

# BOSSMAN GAMES

THINK BIG

## LMS STANIER CLASS 5 - "BLACK 5"



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# 1 BACKGROUND

## 1.1 LMS STANIER CLASS 5

The London Midland and Scottish Railway Class 5 4-6-0, almost universally known as the Black Five, was introduced by William Stanier in 1934 and 842 were built between then and 1951. Members of the class survived to the last day of steam on British Railways in 1968 and eighteen are preserved. This class of locomotive was often a favourite amongst drivers and railway fans.

The Black Fives were a mixed traffic locomotive, a "do-anything, go-anywhere" type, designed by Stanier, who had previously been with the GWR. In his early LMS days he designed his Stanier Mogul 2-6-0 in which he experimented with the GWR school of thought on locomotive design. A number of details in this design he would never use again realising the superiority of details not used on the GWR. Stanier realised that there was a need for larger locomotives. These were to be the LMS version of the GWR Halls but not a copy, as the Hall was too wide to run most places in Britain. They shared similar cylinder arrangement (two outside), internal boiler design and size, with 6 foot driving wheel diameters.

In their early days the locomotives were known as the "Black Staniers" from their black livery, in contrast to Stanier's other class of 4-6-0, the LMS Stanier Jubilee Class, which were painted crimson (and known until April 1935 as the "Red Staniers"). Later on, the nickname of the former became "Black Five", the number referring to the power classification.

## 1.2 DESIGN & SPECIFICATION

<b>Power Type</b>	Steam
<b>Locomotive Weight</b>	72.2 long tons
<b>Vehicle Length</b>	63 ft 7.75 in
<b>Build Date</b>	1934 - 1951
<b>Tractive Effort</b>	25,455 lbf
<b>Power Class</b>	5
<b>Total Produced</b>	842
<b>Fuel Capacity</b>	4,000 gallons of water, 9 long tons of coal



## 2 ROLLING STOCK - LOCOMOTIVES

### 2.1 45407, 44871 & 45212 – CIRCA 2018



- Also included is 45407 dressed up as lost class-mate 45157 “The Glasgow Highlander” as it appeared in 2018.

### 2.2 BRITISH RAILWAYS

- British Railways Gill Sans Lettering
- British Railways Early Emblem
- British Railways Late Emblem
- Loco variants with and without BR AWS equipment
- Clean and weathered variations.



## 2.3 LONDON, MIDLAND & SCOTTISH RAILWAY

- LMS 1930s Lined Black livery
- LMS 1930s Unlined Black livery – clean and weathered.



