

REFERENSI CEPAT REDIS

String, list, set, hash, pub/sub, persistence

Menghubungkan

CLI

```
redis-cli
redis-cli -h 127.0.0.1 -p 6379
redis-cli -a password -n 2
redis-cli --tls -u redis://user:pass@host:6380
```

Koneksi Driver (Python)

```
import redis
r = redis.Redis(host='localhost', port=6379, db=0)
r.set('key', 'value')
print(r.get('key'))
```

Info Server

```
PING -- mengembalikan PONG
INFO server -- detail server
INFO memory -- penggunaan memori
DBSIZE -- jumlah key di db saat ini
```

String

Operasi Dasar

```
SET name "Alice"
GET name
SET counter 100
MSET a 1 b 2 c 3
MGET a b c
```

Operasi Numerik

```
INCR counter -- 101
INCRBY counter 10 -- 111
DECR counter -- 110
DECRBY counter 5 -- 105
INCRBYFLOAT price 2.5
```

Perintah String

```
SET key val Set nilai string
GET key Ambil nilai string
SETNX key val Set hanya jika key belum ada
SETEX key sec val Set dengan kedaluwarsa dalam detik
APPEND key val Tambahkan ke nilai yang ada
STRLEN key Panjang nilai string
```

List

Operasi List

```
LPUSH queue "first"
RPUSH queue "last"
LRANGE queue 0 -1 -- semua elemen
LPOP queue
RPOP queue
```

Perintah List

```
LPUSH / RPUSH Push ke kiri / kanan list
LPOP / RPOP Pop dari kiri / kanan
LRANGE key start stop Dapatkan rentang elemen
LLEN key Panjang list
LINDEX key idx Elemen pada indeks
LREM key count val Hapus count kemunculan val
BLPOP key timeout Blocking pop (untuk queue)
```

Set & Sorted Set

Operasi Set

```
SADD tags "python" "redis" "docker"
SMEMBERS tags
SISMEMBER tags "python" -- 1 (true)
SREM tags "docker"
SCARD tags -- jumlah
```

Operasi Matematika Set

```
SUNION set1 set2 -- union
SINTER set1 set2 -- irisan
SDIFF set1 set2 -- selisih
```

Operasi Sorted Set

```
ZADD leaderboard 100 "Alice" 85 "Bob"
ZRANGE leaderboard 0 -1 WITHSCORES
ZREVRANGE leaderboard 0 2
ZSCORE leaderboard "Alice"
ZRANK leaderboard "Alice" -- rank berbasis 0
```

Perintah Sorted Set

```
ZADD key score member Tambahkan member dengan skor
ZRANGE key start stop Rentang berdasarkan rank (rendah ke tinggi)
ZREVRANGE key start stop Rentang berdasarkan rank (tinggi ke rendah)
ZINCRBY key incr member Tambahkan skor member
ZRANGEBYSCORE key min max Rentang berdasarkan nilai skor
ZCARD key Jumlah member
```

Hash

Operasi Hash

```
HSET user:1 name "Alice" age 30
HGET user:1 name
HGETALL user:1
HMSET user:2 name "Bob" age 25
HMGET user:1 name age
```

Perintah Hash

```
HSET key field val Set field hash
HGET key field Ambil field hash
HGETALL key Ambil semua field dan nilai
HDEL key field Hapus field hash
HEXISTS key field Periksa keberadaan field
HINCRBY key field n Tambahkan nilai field
HKEYS key Semua nama field
HLEN key Jumlah field
```

Key & Kedaluwarsa

Perintah Key

```
KEYS pattern Temukan key yang cocok pola (lambat)
```

SCAN cursor MATCH pat Iterasi key secara bertahap (aman)

EXISTS key Periksa apakah key ada

DEL key Hapus key

TYPE key Dapatkan tipe data key

RENAME key newkey Ganti nama key

Perintah Kedaluwarsa

```
EXPIRE key 3600 -- kedaluwarsa dalam 1 jam
PEXPIRE key 5000 -- kedaluwarsa dalam 5000 ms
TTL key -- detik hingga kedaluwarsa
PTTL key -- ms hingga kedaluwarsa
PERSIST key -- hapus kedaluwarsa
```

Pola Key

```
SET session:abc123 "data" EX 1800
-- EX = detik, PX = milidetik
-- NX = hanya jika belum ada
-- XX = hanya jika sudah ada
SET lock:order42 "owner" NX EX 10
```

Pub/Sub

Pub/Sub Dasar

```
-- Subscriber (terminal 1)
SUBSCRIBE news alerts

-- Publisher (terminal 2)
PUBLISH news "Breaking: Redis 8 released"
```

Subscribe Pola

```
PSUBSCRIBE news.*
-- cocok dengan news.tech, news.sports, dll.
```

Perintah Pub/Sub

```
SUBSCRIBE channel Dengarkan pesan di channel
PUBLISH channel msg Kirim pesan ke channel
PSUBSCRIBE pattern Subscribe ke pola
UNSUBSCRIBE channel Berhenti mendengarkan
PUBSUB CHANNELS Daftar channel aktif
```

Transaksi

MULTI / EXEC

```
MULTI
SET balance:1 900
SET balance:2 1100
EXEC -- dieksekusi secara atomik
```

Optimistic Locking

```
WATCH balance:1
val = GET balance:1 -- baca nilai saat ini
MULTI
SET balance:1 (val - 100)
EXEC
-- EXEC mengembalikan nil jika balance:1 berubah
```

Perintah Transaksi

```
MULTI Mulai blok transaksi
EXEC Eksekusi perintah yang diantrekan
DISCARD Buang perintah yang diantrekan
WATCH key Pantau key untuk perubahan (optimistic lock)
UNWATCH Lupakan semua key yang dipantau
```

Persistence

Snapshot RDB

```
SAVE -- snapshot sinkron
BGSAVE -- snapshot di background
LASTSAVE -- timestamp save terakhir
```

AOF (Append Only File)

```
appendonly yes Aktifkan AOF di redis.conf
appendfsync always Fsync setiap penulisan (paling aman, paling lambat)
appendfsync everysec Fsync sekali per detik (disarankan)
appendfsync no Biarkan OS memutuskan (tercepat, paling berisiko)
```

Perintah Persistence

```
CONFIG GET save
CONFIG SET save "900 1 300 10"
-- snapshot jika 1 perubahan dalam 900d atau 10 dalam 300d
BGREWRITEAOF -- tulis ulang AOF di background
```

Pola Umum

Distributed Lock

```
SET lock:resource "owner-id" NX EX 30
-- NX = ambil hanya jika belum dikunci
-- EX 30 = auto-lepas setelah 30d
DEL lock:resource -- lepas secara eksplisit
```

Rate Limiter

```
key = "rate:user:42"
INCR key
EXPIRE key 60 -- jendela 60 detik
-- tolak jika GET key > max_requests
```

Pola Caching

```
val = GET "cache:user:1"
if val is nil:
  val = fetch_from_db(1)
  SET "cache:user:1" val EX 300
```

Penyimpanan Sesi

```
HSET sess:abc uid 42 role "admin"
EXPIRE sess:abc 1800 -- TTL 30 menit
HGETALL sess:abc
```