Changelog

To check out the released and pending changes, visit NWH Vehicle Physics 2 Trello board here.

For upgrade notes click here.

v1.5.1

16/12/2020

- Add Rigidbody interpolation by default with an option under Settings tab to choose a different value.
- Fix InputProvider instances list entries duplicating with each scene reload.
- Added InvertClutch, InvertBrakes, InvertThrottle, etc. options to VehicleInputHandler.
- Improved input documentation.
- Improvements and bug fixes related to brakes.
- Fix deadzone.
- Updated Mirror and Photon scripts for compatibility with newest versions of each asset.
- Fix NUIDrawer causing Unity Editor to enter infinite loop due to a bug with UnityEditor.ReorderableList elementHeightCallback when 0 is returned.
- Fixed turning off low beam lights while braking resets brake lights.
- Added "Require Camera Rotation Modifier" and "Require Camera Panning Modifier" options to SceneInputProviders, mainly for use with touch screens where modifiers are not needed. Enabling these options makes cameras able to rotate/pan without pressing additional buttons.

v1.5

14/11/2020

- Restructured the asset to prevent errors when trying to import multiple NWH assets in the same project.
- Fixed terrain texture issue when the vehicle goes over the edge of a terrain.
- Improvements to WheelController's damper. Some re-adjustment will be needed on existing vehicles. Damper now has separate bump and rebound curves.
- Fixed major damper bug that rendered damper ineffective under high spring velocities.
- Added warning for Powertrain > Wheels ordering.
- Transmission now calls ReconstructGearList() automatically after the number of forward or reverse gears has changed or a different gearing profile has been assigned.
- Renamed NWH.VehiclePhysics2.Input.Input to InputHandler to prevent confusion with UnityEngine.Input.
- Added deadzone setting to InputManager and InputSystem VehicleInputProviders.
- Fixed 'Brake On Reverse Direction' not working in some cases.
- Fixed InputHandler.Vertical returning wrong value under braking.
- Fixed GroundDetection querying terrain texture out of bounds.
- TrailerHitchModule now searches for trailers across all loaded scenes.
- Fix input sticking on scene reload when using SteeringWheelInputProvider.

v1.4.1

11/10/2020

- NRigidbody is now added to exisiting vehicles automatically if missing.
- Fixed null event throwing errors in VehicleController.
- Fixed "No Input Provider" warning even when 'Auto Set Input' is false.
- Fixed wheels falling through ground when not added as output to powertrain component and the vehicle state is toggled during playtime.
- Fixed high powered RWD vehicles pulling to one side when going straight.
- Fixed TrailerHitchModule Attach On Play option not attaching the trailer (again).

v1.4.0

07/10/2020

- Implemented physics sub-stepping. Vehicles now run at higher update rate than the rest of physics. Despite this the performance is same to slightly better due to optimizations.
- Revised friction and friction circle calculations. Eliminated excessive understeer.
- Many small improvements and bug fixes to both VehicleController and WheelController.
- Added adaptive smoothing to WheelController visual.
- Added "Show Advanced Settings" option to WheelController. Only basic options are now displayed by default which reduces clutter.
- Improved obstacle force calculation.
- Improvements to WheelController.
- Add latching handbrake option.
- Added option to calculate load coefficient from custom curve or automatically (default).
- Physical properties now can only be changed out of play mode or through scripting before the vehicle is initialized. This is a performance optimization.
- Reworked and fixed air brake hiss sound.
- Fixed TrailerHitchModule Attach On Play option not attaching the trailer.
- Fixed Ackerman steering bug.
- Fixed OnPointerUp not registering when multiple touches are present resulting in stuck inputs on mobile.

v1.3.2

05/09/2020

- Fixed bottoming out force impulse and added damping to prevent vehicles from excessive bouncing after bottoming out hard.
- Added gizmos to display vehicle dimensions.
- Added PUN2 demo scene.
- Added Mirror demo scene.
- Tuned up inertia calculation.
- Updated demo vehicles for better handling.
- Fixed flipped mirror UVs on Lada Niva.

