recovery”
Section 4.2.2.2, “Using Option Files”
Section 5.9.1.6, “Using Server Logs to Find Causes of Errors in mysqld”
Section 8.12.2.3, “Using Symbolic Links for Databases on Windows”
Section 8.12.2.2, “Using Symbolic Links for MyISAM Tables on Unix”
Section 23.7.7, “Using Two Replication Channels for NDB Cluster Replication”
Section 5.9.1.3, “Using WER with PDB to create a Windows crashdump”
Section 1.3, “What Is New in MySQL 8.0”
Section 23.2.4, “What is New in MySQL NDB Cluster”

[Section 2.10.3, “What the MySQL Upgrade Process Upgrades”](#)
[Section B.3.3.3, “What to Do If MySQL Keeps Crashing”](#)
[Section 6.2.13, “When Privilege Changes Take Effect”](#)
[Section B.3.3.5, “Where MySQL Stores Temporary Files”](#)
[Section 2.1.2, “Which MySQL Version and Distribution to Install”](#)

mysqld mysqld.trace

[Section 5.9.1.2, “Creating Trace Files”](#)

mysqld-auto.cnf

[Section 4.2.2, “Specifying Program Options”](#)

mysqld-debug

[Section 5.9.1.2, “Creating Trace Files”](#)
[Section 2.2, “Installing MySQL on Unix/Linux Using Generic Binaries”](#)
[Section 4.3.1, “mysqld — The MySQL Server”](#)
[Section 4.3.2, “mysqld_safe — MySQL Server Startup Script”](#)
[Section 2.3.4.3, “Selecting a MySQL Server Type”](#)

mysqld.exe

[Section 23.3.2.3, “Initial Startup of NDB Cluster on Windows”](#)
[Section 23.3.2.1, “Installing NDB Cluster on Windows from a Binary Release”](#)
[Section 23.3.2.4, “Installing NDB Cluster Processes as Windows Services”](#)

mysqld_multi

[Section 2.5.9, “Managing MySQL Server with systemd”](#)
[Section 4.3.4, “mysqld_multi — Manage Multiple MySQL Servers”](#)
[Section 4.1, “Overview of MySQL Programs”](#)
[Section 5.8.3, “Running Multiple MySQL Instances on Unix”](#)

mysqld_multi.server

[Section 2.5.9, “Managing MySQL Server with systemd”](#)

mysqld_safe

[Section 23.6.7.3, “Adding NDB Cluster Data Nodes Online: Detailed Example”](#)
[Section 5.9.1.1, “Compiling MySQL for Debugging”](#)
[Section 5.1.1, “Configuring the Server”](#)
[Section 5.4.2.2, “Default Error Log Destination Configuration”](#)
[Section B.3.2.16, “File Not Found and Similar Errors”](#)
[Section B.3.3.6, “How to Protect or Change the MySQL Unix Socket File”](#)
[Section 15.21, “InnoDB Troubleshooting”](#)
[Section 23.3.1.2, “Installing NDB Cluster from RPM”](#)
[Section 6.1.3, “Making MySQL Secure Against Attackers”](#)
[Section 2.5.9, “Managing MySQL Server with systemd”](#)
[Section A.10, “MySQL 8.0 FAQ: NDB Cluster”](#)
[Section 5.1.15, “MySQL Server Time Zone Support”](#)
[Section 2.8.7, “MySQL Source-Configuration Options”](#)
[Section 4.3.3, “mysql.server — MySQL Server Startup Script”](#)
[Section 4.3.4, “mysqld_multi — Manage Multiple MySQL Servers”](#)
[Section 4.3.2, “mysqld_safe — MySQL Server Startup Script”](#)
[Section 23.6.20.3, “NDB Cluster and MySQL Security Procedures”](#)
[Section 4.2.2.6, “Option Defaults, Options Expecting Values, and the = Sign”](#)
[Section 4.1, “Overview of MySQL Programs”](#)
[Section B.3.2.8, “Packet Too Large”](#)
[Section 27.12.14.2, “Performance Schema variables_info Table”](#)
[Section B.3.3.1, “Problems with File Permissions”](#)
[Section 13.7.8.8, “RESTART Statement”](#)

Section 5.8, “Running Multiple MySQL Instances on One Machine”
Section 5.8.3, “Running Multiple MySQL Instances on Unix”
Section 5.1.7, “Server Command Options”
Section 5.1.8, “Server System Variables”
Section 2.9.5, “Starting and Stopping MySQL Automatically”
Section 2.9.2, “Starting the Server”
Section 2.9.3, “Testing the Server”
Section 5.4.2, “The Error Log”
Section B.3.3.7, “Time Zone Problems”
Section 2.9.2.1, “Troubleshooting Problems Starting the MySQL Server”
Section 2.10.6, “Upgrading MySQL Binary or Package-based Installations on Unix/Linux”
Section 4.2.2.2, “Using Option Files”

mysqldump

Section 13.1.2, “ALTER DATABASE Statement”
Section 17.4.1.1, “Backing Up a Replica Using mysqldump”
Section 17.4.1.3, “Backing Up a Source or Replica by Making It Read Only”
Chapter 7, *Backup and Recovery*
Section 7.1, “Backup and Recovery Types”
Section 7.3.3, “Backup Strategy Summary”
Section 15.5.1, “Buffer Pool”
Section 8.5.5, “Bulk Data Loading for InnoDB Tables”
Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication”
Section 2.10.4, “Changes in MySQL 8.0”
Section 17.1.2.5, “Choosing a Method for Data Snapshots”
Section 6.4.1.4, “Client-Side Cleartext Pluggable Authentication”
Section 4.2.4, “Connecting to the MySQL Server Using Command Options”
Section 4.2.5, “Connecting to the Server Using URI-Like Strings or Key-Value Pairs”
Section 4.2.8, “Connection Compression Control”
Section 4.2.7, “Connection Transport Protocols”
Section 1.7.1, “Contributors to MySQL”
Section 10.9.8, “Converting Between 3-Byte and 4-Byte Unicode Character Sets”
Section 7.4.5.2, “Copy a Database from one Server to Another”
Section 2.10.14, “Copying MySQL Databases to Another Machine”
Section 13.1.20, “CREATE TABLE Statement”
Section 13.1.21, “CREATE TABLESPACE Statement”
Creating a Data Snapshot Using mysqldump
Section 2.3.4.7, “Customizing the PATH for MySQL Tools”
Section 14.7, “Data Dictionary Usage Differences”
Section 7.2, “Database Backup Methods”
Section 15.11.4, “Defragmenting a Table”
Section 7.4.3, “Dumping Data in Delimited-Text Format with mysqldump”
Section 7.4.1, “Dumping Data in SQL Format with mysqldump”
Section 7.4.5.3, “Dumping Stored Programs”
Section 7.4.5.4, “Dumping Table Definitions and Content Separately”
Section 7.3.1, “Establishing a Backup Policy”
Section 7.3, “Example Backup and Recovery Strategy”
Section 13.1.20.5, “FOREIGN KEY Constraints”
Section 13.1.20.11, “Generated Invisible Primary Keys”
Section 17.1.6.5, “Global Transaction ID System Variables”
Section 1.5, “How to Report Bugs or Problems”
Section 13.2.6, “IMPORT TABLE Statement”
Section 23.6.9, “Importing Data Into MySQL Cluster”
Section 4.6.2, “innobackup — Offline InnoDB File Checksum Utility”
Section 15.18.1, “InnoDB Backup”
Section 2.6, “Installing MySQL Using Unbreakable Linux Network (ULN)”
Section 23.3.1.2, “Installing NDB Cluster from RPM”
Section 13.1.20.10, “Invisible Columns”

Section 6.4.1.8, “Kerberos Pluggable Authentication”
Section 13.2.9, “LOAD DATA Statement”
Section 13.2.10, “LOAD XML Statement”
Section 7.4.5.1, “Making a Copy of a Database”
Section 2.5.6.2, “More Topics on Deploying MySQL Server with Docker”
Section 15.6.1.4, “Moving or Copying InnoDB Tables”
Section A.10, “MySQL 8.0 FAQ: NDB Cluster”
Section 4.5.1.1, “mysql Client Options”
Section 5.4, “MySQL Server Logs”
Section 4.6.7, “mysql_config_editor — MySQL Configuration Utility”
Section 7.4.5, “mysqldump Tips”
Section 4.5.4, “mysqldump — A Database Backup Program”
Section 4.5.6, “mysqlpump — A Database Backup Program”
Section 23.3.5, “NDB Cluster Example with Tables and Data”
Section 23.2, “NDB Cluster Overview”
Section 23.5.13, “ndb_import — Import CSV Data Into NDB”
Section 23.6.16, “ndbinfo: The NDB Cluster Information Database”
Section 17.1.2.4, “Obtaining the Replication Source Binary Log Coordinates”
Section 23.6.8, “Online Backup of NDB Cluster”
Section 4.1, “Overview of MySQL Programs”
Section 27.12.9, “Performance Schema Connection Attribute Tables”
Section 23.6.5, “Performing a Rolling Restart of an NDB Cluster”
Section 23.7.9.2, “Point-In-Time Recovery Using NDB Cluster Replication”
Section 23.7.5, “Preparing the NDB Cluster for Replication”
Section 6.2.2, “Privileges Provided by MySQL”
Section B.3.4.8, “Problems with Floating-Point Values”
Section 17.1.5.2, “Provisioning a Multi-Source Replica for GTID-Based Replication”
Section 15.8.9, “Purge Configuration”
Section 2.10.13, “Rebuilding or Repairing Tables or Indexes”
Section 7.4.4, “Reloading Delimited-Text Format Backups”
Section 7.4.2, “Reloading SQL-Format Backups”
Section 17.4.6, “Replicating Different Databases to Different Replicas”
Section 17.5.1.34, “Replication and Transaction Inconsistencies”
Restoring an NDB backup to a later version of NDB Cluster
Restoring an NDB backup to a previous version of NDB Cluster
Restoring to More Nodes Than the Original
Section 27.20, “Restrictions on Performance Schema”
Section 25.9, “Restrictions on Views”
Section 6.3.5, “Reusing SSL Sessions”
Section 5.4.1, “Selecting General Query Log and Slow Query Log Output Destinations”
Section 5.4.6, “Server Log Maintenance”
Section 5.1.11, “Server SQL Modes”
Section 5.1.8, “Server System Variables”
Section 13.4.1.3, “SET sql_log_bin Statement”
Setting Up Replication with Existing Data
Section 6.4.1.3, “SHA-256 Pluggable Authentication”
Section B.3.4.7, “Solving Problems with No Matching Rows”
Section 2.3.4.8, “Starting MySQL as a Windows Service”
Section 17.1.3.8, “Stored Function Examples to Manipulate GTIDs”
Section 11.3.4, “The BLOB and TEXT Types”
Section 15.20.7, “The InnoDB memcached Plugin and Replication”
Section 1.2.2, “The Main Features of MySQL”
Section 6.2.22, “Troubleshooting Problems Connecting to MySQL”
Section 13.7.4.6, “UNINSTALL PLUGIN Statement”
Section 23.3.7, “Upgrading and Downgrading NDB Cluster”
Section 2.10.6, “Upgrading MySQL Binary or Package-based Installations on Unix/Linux”
Section 17.1.3.5, “Using GTIDs for Failover and Scaleout”
Section 4.6.9.3, “Using mysqlbinlog to Back Up Binary Log Files”

Section 7.4, “Using mysqldump for Backups”
Section 4.2.2.2, “Using Option Files”
Section 17.4.1, “Using Replication for Backups”
Section 17.4.4, “Using Replication with Different Source and Replica Storage Engines”
Section 5.6.4.2, “Using the Rewriter Query Rewrite Plugin”
Section 28.2, “Using the sys Schema”
Section 1.3, “What Is New in MySQL 8.0”
Section 12.12, “XML Functions”

mysqldump mysql

Section 6.2.22, “Troubleshooting Problems Connecting to MySQL”

mysqldump's

Section 2.10.14, “Copying MySQL Databases to Another Machine”

mysqldumpslow

Section 4.6.10, “mysqldumpslow — Summarize Slow Query Log Files”
Section 4.1, “Overview of MySQL Programs”
Section 5.4.5, “The Slow Query Log”

mysqlhotcopy

Section 1.7.1, “Contributors to MySQL”

mysqlimport

Section 7.1, “Backup and Recovery Types”
Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication”
Section 10.4, “Connection Character Sets and Collations”
Section 4.2.8, “Connection Compression Control”
Section 2.10.14, “Copying MySQL Databases to Another Machine”
Section 7.2, “Database Backup Methods”
Section 13.2.9, “LOAD DATA Statement”
Section 4.5.5, “mysqlimport — A Data Import Program”
Section 4.1, “Overview of MySQL Programs”
Section 7.4.4, “Reloading Delimited-Text Format Backups”
Section 6.3.5, “Reusing SSL Sessions”
Section 6.1.6, “Security Considerations for LOAD DATA LOCAL”
Section 6.4.1.3, “SHA-256 Pluggable Authentication”

MySQLInstallerConsole

Section 2.3.3.5, “MySQL Installer Console Reference”

MySQLInstallerConsole.exe

Section 2.3.3.5, “MySQL Installer Console Reference”
Section 2.3.3.1, “MySQL Installer Initial Setup”

mysqloptimize

Section 4.5.3, “mysqlcheck — A Table Maintenance Program”

mysqlpump

Section 13.1.2, “ALTER DATABASE Statement”
Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication”
Section 4.2.8, “Connection Compression Control”
Section 13.1.21, “CREATE TABLESPACE Statement”
Section 14.7, “Data Dictionary Usage Differences”
Section 13.1.20.11, “Generated Invisible Primary Keys”

[Section 23.6.9, “Importing Data Into MySQL Cluster”](#)
[Section 2.6, “Installing MySQL Using Unbreakable Linux Network \(ULN\)”](#)
[Section 4.8.1, “lz4_decompress — Decompress mysqlpump LZ4-Compressed Output”](#)
[Section A.17, “MySQL 8.0 FAQ: InnoDB Data-at-Rest Encryption”](#)
[Section 4.5.4, “mysqldump — A Database Backup Program”](#)
[Section 4.5.6, “mysqlpump — A Database Backup Program”](#)
[Section 4.1, “Overview of MySQL Programs”](#)
[Section 6.3.5, “Reusing SSL Sessions”](#)
[Section 6.4.1.3, “SHA-256 Pluggable Authentication”](#)
[Section 17.1.3.8, “Stored Function Examples to Manipulate GTIDs”](#)
[Section 2.10.6, “Upgrading MySQL Binary or Package-based Installations on Unix/Linux”](#)
[Section 5.6.4.2, “Using the Rewriter Query Rewrite Plugin”](#)
[Section 28.2, “Using the sys Schema”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)
[Section 4.8.3, “zlib_decompress — Decompress mysqlpump ZLIB-Compressed Output”](#)

mysqlrepair

[Section 4.5.3, “mysqlcheck — A Table Maintenance Program”](#)

mysqlsh

[Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication”](#)
[Section 20.3.1, “MySQL Shell”](#)
[Section 20.4.1, “MySQL Shell”](#)
[Section 4.1, “Overview of MySQL Programs”](#)

mysqlshow

[Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication”](#)
[Section 6.4.1.4, “Client-Side Cleartext Pluggable Authentication”](#)
[Section 4.2.4, “Connecting to the MySQL Server Using Command Options”](#)
[Section 10.4, “Connection Character Sets and Collations”](#)
[Section 4.2.8, “Connection Compression Control”](#)
[Section 4.5.7, “mysqlshow — Display Database, Table, and Column Information”](#)
[Section 4.1, “Overview of MySQL Programs”](#)
[Section 6.3.5, “Reusing SSL Sessions”](#)
[Section 6.4.1.3, “SHA-256 Pluggable Authentication”](#)
[Section 13.7.7.14, “SHOW DATABASES Statement”](#)
[Section 13.7.7.22, “SHOW INDEX Statement”](#)
[Section 13.7.7.38, “SHOW TABLE STATUS Statement”](#)
[Section 2.3.4.9, “Testing The MySQL Installation”](#)
[Section 2.9.3, “Testing the Server”](#)
[Section 2.3.6, “Windows Postinstallation Procedures”](#)

mysqlshow db_name

[Section 13.7.7.39, “SHOW TABLES Statement”](#)

mysqlshow db_name tbl_name

[Section 13.7.7.5, “SHOW COLUMNS Statement”](#)

mysqlslap

[Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication”](#)
[Section 6.4.1.4, “Client-Side Cleartext Pluggable Authentication”](#)
[Section 4.2.8, “Connection Compression Control”](#)
[Section 15.16.2, “Monitoring InnoDB Mutex Waits Using Performance Schema”](#)
[Section 4.5.8, “mysqlslap — A Load Emulation Client”](#)
[Section 4.1, “Overview of MySQL Programs”](#)
[Section 6.3.5, “Reusing SSL Sessions”](#)

[Section 6.4.1.3, “SHA-256 Pluggable Authentication”](#)
[Section 8.13.2, “Using Your Own Benchmarks”](#)

mysqltest

[Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication”](#)
[Section 4.2.8, “Connection Compression Control”](#)
[Section 23.3.1.2, “Installing NDB Cluster from RPM”](#)
[Section 6.3.5, “Reusing SSL Sessions”](#)
[Section 5.1.18, “Server Tracking of Client Session State”](#)
[Section 6.4.1.3, “SHA-256 Pluggable Authentication”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

mysqltest_embedded

[Section 1.3, “What Is New in MySQL 8.0”](#)

mysqlxtest

[Section 5.1.14, “Network Namespace Support”](#)

N

[\[index top\]](#)

nbdmtd

[Section 23.4.3.6, “Defining NDB Cluster Data Nodes”](#)

NDB

[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_blob_tool

[Section 23.5.6, “ndb_blob_tool — Check and Repair BLOB and TEXT columns of NDB Cluster Tables”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_config

[Section 23.3.1.2, “Installing NDB Cluster from RPM”](#)
[Section 23.5, “NDB Cluster Programs”](#)
[Section 23.5.7, “ndb_config — Extract NDB Cluster Configuration Information”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_delete_all

[Section 23.5.8, “ndb_delete_all — Delete All Rows from an NDB Table”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_desc

[Section 23.6.7.3, “Adding NDB Cluster Data Nodes Online: Detailed Example”](#)
[Section 23.3.1.2, “Installing NDB Cluster from RPM”](#)
[Section 24.2.5, “KEY Partitioning”](#)
[Section 23.6.20.3, “NDB Cluster and MySQL Security Procedures”](#)
[Section 23.6.11.1, “NDB Cluster Disk Data Objects”](#)
[Section 23.5.9, “ndb_desc — Describe NDB Tables”](#)
[Section 23.5.23, “ndb_restore — Restore an NDB Cluster Backup”](#)
[Section 13.1.20.12, “Setting NDB Comment Options”](#)
[Section 26.3.15, “The INFORMATION_SCHEMA FILES Table”](#)
[Section 26.3.21, “The INFORMATION_SCHEMA PARTITIONS Table”](#)
[Section 23.6.16.7, “The ndbinfo cluster_operations Table”](#)
[Section 23.6.16.54, “The ndbinfo server_operations Table”](#)

[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_drop_index

[Section 23.5.10, “ndb_drop_index — Drop Index from an NDB Table”](#)

[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_drop_table

[Section 2.8.7, “MySQL Source-Configuration Options”](#)

[Section 23.5.10, “ndb_drop_index — Drop Index from an NDB Table”](#)

[Section 23.5.11, “ndb_drop_table — Drop an NDB Table”](#)

[Section 23.3.7, “Upgrading and Downgrading NDB Cluster”](#)

[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_error_reporter

[Section 23.5.12, “ndb_error_reporter — NDB Error-Reporting Utility”](#)

ndb_import

[Section 23.6.9, “Importing Data Into MySQL Cluster”](#)

[Section 23.5.13, “ndb_import — Import CSV Data Into NDB”](#)

[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_index_stat

[Section 23.5.14, “ndb_index_stat — NDB Index Statistics Utility”](#)

[Section 23.6.16.40, “The ndbinfo index_stats Table”](#)

[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_mgm

[Section 23.6.7.3, “Adding NDB Cluster Data Nodes Online: Detailed Example”](#)

[Section 23.6.7.1, “Adding NDB Cluster Data Nodes Online: General Issues”](#)

[Section 23.3.1.4, “Building NDB Cluster from Source on Linux”](#)

[Section 23.6.1, “Commands in the NDB Cluster Management Client”](#)

[Section 23.4.3.6, “Defining NDB Cluster Data Nodes”](#)

[Section 23.1, “General Information”](#)

[Section 23.3.4, “Initial Startup of NDB Cluster”](#)

[Section 23.3.2.3, “Initial Startup of NDB Cluster on Windows”](#)

[Section 23.3.1, “Installation of NDB Cluster on Linux”](#)

[Section 23.3.1.1, “Installing an NDB Cluster Binary Release on Linux”](#)

[Section 23.3.1.2, “Installing NDB Cluster from RPM”](#)

[Section 23.3.1.3, “Installing NDB Cluster Using .deb Files”](#)

[Section A.10, “MySQL 8.0 FAQ: NDB Cluster”](#)

[Section 23.2.1, “NDB Cluster Core Concepts”](#)

[Section 23.6.3.1, “NDB Cluster Logging Management Commands”](#)

[Section 23.5, “NDB Cluster Programs”](#)

[Section 23.6.20.1, “NDB Cluster Security and Networking Issues”](#)

[Section 23.6.6, “NDB Cluster Single User Mode”](#)

[Section 23.5.5, “ndb_mgm — The NDB Cluster Management Client”](#)

[Section 23.5.4, “ndb_mgmd — The NDB Cluster Management Server Daemon”](#)

[Section 23.5.23, “ndb_restore — Restore an NDB Cluster Backup”](#)

[Section 23.6.8, “Online Backup of NDB Cluster”](#)

[Section 23.6.5, “Performing a Rolling Restart of an NDB Cluster”](#)

[Section 23.7.9.2, “Point-In-Time Recovery Using NDB Cluster Replication”](#)

[Restoring an NDB backup to a later version of NDB Cluster](#)

[Restoring to More Nodes Than the Original](#)

[Section 23.3.6, “Safe Shutdown and Restart of NDB Cluster”](#)

[Section 23.6.16.1, “The ndbinfo arbitrator_validity_detail Table”](#)

[Section 23.6.16.3, “The ndbinfo backup_id Table”](#)

[Section 23.6.16.44, “The ndbinfo membership Table”](#)
[Section 23.6.16.45, “The ndbinfo memoryusage Table”](#)
[Section 23.6.16.47, “The ndbinfo nodes Table”](#)
[Section 23.6.16.64, “The ndbinfo transporters Table”](#)
[Section 23.6.8.2, “Using The NDB Cluster Management Client to Create a Backup”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_mgm.exe

[Section 23.3.2.3, “Initial Startup of NDB Cluster on Windows”](#)
[Section 23.3.2.1, “Installing NDB Cluster on Windows from a Binary Release”](#)

ndb_mgmd

[Section 23.3.1.4, “Building NDB Cluster from Source on Linux”](#)
[Section 23.6.1, “Commands in the NDB Cluster Management Client”](#)
[Section 23.4.3.5, “Defining an NDB Cluster Management Server”](#)
[Section 23.4.3.6, “Defining NDB Cluster Data Nodes”](#)
[Section 23.3.4, “Initial Startup of NDB Cluster”](#)
[Section 23.3.1, “Installation of NDB Cluster on Linux”](#)
[Section 23.3.1.1, “Installing an NDB Cluster Binary Release on Linux”](#)
[Section 23.3.1.2, “Installing NDB Cluster from RPM”](#)
[Section 23.3.2.1, “Installing NDB Cluster on Windows from a Binary Release”](#)
[Section 23.3.1.3, “Installing NDB Cluster Using .deb Files”](#)
[Section A.10, “MySQL 8.0 FAQ: NDB Cluster”](#)
[Section 2.8.7, “MySQL Source-Configuration Options”](#)
[Section 23.4.3.1, “NDB Cluster Configuration: Basic Example”](#)
[Section 23.4.3.3, “NDB Cluster Connection Strings”](#)
[Section 23.2.1, “NDB Cluster Core Concepts”](#)
[Section 23.6.3.1, “NDB Cluster Logging Management Commands”](#)
[Section 23.2.2, “NDB Cluster Nodes, Node Groups, Fragment Replicas, and Partitions”](#)
[Section 23.5, “NDB Cluster Programs”](#)
[Section 23.4.3.10, “NDB Cluster TCP/IP Connections”](#)
[Section 23.5.6, “ndb_blob_tool — Check and Repair BLOB and TEXT columns of NDB Cluster Tables”](#)
[Section 23.5.13, “ndb_import — Import CSV Data Into NDB”](#)
[Section 23.5.5, “ndb_mgm — The NDB Cluster Management Client”](#)
[Section 23.5.4, “ndb_mgmd — The NDB Cluster Management Server Daemon”](#)
[Section 23.5.1, “ndbd — The NDB Cluster Data Node Daemon”](#)
[Section 23.6.5, “Performing a Rolling Restart of an NDB Cluster”](#)
[Section 23.4.1, “Quick Test Setup of NDB Cluster”](#)
[Section 23.3.6, “Safe Shutdown and Restart of NDB Cluster”](#)
[Section 23.6.4, “Summary of NDB Cluster Start Phases”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_mgmd.exe

