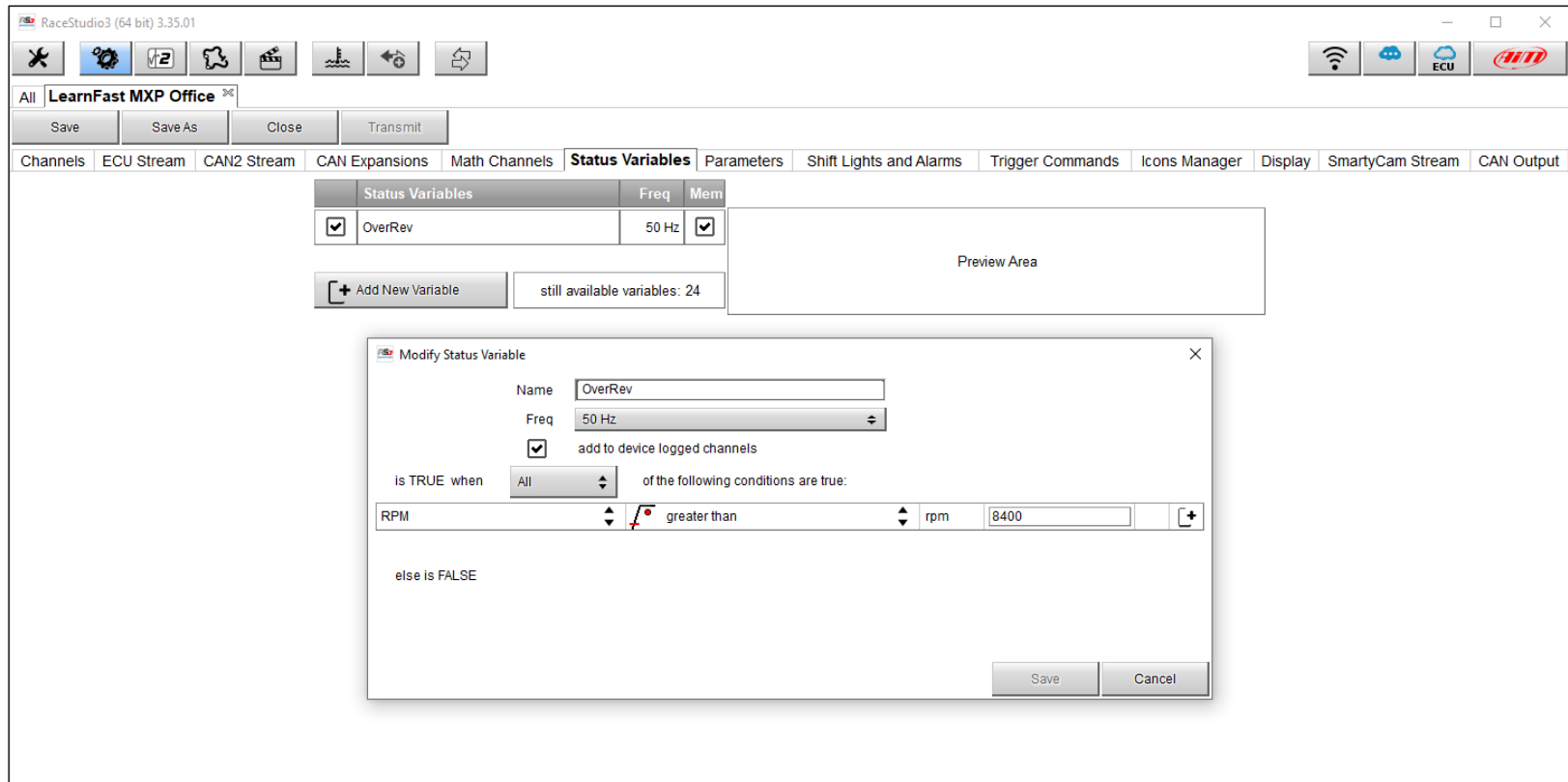


Race Studio 3 Configuration

Status Variables, Trigger Commands, and More!