## 3 ROLLING STOCK – COACHES & WAGONS

### 3.1 BR MK2A BFK SUPPORT COACH – BOSSMAN RAILWAYS



### 3.2 BR MK1 SK – BR MAROON



### 3.3 BR MK1 RMB – BR MAROON



### 3.4 BR MK1 FK – BR MAROON





### 3.5 BR MK1 BSK – BR MAROON



### 3.6 BR MK1 TSO – BR MAROON



### 3.7 BR MK1 BG – BR MAROON



### 3.8 BR MK1 BFK – BR MAROON



### 3.9 BR GUV – BR MAROON



### 3.10 BR BRAKE VAN

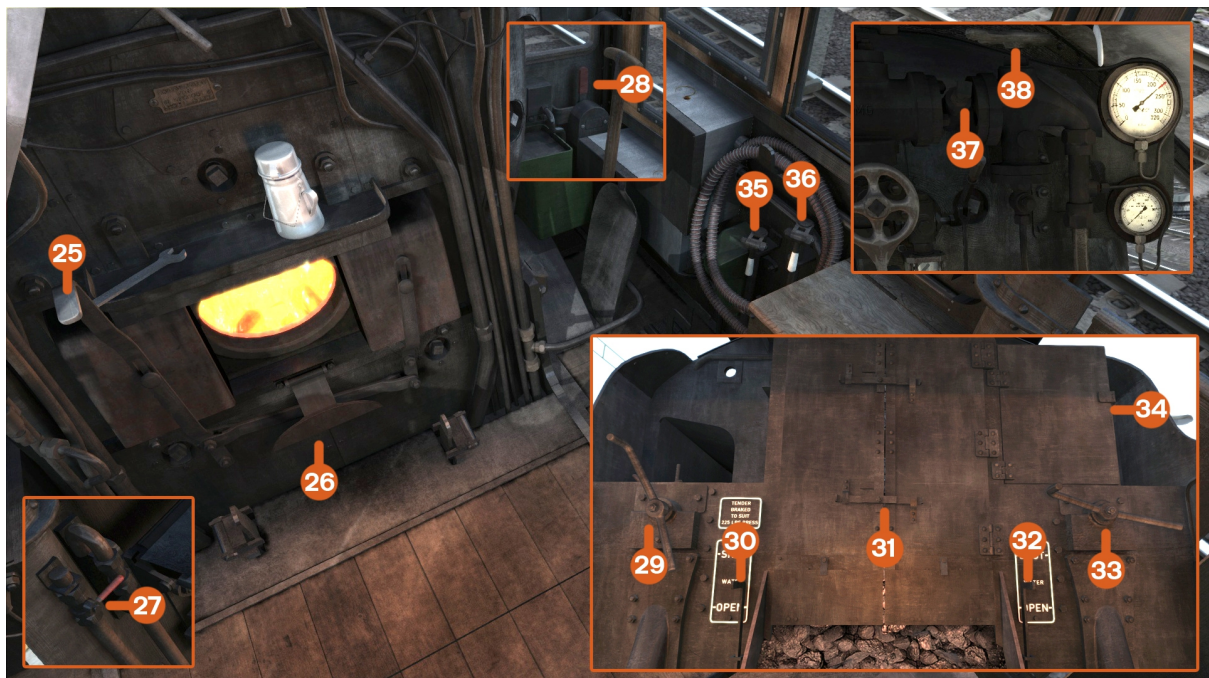
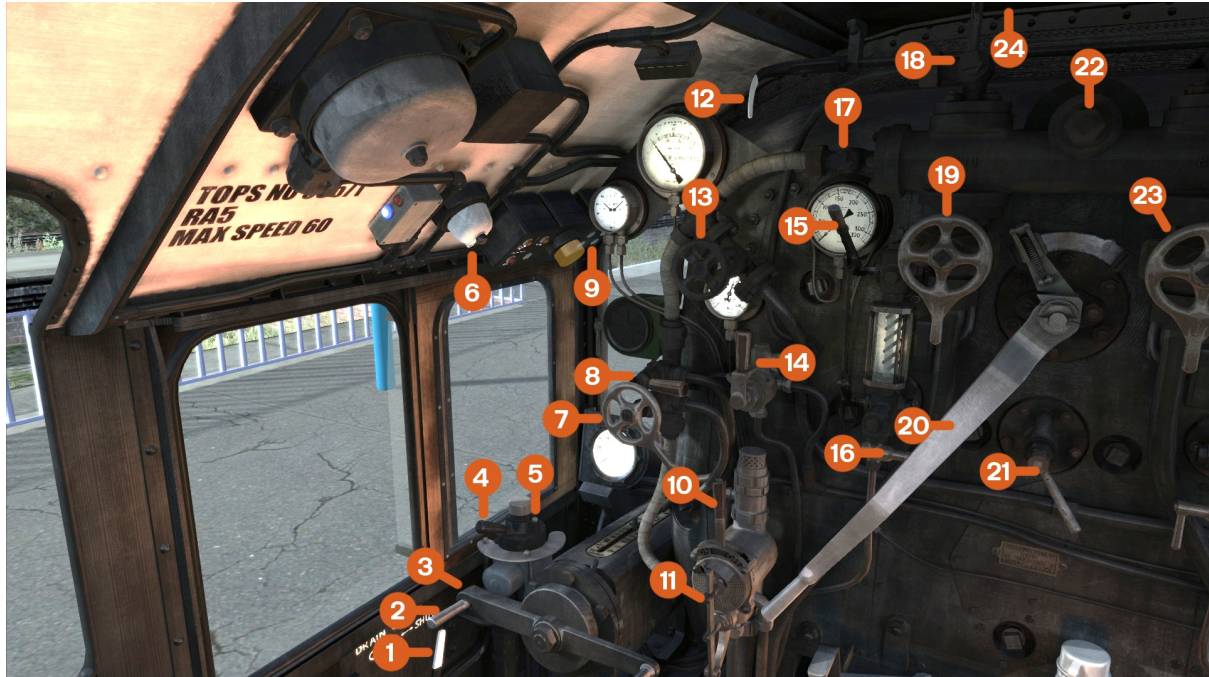