[Section 23.3.2.3, “Initial Startup of NDB Cluster on Windows”](#)
[Section 23.3.2.1, “Installing NDB Cluster on Windows from a Binary Release”](#)
[Section 23.3.2.4, “Installing NDB Cluster Processes as Windows Services”](#)

ndb_move_data

[Section 23.5.15, “ndb_move_data — NDB Data Copy Utility”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_perror

[Section B.2, “Error Information Interfaces”](#)
[Section 23.5.16, “ndb_perror — Obtain NDB Error Message Information”](#)
[Section 4.8.2, “perror — Display MySQL Error Message Information”](#)
[Section 23.6.16.33, “The ndbinfo error_messages Table”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_print_backup

[Section 23.5.31, “ndbfrm — Compress, Decompress, Encrypt, and Decrypt Files Created by NDB Cluster”](#)

ndb_print_backup_file

[Section 23.5.17, “ndb_print_backup_file — Print NDB Backup File Contents”](#)

[Section 23.5.19, “ndb_print_frag_file — Print NDB Fragment List File Contents”](#)

[Section 23.5.20, “ndb_print_schema_file — Print NDB Schema File Contents”](#)

[Section 23.5.21, “ndb_print_sys_file — Print NDB System File Contents”](#)

[Section 23.5.22, “ndb_redo_log_reader — Check and Print Content of Cluster Redo Log”](#)

[Section 23.6.8.2, “Using The NDB Cluster Management Client to Create a Backup”](#)

[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_print_file

[Section 23.5.18, “ndb_print_file — Print NDB Disk Data File Contents”](#)

ndb_print_frag_file

[Section 23.5.19, “ndb_print_frag_file — Print NDB Fragment List File Contents”](#)

ndb_print_schema_file

[Section 23.5.17, “ndb_print_backup_file — Print NDB Backup File Contents”](#)

[Section 23.5.18, “ndb_print_file — Print NDB Disk Data File Contents”](#)

[Section 23.5.19, “ndb_print_frag_file — Print NDB Fragment List File Contents”](#)

[Section 23.5.20, “ndb_print_schema_file — Print NDB Schema File Contents”](#)

[Section 23.5.21, “ndb_print_sys_file — Print NDB System File Contents”](#)

[Section 23.5.22, “ndb_redo_log_reader — Check and Print Content of Cluster Redo Log”](#)

ndb_print_sys_file

[Section 23.5.17, “ndb_print_backup_file — Print NDB Backup File Contents”](#)

[Section 23.5.18, “ndb_print_file — Print NDB Disk Data File Contents”](#)

[Section 23.5.19, “ndb_print_frag_file — Print NDB Fragment List File Contents”](#)

[Section 23.5.20, “ndb_print_schema_file — Print NDB Schema File Contents”](#)

[Section 23.5.21, “ndb_print_sys_file — Print NDB System File Contents”](#)

ndb_redo_log_reader

[Section 23.5.22, “ndb_redo_log_reader — Check and Print Content of Cluster Redo Log”](#)

ndb_restore

[Section 7.1, “Backup and Recovery Types”](#)

[Section 23.4.3.6, “Defining NDB Cluster Data Nodes”](#)

[Section 23.6.9, “Importing Data Into MySQL Cluster”](#)

[Section A.10, “MySQL 8.0 FAQ: NDB Cluster”](#)

[Section 23.7.9, “NDB Cluster Backups With NDB Cluster Replication”](#)

[Section 23.2.1, “NDB Cluster Core Concepts”](#)

[Section 23.2, “NDB Cluster Overview”](#)

[Section 23.5, “NDB Cluster Programs”](#)

[Section 23.7.4, “NDB Cluster Replication Schema and Tables”](#)

[Section 23.7.10, “NDB Cluster Replication: Bidirectional and Circular Replication”](#)

[Section 23.6.6, “NDB Cluster Single User Mode”](#)

[Section 23.5.23, “ndb_restore — Restore an NDB Cluster Backup”](#)

[Section 23.5.31, “ndbfrm — Compress, Decompress, Encrypt, and Decrypt Files Created by NDB Cluster”](#)

[Section 23.6.8, “Online Backup of NDB Cluster”](#)

[Section 23.6.5, “Performing a Rolling Restart of an NDB Cluster”](#)

[Section 23.7.9.2, “Point-In-Time Recovery Using NDB Cluster Replication”](#)
[Restoring a parallel backup in parallel](#)
[Restoring a parallel backup serially](#)
[Restoring an NDB backup to a later version of NDB Cluster](#)
[Restoring an NDB backup to a previous version of NDB Cluster](#)
[Restoring to Fewer Nodes Than the Original](#)
[Restoring to More Nodes Than the Original](#)
[Section 23.6.8.5, “Taking an NDB Backup with Parallel Data Nodes”](#)
[Section 23.6.8.2, “Using The NDB Cluster Management Client to Create a Backup”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_secretsfile_reader

[Section 23.6.14.2, “NDB File System Encryption Implementation”](#)
[Section 23.5.24, “ndb_secretsfile_reader — Obtain Key Information from an Encrypted NDB Data File”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_select_all

[Section 23.6.20.3, “NDB Cluster and MySQL Security Procedures”](#)
[Section 23.5.25, “ndb_select_all — Print Rows from an NDB Table”](#)
[Section 23.5.27, “ndb_show_tables — Display List of NDB Tables”](#)
[Section 23.6.13, “Privilege Synchronization and NDB_STORED_USER”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_select_count

[Section 23.5.26, “ndb_select_count — Print Row Counts for NDB Tables”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_setup.py

[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_show_table

[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_show_tables

[Section 23.6.20.3, “NDB Cluster and MySQL Security Procedures”](#)
[Section 23.5, “NDB Cluster Programs”](#)
[Section 23.5.27, “ndb_show_tables — Display List of NDB Tables”](#)
[Section 23.6.16.6, “The ndbinfo cluster_locks Table”](#)
[Section 23.6.16.7, “The ndbinfo cluster_operations Table”](#)
[Section 23.6.16.41, “The ndbinfo locks_per_fragment Table”](#)
[Section 23.6.16.48, “The ndbinfo operations_per_fragment Table”](#)
[Section 23.6.16.53, “The ndbinfo server_locks Table”](#)
[Section 23.6.16.54, “The ndbinfo server_operations Table”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_size.pl

[Section 11.7, “Data Type Storage Requirements”](#)
[Section A.10, “MySQL 8.0 FAQ: NDB Cluster”](#)
[Section 23.5.28, “ndb_size.pl — NDBCLOUD Size Requirement Estimator”](#)

ndb_top

[Section 23.5.29, “ndb_top — View CPU usage information for NDB threads”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndb_waiter

[Section 23.5.30, “ndb_waiter — Wait for NDB Cluster to Reach a Given Status”](#)

[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndbd

[Section 23.6.7.2, “Adding NDB Cluster Data Nodes Online: Basic procedure”](#)
[Section 23.6.7.3, “Adding NDB Cluster Data Nodes Online: Detailed Example”](#)
[Section 23.3.1.4, “Building NDB Cluster from Source on Linux”](#)
[Section 23.6.1, “Commands in the NDB Cluster Management Client”](#)
[Section 23.4.3.6, “Defining NDB Cluster Data Nodes”](#)
[Section 23.3.4, “Initial Startup of NDB Cluster”](#)
[Section 23.3.1, “Installation of NDB Cluster on Linux”](#)
[Section 23.3.1.1, “Installing an NDB Cluster Binary Release on Linux”](#)
[Section 23.3.1.2, “Installing NDB Cluster from RPM”](#)
[Section 23.3.2.1, “Installing NDB Cluster on Windows from a Binary Release”](#)
[Section 23.3.1.3, “Installing NDB Cluster Using .deb Files”](#)
[Section 23.6, “Management of NDB Cluster”](#)
[Section A.10, “MySQL 8.0 FAQ: NDB Cluster”](#)
[Section 23.7.9, “NDB Cluster Backups With NDB Cluster Replication”](#)
[Section 23.4.3.1, “NDB Cluster Configuration: Basic Example”](#)
[Section 23.2.1, “NDB Cluster Core Concepts”](#)
[Section 23.4.2.1, “NDB Cluster Data Node Configuration Parameters”](#)
[Section 23.3, “NDB Cluster Installation”](#)
[Section 23.2.2, “NDB Cluster Nodes, Node Groups, Fragment Replicas, and Partitions”](#)
[Section 23.5, “NDB Cluster Programs”](#)
[Section 23.5.4, “ndb_mgmd — The NDB Cluster Management Server Daemon”](#)
[Section 23.5.30, “ndb_waiter — Wait for NDB Cluster to Reach a Given Status”](#)
[Section 23.5.1, “ndbd — The NDB Cluster Data Node Daemon”](#)
[Section 23.5.3, “ndbmtd — The NDB Cluster Data Node Daemon \(Multi-Threaded\)”](#)
[Section 23.4.2, “Overview of NDB Cluster Configuration Parameters, Options, and Variables”](#)
[Section 23.6.5, “Performing a Rolling Restart of an NDB Cluster”](#)
[Section 23.7.9.2, “Point-In-Time Recovery Using NDB Cluster Replication”](#)
[Section 23.4.1, “Quick Test Setup of NDB Cluster”](#)
[Section 23.4.3.2, “Recommended Starting Configuration for NDB Cluster”](#)
[Section 23.3.6, “Safe Shutdown and Restart of NDB Cluster”](#)
[Section 23.6.4, “Summary of NDB Cluster Start Phases”](#)
[Section 23.6.8.5, “Taking an NDB Backup with Parallel Data Nodes”](#)
[Section 23.6.16.47, “The ndbinfo nodes Table”](#)
[Section 23.6.3.3, “Using CLUSTERLOG STATISTICS in the NDB Cluster Management Client”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndbd.exe

[Section 23.3.2.3, “Initial Startup of NDB Cluster on Windows”](#)
[Section 23.3.2.1, “Installing NDB Cluster on Windows from a Binary Release”](#)
[Section 23.3.2.4, “Installing NDB Cluster Processes as Windows Services”](#)

ndbinfo_select_all

[Section 23.5.2, “ndbinfo_select_all — Select From ndbinfo Tables”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

ndbmtd

[Section 23.6.7.2, “Adding NDB Cluster Data Nodes Online: Basic procedure”](#)
[Section 23.6.7.3, “Adding NDB Cluster Data Nodes Online: Detailed Example”](#)
[Section 23.3.1.4, “Building NDB Cluster from Source on Linux”](#)
[Section 23.4.3.6, “Defining NDB Cluster Data Nodes”](#)
[Section 23.3.1, “Installation of NDB Cluster on Linux”](#)
[Section 23.3.1.1, “Installing an NDB Cluster Binary Release on Linux”](#)
[Section 23.3.1.2, “Installing NDB Cluster from RPM”](#)
[Section A.10, “MySQL 8.0 FAQ: NDB Cluster”](#)

Section 2.8.7, “MySQL Source-Configuration Options”
Section 23.2.1, “NDB Cluster Core Concepts”
Section 23.4.2.1, “NDB Cluster Data Node Configuration Parameters”
Section 23.2.2, “NDB Cluster Nodes, Node Groups, Fragment Replicas, and Partitions”
Section 23.5, “NDB Cluster Programs”
Section 23.5.4, “`ndb_mgmd` — The NDB Cluster Management Server Daemon”
Section 23.5.29, “`ndb_top` — View CPU usage information for NDB threads”
Section 23.5.1, “`ndbd` — The NDB Cluster Data Node Daemon”
Section 23.5.3, “`ndbmttd` — The NDB Cluster Data Node Daemon (Multi-Threaded)”
Section 23.6.5, “Performing a Rolling Restart of an NDB Cluster”
Section 23.7.9.2, “Point-In-Time Recovery Using NDB Cluster Replication”
Section 23.4.3.2, “Recommended Starting Configuration for NDB Cluster”
Section 23.5.23.3, “Restoring from a backup taken in parallel”
Restoring to Fewer Nodes Than the Original
Section 23.3.6, “Safe Shutdown and Restart of NDB Cluster”
Section 23.6.8.5, “Taking an NDB Backup with Parallel Data Nodes”
Section 23.6.16.47, “The `ndbinfo nodes` Table”
Section 23.6.16.51, “The `ndbinfo resources` Table”
Section 23.3.7, “Upgrading and Downgrading NDB Cluster”
Section 23.2.4, “What is New in MySQL NDB Cluster”

ndbmttd.exe

Section 23.3.2.3, “Initial Startup of NDB Cluster on Windows”
Section 23.3.2.1, “Installing NDB Cluster on Windows from a Binary Release”
Section 23.3.2.4, “Installing NDB Cluster Processes as Windows Services”

ndbxfrm

Section 23.6.14.2, “NDB File System Encryption Implementation”
Section 23.5.31, “`ndbxfrm` — Compress, Decompress, Encrypt, and Decrypt Files Created by NDB Cluster”
Section 23.6.8.2, “Using The NDB Cluster Management Client to Create a Backup”
Section 23.2.4, “What is New in MySQL NDB Cluster”

NET

Section 23.3.2.4, “Installing NDB Cluster Processes as Windows Services”
Section 2.3.4.8, “Starting MySQL as a Windows Service”

NET START

Section 23.3.2.4, “Installing NDB Cluster Processes as Windows Services”
Section 5.8.2.2, “Starting Multiple MySQL Instances as Windows Services”

NET START mysqld_service_name

Section 2.3.4.8, “Starting MySQL as a Windows Service”
Section 2.3.5, “Troubleshooting a Microsoft Windows MySQL Server Installation”
Section 2.10.10, “Upgrading MySQL on Windows”

NET STOP

Section 23.3.2.4, “Installing NDB Cluster Processes as Windows Services”
Section 5.8.2.2, “Starting Multiple MySQL Instances as Windows Services”

NET STOP mysqld_service_name

Section 2.3.4.8, “Starting MySQL as a Windows Service”
Section 2.10.10, “Upgrading MySQL on Windows”

NET STOP service_name

Section 23.3.6, “Safe Shutdown and Restart of NDB Cluster”

nslookup

[Section 1.3, “What Is New in MySQL 8.0”](#)

nsupdate

[Section 17.4.8, “Switching Sources During Failover”](#)

numactl

[Section 23.4.3.6, “Defining NDB Cluster Data Nodes”](#)

O

[\[index top\]](#)

openssl

[Section 6.4.5.5, “Configuring Audit Logging Characteristics”](#)

[Section 6.3.1, “Configuring MySQL to Use Encrypted Connections”](#)

[Section 6.3.3.3, “Creating RSA Keys Using openssl”](#)

[Section 6.3.3, “Creating SSL and RSA Certificates and Keys”](#)

[Section 6.3.3.1, “Creating SSL and RSA Certificates and Keys using MySQL”](#)

[Section 6.3.3.2, “Creating SSL Certificates and Keys Using openssl”](#)

[Section 4.4.3, “mysql_ssl_rsa_setup — Create SSL/RSA Files”](#)

[Section 5.1.9.4, “Nonpersistible and Persist-Restricted System Variables”](#)

[Section 6.4.4.8, “Using the keyring_okv KMIP Plugin”](#)

openssl md5 package_name

[Section 2.1.4.1, “Verifying the MD5 Checksum”](#)

openssl zlib

[Section 2.8.7, “MySQL Source-Configuration Options”](#)

[Section 4.5.6, “mysqlpump — A Database Backup Program”](#)

[Section 4.8.3, “zlib_decompress — Decompress mysqlpump ZLIB-Compressed Output”](#)

P

[\[index top\]](#)

patchelf

[Section 2.8.7, “MySQL Source-Configuration Options”](#)

perf

[Section 27.12.21.7, “The threads Table”](#)

perror

[Section B.3.2.11, “Can’t create/write to file”](#)

[Section B.2, “Error Information Interfaces”](#)

[Section B.3.2.16, “File Not Found and Similar Errors”](#)

[Section 7.6.3, “How to Repair MyISAM Tables”](#)

[Section A.10, “MySQL 8.0 FAQ: NDB Cluster”](#)

[Section 23.5.16, “ndb_perror — Obtain NDB Error Message Information”](#)

[Section 4.1, “Overview of MySQL Programs”](#)

[Section 4.8.2, “perror — Display MySQL Error Message Information”](#)

[Section 5.4.2.6, “Rule-Based Error Log Filtering \(log_filter_dragnet\)”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

pfexec

Section 2.2, “Installing MySQL on Unix/Linux Using Generic Binaries”

PGP

Section 2.1.4.2, “Signature Checking Using GnuPG”

ping6

Section 5.1.13.5, “Obtaining an IPv6 Address from a Broker”

pkg-config

Section 4.9, “Environment Variables”

Section 2.8.7, “MySQL Source-Configuration Options”

Section 4.7.1, “mysql_config — Display Options for Compiling Clients”

pkgadd

Section 2.7.1, “Installing MySQL on Solaris Using a Solaris PKG”

pkgrm

Section 2.7.1, “Installing MySQL on Solaris Using a Solaris PKG”

ppm

Section 2.12, “Perl Installation Notes”

ps

Section 6.2.14, “Assigning Account Passwords”

Section 4.2.4, “Connecting to the MySQL Server Using Command Options”

Section 6.1.2.1, “End-User Guidelines for Password Security”

Section 4.9, “Environment Variables”

Section 8.12.3.1, “How MySQL Uses Memory”

Section B.3.1, “How to Determine What Is Causing a Problem”

Section 4.5.2, “mysqladmin — A MySQL Server Administration Program”

Section 6.7, “SELinux”

Section 27.12.2.3, “The setup_instruments Table”

Section 27.12.21.7, “The threads Table”

Section 2.9.2.1, “Troubleshooting Problems Starting the MySQL Server”

ps xa | grep mysqld

Section B.3.2.2, “Can’t connect to [local] MySQL server”

R

[index top]

rename

Section 5.4.2.10, “Error Log File Flushing and Renaming”

Section 5.4.6, “Server Log Maintenance”

Section 5.4.3, “The General Query Log”

resolve_stack_dump

Section 1.3, “What Is New in MySQL 8.0”

resolveip

Section 1.3, “What Is New in MySQL 8.0”

restart

[Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”](#)
[Section 2.5.1, “Installing MySQL on Linux Using the MySQL Yum Repository”](#)

rm

[Section 13.4.1.1, “PURGE BINARY LOGS Statement”](#)

rpm

[Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”](#)
[Section 2.8.4, “Installing MySQL Using a Standard Source Distribution”](#)
[Section 2.1.4.4, “Signature Checking Using RPM”](#)

rpmbuild

[Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”](#)
[Section 2.8.4, “Installing MySQL Using a Standard Source Distribution”](#)
[Section 2.8.2, “Source Installation Prerequisites”](#)

rsync

[Section 17.1.2.8, “Adding Replicas to a Replication Environment”](#)
[Section 7.1, “Backup and Recovery Types”](#)
Creating a Data Snapshot Using Raw Data Files
[Section 23.3.7, “Upgrading and Downgrading NDB Cluster”](#)

S

[\[index top\]](#)

SC

[Section 2.3.4.8, “Starting MySQL as a Windows Service”](#)

SC DELETE

[Section 23.3.2.4, “Installing NDB Cluster Processes as Windows Services”](#)

SC DELETE mysqld_service_name

[Section 5.8.2.2, “Starting Multiple MySQL Instances as Windows Services”](#)
[Section 2.3.4.8, “Starting MySQL as a Windows Service”](#)

SC DELETE service_name

[Section 23.3.2.4, “Installing NDB Cluster Processes as Windows Services”](#)

SC START

[Section 23.3.2.4, “Installing NDB Cluster Processes as Windows Services”](#)
[Section 23.6.5, “Performing a Rolling Restart of an NDB Cluster”](#)
[Section 5.8.2.2, “Starting Multiple MySQL Instances as Windows Services”](#)

SC START mysqld_service_name

[Section 2.3.5, “Troubleshooting a Microsoft Windows MySQL Server Installation”](#)
[Section 2.10.10, “Upgrading MySQL on Windows”](#)

sc start mysqld_service_name

[Section 2.3.4.8, “Starting MySQL as a Windows Service”](#)

SC STOP

[Section 23.3.2.4, “Installing NDB Cluster Processes as Windows Services”](#)

[Section 23.6.5, “Performing a Rolling Restart of an NDB Cluster”](#)
[Section 5.8.2.2, “Starting Multiple MySQL Instances as Windows Services”](#)

SC STOP mysqld_service_name

[Section 2.3.4.8, “Starting MySQL as a Windows Service”](#)

sc stop mysqld_service_name

[Section 2.3.4.8, “Starting MySQL as a Windows Service”](#)

SC STOP service_name

[Section 23.3.6, “Safe Shutdown and Restart of NDB Cluster”](#)

scp

[Section 7.1, “Backup and Recovery Types”](#)

[Creating a Data Snapshot Using Raw Data Files](#)

sed

[Section 3.3.4.7, “Pattern Matching”](#)

SELECT

[Section 23.3.5, “NDB Cluster Example with Tables and Data”](#)

semanage

[Section 6.7.6, “Troubleshooting SELinux”](#)

semodule

[Section 6.7.3, “MySQL Server SELinux Policies”](#)

service

[Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”](#)

[Section 2.5.1, “Installing MySQL on Linux Using the MySQL Yum Repository”](#)

[Section 2.5.9, “Managing MySQL Server with systemd”](#)

Service Control Manager

[Section 2.3, “Installing MySQL on Microsoft Windows”](#)

[Section 2.3.4.8, “Starting MySQL as a Windows Service”](#)

Services

[Section 23.3.2.4, “Installing NDB Cluster Processes as Windows Services”](#)

[Section 2.3.4.8, “Starting MySQL as a Windows Service”](#)

sestatus

[Section 6.7.2, “Changing the SELinux Mode”](#)

[Section 6.7.1, “Check if SELinux is Enabled”](#)

[Section 18.10, “Frequently Asked Questions”](#)

setcap

[Section 5.1.14, “Network Namespace Support”](#)

[Section 5.1.16, “Resource Groups”](#)

setenforce

[Section 6.7.2, “Changing the SELinux Mode”](#)

[Section 6.7.6, “Troubleshooting SELinux”](#)

setenv

Section 4.2.9, “Setting Environment Variables”

sh

Section 1.1, “About This Manual”

Section B.3.2.16, “File Not Found and Similar Errors”

Section 4.2.1, “Invoking MySQL Programs”

Section 4.2.9, “Setting Environment Variables”

SHOW

Section 23.4.1, “Quick Test Setup of NDB Cluster”

SHOW ERRORS

Section A.10, “MySQL 8.0 FAQ: NDB Cluster”

SHOW WARNINGS

Section A.10, “MySQL 8.0 FAQ: NDB Cluster”

sleep

Section 4.3.2, “mysqld_safe — MySQL Server Startup Script”

ssh

Section 23.6.20.1, “NDB Cluster Security and Networking Issues”

ssl_session_data_print

Section 6.3.5, “Reusing SSL Sessions”

start

Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”

Section 2.5.1, “Installing MySQL on Linux Using the MySQL Yum Repository”

Start>Run>cmd.exe

Section 6.3.3.2, “Creating SSL Certificates and Keys Using openssl”

status

Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”

Section 2.5.1, “Installing MySQL on Linux Using the MySQL Yum Repository”

stop

Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”

Section 2.5.1, “Installing MySQL on Linux Using the MySQL Yum Repository”

strings

Section 6.1.1, “Security Guidelines”

su root

Section 23.3.1.1, “Installing an NDB Cluster Binary Release on Linux”

sudo

Section 23.3.1.1, “Installing an NDB Cluster Binary Release on Linux”

