

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)

Referensi Cepat Redis

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
```