Host:

Roger Caddell

AiM Sports - National Training Manager

Co-Host:

Robinson Shay

AiM Sports Technician



aimsports.com

Tuesday Mar 16th, 2021

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Robinson Shay

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- AiM Sports Technician since 2017
- Support for many Racing Organizations Including:
Karting, SCCA, NASA, Champ Off-Road, Trans-AM and more!
- Has Covered 21 States in His Support Travels! Coast to Coast.



Robinson Shay

AiM Sports Technician



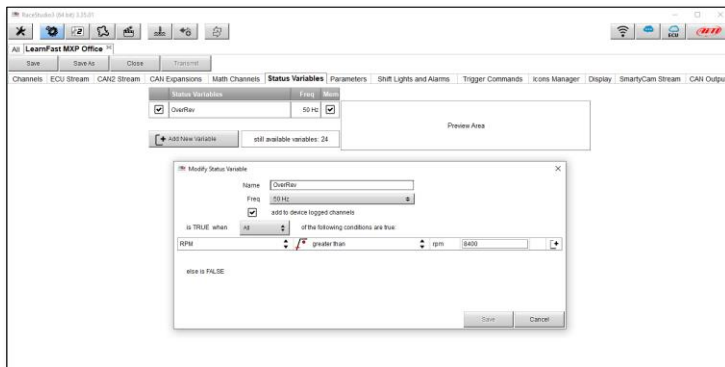
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Webinar Agenda



- What are Status Variables and Trigger Commands?
- What is the Added Value of Using Them?
- How do They Relate to Each Other and the Functions:
 - Alarms
 - Math Channels
- Creating MXx 1.2 Status Variable and Trigger Command Examples
- The Greater Power and Importance in PDM Systems
- Creating PDM Status Variable and Trigger Command Examples

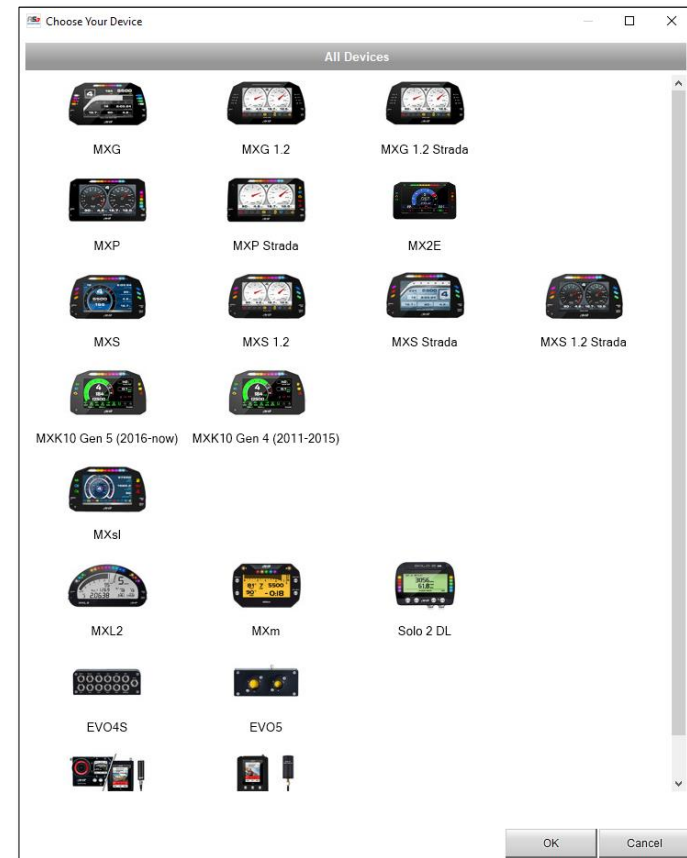


Initial Steps



Before creating Status Variables or Trigger Commands, finish other functions of your configuration.

