



Tally-Core2 User Guide

AEM Mini Pro – M5Core2
Remote Tally/Control

Core2 ATEM Control – Overview

This version (1.2) of the code allows you to control an ATEM mini (up to 4 cameras and 12 macros) via a M5Stack Core2 ESP32 device.

Current Feature set

- Current status information displayed including:
 - ✓ SSID, Client MAC/IP Addresses, ATEM IP Address
 - ✓ ATEM connection status
 - ✓ Camera Program/Preview/Key status
- 4 Camera control/status buttons
- 12 Marco control buttons via 3 simulated pages
- Ability to read network config data from an SD card
- Ability to write network config data in encrypted form into EEPROM so on a subsequent boot the SD card can be removed
- Ability to validate EEPROM data to ensure its not corrupted or missing
- Supports both static and DHCP client (Core2 not ATEM)
- Provides battery charging and current charge indication
- Provides ATEM connection status
- Provides ATEM “On Air” status

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This code is a fork of Aaron Parecki's (aaronpk/am5-core2-atem-controller) code and leverages the following GitHub libraries:

- kasperskaarhoj / SKAARHOJ-Open-Engineering Arduino ATEM Libraries
- bneedhamia / write_eeprom_strings and sdconfigfile libraries
- arduino-libraries / Arduino_CRC32 library
- josephpal / esp32-Encrypt library
- AronHetLam / Upated ATEM library streaming status
- BrainTeeman / Debugging & Testing Support

Based on the following:

- M5Stack Core2 (Amazon or elsewhere)
- Arduino IDE: http://docs.m5stack.com/#/en/arduino/arduino_core2_development (Version 1.8.19)
- IDE Board: M5Stack-Core2 (Version 2.0.6)
- IDE Library: M5Core2 (Version 1.1.5)

Libraries

<https://github.com/kasperskaarhoj/SKAARHOJ-Open-Engineering>

<https://github.com/josephpal/esp32-Encrypt>

https://github.com/bneedhamia/write_eeprom_strings

<https://github.com/bneedhamia/sdconfigfile>

https://github.com/arduino-libraries/Arduino_CRC32

<https://github.com/josephpal/esp32-Encrypt>

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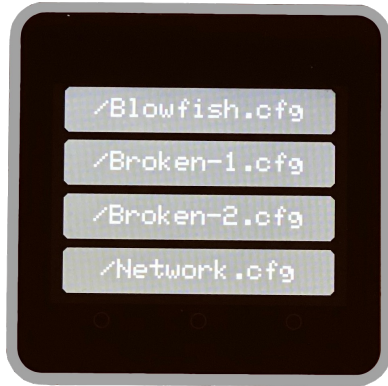
Requirements

Requirements:

1. An ATEM Mini Pro or greater (required for “On Air” functionality)
2. A static IP address must be assigned for the ATEM. This version does not support dynamic network connections.
3. An SD card with a .cfg file containing the network/configuration information. Note that if weeProm is enabled the software will write the required minimum software configuration read from the SD card in encrypted form to the devices EEPROM and on the next boot if there is no SD card the EEPROM data will be used.

Note: Removed requirement for client DHCP config in version 0.9

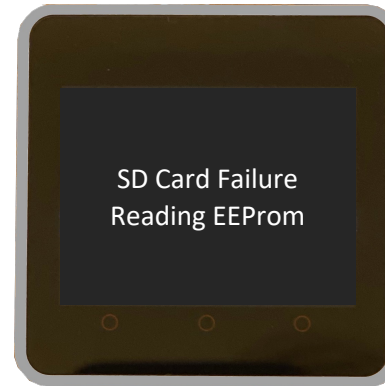
CFG file menu
if more than one



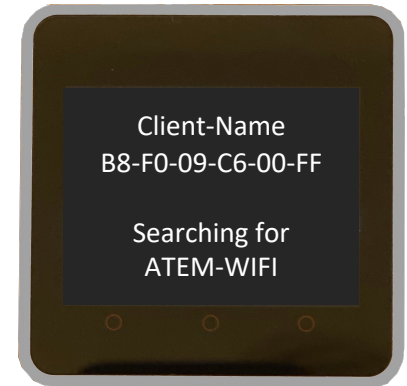
CFG file
Selected



EEProm Check
if no SD card



Client Name + MAC
WiFi Name



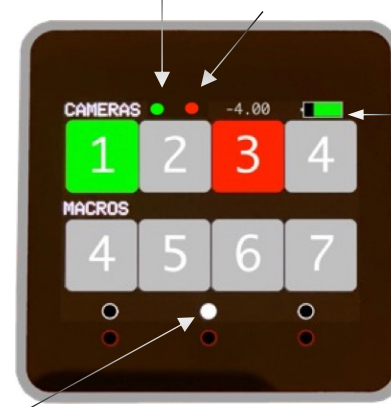
Client Name + IP
ATEM IP



Waiting for First
Connection



Connected
On Air



Disconnected
Off Air



Page selector
with selection indicator above button

SD Card Boot Process

- Check SD card for CFG files
- Provide list of no more than four (4) .cfg files
- User selects .cfg file
- Open .cfg file and validate
- If bad .cfg file shutdown after 10 seconds (to save battery)
- If weeProm option enabled – write core values to EEPROM
- Attempt to connect to Wifi SSID (DHCP required)
- Attempt to connect to ATEM (Static IP required)
- Update Camera button status based on response from ATEM

EEProm Boot Process

- Check SD card for CFG files
- If no SD card check EEPROM
- Decrypt EEPROM base config options
- Decrypt EEPROM static ip data (if exists)
- Validate EEPROM data
- If no or bad EEPROM data, shutdown after 10 seconds
- Attempt to connect to Wifi SSID (DHCP or Static IP)
- Attempt to connect to ATEM (Static IP required)
- Update Camera button status based on response from ATEM

Example Version 0.9+ network.cfg file

```
# Example configuration file, place this file on a Micro SD card and insert the card into the Core2 computer
# Static client information only supported on Version 0.9
# File format: <field>=<value>
# Note: You cannot use a # in your definitions
# weeProm - true/false, if true saves config data to EEPROM. EEPROM will automatically be used if no SD card inserted.
# cfgVer - integer representing simple version control (required)
# waitEnable - true/false, used for troubleshooting to slow the display down
# waitMS - delay in milliseconds
# M5id - Tally Client ID (required)
# ssid - WiFi ID (required)
# password - Wifi Password (required)
# atemIp - IP address of ATEM switch (required)
# tallyIp=IP address of Core2 Tally Client (required for static configuration, only supported on 0.9+)
# subMask=Subnet mask (required for static configuration)
# gatewayIp=Gateway (required for static configuration even if ATEM is on same network)
# dnsIp=DNS Server address (required for static configuration ... Will be used in a later version of product)
```

```
weeProm=true
cfgVer=1
waitEnable=true
waitMS=2000
M5id=ClientNodeName
ssid=WiFi-SSID
password=network_password
atemIp=192.168.10.240
tallyIp=192.168.10.199
subMask=255.255.255.0
gatewayIp=192.168.10.1
dnsIp=192.168.10.1
```

Updates

- 2023-1.2 (New Features)
 - Added “On Air” functionality (requires an ATEM Mini Pro or greater)
- 2023-1.1 (Fixes only)
 - Converted to support new Touch lib introduced in M5Core2 library in version 0.0.3
 - Updated to support latest changes to SD/FS library introduced in M5Core2 Board Version 2.0.6 (ESP32 Release 2.0.0)
 - Corrected first connect status indicator to reflect “connecting”
 - Updated documentation to reflect changes