Dynamic Water Physics 2

For Unity (For Unreal Engine version click here.) (http://unreal.dynamicwaterphysics.com)

Dynamic Water Physics 2 is a water-object interaction simulator that uses mesh data to simulate both buoyancy and hydrodynamics, making it suitable for objects of any shape or size, moving or stationary.

Demos (manual/Demos.html) - Documentation (http://dynamicwaterphysics.com) - Discord (https://discord.gg/ubFBbM8) - Unity Forum (https://forum.unity.com/threads/dynamic-water-physics-2-released.704405) - YouTube (https://www.youtube.com/channel/UCwCAOrg65OZT6GJ340i_Ksw)
Get Dynamic Water Physics 2 on Unity Asset Store.
(https://prf.hn/click/camref:1100lebp8/destination:https://assetstore.unity.com/packages/tools/physics/dynamic-water-physics-2-147990)

This asset is a part of NWH Physics World (https://prf.hn/click/camref:1100lebp8/destination:https://assetstore.unity.com/packages/package/id/272208) - a collection of inter-compatible vehicle simulation assets.

Main Features

- Fast and easy to setup - either manually or through one-click wizard.
- Simulate any object of any shape or size, as long as it has a mesh.
- Extremely well optimized. ~0.02ms CPU time on average per object in the demo scene, ~1.2ms total for 70 objects. (Wavy water performance depends on 3rd party asset used)
- Multiplayer support (Mirror and PUN2).
- WaterObjects are ribidbodies and interact with water only through use of forces. No translation or rotation applied.

- Uses in-built algorithm to generate a simplified simulation mesh meaning that high-poly models can be used without affecting performance.
- Suitable for both desktop and mobile.
- Works with any positive object scale.
- Works under water.
- Water effects work with any flat water and are auto-generated using simulation data.
- Included C# source code, manual and everything seen in the demo.

Ship Controller

- Ship controller that can be used together with WaterObjects to make drivable boats and ships.
- Additional script for submarines.
- Multiple engines with sound, both inboard and outboard.
- Bow and stern thrusters.
- Multiple rudders.

Supported Water Assets

Waves

- Crest (https://assetstore.unity.com/packages/tools/particles-effects/crest-ocean-system-urp-hdrp-141674) - Ocean simulation with FFT waves
- Stylized Water 2 (https://assetstore.unity.com/packages/vfx/shaders/stylized-water-2-170386) - Stylized water shader
- R.A.M (https://assetstore.unity.com/packages/tools/particles-effects/r-a-m-river-auto-material-145937) - River Auto Material system
- Lux Water (https://assetstore.unity.com/packages/vfx/shaders/lux-urp-water-157416) - Water shader for URP
- Ceto Ocean (https://assetstore.unity.com/packages/tools/particles-effects/ceto-ocean-system-ver-3-33155) - Ocean rendering system
- Ocean Community Next Gen (https://github.com/eliasts/Ocean_Community_Next_Gen) - Open-source ocean system
- SUIMONO Water System (https://assetstore.unity.com/packages/tools/particles-effects/suimono-water-system-2-0-19092) - Water and ocean system

Flat

- All flat water assets (AQUAS (https://assetstore.unity.com/packages/tools/particles-effects/aquas-2020-138520), Stylized Water Shader (https://assetstore.unity.com/packages/vfx/shaders/stylized-water-shader-71207), etc.)

