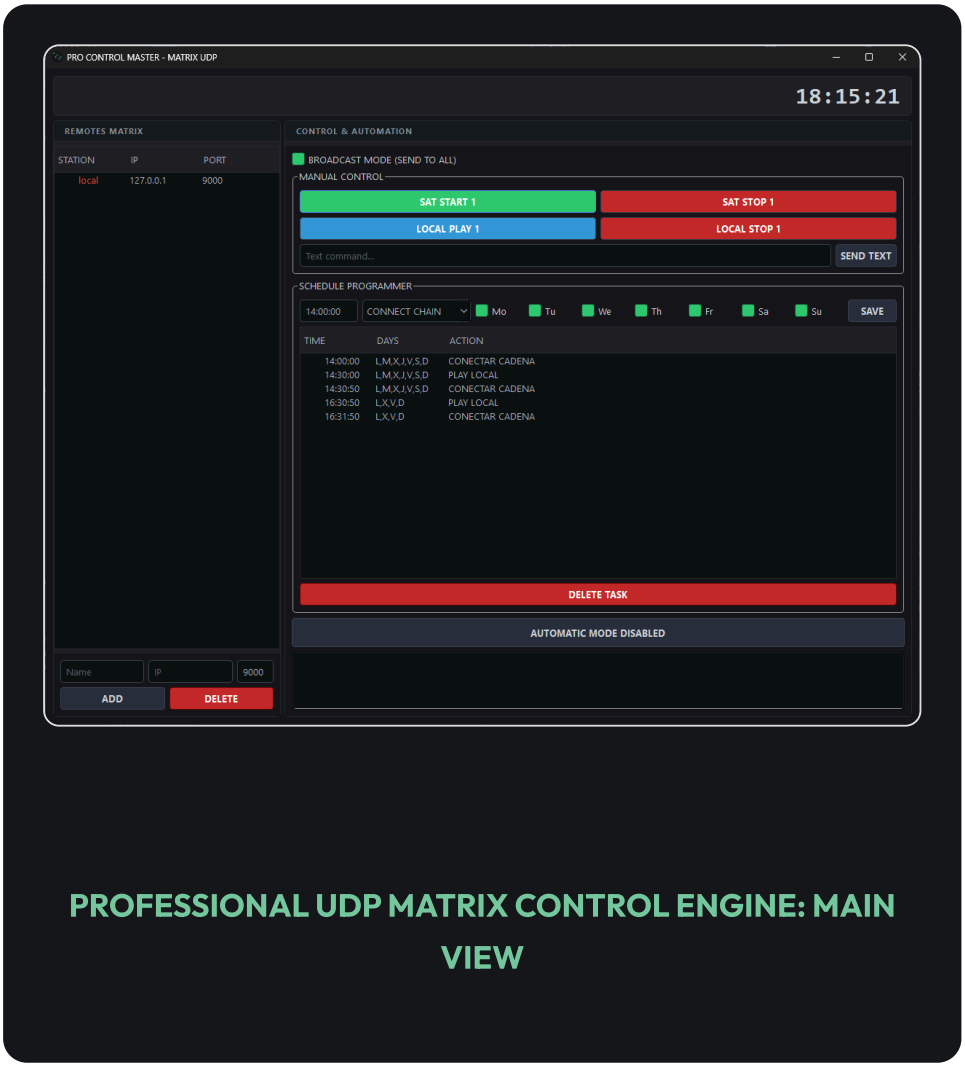
V 7.0.0

USER MANUAL

ProControlMaster 7 is a centralized management and remote control system via UDP protocol, designed specifically for professional broadcast environments, radio, and critical operation centers. It allows real-time monitoring of multiple stations and the transmission of automation commands with ultra-low latency and maximum reliability.



PROFESSIONAL UDP MATRIX CONTROL ENGINE: MAIN VIEW

OPERATING PHILOSOPHY

The system operates on a **Command Matrix** architecture. Each remote station is treated as an independent node within a control network. The internal engine manages a continuous flow of "Heartbeats" to ensure connectivity is established before executing any critical action.

- ✓ "Real-Time" status monitoring using UDP Ping/Pong.
- ✓ Mass transmission in Broadcast mode for total synchronization.
- ✓ Multi-node time scheduler with support for 7 days a week.
- ✓ Detailed activity log for command auditing.

INTERFACE ANALYSIS

Below are detailed sections and features visible on the main program panel:

1. Header and Master Clock

Located at the top right is a **High-Visibility Digital Clock** formatted as HH:MM:SS. This clock serves as the time reference for the automation engine, ensuring scheduled commands execute with pinpoint accuracy.

2. Remotes Matrix (Left Panel)

Displays the roster of registered stations, their IP, and UDP port.

- **Status Indicator:** Text color signifies if the remote is acknowledging the "Heartbeat". **Red** indicates the station is offline or the port is blocked.
- **Station Manager:** Allows adding new stations at the bottom by specifying name, IP, and port (default 9000).

