

Class 377/379/387

Enhancement Pack



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How to Install

- 1) Locate where you have downloaded this pack and unzip it. Information on how to do this can be found [here](#).
- 2) Go to the location where you have extracted the files from the .zip file.
- 3) Now find the .exe file called 'Class 377-379-387 Enhancement Pack'. Double-click this file.
- 4) Follow the steps and by the end of the process, the main part of this pack will have installed.
- 5) If you intend to use any of the included scenarios, make sure you have the requirements installed, as listed on the product page.
- 6) To ensure the cab environment sounds as intended in this pack, please make sure that 'EFX' is ticked within your in-game Audio settings.

Liveries

Class 377/6 & 377/7

Southern:

with original Southern logo - SN1

with revised Southern logo - SN2



Class 379

National Express East Anglia:

with National Express East Anglia logo - *NXEA*

with Greater Anglia logo - *GA*

with Abellio Greater Anglia logo - *AGA*

with revised Greater Anglia logo - *GA2*



Class 387

Thameslink:

with Thameslink logo - *TL*

with Great Northern logo - *GN*



Ex-Great Northern (Gatwick Express) - *Ex-GN (GX)*



Gatwick Express - GX



Ex-Gatwick Express:

with Thameslink destinations - *Ex-GX (TL)*

with Great Northern destinations - *Ex-GX (GN1)*

with Great Northern destinations & logo - *Ex-GX (GN2)*

with Great Western Railway destinations - *Ex-GX (GWR)*



C2C:

with C2C destinations - C2C

with Great Western Railway destinations - C2C (GWR)



Great Western Railway - GWR



Keyboard Controls

Non-standard keyboard controls are listed below:

I -	AC system select button
Ctrl+Z -	Aux off button
Z -	Aux on button
Numpad Plus -	Brake hold button
L -	Cab light button ON/OFF
Delete -	DC system select button
E -	Deadman's pedal (DVD reset)
N -	Depot whistle
F7 -	Destination display DOWN
F8 -	Destination display UP
R -	Door close button
U -	Door release buttons (left)
O -	Door release buttons (right)
Y -	Driver reminder appliance (DRA) ON/OFF
C -	Driver to guard bell
Ctrl+D -	Driver vigilance device (DVD) ON/OFF
H -	Headlight switch CLOCKWISE
Shift+H -	Headlight switch ANTI-CLOCKWISE
Shift+W -	Master key IN/OUT
Shift+P -	Pan down button
P -	Pan up button
Ctrl+R -	Passenger door operation toggle DOO/GO
End -	Shoes down button
Page Down -	Shoes up button
Ctrl+. -	Speed set button (Class 379 only)
. -	Speed set adjust switch UP (Class 379 only)
, -	Speed set adjust switch DOWN (Class 379 only)
K -	Tail lights switch CLOCKWISE
Shift+K -	Tail lights switch ANTI-CLOCKWISE
Ctrl+Numpad Enter -	Visual aids ON/OFF
V -	Wiper switch CLOCKWISE
Shift+V -	Wiper switch ANTI-CLOCKWISE

Features

Passenger View

A new passenger view has been modelled with four variants of seat moquette, two seat types, multiple camera views and opening/closing doors.

Southern / Thameslink / Great Northern / C2C



Class 379



Gatwick Express



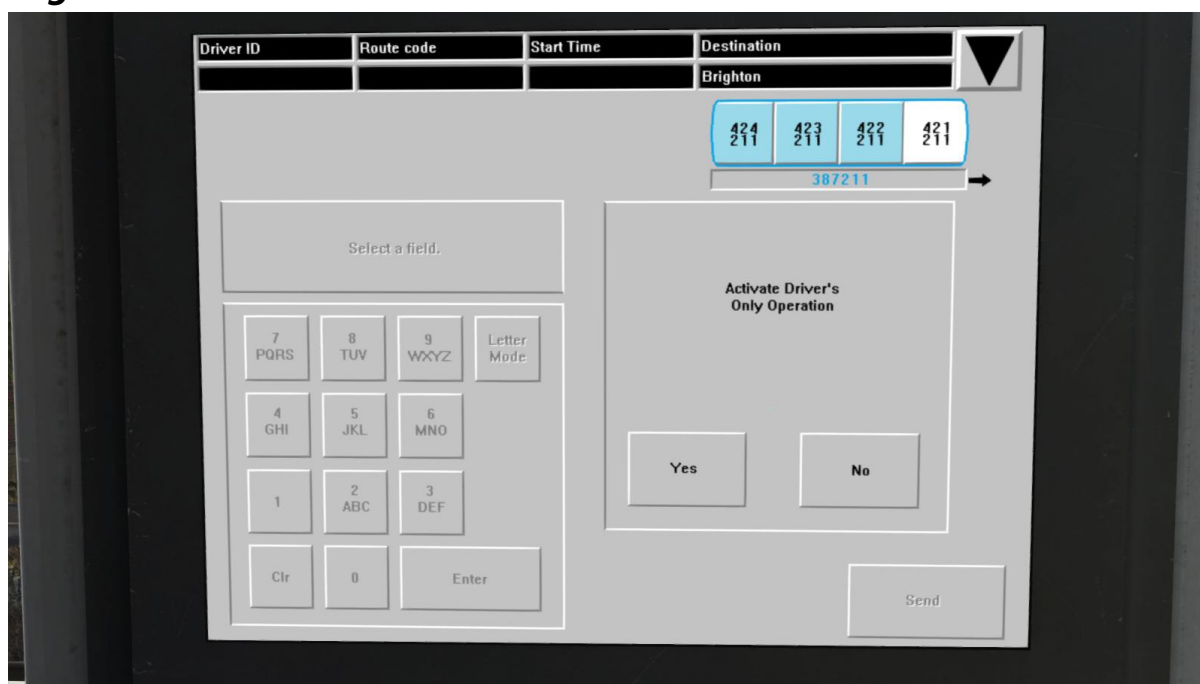
Great Western Railway



MITRAC - Train Management System (TMS)

This unit features a Train Management System (TMS) called MITRAC, which is accessed via the IDU (Intelligent Display Unit) to the left of the driver. Many aspects of the unit can be controlled or viewed using this system. Please see below for the screens which have been simulated in this pack.

Log-In



After turning the master key in and moving the reverser out of 'Off', this is the first screen you see.

