North Wales Coastal
Extension: Crewe - Holyhead
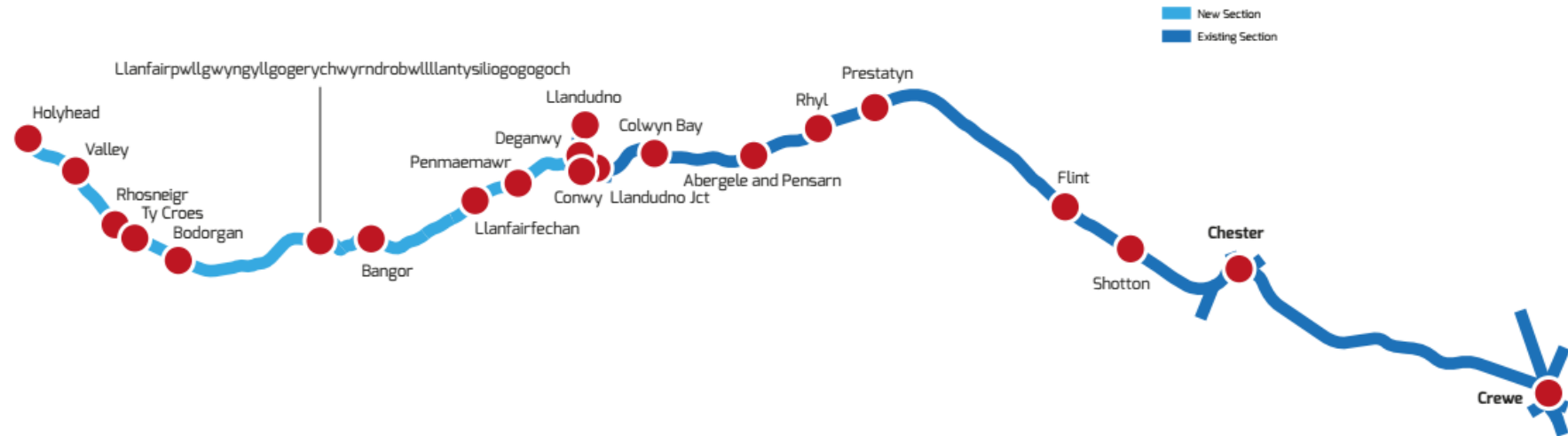
Release Version 1.0

Contents

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Whilst we do our utmost to reproduce sounds that are accurate and true-to-life, sometimes these sounds may not completely tally with the user's expectation. Due to the nature of the simulation, it is often not possible to reproduce a completely accurate soundscape for a variety of reasons such as limitations with our current technology and occasional inability to gain meaningful access to the locomotives being created. You should therefore regard the audio reproduction for our locomotives as authentic interpretations rather than perfect recreations.

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1 Route Map

New Section
Existing Section

Llanfairpwllgwyngyllgogerychwyrndrobwllllantysiliogogogoch

Holyhead

Valley

Rhosneigr
Ty Croes
Bodorgan

Penmaemawr

Llanfairfechan

Bangor

Llandudno

Deganwy

Conwy Llandudno Jct

Colwyn Bay

Abergele and Pensarn

Prestatyn

Rhyl

Flint

Shotton

Chester

Crewe

2 Rolling Stock

Class 175 'Coradia' Diesel Multiple Unit

Class 175 'Coradia' Diesel Multiple Unit (Ghost White Livery)

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Class 158 Express Sprinter

Class 221 Super Voyager

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3 Driving the Class 175 'Coradia'