Section 2.2, “Installing MySQL on Unix/Linux Using Generic Binaries”

Section 5.1.14, “Network Namespace Support”

Section 5.1.16, “Resource Groups”

sudo ip

[Section 5.1.14, “Network Namespace Support”](#)

sudo setcap

[Section 5.1.14, “Network Namespace Support”](#)

sysctl

[Section 8.12.3.3, “Enabling Large Page Support”](#)

systemctl

[Section 2.5.7, “Installing MySQL on Linux from the Native Software Repositories”](#)

[Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”](#)

[Section 2.5.1, “Installing MySQL on Linux Using the MySQL Yum Repository”](#)

[Section 2.5.9, “Managing MySQL Server with systemd”](#)

T

[\[index top\]](#)

tar

[Section 17.1.2.8, “Adding Replicas to a Replication Environment”](#)

[Section 17.4.1.2, “Backing Up Raw Data from a Replica”](#)

[Section 7.1, “Backup and Recovery Types”](#)

[Creating a Data Snapshot Using Raw Data Files](#)

[Section 3.3, “Creating and Using a Database”](#)

[Section 1.5, “How to Report Bugs or Problems”](#)

[Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”](#)

[Section 2.4, “Installing MySQL on macOS”](#)

[Section 2.7, “Installing MySQL on Solaris”](#)

[Section 2.7.1, “Installing MySQL on Solaris Using a Solaris PKG”](#)

[Section 2.2, “Installing MySQL on Unix/Linux Using Generic Binaries”](#)

[Section 2.8.4, “Installing MySQL Using a Standard Source Distribution”](#)

[Section 23.3.1.2, “Installing NDB Cluster from RPM”](#)

[Section 2.12.1, “Installing Perl on Unix”](#)

[Section 2.8.1, “Source Installation Methods”](#)

[Section 2.8.2, “Source Installation Prerequisites”](#)

[Section 8.12.2.1, “Using Symbolic Links for Databases on Unix”](#)

[Section 6.4.4.8, “Using the keyring_okv KMIP Plugin”](#)

[Section 2.1.2, “Which MySQL Version and Distribution to Install”](#)

tcpdump

[Section 6.1.1, “Security Guidelines”](#)

tcsh

[Section 1.1, “About This Manual”](#)

[Section B.3.2.16, “File Not Found and Similar Errors”](#)

[Section 2.4.1, “General Notes on Installing MySQL on macOS”](#)

[Section 4.2.1, “Invoking MySQL Programs”](#)

[Section 4.2.9, “Setting Environment Variables”](#)

tee

[Section 4.5.1.2, “mysql Client Commands”](#)

telnet

[Section 6.1.1, “Security Guidelines”](#)

[Section 15.20.3, “Setting Up the InnoDB memcached Plugin”](#)

Terminal

[Section 2.4, “Installing MySQL on macOS”](#)

Text in this style

[Section 1.1, “About This Manual”](#)

top

[Section B.3.1, “How to Determine What Is Causing a Problem”](#)

[Section 23.6.16.50, “The ndbinfo processes Table”](#)

U

[\[index top\]](#)

u

[Section 13.7.1.6, “GRANT Statement”](#)

ulimit

[Section 23.4.3.6, “Defining NDB Cluster Data Nodes”](#)

[Section B.3.2.16, “File Not Found and Similar Errors”](#)

[Section 4.3.2, “mysqld_safe — MySQL Server Startup Script”](#)

[Section B.3.2.8, “Packet Too Large”](#)

[Section 5.1.7, “Server Command Options”](#)

[Section 5.1.8, “Server System Variables”](#)

unix_chkpwd

[Section 6.4.1.5, “PAM Pluggable Authentication”](#)

update-rc.d

[Section 23.3.1.1, “Installing an NDB Cluster Binary Release on Linux”](#)

useradd

[Section 23.3.1.1, “Installing an NDB Cluster Binary Release on Linux”](#)

[Section 2.7, “Installing MySQL on Solaris”](#)

[Section 2.2, “Installing MySQL on Unix/Linux Using Generic Binaries”](#)

V

[\[index top\]](#)

vault

[Section 6.4.4.10, “Using the HashiCorp Vault Keyring Plugin”](#)

vault server

[Section 6.4.4.10, “Using the HashiCorp Vault Keyring Plugin”](#)

vi

[Section 23.3.3, “Initial Configuration of NDB Cluster”](#)

[Section 4.5.1.2, “mysql Client Commands”](#)

[Section 3.3.4.7, “Pattern Matching”](#)

W

[\[index top\]](#)

watch

Section 28.4.4.25, “The statement_performance_analyzer() Procedure”

WinDbg

Section 5.9.1.3, “Using WER with PDB to create a Windows crashdump”

windbg.exe

Section 5.9.1.3, “Using WER with PDB to create a Windows crashdump”

winMd5Sum

Section 2.1.4.1, “Verifying the MD5 Checksum”

WinZip

Section 17.4.1.2, “Backing Up Raw Data from a Replica”

Section 2.8.4, “Installing MySQL Using a Standard Source Distribution”

Section 2.8.2, “Source Installation Prerequisites”

WordPad

Section 13.2.9, “LOAD DATA Statement”

X

[\[index top\]](#)

xz

Section 2.2, “Installing MySQL on Unix/Linux Using Generic Binaries”

Y

[\[index top\]](#)

yacc

Section 2.8.8, “Dealing with Problems Compiling MySQL”

Section 9.3, “Keywords and Reserved Words”

yum

Section 2.5.7, “Installing MySQL on Linux from the Native Software Repositories”

Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”

Section 2.5.1, “Installing MySQL on Linux Using the MySQL Yum Repository”

Section 23.3.1.2, “Installing NDB Cluster from RPM”

Section 2.10.7, “Upgrading MySQL with the MySQL Yum Repository”

yum install

Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”

yum update

Section 2.5.1, “Installing MySQL on Linux Using the MySQL Yum Repository”

yum-config-manager

Section 2.5.1, “Installing MySQL on Linux Using the MySQL Yum Repository”

Z

[\[index top\]](#)

zip

Creating a Data Snapshot Using Raw Data Files
Section 1.5, “How to Report Bugs or Problems”

zlib_decompress

Section 4.8.1, “lz4_decompress — Decompress mysqlpump LZ4-Compressed Output”
Section 2.8.7, “MySQL Source-Configuration Options”
Section 4.5.6, “mysqlpump — A Database Backup Program”
Section 4.1, “Overview of MySQL Programs”
Section 4.8.3, “zlib_decompress — Decompress mysqlpump ZLIB-Compressed Output”

zsh

Section 4.2.9, “Setting Environment Variables”

zypper

Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle”

Function Index

[Symbols](#) | [A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [Q](#) | [R](#) | [S](#) | [T](#) | [U](#) | [V](#) | [W](#) | [Y](#)

Symbols

[\[index top\]](#)

%

Section 1.6.1, “MySQL Extensions to Standard SQL”

A

[\[index top\]](#)

ABS()

Section 13.7.4.1, “CREATE FUNCTION Statement for Loadable Functions”
Section 12.6.2, “Mathematical Functions”
Section 8.9.6, “Optimizer Statistics”
Section 24.6.3, “Partitioning Limitations Relating to Functions”

ACOS()

Section 12.6.2, “Mathematical Functions”

ADDDATE()

Section 12.7, “Date and Time Functions”

addslashes()

Section 6.1.7, “Client Programming Security Guidelines”

ADDTIME()

Section 12.7, “Date and Time Functions”

AES_DECRYPT()

Section 12.14, “Encryption and Compression Functions”
Section 6.6.3, “MySQL Enterprise Encryption Usage and Examples”

[Section 5.1.8, “Server System Variables”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

AES_ENCRYPT()

[Section 12.14, “Encryption and Compression Functions”](#)
[Section 6.6.3, “MySQL Enterprise Encryption Usage and Examples”](#)
[Section 5.1.8, “Server System Variables”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

ANY_VALUE()

[Section 12.20.2, “GROUP BY Modifiers”](#)
[Section 12.24, “Miscellaneous Functions”](#)
[Section 12.20.3, “MySQL Handling of GROUP BY”](#)

ASCII()

[Section 13.8.3, “HELP Statement”](#)
[Section 12.8, “String Functions and Operators”](#)

ASIN()

[Section 12.6.2, “Mathematical Functions”](#)

asymmetric_decrypt()

[Section 6.6.5, “MySQL Enterprise Encryption Component Function Descriptions”](#)
[Section 6.6.6, “MySQL Enterprise Encryption Legacy Function Descriptions”](#)

asymmetric_derive()

[Section 6.6.1, “MySQL Enterprise Encryption Installation and Upgrading”](#)
[Section 6.6.6, “MySQL Enterprise Encryption Legacy Function Descriptions”](#)

asymmetric_encrypt()

[Section 6.6.5, “MySQL Enterprise Encryption Component Function Descriptions”](#)
[Section 6.6.1, “MySQL Enterprise Encryption Installation and Upgrading”](#)

asymmetric_sign()

[Section 6.6.5, “MySQL Enterprise Encryption Component Function Descriptions”](#)
[Section 6.6.6, “MySQL Enterprise Encryption Legacy Function Descriptions”](#)

asymmetric_verify()

[Section 6.6.5, “MySQL Enterprise Encryption Component Function Descriptions”](#)

asynchronous_connection_failover_add_managed

[Section 17.4.9.1, “Asynchronous Connection Failover for Sources”](#)
[Section 13.4.2.1, “CHANGE MASTER TO Statement”](#)
[Section 13.4.2.3, “CHANGE REPLICATION SOURCE TO Statement”](#)
[Section 27.12.11.3, “The replication_asynchronous_connection_failover Table”](#)

asynchronous_connection_failover_add_managed()

[Section 17.4.9.2, “Asynchronous Connection Failover for Replicas”](#)
[Section 13.4.2.12, “Functions which Configure the Source List”](#)

asynchronous_connection_failover_add_source

[Section 17.4.9.1, “Asynchronous Connection Failover for Sources”](#)
[Section 13.4.2.1, “CHANGE MASTER TO Statement”](#)
[Section 13.4.2.3, “CHANGE REPLICATION SOURCE TO Statement”](#)

[Section 27.12.11.3, “The replication_asynchronous_connection_failover Table”](#)

asynchronous_connection_failover_add_source()

[Section 17.4.9.2, “Asynchronous Connection Failover for Replicas”](#)

[Section 13.4.2.12, “Functions which Configure the Source List”](#)

asynchronous_connection_failover_delete_managed

[Section 17.4.9.1, “Asynchronous Connection Failover for Sources”](#)

[Section 13.4.2.1, “CHANGE MASTER TO Statement”](#)

[Section 13.4.2.3, “CHANGE REPLICATION SOURCE TO Statement”](#)

[Section 27.12.11.3, “The replication_asynchronous_connection_failover Table”](#)

asynchronous_connection_failover_delete_managed()

[Section 17.4.9.2, “Asynchronous Connection Failover for Replicas”](#)

[Section 13.4.2.12, “Functions which Configure the Source List”](#)

asynchronous_connection_failover_delete_source

[Section 17.4.9.1, “Asynchronous Connection Failover for Sources”](#)

[Section 13.4.2.1, “CHANGE MASTER TO Statement”](#)

[Section 13.4.2.3, “CHANGE REPLICATION SOURCE TO Statement”](#)

[Section 27.12.11.3, “The replication_asynchronous_connection_failover Table”](#)

asynchronous_connection_failover_delete_source()

[Section 17.4.9.2, “Asynchronous Connection Failover for Replicas”](#)

[Section 13.4.2.12, “Functions which Configure the Source List”](#)

asynchronous_connection_failover_reset()

[Section 13.4.2.12, “Functions which Configure the Source List”](#)

ATAN()

[Section 12.6.2, “Mathematical Functions”](#)

ATAN2()

[Section 12.6.2, “Mathematical Functions”](#)

audit_api_message_emit_udf()

[Section 6.4.6, “The Audit Message Component”](#)

[Section 6.4.5.8, “Writing Audit Log Filter Definitions”](#)

audit_log_encryption_password_get()

[Section 6.4.5.11, “Audit Log Reference”](#)

[Section 6.4.5.5, “Configuring Audit Logging Characteristics”](#)

audit_log_encryption_password_set()

[Section 6.4.5.11, “Audit Log Reference”](#)

[Section 6.4.5.5, “Configuring Audit Logging Characteristics”](#)

audit_log_filter_flush()

[Section 6.4.5.7, “Audit Log Filtering”](#)

[Section 6.4.5.11, “Audit Log Reference”](#)

audit_log_filter_remove_filter()

[Section 6.4.5.7, “Audit Log Filtering”](#)

[Section 6.4.5.11, “Audit Log Reference”](#)

audit_log_filter_remove_user()

[Section 6.4.5.7, “Audit Log Filtering”](#)
[Section 6.4.5.11, “Audit Log Reference”](#)

audit_log_filter_set_filter()

[Section 6.4.5.4, “Audit Log File Formats”](#)
[Section 6.4.5.7, “Audit Log Filtering”](#)
[Section 6.4.5.11, “Audit Log Reference”](#)
[Section 6.4.5.5, “Configuring Audit Logging Characteristics”](#)

audit_log_filter_set_user()

[Section 6.4.5.7, “Audit Log Filtering”](#)
[Section 6.4.5.11, “Audit Log Reference”](#)

audit_log_read()

[Section 6.4.5.11, “Audit Log Reference”](#)
[Section 6.4.5.5, “Configuring Audit Logging Characteristics”](#)
[Section 6.4.5.6, “Reading Audit Log Files”](#)

audit_log_read_bookmark()

[Section 6.4.5.11, “Audit Log Reference”](#)
[Section 6.4.5.6, “Reading Audit Log Files”](#)

audit_log_rotate()

[Section 6.4.5.11, “Audit Log Reference”](#)
[Section 6.4.5.5, “Configuring Audit Logging Characteristics”](#)

AVG(

[Section 12.20.1, “Aggregate Function Descriptions”](#)

AVG()

[Section 12.20.1, “Aggregate Function Descriptions”](#)
[Section 11.2.1, “Date and Time Data Type Syntax”](#)
[Section 8.2.1.17, “GROUP BY Optimization”](#)
[Section 11.3.5, “The ENUM Type”](#)
[Section 1.2.2, “The Main Features of MySQL”](#)
[Section 11.3.6, “The SET Type”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)
[Section 12.21.3, “Window Function Frame Specification”](#)

B

[\[index top\]](#)

BENCHMARK()

[Section 12.16, “Information Functions”](#)
[Section 8.13.1, “Measuring the Speed of Expressions and Functions”](#)

BIN()

[Section 9.1.5, “Bit-Value Literals”](#)
[Section 12.8, “String Functions and Operators”](#)

BIN_TO_UUID()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)

Section 12.24, “Miscellaneous Functions”

BIT_AND()

Section 12.20.1, “Aggregate Function Descriptions”
Section 12.13, “Bit Functions and Operators”
Section 1.6.1, “MySQL Extensions to Standard SQL”

BIT_COUNT()

Section 12.13, “Bit Functions and Operators”
Section 1.6.1, “MySQL Extensions to Standard SQL”

BIT_LENGTH()

Section 12.8, “String Functions and Operators”

BIT_OR()

Section 12.20.1, “Aggregate Function Descriptions”
Section 12.13, “Bit Functions and Operators”
Section 1.6.1, “MySQL Extensions to Standard SQL”

BIT_XOR()

Section 12.20.1, “Aggregate Function Descriptions”
Section 12.13, “Bit Functions and Operators”
Section 1.6.1, “MySQL Extensions to Standard SQL”

C

[index top]

CAN_ACCESS_COLUMN()

Section 12.23, “Internal Functions”

CAN_ACCESS_DATABASE()

Section 12.23, “Internal Functions”

CAN_ACCESS_TABLE()

Section 12.23, “Internal Functions”

CAN_ACCESS_USER()

Section 12.23, “Internal Functions”

CAN_ACCESS_VIEW()

Section 12.23, “Internal Functions”

CAST()

Section 12.13, “Bit Functions and Operators”
Section 9.1.5, “Bit-Value Literals”
Section 12.11, “Cast Functions and Operators”
Section 12.8.3, “Character Set and Collation of Function Results”
Section 12.4.2, “Comparison Functions and Operators”
Section 11.2.7, “Conversion Between Date and Time Types”
Section 13.1.15, “CREATE INDEX Statement”
Section 12.7, “Date and Time Functions”
Section 9.5, “Expressions”
Section 12.18.2, “Functions That Create JSON Values”

[Section 12.18.3, “Functions That Search JSON Values”](#)
[Section 9.1.4, “Hexadecimal Literals”](#)
[Section 1.6.2, “MySQL Differences from Standard SQL”](#)
[Section 13.5.1, “PREPARE Statement”](#)
[Section 11.2.2, “The DATE, DATETIME, and TIMESTAMP Types”](#)
[Section 11.5, “The JSON Data Type”](#)
[Section 12.3, “Type Conversion in Expression Evaluation”](#)
[Section 9.4, “User-Defined Variables”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)
[Section 13.2.20, “WITH \(Common Table Expressions\)”](#)

CAST(expr AS type)

[Section 12.11, “Cast Functions and Operators”](#)

CEIL()

[Section 12.6.2, “Mathematical Functions”](#)

CEILING()

[Section 24.2.4.1, “LINEAR HASH Partitioning”](#)
[Section 12.6.2, “Mathematical Functions”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

CHAR()

[Section 4.5.1.1, “mysql Client Options”](#)
[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)
[Section 12.8, “String Functions and Operators”](#)

CHAR_LENGTH()

[Section 12.8, “String Functions and Operators”](#)
[Section 10.10.1, “Unicode Character Sets”](#)

CHARACTER_LENGTH()

[Section 12.8, “String Functions and Operators”](#)

CHARSET()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)
[Section 12.16, “Information Functions”](#)

COALESCE

[Section 13.5.1, “PREPARE Statement”](#)

COALESCE()

[Section 12.4.2, “Comparison Functions and Operators”](#)
[Section 13.2.13.2, “JOIN Clause”](#)
[Section 13.5.1, “PREPARE Statement”](#)
[Section 13.2.20, “WITH \(Common Table Expressions\)”](#)

COERCIBILITY()

[Section 10.8.4, “Collation Coercibility in Expressions”](#)
[Section 12.16, “Information Functions”](#)

COLLATION()

[Section B.3.4.1, “Case Sensitivity in String Searches”](#)
[Section 12.8.3, “Character Set and Collation of Function Results”](#)

[Section 12.16, “Information Functions”](#)

COMPRESS()

[Section 12.14, “Encryption and Compression Functions”](#)

[Section 2.8.7, “MySQL Source-Configuration Options”](#)

[Section 5.1.8, “Server System Variables”](#)

CONCAT()

[Section 12.20.1, “Aggregate Function Descriptions”](#)

[Section 12.11, “Cast Functions and Operators”](#)

[Section 12.8.3, “Character Set and Collation of Function Results”](#)

[Section 10.2.1, “Character Set Repertoire”](#)

[Section 10.8.4, “Collation Coercibility in Expressions”](#)

[Section 13.7.4.1, “CREATE FUNCTION Statement for Loadable Functions”](#)

[Section 12.4.3, “Logical Operators”](#)

[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)

[Section 5.1.11, “Server SQL Modes”](#)

[Section 13.7.7.13, “SHOW CREATE VIEW Statement”](#)

[Section 12.8, “String Functions and Operators”](#)

[Section 26.3.48, “The INFORMATION_SCHEMA VIEWS Table”](#)

[Section 12.3, “Type Conversion in Expression Evaluation”](#)

[Section 12.12, “XML Functions”](#)

CONCAT_WS()

[Section 12.20.1, “Aggregate Function Descriptions”](#)

[Section 12.8, “String Functions and Operators”](#)

CONNECTION_ID()

[Section 6.4.5.4, “Audit Log File Formats”](#)

[Section 13.1.20.6, “CHECK Constraints”](#)

[Section 13.1.20.8, “CREATE TABLE and Generated Columns”](#)

[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)

[Section 12.16, “Information Functions”](#)

[Section 13.7.8.4, “KILL Statement”](#)

[Section 4.5.1.3, “mysql Client Logging”](#)

[Section 12.22, “Performance Schema Functions”](#)

[Section 5.1.8, “Server System Variables”](#)

[Section 13.7.7.29, “SHOW PROCESSLIST Statement”](#)

[Section 27.12.21.1, “The error_log Table”](#)

[Section 26.3.23, “The INFORMATION_SCHEMA PROCESSLIST Table”](#)

[Section 27.12.21.6, “The processlist Table”](#)

[Section 27.12.21.7, “The threads Table”](#)

CONV()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)

[Section 12.6.2, “Mathematical Functions”](#)

[Section 12.8, “String Functions and Operators”](#)

CONVERT()

[Section 12.11, “Cast Functions and Operators”](#)

[Section 2.10.4, “Changes in MySQL 8.0”](#)

[Section 10.3.8, “Character Set Introducers”](#)

[Section 10.3.6, “Character String Literal Character Set and Collation”](#)

[Section 12.4.2, “Comparison Functions and Operators”](#)

[Section A.11, “MySQL 8.0 FAQ: MySQL Chinese, Japanese, and Korean Character Sets”](#)

[Section 4.5.1.1, “mysql Client Options”](#)

[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

CONVERT_TZ()

[Section 12.7, “Date and Time Functions”](#)
[Section 8.3.14, “Indexed Lookups from TIMESTAMP Columns”](#)
[Section 13.3.6, “LOCK TABLES and UNLOCK TABLES Statements”](#)
[Section 5.1.8, “Server System Variables”](#)
[Section 5.4.3, “The General Query Log”](#)
[Section 5.4.5, “The Slow Query Log”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

COS()

[Section 12.6.2, “Mathematical Functions”](#)

COT()

[Section 12.6.2, “Mathematical Functions”](#)

COUNT()

[Section 12.20.1, “Aggregate Function Descriptions”](#)
[Section 13.2.15.7, “Correlated Subqueries”](#)
[Section 3.3.4.8, “Counting Rows”](#)
[Section 13.7.4.1, “CREATE FUNCTION Statement for Loadable Functions”](#)
[Section 8.2.1.17, “GROUP BY Optimization”](#)
[Section 12.16, “Information Functions”](#)
[Section 15.23, “InnoDB Restrictions and Limitations”](#)
[Section 8.4.4, “Internal Temporary Table Use in MySQL”](#)
[Section 23.2.7.3, “Limits Relating to Transaction Handling in NDB Cluster”](#)
[Section 12.24, “Miscellaneous Functions”](#)
[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)
NDB Cluster Status Variables
[Section 8.2.2.4, “Optimizing Derived Tables, View References, and Common Table Expressions with Merging or Materialization”](#)
[Section B.3.4.3, “Problems with NULL Values”](#)
[Section 5.1.11, “Server SQL Modes”](#)
[Section 1.2.2, “The Main Features of MySQL”](#)
[Section 25.5.3, “Updatable and Insertable Views”](#)
[Section 8.2.1.1, “WHERE Clause Optimization”](#)

CRC32()

[Section 12.6.2, “Mathematical Functions”](#)

create_asymmetric_priv_key()

[Section 4.9, “Environment Variables”](#)
[Section 6.6.5, “MySQL Enterprise Encryption Component Function Descriptions”](#)

create_asymmetric_pub_key()

[Section 6.6.5, “MySQL Enterprise Encryption Component Function Descriptions”](#)

create_dh_parameters()

[Section 4.9, “Environment Variables”](#)
[Section 6.6.1, “MySQL Enterprise Encryption Installation and Upgrading”](#)
[Section 6.6.6, “MySQL Enterprise Encryption Legacy Function Descriptions”](#)

create_digest()

[Section 6.6.5, “MySQL Enterprise Encryption Component Function Descriptions”](#)

Section 6.6.6, “MySQL Enterprise Encryption Legacy Function Descriptions”

CUME_DIST()

Section 12.21.1, “Window Function Descriptions”

CURDATE()

Section 12.7, “Date and Time Functions”

Section 3.3.4.5, “Date Calculations”

Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

CURRENT_DATE

Section 11.6, “Data Type Default Values”

Section 12.7, “Date and Time Functions”

CURRENT_DATE()

Section 11.2.7, “Conversion Between Date and Time Types”

Section 12.7, “Date and Time Functions”

Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

CURRENT_ROLE()

Section 12.16, “Information Functions”

Section 6.2.10, “Using Roles”