- Channels - What, if any Analog / Digital channels will you have?
- ECU Stream - Select your ECU.
- CAN 2 - Secondary CAN devices? ABS, TPMS, Keypad, etc....
- CAN Expansions - AiM peripheral devices.
- Math Channels
- Power Outputs (PDM, MXM, MXSL)
- Display Pages



Status Variables

What is a Status Variable?



Status Variables are internal math channels that “generally” have only two different values: 1 (TRUE) or 0 (FALSE). They may be useful for simplifying complex configurations where it is required to evaluate to activate alarms, LEDs, Icons, and gives the option to log the resulting channel.

Example: We would like to turn on an LED and an Icon when Water temperature reaches 230°F and the RPM is higher than 2000. Instead of duplicating the same logic for managing the LED and the Icon, we could define a **Status Variable** ‘Water Temp High’ and link the LED and Icon to this single **Status Variable**. In this case, we could define:

- ‘Water Temp High’ is when:
 - Water Temp is higher than 230°F and
 - RPM is greater than 2000

And then use the ‘Water Temp High’ **Status Variable** for managing Icons and LEDs. As you may see, the **Status Variables** are more useful when the logic to be evaluated is complex and involves multiple channels.

Trigger Commands

What is a Trigger Command?



"Trigger Commands" execute specific and powerful Commands/Actions.

The Commands/Actions Available Now Are:

- Set next/previous page
- Go to page 'X'
- Show camera input page (Camera 1 or Camera 2)
- Reset alarms
- Activate pushbuttons

Other commands will be available in future software/firmware releases.

To add a new ***Trigger Command***, Press the "+Add New Command" Button

A combination of conditions can be used for setting a ***Trigger Command*** and it is possible to decide whether the conditions are to be ALL valid or ANY of them are valid.

Alarms

What Are Alarms?

Alarms we can be simple or very complex. When Conditions are true, the **Alarm** will trigger an action. This will continue until a defined condition will end the **Alarm**.

When Conditions are True, here are the Actions that are available:

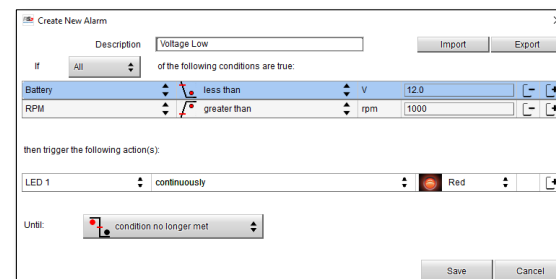
- Message Text
- Display Measures
- Popup Color Message Timed
- LED's
- Output Signals

Then you have the option of setting how the **Alarm** Action ends. The choices are:

- Condition no longer met
- The device is turned off
- A button is pushed
- Data is downloaded

Here is an example of a simple 'Voltage Low' **Alarm**:

- If the Voltage is less than 12.0 volts **AND** the Engine RPM is greater than 1000 rpm
- Trigger the action 'LED1 Continuously Red'
- Until the condition is no longer met



Status Variables & Triggers

What Are Alarms?

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Math Channels

What Are Math Channels?



Math Channels allow us to apply mathematical calculations to one or more device channels: in this way, we 'gain' a channel

Useful configuration indicator with ability to tie in alarms

Math Channels in your configuration result in reduced post session work by having ***Math Channels*** already created in your Data. These additional channels will be in your analysis data with no extra work.

Currently Available ***Math Channels***

- Bias
- Bias with Thresholds
- Calculated Gear
- Precalculated Gear
- Linear Corrector
- Simple Operation
- *Division Integer **
- *Division Modulo **
- *Bit Composed **

*Newly Added **

Status Variables & Triggers

What Are Math Channels?



