



# Tally-Core2 User Guide

ATEM Mini Core2 Remote Tally/Control



# Core2 ATEM Control – Overview

This version (2021-10) 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 Macro 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

# Attribution / License

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

**Based on the following:**

- M5Stack Core2 (Amazon or elsewhere)
- Arduino IDE: [http://docs.m5stack.com/#/en/arduino/arduino\\_core2\\_development](http://docs.m5stack.com/#/en/arduino/arduino_core2_development) (Version 1.8.13)
- IDE Board: M5Stack-Core2 (Version 1.0.7)
- IDE Library: M5Core2 (Version 0.0.2)

## 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/write_eeprom_strings)

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

[https://github.com/arduino-libraries/Arduino\\_CRC32](https://github.com/arduino-libraries/Arduino_CRC32)

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

# License

The MIT License (MIT)

Copyright (c) 2021 Helo-Head

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# Requirements

Requirements:

1. A static IP address must be assigned for the ATEM. This version does not support dynamic network connections.
2. 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 1 cfg file



CFG file  
Selected



EEProm Check  
if no SD card



Client Name + MAC  
WiFi Name



Client Name + IP  
ATEM IP



Waiting for First  
Connection



Connected



Disconnected



Page selector  
with selection indicator above button

Program/key  
Preview

# 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 0.9/1.0 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
```