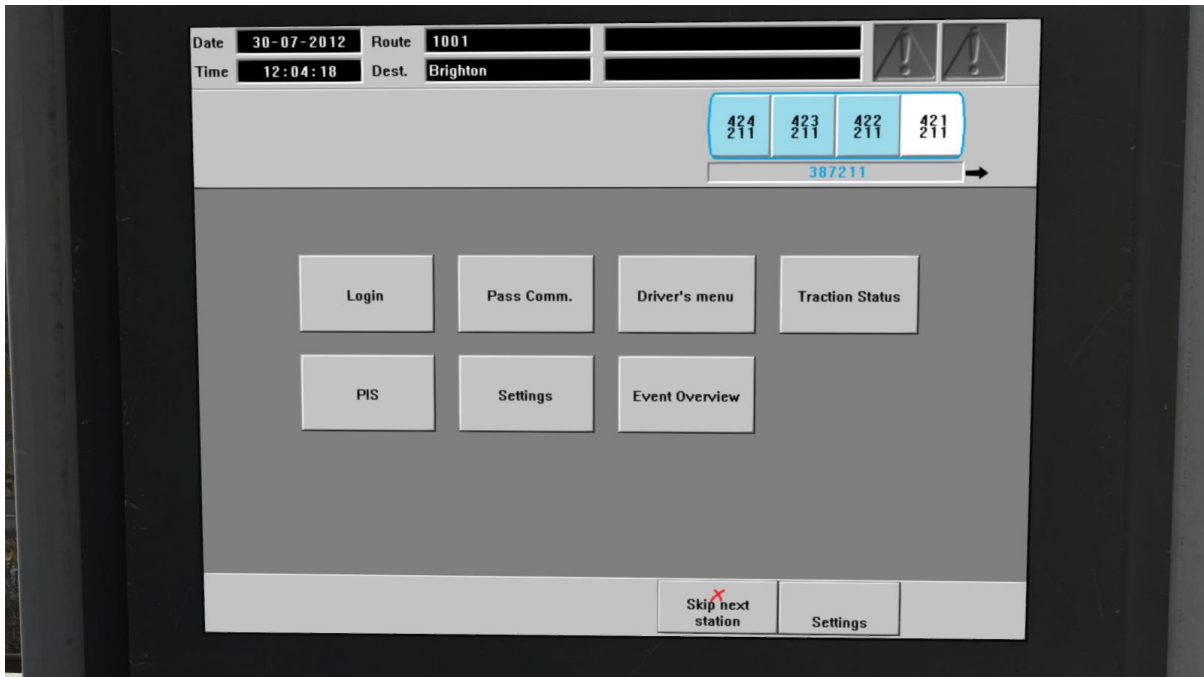
Firstly, you must choose whether to activate Driver's Only Operation (DOO) or not. This allows you to have sole control of the doors if you wish.

You may then log-in. To do this, click the blank space below 'Driver ID' and enter a 5-digit number of your choice, using the keypad, before pressing 'Enter'.

If you wish to display a destination on the front and side of the train, click the blank space below 'Route Code' and enter the relevant 4-digit code, using the keypad, before pressing 'Enter'. The 4-digit codes can be found later on in this manual.

Once you are done, press 'Send' to log-in.

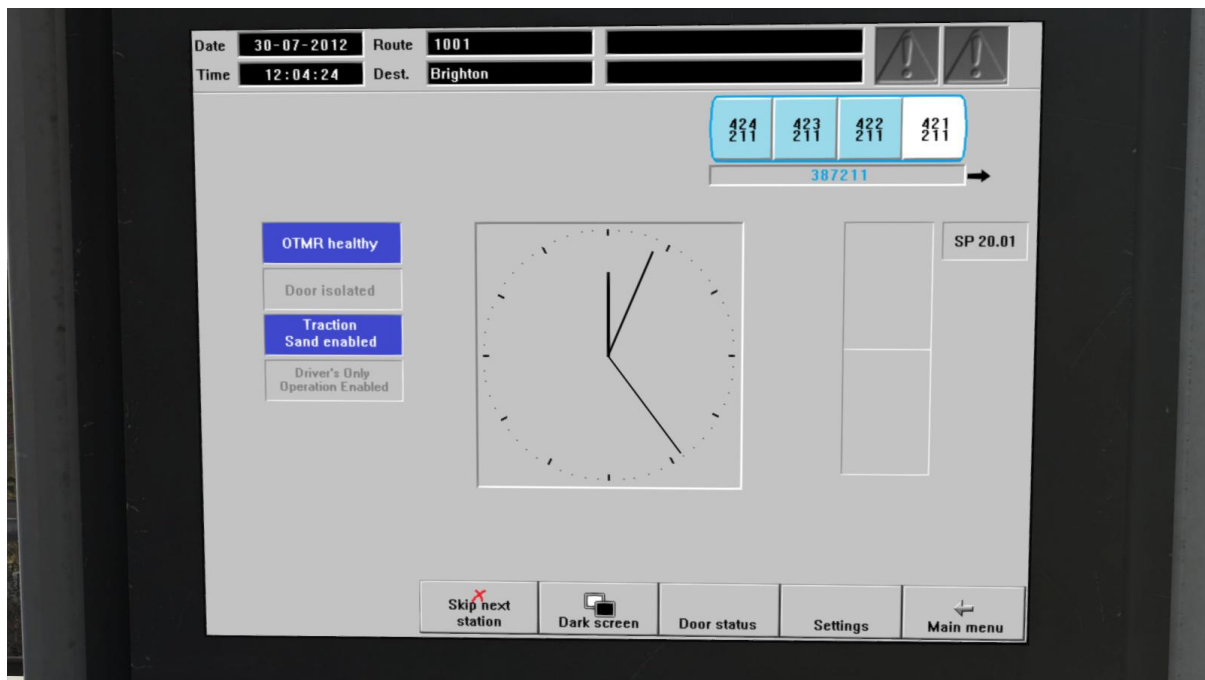
Main Menu



Once you are logged in, you will be presented with the 'Main Menu' which provides access to other screens. To access the screen of your choice, simply click the relevant button. Please note that not all screens are simulated so some will not load if they have not been simulated.

As in common with all screens, your train formation is shown at the top with unit and vehicle numbers.

