



PostgreSQL Replication & High Availability Checklist

 **Wayne C.** Published Nov 2, 2025 + Follow

🔧 Core Configuration

- Enable wal_level = replica (or logical for logical replication)

- Set max_wal_senders to a sufficient number

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- Configure wal_keep_size or wal_keep_segments

- Enable hot_standby = on on standby

- Create a dedicated REPLICATION role

- Update pg_hba.conf to allow replication connections

📦 Base Backup (Streaming)

- Use pg_basebackup for initial standby setup

- Use standby.signal (PostgreSQL 12+) in replica

- Validate recovery settings in postgresql.conf or recovery.conf (legacy)

🌱 Synchronous Replication (Optional)

- Set synchronous_standby_names

- Set synchronous_commit = remote_apply

- Monitor commit latencies for impact

🔄 Logical Replication (Optional)

- Create publication on source: CREATE PUBLICATION my_pub FOR ALL TABLES;

- Create subscription on target: CREATE SUBSCRIPTION my_sub CONNECTION '...' PUBLICATION my_pub;

- Verify replication lag with pg_stat_replication and pg_stat_subscription

🔒 Security

- Use SSL for replication connections

- Isolate replication traffic from client traffic

- Restrict replication role privileges

⚙️ High Availability Tooling

- Choose one HA orchestrator:

- Test automatic failover and fencing

- Set up virtual IP or HAProxy for endpoint failover

👁️ Monitoring

- Monitor WAL send/receive lag (pg_stat_replication)

- Check replication slot status

- Use Prometheus + Grafana dashboards

- Alert on delay > threshold

📁 Backup Strategy

- Use tools like:

- Enable WAL archiving

- Store backups in offsite location (e.g., S3)

- Automate backup verification

👤 Read Scalability

- Load-balance read queries to replicas

- Use Pgpool-II or HAProxy with health checks

- Tag replicas for analytical/reporting workloads

🌱 Testing & Failover Drills

- Document failover procedure

- Schedule quarterly failover tests

- Include backup + restore dry runs

📈 Scaling Considerations

- Consider logical replication for version upgrades or partial data sync

- Evaluate Citus for distributed writes

- Prepare for region-based replica distribution

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