Cab Controls
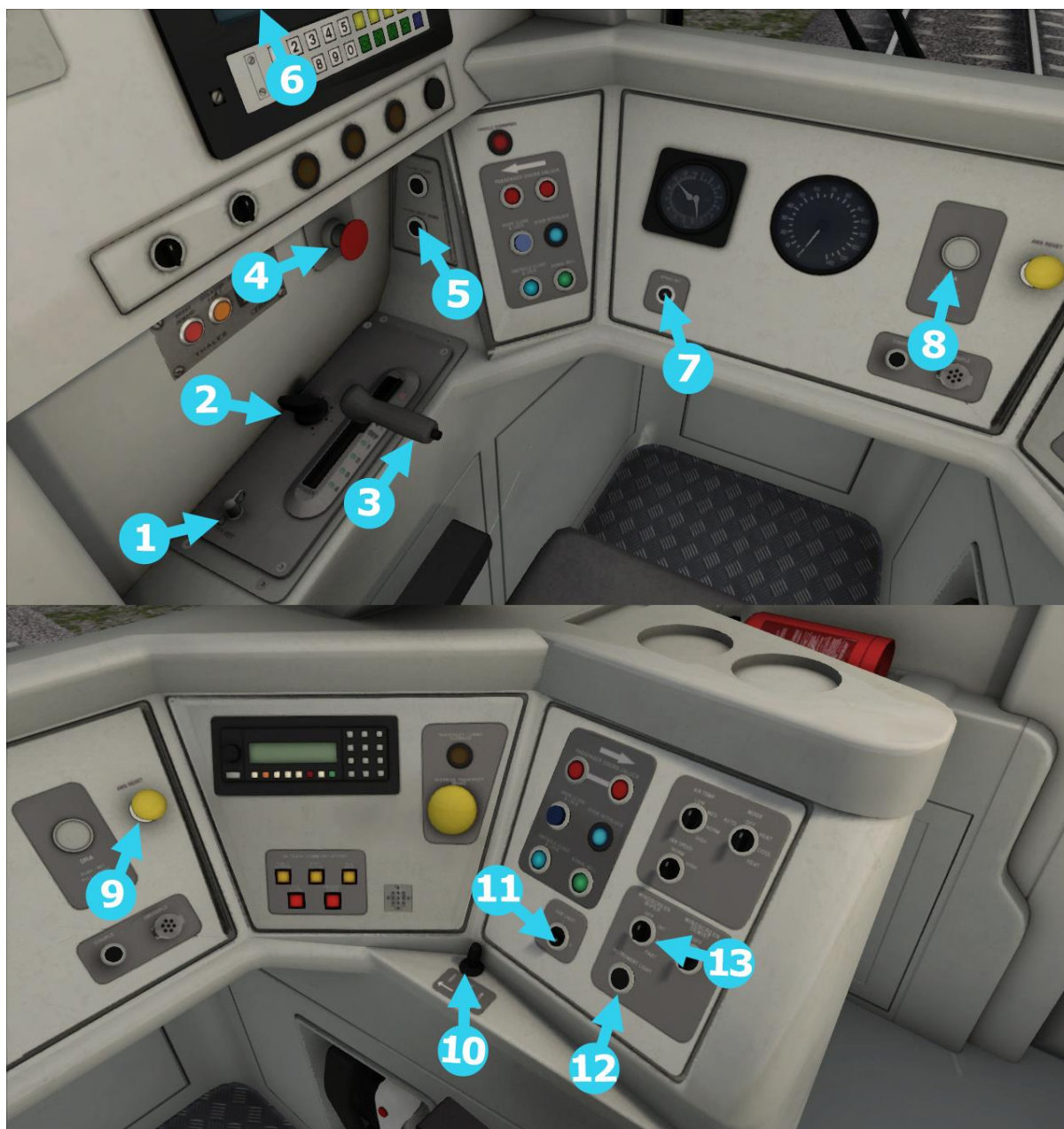
1	Master Key	8	Driver Reminder Appliance
2	Reverser (W / S)	9	AWS Acknowledge (Q)
3	Throttle and Brake Control (A / D)	10	Horn (Spacebar)
4	Emergency Brake (Backspace)	11	Cab Light Switch (L)
5	Engine Stop/Start (Z)	12	Instrument Lights (I)
6	Headlight Control (H / Shift+H)	13	Windscreen Wipers (V)
7	Speed Set		

