



PLUGIN SERIES

[RFE TIRE PLUGIN DEVELOPMENT]

Installation guide, user manual and developer guide for RFE Tire plugin (build 0.105)



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About RFE Plugin series

RFE Plugin Series is a set of plugins created to enhance the realism and gameplay of ISI's **rFactor 1**, developed and licensed by **Symracing.net**. We all know what rFactor is, and most of the times such a complex engine (simple enough to run on a home laptop) has been be tweaked to create the most amazing and realistic games. However, not all the possibilities have been explored yet. There is a lot of work to do, and the only way we can do (as long as the game code has not been publicly released, will it ever be?) is using plugins that provide the missing functionalities we all love to see in a game.

RFE TIRE PLUGIN

Symracing is releasing this special package "RFE Tire Plugin", intended to allow interaction between the RFE Tire component and other rfactor plugins. Please read carefully this documentation if you want to use RFE Tire information in your plugin.

Installing RFE Tire Plugin

This plugin requires version 4 or greater of "Microsoft Common Runtime Library" package (Also known as .NET Framework) installed on your system. You can download this package for free from Microsoft: <http://msdn.microsoft.com/netframework>

The plugin is known to work on Windows 7 (both 32 and 64 bits versions).

Note: The build version shown in these images may be different from the one provided.

Important note: Remember that currently RFE Tire DOES NOT WORK on spectator mode, that means that spectators of a session do not send neither receive tire information from the RFE Tire plugin.

Additional documentation or support/help on how to use this tool for specific purpose may be found at RFE Plugin Series forum site: <http://symracing.net/rfeseries/forum>

RFE Tire Plugin configuration

In order to make use of the RFE Tire plugin information you will have to enable broadcast options in the RFETire configuration file located at:

[Rfactor Folder]/Plugins/RFE/Config/RFETire.ini

Read carefully the available options and focus on those related to 'broadcast information' under the 'GENERAL' section of the settings file.

```
# Broadcast compound information to this address and port, used by other plugins
# to get current compounds of all players in the session. Read the development
# documentation to see what is being send through this socket.
#
# Setting BroadcastPort to 0 will disable this option.
BroadcastAddress = 127.0.0.1
BroadcastPort    = 1255
```

Enabling this option will make the plugin to inform about every tire compound change using this broadcast channel. To make use of this information you will have to create your custom network handler awaiting to receive information on this channel first.

Important note: RFE Tire plugin submits ONLY compound initialization or changes during the session. That means that your network listener on this broadcast channel must be ready upon session re/start operations or you might lose some compound information. Submitting all tire information of a session in a single packet can generate network issues because of base MTU size for network packets and will be very expensive in CPU resources to parse, so I've tried to avoid such kind of communications.

RFE Tire submitted packets

RFE Tire submits a broadcast packet everytime a car changes one of its compounds. This change can occur on the following circumstances:

- A vehicle joins the session (automatically default tire compounds are assigned).
- A vehicle joins the track (tire compounds are selected from the setup).
- A vehicle makes a pitstop (tire compounds might have been changed).
- A vehicle leaves the track (default setup compounds are set if they were changed during a pitstop).

Loading a setup or just changing the setup spinners will not affect the selected compound on the vehicle.

RFE Tire Network Packet Structure

Currently the plugin submits a very specific structure for the tire information packet, however it includes enough options to enhance and upgrade in a future. It is important that before processing the packet you first check packet signature and version, because they will define the internal structure used in the submitted packet.

Currently only version 0x00000000 is being supported by the plugin. This is the C structure of the network packet version 00.

```
struct RFETireBroadcastInfoPacket {  
    char RFESignature[8]; // Should match "RFETIRE\x00\x00"  
    DWORD Version;        // For now only version 0x00000000 is supported  
    DWORD GridCurrentPos; // Player's current Grid position  
    char Name[32];         // Player's name  
    char TireBrand[32];    // Player's tire brand name  
    char FLName[32];       // Player's Front Left compound name  
    char FRName[32];       // Player's Front Right compound name  
    char RLName[32];       // Player's Rear Left compound name  
    char RRName[32];       // Player's Rear Right compound name  
};
```

Suggested Packet Parsing Process

First, make sure that packet signature matches the RFETIRE signature and ignore any other packet to avoid unwanted packets arriving to the same network port of the broadcast channel being parsed.

Make sure packet version is 0x00000000 before continuing. Future versions might change the overall packet structure. The presented structure is for version 00, and must be ignored for other versions.

Get player's Grid position to find what player owns this information and verify that the player is found using the player's name.

You might safely ignore player's tire Brand unless you want to show it somewhere.

The packet includes all compounds information, however some mods do not allow single tire changes and compounds must be changed by axis (front/rear) or as a set (all compounds). As the plugin does not care about this representation, it is the plugin (or the user) that must choose the best compound representing option by showing all compound names, just a single compound name (when all compounds are in a set) or showing an image.

Due to memory copying operations, the compound or player names might include some garbage, however the strings can safely read using any string-z function because they are terminated using the 0x00 character.

APPENDIX A: EULA

LICENCE

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