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# 5.5 Replication Features

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# New features at a glance

- Relay log synchronization after failure
- Semi-synchronous replication
- Replication heartbeat(subsecond replication status)
- Automatic datatype conversions between master/slave

# More new features

- Skip particular `server_id` values when reading logs from the master. Set as a comma separated list of values via `CHANGE MASTER`.
- Improved support for large RBR packets in the `mysqlbinlog` utility.

# Semi-sync replication

- Ensures that at least one slave has acknowledged the binary log events related to a transaction.
- Must be enabled on the master.
- Must be enabled on one or more slaves.

# Master impact

- The slave must wait for an acknowledgement from at least one server
- Blocks commits for up to `rpl_semi_sync_master_timeout` seconds (10s)
- Temporarily turns off on timeout
- Once it times out there is some latency before it is enabled again
- If network is unstable it is very likely that you will impact level of service on the master

# Slave impact

- Must be enabled on the slave
- Slave must call `fsync()` on the relay log
- Delays every master commit\* for the length of the network round-trip to the slave, plus the time of this `fsync()`.
- Battery backed write cache or SSD is important on the slave

# Relay log synchronization

- After a crash the relay log might be corrupted
- After a crash the relay log is discarded. It is recreated by the IO thread from the master binary logs.
- Incurs additional overhead on the master particularly if several slaves went down simultaneously

# Replication heartbeat

- 1/100<sup>th</sup> of a second minimum resolution
- Defaults to `net_slave_timeout/2` (.5 hours)
- Smaller is probably better (subsecond)
- CHANGE MASTER TO ...  
MASTER\_HEARTBEAT\_PERIOD=1

# Heartbeat events

- Only sent if no other replication events are sent within the heartbeat period.
- Each slave can have a different heartbeat period

# Implicit data conversion

- Prior to MySQL 5.5, row based replication did not allow tables on the slave to have different data types than those on the master
- In MySQL 5.5 this can be changed on a per slave basis
- SET GLOBAL  
SLAVE\_TYPE\_CONVERSIONS=ALL\_LOSSY,ALL\_NON\_LOSSY