CURRENT_TIME

Section 12.7, “Date and Time Functions”

CURRENT_TIME()

Section 12.7, “Date and Time Functions”

Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

CURRENT_TIMESTAMP

Section 11.2.5, “Automatic Initialization and Updating for TIMESTAMP and DATETIME”

Section 13.1.13, “CREATE EVENT Statement”

Section 13.1.20.8, “CREATE TABLE and Generated Columns”

Section 11.6, “Data Type Default Values”

Section 12.7, “Date and Time Functions”

Section 5.1.8, “Server System Variables”

CURRENT_TIMESTAMP()

Section 11.2.5, “Automatic Initialization and Updating for TIMESTAMP and DATETIME”

Section 12.7, “Date and Time Functions”

Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

CURRENT_USER

Section 13.7.1.1, “ALTER USER Statement”

Section 13.1.13, “CREATE EVENT Statement”

Section 13.1.17, “CREATE PROCEDURE and CREATE FUNCTION Statements”

Section 13.1.22, “CREATE TRIGGER Statement”

Section 13.1.23, “CREATE VIEW Statement”

Section 13.7.1.6, “GRANT Statement”

Section 6.2.3, “Grant Tables”

Section 12.16, “Information Functions”

Section 5.4.4.3, “Mixed Binary Logging Format”

Section 17.5.1.14, “Replication and System Functions”

Section 17.5.1.8, “Replication of CURRENT_USER()”

[Section 13.7.7.12, “SHOW CREATE USER Statement”](#)
[Section 6.2.4, “Specifying Account Names”](#)
[Section 25.6, “Stored Object Access Control”](#)

CURRENT_USER()

[Section 6.2.6, “Access Control, Stage 1: Connection Verification”](#)
[Section 13.7.1.1, “ALTER USER Statement”](#)
[Section 6.4.5.4, “Audit Log File Formats”](#)
[Section 13.1.20.6, “CHECK Constraints”](#)
[Section 6.4.2.1, “Connection-Control Plugin Installation”](#)
[Section 13.1.13, “CREATE EVENT Statement”](#)
[Section 13.1.17, “CREATE PROCEDURE and CREATE FUNCTION Statements”](#)
[Section 13.1.20.8, “CREATE TABLE and Generated Columns”](#)
[Section 13.1.22, “CREATE TRIGGER Statement”](#)
[Section 13.1.23, “CREATE VIEW Statement”](#)
[Section 6.4.4.15, “General-Purpose Keyring Key-Management Functions”](#)
[Section 13.7.1.6, “GRANT Statement”](#)
[Section 12.16, “Information Functions”](#)
[Section 6.4.1.7, “LDAP Pluggable Authentication”](#)
[Section 5.4.4.3, “Mixed Binary Logging Format”](#)
[Section 6.2.15, “Password Management”](#)
[Section 6.4.3.2, “Password Validation Options and Variables”](#)
[Section 6.2.19, “Proxy Users”](#)
[Section 17.5.1.14, “Replication and System Functions”](#)
[Section 17.5.1.8, “Replication of CURRENT_USER\(\)”](#)
[Section 13.7.1.10, “SET PASSWORD Statement”](#)
[Section 13.7.7.12, “SHOW CREATE USER Statement”](#)
[Section 6.2.4, “Specifying Account Names”](#)
[Section 6.2.5, “Specifying Role Names”](#)
[Section 6.2.23, “SQL-Based Account Activity Auditing”](#)
[Section 25.6, “Stored Object Access Control”](#)
[Section 5.6.9.2, “The Keyring Service”](#)
[Section 10.2.2, “UTF-8 for Metadata”](#)

CURTIME()

[Section 12.7, “Date and Time Functions”](#)
[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)
[Section 5.1.15, “MySQL Server Time Zone Support”](#)

D

[\[index top\]](#)

DATABASE()

[Section 3.3.1, “Creating and Selecting a Database”](#)
[Section 13.1.24, “DROP DATABASE Statement”](#)
[Section 3.4, “Getting Information About Databases and Tables”](#)
[Section 12.16, “Information Functions”](#)
[Section B.3.7, “Known Issues in MySQL”](#)
[Section 10.2.2, “UTF-8 for Metadata”](#)

DATE()

[Section 12.7, “Date and Time Functions”](#)

DATE_ADD()

[Section 12.6.1, “Arithmetic Operators”](#)
[Section 11.2, “Date and Time Data Types”](#)

[Section 12.7, “Date and Time Functions”](#)
[Section 3.3.4.5, “Date Calculations”](#)
[Section 9.5, “Expressions”](#)
[Section 12.21.3, “Window Function Frame Specification”](#)

DATE_FORMAT()

[Section 12.11, “Cast Functions and Operators”](#)
[Section 12.7, “Date and Time Functions”](#)
[Section 10.16, “MySQL Server Locale Support”](#)
[Section 5.1.8, “Server System Variables”](#)

DATE_SUB()

[Section 11.2, “Date and Time Data Types”](#)
[Section 12.7, “Date and Time Functions”](#)
[Section 9.5, “Expressions”](#)

DATEDIFF()

[Section 12.7, “Date and Time Functions”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

DAY()

[Section 12.7, “Date and Time Functions”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

DAYNAME()

[Section 12.7, “Date and Time Functions”](#)
[Section 10.16, “MySQL Server Locale Support”](#)
[Section 5.1.8, “Server System Variables”](#)

DAYOFMONTH()

[Section 12.7, “Date and Time Functions”](#)
[Section 3.3.4.5, “Date Calculations”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

DAYOFWEEK()

[Section 12.7, “Date and Time Functions”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

DAYOFYEAR()

[Section 12.7, “Date and Time Functions”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)
[Section 24.2, “Partitioning Types”](#)

DEFAULT()

[Section 13.1.9.2, “ALTER TABLE and Generated Columns”](#)
[Section 11.6, “Data Type Default Values”](#)
[Section 13.2.7, “INSERT Statement”](#)
[Section 12.24, “Miscellaneous Functions”](#)
[Section 13.2.12, “REPLACE Statement”](#)

DEGREES()

[Section 12.6.2, “Mathematical Functions”](#)

DENSE_RANK()

[Section 12.21.1, “Window Function Descriptions”](#)

E

[[index top](#)]

ELT()

Section 12.8.3, “Character Set and Collation of Function Results”
Section B.3.7, “Known Issues in MySQL”
Section 1.6.1, “MySQL Extensions to Standard SQL”
Section 12.8, “String Functions and Operators”

EXP()

Section 13.1.20, “CREATE TABLE Statement”
Section 12.6.2, “Mathematical Functions”

EXPORT_SET()

Section 12.8, “String Functions and Operators”

EXTRACT()

Section 12.11, “Cast Functions and Operators”
Section 12.7, “Date and Time Functions”
Section 9.5, “Expressions”
Section 24.6.3, “Partitioning Limitations Relating to Functions”

ExtractValue()

Section 12.12, “XML Functions”

F

[[index top](#)]

FIELD()

Section 12.8, “String Functions and Operators”

FIND_IN_SET()

Section 12.8, “String Functions and Operators”
Section 11.3.6, “The SET Type”

firewall_group_delist()

Section 6.4.7.4, “MySQL Enterprise Firewall Reference”

firewall_group_enlist()

Section 6.4.7.4, “MySQL Enterprise Firewall Reference”

FIRST_VALUE()

Section 12.21.1, “Window Function Descriptions”
Section 12.21.3, “Window Function Frame Specification”

FLOOR()

Section 12.6.2, “Mathematical Functions”
Section 12.20.3, “MySQL Handling of GROUP BY”
Section 8.9.6, “Optimizer Statistics”
Section 24.6.3, “Partitioning Limitations Relating to Functions”

FORMAT()

Section 12.8.3, “Character Set and Collation of Function Results”

[Section 12.6.2, “Mathematical Functions”](#)
[Section 12.24, “Miscellaneous Functions”](#)
[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)
[Section 10.16, “MySQL Server Locale Support”](#)
[Section 12.8, “String Functions and Operators”](#)

FORMAT_BYTES()

[Section 8.12.3.2, “Monitoring MySQL Memory Usage”](#)
[Section 12.22, “Performance Schema Functions”](#)
[Section 28.4.5.3, “The format_bytes\(\) Function”](#)

FORMAT_PICO_TIME()

[Section 12.22, “Performance Schema Functions”](#)
[Section 28.4.5.6, “The format_time\(\) Function”](#)

FOUND_ROWS()

[Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”](#)
[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)
[Section 12.16, “Information Functions”](#)
[Section 5.4.4.3, “Mixed Binary Logging Format”](#)
[Section 17.5.1.14, “Replication and System Functions”](#)
[Section 13.2.13, “SELECT Statement”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

FROM_BASE64()

[Section 12.8, “String Functions and Operators”](#)

FROM_DAYS()

[Section 12.7, “Date and Time Functions”](#)
[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)

FROM_UNIXTIME()

[Section 12.7, “Date and Time Functions”](#)
[Section 8.3.14, “Indexed Lookups from TIMESTAMP Columns”](#)
[Section 17.5.1.33, “Replication and Time Zones”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

G

[\[index top\]](#)

gen_blacklist()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)

gen_blocklist()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)
[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)

gen_dictionary()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)
[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)

gen_dictionary_drop()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)

gen_dictionary_load()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)
[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)

gen_range()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)
[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)

gen_rnd_email()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)
[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)

gen_rnd_pan()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)
[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)

gen_rnd_ssn()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)
[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)

gen_rnd_us_phone()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)
[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)

GeomCollection()

[Section 12.17.5, “MySQL-Specific Functions That Create Geometry Values”](#)

GeometryCollection()

[Section 12.17.6, “Geometry Format Conversion Functions”](#)
[Section 12.17.5, “MySQL-Specific Functions That Create Geometry Values”](#)

GET_DD_COLUMN_PRIVILEGES()

[Section 12.23, “Internal Functions”](#)

GET_DD_CREATE_OPTIONS()

[Section 12.23, “Internal Functions”](#)

GET_DD_INDEX_SUB_PART_LENGTH()

[Section 12.23, “Internal Functions”](#)

GET_FORMAT()

[Section 12.7, “Date and Time Functions”](#)
[Section 10.16, “MySQL Server Locale Support”](#)

GET_LOCK()

[Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”](#)
[Section 13.1.13, “CREATE EVENT Statement”](#)
[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)
[Section 25.4.1, “Event Scheduler Overview”](#)
[Section 8.14.3, “General Thread States”](#)
[Section 18.3.2, “Group Replication Limitations”](#)
[Section 8.11.1, “Internal Locking Methods”](#)
[Section 13.7.8.4, “KILL Statement”](#)
[Section 23.2.7.10, “Limitations Relating to Multiple NDB Cluster Nodes”](#)

[Section 13.3.6, “LOCK TABLES and UNLOCK TABLES Statements”](#)
[Section 12.15, “Locking Functions”](#)
[Section 8.11.4, “Metadata Locking”](#)
[Section 17.5.1.14, “Replication and System Functions”](#)
[Section 5.6.9.1, “The Locking Service”](#)
[The Locking Service Function Interface](#)
[Section 27.12.13.3, “The metadata_locks Table”](#)
[Section 28.4.4.14, “The ps_setup_save\(\) Procedure”](#)

gethostbyaddr()

[Section 5.1.12.3, “DNS Lookups and the Host Cache”](#)

gethostbyname()

[Section 5.1.12.3, “DNS Lookups and the Host Cache”](#)

getrusage()

[Section 23.6.16.63, “The ndbinfo threadstat Table”](#)

gettimeofday()

[Section 23.6.16.63, “The ndbinfo threadstat Table”](#)

GREATEST()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)
[Section 12.4.2, “Comparison Functions and Operators”](#)
[Section 11.5, “The JSON Data Type”](#)

GROUP_CONCAT()

[Section 12.20.1, “Aggregate Function Descriptions”](#)
[Section 8.4.4, “Internal Temporary Table Use in MySQL”](#)
[Section B.3.7, “Known Issues in MySQL”](#)
[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)
[Section 5.1.8, “Server System Variables”](#)
[Section 11.5, “The JSON Data Type”](#)
[Section 1.2.2, “The Main Features of MySQL”](#)

group_replication_disable_member_action

[Section 17.4.9.2, “Asynchronous Connection Failover for Replicas”](#)
[Section 13.4.2.1, “CHANGE MASTER TO Statement”](#)
[Section 13.4.2.3, “CHANGE REPLICATION SOURCE TO Statement”](#)
[Section 18.5.1.5, “Configuring Member Actions”](#)
[Section 13.4.3.7, “Functions to Set and Reset Group Replication Member Actions”](#)
[Section 13.4.2.12, “Functions which Configure the Source List”](#)
[Section 17.4.9, “Switching Sources and Replicas with Asynchronous Connection Failover”](#)

group_replication_disable_member_action()

[Section 13.4.3.7, “Functions to Set and Reset Group Replication Member Actions”](#)
[Section 27.12.11.14, “The replication_group_configuration_version Table”](#)
[Section 27.12.11.13, “The replication_group_member_actions Table”](#)

group_replication_enable_member_action

[Section 18.5.1.5, “Configuring Member Actions”](#)
[Section 13.4.3.7, “Functions to Set and Reset Group Replication Member Actions”](#)

group_replication_enable_member_action()

[Section 13.4.3.7, “Functions to Set and Reset Group Replication Member Actions”](#)

[Section 27.12.11.14, “The replication_group_configuration_version Table”](#)
[Section 27.12.11.13, “The replication_group_member_actions Table”](#)

group_replication_get_communication_protocol()

[Section 13.4.3.6, “Functions to Inspect and Set the Group Replication Communication Protocol Version”](#)
[Section 18.8.1.2, “Group Replication Communication Protocol Version”](#)
[Section 18.9, “Group Replication System Variables”](#)
[Section 18.7.5, “Message Fragmentation”](#)
[Section 18.5.1.4, “Setting a Group’s Communication Protocol Version”](#)
[Section 18.7.3, “Single Consensus Leader”](#)

group_replication_get_write_concurrency()

[Section 13.4.3.5, “Functions to Inspect and Configure the Maximum Consensus Instances of a Group”](#)
[Section 18.5.1.3, “Using Group Replication Group Write Consensus”](#)

group_replication_reset_member_actions()

[Section 18.5.1.5, “Configuring Member Actions”](#)
[Section 13.4.3.7, “Functions to Set and Reset Group Replication Member Actions”](#)

[Section 13.4.3.7, “Functions to Set and Reset Group Replication Member Actions”](#)
[Section 27.12.11.14, “The replication_group_configuration_version Table”](#)
[Section 27.12.11.13, “The replication_group_member_actions Table”](#)

group_replication_set_as_primary()

[Section 18.5.1.1, “Changing a Group’s Primary Member”](#)
[Section 13.4.3.3, “Function which Configures Group Replication Primary”](#)
[Section 18.8.3.3, “Group Replication Online Upgrade Methods”](#)
[Section 18.8.1.1, “Member Versions During Upgrades”](#)
[Section 18.1.3.1, “Single-Primary Mode”](#)
[Section 18.5.3.1, “Understanding Transaction Consistency Guarantees”](#)

group_replication_set_communication_protocol()

[Section 13.4.3.6, “Functions to Inspect and Set the Group Replication Communication Protocol Version”](#)
[Section 18.8.1.2, “Group Replication Communication Protocol Version”](#)
[Section 18.8.2, “Group Replication Offline Upgrade”](#)
[Section 18.9, “Group Replication System Variables”](#)
[Section 18.7.5, “Message Fragmentation”](#)
[Section 6.2.2, “Privileges Provided by MySQL”](#)
[Section 18.5.1.4, “Setting a Group’s Communication Protocol Version”](#)
[Section 18.7.3, “Single Consensus Leader”](#)

group_replication_set_write_concurrency()

[Section 13.4.3.5, “Functions to Inspect and Configure the Maximum Consensus Instances of a Group”](#)
[Section 6.2.2, “Privileges Provided by MySQL”](#)
[Section 18.5.1.3, “Using Group Replication Group Write Consensus”](#)

group_replication_switch_to_multi_primary_mode()

[Section 18.5.1.2, “Changing a Group’s Mode”](#)
[Section 18.8.1, “Combining Different Member Versions in a Group”](#)
[Section 13.4.3.4, “Functions which Configure the Group Replication Mode”](#)
[Section 18.9, “Group Replication System Variables”](#)
[Section 18.1.3, “Multi-Primary and Single-Primary Modes”](#)
[Version Compatibility](#)

group_replication_switch_to_single_primary_mode()

[Section 18.5.1.2, “Changing a Group’s Mode”](#)
[Section 13.4.3.4, “Functions which Configure the Group Replication Mode”](#)
[Section 18.9, “Group Replication System Variables”](#)
[Section 18.1.3, “Multi-Primary and Single-Primary Modes”](#)
[Section 18.1.3.1, “Single-Primary Mode”](#)

GROUPING()

[Section 12.20.2, “GROUP BY Modifiers”](#)
[Section 12.24, “Miscellaneous Functions”](#)
[Section 12.21.2, “Window Function Concepts and Syntax”](#)

GTID_INTERSECTION_WITH_UUID

[Section 17.1.3.8, “Stored Function Examples to Manipulate GTIDs”](#)

GTID_IS_DISJOINT

[Section 17.1.3.8, “Stored Function Examples to Manipulate GTIDs”](#)

GTID_IS_DISJOINT_UNION

[Section 17.1.3.8, “Stored Function Examples to Manipulate GTIDs”](#)

GTID_IS_EQUAL

[Section 17.1.3.8, “Stored Function Examples to Manipulate GTIDs”](#)

GTID_SUBSET

[Section 17.1.3.8, “Stored Function Examples to Manipulate GTIDs”](#)

GTID_SUBSET()

[Section 12.19, “Functions Used with Global Transaction Identifiers \(GTIDs\)”](#)
[Section 17.1.3.1, “GTID Format and Storage”](#)
[Section 17.1.3.8, “Stored Function Examples to Manipulate GTIDs”](#)

GTID_SUBTRACT

[Section 17.1.3.8, “Stored Function Examples to Manipulate GTIDs”](#)

GTID_SUBTRACT()

[Section 12.19, “Functions Used with Global Transaction Identifiers \(GTIDs\)”](#)
[Section 17.1.6.5, “Global Transaction ID System Variables”](#)
[Section 17.1.3.1, “GTID Format and Storage”](#)
[Section 17.1.3.8, “Stored Function Examples to Manipulate GTIDs”](#)

GTID_SUBTRACT_UUID

[Section 17.1.3.8, “Stored Function Examples to Manipulate GTIDs”](#)

GTID_UNION

[Section 17.1.3.8, “Stored Function Examples to Manipulate GTIDs”](#)

H

[\[index top\]](#)

HEX()

[Section 9.1.5, “Bit-Value Literals”](#)

[Section 12.8.3, “Character Set and Collation of Function Results”](#)
[Section 10.3.6, “Character String Literal Character Set and Collation”](#)
[Section 6.4.4.15, “General-Purpose Keyring Key-Management Functions”](#)
[Section 9.1.4, “Hexadecimal Literals”](#)
[Section 12.6.2, “Mathematical Functions”](#)
[Section 12.24, “Miscellaneous Functions”](#)
[Section 12.8, “String Functions and Operators”](#)

HOUR()

[Section 12.7, “Date and Time Functions”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

|

[\[index top\]](#)

ICU_VERSION()

[Section 12.16, “Information Functions”](#)

IF

[Section 13.5.1, “PREPARE Statement”](#)

IF()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)
[Section 12.5, “Flow Control Functions”](#)
[Section 13.6.5.2, “IF Statement”](#)
[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)
[Section B.3.7, “Known Issues in MySQL”](#)
[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)

IFNULL

[Section 13.5.1, “PREPARE Statement”](#)

IFNULL()

[Section 2.10.4, “Changes in MySQL 8.0”](#)
[Section 12.5, “Flow Control Functions”](#)
[Section B.3.4.3, “Problems with NULL Values”](#)

INET6_ATON()

[Section 12.13, “Bit Functions and Operators”](#)
[Section 5.1.13, “IPv6 Support”](#)
[Section 12.24, “Miscellaneous Functions”](#)

INET6_NTOA()

[Section 5.1.13, “IPv6 Support”](#)
[Section 12.24, “Miscellaneous Functions”](#)

INET_ATON()

[Section 5.1.13, “IPv6 Support”](#)
[Section 12.24, “Miscellaneous Functions”](#)

INET_NTOA()

[Section 5.1.13, “IPv6 Support”](#)
[Section 12.24, “Miscellaneous Functions”](#)

INSERT()

[Section 12.8, “String Functions and Operators”](#)

INSTR()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)

[Section 12.8, “String Functions and Operators”](#)

INTERNAL_AUTO_INCREMENT()

[Section 12.23, “Internal Functions”](#)

INTERNAL_AVG_ROW_LENGTH()

[Section 12.23, “Internal Functions”](#)

INTERNAL_CHECK_TIME()

[Section 12.23, “Internal Functions”](#)

INTERNAL_CHECKSUM()

[Section 12.23, “Internal Functions”](#)

INTERNAL_DATA_FREE()

[Section 12.23, “Internal Functions”](#)

INTERNAL_DATA_LENGTH()

[Section 12.23, “Internal Functions”](#)

INTERNAL_DD_CHAR_LENGTH()

[Section 12.23, “Internal Functions”](#)

INTERNAL_GET_COMMENT_OR_ERROR()

[Section 12.23, “Internal Functions”](#)

INTERNAL_GET_ENABLED_ROLE_JSON()

[Section 12.23, “Internal Functions”](#)

INTERNAL_GET_HOSTNAME()

[Section 12.23, “Internal Functions”](#)

INTERNAL_GET_USERNAME()

[Section 12.23, “Internal Functions”](#)

INTERNAL_GET_VIEW_WARNING_OR_ERROR()

[Section 12.23, “Internal Functions”](#)

INTERNAL_INDEX_COLUMN_CARDINALITY()

[Section 12.23, “Internal Functions”](#)

INTERNAL_INDEX_LENGTH()

[Section 12.23, “Internal Functions”](#)

INTERNAL_IS_ENABLED_ROLE()

[Section 12.23, “Internal Functions”](#)

INTERNAL_IS_MANDATORY_ROLE()

Section 12.23, “Internal Functions”

INTERNAL_KEYS_DISABLED()

Section 12.23, “Internal Functions”

INTERNAL_MAX_DATA_LENGTH()

Section 12.23, “Internal Functions”

INTERNAL_TABLE_ROWS()

Section 12.23, “Internal Functions”

INTERNAL_UPDATE_TIME()

Section 12.23, “Internal Functions”

INTERVAL()

Section 12.4.2, “Comparison Functions and Operators”

IS_FREE_LOCK()

Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”

Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

Section 12.15, “Locking Functions”

Section 17.5.1.14, “Replication and System Functions”

IS_IPV4()

Section 12.24, “Miscellaneous Functions”

IS_IPV4_COMPAT()

Section 12.24, “Miscellaneous Functions”

IS_IPV4_MAPPED()

Section 12.24, “Miscellaneous Functions”

IS_IPV6()

Section 12.24, “Miscellaneous Functions”

IS_USED_LOCK()

Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”

Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

Section 12.15, “Locking Functions”

Section 17.5.1.14, “Replication and System Functions”

IS_UUID()

Section 12.24, “Miscellaneous Functions”

IS_VISIBLE_DD_OBJECT()

Section 12.23, “Internal Functions”

ISNULL()

Section 12.4.2, “Comparison Functions and Operators”

J

[[index top](#)]

JSON_ARRAY()

[Section 12.18.2, “Functions That Create JSON Values”](#)
[Section 12.18.3, “Functions That Search JSON Values”](#)
[Section 11.5, “The JSON Data Type”](#)

JSON_ARRAY_APPEND()

[Section 12.18.4, “Functions That Modify JSON Values”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_ARRAY_INSERT()

[Section 12.18.4, “Functions That Modify JSON Values”](#)

JSON_ARRAYAGG()
[Section 12.20.1, “Aggregate Function Descriptions”](#)
[Section 12.18.2, “Functions That Create JSON Values”](#)
[Section 12.18.1, “JSON Function Reference”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_CONTAINS()

[Section 13.1.15, “CREATE INDEX Statement”](#)
[Section 12.18.3, “Functions That Search JSON Values”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_CONTAINS_PATH()

[Section 12.18.3, “Functions That Search JSON Values”](#)
[Section 11.5, “The JSON Data Type”](#)

JSON_DEPTH()

