Handover Document v9.000: SGFPlayerClean OGS Integration

1. Project Status & Immediate Priority

We are in the **SGFPlayerClean** project, specifically working on the **OGS (Online Go Server) Live Game Integration**.

Current State:

- **Authentication:** ✅ Working (JWT generation & Socket Auth).
- **Lobby:** ✅ Working (Seekgraph updates, Challenge acceptance).
- **Game Loading:** ✅ Working (Handicap stones load correctly from `gamedata`).
- **Game Moves:** ❌ **CRITICAL FAILURE**. Moves sent by the client are silently ignored by the server. The connection eventually drops with "Socket is not connected" (Error 57).
- **3D Interaction:** ⚠️ Partial. Ghost stones are missing or click detection is failing on Retina screens due to coordinate space mismatches.

Immediate Goal:

Determine the **exact JSON payload format** required to make a move via WebSocket. We are switching from "Code Guessing" to "Terminal Fuzzing" using `websocat` to empirically prove what the server accepts.

2. Architecture & "The Truth Chain"

The Root

- `AppModel.swift`: The brain.
  Owns `OGSClient`, `SGFPlayer` (Engine), and manages the transition between Local and Online modes.
- `OGSClient.swift`: The network layer. Manages WebSocket life-cycle, Pings/Pongs, and JSON serialization.

The Engine

- `SGFPlayerEngine.swift`: Pure Go logic. Maintains board state.

- **Rule:** The Engine is the Single Source of Truth for the board state. `BoardViewModel` merely reflects this state to the View.

The 3D Stack

- `ContentView3D.swift`: The SwiftUI container.
  - *Current State:* We recently moved away from a transparent overlay (`CameraControlHandler`) to a `UnifiedInteractiveSceneView` (NSViewRepresentable) to handle clicks and drags natively to avoid event swallowing.
- `SceneManager3D.swift`: Manages SceneKit nodes.
  - *Performance:* Uses `stonesToRender` (flat array) and `SCNTransaction` for updates.
  - *Pending Feature:* **Lid Variety** (Clam shell variants) was implemented in code but not yet verified visually due to the connection blockers.

3. The "Silent Rejection" Bug (Detailed Analysis)

We have tried several protocol variations based on browser inspection and legacy code. All have failed to produce a server response.

Failed Attempts:
1. **Standard Browser Protocol:** `["game/move", {"game_id": ID, "move": "pd"}, 2]` -> **Ignored.**
2. **Explicit Auth:** Added `auth` token and `player_id` to payload -> **Ignored.**
3. **Handicap Adjustment:** Bumped move number to 2 -> **Ignored.**
4. **REST API:** Tried `POST /api/v1/games/{id}/move` -> **Failed (HTTP 500 Internal Server Error).**
5. **Legacy Array Coords:** Sent `move: [13, 16]` -> **Ignored.**

Current Hypothesis:

The server is dropping the connection because of a **Keep-Alive failure** (we weren't sending `net/pong` fast enough) OR the **Socket Framing** is wrong (the message ID integer at the end of the array is critical).

4. Forward Strategy: Terminal Fuzzing

We will **stop writing Swift code** momentarily and use the terminal to

interact with the live server. This removes the variable of "Is my Swift code buggy?" and isolates "Is this payload correct?"

Required Tools
You have installed `websocat` via Homebrew.

The Debug Data (Preserved from Logs)
Use these exact credentials in the new session to resume testing without logging in again.