Key Layout

Function	Key	Key
Increase or Decrease Brake and Throttle Control.		A / D
Move Reverser control Forward or Backward.		W / S
Load/Unload passengers or freight.		T
Headlights. Repeatedly pressing will cycle through headlight states where appropriate.		H
(Expert) Engine Stop/Start. By default engines will already be running at the start of a scenario. Press this button to stop and then again to restart the engine.		Z
(Expert) AWS. The AWS is a system used on some trains to ensure that the driver has seen a signal. If the AWS sounds (a black/yellow striped symbol is shown on the Driver's display), this must be acknowledged by pressing the AWS button or the emergency brakes will be applied.		Q
(Expert) Sander. Causes sand to be laid on the rails next to the wheels to assist with adhesion. Press and hold to activate sander, let go to stop.		X
Cab Light. Toggle the Cab light on and off.		L
Instrument Light. Toggle the Instrument Light on and off.		I
Horn. Sound the horn's low tone.		Space
Horn. Sound the horn's high tone.		B
Handbrake. Toggle the train Handbrake on and off.		/
Couple manually.	Ctrl + Shift	C

4 Class 175 'Coradia' Systems

DSD

The Driver Safety Device or DSD is a vigilance system used to check the driver is present and aware when driving a locomotive. When activated and the player is travelling above 5mph an alarm will sound every sixty seconds. This must be acknowledged within five seconds or an emergency brake application will be applied.

To toggle the system, use the hotkey CTRL + D. To acknowledge the warning, press the hotkey Numpad Enter.

DRA

The Driver Reminder Appliance or DRA is a safety system which when enabled prevents the driver applying power. This can be useful when stopping at red signals to remove any chance of applying power and moving past the signal without first disabling the DRA. After disabling DRA the throttle handle must be set back to the idle position before power can be reapplied.

Manual Door Control

Manual Door Control is a system that lets players choose when they want to close the coach doors after picking up passengers. This is an optional system, the Class 175 will default to the standard passenger pickup method unless it is set to manual control.

To toggle the system, press the hotkey CTRL + SHIFT + T. When the passenger doors open they will now wait for player input before they close. Players are not able to depart with the doors open. To close the doors with manual control enabled first wait for the loading of passengers and then press CTRL + T.

Speed Set

The Speed Set button when activated will not allow the Class 175 to exceed the current speed it is travelling. It will not manually apply power or braking to maintain the speed. It utilises the throttle handles current power output, so if the handle is in idle the train will lose traction and slow down. Similarly, when travelling downhill if the set speed is exceeded by the momentum of the train the system will not apply braking.

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Updatable Destinations

The Class 175 can change its destination board during a scenario. To cycle through the possible destinations, use the hotkey CTRL + SHIFT + 6 to cycle up and CTRL + SHIFT + 5 to cycle down. This will set the destination boards throughout the train.

Class 175 Destination Table

a Aberystwyth	**l** Casnewydd
A Arriva Trains Wales	**L** Newport
b Bristol Parkway	**m** Caer
B Bristol Temple Meads	**M** Chester
c Caerdydd Canolog	**n** Preston
C Cardiff Central	**N** Warrington Bank Quay
d Maesteg	**o** Crewe
D Abertawe	**O** Cryw
e Swansea	**p** Amwythig
E Aberdaugleddau	**P** Shrewsbury
f Milford Haven	**q** Caerfyddin
F Caerloyw	**Q** Carmathen
g Gloucester	**r** Birmingham New Street
G Caergybi	**R** Wigan North Western
h Holyhead	**s** Wrecsam Canolog
H Manchester Airport	**S** Wrexham General
i Cyffordd Llandudno	**t** Not in Service
I Llandudno Junction	**T** Special
j Blackpool North	**U** Cheltenham Spa
J Llandudno	**u** Class 175
k Manceinion Piccadilly	**v** Empty to Depot
K Manchester Piccadilly	**#** Blank