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Live Demonstration



Let's Create Some Status Variables and Trigger Commands

Utilities

Connected Devices

LearnFast MXP

Connecting to

LearnFast MXP

Live Measures

Download

WiFi and Properties

Settings

Tracks

Counters

Logo

Firmware

123

↑ 0%

+

mV

Master

InlineAcc	-0.00 g	Brake Front	0 psi	Logger Temperat...	89.8 F
LateralAcc	0.00 g	Brake R	0 psi	Oil Temp	96 F
VerticalAcc	-1.00 g	Fuel Pressure	0 psi	Water Temp	71 F
RollRate	-0.0 deg/s	Oil Pressure	0 psi	External Voltage	11.9 V
PitchRate	-0.1 deg/s	RPM	0 rpm		
YawRate	-0.0 deg/s	Speed1	0.0 mph		
Calculated channels					
Brake Bias	53.6 %	SV Lap Ahead	0 #	SV Oil Press Low ...	0 #
SV Coolant Hot	0 #	SV Lap Behind	0 #	SV Oil Warm	0 #
SV Coolant Warm	0 #	SV Oil Hot	0 #	SV Voltage	0 #
SV Fuel Pressure	0 #	SV Oil Press High...	0 #	Brake Rear	0 psi
Lap channels					
Lap - Lap Number	0	Lap - Split Number	0	Lap Time	0:00.000
Lap - Run Number	0	Lap - Split Time	0:00.000		

Status Variables & Triggers

Live RS3 Config Demonstration

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PDM Status Variables



What is Different for the PDM?

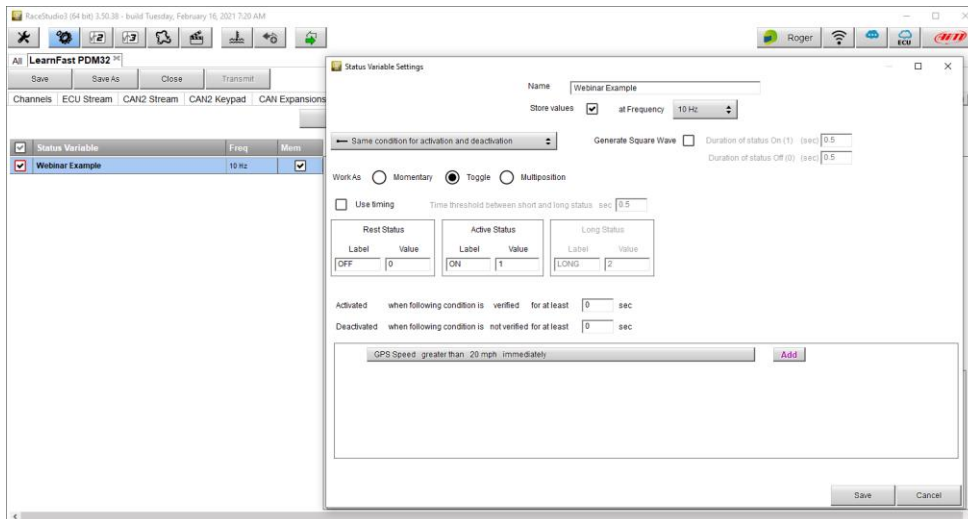
- Same Condition for activation and deactivation
 - This is the simplest way for managing a Status variable: it becomes ON when a condition is verified, otherwise it is OFF.
- Different conditions for activation and deactivation
 - It may be useful to have two different conditions for activating and deactivating a Status variable.
- Multiple output values each with its own condition
 - This is the only case in which a Status variable assume more than 2 values

PDM Status Variables

What is Different for the PDM?



- Square Wave – ‘pulse’
- Use of timing
- Momentary, Toggle, Multiposition
- Ability for Always True, and Always False Flags



Status Variables & Triggers

What is Different for the PDM?