Supported Assets

- Mirror (https://mirror-networking.com/) - Multiplayer networking
- Photon Unity Networking 2 (https://www.photonengine.com/pun) - Multiplayer networking

Other NWH Assets

- **NWH Vehicle Physics 2** (Asset Store (https://assetstore.unity.com/packages/tools/physics/nwh-vehicle-physics-2-166252) | Documentation (https://nwhcoding.com/VehiclePhysics/)) - Complete vehicle simulation package
- **NWH Aerodynamics** (Asset Store (https://assetstore.unity.com/packages/tools/physics/nwh-aerodynamics-193240) | Documentation (https://nwhcoding.com/Aerodynamics/)) - Flight simulation and aerodynamics
- **Wheel Controller 3D** (Asset Store (https://assetstore.unity.com/packages/tools/physics/wheel-controller-3d-74512) | Documentation (https://nwhcoding.com/WheelController3D/)) - Advanced wheel physics
- **NWH Common** (Documentation (https://nwhcoding.com/Common/)) - Shared utilities and components

Documentation

Manual:

- Quick Start (manual/QuickStart.html) - Get started quickly with DWP2
- WaterObject (manual/WaterObject.html) - Main buoyancy component
- Advanced Ship Controller (manual/AdvancedShipController.html) - Ship propulsion and control
- Submarine (manual/Submarine.html) - Underwater vessel control
- Input System (manual/Input.html) - Input configuration and bindings
- Water Particle System (manual/WaterParticleSystem.html) - Water effects and particles
- Supported Water Assets (manual/WaterAssets.html) - Compatible water systems
- Demos (manual/Demos.html) - Example scenes
- Changelog (manual/Changelog.html) - Version history and updates

Reference:

- API Documentation - Complete API reference available in the navigation menu

> **Note:** Input System, Camera System, and other shared utilities are part of **NWH Common (https://nwhcoding.com/Common/)** - see the Common documentation (https://nwhcoding.com/Common/) for detailed information about these systems.

Notes

- DWP2 is not a water renderer / shader - use with compatible water assets
- The basic flat water from demo scene does not work with HDRP. Use water from Unity Standard Assets as a replacement if you need to use HDRP.
- Unity 6000 | URP recommended

Support

Have any questions or need support? Contact us at nwhcoding@gmail.com (mailto:nwhcoding@gmail.com) or join our Discord (https://discord.gg/ubFBbM8).

Setup Guide

Welcome to the NWH Dynamic Water Physics 2 setup guide. This section covers everything you need to get started with water physics simulation in Unity.

Getting Started

- Quick Start (QuickStart.html) - Set up your first water object quickly
- Demos (Demos.html) - Explore the included demo scenes

Water System

- Water Object (WaterObject.html) - Main water physics component
- Water Object Manager (WaterObjectManager.html) - Managing multiple water objects
- Supported Water Assets (WaterAssets.html) - Overview of supported water assets

Water Effects

- Water Particle System (WaterParticleSystem.html) - Water particle effects and configuration

Ship Controllers

- Ship Controller (ShipController.html) - Drivable boats
- Advanced Ship Controller (AdvancedShipController.html) - Advanced controller features
- Sail Controller (SailController.html) - Adds sailing functionality to boats
- Submarine (Submarine.html) - Submarine controller and depth management

Ship Components

- Engine (Engine.html) - Engine configuration and propulsion
- Thruster (Thruster.html) - Thruster setup and management
- Rudder (Rudder.html) - Rudder configuration and steering
- Anchor (Anchor.html) - Physics-based anchors

Input

- Input Overview (Input.html) - User input configuration and bindings
- Input System Provider (InputSystemProvider.html) - InputSystem provider setup
- Input States (InputStates.html) - Input state management

Physics & Mass

- Mass From Volume (MassFromVolume.html) - Automatic mass calculation from volume
- Mass From Children (MassFromChildren.html) - Mass calculation from child objects

Multiplayer

- Multiplayer Overview (Multiplayer.html) - Multiplayer integration guide
    - Mirror (Mirror.html) - Mirror networking setup

    - Photon Unity Networking 2 (PhotonUnityNetworking2.html) - PUN2 setup

Resources

- Upgrade Notes (UpgradeNotes.html) - Information for upgrading from previous versions
- Changelog (Changelog.html) - Version history and changes
- Support (Support.html) - Get help and support

Namespace NWH.Common

Classes

MathUtility (NWH.Common.MathUtility.html)

Mathematical utility functions for common calculations.