Driver's Menu

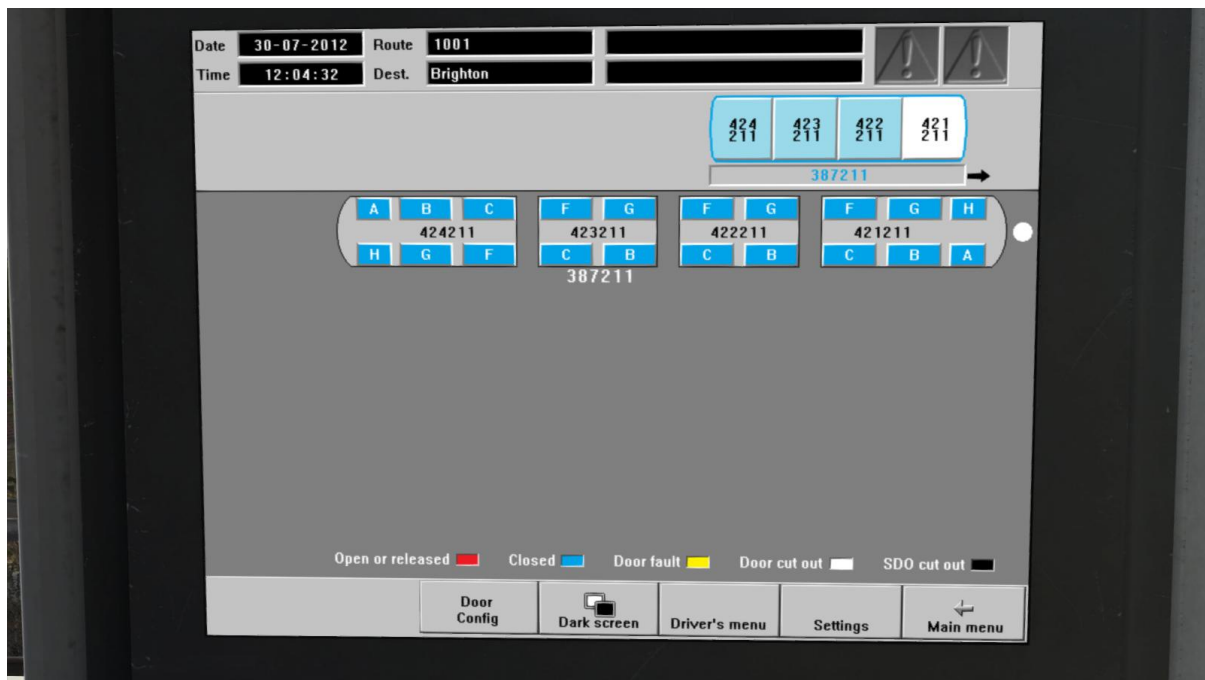


This screen shows the status of the On-Train Monitoring Recorder (OTMR), door isolations, traction sand and Driver's Only Operation (DOO). Out of these four things, only the 'Driver's Only Operation Enabled' indicator is dynamic. The other three are static as their state changes have not been simulated in this pack.

This screen also shows the current simulator time in analogue format.

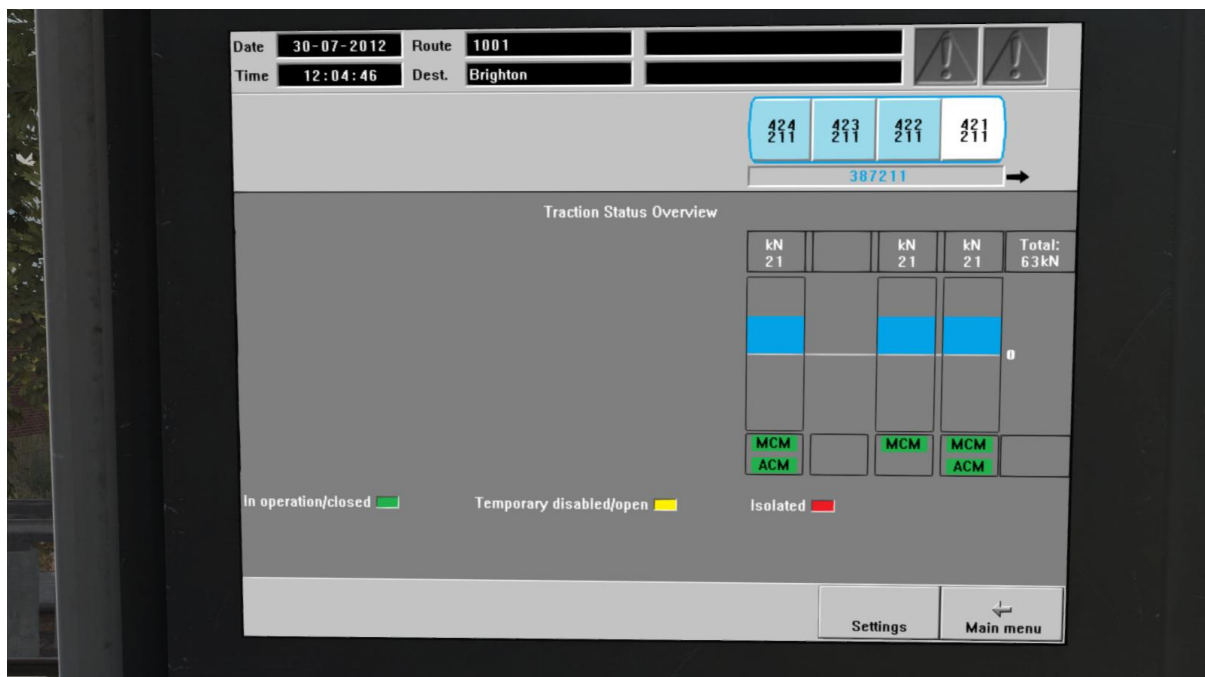
Relevant shortcuts to other screens are provided at the bottom. Please note that 'Skip next station' is inactive. 'Dark screen' turn off the screen and you will be required to click anywhere on the screen to turn it back on. The other three shortcuts will simply lead you to their respective screens.