- **JWT (Session Token):**
  code
  Text

eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJhbm9ueW1vdXMiOm
ZhbHNlLCJpZCI6NzE0MDA1LCJ1c2VybmFtZSI6IkRhdmNNIiwicmVna
XN0cmF0aW9uX2RhdGUiOiIyMDE5LTEyLTI2IDA2OjA3OjI5LjE2NDU2
MiswMDowMCIsInJhdGluZ3MiOnsiOXg5Ijp7InJhdGluZyI6MTMwNi4
xMDYsImRldmlhdGlvbiI6MjQ5LjgxMzEsInZvbGF0aWxpdHkiOjAuMD
Z9LCJsaXZlIjp7InJhdGluZyI6MTQ1Mi4xNjA0LCJkZXZpYXRpb24iO
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dGluZyI6MTczOC45MDI2LCJkZXZpYXRpb24iOjI1Ni4xMzg2LCJ2b2x
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SwiYmxpdHoiOnsicmF0aW5nIjoxNTIzLjU5MzQsImRldmlhdGlvbiI6
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kiOnsicmF0aW5nIjoxNjI0LjA2MDcsImRldmlhdGlvbiI6MTAwLjAsI
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LCJsZWFndWUtMi0xOXgxOSI6eyJyYXRpbmciOjE2MTQuMDYwNywiZGV
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9uIjoxMDAuMCwidm9sYXRpbGl0eSI6MC4wMn0sImxlYWd1ZS0yLWNvc
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ycmVzcG9uZGVuY2UtOXg5Ijp7InJhdGluZyI6MTYy4wLCJkZXZpYXRp
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MDcsImRldmlhdGlvbiI6MTAwLjAsInZvbGF0aWxpdHkiOjAuMDJ9LCJ
sZWFndWUtMS1jb3JyZXNwb25kZW5jZS0xOXgxOSI6eyJyYXRpbmciOj
E2MjQuMDYwNywiZGV2aWF0aW9uIjoxMDAuMCwidm9sYXRpbGl0eSI6M
C4wMn0sImxlYWd1ZS0yLWNvcnJlc3BvbmRlbmNlLTEzeDEzIjp7InJh
dGluZyI6MTYxNC4wNjA3LCJkZXZpYXRpb24iOjEwMC4wLCJ2b2xhdGl
saXR5IjowLjAyfSwibGVhZ3VlLTItY29ycmVzcG9uZGVuY2UtMTl4MT
kiOnsicmF0aW5nIjoxNjE0LjA2MDcsImRldmlhdGlvbiI6MTAwLjAsI
nZvbGF0aWxpdHkiOjAuMDJ9fSwiY291bnRyeSI6InVzIiwicHJvZmVz
c2lvbmFsIjpmYWxzZSwicmFua2luZyI6MjMsInByb3Zpc2lvbmFsIjo
wLCJjYW5fY3JlYXRlX3RvdXJuYW1lbnRzIjp0cnVlLCJpc19tb2Rlcm
F0b3IiOmZhbHNlLCJpc19zdXBlcnZzZXIiOmZhbHNlLCJpc190b3Vyb
mFtZW50X21vZGVyYXRvciI6ZmFsc2UsIm1vZGVyYXRvcl9wb3dlcnMi
OjAsIm9mZmVyZWRfbW9kZXJhdG9yX3Bvd2VycyI6MCwic3VwcG9ydGV
yIjpmYWxzZSwic3VwcG9ydGVyX2xldmVsIjowLCJ0b3VybmFtZW50X2
FkbWluIjpmYWxzZSwidWlfY2xhc3MiOiIiLCJpY29uIjoiaHR0cHM6L
y9zZWN1cmUuZ3JhdmF0YXIuY29tL2F2YXRhci82ZmUwM2I4OWViMDM2
ODQyNzVhNWFiMzNmMWZlZTc4Mj9zPTMyJmQ9cmV0cm8iLCJlbWFpbCI
6IiIsImVtYWxfdmFsaWRhdGVkIjoidHJ1ZSwiaXNfYW5vbnltb3VzIj
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XNfcGVuZGluZ193YXJuaW5nc19zdXNwZW1fbWVzc2FnZSI6ZmFsc2Us
Im5lZWRfcmFua1I6ZmFsc2UsInN0YXJ0aW5nX3JhbmtfaGludCI6Im5
vdCBwcm92aWRlZCIsImxhc3Rfc3VwcG9ydGVyX3RyaWFsIjoiTm9uZS
J9.lR-5c4G2ixsyuNikd4p1p6ad_Aaa6sVdaFtq1UN2uzQ"

- **Game ID:** `82724001` (From the last failed attempt).
- **Player ID:** `714005` (Black/Your ID) or `1872928` (White/NewClient ID). Note: In the logs, you seem to be User 714005, but you are playing as White (1872928) in the handicap game? This might be a permissions issue if you are sending the wrong `player_id`.

The Tests to Run (in order)

1 Connect: `websocat -H="Origin: https://online-go.com" "wss://wsp.online-go.com/"`

2 Auth: `["authenticate", {"jwt": "..."}]`

3 Join Game: `["game/connect", {"game_id": 82724001, "chat": true}]`

4   **Trial Move 1 (String):** `["game/move", {"game_id": 82724001, "move": "jj"}, 100]`

5   **Trial Move 2 (Array):** `["game/move", {"game_id": 82724001, "move": [9, 9]}, 101]`

5. Rules of Engagement (Strict Enforcement)

1   **Trust the User:** Accept sidebar states and folder paths as absolute truth.

2   **No Guessing:** Do not generate code based on assumptions about the protocol. Verify via `websocat` first.

3   **Full Code Drop-ins Only:** Provide entire file contents.

4   **Single Source of Truth:** `OGSModels.swift` for types.

5   **Linear Spatial Rendering:** Always use `stonesToRender` array in `BoardViewModel`.

6   **3D Interaction:** Must use `UnifiedInteractiveSceneView` to handle clicks natively; overlays block events.

6. What to Avoid (Lessons Learned)

- **REST API for Moves:** `POST /api/v1/games/{id}/move` returns 500. **Do not use.**

- **Legacy Protocol Assumptions:** `ogs-client.js` is a useful reference for logic but its networking code is outdated (uses Objects for messages, not Arrays).

- **Overlays:** Do not place transparent Views over the SceneView for gesture handling; it breaks `hitTest` on macOS.

- **Missing Pongs:** OGS requires a `net/pong` response to `net/ping`. Failing to do so causes a disconnect in ~10 seconds.