

- Unique indexes are not enforced across shards except for the shard key itself. See *Enforce Unique Keys for Sharded Collections* (page 732).
- Consider *pre-splitting* (page 722) an empty sharded collection before a massive bulk import.

Analyze Performance

As you develop and operate applications with MongoDB, you may want to analyze the performance of the database as the application. *Analyzing MongoDB Performance* (page 213) discusses some of the operational factors that can influence performance.

Additional Resources

- MongoDB Ops Optimization Consulting Package⁸⁴

5.2 Administration Tutorials

The administration tutorials provide specific step-by-step instructions for performing common MongoDB setup, maintenance, and configuration operations.

Configuration, Maintenance, and Analysis (page 221) Describes routine management operations, including configuration and performance analysis.

Manage mongod Processes (page 224) Start, configure, and manage running `mongod` process.

Rotate Log Files (page 231) Archive the current log files and start new ones.

Continue reading from *Configuration, Maintenance, and Analysis* (page 221) for additional tutorials of fundamental MongoDB maintenance procedures.

Backup and Recovery (page 243) Outlines procedures for data backup and restoration with `mongod` instances and deployments.

Backup and Restore with Filesystem Snapshots (page 243) An outline of procedures for creating MongoDB data set backups using system-level file snapshot tool, such as *LVM* or native storage appliance tools.

Backup and Restore Sharded Clusters (page 254) Detailed procedures and considerations for backing up sharded clusters and single shards.

Recover Data after an Unexpected Shutdown (page 263) Recover data from MongoDB data files that were not properly closed or have an invalid state.

Continue reading from *Backup and Recovery* (page 243) for additional tutorials of MongoDB backup and recovery procedures.

MongoDB Scripting (page 265) An introduction to the scripting capabilities of the `mongo` shell and the scripting capabilities embedded in MongoDB instances.

MongoDB Tutorials (page 283) A complete list of tutorials in the MongoDB Manual that address MongoDB operation and use.

⁸⁴https://www.mongodb.com/products/consulting?jmp=docs#ops_optimization