- Fixed issue with skidmarks sometimes using a wrong material.

v1.3.1

24/08/2020

- Implemented proper spring bottom out calculation.
- Stiffer lateral friction.
- Lada Niva model is now commercially licensed and no longer CC-BY (as required by Unity).
- Added mouse input option to both InputSystem and InputManager VehicleInputProviders.
- Fixed some textures having different native resolution and Max Resolution set in inspector.
- Fixed error with manual transmission when trying to shift into non-existing gear. Error introduced with rev-matching in v1.3.
- Fixed error while trying to calculate track of vehicles that have only one wheel per wheel group / axle.
- Fixed VehicleSetupWizard failing when there are no InputProviders in the scene.
- Fixed vehicle input not initializing when there are no InputProviders in the scene.
- Fixed issue with vehicleRigidbody being null during VehicleSetupWizard setup causes errors.

v1.3.0

14/08/2020

- Major improvements to tire friction calculation.
- Improved vehicle inertia tensor calculation, existing results were on the low side.
- Added new Ackerman steering calculation for 4-wheeled cars. Other vehicles still use the old, linear, calculation.
- Eliminated WheelController creep in longitudinal direction.
- Fixed vibration when standing still with vehicles that had large wheel mass.
- Improved Cruise Control by adding "Deactivate On Brake".'
- Fixed a bug with powertrain that resulted in engine being too hard to stall.
- Fixed FrictionPreset not saving changes once the project is reloaded.
- Fixed 'flipInput' option in SteeringWheelProvider to flip input from [0,1] to [1,0] instead of [0, -1]
- Fixed issue with VehicleSetupError where it would throw a cast error if 'Add Cameras' is enabled.
- Fixed CameraInsideVehicle not registering (bug from 1.2.0).
- Fixed InputSystem input not resetting after scene reload.

v1.2.2

13/07/2020

- Fix input in Monza demo scene.
- Fix VehicleSetupWizard throwing an error due to a null value of VehicleRigidbody.

v1.2.1

11/07/2020

- Added weight sensitive WheelController defaults.
- Made it possible to create a vehicle from a script at runtime using VehicleSetupWizard.RunSetup().
- Fixed trailer drives the towing vehicle into the ground when 'Freeze When Asleep' is enabled.
- Fixed insideVehicle property warning for sound property drawer.
- Moved VehicleModule Awake() call to after the vehicle is fully initialized.
- Fixed issue with VehicleComponent.Enable() getting called before VehicleComponent.Initialize().
- Fixed ShiftInto not getting triggered when using 0-9 keys in the demo.
- Fixed SteeringWheelInput compile error 'VehicleChanger' does not contain a definition for 'ActiveVehicleController'.
- Fixed 'Constrain When Asleep' not working.

v1.2.0

07/07/2020

- InputProviders have been split to SceneInputProvider and VehicleInputProvider where SceneInputProvider handles scene-related input (camera controls, vehicle switching, character movement, etc.) and VehicleInputProvider handles only vehicle-related input (steering, throttle, brakes, etc.).
- Some parts of the asset are now shared between DWP2 and NWP2 making the two assets compatible and reducing the code duplication.
- Fixed issue where blinkers and hazards could be active at the same time.
- Fixed a bug introduced in 1.1.2 where the multiplayer scripts where not changed to reflect the recent input changed.

v1.1.3

24/06/2020

- Input bug fixes related to engineStartStop, boost and light inputs (input not registering or registering multiple times). Introduced in 1.1.2.
- Added options for non-zero-index rglSliders to SteeringWheelInputProvider.
- Fixed issue where blinkers and hazards could be active at the same time.

v1.1.2

23/06/2020

- Fixed 'autoSetInput' automatically being set to true when vehicle wakes.
- Fix lights not turning on properly (bug introduced in 1.1)