Door Status



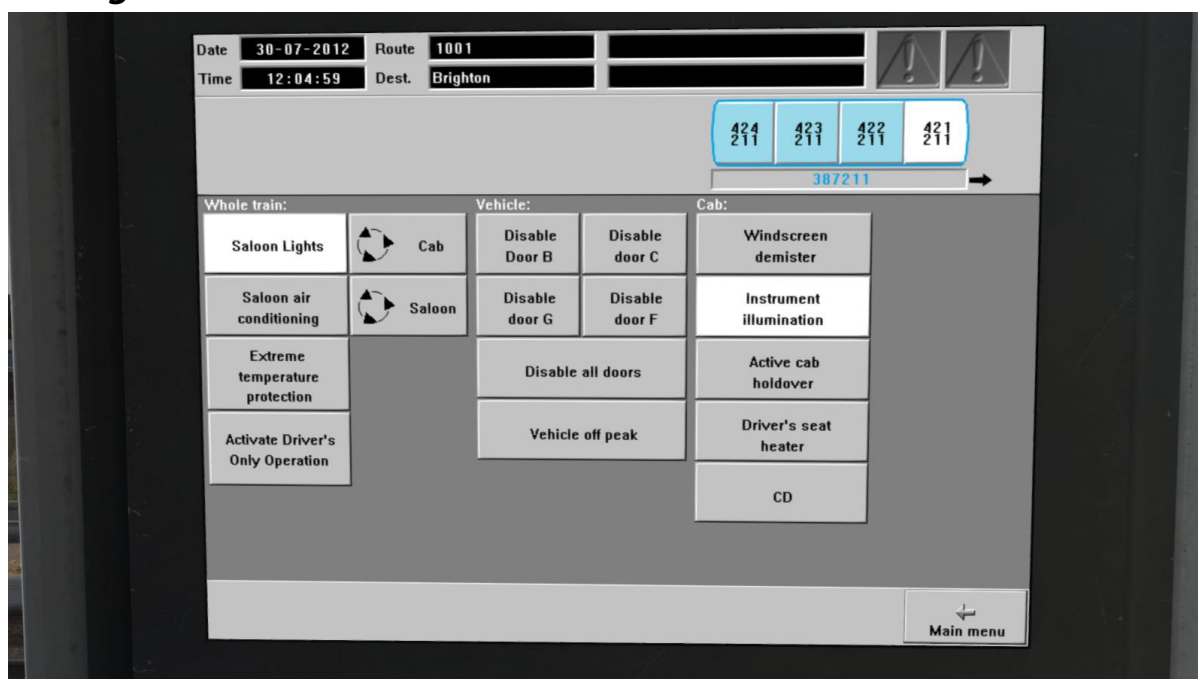
This screen is only accessible from the 'Driver's Menu' and shows the status of all doors on your train.

Traction Status



This screen shows the tractive effort being provided by each pair of traction motors on your train whilst accelerating or braking. It also shows the status of each Motor Converter Module (MCM) & Auxiliary Converter Module (ACM). The MCM is vital to the operation of the traction motors and the ACM powers vital systems on the train.

Settings



This screen allows you to change the following settings:

Clicking 'Saloon Lights' will toggle the saloon lights on and off, as visible from the passenger view. The state shown above with a white background shows that they are currently on. The background will turn grey if they are turned off.

Clicking 'Cab' will toggle the state of the cab air ventilation. The state shown above with a grey background shows that it is currently on. The background will turn white if it is turned off.

Clicking 'Saloon' will toggle the state of the saloon air ventilation. The state shown above with a grey background shows that it is currently on. The background will turn white if it is turned off.

Clicking 'Activate Driver's Only Operation' will toggle the state of Driver's Only Operation (DOO). The state shown above with a grey background shows that it is currently not active. The background will turn white if it is active.

Clicking 'Instrument illumination' will toggle the state of the instrument lights. The state shown above with a white background shows that they are on. The background will turn grey if they are off.

Player Changeable Destination Display

As detailed in the 'MITRAC - Train Management System (TMS)' section of this manual, your destination can be displayed on the front and side of your train. Please see below for a list of the available destinations and their relevant code for the MITRAC, or letter if you wish to use them via the unit's number on an AI service:

Southern / Gatwick Express

9999/0 - Blank	1017/GLD - Guildford	1034/SRS - Selhurst
9998/ESR - Electrostar	1018/HGS - Hastings	1035/SPB - Shepherds Bush
1002/BAA - Barnham	1019/HHE - Haywards Heath	1036/SMI - Smitham
1003/BKJ - Beckenham Junction	1020/HRH - Horsham	1037/SOU - Southampton Central
1004/BOG - Bognor Regis	1021/HOV - Hove	1038/SCY - South Croydon
1001/BTN - Brighton	1022/KPA - Kensington Olympia	1039/SRH - Streatham Hill
1005/CAT - Caterham	1023/LIT - Littlehampton	1040/SUO - Sutton
1006/CCH - Chichester	1024/LBG - London Bridge	1041/TAT - Tattenham Corner
1007/CLJ - Clapham Junction	1000/VIC - London Victoria	1042/TBD - Three Bridges
1008/CDN - Coulsdon Town	1025/MKC - Milton Keynes Central	1043/TON - Tonbridge
1009/CYP - Crystal Palace	1026/NWD - Norwood Junction	1044/WFJ - Watford Junction
1010/DKG - Dorking	1027/ORE - Ore	1045/WCY - West Croydon
1011/EBN - Eastbourne	1028/PMH - Portsmouth Harbour	1046/WWO - West Worthing
1012/ECR - East Croydon	1029/PMS - Portsmouth & Southsea	1047/WRH - Worthing
1013/EGR - East Grinstead	1030/PUR - Purley	9996/WEB - www.southernrailway.com
1014/EPS - Epsom	1031/RDH - Redhill	9997/SPE - Special
1015/EPD - Epsom Downs	1032/REI - Reigate	
1016/GTW - Gatwick Airport	1033/SEF - Seaford	

Thameslink

9999/0 - Blank	1012/FLT - Flitwick	1025/RDH - Redhill
9998/ESR - Electrostar	1013/GTW - Gatwick Airport	1026/RTR - Rochester
1003/AFK - Ashford International	1014/HPD - Harpenden	1027/SEV - Sevenoaks
1004/BKJ - Beckenham Junction	1015/HHE - Haywards Heath	1028/SAC - St Albans City
1000/BDM - Bedford	1016/KTH - Kent House	1002/STP - St Pancras
1005/BFR - Blackfriars	1017/KTN - Kentish Town	1029/SUO - Sutton
1001/BTN - Brighton	1018/LEA - Leagrave	1030/TBD - Three Bridges
1006/BMS - Bromley South	1019/LBG - London Bridge	1031/WHP - West Hampstead
1007/CTK - City Thameslink	1020/VIC - London Victoria	1032/WIM - Wimbledon
1008/CRI - Cricklewood	1021/LUT - Luton	9996/OOS - Out of Service
1009/ECR - East Croydon	1022/ORP - Orpington	9997/SPE - Special
1010/EPH - Elephant & Castle	1023/PRP - Preston Park	
1011/ZFD - Farringdon	1024/RDT - Radlett	