5 Driving the Class 158 Express Sprinter

Cab Controls
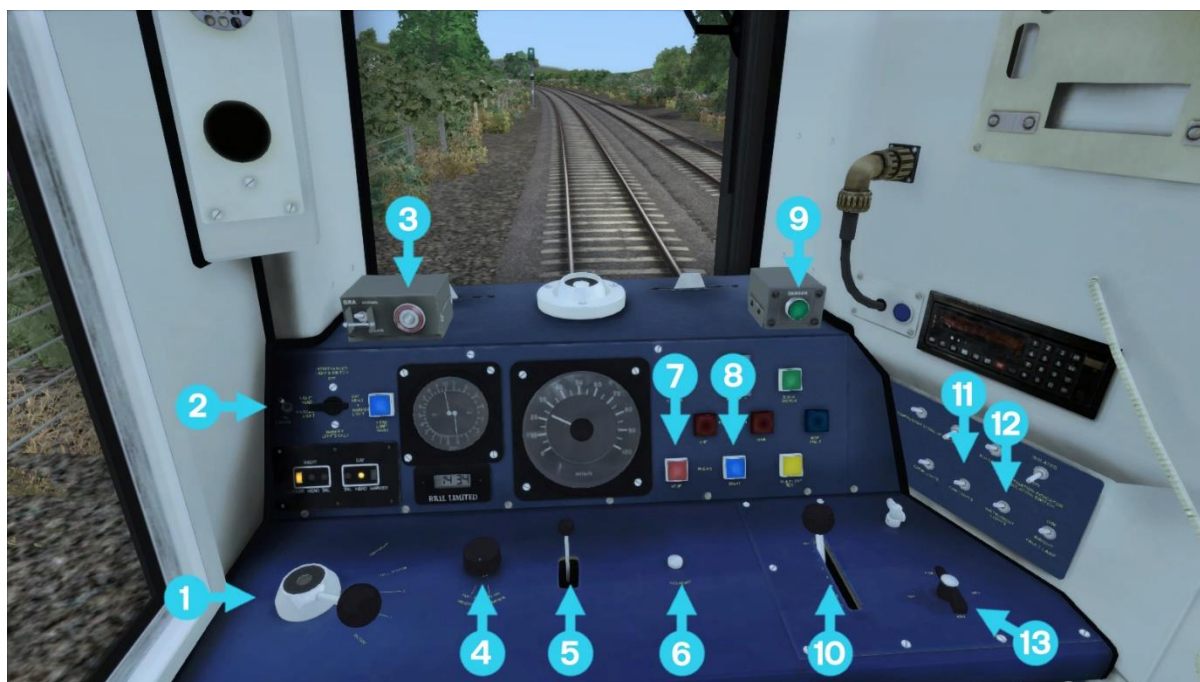
1	Train Brake	8	Engine Start Button
2	Exterior Lights	9	Sander
3	DRA	10	Throttle
4	Wipers Switch	11	Cab Light Switch
5	Horn	12	Instrument Lights
6	AWS Reset	13	Reverser
7	Engine Stop Button		

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Key Layout

Function	Key	Key
Increase or Decrease Brake and Throttle Control.		A / D
Move Reverser control Forward or Backward.		W / S
Load/Unload passengers or freight.		T
Headlights. Repeatedly pressing will cycle through headlight states where appropriate.		H
(Expert) Engine Stop/Start. By default engines will already be running at the start of a scenario. Press this button to stop and then again to restart the engine.		Z
(Expert) Alerter. The Alerter is a system used on some trains to ensure that the driver has seen a signal. If the Alerter sounds (a black/yellow striped symbol is shown on the Driver's display), this must be acknowledged by pressing the Alerter button or the emergency brakes will be applied.		Q
(Expert) Sander. Causes sand to be laid on the rails next to the wheels to assist with adhesion. Press and hold to activate sander, let go to stop.		X
Cab Light. Toggle the Cab light on and off.		L
Instrument Light. Toggle the Instrument Light on and off.		I
Horn. Sound the horn's low tone.		Space
Horn. Sound the horn's high tone.		B
Handbrake. Toggle the train Handbrake on and off.		/
Couple manually.	Ctrl + Shift +	C