- Removed delay between activating a blinker and it turning on.
- Fixed blinkers sometimes not canceling each other.
- Rewritten LightManager logic.
- Minor bug fixes and improvements.

v1.1.1

21/06/2020

- Changed how engine losses are calculated to allow the engine to rev more freely. Vehicles will feel slightly more powerful after the update.
- Fixed unneeded using directives introduced in 1.1 preventing the build from finishing successfully.
- Added "Hold To Keep In Gear" option to the transmission. This makes the transmission H-shifter friendly. When the option is enabled an input has to be held for the transmission to stay in corresponding gear, otherwise it goes to neutral.
- Added all available axis options to SteeringWheelInputProvider.
- Removed shift ban timer (delay between shifts) from manual transmission which would get interpreted as the gearbox not receiving input.
- Fixed errors caused by the SteeringWheelInputProvider not having been updated to the 1.1 InputProvider overrides.

v1.1

- Removed the need for disabling "Queries Hit Triggers" and "Queries Hit Backfaces".
- Split "Vertical" axis into "Throttle" and "Brakes" to allow for simultaneous application of both.
- Added optional bindings: CameraRotation, CameraPanning, CameraRotationModifier, CameraPanningModifier, CameraZoom, FPSMovement and ToggleGUI. This allowed for removal of all the hard-coded inputs in the asset code and all the input now goes through InputProviders.
- Improved ImputSystem support and made InputSystem default input method.
- Renamed "NewDesktopInputProvider" to "InputSystemProvider" to prevent confusion.
- Improved InputSystem with additional, optional bindings: CameraRotation, CameraPanning, CameraRotationModifier, CameraPanningModifier, CameraZoom, FPSMovement and ToggleGUI. This allowed for removal of all the hard-coded inputs in the asset code and all the input now goes through InputProviders.
- Added gamepad support to the demo scene.
- Removed shift ban timer from manual transmission.
- Implemented 'GearShift' class which contains data about the currently occuring gear shift and is used by 'OnShift', 'OnUpshift' and 'OnDownshift' events.
- Renamed Input.AutoSettable to Input.AutoSetInput since the old name was causing confusion.

v1.0.1

- Improved the way module list is reloaded in editor, removing the delay between clicking on the modules tab and the modules being drawn.
- Fix modules added after vehicle is initialized, either through scripting or inspector, not registering.
- Fixed missing trees in the demo scene.

- Fixed two audio listeners being present in the scene for the first fame when CharacterVehicleChanger is used.
- Renamed "NewDesktopInputProvider" to "InputSystemProvider" to prevent confusion.
- Added ground check to the CameraMouseDrag.

v1.0

- Major demo improvements: two new vehicles (Lada / Rocket Carrier), mirrors and interiors on all the vehicles, camera improvements, etc. Optimized Ferrari and Monster Truck models.
- Rewritten exhaust particle code for better visuals, performance and ease of setup.
- Improved surface particles / dust. Both dust and smoke are now using the same ParticleSystem and particles are emitted on per-wheel basis.
- Added dirt chunk / pebble particles.
- Improvements to SurfacePresets with extended and improved settings.
- Added camera shake on collision.
- Make 'Validate' option validate model scale and SurfaceMap tags.
- Added "IsGrounded()" and "IsFullyGrounded()" functions to the VehicleController.
- Fixed VehicleChanger thowing an error when there are no vehicles present in the scene and 'Character Based' is used.
- Disable CameraMouseDrag movement while mouse is over UI.
- VehicleCameras now auto-find target.
- CameraMouseDrag has been rewritten with a few improvements: smoothing now keeps constant distance from the vehicle, implemented panning, new options to enable/disable dragging/panning, target position offset, initial look angle.
- Rewritten vehicle enter/exit code.

v0.9.0 - v0.9.5

Versions 0.9.0 to 0.9.5 were considered Beta releases.