Great Northern

9999/0 - Blank	1007/HFN - Hertford North	1015/RYS - Royston
9998/ESR - Electrostar	1008/HIT - Hitchin	1016/SVG - Stevenage
1001/BDK - Baldock	1009/HUN - Huntingdon	1017/SNO - St Neots
1002/BIW - Biggleswade	1010/KGX - London King's Cross	1018/WGC - Welwyn Garden City
1003/CBG - Cambridge	1011/KLN - Kings Lynn	1019/BTN - Brighton
1004/CMB - Cambridge North	1012/LET - Letchworth Garden City	1020/GTW - Gatwick Airport
1005/ELY - Ely	1013/PBO - Peterborough	1021/VIC - London Victoria
1006/FPK - Finsbury Park	1014/PBR - Potters Bar	9997/SPE - Special

National Express East Anglia/Abellio Greater Anglia/Greater Anglia

9999/0 - Blank	1007/CHI - Chingford	1015/SVS - Seven Sisters
9998/ESR - Electrostar	1008/ELY - Ely	1016/SSD - Stansted Airport
1001/AUD - Audley End	1009/ENF - Enfield Town	1017/SRA - Stratford
1002/BIS - Bishops Stortford	1010/HWM - Harlow Mill	1018/TOM - Tottenham Hale
1003/BXB - Broxbourne	1011/HWN - Harlow Town	1019/WAR - Ware
1004/CBG - Cambridge	1012/HFE - Hertford East	9997/SPE - Special
1005/CMB - Cambridge North	1013/KLN - Kings Lynn	
1006/CHN - Cheshunt	1014/LST - London Liverpool Street	

Great Western Railway

9999/0 - Blank	1006/HAY - Hayes & Harlington	1013/RDG - Reading
9998/ESR - Electrostar	1007/HWV - Heathrow Terminal 5	1014/SLO - Slough
1001/AML - Acton Main Line	1008/PAD - London Paddington	1015/SWI - Swindon
1002/BPW - Bristol Parkway	1009/MAI - Maidenhead	1016/TWY - Twyford
1003/CDF - Cardiff Central	1010/NBY - Newbury	1017/WDT - West Drayton
1004/DID - Didcot Parkway	1011/NRC - Newbury Racecourse	9997/SPE - Special
1005/EAL - Ealing Broadway	1012/NWP - Newport	

C2C

9999/0 - Blank	1003/FST - London Fenchurch Street	1007/SOC - Southend Central
9998/ESR - Electrostar	1004/LST - London Liverpool Street	1008/UPM - Upminster
1001/BKG - Barking	1005/PSE - Pitsea	9997/SPE - Special
1002/GRY - Grays	1006/SRY - Shoeburyness	

Global System for Mobile Communication-Railway (GSM-R)



Beginning in 2013 and completed by 2016, Global System for Mobile Communication - Railway, more commonly known as GSM-R, replaced the existing National Radio Network (NRN) & Cab Secure Radio (CSR) systems. This communication system and its accompanying unit has been simulated to the best of our ability within the simulator. Please see below for how to register & deregister your train:

Registering

- 1) Move the reverser away from 'Off' or hold down either the 'Registration' or 'Accept' button for 5 seconds. The GSM-R unit will begin a boot up sequence.
- 2) When 'GSM-R GB' appears, the unit has successfully booted.
- 3) Press the 'Registration' button in the top right-hand corner.
- 4) Using the numerical keys, insert your 4-character train reporting number (headcode), followed by the signal number you are standing at in a 3-digit format. For example, signal WH84 would require you to enter '084'. If you wish to delete a character, press the 'x' button.
- 5) Press the '✓' button.
- 6) Registration will take a moment. Once it has completed, you will hear a double beep and the train reporting number will appear in the top right-hand corner of the display.



Deregistering - Method 1

If you are closing down the driving desk, use this method.

- 1) Move the reverser to 'Off'.
- 2) Deregistration will automatically begin and you will be given the opportunity for a short moment to retain the registration by pressing the '✓' button. Simply do nothing if you would like to continue with the deregistration.
- 3) Deregistration will take a moment. Once it has completed, the train reporting number will no longer be displayed.

Deregistering - Method 2

If you wish to keep the driving desk active after deregistering, use this method.

- 1) Press the 'Registration' button in the top right-hand corner.
- 2) A prompt will appear on the unit saying 'Confirm deregister?'.
- 3) Press the '✓' button.
- 4) Deregistration will take a moment. Once it has completed, the train reporting number will no longer be displayed.

Driver Only Operation (DOO)

Full door control is featured in this pack to simulate 'DOO'. Please see below for what the relevant procedure is and how to change the type of operation whilst in-game:

Driver Only Operation (DOO)

- 1) Open the doors by pressing **T+U** (left-hand side) or **T+O** (right-hand side).
Alternatively, you can click the corresponding red buttons in the cab.
- 2) If at a platform, wait for the 'Platform Duties Complete' message to appear in the top-right corner and press **R** to close the doors. If not at a platform, press **R** whenever you wish.
- 3) Once the door interlock light illuminates, you may depart.

Guard Operation (GO)

- 1) Open the doors by pressing **T**.
- 2) Doors will be closed by the guard once passengers have finished boarding/alighting.
- 3) Once the door interlock light illuminates, the guard will give you two bells which you must acknowledge by also giving two bells. This can be carried out by pressing **C** twice.

How to Change Operation

This can be changed via the MITRAC's 'log-in' screen or by pressing **Ctrl+R**. Either method will produce a visual message in the top-right hand corner of the screen to confirm which option you have selected.

Adhesion

Adhesion between a train's wheels and the rails plays a big part in allowing a train to accelerate or brake. Too little of it and the train will slip or slide. There are a myriad of factors that control the level of adhesion and we have attempted to simulate the most important of these to give a varied and realistic driving experience:

Season

Adhesion is generally good in dry conditions during summer and spring. Slightly decreased adhesion during winter to take account of the increased amount of moisture and possible ice on the rails due to cooler temperatures. Much decreased adhesion during autumn due to leaf mulch.