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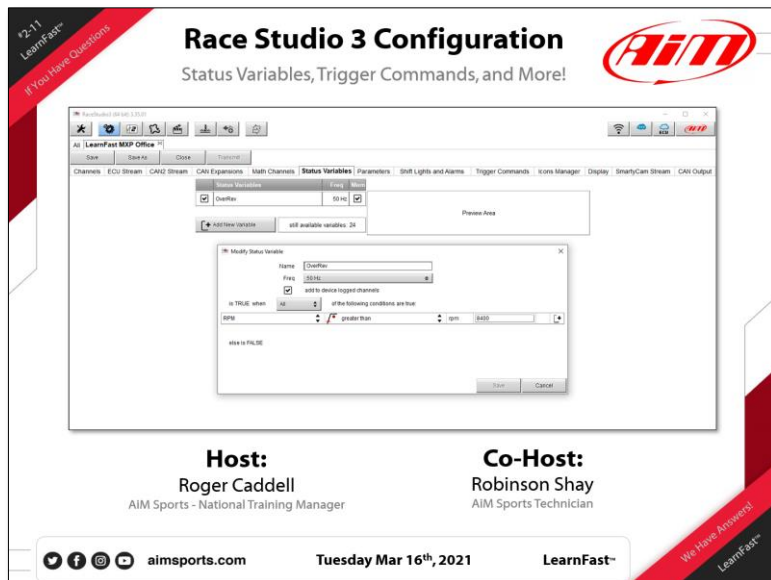
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YouTube www.youtube.com/aimdata



- All New 2020 - 21 Webinar Videos
- Software Updates with Race Studio 3
- Pre-Calculated Gear Position Function
- Configuring WiFi Communication
- Customizing AiM Device Logos
- Race Studio 3 Basic Configuration - Part 1
- Race Studio 3 Basic Configuration - Part 2
- **I Have Downloaded my Data, Now What - Part 1*
- **I Have Downloaded my Data, Now What - Part 2*
- GPS Lap Insert
- Data Views
- Measure Units
- Sort Channels
- Test Properties
- Per Lap Color
- Export Tests
- Channel Reports
- Setting Time
- Track Mapping
- Selection Criteria
- Sensor Calibration
- Conditional Alarms
- Gear Position
- Firmware Update
- Solo Configuration
- Transmit Tracks
- Gps Manager Overview
- New GPS Track
- Webinars

* *Most Popular and Recommended*



Additional Materials

LearnFast™ E-Training Videos

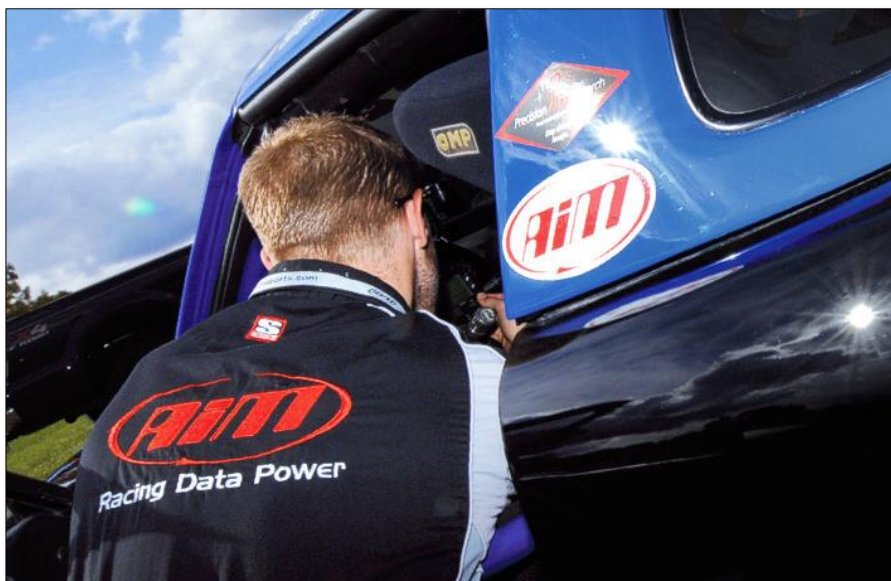
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Customer Support



AiM Sports Technical Support Staff Regularly
Attend Races and Other Events

Look For Us At An Event Near You
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Customer Support

At An Event Near You!