Class 158 Destination Table

A – Bristol Parkway	**O** – Gloucester
B – Bristol Temple Meads	**P** – Birmingham New Street
C – Cardiff Central	**Q** – Llandudno
D – Caerdydd Canolog	**R** – Llandudno Junction
E – Maesteg	**S** – Aberystwyth
F – Milford Haven	**T** – Holyhead
G – Manchester Piccadilly	**U** – Bangor
H – Manceinion Piccadilly	**V** – Pwllheli
I – Crewe	**W** – Not in Service
J - Cryw	**X** – Empty to Depot
K – Swansea	**Y** – Special
L – Carmarthen	**Z** – Class 158
M - Caerfyddin	**#** - Blank
N – Cheltenham Spa	

6 Driving the Class 221 Super Voyager

Cab Controls

1	Clipboard Light
2	Emergency Brake
3	Master Key
4	Reverser Control
5	Headlight Control
6	Brake and Throttle Control

7	Engine Start/Stop Buttons	13	Windscreen Wipers
8	Air Brake Gauge	14	Instrument Lights
9	DRA (Driver's Reminder Appliance)	15	Cab Light Switch
10	Brake Percentage Gauge	16	Horn
11	Speedometer (MPH)	17	AWS Reset
12	AWS Sunflower	18	Guard Buzzer

Key Layout

Function	Key	Key
Increase or Decrease Brake and Throttle Control.		A / D
Move Reverser control Forward or Backward.		W / S
Load/Unload passengers or freight.		T
Headlights. Repeatedly pressing will cycle through headlight states where appropriate.		H
Windscreen Wipers. Press once to switch on and again to switch off.		V
(Expert) Engine Stop/Start. By default engines will already be running at the start of a scenario. Press this button to stop and then again to restart the engine.		Z
(Expert) Alerter. The Alerter is a system used on some trains to ensure that the driver has seen a signal. If the Alerter sounds (a black/yellow striped symbol is shown on the Driver's display), this must be acknowledged by pressing the Alerter button or the emergency brakes will be applied.		Q
(Expert) Sander. Causes sand to be laid on the rails next to the wheels to assist with adhesion. Press and hold to activate sander, let go to stop.		X
Horn. Sound the horn's low tone.		Space
Horn. Sound the horn's high tone.		B
Destination Board. Cycle through destinations on the display boards.	Ctrl	5
	Ctrl	6
Couple manually.	Ctrl + Shift	C

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7 Using Custom Numbering with the Class 221

Assigning Destinations and Numbering

When placing a Class 221 Voyager in custom scenarios you may want to change the vehicle number, set number or destination board. All of these properties are controlled by editing the rail vehicle number which is accessed by double clicking the rail vehicle when editing a scenario within the scenario editor.

In order to display a specific destination, the correct value must be entered into the vehicle properties window. This number consists of a 13 digit value containing both letters and numbers.

The 13 digit value is arranged like so: **CDUUUUUUVVVVV (Coaches A & E)**

C   = the Coach reference (See the Coach List below).

D   = the Destination code (See the Destination List below).

UUUUUU   = the Unit number displayed on the front of the driving vehicle.

VVVVV   = the Vehicle number displayed on the side of the coach.

Example: **AS**22111560415 (Where 'A' is for 'Coach A' and where 'S' is for 'Glasgow Central).

Only coaches A and E include the 6 digit Unit number in their set up.

Coach B/C/D – MSL – Nameplate List

The 7 digit value is arranged like so: CDVVVVV (Coaches B, C & D), however only Coach B has the Nameplate present on both sides of the carriage. The vehicle number below is the number needed for the name plate to show up. It should be noted that originally all of the below had name plates, however since 2008, unit numbers 221119 to 221141 are now with Arriva Cross Country so no longer have these plates applied in real life. These have been included for historical purposes. (for those that wish to create scenarios set before 2008)

C   = the Coach reference (See the Coach List below).

D   = the Destination code (See the Destination List below).

VVVVV   = the Vehicle number displayed on the side of the coach.