### 3.11 16T MINERAL WAGON



## 4 DRIVING THE LMS STANIER CLASS 5

### 4.1 CAB CONTROLS



1	Cylinder Drain Cocks	20	Regulator
2	Reverser Lock	21	Blower
3	Reverser	22	Manifold Isolation Valve
4	M8 Train Brake Valve (Air & Vac)	23	Right Injector Steam Valve
5	M8 Brake Valve Lock Pin	24	Roof Vent & Roof Vent Locks
6	AWS Acknowledgement	25	Firebox Doors
7	Large Ejector	26	Air Deflector Flap
8	Small Ejector	27	Emergency Brake Valve
9	Cab Lighting	28	Electrical Supply
10	Combi' Brake Handle (Vac & Steam)	29	Handbrake
11	Steam Brake	30	Right Injector Tender Water Stop Valve
12	Whistle	31	Coal Space Doors
13	Air Compressor Steam Valve	32	Left Injector Tender Water Stop Valve
14	Steam Sander	33	Waterscoop Control
15	Gauge Glass Isolating Handle	34	Tender Locker Door
16	Gauge Glass Drain Cock	35	Left Injector Water Trimmer Valve
17	Brake Isolation Valve	36	Right Injector Water Trimmer Valve
18	Sander Isolation Valve	37	Steam Heat Isolation Valve
19	Left Injector Steam Valve	38	Steam Heat Regulating Pressure Valve

## 4.2 EXTERNAL CONTROLS

There are several external interactive elements on this locomotive. Both mechanical lubricators and all sandboxes can be opened and filled by using the mouse. The smokebox can be opened by unlocking the Smokebox Locking Dart, and then opening the door. These controls can be accessed by cycling through the cab camera positions, which will take you outside the locomotive's cab. Examples can be seen below.



## 4.3 LOCOMOTIVE KEYBOARD CONTROLS

<b>Key</b>	<b>Action</b>
W / S	Reverser
E	Reverser Lock
A / D	Regulator Open / Shut
Shift+A / Shift+D	Regulator Slam Open / Slam Shut
Q	AWS Reset
; / '	Combination Vacuum/Steam Brake Off / On
, / .	M8 Brake Valve Off / On
[ / ]	Steam Brake Off / On
/	Handbrake On
Shift+/	Handbrake Off
Ctrl+R	Automatic Fireman On / Off
H / Shift+H	Headboard – cycles through 7 headboards
Space Bar	Whistle Loop
B	Whistle Variation
V	Short Whistle
F / Shift+F	Firebox Door Open / Shut
R	Stoke Fire
I	Injector Steam Valve Left
O	Injector Steam Valve Right
K	Injector Water Valve Left
L	Injector Water Valve Right
Ctrl+L / Ctrl+Shift+L	Water Trimmer Right Open / Shut
Ctrl+K / Ctrl+Shift+K	Water Trimmer Left Open / Shut
Ctrl+M / Ctrl+Shift+M	Front Damper Open / Shut
M / Shift+M	Rear Damper Open / Shut
N / Shift+N	Blower Open / Shut
C	Cylinder Cocks Open / Shut
X / Shift+X	Sander Front / Off / Rear
Ctrl+Shift+Y	Tender Tank Lid Open / Shut

Ctrl+H	Cab Lighting
Home	AWS Isolation On / Off
Delete	Air Reservoir Drain
End	DV2 Valve Isolation
Ctrl+Home	Electrical Supply (AWS, TPWS, OTMR Cab Lighting) On / Off
Return	M8 Brake Valve Shutdown Pin
Ctrl+F	Firebox Flap Up / Down
Page Up / Page Down	Brake Mode
U / Shift+U	Large Ejector Open / Shut
J / Shift+J	Small Ejector Open / Shut
Y / Shift+Y	Water Scoop
Ctrl+Del	Air Compressor On / Off
Y	RETB Sequence Control

Locomotive Lamp controls – as viewed facing the front of the loco or tender.  
Oil headlamp, oil tail lamp, high-intensity headlamp (preserved locos only), modern tail lamp (preserved locos only)