[Section 12.18.5, “Functions That Return JSON Value Attributes”](#)

JSON_EXTRACT()

[Section 12.18.3, “Functions That Search JSON Values”](#)
[Section 12.18.7, “JSON Schema Validation Functions”](#)
[Section 13.1.20.9, “Secondary Indexes and Generated Columns”](#)
[Section 11.5, “The JSON Data Type”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_INSERT()

[Section 12.18.4, “Functions That Modify JSON Values”](#)
[Section 11.5, “The JSON Data Type”](#)

JSON_KEYS()

[Section 12.18.3, “Functions That Search JSON Values”](#)
[Section 6.2.3, “Grant Tables”](#)

JSON_LENGTH()

[Section 12.18.5, “Functions That Return JSON Value Attributes”](#)

JSON_MERGE()

[Section 12.18.4, “Functions That Modify JSON Values”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_MERGE_PATCH()

[Section 13.7.1.1, “ALTER USER Statement”](#)

[Section 12.18.4, “Functions That Modify JSON Values”](#)
[Section 11.5, “The JSON Data Type”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_MERGE_PRESERVE()

[Section 12.18.4, “Functions That Modify JSON Values”](#)
[Section 11.5, “The JSON Data Type”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_OBJECT()

[Section 12.18.2, “Functions That Create JSON Values”](#)
[Section 12.18.3, “Functions That Search JSON Values”](#)
[Section 11.5, “The JSON Data Type”](#)

JSON_OBJECTAGG()

[Section 12.20.1, “Aggregate Function Descriptions”](#)
[Section 12.18.2, “Functions That Create JSON Values”](#)
[Section 12.18.1, “JSON Function Reference”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_OVERLAPS()

[Section 13.1.15, “CREATE INDEX Statement”](#)
[Section 12.18.3, “Functions That Search JSON Values”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_PRETTY()

[Section 12.18.1, “JSON Function Reference”](#)
[Section 12.18.7, “JSON Schema Validation Functions”](#)
[Section 12.18.8, “JSON Utility Functions”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_QUOTE()

[Section 12.18.2, “Functions That Create JSON Values”](#)
[Section 12.18.8, “JSON Utility Functions”](#)

JSON_REMOVE()

[Section 17.1.6.4, “Binary Logging Options and Variables”](#)
[Section 12.18.4, “Functions That Modify JSON Values”](#)
[Section 12.18.8, “JSON Utility Functions”](#)
[Section 11.5, “The JSON Data Type”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_REPLACE()

[Section 17.1.6.4, “Binary Logging Options and Variables”](#)
[Section 12.18.4, “Functions That Modify JSON Values”](#)
[Section 12.18.8, “JSON Utility Functions”](#)
[Section 11.5, “The JSON Data Type”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_SCHEMA_VALID()

[Section 12.18.7, “JSON Schema Validation Functions”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_SCHEMA_VALIDATION_REPORT()

[Section 12.18.7, “JSON Schema Validation Functions”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_SEARCH()

[Section 12.18.3, “Functions That Search JSON Values”](#)

[Section 11.5, “The JSON Data Type”](#)

JSON_SET()

[Section 17.1.6.4, “Binary Logging Options and Variables”](#)

[Section 12.18.4, “Functions That Modify JSON Values”](#)

[Section 12.18.8, “JSON Utility Functions”](#)

[Section 6.4.5.6, “Reading Audit Log Files”](#)

[Section 11.5, “The JSON Data Type”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_STORAGE_FREE()

[Section 12.18.1, “JSON Function Reference”](#)

[Section 12.18.8, “JSON Utility Functions”](#)

[Section 11.5, “The JSON Data Type”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_STORAGE_SIZE()

[Section 12.18.1, “JSON Function Reference”](#)

[Section 12.18.8, “JSON Utility Functions”](#)

[Section 11.5, “The JSON Data Type”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_TABLE()

[Section 13.2.15.8, “Derived Tables”](#)

[Section 12.18.6, “JSON Table Functions”](#)

[Section 13.2.15.9, “Lateral Derived Tables”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_TYPE()

[Section 12.18.5, “Functions That Return JSON Value Attributes”](#)

[Section 12.18.3, “Functions That Search JSON Values”](#)

[Section 11.5, “The JSON Data Type”](#)

JSON_UNQUOTE()

[Section 12.18.3, “Functions That Search JSON Values”](#)

JSON_UNQUOTE()

[Section 13.1.15, “CREATE INDEX Statement”](#)

[Section 12.18.4, “Functions That Modify JSON Values”](#)

[Section 8.3.11, “Optimizer Use of Generated Column Indexes”](#)

[Section 13.1.20.9, “Secondary Indexes and Generated Columns”](#)

[Section 11.5, “The JSON Data Type”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

JSON_VALID()

[Section 12.18.5, “Functions That Return JSON Value Attributes”](#)

JSON_VALUE()

[Section 12.11, “Cast Functions and Operators”](#)

[Section 12.18.3, “Functions That Search JSON Values”](#)

[Section 13.1.20.9, “Secondary Indexes and Generated Columns”](#)

K

[[index top](#)]

keyring_aws_rotate_cmk()

[Section 6.4.4.16, “Plugin-Specific Keyring Key-Management Functions”](#)

[Section 6.4.4.9, “Using the keyring_aws Amazon Web Services Keyring Plugin”](#)

keyring_aws_rotate_keys()

[Section 6.4.4.16, “Plugin-Specific Keyring Key-Management Functions”](#)

[Section 6.4.4.9, “Using the keyring_aws Amazon Web Services Keyring Plugin”](#)

keyring_hashicorp_update_config()

[Section 6.4.4.16, “Plugin-Specific Keyring Key-Management Functions”](#)

[Section 6.4.4.10, “Using the HashiCorp Vault Keyring Plugin”](#)

keyring_key_fetch()

[Section 6.4.4.15, “General-Purpose Keyring Key-Management Functions”](#)

keyring_key_generate()

[Section 6.4.4.15, “General-Purpose Keyring Key-Management Functions”](#)

keyring_key_length_fetch()

[Section 6.4.4.15, “General-Purpose Keyring Key-Management Functions”](#)

keyring_key_remove()

[Section 6.4.4.15, “General-Purpose Keyring Key-Management Functions”](#)

keyring_key_store()

[Section 6.4.4.15, “General-Purpose Keyring Key-Management Functions”](#)

keyring_key_type_fetch()

[Section 6.4.4.15, “General-Purpose Keyring Key-Management Functions”](#)

L

[[index top](#)]

LAG()

[Section 1.3, “What Is New in MySQL 8.0”](#)

[Section 12.21.1, “Window Function Descriptions”](#)

LAST_DAY()

[Section 12.7, “Date and Time Functions”](#)

LAST_INSERT_ID()

[Section 12.4.2, “Comparison Functions and Operators”](#)

[Section 13.1.20, “CREATE TABLE Statement”](#)

[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)

[Section 12.16, “Information Functions”](#)

[Section 13.2.7.2, “INSERT ... ON DUPLICATE KEY UPDATE Statement”](#)

[Section 13.2.7, “INSERT Statement”](#)
[Section 13.3.6, “LOCK TABLES and UNLOCK TABLES Statements”](#)
[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)
[Section 23.5.23, “ndb_restore — Restore an NDB Cluster Backup”](#)
[Section 17.5.1.1, “Replication and AUTO_INCREMENT”](#)
[Section 5.1.8, “Server System Variables”](#)
[Section 25.2.4, “Stored Procedures, Functions, Triggers, and LAST_INSERT_ID\(\)”](#)
[Section 17.5.4, “Troubleshooting Replication”](#)
[Section 25.5.3, “Updatable and Insertable Views”](#)
[Section 3.6.9, “Using AUTO_INCREMENT”](#)

LAST_VALUE()

[Section 12.21.1, “Window Function Descriptions”](#)
[Section 12.21.3, “Window Function Frame Specification”](#)

LCASE()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)
[Section 12.8, “String Functions and Operators”](#)

LEAD()

[Section 1.3, “What Is New in MySQL 8.0”](#)
[Section 12.21.1, “Window Function Descriptions”](#)

LEAST()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)
[Section 12.4.2, “Comparison Functions and Operators”](#)
[Section 11.5, “The JSON Data Type”](#)

LEFT()

[Section 12.8, “String Functions and Operators”](#)

LENGTH()

[Section 11.7, “Data Type Storage Requirements”](#)
[Section 12.8, “String Functions and Operators”](#)
[Section 11.4.3, “Supported Spatial Data Formats”](#)

LineString()

[Section 12.17.5, “MySQL-Specific Functions That Create Geometry Values”](#)

LN()

[Section 12.6.2, “Mathematical Functions”](#)

LOAD_FILE()

[Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”](#)
[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)
[Section 13.2.10, “LOAD XML Statement”](#)
[Section 5.4.4.3, “Mixed Binary Logging Format”](#)
[Section 6.6.3, “MySQL Enterprise Encryption Usage and Examples”](#)
[Section 6.2.2, “Privileges Provided by MySQL”](#)
[Section 17.5.1.14, “Replication and System Functions”](#)
[Section 5.1.8, “Server System Variables”](#)
[Section 12.8, “String Functions and Operators”](#)

load_rewrite_rules()

[Rewriter Query Rewrite Plugin Procedures and Functions](#)

[Section 5.6.4, “The Rewriter Query Rewrite Plugin”](#)

LOCALTIME

[Section 11.2.5, “Automatic Initialization and Updating for TIMESTAMP and DATETIME”](#)

[Section 12.7, “Date and Time Functions”](#)

LOCALTIME()

[Section 11.2.5, “Automatic Initialization and Updating for TIMESTAMP and DATETIME”](#)

[Section 12.7, “Date and Time Functions”](#)

[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)

LOCALTIMESTAMP

[Section 11.2.5, “Automatic Initialization and Updating for TIMESTAMP and DATETIME”](#)

[Section 12.7, “Date and Time Functions”](#)

LOCALTIMESTAMP()

[Section 11.2.5, “Automatic Initialization and Updating for TIMESTAMP and DATETIME”](#)

[Section 12.7, “Date and Time Functions”](#)

[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)

LOCATE()

[Section 12.8, “String Functions and Operators”](#)

LOG()

[Section 24.2.4.1, “LINEAR HASH Partitioning”](#)

[Section 12.6.2, “Mathematical Functions”](#)

LOG10()

[Section 12.6.2, “Mathematical Functions”](#)

LOG2()

[Section 12.6.2, “Mathematical Functions”](#)

LOWER()

[Section 12.11, “Cast Functions and Operators”](#)

[Section 12.8.3, “Character Set and Collation of Function Results”](#)

[Section 12.8, “String Functions and Operators”](#)

[Section 10.10.1, “Unicode Character Sets”](#)

[Section 10.8.7, “Using Collation in INFORMATION_SCHEMA Searches”](#)

LPAD()

[Section 12.13, “Bit Functions and Operators”](#)

[Section 11.1.1, “Numeric Data Type Syntax”](#)

[Section 11.1.6, “Numeric Type Attributes”](#)

[Section 12.8, “String Functions and Operators”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

LTRIM()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)

[Section 12.8, “String Functions and Operators”](#)

M

[\[index top\]](#)

MAKE_SET()

[Section 12.8, “String Functions and Operators”](#)

MAKEDATE()

[Section 12.7, “Date and Time Functions”](#)

MAKETIME()

[Section 12.7, “Date and Time Functions”](#)

mask_inner()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)

[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)

mask_outer()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)

[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)

mask_pan()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)

[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)

mask_pan_relaxed()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)

[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)

mask_ssn()

[Section 6.5.5, “MySQL Enterprise Data Masking and De-Identification Function Descriptions”](#)

[Section 6.5.3, “Using MySQL Enterprise Data Masking and De-Identification”](#)

MASTER_POS_WAIT()

[Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”](#)

[Behaviors When Binary Log Transaction Compression is Enabled](#)

[Section 17.2.2.1, “Commands for Operations on a Single Channel”](#)

[Section 17.2.2.2, “Compatibility with Previous Replication Statements”](#)

[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)

[Section 12.24, “Miscellaneous Functions”](#)

[Section A.14, “MySQL 8.0 FAQ: Replication”](#)

MATCH

[Section 9.5, “Expressions”](#)

MATCH ()

[Section 12.10, “Full-Text Search Functions”](#)

MATCH()

[Section 12.10.2, “Boolean Full-Text Searches”](#)

[Section 12.10.6, “Fine-Tuning MySQL Full-Text Search”](#)

[Section 12.10.5, “Full-Text Restrictions”](#)

[Section 12.10, “Full-Text Search Functions”](#)

[Section 12.20.2, “GROUP BY Modifiers”](#)

[Section 15.6.2.4, “InnoDB Full-Text Indexes”](#)

[MySQL Glossary](#)

[Section 12.10.1, “Natural Language Full-Text Searches”](#)

MAX(

[Section 12.20.1, “Aggregate Function Descriptions”](#)

MAX()

[Section 11.2.8, “2-Digit Years in Dates”](#)

[Section 12.20.1, “Aggregate Function Descriptions”](#)

[Section 8.3.13, “Descending Indexes”](#)

[Section 8.2.1.17, “GROUP BY Optimization”](#)

[Section 8.3.1, “How MySQL Uses Indexes”](#)

[Section B.3.7, “Known Issues in MySQL”](#)

[Section 23.5.23, “ndb_restore — Restore an NDB Cluster Backup”](#)

[Section 11.1.1, “Numeric Data Type Syntax”](#)

[Section 8.2.2.4, “Optimizing Derived Tables, View References, and Common Table Expressions with Merging or Materialization”](#)

[Section 5.1.11, “Server SQL Modes”](#)

[Section 8.9.2, “Switchable Optimizations”](#)

[Section 11.5, “The JSON Data Type”](#)

[Section 1.2.2, “The Main Features of MySQL”](#)

[Section 27.12.16.1, “The tp_thread_group_state Table”](#)

[Section 25.5.3, “Updatable and Insertable Views”](#)

[Section 8.3.10, “Use of Index Extensions”](#)

[Section 3.6.9, “Using AUTO_INCREMENT”](#)

[Section 8.2.1.21, “Window Function Optimization”](#)

[Section 13.2.20, “WITH \(Common Table Expressions\)”](#)

MBRContains()

[Section 12.17.9.2, “Spatial Relation Functions That Use Minimum Bounding Rectangles”](#)

[Section 11.4.11, “Using Spatial Indexes”](#)

MBRCoveredBy()

[Section 12.17.9.2, “Spatial Relation Functions That Use Minimum Bounding Rectangles”](#)

MBRCovers()

[Section 12.17.9.2, “Spatial Relation Functions That Use Minimum Bounding Rectangles”](#)

MBRDisjoint()

[Section 12.17.9.2, “Spatial Relation Functions That Use Minimum Bounding Rectangles”](#)

MBREquals()

[Section 12.17.9.2, “Spatial Relation Functions That Use Minimum Bounding Rectangles”](#)

MBRIntersects()

[Section 12.17.9.2, “Spatial Relation Functions That Use Minimum Bounding Rectangles”](#)

MBROverlaps()

[Section 12.17.9.2, “Spatial Relation Functions That Use Minimum Bounding Rectangles”](#)

MBRTouches()

[Section 12.17.9.2, “Spatial Relation Functions That Use Minimum Bounding Rectangles”](#)

MBRWithin()

[Section 12.17.9.2, “Spatial Relation Functions That Use Minimum Bounding Rectangles”](#)

[Section 11.4.11, “Using Spatial Indexes”](#)

MD5()

[Section 12.14, “Encryption and Compression Functions”](#)

[Section 24.2.5, “KEY Partitioning”](#)
[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)
[Section 9.2, “Schema Object Names”](#)

MICROSECOND()

[Section 12.7, “Date and Time Functions”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

MID()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)
[Section 12.8, “String Functions and Operators”](#)

MIN(

[Section 12.20.1, “Aggregate Function Descriptions”](#)

MIN()

[Section 11.2.8, “2-Digit Years in Dates”](#)
[Section 12.20.1, “Aggregate Function Descriptions”](#)
[Section 8.3.13, “Descending Indexes”](#)
[Section 8.2.1.17, “GROUP BY Optimization”](#)
[Section 8.3.1, “How MySQL Uses Indexes”](#)
[Section B.3.7, “Known Issues in MySQL”](#)
[Section 23.5.23, “ndb_restore — Restore an NDB Cluster Backup”](#)
[Section 11.1.1, “Numeric Data Type Syntax”](#)
[Section 8.2.2.4, “Optimizing Derived Tables, View References, and Common Table Expressions with Merging or Materialization”](#)
[Section B.3.4.3, “Problems with NULL Values”](#)
[Section 8.9.2, “Switchable Optimizations”](#)
[Section 11.5, “The JSON Data Type”](#)
[Section 1.2.2, “The Main Features of MySQL”](#)
[Section 25.5.3, “Updatable and Insertable Views”](#)
[Section 8.3.10, “Use of Index Extensions”](#)
[Section 8.2.1.1, “WHERE Clause Optimization”](#)
[Section 8.2.1.21, “Window Function Optimization”](#)

MINUTE()

[Section 12.7, “Date and Time Functions”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

MOD()

[Section 12.6.1, “Arithmetic Operators”](#)
[Section 3.3.4.5, “Date Calculations”](#)
[Section 12.6.2, “Mathematical Functions”](#)
[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)
[Section 5.1.11, “Server SQL Modes”](#)

MONTH()

[Section 12.7, “Date and Time Functions”](#)
[Section 3.3.4.5, “Date Calculations”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)
[Section 24.2, “Partitioning Types”](#)

MONTHNAME()

[Section 12.7, “Date and Time Functions”](#)
[Section 10.16, “MySQL Server Locale Support”](#)

[Section 5.1.8, “Server System Variables”](#)

MultiLineString()

[Section 12.17.5, “MySQL-Specific Functions That Create Geometry Values”](#)

MultiPoint()

[Section 12.17.5, “MySQL-Specific Functions That Create Geometry Values”](#)

MultiPolygon()

[Section 12.17.5, “MySQL-Specific Functions That Create Geometry Values”](#)

my_open()

[Section 5.1.10, “Server Status Variables”](#)

mysql_firewall_flush_status()

[Section 6.4.7.4, “MySQL Enterprise Firewall Reference”](#)

mysql_query_attribute_string()

[Section 5.5.4, “Query Attribute Components”](#)

[Section 9.6, “Query Attributes”](#)

N

[\[index top\]](#)

NAME_CONST()

[Section 12.24, “Miscellaneous Functions”](#)

[Section 25.7, “Stored Program Binary Logging”](#)

normalize_statement()

[Section 6.4.7.4, “MySQL Enterprise Firewall Reference”](#)

NOW()

[Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”](#)

[Section 11.2.5, “Automatic Initialization and Updating for TIMESTAMP and DATETIME”](#)

[Section 13.1.20.6, “CHECK Constraints”](#)

[Section 13.1.17, “CREATE PROCEDURE and CREATE FUNCTION Statements”](#)

[Section 13.1.20.8, “CREATE TABLE and Generated Columns”](#)

[Section 11.6, “Data Type Default Values”](#)

[Section 12.7, “Date and Time Functions”](#)

[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)

[Section 11.2.6, “Fractional Seconds in Time Values”](#)

[Section A.1, “MySQL 8.0 FAQ: General”](#)

[Section 5.1.15, “MySQL Server Time Zone Support”](#)

[Section 17.5.1.14, “Replication and System Functions”](#)

[Section 17.5.1.33, “Replication and Time Zones”](#)

[Section 5.1.7, “Server Command Options”](#)

[Section 5.1.8, “Server System Variables”](#)

[Section 28.4.3.21, “The metrics View”](#)

[Section 28.4.4.25, “The statement_performance_analyzer\(\) Procedure”](#)

[Section 11.2.4, “The YEAR Type”](#)

NTH_VALUE()

[Section 1.3, “What Is New in MySQL 8.0”](#)

[Section 12.21.1, “Window Function Descriptions”](#)

Section 12.21.3, “Window Function Frame Specification”

NTILE()

Section 1.3, “What Is New in MySQL 8.0”

Section 12.21.1, “Window Function Descriptions”

NULLIF

Section 13.5.1, “PREPARE Statement”

NULLIF()

Section 12.5, “Flow Control Functions”

O

[index top]

OCT()

Section 12.8, “String Functions and Operators”

OCTET_LENGTH()

Section 12.8, “String Functions and Operators”

ORD()

Section 12.8, “String Functions and Operators”

P

[index top]

PERCENT_RANK()

Section 12.21.1, “Window Function Descriptions”

PERIOD_ADD()

Section 12.7, “Date and Time Functions”

Section 1.6.1, “MySQL Extensions to Standard SQL”

PERIOD_DIFF()

Section 12.7, “Date and Time Functions”

Section 1.6.1, “MySQL Extensions to Standard SQL”

PI()

Section 9.2.5, “Function Name Parsing and Resolution”

Section 12.6.2, “Mathematical Functions”

Point()

Section 12.17.5, “MySQL-Specific Functions That Create Geometry Values”

Section 11.4.3, “Supported Spatial Data Formats”

Polygon()

Section 12.17.5, “MySQL-Specific Functions That Create Geometry Values”

POSITION()

Section 12.8, “String Functions and Operators”

POW()

[Section 8.2.1.20, “Function Call Optimization”](#)
[Section 24.2.4, “HASH Partitioning”](#)
[Section 12.6.2, “Mathematical Functions”](#)

POWER()

[Section 24.2.4.1, “LINEAR HASH Partitioning”](#)
[Section 12.6.2, “Mathematical Functions”](#)

PS_CURRENT_THREAD_ID()

[Section 12.22, “Performance Schema Functions”](#)
[Section 28.4.5.15, “The ps_thread_id\(\) Function”](#)

PS_THREAD_ID()

[Section 12.22, “Performance Schema Functions”](#)
[Section 28.4.5.15, “The ps_thread_id\(\) Function”](#)

pthread_mutex()

[Section 1.7.1, “Contributors to MySQL”](#)

Q

[\[index top\]](#)

QUARTER()

[Section 12.7, “Date and Time Functions”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

QUOTE()

[Section 12.8, “String Functions and Operators”](#)
[Section 9.1.1, “String Literals”](#)

R

[\[index top\]](#)

RADIANS()

[Section 12.6.2, “Mathematical Functions”](#)

RAND()

[Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”](#)
[Section 13.1.17, “CREATE PROCEDURE and CREATE FUNCTION Statements”](#)
[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)
[Section 8.2.1.20, “Function Call Optimization”](#)
[Section 12.6.2, “Mathematical Functions”](#)
[Section 17.5.1.14, “Replication and System Functions”](#)
[Section 5.1.8, “Server System Variables”](#)
[Section 8.9.2, “Switchable Optimizations”](#)

RANDOM_BYTES()

[Section 12.14, “Encryption and Compression Functions”](#)

RANK()

[Section 1.3, “What Is New in MySQL 8.0”](#)

[Section 12.21.1, “Window Function Descriptions”](#)

read_firewall_group_allowlist()

[Section 6.4.7.4, “MySQL Enterprise Firewall Reference”](#)

read_firewall_groups()

[Section 6.4.7.4, “MySQL Enterprise Firewall Reference”](#)

read_firewall_users()

[Section 6.4.7.4, “MySQL Enterprise Firewall Reference”](#)

read_firewall_whitelist()

[Section 6.4.7.4, “MySQL Enterprise Firewall Reference”](#)

REGEXP_INSTR()

[Section 12.8.2, “Regular Expressions”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

REGEXP_LIKE()

[Section 3.3.4.7, “Pattern Matching”](#)

[Section 12.8.2, “Regular Expressions”](#)

[Section 5.1.8, “Server System Variables”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

REGEXP_REPLACE()

[Section 12.8.2, “Regular Expressions”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

REGEXP_SUBSTR()

[Section 12.8.2, “Regular Expressions”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

RELEASE_ALL_LOCKS()

[Section 12.15, “Locking Functions”](#)

RELEASE_LOCK()

[Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”](#)

[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)

[Section 13.2.3, “DO Statement”](#)

[Section 8.11.1, “Internal Locking Methods”](#)

[Section 13.3.6, “LOCK TABLES and UNLOCK TABLES Statements”](#)

[Section 12.15, “Locking Functions”](#)

[Section 17.5.1.14, “Replication and System Functions”](#)

REPEAT()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)

[Section 12.8, “String Functions and Operators”](#)

REPLACE()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)

[Section 12.8, “String Functions and Operators”](#)

REVERSE()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)

[Section 12.8, “String Functions and Operators”](#)