Weather

Adhesion decreases in wet weather, especially so when rain first starts falling before it has had a chance to clean the railhead. If rain is light, it will take longer for the railhead to be cleaned whereas heavy rain will clean it quicker, resulting in adhesion recovering sooner.

When using the drizzle weather pattern in our Sky & Weather Enhancement Pack, adhesion is particularly poor as the rain hasn't enough force to clean the railhead but still makes it sufficiently wet to worsen adhesion.

Time of Day

Adhesion will decrease somewhat after dusk as the air cools and dew is more likely to form on the railhead. This persists throughout the night until around an hour after sunrise when higher temperatures or the sun dry it out. In our simulation, this factor is reduced during summer to account for warmer temperatures, which on average result in less dew.

Tunnels

When adhesion is poor due to external factors such as weather or season, adhesion will generally improve upon entering a tunnel, which is not as susceptible to these factors. When adhesion is good during dry weather and outside of autumn, adhesion may decrease a little upon entering a tunnel due to their damp nature.

Wheelslip

Wheelslip protection aids the driver when powering or braking at times of poor adhesion.

When wheelslip is encountered during acceleration, a two-stage process takes place:

- 1) The traction sand button illuminates to signify that sand can be placed for a maximum of 10 seconds if pressed. The motors can be heard rising rapidly in pitch and power reduces to control the slip.
- 2) Once grip is regained, power is reapplied at the notch selected on the power brake controller.

As a driver, you must assess which power notch is most suitable for the conditions and balance the occurrence of wheelslip with the maximum possible rate of acceleration.

Wheelslide

When wheelslide is encountered during braking, a multi-stage process takes place:

- 1) The dynamic brake is disabled and the air brake solely takes over.
- 2) Brake pressure is automatically reduced to try and control the slide.
- 3) Sand is automatically applied if in step 2, step 3 or emergency brake.
- 4) Once the slide stops, brake pressure is returned to the notch selected on the power brake controller. If wheelslide reoccurs, the process starts again.

As a driver, you must resist the temptation to reduce the brake yourself as the wheelslip protection will offer the best braking performance.

Traction Physics

Great care has been taken to accurately simulate the acceleration characteristics of this unit under both AC & DC power.

On AC power, acceleration is quickest, with maximum tractive effort provided up to around 25 mph.

On DC power, acceleration is not quite so quick due to power supply limitations. For a 4 car train, maximum tractive effort is provided up to around 20 mph. For an 8 or 12 car train, this drops to around 15 mph.

This means that it will take you longer to reach your desired speed in DC mode compared to AC.

Gradients

By default in Train Simulator Classic, only gradients of 1 in 185 or steeper have a gravitational effect on a train and this is only suitably realistic on gradients of approximately 1 in 125 or steeper. This means on gradients shallower than 1 in 125, the train does not experience the gravitational forces upon it than it should.

With this information in hand, we have managed to get rid of this limitation by making the train invisibly power or brake itself to simulate the effect that gravity has where Train Simulator Classic by default doesn't do so. This is all invisible to you as the player so you won't suddenly find the power or brake handles moving without your say so, but it does mean you have to drive to the gradients of the route a lot more than before, just like a real driver, especially on mainline routes where gradients rarely reach the severity where Train Simulator Classic has them behave realistically. You will also now find that if trying to recreate real timetabled runs, your timings will much more closely match reality.

Neutral Section Functionality

The class 377/379/387 will react to the neutral sections available on the WCML Over Shap route and any other route which recreates neutral sections in the same manner. On top of this, they will also function when our own markers and signage are placed in a scenario, which are available in the 'AP/Common' object set filter folder.

Dual Voltage Functionality

Follow the instructions below to change the power source from AC (overhead wires) to DC (third rail) and vice versa.

AC to DC

- 1) Ensure the reverser is in 'Neutral'.
- 2) Hold the 'Pan Down' button down until the line light extinguishes.
- 3) Hold the 'DC System Select' button down until it illuminates.
- 4) Hold the 'Shoes Down' button down until the line light illuminates.

DC to AC

- 1) Ensure the reverser is in 'Neutral'.
- 2) Hold the 'Shoes Up' button down until the line light extinguishes.
- 3) Hold the 'AC System Select' button down until it illuminates.
- 4) Hold the 'Pan Up' button down until the line light illuminates.

Speed Set (Class 379 Only)

The speed set controls are located below the brake cylinder gauge. To activate speed set, you must press the 'Speed Set' button and be in a power notch. The button will illuminate to confirm you have activated it.

To change the speed selected, use the 'Speed Set Adjust' switch. When moving up from 0 mph, the first position is 3 mph, the next is 5 mph, and the settings then increase in 5 mph intervals up to 100 mph. The speed selected is indicated by the red pointer on the outer edge of the speedometer

With speed set activated and a power notch selected, the speed set system will automatically control the train speed to the selected value. If the speed drops too far below the target speed, the unit will automatically apply traction power in order to get back to the selected speed. If the target speed starts to be exceeded, such as when the train is on a falling gradient, the speed set will automatically apply the dynamic brake in order to control the speed.

Automatic Unit Numbering

When placing a unit in the scenario editor or using one in Quick Drive, all vehicles will automatically be given correct unit and coach numbers, instead of you having to select each vehicle and changing their number manually so they match. The unit number is controlled via the 'DMOC A' vehicle if you wish to change it.

Coupling Procedure

Please see below for how to couple to another unit in a realistic manner:

- 1)** Approach the unit you are going to couple to at caution and come to a stop just short of it.
- 2)** Select 'Notch 1' power and ease up to the unit. As soon as you have coupled, apply 'Step 3' brake.
- 3)** To ensure the coupling is secure, you must perform a 'pull-away' test. To do this, select 'Reverse' on the reverser and apply 'Notch 1' for a few seconds. If you do not move, the coupling has been successful.
- 4)** Hold the 'Couple' button down on the cab desk for 5 seconds. This will connect the two units' air/electrical systems and they shall both appear on the MITRAC.

Uncoupling Procedure

Please see below for how to uncouple from another unit in a realistic manner:

- 1) On the unit you intend to drive after uncoupling, move to the cab next to the unit you are uncoupling from.
- 2) Set up the cab and wait for 'MITRAC' to display the 'Log-In' screen.
- 3) Hold the 'Uncouple' button down until the unit you are uncoupling from disappears from the MITRAC.
- 4) In reality, the unit would now be physically uncoupled too but Train Simulator can not support this. As a result, please use the F3 or F4 HUD to physically uncouple the unit.

