

# UserStatusManager Documentation

## Overview

UserStatusManager is used to keep track of users' status (online, offline, away, busy) and when they were last active. It also lets you list who is online and convert status/time into readable strings.

## Status Enum

- ONLINE → User is online.
- OFFLINE → User is offline.
- AWAY → User is inactive for a while.
- BUSY → User is online but not available.

## Public Methods

- setStatus(user\_id, status) → Sets a user's status and updates last active time.
- getStatus(user\_id) → Returns the user's current status (default OFFLINE).
- getLastActive(user\_id) → Returns last active time (or 0 if none).
- updateLastActive(user\_id) → Updates the user's last active time to now.
- getOnlineUsers() → Returns a list of users who are ONLINE.
- statusToString(status) → Converts status enum to text.
- timeToString(time\_t) → Converts time into readable format YYYY-MM-DD HH:MM:SS.

## Implementation Details

- Thread Safety → Uses std::mutex and std::lock\_guard so multiple threads can safely access data.

- Data Storage →
- status\_map\_ stores each user's status.

- `last_active_map_` stores the last active time.
- Time Handling → Uses `std::time` to get the current time, and safe system functions (`localtime_s` on Windows, `localtime_r` on Linux/Mac) to format it.

## Notes

- Safe for multi-threaded use.
- Tracks both status and activity.
- Can be extended (for example: idle detection, custom messages).