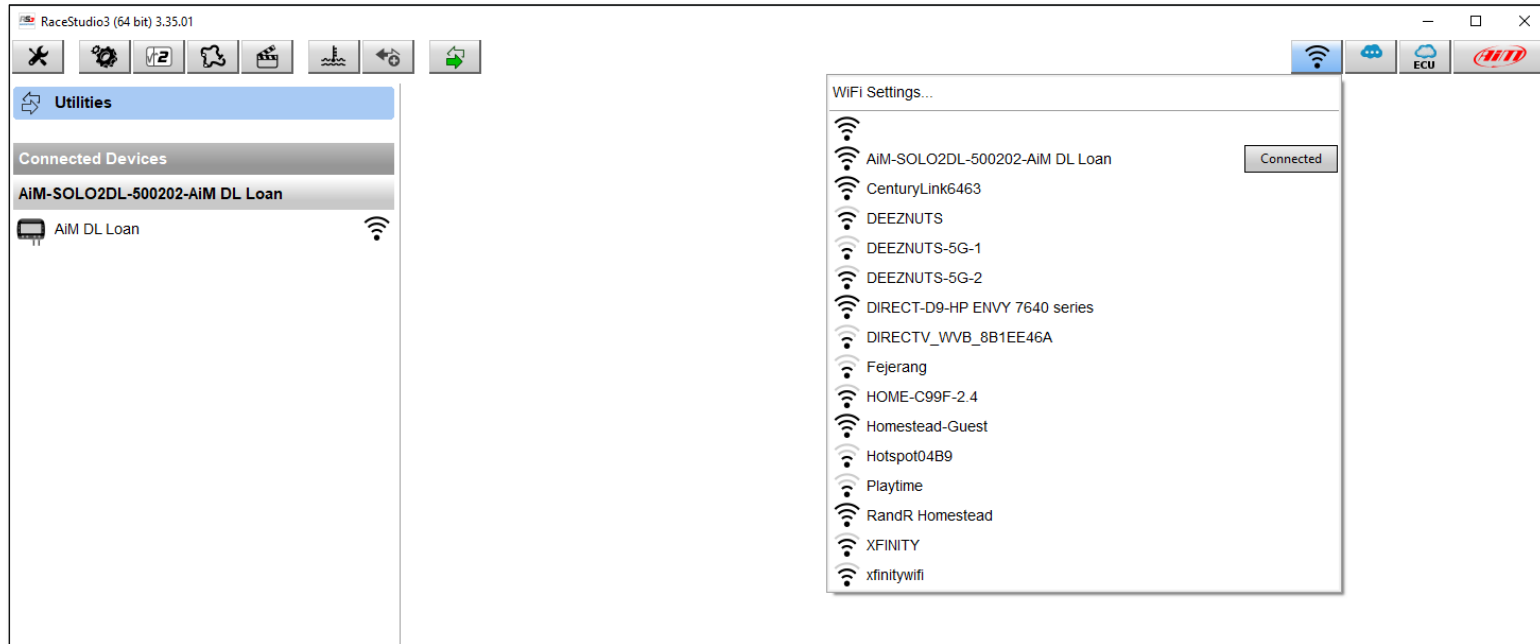


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AiM Sports WiFi

Conflicts, Tips, and Tricks!