Arcing Pantograph



Special attention has been given to simulating arcing between the pantograph and overhead wire.

From one hour after sunrise to one hour after sunset on a dry day, there is only light arcing.

From one hour after sunset to one hour after sunrise, there is moderate arcing to simulate the moisture that tends to build up on the overhead wire once night falls. There is also moderate arcing when raining at any time of day.

During the winter, from one hour after sunset to one hour after sunrise, there is heavy arcing to simulate ice/frost that tends to build up on the overhead wire once night falls. There is also heavy arcing when snowing at any time of day during the winter.

Finally, arcing becomes more frequent as you gain speed.

When arcing, you will visually see it on the pantograph which illuminates the area around it to a varying degree with each arc. Please note that the illumination of the surrounding area will only occur after sunset and before sunrise. This is to avoid the unrealistic appearance of projected light in broad daylight.

You will also audibly hear it if the arcing is moderate or heavy.

Cold Start

'Cold Start' means the unit is in the following state when it loads:

- Main reservoir, brake cylinder pressures are 0.
- Auxiliaries are tripped
- Pantograph is down and shoes are up

To prepare a unit from cold, please follow the instructions below:

- 1) Hold the 'Aux On' button down for 7 seconds.
- 2) The speedometer will carry out a self-test.
- 3) Turn the master key in by pressing **Shift+W**.
- 4) Move the reverser to 'Neutral' by pressing **S**.
- 5) Acknowledge the AWS self-test by pressing **Q**.
- 6) Hold either the 'AC System Select' or 'DC System Select' button down, depending on whether you are below overhead wires (AC) or on the third rail (DC), until it illuminates.
- 7) You will now need to wait 3 minutes for the auxiliary compressor to build up sufficient air pressure to allow you to either raise the pantograph or drop the shoes.
- 8) Once the 3 minutes has elapsed, hold the 'Pan Up' button down if on AC mode, or the 'Shoes Down' button down if on DC mode. Release the button once the line light illuminates.
- 9) You must now wait for the main reservoir pressure to build to 6.5 bar. Once it has done so, you will be able to obtain a brake release.

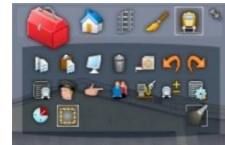
After carrying out this procedure, your unit will be successfully prepared from cold.

AI Horns

To blow an AI train's horn in a scenario, you must edit the speed limit properties of the section of the track at which you would like the AI train to sound its horn. Please see below for instructions:

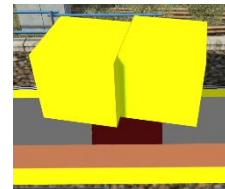
- 1) In the scenario editor, go to the location at which you would like the AI train's horn to sound, and press **Spacebar** 3 times. The track will now display a certain colour which represent its speed limit.

- 2) Go to the top-left-hand fly-out and click the 'Select' icon.

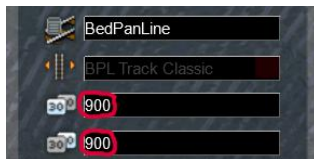


- 3) Hover your mouse over the piece of track where you like the AI horn to sound. A yellow border will appear around the track when it is selected.

- 4) Click and drag the yellow box in either direction until the measurement reading at the bottom of the screen says at least '1.0 metres'.



- 5) Go to the right-hand fly-out and change the two 'Speed Limit' values to '900'.



- 6) Click outside of any menus and the section of track you selected will now say 'Unspecified'. Any AI train which passes over this section of track will now blow its horn.

The manner in which the AI train blows its horn is randomly calculated each time, meaning no horn is ever the same. You may hear a single tone (any post-2007 liveries only), a two tone, a three tone, or now and then, even the infamous 'Ilkley Moor' sequence.

If you wish to be more specific in how and when the horn is sounded, please see the table below for values other than '900' which can be inputted in the speed limit field for different behaviour:

Speed Limit Value	Notes
900	Random number of tones
901	1 tone (low)
902	1 tone (high)
903	2 tone (low/high)
904	2 tone (high/low)
905	3 tone (low/high/low)
906	3 tone (high/low/high)
907	'Ilkley Moor' sequence
921	Same as 900 but 1 in 20 (5%) chance of horn sounding
922	Same as 900 but 1 in 16 (6.3%) chance of horn sounding
923	Same as 900 but 1 in 12 (8.3%) chance of horn sounding
924	Same as 900 but 1 in 8 (12.5%) chance of horn sounding
925	Same as 900 but 1 in 6 (16.6%) chance of horn sounding
926	Same as 900 but 1 in 4 (25%) chance of horn sounding
927	Same as 900 but 1 in 3 (33.3%) chance of horn sounding
928	Same as 900 but 1 in 2 (50%) chance of horn sounding
929	Same as 900 but 1 in 1.33 (75%) chance of horn sounding
930	Same as 900 but intended for use at platform ends*
931	Same as 921 but intended for use at platform ends*
932	Same as 922 but intended for use at platform ends*
933	Same as 923 but intended for use at platform ends*
934	Same as 924 but intended for use at platform ends*
935	Same as 925 but intended for use at platform ends*
936	Same as 926 but intended for use at platform ends*
937	Same as 927 but intended for use at platform ends*
938	Same as 928 but intended for use at platform ends*
939	Same as 929 but intended for use at platform ends*
940	Whistle boards**
950	Tunnels***

* **Platform ends** - Horn will sound only if train is travelling over 50mph, which at platforms of 12 car length or less, ensures that stopping trains do not sound their horn. Also, the point at which the train sounds its horn randomly varies from 1m to however fast the train is travelling. For example, if a train is passing at 125mph, the maximum possible distance it will sound its horn away from the trigger point is 125m. This simulates the propensity for drivers to sound their horn earlier if they are travelling at speed.

**** Whistle boards** - Intended for use at whistle boards. Pre-2007, trains sounded at least two tones at all times of day. From April 2007, following increasing concerns about noise, drivers were instructed to use only a single low tone and only between the hours of 07:00 & 23:00. This was later changed to between 06:00 & 23:59 in 2016.

To simulate this, any pre-2007 liveries will exhibit pre-2007 behaviour (at least two tones/no time restriction) and any post-2007 liveries will exhibit a hybrid of post-2007 & 2016 behaviour (single low tone/between 06:00 & 23:59 only). The point at which the horn sounds varies randomly from 1m to 40m away from the trigger point.

