

## Redis Commands

### 1. Session Management

Initialize (Clear all data):

#### **FLUSHALL**

- Purpose: Clears the entire Redis datastore, removing all keys and data to ensure a clean state before starting.
- Usage: Run at the beginning of a new deployment or testing phase to reset the database.

Create a new session:

**HSET session:12345 userId "user123" authToken "token\_abc123" lastActive "timestamp"**  
**EXPIRE session:12345 3600 // Set session expiration to 1 hour**

- Purpose: Sets session data using a hash and establishes an expiration time.
- Usage: Run when a user logs in; `session:12345` is the session ID, with attributes like user ID, auth token, and last active time set.

Retrieve session data:

#### **HGETALL session:12345**

- Purpose: Retrieves all data stored in the hash for a specific session.
- Usage: Run to fetch session details, such as during a user's active session to validate or display session information.

Update last active time:

**HSET session:12345 lastActive "new\_timestamp"**

- Purpose: Updates a specific field within a session hash.
- Usage: Run to refresh the `lastActive` timestamp every time the user performs an action, maintaining session validity.

Delete a session (logout):

#### **DEL session:12345**

- Purpose: Removes a session key from Redis.
- Usage: Run when a user logs out to clear their session data from the system.

## 2. Leaderboards

Initialize (Clear all data):

### **FLUSHALL**

- Purpose: Resets the Redis datastore.
- Usage: Useful for clearing all leaderboard data before starting a new game or during testing.

Add or update a run to the leaderboard:

### **ZADD leaderboard:game1:speedrun -300 user456**

- Purpose: Adds a new entry or updates an existing entry in a sorted set for leaderboards.
- Usage: Run each time a new run is completed; scores are stored as negative to sort faster times higher.

Retrieve the top 10 players/runs:

### **ZREVRANGE leaderboard:game1:speedrun 0 9 WITHSCORES**

- Purpose: Retrieves the top scores from the leaderboard.
- Usage: Run to display the top 10 players or runs, typically used in game leaderboards or scoreboards.

Remove a run from the leaderboard:

### **ZREM leaderboard:game1:speedrun user456**

- Purpose: Removes a specific entry from the leaderboard.
- Usage: Run if a run is disqualified or needs to be removed from records.

## 3. Real-Time Notifications

Initialize (Reset Pub/Sub channels):

### **FLUSHALL**

- Purpose: Clears all Redis data, including resetting Pub/Sub message channels.
- Usage: Typically used when resetting the system or during maintenance.

Subscribe to a channel:

### **SUBSCRIBE announcements**

- Purpose: Subscribes to a Pub/Sub channel to receive real-time notifications.
- Usage: Run in client applications or services that need to listen for updates like announcements or event notifications.

Publish a notification:

### **PUBLISH announcements "New speedrun record set by user123!"**

- Purpose: Publishes a message to all subscribers of a channel.
- Usage: Run whenever there is a new event, announcement, or update that needs to be communicated to subscribers.

Unsubscribe from a channel:

### **UNSUBSCRIBE announcements**

- Purpose: Stops receiving messages from a specific channel.
- Usage: Run when a client no longer wishes to receive updates from a channel, such as when a user logs out or changes notification settings.

## **4. User Preferences and Settings**

Initialize (Clear user settings):

### **FLUSHALL**

- Purpose: Resets all data in Redis, including user preferences.
- Usage: Useful for clearing data before system upgrades or testing.

Set user preferences:

### **HMSET userPrefs:user123 displayMode "dark" favoritePlayer "player789"**

- Purpose: Stores user-specific settings in a hash structure.
- Usage: Run when a user updates their settings; this ensures quick access and update capabilities.

Get user preferences:

### **HGETALL userPrefs:user123**

- Purpose: Retrieves all settings for a specific user.
- Usage: Run when needing to apply user