Ctrl+1 / Ctrl+Shift+1	Bottom left loco lamp
Ctrl+2 / Ctrl+Shift+2	Middle loco lamp
Ctrl+3 / Ctrl+Shift+3	Bottom right loco lamp
Ctrl+4 / Ctrl+Shift+4	Top loco lamp
Ctrl+5 / Ctrl+Shift+5	Bottom left tender lamp
Ctrl+6 / Ctrl+Shift+6	Middle tender lamp
Ctrl+7 / Ctrl+Shift+7	Bottom right tender lamp
Ctrl+8 / Ctrl+Shift+8	Top tender lamp

#### 4.4 GENERAL KEYBOARD CONTROLS

Key	Action
Shift + Ctrl+C	Couple Manually
G / Shift+G	Points/Switches
Tab / Ctrl+Tab	Request authority to pass a signal at danger
T	Load/Unload - Press once to load/unload passengers or freight.



## **4.5 COLD START (45407, 44871, 45212, 45157)**

1. Close the Gauge Glass Drain Cocks and open the Gauge Glass Isolating Handles to show the water level in the boiler.
2. Turn on the Air Compressor.
3. Shut Air Reservoir Drain. If the Air Compressor is on and air pressure isn't building up, the Air Reservoir Drain is still open.
4. When the air pressure in the main reservoir reaches 70psi or over, turn on the electrical supply.
5. Cancel AWS self-test.
6. Release the M8 Valve.
7. Build up fire to suitable level. Using the Auto Fireman (Ctrl+R) will allow you to concentrate on other operations.
8. Release Handbrake.
9. Release the Vacuum Brakes using the Combination Brake Handle and Small/Large Ejectors.

## **4.6 REGULATOR**

When using the regulator on this loco there are a couple of things to note:

- When you're in second valve (the second half of the regulator's travel) make sure to slam the regulator open and then slam it shut.
- If this isn't done the regulator will not shut properly.

## **4.7 M8 BRAKE VALVE (45407, 44871, 45212, 45157)**

On 45407, 44871 and 45212 there is an M8 Brake Valve. This will control both the air and vacuum train brakes.

## **4.8 DV2 VALVE (45407, 44871, 45212, 45157)**

The DV2 valve is a proportional valve which is used to apply the vacuum brake in proportion to an application of the automatic air brake (M8 Brake Valve). However the reverse does not apply and an application of the vacuum brake will not apply the automatic air brake.

When the valve is isolated the two systems are separated and an application of the automatic air brake will have no effect on the vacuum brake. The DV2 valve can only be isolated while stationary as it is under the cab.

## **4.9 VACUUM BRAKE LEAK**

As per the real life counterparts, the vacuum brake system on these locos have a slight leak. This means that once the vacuum brakes are released you must continue to use the ejectors to maintain vacuum. This can be done with the small ejector so as not to waste too much steam.

## 4.10 SANDERS

When using the sanders on this loco, there is a delay of a few seconds whilst the steam that powers them works its way through the system. You'll be able to tell they're working by either hearing the hiss of steam or seeing steam coming from the sanding pipes.

## 4.11 INJECTORS

Both injectors on the loco can be toggled on or off with their respective keyboard controls. Whilst the loco has water trimming valves, these are already set up in the correct positions for operation. However, the water trimming valves may need to be adjusted when the boiler pressure drops below the normal operating pressure of 225psi.

## 4.12 IDEAL FIRE MASS

The ideal fire mass for this locomotive is 875lbs for mainline running. The fire can be dropped to a lower mass if running on a preserved railway running at speeds of around 25mph to avoid unnecessary blowing off of the safety valves.

## 4.13 AUTOMATIC FIREMAN

This locomotive has an Automatic Fireman, which can be toggled on and off using Ctrl+R. This will take over control of stoking the fire. The injectors still need to be controlled manually. On locos with a lifting fireman's seat, you can use the seat to control the automatic fireman. Putting the seat in the up position will turn on the automatic fireman.

## 4.14 HEADBOARDS

The following headboards are included with 45407, 44871 and 45212. When cycling through the headboards, they will first appear on the loco and then continue to cycle through on the tender:

- West Highlander
- The Great Britain
- The Cathedrals Express
- Cumbrian Mountain Express
- 1T57 (also on BR liveries)
- North Wales Coast Express
- Welsh Marches Express

## 5 RADIO ELECTRONIC TOKEN BLOCK (45407, 44871, 45212, 45157)

Radio Electronic Token Block is a system of railway signalling used in the United Kingdom. It is a development of the physical token system for controlling traffic on single lines. This system is in use on the West Highland Extension between Fort William and Mallaig.