***** Tunnels** - Historically, trains always blew their horn when entering & exiting tunnels to warn potential track workers of their presence. With increased health & safety regulations reducing the presence of track workers in 'live' tunnels, and to allay complaints of increasing noise pollution due to louder modern horns, this requirement was removed on Saturday 6th November 2004.

To simulate this, any pre-2004 liveries will sound at least two tones. The point at which the horn sounds varies randomly from 1m to 40m away from the trigger point.

Whilst these tools are primarily intended for use by scenario creators, they can also be used by route editors to 'bake' these features into a route. The platform end, whistle board & tunnel values being of particular use in this respect.

Finally, due to the custom speed limits being of such a short distance, they do not affect AI train performance or appear as the current speed limit on the F3/F4 HUD. Also, assuming the route you are using is configured to only show signed speed limits (the majority do this), custom speed limits will not appear in the part of the F3/F4 HUD which shows forthcoming speed limit changes.

Bits and Bobs

This section is dedicated to aspects of this pack that don't warrant a dedicated section but are still of note:

- Bodyside window frames as seen on the newer generation Electrostars seen in this pack.
- Forward facing camera light & pantograph monitoring light (AC mode only) illuminate when reverser is in Forward or Reverse and there is door interlock.
- Scrolling destinations where they are longer than the front display can show.
- Scrolling 'This is coach number x of y.' on the side of the train.
- Fully revamped cab visuals with new shading, weathering and reflections.
- New speedometer and AWS LED sunflower visuals on class 387.
- Newly modelled 'Aux Off', 'Aux On', 'AC System Select', 'DC System Select' & 'Uncouple' buttons.
- 4-step reverser with 'Off' notch.
- Power brake controller will not move into a power notch unless the reverser is in 'Forward' or 'Reverse'.
- Reverser will not move if power brake controller is in a power notch.
- If the tail lights switch is in 'Auto' mode, tail lights will automatically turn on when the reverser is moved to 'Off' and vice versa.
- TPWS lights illuminate during AWS self-test.
- Newer style AWS sounds on class 377 & 387.
- 'Safety System Isolated' illuminates on cab desk when 'DVD' is disabled.
- Front roof light only illuminates when the line light is on.
- Correct door open buttons illuminate when doors are open on the relevant side.
- In-cab unit/vehicle number labels.
- Functioning brake hold button which applies the equivalent of step 1 brake. Only operational up to 6 mph.
- The pantograph will drop or shoes will lift if the emergency brake plunger is used.
- Intermittent, slow & fast wiper speeds.
- Visual alarms outside of cab when AWS or DVD are active.

- The visible driver automatically moves to whichever cab you are in.
- Right-hand 'head-out' view is located next to the DMOC motor bogie.
- 1 second delay between train passing over AWS magnet and AWS warning sound occurring. The F3/F4 HUD will show the warning immediately so you must wait 1 second before trying to cancel it.
- The headlights, forward facing camera light and pantograph light only provide illumination before sunrise and after sunset. This is to avoid the unrealistic appearance of projected light in broad daylight.
- Wipers operate on AI services if it's raining.

How to Use in the Scenario Editor

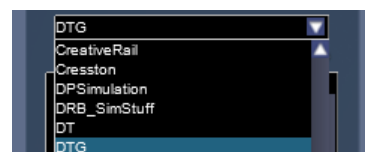
How to place

To place in the scenario editor, please follow the instructions below:

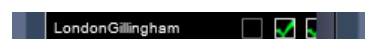
- 7) In the left-hand rolling stock fly-out, click the object set filter which looks like a blue box with an orange arrow to the right of it.



- 8) Go to the right-hand fly-out which should have appeared. Select 'DTG' from the drop-down menu.



- 9) Tick the second & third box beside 'LondonGillingham'.



- 10) The liveries should now be visible in the left-hand rolling stock fly-out.



Numbering

When placing in the scenario editor, you are able to control a number of features via the number of the unit. Please note that unless otherwise stated, the only number you need to change is the DMOC A's.

Power mode

By default, the power mode of a unit is set to 'DC' (third rail). For the power mode to default to 'AC' (overhead wires), add **;P=AC**. On a player service, this must be added to the number of the lead driving vehicle (DMOC A or DMOC B).

Cold start

To activate cold start mode on a player train, add **;Cold=1** to the number of the lead driving vehicle.

GSM-R

To restrict the train reporting number and signal number that the player can use to register with on the GSM-R, add **;GSMR=1A22084** to the number of the lead driving vehicle. In this example, **1A22** is the train reporting number and **084** is the signal number.

Example number:

387203;P=DC;Cold=1;D=XXX

Key:

387203 - Unit number

;P=DC - DC power mode selected by default

;Cold=1 - Cold start

;D=XXX - Destination

Setting up the Driver's Cab

Please follow these steps to set up the cab so you are ready to move:

- 1) Turn the master key in by pressing **Shift+W**.
- 2) Move the reverser to the 'Neutral' position by pressing **S**.
- 3) Cancel the AWS self-test alarm by pressing **Q**.
- 4) Login to MITRAC via the IDU.
- 5) Check your headlights are set correctly.
- 6) Set your destination in MITRAC via the IDU or by pressing **F7** or **F8**.
- 7) Turn the Driver Reminder Appliance (DRA) off by pressing **Y**.

You should now be ready to move off.

Scenarios

APC387EP: 1W36 13:35 Brighton - Bedford

Route = MML - London to Bedford (AP)

Track covered = St. Pancras - Bedford

Traction = Ex-Gatwick Express 387201 & Thameslink 387126

Year = 2016

Duration = 55 minutes



APC387EP: 1W85 06:18 Bedford - Brighton

Route = MML - London to Bedford (AP)

Track covered = Bedford CS - Bedford - St. Pancras

Traction = Thameslink 387123 & 387106

Year = 2016

Duration = 1 hour 10 minutes



APC387EP: 2E21 08:20 Luton - Sevenoaks

Route = MML - London to Bedford (AP)

Track covered = Luton - St. Pancras

Traction = Thameslink 387101 & 387113

Year = 2016

Duration = 45 minutes



Credits

Nicolas Schichan - Advanced scripting

Gü Studios - Modelling of the passenger view, external bodyside additions & destination displays

James Johnston, Thomas Hunns & David Grieff - Assistance in recording sounds