Host:

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AiM Sports - National Training Manager

Co-Hosts:

Emiliano Bina

AiM-Sportline Software Developer

Co-Hosts:

Jeff Wasilko

Miata Racer and Data Enthusiast

Next Webinar: Tuesday March 23rd, 2021 - 10:00am Pac/1:00pm East

Next Webinar Topic

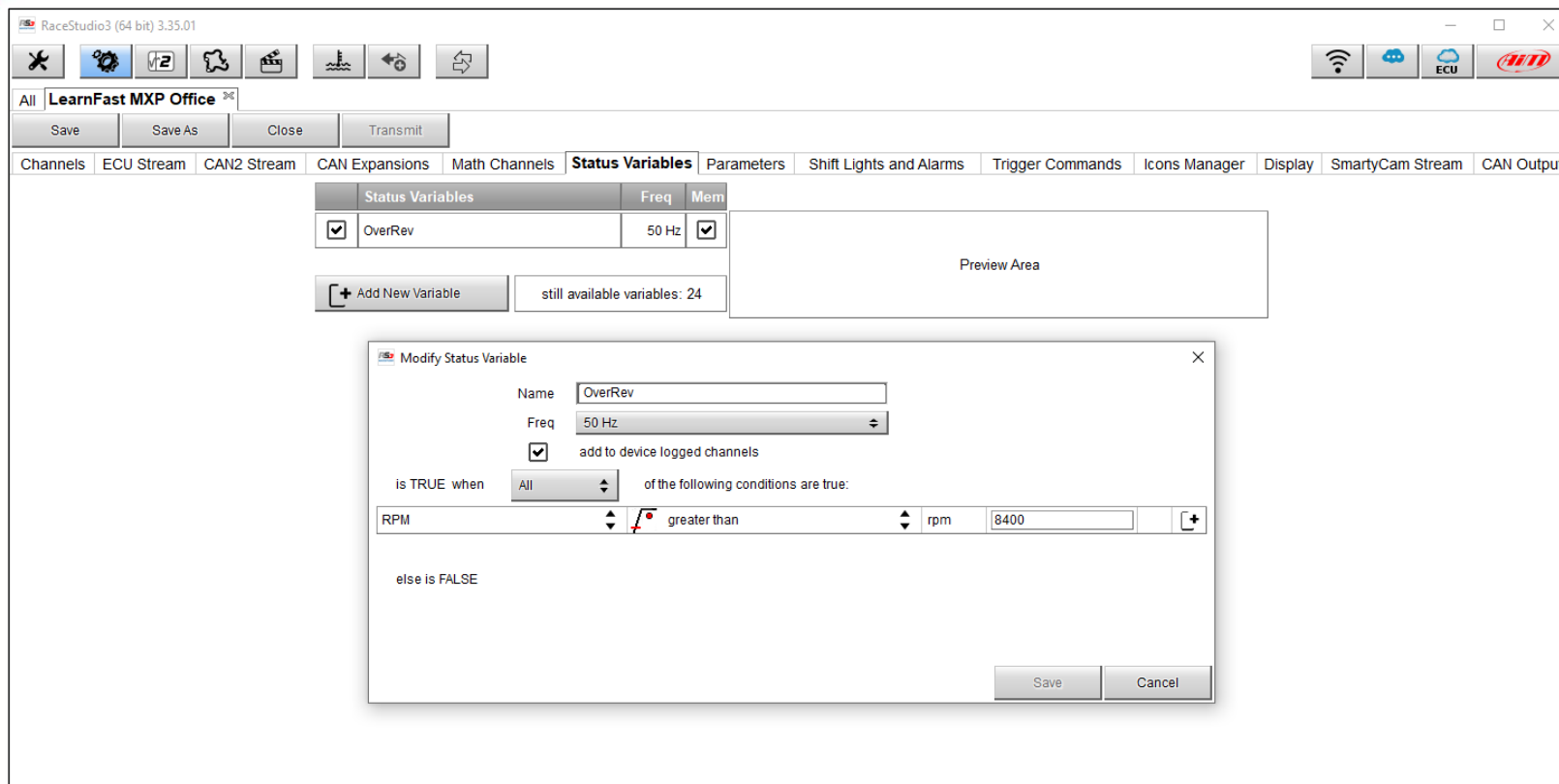
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Tuesday Mar 16th, 2021

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