Coach List

A   Coach A – DMSL
B   Coach B – MSLB
C   Coach C – MSLA
D   Coach D – MSRMB
E   Coach E – DMFL

Coach B – MSLB – Nameplate List

Unit No	Carriage No	Name	Unit No	Carriage No	Name
221101	60951	Louis Bleriot	221123*	60773	Henry Hudson
221102	60952	John Cabot	221124*	60774	Charles Lindbergh
221103	60953	Christopher Columbus	221125*	60775	Henry The Navigator
221104	60954	Sir John Franklin	221126*	60776	Captain Robert Scott
221105	60955	William Baffin	221127*	60777	Wright Brothers
221106	60956	Willem Barents	221128*	60778	Captain John Smith
221107	60957	Sir Martin Frobisher	221129*	60779	George Vancouver
221108	60958	Sir Ernest Shackleton	221130*	60780	Michael Palin
221109	60959	Marco Polo	221131*	60781	Edgar Evans
221110	60960	James Cook	221132*	60782	William Speirs Bruce
221111	60961	Roald Amundsen	221133*	60783	Alexander Selkirk
221112	60962	Ferdinand Magellan	221134*	60784	Mary Kingsley
221113	60963	Sir Walter Raleigh	221135*	60785	Donald Campbell
221114	60964	Sir Francis Drake	221136*	60786	Yuri Gagarin
221115	60965	Polmadie Depot	221137*	60787	Mayflower Pilgrims
221116	60966	David Livingstone	221138*	60788	Thor Heyerdahl
221117	60967	The Wrekin Giant	221139*	60789	Leif Erikson
221118	60968	Mungo Park	221140*	60790	Vasco Da Gama
221119*	60769	Amelia Earhart	221141*	60791	Amerigo Vespucci
221120*	60770	Amy Johnson	221142	60992	Bombardier Voyager
221121*	60771	Charles Darwin	221143	60993	Auguste Piccard
221122*	60772	Doctor Who	221144	60094	Prince Madoc

* = Currently with Arriva Cross Country (since 2008) / # = Current a 2 Car set

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Class 221 Destination Table

A	Aberdeen	O	Dundee
B	Bangor	P	Edinburgh Waverley
C	Basingstoke	Q	Exeter St. Davids
D	Bath Spa	R	Gatwick Airport
E	Birmingham New Street	S	Glasgow Central
F	Blackpool North	T	Guildford
G	Bournemouth	U	Holyhead
H	Brighton	V	Lancaster
I	Bristol Temple Meads	W	Leeds
J	Carlisle	X	Liverpool Lime Street
K	Cheltenham Spa	Y	Llandudno
L	Chester	Z	London Euston
M	Crewe	!	Not In Service
N	Derby		

a	Manchester Piccadilly	i	Poole
b	Milton Keynes Central	j	Reading
c	Newcastle	k	Sheffield
d	Newquay	l	Shrewsbury
e	Oxford	m	Southampton Central
f	Paignton	n	York
g	Penzance	o	Wolverhampton
h	Plymouth	p	Wrexham General

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8 Signalling

Main Signal Head Aspects

Colour light signals are used for controlling running movements. They display aspects by means of red, yellow and green coloured lights.

| Signal Aspect	Description	Instruction to Driver
Red light	Danger	Stop.
Single yellow light	Caution	Proceed: be prepared to stop at the next signal.
Double yellow lights	Preliminary caution	Proceed: be prepared to find the next signal displaying one yellow light.
One flashing yellow light	Preliminary caution for a diverging route	Proceed: Be prepared to find the next signal displaying one yellow light with feather junction indicator for diverging route(s).
Double flashing yellow lights	Indication of diverging route ahead of the next but one signal	Proceed: Be prepared to find the next signal displaying one flashing yellow light.
Green light	Clear	Proceed: The next signal is displaying a proceed aspect.

Theatre Type Signals

A Theatre alphanumeric route indicator indicates the route to be taken using numbers or letters (or a combination of numbers and letters).

A Theatre indicator is often used to show the arrival platform number.