RIGHT()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)
[Section 12.8, “String Functions and Operators”](#)

ROLES_GRAPHML()

[Section 12.16, “Information Functions”](#)
[Section 6.2.2, “Privileges Provided by MySQL”](#)

ROUND()

[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)
[Section 12.6.2, “Mathematical Functions”](#)
[Section 12.25, “Precision Math”](#)
[Section 12.25.5, “Precision Math Examples”](#)
[Section 12.25.4, “Rounding Behavior”](#)

ROW_COUNT()

[Section 13.2.1, “CALL Statement”](#)
[Section 13.2.2, “DELETE Statement”](#)
[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)
[Section 12.16, “Information Functions”](#)
[Section 13.2.7, “INSERT Statement”](#)
[Section 5.4.4.3, “Mixed Binary Logging Format”](#)
[Section 17.5.1.14, “Replication and System Functions”](#)
[Section 13.6.7.7, “The MySQL Diagnostics Area”](#)

ROW_NUMBER()

[Section 12.21.2, “Window Function Concepts and Syntax”](#)
[Section 12.21.1, “Window Function Descriptions”](#)

RPAD()

[Section 12.13, “Bit Functions and Operators”](#)
[Section 12.8.3, “Character Set and Collation of Function Results”](#)
[Section 12.8, “String Functions and Operators”](#)

RTRIM()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)
[Section 12.8, “String Functions and Operators”](#)

S

[\[index top\]](#)

SCHEMA()

[Section 12.16, “Information Functions”](#)

SEC_TO_TIME()

[Section 12.7, “Date and Time Functions”](#)

SECOND()

[Section 12.7, “Date and Time Functions”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

service_get_read_locks()

The Locking Service Function Interface

service_get_write_locks()

The Locking Service Function Interface

service_release_locks()

The Locking Service Function Interface

SESSION_USER()

Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

Section 12.16, “Information Functions”

Section 10.2.2, “UTF-8 for Metadata”

set_firewall_group_mode()

Section 6.4.7.4, “MySQL Enterprise Firewall Reference”

set_firewall_mode()

Section 6.4.7.4, “MySQL Enterprise Firewall Reference”

setrlimit()

Section 5.1.8, “Server System Variables”

SHA()

Section 12.14, “Encryption and Compression Functions”

SHA1()

Section 12.14, “Encryption and Compression Functions”

SHA2()

Section 12.14, “Encryption and Compression Functions”

Section 6.1.1, “Security Guidelines”

Section 1.3, “What Is New in MySQL 8.0”

SIGN()

Section 12.6.2, “Mathematical Functions”

SIN()

Section 12.6.2, “Mathematical Functions”

SLEEP()

Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”

Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

Section 8.14.3, “General Thread States”

Section 12.24, “Miscellaneous Functions”

Section 27.12.16.2, “The tp_thread_group_stats Table”

SOUNDEX()

Section 12.8.3, “Character Set and Collation of Function Results”

Section 12.8, “String Functions and Operators”

SOURCE_POS_WAIT()

Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”

Behaviors When Binary Log Transaction Compression is Enabled

Section 17.2.2.1, “Commands for Operations on a Single Channel”

Section 17.2.2.2, “Compatibility with Previous Replication Statements”

Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

[Section 12.24, “Miscellaneous Functions”](#)
[Section A.14, “MySQL 8.0 FAQ: Replication”](#)

SPACE()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)
[Section 12.8, “String Functions and Operators”](#)

SQRT()

[Section 12.6.2, “Mathematical Functions”](#)

ST_Area()

[Section 12.17.7, “Geometry Property Functions”](#)
[Section 12.17.7.4, “Polygon and MultiPolygon Property Functions”](#)

ST_AsBinary()

[Section 11.4.8, “Fetching Spatial Data”](#)
[Section 12.17.6, “Geometry Format Conversion Functions”](#)

ST_AsGeoJSON()

[Section 12.17.11, “Spatial GeoJSON Functions”](#)
[Section 11.5, “The JSON Data Type”](#)

ST_AsText()

[Section 11.4.8, “Fetching Spatial Data”](#)
[Section 12.17.6, “Geometry Format Conversion Functions”](#)

ST_AsWKB()

[Section 12.17.6, “Geometry Format Conversion Functions”](#)

ST_AsWKT()

[Section 12.17.3, “Functions That Create Geometry Values from WKT Values”](#)
[Section 12.17.6, “Geometry Format Conversion Functions”](#)

ST_Buffer()

[Section 12.17.8, “Spatial Operator Functions”](#)

ST_Buffer_Strategy()

[Section 5.1.8, “Server System Variables”](#)
[Section 12.17.8, “Spatial Operator Functions”](#)

ST_Centroid()

[Section 12.17.7.4, “Polygon and MultiPolygon Property Functions”](#)

ST_Collect()

[Section 12.17.12, “Spatial Aggregate Functions”](#)

ST_Collect()

[Section 12.17.12, “Spatial Aggregate Functions”](#)

ST_Contains()

[Section 12.17.9.1, “Spatial Relation Functions That Use Object Shapes”](#)

ST_ConvexHull()

[Section 12.17.8, “Spatial Operator Functions”](#)

ST_Crosses()

[Section 12.17.9.1, “Spatial Relation Functions That Use Object Shapes”](#)

ST_Difference()

[Section 12.17.8, “Spatial Operator Functions”](#)

ST_Dimension()

[Section 12.17.7.1, “General Geometry Property Functions”](#)

ST_Disjoint()

[Section 12.17.9.1, “Spatial Relation Functions That Use Object Shapes”](#)

ST_Distance()

[Section 12.17.13, “Spatial Convenience Functions”](#)

[Section 12.17.9.1, “Spatial Relation Functions That Use Object Shapes”](#)

[Section 26.3.37, “The INFORMATION_SCHEMA ST_UNITS_OF_MEASURE Table”](#)

ST_Distance_Sphere()

[Section 12.17.13, “Spatial Convenience Functions”](#)

[Section 12.17.9.1, “Spatial Relation Functions That Use Object Shapes”](#)

ST_EndPoint()

[Section 12.17.7.3, “LineString and MultiLineString Property Functions”](#)

[Section 12.17.8, “Spatial Operator Functions”](#)

ST_Envelope()

[Section 12.17.7.1, “General Geometry Property Functions”](#)

[Section 12.17.8, “Spatial Operator Functions”](#)

ST_Equals()

[Section 12.17.9.1, “Spatial Relation Functions That Use Object Shapes”](#)

ST_ExteriorRing()

[Section 12.17.7.4, “Polygon and MultiPolygon Property Functions”](#)

[Section 12.17.8, “Spatial Operator Functions”](#)

ST_FrechetDistance()

[Section 12.17.9.1, “Spatial Relation Functions That Use Object Shapes”](#)

ST_GeoHash()

[Section 12.17.10, “Spatial Geohash Functions”](#)

ST_GeomCollFromText()

[Section 12.17.3, “Functions That Create Geometry Values from WKT Values”](#)

ST_GeomCollFromTxt()

[Section 12.17.3, “Functions That Create Geometry Values from WKT Values”](#)

ST_GeomCollFromWKB()

[Section 12.17.4, “Functions That Create Geometry Values from WKB Values”](#)

ST_GeometryCollectionFromText()

[Section 12.17.3, “Functions That Create Geometry Values from WKT Values”](#)

ST_GeometryCollectionFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_GeometryFromText()

Section 12.17.3, “Functions That Create Geometry Values from WKT Values”

ST_GeometryFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_GeometryN()

Section 12.17.7.5, “GeometryCollection Property Functions”

Section 12.17.8, “Spatial Operator Functions”

ST_GeometryType()

Section 12.17.7.1, “General Geometry Property Functions”

ST_GeomFromGeoJSON()

Section 12.17.11, “Spatial GeoJSON Functions”

Section 11.5, “The JSON Data Type”

ST_GeomFromText()

Section 12.17.3, “Functions That Create Geometry Values from WKT Values”

Section 12.17.6, “Geometry Format Conversion Functions”

Section 12.17.5, “MySQL-Specific Functions That Create Geometry Values”

Section 11.4.7, “Populating Spatial Columns”

Section 11.4.3, “Supported Spatial Data Formats”

ST_GeomFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_HausdorffDistance()

Section 12.17.9.1, “Spatial Relation Functions That Use Object Shapes”

ST_InteriorRingN()

Section 12.17.7.4, “Polygon and MultiPolygon Property Functions”

Section 12.17.8, “Spatial Operator Functions”

ST_Intersection()

Section 12.17.8, “Spatial Operator Functions”

ST_Intersects()

Section 12.17.9.1, “Spatial Relation Functions That Use Object Shapes”

ST_IsClosed()

Section 12.17.7.3, “LineString and MultiLineString Property Functions”

ST_IsEmpty()

Section 12.17.7.1, “General Geometry Property Functions”

ST_IsSimple()

Section 12.17.7.1, “General Geometry Property Functions”

ST_IsValid()

Section 11.4.4, “Geometry Well-Formedness and Validity”

Section 12.17.13, “Spatial Convenience Functions”

ST_LatFromGeoHash()

Section 12.17.10, “Spatial Geohash Functions”

ST_Latitude()

Section 12.17.7.2, “Point Property Functions”

ST_Length()

Section 12.17.7.3, “LineString and MultiLineString Property Functions”

Section 12.17.8, “Spatial Operator Functions”

Section 12.8, “String Functions and Operators”

Section 1.3, “What Is New in MySQL 8.0”

ST_LineFromText()

Section 12.17.3, “Functions That Create Geometry Values from WKT Values”

ST_LineFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_LinelInterpolatePoint()

Section 12.17.8, “Spatial Operator Functions”

ST_LinelInterpolatePoints()

Section 12.17.8, “Spatial Operator Functions”

ST_LineStringFromText()

Section 12.17.3, “Functions That Create Geometry Values from WKT Values”

ST_LineStringFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_LongFromGeoHash()

Section 12.17.10, “Spatial Geohash Functions”

ST_Longitude()

Section 12.17.7.2, “Point Property Functions”

ST_MakeEnvelope()

Section 12.17.13, “Spatial Convenience Functions”

ST_MLineFromText()

Section 12.17.3, “Functions That Create Geometry Values from WKT Values”

ST_MLineFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_MPointFromText()

Section 12.17.3, “Functions That Create Geometry Values from WKT Values”

Section 11.4.3, “Supported Spatial Data Formats”

ST_MPointFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_MPolyFromText()

Section 12.17.3, “Functions That Create Geometry Values from WKT Values”

ST_MPolyFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_MultiLineStringFromText()

Section 12.17.3, “Functions That Create Geometry Values from WKT Values”

ST_MultiLineStringFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_MultiPointFromText()

Section 12.17.3, “Functions That Create Geometry Values from WKT Values”

ST_MultiPointFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_MultiPolygonFromText()

Section 12.17.3, “Functions That Create Geometry Values from WKT Values”

ST_MultiPolygonFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_NumGeometries()

Section 12.17.7.5, “GeometryCollection Property Functions”

ST_NumInteriorRing()

Section 12.17.7.4, “Polygon and MultiPolygon Property Functions”

ST_NumInteriorRings()

Section 12.17.7.4, “Polygon and MultiPolygon Property Functions”

ST_NumInteriorRings()

Section 12.17.7.4, “Polygon and MultiPolygon Property Functions”

ST_NumPoints()

Section 12.17.7.3, “LineString and MultiLineString Property Functions”

ST_Overlaps()

Section 12.17.9.1, “Spatial Relation Functions That Use Object Shapes”

ST_PointAtDistance()

Section 12.17.8, “Spatial Operator Functions”

ST_PointFromGeoHash()

Section 12.17.10, “Spatial Geohash Functions”

ST_PointFromText()

Section 12.17.3, “Functions That Create Geometry Values from WKT Values”

ST_PointFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_Point()

Section 12.17.7.3, “LineString and MultiLineString Property Functions”

Section 12.17.8, “Spatial Operator Functions”

ST_PolyFromText()

Section 12.17.3, “Functions That Create Geometry Values from WKT Values”

ST_PolyFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_PolygonFromText()

Section 12.17.3, “Functions That Create Geometry Values from WKT Values”

ST_PolygonFromWKB()

Section 12.17.4, “Functions That Create Geometry Values from WKB Values”

ST_Simplify()

Section 12.17.13, “Spatial Convenience Functions”

ST_SRID()

Section 12.17.7.1, “General Geometry Property Functions”

Section 12.17.8, “Spatial Operator Functions”

ST_StartPoint()

Section 12.17.7.3, “LineString and MultiLineString Property Functions”

Section 12.17.8, “Spatial Operator Functions”

ST_SwapXY()

Section 12.17.6, “Geometry Format Conversion Functions”

ST_SymDifference()

Section 12.17.8, “Spatial Operator Functions”

ST_Touches()

Section 12.17.9.1, “Spatial Relation Functions That Use Object Shapes”

ST_TRANSFORM()

Section 1.3, “What Is New in MySQL 8.0”

ST_Transform()

Section 12.17.7.1, “General Geometry Property Functions”

Section 12.17.8, “Spatial Operator Functions”

ST_Union()

Section 12.17.8, “Spatial Operator Functions”

ST_Validate()

Section 12.17.13, “Spatial Convenience Functions”

ST_Within()

Section 12.17.9.1, “Spatial Relation Functions That Use Object Shapes”

ST_X()

Section 12.17.7.2, “Point Property Functions”

[Section 11.4.3, “Supported Spatial Data Formats”](#)

ST_Y()

[Section 12.17.7.2, “Point Property Functions”](#)

STATEMENT_DIGEST()

[Section 12.14, “Encryption and Compression Functions”](#)

[Section 27.10, “Performance Schema Statement Digests and Sampling”](#)

STATEMENT_DIGEST_TEXT()

[Section 12.14, “Encryption and Compression Functions”](#)

[Section 6.4.7.4, “MySQL Enterprise Firewall Reference”](#)

[Section 27.10, “Performance Schema Statement Digests and Sampling”](#)

STD()

[Section 12.20.1, “Aggregate Function Descriptions”](#)

[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)

[Section 1.2.2, “The Main Features of MySQL”](#)

STDDEV()

[Section 12.20.1, “Aggregate Function Descriptions”](#)

STDDEV_POP()

[Section 12.20.1, “Aggregate Function Descriptions”](#)

[Section 8.2.1.21, “Window Function Optimization”](#)

STDDEV_SAMP()

[Section 12.20.1, “Aggregate Function Descriptions”](#)

[Section 8.2.1.21, “Window Function Optimization”](#)

STR_TO_DATE()

[Section 11.2, “Date and Time Data Types”](#)

[Section 12.7, “Date and Time Functions”](#)

[Section 10.16, “MySQL Server Locale Support”](#)

STRCMP()

[Section B.3.4.2, “Problems Using DATE Columns”](#)

[Section 12.8.1, “String Comparison Functions and Operators”](#)

SUBDATE()

[Section 12.7, “Date and Time Functions”](#)

SUBSTR()

[Section 12.13, “Bit Functions and Operators”](#)

[Section 12.8, “String Functions and Operators”](#)

SUBSTRING()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)

[Section 13.1.15, “CREATE INDEX Statement”](#)

[Section 12.8, “String Functions and Operators”](#)

SUBSTRING_INDEX()

[Section 6.2.23, “SQL-Based Account Activity Auditing”](#)

[Section 12.8, “String Functions and Operators”](#)

SUBTIME()

[Section 12.7, “Date and Time Functions”](#)

SUM(

[Section 12.20.1, “Aggregate Function Descriptions”](#)

SUM()

[Section 12.20.1, “Aggregate Function Descriptions”](#)

[Section 13.7.4.1, “CREATE FUNCTION Statement for Loadable Functions”](#)

[Section 11.2.1, “Date and Time Data Type Syntax”](#)

[Section 8.2.1.17, “GROUP BY Optimization”](#)

[Section 12.24, “Miscellaneous Functions”](#)

[Section 8.2.2.4, “Optimizing Derived Tables, View References, and Common Table Expressions with Merging or Materialization”](#)

[Section B.3.4.3, “Problems with NULL Values”](#)

[Section 11.3.5, “The ENUM Type”](#)

[Section 1.2.2, “The Main Features of MySQL”](#)

[Section 11.3.6, “The SET Type”](#)

[Section 25.5.3, “Updatable and Insertable Views”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

[Section 12.21.2, “Window Function Concepts and Syntax”](#)

[Section 12.21.3, “Window Function Frame Specification”](#)

SYSDATE()

[Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”](#)

[Section 12.7, “Date and Time Functions”](#)

[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)

[Section 17.5.1.14, “Replication and System Functions”](#)

[Section 5.1.7, “Server Command Options”](#)

[Section 5.1.8, “Server System Variables”](#)

SYSTEM_USER()

[Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”](#)

[Section 12.16, “Information Functions”](#)

[Section 10.2.2, “UTF-8 for Metadata”](#)

T

[\[index top\]](#)

TAN()

[Section 12.6.2, “Mathematical Functions”](#)

TIME()

[Section 12.7, “Date and Time Functions”](#)

TIME_FORMAT()

[Section 12.11, “Cast Functions and Operators”](#)

[Section 12.7, “Date and Time Functions”](#)

TIME_TO_SEC()

[Section 12.7, “Date and Time Functions”](#)

[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

TIMEDIFF()

[Section 12.7, “Date and Time Functions”](#)

TIMESTAMP()

[Section 12.7, “Date and Time Functions”](#)

TIMESTAMPADD()

[Section 12.7, “Date and Time Functions”](#)

TIMESTAMPDIFF()

[Section 12.7, “Date and Time Functions”](#)

[Section 3.3.4.5, “Date Calculations”](#)

TO_BASE64()

[Section 12.8, “String Functions and Operators”](#)

TO_DAYS()

[Section 12.7, “Date and Time Functions”](#)

[Section 24.2.4, “HASH Partitioning”](#)

[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)

[Section 24.4, “Partition Pruning”](#)

[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

[Section 24.2, “Partitioning Types”](#)

TO_SECONDS()

[Section 12.7, “Date and Time Functions”](#)

[Section 24.4, “Partition Pruning”](#)

[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

[Section 24.2, “Partitioning Types”](#)

TRIM()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)

[Section 10.7, “Column Character Set Conversion”](#)

[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)

[Section 12.8, “String Functions and Operators”](#)

TRUNCATE()

[Section 12.6.2, “Mathematical Functions”](#)

U

[\[index top\]](#)

UCASE()

[Section 12.8.3, “Character Set and Collation of Function Results”](#)

[Section 12.8, “String Functions and Operators”](#)

UNCOMPRESS()

[Section 12.14, “Encryption and Compression Functions”](#)

[Section 2.8.7, “MySQL Source-Configuration Options”](#)

[Section 5.1.8, “Server System Variables”](#)

UNCOMPRESSED_LENGTH()

[Section 12.14, “Encryption and Compression Functions”](#)

UNHEX()

Section 12.14, “Encryption and Compression Functions”
Section 4.5.1.1, “mysql Client Options”
Section 12.8, “String Functions and Operators”

UNIX_TIMESTAMP()

Section 12.7, “Date and Time Functions”
Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”
Section 8.3.14, “Indexed Lookups from TIMESTAMP Columns”
Section 24.6.3, “Partitioning Limitations Relating to Functions”
Section 24.2.1, “RANGE Partitioning”
Section 5.1.8, “Server System Variables”
Section 28.4.3.21, “The metrics View”
Section B.3.3.7, “Time Zone Problems”
Section 1.3, “What Is New in MySQL 8.0”

UpdateXML()

Section 12.12, “XML Functions”

UPPER()

Section 12.11, “Cast Functions and Operators”
Section 12.8.3, “Character Set and Collation of Function Results”
Section 10.2.1, “Character Set Repertoire”
Section 12.8, “String Functions and Operators”
Section 10.10.1, “Unicode Character Sets”
Section 10.8.7, “Using Collation in INFORMATION_SCHEMA Searches”

USER()

Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”
Section 13.7.1.1, “ALTER USER Statement”
Section 10.8.4, “Collation Coercibility in Expressions”
Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”
Section 12.16, “Information Functions”
Section 6.4.1.7, “LDAP Pluggable Authentication”
Section 5.4.4.3, “Mixed Binary Logging Format”
Section 5.1.14, “Network Namespace Support”
Section 6.2.15, “Password Management”
Section 6.4.3.2, “Password Validation Options and Variables”
Section 6.2.19, “Proxy Users”
Section 17.5.1.14, “Replication and System Functions”
Section 6.2.23, “SQL-Based Account Activity Auditing”
Section 10.2.2, “UTF-8 for Metadata”

UTC_DATE

Section 12.7, “Date and Time Functions”

UTC_DATE()

Section 12.7, “Date and Time Functions”
Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

UTC_TIME

Section 12.7, “Date and Time Functions”

UTC_TIME()

Section 12.7, “Date and Time Functions”
Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

UTC_TIMESTAMP

Section 12.7, “Date and Time Functions”

UTC_TIMESTAMP()

Section 12.7, “Date and Time Functions”

Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

Section 5.1.15, “MySQL Server Time Zone Support”

UUID()

Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”

Section 17.1.6.4, “Binary Logging Options and Variables”

Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

Section 8.2.1.20, “Function Call Optimization”

Section 12.24, “Miscellaneous Functions”

Section 5.4.4.3, “Mixed Binary Logging Format”

Section 17.5.1.14, “Replication and System Functions”

Section 25.7, “Stored Program Binary Logging”

UUID_SHORT()

Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”

Section 17.2.1.3, “Determination of Safe and Unsafe Statements in Binary Logging”

Section 12.24, “Miscellaneous Functions”

UUID_TO_BIN()

Section 12.13, “Bit Functions and Operators”

Section 12.24, “Miscellaneous Functions”

V

[index top]

VALIDATE_PASSWORD_STRENGTH()

Section 12.14, “Encryption and Compression Functions”

Section 6.4.3.2, “Password Validation Options and Variables”

Section 6.4.3, “The Password Validation Component”

VALUES()

Section 13.2.7.2, “INSERT ... ON DUPLICATE KEY UPDATE Statement”

Section 12.24, “Miscellaneous Functions”

Section 13.2.19, “VALUES Statement”

Section 1.3, “What Is New in MySQL 8.0”

VAR_POP()

Section 12.20.1, “Aggregate Function Descriptions”

Section 8.2.1.21, “Window Function Optimization”

VAR_SAMP()

Section 12.20.1, “Aggregate Function Descriptions”

Section 8.2.1.21, “Window Function Optimization”

VARIANCE()

Section 12.20.1, “Aggregate Function Descriptions”

VERSION()

Section 17.2.1.1, “Advantages and Disadvantages of Statement-Based and Row-Based Replication”

Section 6.4.5.4, “Audit Log File Formats”
Section B.3.4.1, “Case Sensitivity in String Searches”
Section 10.8.4, “Collation Coercibility in Expressions”
Section 12.16, “Information Functions”
Section 17.5.1.14, “Replication and System Functions”
Section 28.4.3.47, “The version View”
Section 10.2.2, “UTF-8 for Metadata”

version_tokens_delete()

Section 5.6.6.3, “Using Version Tokens”
Section 5.6.6.4, “Version Tokens Reference”

version_tokens_edit()

Section 5.6.6.3, “Using Version Tokens”
Section 5.6.6.4, “Version Tokens Reference”

version_tokens_lock_exclusive()

Section 5.6.6.3, “Using Version Tokens”
Section 5.6.6.4, “Version Tokens Reference”

version_tokens_lock_shared()

Section 5.6.6.3, “Using Version Tokens”
Section 5.6.6.4, “Version Tokens Reference”

version_tokens_set()

Section 5.6.6.3, “Using Version Tokens”
Section 5.6.6.4, “Version Tokens Reference”

version_tokens_show()

Section 5.6.6.3, “Using Version Tokens”
Section 5.6.6.4, “Version Tokens Reference”

version_tokens_unlock()

Section 5.6.6.3, “Using Version Tokens”
Section 5.6.6.4, “Version Tokens Reference”

W

[index top]

WAIT_FOR_EXECUTED_GTID_SET()

Section 12.19, “Functions Used with Global Transaction Identifiers (GTIDs)”
Section 17.1.4.1, “Replication Mode Concepts”
Section 17.1.3.8, “Stored Function Examples to Manipulate GTIDs”

WAIT_UNTIL_SQL_THREAD_AFTER_GTIDS()

Section 12.19, “Functions Used with Global Transaction Identifiers (GTIDs)”

WEEK()

