

# APOLLO 11 - ONE SMALL STEP

## USER MANUAL

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This guide provides step-by-step instructions to set up and run the Apollo 11 AGC (Apollo Guidance Computer) simulation project. The project consists of a Rust-based backend and a React frontend that connects to a virtual DSKY (Display and Keyboard) interface.

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## Prerequisites

- **Operating System:** Linux/macOS/Windows (steps may vary for Windows and macOS).
  - **Hardware:** Sufficient RAM (4GB+ recommended) and storage for dependencies.
  - **Accounts:** Git (to clone repositories).
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## Backend Setup

1. **Install Rust and Cargo** - Follow the official Rust installation guide
2. **Clone the Project Repository**
3. **Download and Build VirtualAGC**
  - a. Clone the VirtualAGC repository:
  - b. <https://github.com/virtualagc/virtualagc.git>
  - c. Install dependencies for the VirtualAGC project
  - d. Replace DSKY Files: Copy your modified yaDSKY2.cpp and yaDSKY2.h into virtualagc/yaDSKY2/.
  - e. Build VirtualAGC with make
4. **Prepare Modified yaDSKY2 and oct2bin**
  - a. Copy the built yaDSKY2 folder to your repo
  - b. Clone the VirtualAGC repository
5. **Generate AGC Binaries**
  - a. Convert .binsource files to binaries:
  - b. `./oct2bin < Comanche055.binsource > Comanche055.bin`

- c. Move binaries to your project:
  - 6. **Build and Run the Rust AGC**
    - a. navigate to the Rust project:
    - b. Start the AGC (choose luminary99 or comanche55):  
cargo run -- luminary99
  - 7. **Connect yaDSKY**
    - a. In a new terminal, navigate to the yaDSKY2 folder:
    - b. ./yaDSKY
    - c. The DSKY interface should now connect to the AGC.
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## Frontend Setup

1. **Install Node.js and npm**
    - a. Download from Node.js (v16+ recommended)
  2. **Clone and Build the Frontend**
    - a. Navigate to the React project:  
Bash
    - b. npm install
    - c. npm run build
  3. **Start the Frontend Server**
    - a. node [server.js](#)
    - b. The frontend will be hosted at http://localhost:3001.
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## Running the Simulation

1. **Start the Backend:** Follow steps 6 and 7 under **Backend Setup**.
2. **Launch the Frontend:** Follow steps under **Frontend Setup**.
3. **Connect to Simulation:**
  - a. Open http://localhost:3001 in a browser.
  - b. Select Launch or Landing.
  - c. Wait for the countdown (skip if needed).
4. **Trigger Simulation via DSKY:**

- a. In the yaDSKY window, press PRO (Program) and select P01 (Launch) or P63 (Landing).
- b. The frontend will start the simulation upon confirmation.
- c. DSKY will output to a file saving all the R3 register values