Production MongoDB Docker Setup & Upgrade Guide

Prerequisites

- OS: RHEL/CentOS
- Docker installed (`sudo yum install docker -y`)
- MongoDB runs on port `55017`
- Using Bitnami MongoDB Docker image
- Data volume: /opt/mongodb/data
- Config path: /opt/mongodb/conf/mongodb.conf
- Root credentials:
  - MONGODB_ROOT_USER=superUser
  - MONGODB_ROOT_PASSWORD=uppassord

1. Initial MongoDB Setup (Bitnami 7.0)

1.1 Install Docker

```
sudo yum update -y
sudo yum install docker -y
sudo systemctl enable docker
sudo systemctl start docker
```

1.2 Create Volumes & Config Directory

```
sudo mkdir -p /opt/mongodb/data
sudo mkdir -p /opt/mongodb/conf
sudo chown -R 1001:1001 /opt/mongodb
```

1.3 Create mongodb.conf

```
sudo tee /opt/mongodb/conf/mongodb.conf > /dev/null <<EOF
storage:
  dbPath: /bitnami/mongodb/data

net:
  port: 55017
  bindIp: 127.0.0.1,0.0.0.0
  maxIncomingConnections: 20000

security:
  authorization: enabled

systemLog:
  destination: file
  path: /opt/bitnami/mongodb/logs/mongodb.log
  logAppend: true
EOF
```

1.4 Run MongoDB Container (Bitnami 7.0)

```
docker run -d --name bitnami-mongodb -p 55017:55017 -e MONGODB_ROOT_USER=superUser -e MONGODB_ROOT_PASSWORD=uppassord -v /opt/mongodb/data:/bitnami/mongodb/data -v /opt/mongodb/conf/mongodb.conf:/opt/bitnami/mongodb/conf/mongodb.conf --ulimit nofile=65536:65536 --restart unless-stopped bitnami/mongodb:7.0 --config=/opt/bitnami/mongodb/conf/mongodb.conf
```

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2. Upgrade MongoDB to a Newer Version (e.g., 7.2)

2.1 Backup the Current Database

```
docker exec bitnami-mongodb mongodump -u superUser -p uppassord --out /bitnami/mongodb/backup
docker cp bitnami-mongodb:/bitnami/mongodb/backup /opt/mongodb/backup
```

2.2 Stop and Remove Existing Container

```
docker stop bitnami-mongodb
docker rm bitnami-mongodb
```

2.3 Run the New Version (Bitnami 7.2)

```
docker run -d --name bitnami-mongodb -p 55017:55017 -e MONGODB_ROOT_USER=superUser -e MONGODB_ROOT_PASSWORD=uppassord -v /opt/mongodb/data:/bitnami/mongodb/data -v /opt/mongodb/conf/mongodb.conf:/opt/bitnami/mongodb/conf/mongodb.conf --ulimit nofile=65536:65536 --restart unless-stopped bitnami/mongodb:7.2 --config=/opt/bitnami/mongodb/conf/mongodb.conf
```

2.4 Verify Upgrade

```
docker exec -it bitnami-mongodb mongosh -u superUser -p uppassord --eval "db.version()"
docker exec -it bitnami-mongodb mongosh -u superUser -p uppassord --eval "db.serverStatus().connections"
```

3. Security Best Practices

- Use strong passwords and create app-specific users
- Enable TLS encryption (if external access is needed)
- Restrict access to trusted IPs only
- Configure replica set for high availability
- Integrate with Prometheus/MongoDB Exporter for monitoring

4. Performance Tips

- Use SSD storage
- Monitor connections, opcounters, memory, and locks
- Enable WiredTiger cache tuning
- Create proper indexes on large collections
- Scale vertically or horizontally depending on load

5. Troubleshooting

- Check logs: docker logs bitnami-mongodb
- Check connections: docker exec -it bitnami-mongodb mongosh -u superUser -p uppassord --eval "db.serverStatus().connections"
- Restart MongoDB: docker restart bitnami-mongodb