Section 12.7, “Date and Time Functions”
Section 5.1.8, “Server System Variables”

WEEKDAY()

Section 12.7, “Date and Time Functions”

[Section 1.6.1, “MySQL Extensions to Standard SQL”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)
[Section 24.2, “Partitioning Types”](#)

WEEKOFYEAR()

[Section 12.7, “Date and Time Functions”](#)

WEIGHT_STRING()

[Section 10.14, “Adding a Collation to a Character Set”](#)
[Section B.3.4.1, “Case Sensitivity in String Searches”](#)
[Section 12.8, “String Functions and Operators”](#)
[Section 10.10.1, “Unicode Character Sets”](#)

Y

[\[index top\]](#)

YEAR()

[Section 12.7, “Date and Time Functions”](#)
[Section 3.3.4.5, “Date Calculations”](#)
[Section 24.2.4, “HASH Partitioning”](#)
[Section 24.2.7, “How MySQL Partitioning Handles NULL”](#)
[Section 24.3.1, “Management of RANGE and LIST Partitions”](#)
[Section 24.4, “Partition Pruning”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)
[Section 24.2, “Partitioning Types”](#)
[Section 24.2.1, “RANGE Partitioning”](#)

YEARWEEK()

[Section 12.7, “Date and Time Functions”](#)
[Section 24.6.3, “Partitioning Limitations Relating to Functions”](#)

INFORMATION_SCHEMA Index

[A](#) | [C](#) | [E](#) | [F](#) | [I](#) | [K](#) | [M](#) | [N](#) | [O](#) | [P](#) | [R](#) | [S](#) | [T](#) | [U](#) | [V](#)

A

[\[index top\]](#)

ADMINISTRABLE_ROLE_AUTHORIZATIONS

[Section 26.3.2, “The INFORMATION_SCHEMA ADMINISTRABLE_ROLE_AUTHORIZATIONS Table”](#)

APPLICABLE_ROLES

[Section 26.3.3, “The INFORMATION_SCHEMA APPLICABLE_ROLES Table”](#)

C

[\[index top\]](#)

CHARACTER_SETS

[Section 10.3.8, “Character Set Introducers”](#)
[Section 10.2, “Character Sets and Collations in MySQL”](#)
[Section 10.3.6, “Character String Literal Character Set and Collation”](#)
[Section 10.3.5, “Column Character Set and Collation”](#)

[Section 10.3.3, “Database Character Set and Collation”](#)
[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 13.7.7.3, “SHOW CHARACTER SET Statement”](#)
[Section 10.10, “Supported Character Sets and Collations”](#)
[Section 10.3.4, “Table Character Set and Collation”](#)
[Section 26.3.4, “The INFORMATION_SCHEMA CHARACTER_SETS Table”](#)

CHECK_CONSTRAINTS

[Section 13.1.20.6, “CHECK Constraints”](#)
[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 26.3.5, “The INFORMATION_SCHEMA CHECK_CONSTRAINTS Table”](#)

COLLATION_CHARACTER_SET_APPLICABILITY

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 8.2.3, “Optimizing INFORMATION_SCHEMA Queries”](#)
[Section 26.3.7, “The INFORMATION_SCHEMA COLLATION_CHARACTER_SET_APPLICABILITY Table”](#)

COLLATIONS

[Section 10.15, “Character Set Configuration”](#)
[Section 10.2, “Character Sets and Collations in MySQL”](#)
[Section 10.14.2, “Choosing a Collation ID”](#)
[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 8.9.6, “Optimizer Statistics”](#)
[Section 13.7.7.4, “SHOW COLLATION Statement”](#)
[Section 10.8.5, “The binary Collation Compared to _bin Collations”](#)
[Section 11.3.2, “The CHAR and VARCHAR Types”](#)
[Section 26.3.6, “The INFORMATION_SCHEMA COLLATIONS Table”](#)
[Section 10.10.1, “Unicode Character Sets”](#)

COLUMN_PRIVILEGES

[Section 26.3.10, “The INFORMATION_SCHEMA COLUMN_PRIVILEGES Table”](#)

COLUMN_STATISTICS

[Section 13.7.3.1, “ANALYZE TABLE Statement”](#)
[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 8.9.6, “Optimizer Statistics”](#)
[Section 26.3.11, “The INFORMATION_SCHEMA COLUMN_STATISTICS Table”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

COLUMNS

[Section 13.1.20, “CREATE TABLE Statement”](#)
[Section 13.1.20.11, “Generated Invisible Primary Keys”](#)
[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 26.1, “Introduction”](#)
[Section 13.1.20.10, “Invisible Columns”](#)
[Section 5.1.8, “Server System Variables”](#)
[Section 13.7.7.5, “SHOW COLUMNS Statement”](#)
[Section 26.3.8, “The INFORMATION_SCHEMA COLUMNS Table”](#)
[Section 26.4.2, “The INFORMATION_SCHEMA INNODB_BUFFER_PAGE Table”](#)
[Section 26.4.3, “The INFORMATION_SCHEMA INNODB_BUFFER_PAGE_LRU Table”](#)
[Section 26.4.4, “The INFORMATION_SCHEMA INNODB_BUFFER_POOL_STATS Table”](#)
[Section 26.4.5, “The INFORMATION_SCHEMA INNODB_CACHED_INDEXES Table”](#)
[Section 26.4.6, “The INFORMATION_SCHEMA INNODB_CMP and INNODB_CMP_RESET Tables”](#)
[Section 26.4.8, “The INFORMATION_SCHEMA INNODB_CMP_PER_INDEX and INNODB_CMP_PER_INDEX_RESET Tables”](#)

Section 26.4.7, “The INFORMATION_SCHEMA INNODB_CMPMEM and INNODB_CMPMEM_RESET Tables”
Section 26.4.9, “The INFORMATION_SCHEMA INNODB_COLUMNS Table”
Section 26.4.10, “The INFORMATION_SCHEMA INNODB_DATAFILES Table”
Section 26.4.11, “The INFORMATION_SCHEMA INNODB_FIELDS Table”
Section 26.4.12, “The INFORMATION_SCHEMA INNODB_FOREIGN Table”
Section 26.4.13, “The INFORMATION_SCHEMA INNODB_FOREIGN_COLS Table”
Section 26.4.14, “The INFORMATION_SCHEMA INNODB_FT_BEING_DELETED Table”
Section 26.4.15, “The INFORMATION_SCHEMA INNODB_FT_CONFIG Table”
Section 26.4.16, “The INFORMATION_SCHEMA INNODB_FT_DEFAULT_STOPWORD Table”
Section 26.4.17, “The INFORMATION_SCHEMA INNODB_FT_DELETED Table”
Section 26.4.18, “The INFORMATION_SCHEMA INNODB_FT_INDEX_CACHE Table”
Section 26.4.19, “The INFORMATION_SCHEMA INNODB_FT_INDEX_TABLE Table”
Section 26.4.20, “The INFORMATION_SCHEMA INNODB_INDEXES Table”
Section 26.4.21, “The INFORMATION_SCHEMA INNODB_METRICS Table”
Section 26.4.22, “The INFORMATION_SCHEMA INNODB_SESSION_TEMP_TABLESPACES Table”
Section 26.4.23, “The INFORMATION_SCHEMA INNODB_TABLES Table”
Section 26.4.24, “The INFORMATION_SCHEMA INNODB_TABLESPACES Table”
Section 26.4.25, “The INFORMATION_SCHEMA INNODB_TABLESPACES_BRIEF Table”
Section 26.4.26, “The INFORMATION_SCHEMA INNODB_TABLESTATS View”
Section 26.4.27, “The INFORMATION_SCHEMA INNODB_TEMP_TABLE_INFO Table”
Section 26.4.28, “The INFORMATION_SCHEMA INNODB_TRX Table”
Section 26.4.29, “The INFORMATION_SCHEMA INNODB_VIRTUAL Table”
Section 26.3.35, “The INFORMATION_SCHEMA ST_GeOMETRY_COLUMNS Table”
Section 2.10.6, “Upgrading MySQL Binary or Package-based Installations on Unix/Linux”
Section 1.3, “What Is New in MySQL 8.0”

COLUMNS_EXTENSIONS

Section 26.3.9, “The INFORMATION_SCHEMA COLUMNS_EXTENSIONS Table”

CONNECTION_CONTROL_FAILED_LOGIN_ATTEMPTS

Section 6.4.2.1, “Connection-Control Plugin Installation”
Section 6.4.2.2, “Connection-Control System and Status Variables”
Section 6.4.2, “The Connection-Control Plugins”
Section 26.6.2, “The INFORMATION_SCHEMA CONNECTION_CONTROL_FAILED_LOGIN_ATTEMPTS Table”

E

[index top]

ENABLED_ROLES

Section 26.3.12, “The INFORMATION_SCHEMA ENABLED_ROLES Table”

ENGINES

Section 27.1, “Performance Schema Quick Start”
Section 23.6.19, “Quick Reference: NDB Cluster SQL Statements”
Section 5.1.8, “Server System Variables”
Section 13.7.7.16, “SHOW ENGINES Statement”
Section 26.3.13, “The INFORMATION_SCHEMA ENGINES Table”
Section 15.1.3, “Verifying that InnoDB is the Default Storage Engine”

EVENTS

Section 17.1.2.8, “Adding Replicas to a Replication Environment”
Section 25.4.4, “Event Metadata”
Section 25.4.2, “Event Scheduler Configuration”
Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”

[Section 17.5.1.16, “Replication of Invoked Features”](#)
[Section 25.8, “Restrictions on Stored Programs”](#)
[Setting Up Replication with Existing Data](#)
[Section 13.7.7.18, “SHOW EVENTS Statement”](#)
[Section 25.4.6, “The Event Scheduler and MySQL Privileges”](#)
[Section 26.3.14, “The INFORMATION_SCHEMA EVENTS Table”](#)

F

[\[index top\]](#)

FILES

[Section 13.1.6, “ALTER LOGFILE GROUP Statement”](#)
[Section 13.1.10, “ALTER TABLESPACE Statement”](#)
[Section 2.10.4, “Changes in MySQL 8.0”](#)
[Section 5.6.7.3, “Cloning Remote Data”](#)
[Section 13.1.16, “CREATE LOGFILE GROUP Statement”](#)
[Section 13.1.21, “CREATE TABLESPACE Statement”](#)
[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 23.6.17, “INFORMATION_SCHEMA Tables for NDB Cluster”](#)
[Section 15.6.3.6, “Moving Tablespace Files While the Server is Offline”](#)
[Section 23.6.11.1, “NDB Cluster Disk Data Objects”](#)
[Section 23.6.11.2, “NDB Cluster Disk Data Storage Requirements”](#)
[Section 23.5.9, “`ndb_desc` — Describe NDB Tables”](#)
[Section 23.6.16, “`ndbinfo`: The NDB Cluster Information Database”](#)
[Section 6.2.2, “Privileges Provided by MySQL”](#)
[Section 15.15.8, “Retrieving InnoDB Tablespace Metadata from INFORMATION_SCHEMA.FILES”](#)
[Section 15.6.3.5, “Temporary Tablespaces”](#)
[Section 26.3.15, “The INFORMATION_SCHEMA FILES Table”](#)
[Section 26.4.10, “The INFORMATION_SCHEMA INNODB_DATAFILES Table”](#)
[Section 26.4.24, “The INFORMATION_SCHEMA INNODB_TABLESPACES Table”](#)
[Section 26.3.40, “The INFORMATION_SCHEMA TABLESPACES Table”](#)
[Section 23.6.16.24, “The `ndbinfo dict_obj_info` Table”](#)
[Section 23.6.16.25, “The `ndbinfo dict_obj_tree` Table”](#)
[Section 23.6.16.42, “The `ndbinfo logbuffers` Table”](#)
[Section 23.6.16.43, “The `ndbinfo logspaces` Table”](#)
[Section 15.6.3.4, “Undo Tablespaces”](#)
[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

I

[\[index top\]](#)

INFORMATION_SCHEMA

[Section 2.10.4, “Changes in MySQL 8.0”](#)
[Section 14.1, “Data Dictionary Schema”](#)
[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 23.6.17, “INFORMATION_SCHEMA Tables for NDB Cluster”](#)
[Section 15.15, “InnoDB INFORMATION_SCHEMA Tables”](#)
[Chapter 14, *MySQL Data Dictionary*](#)
[MySQL Glossary](#)
[Section 23.6.20.2, “NDB Cluster and MySQL Privileges”](#)
[Section 15.12.1, “Online DDL Operations”](#)
[Section 6.2.9, “Reserved Accounts”](#)
[Section 5.2, “The MySQL Data Directory”](#)
[Section 28.2, “Using the sys Schema”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

[Section 23.2.4, “What is New in MySQL NDB Cluster”](#)

INFORMATION_SCHEMA.CHARACTER_SETS

[Section A.11, “MySQL 8.0 FAQ: MySQL Chinese, Japanese, and Korean Character Sets”](#)

INFORMATION_SCHEMA.COLUMN_STATISTICS

[Section 8.9, “Controlling the Query Optimizer”](#)

[Section 8.9.6, “Optimizer Statistics”](#)

INFORMATION_SCHEMA.COLUMNS

[Section 23.5.14, “ndb_index_stat — NDB Index Statistics Utility”](#)

[Section 27.1, “Performance Schema Quick Start”](#)

INFORMATION_SCHEMA.EVENTS

[Section 17.5.1.16, “Replication of Invoked Features”](#)

INFORMATION_SCHEMA.FILES

[Section 5.6.7.3, “Cloning Remote Data”](#)

[Section 13.1.21, “CREATE TABLESPACE Statement”](#)

[Section 23.6.16.25, “The ndbinfo dict_obj_tree Table”](#)

[Section 15.6.3.4, “Undo Tablespaces”](#)

INFORMATION_SCHEMA.INNODB_CMP

[MySQL Glossary](#)

[Section 15.9.1.3, “Tuning Compression for InnoDB Tables”](#)

[Section 15.15.1.3, “Using the Compression Information Schema Tables”](#)

INFORMATION_SCHEMA.INNODB_CMP_PER_INDEX

[Section 15.9.1.3, “Tuning Compression for InnoDB Tables”](#)

INFORMATION_SCHEMA.INNODB_CMPMEM

[Section 15.15.1.3, “Using the Compression Information Schema Tables”](#)

INFORMATION_SCHEMA.INNODB_TABLES

[Section 24.3.3, “Exchanging Partitions and Subpartitions with Tables”](#)

[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)

INFORMATION_SCHEMA.INNODB_TABLESPACES

[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)

INFORMATION_SCHEMA.INNODB_TABLESTATS

[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)

INFORMATION_SCHEMA.PARTITIONS

[Section 24.2.7, “How MySQL Partitioning Handles NULL”](#)

INFORMATION_SCHEMA.PLUGINS

[Section A.2, “MySQL 8.0 FAQ: Storage Engines”](#)

INFORMATION_SCHEMA.ROUTINES

[Section A.4, “MySQL 8.0 FAQ: Stored Procedures and Functions”](#)

INFORMATION_SCHEMA.STATISTICS

[Section 23.5.14, “ndb_index_stat — NDB Index Statistics Utility”](#)

[Section 5.3, “The mysql System Schema”](#)

INFORMATION_SCHEMA.TABLES

[Section 15.13, “InnoDB Data-at-Rest Encryption”](#)

INFORMATION_SCHEMA.TRIGGERS

[Section A.5, “MySQL 8.0 FAQ: Triggers”](#)

INNODB_BUFFER_PAGE

[Section 15.5.2, “Change Buffer”](#)

[Section 15.15.5, “InnoDB INFORMATION_SCHEMA Buffer Pool Tables”](#)

[Section 28.1, “Prerequisites for Using the sys Schema”](#)

[Section 26.4.2, “The INFORMATION_SCHEMA INNODB_BUFFER_PAGE Table”](#)

[Section 26.4.3, “The INFORMATION_SCHEMA INNODB_BUFFER_PAGE_LRU Table”](#)

[Section 28.4.3.7, “The innodb_buffer_stats_by_schema and x\\$innodb_buffer_stats_by_schema Views”](#)

[Section 28.4.3.8, “The innodb_buffer_stats_by_table and x\\$innodb_buffer_stats_by_table Views”](#)

INNODB_BUFFER_PAGE_LRU

[Section 15.15.5, “InnoDB INFORMATION_SCHEMA Buffer Pool Tables”](#)

[Section 15.8.3.6, “Saving and Restoring the Buffer Pool State”](#)

[Section 26.4.3, “The INFORMATION_SCHEMA INNODB_BUFFER_PAGE_LRU Table”](#)

INNODB_BUFFER_POOL_STATS

[Section 15.5.1, “Buffer Pool”](#)

[Section 15.15.5, “InnoDB INFORMATION_SCHEMA Buffer Pool Tables”](#)

[Section 26.4.4, “The INFORMATION_SCHEMA INNODB_BUFFER_POOL_STATS Table”](#)

INNODB_CACHED_INDEXES

[Section 26.4.5, “The INFORMATION_SCHEMA INNODB_CACHED_INDEXES Table”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

INNODB_CMP

[Section 15.15.1, “InnoDB INFORMATION_SCHEMA Tables about Compression”](#)

[Section 15.15.1.1, “INNODB_CMP and INNODB_CMP_RESET”](#)

[Section 15.15.1.2, “INNODB_CMPEM and INNODB_CMPEM_RESET”](#)

[Section 15.9.1.4, “Monitoring InnoDB Table Compression at Runtime”](#)

[Section 26.4.6, “The INFORMATION_SCHEMA INNODB_CMP and INNODB_CMP_RESET Tables”](#)

[Section 15.9.1.3, “Tuning Compression for InnoDB Tables”](#)

[Section 15.15.1.3, “Using the Compression Information Schema Tables”](#)

INNODB_CMP_PER_INDEX

[Section 15.14, “InnoDB Startup Options and System Variables”](#)

[Section 15.9.1.4, “Monitoring InnoDB Table Compression at Runtime”](#)

[Section 26.4.8, “The INFORMATION_SCHEMA INNODB_CMP_PER_INDEX and INNODB_CMP_PER_INDEX_RESET Tables”](#)

[Section 15.9.1.3, “Tuning Compression for InnoDB Tables”](#)

[Section 15.15.1.3, “Using the Compression Information Schema Tables”](#)

INNODB_CMP_PER_INDEX_RESET

[Section 26.4.8, “The INFORMATION_SCHEMA INNODB_CMP_PER_INDEX and INNODB_CMP_PER_INDEX_RESET Tables”](#)

INNODB_CMP_RESET

[Section 15.15.1, “InnoDB INFORMATION_SCHEMA Tables about Compression”](#)

[Section 15.15.1.1, “INNODB_CMP and INNODB_CMP_RESET”](#)

[Section 15.15.1.2, “INNODB_CMPMEM and INNODB_CMPMEM_RESET”](#)

[Section 26.4.6, “The INFORMATION_SCHEMA INNODB_CMP and INNODB_CMP_RESET Tables”](#)

INNODB_CMPMEM

[Section 15.15.1, “InnoDB INFORMATION_SCHEMA Tables about Compression”](#)

[Section 15.15.1.2, “INNODB_CMPMEM and INNODB_CMPMEM_RESET”](#)

[Section 26.4.7, “The INFORMATION_SCHEMA INNODB_CMPMEM and INNODB_CMPMEM_RESET Tables”](#)

[Section 15.15.1.3, “Using the Compression Information Schema Tables”](#)

INNODB_CMPMEM_RESET

[Section 15.15.1, “InnoDB INFORMATION_SCHEMA Tables about Compression”](#)

[Section 15.15.1.2, “INNODB_CMPMEM and INNODB_CMPMEM_RESET”](#)

[Section 26.4.7, “The INFORMATION_SCHEMA INNODB_CMPMEM and INNODB_CMPMEM_RESET Tables”](#)

INNODB_COLUMNS

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)

[Section 26.4.9, “The INFORMATION_SCHEMA INNODB_COLUMNS Table”](#)

[Section 26.4.29, “The INFORMATION_SCHEMA INNODB_VIRTUAL Table”](#)

INNODB_DATAFILES

[Section 2.10.4, “Changes in MySQL 8.0”](#)

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)

[Section 15.15.8, “Retrieving InnoDB Tablespace Metadata from INFORMATION_SCHEMA.FILES”](#)

[Section 26.3.15, “The INFORMATION_SCHEMA FILES Table”](#)

[Section 26.4.10, “The INFORMATION_SCHEMA INNODB_DATAFILES Table”](#)

[Section 26.4.25, “The INFORMATION_SCHEMA INNODB_TABLESPACES_BRIEF Table”](#)

[Section 26.3.40, “The INFORMATION_SCHEMA TABLESPACES Table”](#)

INNODB_FIELDS

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)

[Section 26.4.11, “The INFORMATION_SCHEMA INNODB_FIELDS Table”](#)

INNODB_FOREIGN

[Section 1.6.3.2, “FOREIGN KEY Constraints”](#)

[Section 13.1.20.5, “FOREIGN KEY Constraints”](#)

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)

[Section 26.4.12, “The INFORMATION_SCHEMA INNODB_FOREIGN Table”](#)

INNODB_FOREIGN_COLS

[Section 1.6.3.2, “FOREIGN KEY Constraints”](#)

[Section 13.1.20.5, “FOREIGN KEY Constraints”](#)

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)

[Section 26.4.13, “The INFORMATION_SCHEMA INNODB_FOREIGN_COLS Table”](#)

INNODB_FT_BEING_DELETED

[Section 15.6.2.4, “InnoDB Full-Text Indexes”](#)

[Section 15.15.4, “InnoDB INFORMATION_SCHEMA FULLTEXT Index Tables”](#)

[Section 15.14, “InnoDB Startup Options and System Variables”](#)

[Section 26.4.14, “The INFORMATION_SCHEMA INNODB_FT_BEING_DELETED Table”](#)

INNODB_FT_CONFIG

[Section 15.6.2.4, “InnoDB Full-Text Indexes”](#)
[Section 15.15.4, “InnoDB INFORMATION_SCHEMA FULLTEXT Index Tables”](#)
[Section 15.14, “InnoDB Startup Options and System Variables”](#)
[Section 26.4.15, “The INFORMATION_SCHEMA INNODB_FT_CONFIG Table”](#)

INNODB_FT_DEFAULT_STOPWORD

[Section 12.10.4, “Full-Text Stopwords”](#)
[Section 15.6.2.4, “InnoDB Full-Text Indexes”](#)
[Section 15.15.4, “InnoDB INFORMATION_SCHEMA FULLTEXT Index Tables”](#)
[Section 26.4.16, “The INFORMATION_SCHEMA INNODB_FT_DEFAULT_STOPWORD Table”](#)

INNODB_FT_DELETED

[Section 15.6.2.4, “InnoDB Full-Text Indexes”](#)
[Section 15.15.4, “InnoDB INFORMATION_SCHEMA FULLTEXT Index Tables”](#)
[Section 15.14, “InnoDB Startup Options and System Variables”](#)
[Section 26.4.14, “The INFORMATION_SCHEMA INNODB_FT_BEING_DELETED Table”](#)
[Section 26.4.17, “The INFORMATION_SCHEMA INNODB_FT_DELETED Table”](#)

INNODB_FT_INDEX_CACHE

[Section 15.6.2.4, “InnoDB Full-Text Indexes”](#)
[Section 15.15.4, “InnoDB INFORMATION_SCHEMA FULLTEXT Index Tables”](#)
[Section 15.14, “InnoDB Startup Options and System Variables”](#)
[Section 12.10.9, “MeCab Full-Text Parser Plugin”](#)
[Section 12.10.8, “ngram Full-Text Parser”](#)
[Section 26.4.18, “The INFORMATION_SCHEMA INNODB_FT_INDEX_CACHE Table”](#)

INNODB_FT_INDEX_TABLE

[Section 12.10.4, “Full-Text Stopwords”](#)
[Section 15.6.2.4, “InnoDB Full-Text Indexes”](#)
[Section 15.15.4, “InnoDB INFORMATION_SCHEMA FULLTEXT Index Tables”](#)
[Section 15.14, “InnoDB Startup Options and System Variables”](#)
[Section 26.4.14, “The INFORMATION_SCHEMA INNODB_FT_BEING_DELETED Table”](#)
[Section 26.4.17, “The INFORMATION_SCHEMA INNODB_FT_DELETED Table”](#)
[Section 26.4.19, “The INFORMATION_SCHEMA INNODB_FT_INDEX_TABLE Table”](#)