3. Control & Automation (Right Panel)

Centralizes all manual and automated control logic.

- **Broadcast Mode:** Checking this box simultaneously fires manual commands to all remotes in the matrix.
- **Manual Control:** Four quick-action pushbuttons for essential functions (**SAT START**, **SAT STOP**, **LOCAL PLAY**, **LOCAL STOP**).
- **Custom Command:** A text input field to send any proprietary UDP command not predetermined on the buttons.

4. Schedule Programmer

Enables the setup of automated trigger events.

- **Configuration:** Define the time, action, and days of the week (Mo, Tu, We, Th, Fr, Sa, Su). Every task populates the lower table with its specifics.
- **Execution:** The system invariably contrasts the master clock against this schedule.

5. Automatic Mode and Logs Console

- **Automatic Button:** Showcases the status of the task engine. When "Disabled", the programmer overrides any action.
- **Logs Console (Green):** Presents a live verification of every sent command, marked with its precise timestamp, facilitating quick network diagnostics.

SYSTEM REQUIREMENTS

To assure a **24/7/365** uninterrupted operation without UDP packet losses, the following specifications are advised:

MINIMUM (BASIC OPERATION)

- **CPU:** Dual Core 2.0 GHz
- **RAM:** 4 GB DDR4
- **OS:** Windows 10/11 ×64
- **Network:** 100 Mbps Stable Ethernet

RECOMMENDED (24/7 WARRANTY)

- **CPU:** Quad Core 3.0 GHz+ (Intel i5 / Ryzen 5)
- **RAM:** 8 GB DDR4+
- **Drive:** NVMe SSD (for logs and persistence)
- **Network:** Dedicated Gigabit Link / UPS
- **Security:** Firewall configured for UDP Ports

INSTALLATION & SECURITY

Installation

ProControlMaster 7 doesn't mandate a complex installation. Upon execution, the program instinctively generates the necessary directories to save its settings. Data is anchored in the following system directory:

```
%APPDATA%\ProControlMaster\
```

Network Configuration

It is cardinal that the UDP ports utilized by the remote stations (default 9000) remain unenclosed within the Windows Firewall and amidst intermediate routers to allow bidirectional traffic.

> **IMPORTANT:** The software avails itself of the UDP protocol for its low latency. Make certain your system avoids a packet loss rate encompassing more than 0.1% to ascertain peerless syncing.

USER INTERFACE

The interface is articulated to be intuitive and functional, partitioning into two foremost interfaces:

1. Matrix Panel (Left)

Illustrates the roster of enrolled stations, IP addresses, and communication ports. The name's tint infers the prevailing status:

- **Green:** Online Station (Answers Heartbeat).
- **Red:** Offline Station or severed link.

2. Control & Automation Panel (Right)

Houses the manual pushbuttons, the schedule programmer's utility, and the logs console. This platform initializes the **Automatic Mode**, the core of unassisted oversight.

REMOTE CONTROL

There exist three mechanisms to interface with distant stations:

Direct Command (One-to-One)

Designate a station on the matrix and stimulate any of the command pushbuttons. The command will launch exclusively to that IP.

Broadcast Mode

In turning on **"BROADCAST MODE"**, any clicked pushbutton will correspondingly launch the cue to EVERY station charted. Fitting for harmonized chain activations.

Predefined Commands

UI Button	Sent UDP Command	Description
SAT START 1	`SAT_START 1`	Activates the satellite/chain input.
SAT STOP 1	`SAT_STOP 1`	Deactivates the satellite input.
LOCAL PLAY 1	`PLAY 1`	Initiates local playback on the remote.

LOCAL STOP 1	`STOP 1`	Halts local playback.

AUTOMATION

The programmer advocates mapping systemic missions based on moments and days. For agendas to trigger, the **"AUTOMATIC MODE"** button is to be green (Enabled).

Task Configuration

1. Input the precise span via format `HH:MM:SS`.
2. Pick the action (Connect Chain, Local Play, etc).
3. Inscribe the days of the week (Monday through Sunday).
4. Press **SAVE** to commit to the ledger.

> **Note:** The automation apparatus audits the framework each 1000ms. Assert your device's clock equates to NTP rules for uttermost punctuality.

DATA MANAGEMENT

The configuration preserves natively spanning JSON configurations. By doing this, it's undemanding to extract backups or clone settings onto alternate machines.

- **udp_targets.json:** Caches station tables and broadcast toggles.
- **udp_schedule_list.json:** Warehouses full scheduled assignments.

TROUBLESHOOTING

Station displayed in Red
Ensure the auxiliary layout is online along with its corresponding IP/Port setup. Assure network visibility by directing a `ping` in your terminal.

Commands aren't launching automatically
Ensure the lower-bound toggle translates as **"AUTOMATIC MODE ENABLED"**. The chronometer tasks merely trip at precisely the structured interval.