The Cab Display Unit (CDU) for the RETB is located in the tender cabinet behind the driver as seen below:



All scenarios on the West Highland Line Extension route included with this pack can be played without using the RETB system. However, should the player wish to use it, the scenarios are setup for this functionality.

The system is very simple to use and can be great fun! The whole system can be used with the Y key, allowing you to maintain full concentration on the complex locomotive.

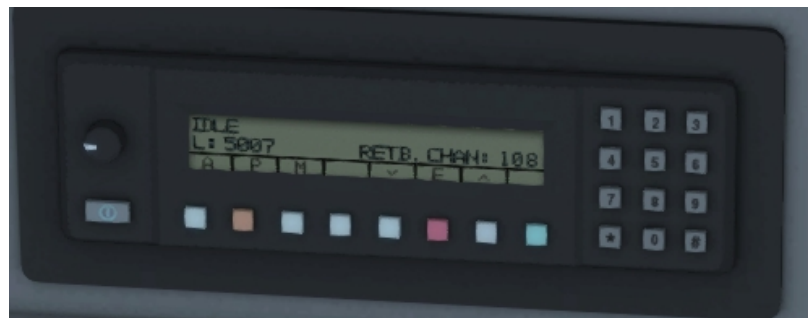
### 5.1 USING RETB IN SCENARIOS

1. Open the cabinet on the tender using the mouse, behind the driving position.
2. If nothing is displayed on the CDU, press Y (RETB Sequence Control) to power on the RETB.
3. Pressing the RETB Sequence Control again will begin a series of messages between the driver and the signaller. Continue to press the RETB Sequence Control through the various radio messages until you get the required token. This may include a test token sequence.\*
4. Repeat the process when at a destination that requires a new token.

\* Please note that there is a set timer between each radio message, so you may need to wait a few seconds before continuing the conversation with the signaller.

## 5.2 RADIO FREQUENCIES

When traversing the route whilst using RETB, there are locations where the Radio Frequency needs to be changed. A change of radio frequency is required when you pass one of these boards, shown below (left). The radio frequency can be changed by pressing Y. The current radio frequency held by the locomotive is displayed on the NRN radio screen to the bottom right as show below (right).



Radio frequency change locations are at:

- Locheilside Station
- Lochailort Station

## 5.3 OBTAINING A NEW TOKEN

New tokens need to be obtained when approaching one of the boards as seen below. To obtain a new token and get permission to pass the stop board, press the RETB Sequence Control and listen to the radio messages.



## 6 SCENARIOS

10 scenarios over 3 different routes are provided with this pack. The following routes are required to play all 10 scenarios:

- West Highland Line Extension - Thomson Interactive
- North Wales Coastal - Dovetail Games
- Settle to Carlisle - Dovetail Games

All of these routes are available through the Steam Store:

<http://store.steampowered.com/>

### 6.1 [LMS 5MT] 01. LOCO INTRODUCTION & PREPARATION

In this scenario you get to grips with the Stanier Class 5MT, No. 45407 “The Lancashire Fusilier”.

**Duration:** 20 Minutes

**Difficulty:** Easy

### 6.2 [LMS 5MT] 02. 5Z25 FORT WILLIAM YARD TO FORT WILLIAM STATION

In this scenario you will form the 6 coach train in preparation for the run to Mallaig!

**Duration:** 20 Minutes

**Difficulty:** Easy

### 6.3 [LMS 5MT] 03. 2Y61 10:15 FORT WILLIAM - MALLAIG - PART 1

The first part of the journey from Fort William to Mallaig, stopping at Loch Eil and Glenfinnan. Enjoy the sound of your locomotive climbing through the West Highlands!

**Duration:** 50 Minutes

**Difficulty:** Medium

### 6.4 [LMS 5MT] 04. 2Y61 10:15 FORT WILLIAM - MALLAIG - PART 2

The second part of the journey from Fort William to Mallaig, stopping at Arisaig and Mallaig.

**Duration:** 65 Minutes

**Difficulty:** Medium

### **6.5 [LMS 5MT] 05. 2Y62 14:11 MALLAIG - FORT WILLIAM - PART 1**

The first part of the return journey to Fort William, stopping at Morar, Arisaig and Glenfinnan. This journey will be tender first.

