Method 1: Ephemeral Bootstrapper - Detailed Steps

The Ephemeral Bootstrapper method allows bot execution on user machines without requiring pre-installed runners or admin rights. When a user selects a bot from the central web UI, the server generates a temporary bootstrapper that downloads, validates, and executes the bot locally while reporting status back to a central location before cleaning up.

Step-by-Step Process

1. User selects the required bot from the central web UI.

2. Server generates a unique Run ID and creates a small bootstrapper (EXE or script) containing: - Bot name and version (or 'latest'). - Parameters for the bot run. - Download location of the bot package (ZIP/EXE). - SHA-256 checksum for integrity verification. - Status reporting endpoint or shared folder path.

3. User downloads the bootstrapper and runs it on their local machine.

4. Bootstrapper downloads the bot package from the shared location or HTTP server.

5. Bootstrapper validates the package integrity using the provided SHA-256 hash from the manifest file.

6. The bot package is extracted to a temporary directory (e.g., %TEMP%/bot-run-).

7. Bootstrapper executes the bot in headless mode with the provided parameters.

8. During execution, the bootstrapper sends heartbeats (status updates) every few seconds to the central status location.

9. On completion, the bootstrapper sends a final status update with: - Success/failure status. - Exit code. - Optional log tail.

10. Any output files are copied to a central output location if configured.

11. Bootstrapper deletes its temporary files and terminates.

Advantages

- No persistent installation on the user machine. - Always runs the latest version of the bot. - Works without admin rights. - Central control over bot distribution and execution parameters.

Considerations

- Bootstrapper must be generated for each run. - Users must download the bootstrapper each time they run a bot. - Integrity checks are critical to prevent tampering.

Architecture Diagram