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Feather Type Signals

A Feather junction indicator indicates a diverging route to be taken by the angle at which a line of five white lights is displayed. *(Position 1 shown)*
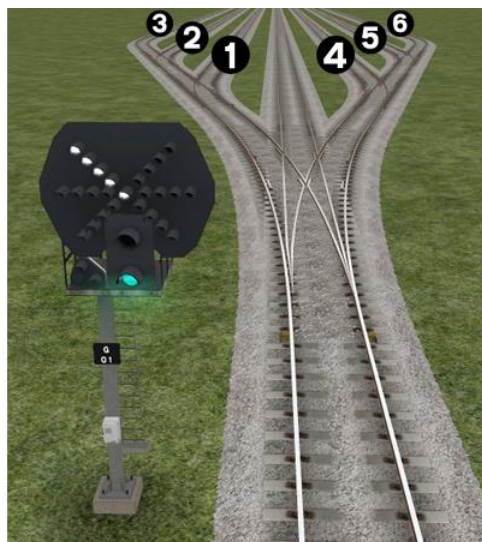
Feather Indication	Instruction to Driver
No Feather Indication	Obey main aspect, straight-ahead route is set
Position 1 indication	Obey main aspect, expect divergence to left
Position 2 indication	Obey main aspect, expect divergence to left more extreme than that for position 1
Position 3 indication	Obey main aspect, expect divergence to left more extreme than that for position 2
Position 4 indication	Obey main aspect, expect divergence to right
Position 5 indication	Obey main aspect, expect divergence to right more extreme than that for position 4
Position 6 indication	Obey main aspect, expect divergence to right more extreme than that for position 5

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Ground Signals and Position Light Signals

Ground Signals and Position Light Signals (PLS) display their aspects by means of the position and colour of lights. Ground Signals are always illuminated and can have miniature theatre indicators attached whereas PLS only illuminate to allow a train to pass in to an occupied section of line and are mounted as an addition to a main signal head.

Signal Aspect	Description	Instruction to Driver
Two red lights	Danger	Stop.
No aspect (located on a main aspect)		Obey main aspect.
Two white lights	Caution	The line ahead may be occupied. Proceed cautiously towards the next stop signal, stop board or buffer stops. Be prepared to stop short of any obstruction. The associated main aspect (where provided) may be passed at danger

Entering an Occupied Section of Track

During a scenario your train may be scheduled to enter a platform or section of track that is already occupied by another train or rolling stock. In this situation you should stop at the red signal protecting this section of track as normal. Once your train has stopped press the TAB key on your keyboard to request permission from the signalling centre to enter the occupied section of track. When your train movement is approved the signal will illuminate the two white lights on the position light signal if it has one.

Repeater Signals

A banner repeater signal indicates whether the signal ahead is displaying a proceed aspect or is at danger. Modern fibre optic banner repeating signals, as shown opposite, consist of a rectangular unlit black background displaying a white circle with a black bar.

Signal Display	Instruction to Driver
Horizontal arm	Be prepared to find the related signal at danger
Arm at an upper quadrant angle of 45°	Related signal is exhibiting a proceed aspect

Repeater signals are intended to provide a driver with advance information of a signal that may be obscured on approach. A train does not need to stop at a repeater signal, only at the related signal if it is at danger.

Splitting banner signals provide two banner signal heads combined to form a splitting banner repeating signal. These are used to indicate the aspect of a signal with a feather junction indicator. If the related junction signal is displaying an illuminated feather then the lower banner head displays an arm at an upper quadrant angle of 45°. Alternatively, if the related junction signal is not displaying an illuminated feather and is indicating a straight ahead route then the higher "main" banner head displays an arm at an upper quadrant angle of 45°.

9 Semaphore Signalling

Upper Quadrant Signalling is used on the route. Below are the key aspects seen on the line.

HOME CLEAR

With the arm raised, and a green light illuminated, the line ahead is clear for you to proceed.

HOME STOP

With the arm horizontal and a red light illuminated, the line ahead is occupied and you must stop without passing this signal.

DISTANT CLEAR

With the arm raised and a green light illuminated, the **HOME** signal ahead is displaying **CLEAR**.

DISTANT WARNING

With the arm horizontal and a yellow light illuminated, you should reduce speed and be prepared to stop at the next **HOME** signal.

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With both arms horizontal and both displaying red illuminated lights, no route through the junction is clear so you must **STOP** before this signal.

With the taller arm raised and a green light illuminated next to it, the **MAIN** route through the junction is **CLEAR** and you may proceed.

If the shorter arm(s) are raised and a green light illuminated, the **DIVERGING** route through the junction is **CLEAR** and you may proceed.