**Duration:** 70 Minutes

**Difficulty:** Hard

### **6.6 [LMS 5MT] 06. 2Y62 14:11 MALLAIG - FORT WILLIAM - PART 2**

Continuing the return journey to Fort William, stopping at Loch Eil along the way.

**Duration:** 50 Minutes

**Difficulty:** Hard

### **6.7 [LMS 5MT] 07. 1Z61 MANCHESTER VICTORIA TO CARLISLE - PART 1**

Take 44871 & 45407 over the Settle & Carlisle Railway on the Winter Cumbrian Mountain Express, which originated at Manchester Victoria.

**Duration:** 70 Minutes

**Difficulty:** Medium

### **6.8 [LMS 5MT] 08. 1Z61 MANCHESTER VICTORIA TO CARLISLE - PART 2**

Part 2 of the run from Manchester Victoria to Carlisle with 44871 & 45407, starting from Appleby.

**Duration:** 45 Minutes

**Difficulty:** Medium

### **6.9 [LMS 5MT] 09. 1Z95 LIVERPOOL LIME ST TO HOLYHEAD**

Take control of 1Z95 - a Liverpool Lime Street to Holyhead Railtour - at Chester on its journey to Holyhead. Take the train as far as Llandudno Jnc.

**Duration:** 65 Minutes

**Difficulty:** Medium

## 6.10 [LMS SMT] 10. 1Z96 HOLYHEAD TO LIVERPOOL LIME ST

After complications with refuelling at Holyhead, you are running 2 hours behind schedule! Take 44871 from Conwy to Chester, trying to make up some lost time!

**Duration:** 70 Minutes

**Difficulty:** Very Hard

# 7 CREDITS

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3D Artist, Scenario Writer, Audio Recordings & Bossman

**SIMON PAYNE**

Internal Tester

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Bossman Games would like to thank the following people for their invaluable contribution towards the development of the LMS Stanier Class 5:

**EDWARD FISK - MESHTOOLS**

Scripting & Audio Implementation

**MASTER KEY SIMULATIONS**

Cab texture shadow bakes & lighting setup, art consultant

**SCOTT MILNE**

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**PETER WHY**

RETB Setup & Scripting

**OLDHAM VIDEO PRODUCTIONS**

Audio Recordings

**THOMSON INTERACTIVE**

For allowing us to create scenarios on their fantastic West Highland Line Extension route.

**IAN RILEY - RILEY & SON (E) LTD**

Research Consultant, Audio Access & Owner/Operator of 45407, 44871 & 45212

**JACK JOHNSON**

Research Consultant & Support Crew/Mainline Fireman of 45407, 44871 & 45212

**TOM HOMEWOOD**

Audio Access & MHR Driver

**CHRIS BARNES**

Injector Water Particles

**MID-HANTS RAILWAY – WATERCRESS LINE**

**WEST COAST RAILWAYS**

**DOVETAIL GAMES**

**DOVETAIL GAMES BETA FORUM**

**RAIL-SIM USERS GROUP**

**UKTRAINSIM FORUM**

**THE TRAIN SIMULATOR COMMUNITY**



## 8 DISCLAIMERS

### 8.1 REALISM

Due the level of realism provided in this pack the correct driving style must be adopted, which may differ significantly from any other steam locomotives in Train Simulator. This manual will provide you with all you need to know about successfully driving the Bossman Games Stanier Class 5 “Black 5”.

This loco does not fully support control via the HUD, Xbox controller or via Simple Controls.

### 8.2 PC PERFORMANCE

Every effort has been made to make this add-on as realistic and as detailed as possible within the confines of Train Simulator. As a result, some users may experience low frame rates on older machines. It is recommended that in cases where frame rates are low, the user should lower their graphical settings within Train Simulator to allow for a better gaming experience.

### 8.3 END USER LICENSE AGREEMENT (EULA)

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Bossman Games do not allow the development or sale of any commercial add-ons or associated products including but not limited to:

- Scenario Packs
- Audio Enhancement Packs

### 8.5 A THANK YOU FROM BOSSMAN GAMES

Bossman Games would like to offer a huge thank you to you for purchasing this product and hope that you get many hours of enjoyment from it. If you enjoy this product it would be greatly appreciated if you took the time to write a review on Steam. Should you have any feedback for us - whether positive or negative - it is always appreciated.



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THINK BIG