INNODB_INDEXES

[Section 15.8.11, “Configuring the Merge Threshold for Index Pages”](#)
[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 15.6.2.4, “InnoDB Full-Text Indexes”](#)
[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)
[Section 26.4.5, “The INFORMATION_SCHEMA INNODB_CACHED_INDEXES Table”](#)
[Section 26.4.20, “The INFORMATION_SCHEMA INNODB_INDEXES Table”](#)

INNODB_METRICS

[Section 13.7.3.1, “ANALYZE TABLE Statement”](#)
[Section 15.5.2, “Change Buffer”](#)
[Section 15.8.11, “Configuring the Merge Threshold for Index Pages”](#)
[Section 15.15.6, “InnoDB INFORMATION_SCHEMA Metrics Table”](#)
[Section 15.14, “InnoDB Startup Options and System Variables”](#)
[MySQL Glossary](#)
[Section 26.4.21, “The INFORMATION_SCHEMA INNODB_METRICS Table”](#)
[Section 28.4.3.21, “The metrics View”](#)
[Section 15.7.6, “Transaction Scheduling”](#)
[Section 15.6.3.4, “Undo Tablespaces”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

INNODB_SESSION_TEMP_TABLESPACES

[Section 15.6.3.5, “Temporary Tablespaces”](#)

[Section 26.4.22, “The INFORMATION_SCHEMA INNODB_SESSION_TEMP_TABLESPACES Table”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

INNODB_TABLES

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 15.6.2.4, “InnoDB Full-Text Indexes”](#)

[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)

[Section 15.10, “InnoDB Row Formats”](#)

[Section 9.2.4, “Mapping of Identifiers to File Names”](#)

[Section 26.4.5, “The INFORMATION_SCHEMA INNODB_CACHED_INDEXES Table”](#)

[Section 26.4.23, “The INFORMATION_SCHEMA INNODB_TABLES Table”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

INNODB_TABLESPACES

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 15.13, “InnoDB Data-at-Rest Encryption”](#)

[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)

[Section 15.9.2, “InnoDB Page Compression”](#)

[Section 15.15.8, “Retrieving InnoDB Tablespace Metadata from INFORMATION_SCHEMA.FILES”](#)

[Section 13.7.7.38, “SHOW TABLE STATUS Statement”](#)

[Section 15.6.3.9, “Tablespace AUTOEXTEND_SIZE Configuration”](#)

[Section 26.3.15, “The INFORMATION_SCHEMA FILES Table”](#)

[Section 26.4.24, “The INFORMATION_SCHEMA INNODB_TABLESPACES Table”](#)

[Section 26.4.25, “The INFORMATION_SCHEMA INNODB_TABLESPACES_BRIEF Table”](#)

[Section 26.3.38, “The INFORMATION_SCHEMA TABLES Table”](#)

[Section 26.3.40, “The INFORMATION_SCHEMA TABLESPACES Table”](#)

[Section 15.6.3.4, “Undo Tablespaces”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

INNODB_TABLESPACES_BRIEF

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)

[Section 26.4.25, “The INFORMATION_SCHEMA INNODB_TABLESPACES_BRIEF Table”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

INNODB_TABLESTATS

[Section 13.7.3.1, “ANALYZE TABLE Statement”](#)

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 15.15.3, “InnoDB INFORMATION_SCHEMA Schema Object Tables”](#)

[Section 26.4.26, “The INFORMATION_SCHEMA INNODB_TABLESTATS View”](#)

INNODB_TEMP_TABLE_INFO

[Section 15.15.7, “InnoDB INFORMATION_SCHEMA Temporary Table Info Table”](#)

[Section 15.6.3.5, “Temporary Tablespaces”](#)

[Section 26.4.27, “The INFORMATION_SCHEMA INNODB_TEMP_TABLE_INFO Table”](#)

INNODB_TRX

[Section 15.15.2, “InnoDB INFORMATION_SCHEMA Transaction and Locking Information”](#)

[Section 15.15.2.2, “InnoDB Lock and Lock-Wait Information”](#)

[Section 15.14, “InnoDB Startup Options and System Variables”](#)

[Section 15.15.2.3, “Persistence and Consistency of InnoDB Transaction and Locking Information”](#)

[Section 27.12.13.1, “The data_locks Table”](#)

[Section 26.4.28, “The INFORMATION_SCHEMA INNODB_TRX Table”](#)

[Section 15.7.6, “Transaction Scheduling”](#)

[Section 15.15.2.1, “Using InnoDB Transaction and Locking Information”](#)

INNODB_VIRTUAL

[Section 26.4.29, “The INFORMATION_SCHEMA INNODB_VIRTUAL Table”](#)

K

[\[index top\]](#)

KEY_COLUMN_USAGE

[Section 1.6.3.2, “FOREIGN KEY Constraints”](#)

[Section 13.1.20.5, “FOREIGN KEY Constraints”](#)

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 26.3.16, “The INFORMATION_SCHEMA KEY_COLUMN_USAGE Table”](#)

[Section 5.3, “The mysql System Schema”](#)

KEYWORDS

[Section 26.3.17, “The INFORMATION_SCHEMA KEYWORDS Table”](#)

M

[\[index top\]](#)

MYSQL_FIREWALL_USERS

[Section 6.4.7.4, “MySQL Enterprise Firewall Reference”](#)

[Section 26.7.2, “The INFORMATION_SCHEMA MYSQL_FIREWALL_USERS Table”](#)

[Section 6.4.7.3, “Using MySQL Enterprise Firewall”](#)

MYSQL_FIREWALL_WHITELIST

[Section 6.4.7.4, “MySQL Enterprise Firewall Reference”](#)

[Section 26.7.3, “The INFORMATION_SCHEMA MYSQL_FIREWALL_WHITELIST Table”](#)

N

[\[index top\]](#)

NDB_TRANSID_MYSQL_CONNECTION_MAP

[Section 23.6.16.54, “The ndbinfo server_operations Table”](#)

[Section 23.6.16.55, “The ndbinfo server_transactions Table”](#)

ndb_transid_mysql_connection_map

[Section 23.6.17, “INFORMATION_SCHEMA Tables for NDB Cluster”](#)

[MySQL Server Options for NDB Cluster](#)

[Section 23.6.16, “ndbinfo: The NDB Cluster Information Database”](#)

O

[\[index top\]](#)

OPTIMIZER_TRACE

[Section 8.2.1.2, “Range Optimization”](#)

[Section 26.3.19, “The INFORMATION_SCHEMA OPTIMIZER_TRACE Table”](#)

P

[\[index top\]](#)

PARAMETERS

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section A.4, “MySQL 8.0 FAQ: Stored Procedures and Functions”](#)
[Section 13.7.7.28, “SHOW PROCEDURE STATUS Statement”](#)
[Section 26.3.20, “The INFORMATION_SCHEMA PARAMETERS Table”](#)
[Section 26.3.30, “The INFORMATION_SCHEMA ROUTINES Table”](#)

PARTITIONS

[Section 24.3.3, “Exchanging Partitions and Subpartitions with Tables”](#)
[Section 24.2.7, “How MySQL Partitioning Handles NULL”](#)
[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 24.2.5, “KEY Partitioning”](#)
[Section 24.3.5, “Obtaining Information About Partitions”](#)
[Chapter 24, *Partitioning*](#)
[Section 24.2.3.1, “RANGE COLUMNS partitioning”](#)
[Section 13.7.7.38, “SHOW TABLE STATUS Statement”](#)
[Section 26.3.21, “The INFORMATION_SCHEMA PARTITIONS Table”](#)
[Section 26.3.38, “The INFORMATION_SCHEMA TABLES Table”](#)

PLUGINS

[Section 5.6.7.3, “Cloning Remote Data”](#)
[Section 6.4.2.1, “Connection-Control Plugin Installation”](#)
[Section 6.4.1.11, “FIDO Pluggable Authentication”](#)
[Section 13.7.4.4, “INSTALL PLUGIN Statement”](#)
[Section 5.6.1, “Installing and Uninstalling Plugins”](#)
[Section 5.6.5.1, “Installing or Uninstalling ddl_rewriter”](#)
[Section 6.4.5.2, “Installing or Uninstalling MySQL Enterprise Audit”](#)
[Section 17.4.10.1, “Installing Semisynchronous Replication”](#)
[Section 5.6.7.1, “Installing the Clone Plugin”](#)
[Section 6.4.1.8, “Kerberos Pluggable Authentication”](#)
[Section 6.4.4.17, “Keyring Metadata”](#)
[Section 6.4.4.3, “Keyring Plugin Installation”](#)
[Section 6.4.1.7, “LDAP Pluggable Authentication”](#)
[Section 6.4.1.9, “No-Login Pluggable Authentication”](#)
[Section 5.6.2, “Obtaining Server Plugin Information”](#)
[Section 6.4.1.5, “PAM Pluggable Authentication”](#)
[Section 23.6.19, “Quick Reference: NDB Cluster SQL Statements”](#)
[Section 5.1.7, “Server Command Options”](#)
[Section 6.4.1.10, “Socket Peer-Credential Pluggable Authentication”](#)
[Section 6.4.1.12, “Test Pluggable Authentication”](#)
[Section 26.3.22, “The INFORMATION_SCHEMA PLUGINS Table”](#)
[Section 5.6.3.2, “Thread Pool Installation”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)
[Section 6.4.1.6, “Windows Pluggable Authentication”](#)

PROCESSLIST

[Section 8.14.1, “Accessing the Process List”](#)
[Section 12.16, “Information Functions”](#)
[Section 13.7.8.4, “KILL Statement”](#)
[Section 8.8.4, “Obtaining Execution Plan Information for a Named Connection”](#)
[Section 27.6, “Performance Schema Instrument Naming Conventions”](#)
[Section 27.12.11, “Performance Schema Replication Tables”](#)
[Section 27.12.5, “Performance Schema Stage Event Tables”](#)
[Section 15.15.2.3, “Persistence and Consistency of InnoDB Transaction and Locking Information”](#)
[Section 6.2.2, “Privileges Provided by MySQL”](#)
[Section 13.7.7.29, “SHOW PROCESSLIST Statement”](#)

[Section 5.6.7.11, “Stopping a Cloning Operation”](#)
[Section 27.12.21.1, “The error_log Table”](#)
[Section 26.4.28, “The INFORMATION_SCHEMA INNODB_TRX Table”](#)
[Section 26.3.23, “The INFORMATION_SCHEMA PROCESSLIST Table”](#)
[Section 28.4.3.22, “The processlist and x\\$processlist Views”](#)
[Section 27.12.21.6, “The processlist Table”](#)
[Section 27.12.21.7, “The threads Table”](#)
[Section 15.15.2.1, “Using InnoDB Transaction and Locking Information”](#)

PROFILING

[Section 13.7.7.30, “SHOW PROFILE Statement”](#)
[Section 26.3.24, “The INFORMATION_SCHEMA PROFILING Table”](#)

R

[\[index top\]](#)

REFERENTIAL_CONSTRAINTS

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 26.3.25, “The INFORMATION_SCHEMA REFERENTIAL_CONSTRAINTS Table”](#)
[Section 5.3, “The mysql System Schema”](#)

RESOURCE_GROUPS

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 5.1.16, “Resource Groups”](#)
[Section 26.3.26, “The INFORMATION_SCHEMA RESOURCE_GROUPS Table”](#)

ROLE_COLUMN_GRANTS

[Section 26.3.27, “The INFORMATION_SCHEMA ROLE_COLUMN_GRANTS Table”](#)

ROLE_ROUTINE_GRANTS

[Section 26.3.28, “The INFORMATION_SCHEMA ROLE_ROUTINE_GRANTS Table”](#)

ROLE_TABLE_GRANTS

[Section 26.3.29, “The INFORMATION_SCHEMA ROLE_TABLE_GRANTS Table”](#)

ROUTINES

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 26.1, “Introduction”](#)
[Section A.4, “MySQL 8.0 FAQ: Stored Procedures and Functions”](#)
[Section 6.2.2, “Privileges Provided by MySQL”](#)
[Section 13.7.7.28, “SHOW PROCEDURE STATUS Statement”](#)
[Section 25.6, “Stored Object Access Control”](#)
[Section 25.2.3, “Stored Routine Metadata”](#)
[Section 25.2.2, “Stored Routines and MySQL Privileges”](#)
[Section 26.3.30, “The INFORMATION_SCHEMA ROUTINES Table”](#)

S

[\[index top\]](#)

SCHEMA_PRIVILEGES

[Section 26.3.33, “The INFORMATION_SCHEMA SCHEMA_PRIVILEGES Table”](#)

SCHEMATA

[Section 10.3.3, “Database Character Set and Collation”](#)

[Section 6.2.3, “Grant Tables”](#)
[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 15.13, “InnoDB Data-at-Rest Encryption”](#)
[Section 6.2.2, “Privileges Provided by MySQL”](#)
[Section 5.1.8, “Server System Variables”](#)
[Section 13.7.7.14, “SHOW DATABASES Statement”](#)
[Section 26.3.31, “The INFORMATION_SCHEMA SCHEMATA Table”](#)
[Section 26.3.32, “The INFORMATION_SCHEMA SCHEMATA_EXTENSIONS Table”](#)

SCHEMATA_EXTENSIONS

[Section 13.1.2, “ALTER DATABASE Statement”](#)
[Section 26.3.31, “The INFORMATION_SCHEMA SCHEMATA Table”](#)
[Section 26.3.32, “The INFORMATION_SCHEMA SCHEMATA_EXTENSIONS Table”](#)

ST_GEOMETRY_COLUMNS

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 26.3.8, “The INFORMATION_SCHEMA COLUMNS Table”](#)
[Section 26.3.35, “The INFORMATION_SCHEMA ST_GEOMETRY_COLUMNS Table”](#)

ST_SPATIAL_REFERENCE_SYSTEMS

[Section 13.1.19, “CREATE SPATIAL REFERENCE SYSTEM Statement”](#)
[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 11.4.5, “Spatial Reference System Support”](#)
[Section 26.3.36, “The INFORMATION_SCHEMA ST_SPATIAL_REFERENCE_SYSTEMS Table”](#)

ST_UNITS_OF_MEASURE

[Section 12.17.7.3, “LineString and MultiLineString Property Functions”](#)
[Section 12.17.9.1, “Spatial Relation Functions That Use Object Shapes”](#)
[Section 26.3.37, “The INFORMATION_SCHEMA ST_UNITS_OF_MEASURE Table”](#)

STATISTICS

[Section 13.7.3.1, “ANALYZE TABLE Statement”](#)
[Section 15.8.10.2, “Configuring Non-Persistent Optimizer Statistics Parameters”](#)
[Section 14.7, “Data Dictionary Usage Differences”](#)
[Section 13.1.20.11, “Generated Invisible Primary Keys”](#)
[Section 8.9.4, “Index Hints”](#)
[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 15.14, “InnoDB Startup Options and System Variables”](#)
[Section 26.1, “Introduction”](#)
[Section 8.3.12, “Invisible Indexes”](#)
[Section 13.7.7.22, “SHOW INDEX Statement”](#)
[Section 26.3.34, “The INFORMATION_SCHEMA STATISTICS Table”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

T

[\[index top\]](#)

TABLE_CONSTRAINTS

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)
[Section 15.12.1, “Online DDL Operations”](#)
[Section 26.3.25, “The INFORMATION_SCHEMA REFERENTIAL_CONSTRAINTS Table”](#)
[Section 26.3.42, “The INFORMATION_SCHEMA TABLE_CONSTRAINTS Table”](#)

TABLE_CONSTRAINTS_EXTENSIONS

[Section 26.3.43, “The INFORMATION_SCHEMA TABLE_CONSTRAINTS_EXTENSIONS Table”](#)

TABLE_PRIVILEGES

[Section 26.3.44, “The INFORMATION_SCHEMA TABLE_PRIVILEGES Table”](#)

TABLES

[Section 23.6.7.3, “Adding NDB Cluster Data Nodes Online: Detailed Example”](#)

[Section 13.1.9, “ALTER TABLE Statement”](#)

[Section 15.8.10.2, “Configuring Non-Persistent Optimizer Statistics Parameters”](#)

[Section 13.1.20, “CREATE TABLE Statement”](#)

[Section 14.7, “Data Dictionary Usage Differences”](#)

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 15.9.2, “InnoDB Page Compression”](#)

[Section 15.14, “InnoDB Startup Options and System Variables”](#)

[Section 26.1, “Introduction”](#)

[Section 9.2.4, “Mapping of Identifiers to File Names”](#)

[NDB Cluster System Variables](#)

[Section 14.2, “Removal of File-based Metadata Storage”](#)

[Section 13.1.20.12, “Setting NDB Comment Options”](#)

[Section 13.7.7.38, “SHOW TABLE STATUS Statement”](#)

[Section 13.7.7.39, “SHOW TABLES Statement”](#)

[Section 28.4.4.2, “The diagnostics\(\) Procedure”](#)

[Section 26.3.38, “The INFORMATION_SCHEMA TABLES Table”](#)

[Section 28.4.2.1, “The sys_config Table”](#)

[Section 5.6.3.2, “Thread Pool Installation”](#)

TABLES_EXTENSIONS

[Section 26.3.39, “The INFORMATION_SCHEMA TABLES_EXTENSIONS Table”](#)

TABLESPACES_EXTENSIONS

[Section 26.3.41, “The INFORMATION_SCHEMA TABLESPACES_EXTENSIONS Table”](#)

TP_THREAD_GROUP_STATE

[Section 26.5, “INFORMATION_SCHEMA Thread Pool Tables”](#)

TP_THREAD_GROUP_STATS

[Section 26.5, “INFORMATION_SCHEMA Thread Pool Tables”](#)

TP_THREAD_STATE

[Section 26.5, “INFORMATION_SCHEMA Thread Pool Tables”](#)

[Section 5.6.3.2, “Thread Pool Installation”](#)

TRIGGERS

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 2.10.5, “Preparing Your Installation for Upgrade”](#)

[Section 13.7.7.11, “SHOW CREATE TRIGGER Statement”](#)

[Section 13.7.7.40, “SHOW TRIGGERS Statement”](#)

[Section 26.3.45, “The INFORMATION_SCHEMA TRIGGERS Table”](#)

[Section 25.3.2, “Trigger Metadata”](#)

U

[\[index top\]](#)

USER_ATTRIBUTES

[Section 13.7.1.1, “ALTER USER Statement”](#)

[Section 13.7.1.3, “CREATE USER Statement”](#)

[Section 6.2.3, “Grant Tables”](#)

[Section 26.3.46, “The INFORMATION_SCHEMA USER_ATTRIBUTES Table”](#)

[Section 1.3, “What Is New in MySQL 8.0”](#)

USER_PRIVILEGES

[Section 6.2.2, “Privileges Provided by MySQL”](#)

[Section 26.3.47, “The INFORMATION_SCHEMA USER_PRIVILEGES Table”](#)

V

[\[index top\]](#)

VIEW_ROUTINE_USAGE

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 26.3.49, “The INFORMATION_SCHEMA VIEW_ROUTINE_USAGE Table”](#)

VIEW_TABLE_USAGE

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 26.3.50, “The INFORMATION_SCHEMA VIEW_TABLE_USAGE Table”](#)

VIEWS

[Section 14.5, “INFORMATION_SCHEMA and Data Dictionary Integration”](#)

[Section 2.10.5, “Preparing Your Installation for Upgrade”](#)

[Section 13.7.7.13, “SHOW CREATE VIEW Statement”](#)

[Section 26.3.48, “The INFORMATION_SCHEMA VIEWS Table”](#)

[Section 25.5.3, “Updatable and Insertable Views”](#)

[Section 25.5.5, “View Metadata”](#)

Join Types Index

[A](#) | [C](#) | [E](#) | [F](#) | [I](#) | [R](#) | [S](#) | [U](#)

A

[\[index top\]](#)

ALL

[Section 8.2.1.23, “Avoiding Full Table Scans”](#)

[Section 8.2.1.12, “Block Nested-Loop and Batched Key Access Joins”](#)

[Section 8.8.2, “EXPLAIN Output Format”](#)

[Section 8.2.1.7, “Nested-Loop Join Algorithms”](#)

C

[\[index top\]](#)

const

[Section 8.8.2, “EXPLAIN Output Format”](#)

[Section 8.8.3, “Extended EXPLAIN Output Format”](#)

[NDB Cluster System Variables](#)

[Section 8.9.3, “Optimizer Hints”](#)

[Section 8.2.1.16, “ORDER BY Optimization”](#)

[Section 8.2.1.2, “Range Optimization”](#)

[Section 13.2.13, “SELECT Statement”](#)

E

[index top]

eq_ref

Section 8.2.1.12, “Block Nested-Loop and Batched Key Access Joins”
Section 8.8.2, “EXPLAIN Output Format”
Section 8.2.1.6, “Index Condition Pushdown Optimization”
Section 16.7.1, “MERGE Table Advantages and Disadvantages”
NDB Cluster System Variables
Section 8.2.2.3, “Optimizing Subqueries with the EXISTS Strategy”
Section 27.12.4.1, “The events_waits_current Table”

F

[index top]

fulltext

Section 8.8.2, “EXPLAIN Output Format”

I

[index top]

index

Section 8.2.1.12, “Block Nested-Loop and Batched Key Access Joins”
Section 8.8.2, “EXPLAIN Output Format”
Section 8.2.1.7, “Nested-Loop Join Algorithms”

index_merge

Section 8.8.2, “EXPLAIN Output Format”
Section 8.2.1.3, “Index Merge Optimization”

index_subquery

Section 8.8.2, “EXPLAIN Output Format”
Section 8.2.2.3, “Optimizing Subqueries with the EXISTS Strategy”

R

[index top]

range

Section 8.2.1.12, “Block Nested-Loop and Batched Key Access Joins”
Section 8.8.2, “EXPLAIN Output Format”
Section 8.2.1.17, “GROUP BY Optimization”
Section 8.2.1.6, “Index Condition Pushdown Optimization”
Section 8.2.1.3, “Index Merge Optimization”
Section 8.2.1.7, “Nested-Loop Join Algorithms”
Section 8.9.3, “Optimizer Hints”
Section 8.2.1.2, “Range Optimization”

ref

Section 8.2.1.12, “Block Nested-Loop and Batched Key Access Joins”
Section 8.8.2, “EXPLAIN Output Format”
Section 8.8.3, “Extended EXPLAIN Output Format”

[Section 8.2.1.6, “Index Condition Pushdown Optimization”](#)
[Section 8.3.8, “InnoDB and MyISAM Index Statistics Collection”](#)
[Section 16.7.1, “MERGE Table Advantages and Disadvantages”](#)
[NDB Cluster System Variables](#)
[Section 8.9.3, “Optimizer Hints”](#)
[Section 8.2.2.4, “Optimizing Derived Tables, View References, and Common Table Expressions with Merging or Materialization”](#)
[Section 8.2.2.3, “Optimizing Subqueries with the EXISTS Strategy”](#)

ref_or_null

[Section 8.8.2, “EXPLAIN Output Format”](#)
[Section 8.2.1.6, “Index Condition Pushdown Optimization”](#)
[Section 8.2.1.15, “IS NULL Optimization”](#)
[Section 8.2.2.3, “Optimizing Subqueries with the EXISTS Strategy”](#)

S

[\[index top\]](#)

system

[Section 8.8.2, “EXPLAIN Output Format”](#)
[Section 8.8.3, “Extended EXPLAIN Output Format”](#)
[Section 8.2.1.2, “Range Optimization”](#)
[Section 13.2.13, “SELECT Statement”](#)

U

[\[index top\]](#)

unique_subquery

[Section 8.8.2, “EXPLAIN Output Format”](#)
[Section 8.2.2.3, “Optimizing Subqueries with the EXISTS Strategy”](#)

Operator Index

[Symbols](#) | [A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [I](#) | [L](#) | [M](#) | [N](#) | [O](#) | [R](#) | [V](#) | [X](#)

Symbols

[\[index top\]](#)

-
[Section 12.6.1, “Arithmetic Operators”](#)
[Section 12.11, “Cast Functions and Operators”](#)
[Section 9.5, “Expressions”](#)
[Section 11.1.1, “Numeric Data Type Syntax”](#)
[Section 24.6, “Restrictions and Limitations on Partitioning”](#)

!

[Section 9.5, “Expressions”](#)
[Section 12.4.3, “Logical Operators”](#)
[Section 12.4.1, “Operator Precedence”](#)
[Section 1.3, “What Is New in MySQL 8.0”](#)

!=

[Section 12.4.2, “Comparison Functions and Operators”](#)