Be aware of any possible speed limit changes in relation to a change of direction.

A **DIAGONAL** line and **WHITE** light, the route ahead is **CLEAR** to proceed.

A **HORIZONTAL** line and **RED** light, the route ahead is blocked and you must **STOP** before the signal.

These are **SPEED** indicators.

A **WHITE OR YELLOW ARROW** indicates a speed in relation to a direction. These appear at junctions.

Your speed must not exceed the white number.

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10 Speed Signs

Permissible Speed Indicators

These signs display the permissible speed in M.P.H. applicable to the section of line beyond the sign up to the commencement of any subsequent permissible speed section.

Remember to wait for the complete length of your train to pass these signs before accelerating if the permissible line speed is increasing. If the permissible line speed is decreasing then you must reduce your speed before passing these signs.

Permissible Speed Warning Indicators

These signs provide advance warning of a reduction in permissible speed ahead. Permanent AWS Ramps (Automatic Warning System) are often installed in conjunction with these signs. In these cases the driver must cancel the AWS warning when triggered on approach to these signs.

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11 Safety Systems

AWS (Automatic Warning System)
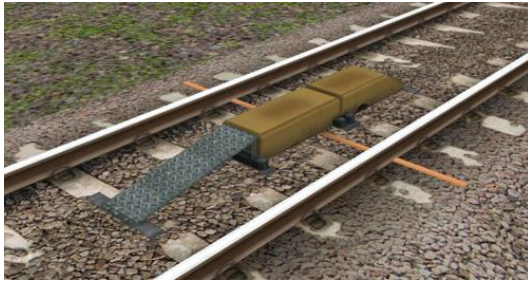
AWS is provided to give train drivers in-cab warnings of the approach to signals, reductions in permissible speed and temporary/emergency speed restrictions, and to apply the brakes in the event that a driver does not acknowledge cautionary warnings given by the system.

As a train approaches a signal, it passes over AWS track equipment (magnets) which are fixed to the sleepers between the running rails. The magnets are sensed by a receiver mounted under the leading end of the train.

If the signal ahead is displaying a clear aspect (green), a bell (or an electronic ping) sounds in the driver's cab, and the AWS Sunflower indicator displays "all black". No action in respect of the AWS is required of the driver.

If the signal is displaying a caution or danger aspect (yellow, double yellow or red), a horn sounds in the driver's cab and the display shows "all black". The driver has to acknowledge the warning by pressing the "AWS Acknowledgement" push button. When the driver operates the push button, the horn is silenced and the AWS Sunflower changes to a segmented yellow and black circular display. If the driver fails to acknowledge the warning horn within a set time period, the brakes are applied automatically.

Where AWS equipment is provided on the approach to reductions in permissible speed and temporary/emergency speed restrictions, the cab equipment always operates in a manner equivalent to the approach to a signal displaying a caution or stop aspect. The driver receives a warning and has to respond to it accordingly; otherwise the brakes are applied automatically.

Re-apply power and release brakes before reaching this signal.

12 Scenarios

Career Scenarios

- [221] 01. At The Crack Of Dawn
- [221] 02. Crossing The Border
- [221] 03. Back To Bangor
- [175] 04. Along The Coast
- [175] 05. Challenging Circumstances
- [158] 06. Returning to Holy Island
- [158] 07. To The Junction

Railfan Mode Scenarios

Railfan Mode provides a unique chance to observe and enjoy the operations of trains without the pressure and involvement of driving them. Railfan Mode scenarios are positioned at various key points along the route and provide camera functionality to sit back and watch the action unfold.

These scenarios are located on the Drive screen under the Career tab.

- [RailFanMode] Bangor
- [RailFanMode] Penmaemawr

13 Acknowledgements

Dovetail Games would like to thank the following people for their contribution to the development of North Wales Coastal Extension:

Skyhook Games
Scenery Asset Creation

Francesc Villaret
Career Scenarios

Steve Potter
Route Builder

Stuart Galbraith
Route Builder

Dan Barnett
Route Builder

Dovetail Games Beta Testing Team