

PREPAR3D®

Prepar3D v4.0 Features and Enhancements

Release Notes

The Prepar3D v4 release brings many exciting changes and enhancements to the platform. Prepar3D v4 completely changes the simulation landscape with a comprehensive baseline update to a 64-bit architecture. Higher resolution visuals, more objects, increased data precision, larger scenarios, and improved performance are now all possible at levels never seen before in the product's history. The sky's *not* the limit! Additionally, the release brings dynamic lighting, rain/snow particles, global 3D trees (SpeedTree), increased autogen draw distance, a fully reworked software development kit (SDK), new default vehicles, and an extensive list of other features and improvements.

General Platform Updates

New Features

- 64-bit simulation architecture
- Unicode compatible
- Modernized User Interface (UI) design for quick navigation and customization
- Updated native virtual reality (VR) support for Oculus Rift and HTC Vive
- Updated vector data (coastlines, lakes, rivers, roads, rails, parks, streams and utility lines) for:
 - Africa
 - Middle East (Israel, Turkey, Syria, Lebanon, Iran, Iraq, Afghanistan, Pakistan, Saudi Arabia, and more)
 - Southeast Europe (Greece, Albania, Macedonia, Bulgaria, Romania, Black Sea, and more)
 - Southeast Asia (Indonesia, Philippines, Vietnam, Cambodia, Laos, Thailand, Myanmar, Papua New Guinea, Solomon Islands, and more)
- Updated custom 3D model placement in Athens, Egypt, Israel, Dubai and Hong Kong
- Hundreds of new updated generic 3D model buildings in Tel Aviv and Hong Kong
- Updated Shuttle Radar Topography Mission (SRTM) 90m digital elevation for Southeast Asia and Middle East regions
- Updated native mission gauges to Scaleform
- Views and panels can now be docked into any undocked view
- Updated multiplayer voice chat codec - higher quality chat audio
- Expanded ribbon drawing capabilities in the Navigation Visuals screen including drawing based on vehicle type and the ability to change color per category
- Added video recording capability. Can be assigned to a key event in the UI.
- Control Tower can now be selected in the Select Airport screen
- Custom cameras can now be saved on a scenario or global level
- Material temperatures - IR sensor views now react accordingly
- 3D trees (SpeedTree) integrated into autogen system. This feature can be toggled on and off in the UI under Options - World (Dynamic 3D Autogen Vegetation).
- New 3D rain/snow system. This feature can be toggled on and off in the UI under Options - Weather (Detailed Precipitation).
- Dynamic lighting support
- Support for local SpeedTree wind effects
- Support for higher resolution ground textures
- Autogen visibility range can now be configured
- Updated various textures including runways, taxiways, hangars, and terminals
- Added SceneryLodOrigin and TerrainLodOrigin fields to camera definitions preventing terrain paging issues when switching between certain views.
- New and updated default vehicles:
 - F-22 Raptor (Updated)
 - F-35A Lightning II (Updated)
 - F-16A
 - F-16AM
 - F-16C
 - Lockheed Electra 10A

- Milviz P-38L
- Sikorsky MH-60K (Updated)
- Sikorsky S-70A (Updated)
- Sikorsky UH-60A (Updated)
- Sikorsky UH-60L (Updated)
- Sikorsky UH-60M (Updated)
- Sikorsky UH-60Q (Updated)
- New default avatars:
 - Army Infantry
 - Navy Male Blue Camouflage
 - Rebel Male (1/2)
 - Soldier Desert
 - Soldier Jungle
 - Soldier Spec Ops
 - Soldier Swat
 - Soldier Winter
 - Arab Male Casual (1/2/3)
- Steering Set controls can now be set in the UI
- Added new white smoke marker particle effect

New Features (Professional Plus Only)

- F-16 aircraft has weapons and countermeasures
- Specific avatars have weapons
- New defensive flare countermeasure
- Additional advanced graphics features for low latency training devices

Fixes and Improvements

- Fixed bug where window maximized state could be incorrect
- Scenario versioning updated to match Prepar3D release number
- Prompt to enter SimDirector and SimOperator now blacks out screen and mutes sound
- Fixed bug with axis assignments on certain devices
- Fixed issue with X-Grip devices reporting out of range values
- Fixed bug where alt-tabbing into Prepar3D would open menu bar
- Fixed bug where facility data would not display correct airport runway information
- Fixed bug with avatar position after switching to an ISimObject
- Improved error messages due to permissions issues
- Fixed bug where selecting avatar could cause issues with camera controls
- Fixed crash that could occur when having a large number of joysticks connected
- Fixed performance issue when operating Fury 1500 tracking camera
- Fixed issue that could prevent multiple control devices of the same type from being distinguished when using Raw Input
- Made assigning key-up events more clear
- Fixed multiple issues with racing scenarios
- Fixed issue that could cause the enable add-on prompt from showing when uninstalling Prepar3D
- Fixed mouse hit detection issues in Flight Planner UI
- Fixed cases where main screen would not black out when loading bar appears
- Fixed bug where main screen would render for one frame when opening UIs containing a preview window
- Added search feature to Axis Controls assignment screen
- Opening the context menu can now be mapped to any key instead of being hardcoded to the "Apps" key
- Fixed issue where empty parking spaces were listed in the Select Airport UI
- Clarified airport name searching in Select Airport UI
- Reduced time to save controls from the UI and during shutdown
- Fixed bug that could cause weapons attached to ISimObjects to jitter in some cases
- UI screens can now be moved from any point in the window
- Fixed bug where rapidly changing views could cause a crash
- Fixed misaligned object highlights in the Preflight Walk Around scenario
- Fixed issue that caused timestamp on the scenery.cfg to always update on startup when using add-on scenery
- Fixed bug that could cause map to not update after changing airports in the Startup Screen
- Fixed bug where End Scenario menu would close if the esc key was held down for too long
- Active custom camera is now checked in the menu
- Fixed crash that could occur when changing vehicles while interacting with the ATC system
- Fixed bug that could cause flight plans to have invalid file names generated
- Preview window now displays "No Preview Available" instead of being blank for objects with no external model
- Preview window now has gray background and correctly renders transparent objects

- Fixed crash that could occur on certain multi-touch displays with gestures disabled
- Fixed issues that prevented long menu options from displaying correctly in Scaleform menu windows
- Improved error handling in ISimObjects
- Fixed issue where locked panels could be moved if transparent areas were clicked
- Fixed bug where Kneeboard menu would not always close when pressing escape
- Fixed issue where certain UI screens would stay open when crashing or resetting scenarios
- Fixed issue where the loading screen would show "Playback Loading" when loading a scenario that plays a flight recording
- Fixed bug where dashes in vehicle flight numbers could cause crash in the Select Vehicle screen
- Fixed issue that could cause Prepar3D to run off of integrated GPUs on laptops by default
- Fixed crash that could occur when using the HTC Vive on systems with multiple GPUs
- Settings menu can now be accessed through the Startup Screen
- Disabling controllers no longer has a default key binding
- Mute on Lost Focus setting no longer requires a restart to take effect
- Fixed slow search speeds in UI
- Fixed bug where weather layers could be out of order if error checks were bypassed
- Calibration UI now notifies user if controllers are disabled
- Fixed issue causing window sizes to expand when entering full screen on Windows 10
- Fixed issue that prevented mouse wheel zoom from functioning correctly in preview windows on Windows 10
- Fixed issue that prevented full screen auto fill from functioning properly across multiple monitors with different resolutions
- Fixed issue that caused the vehicle select screen to freeze if there were invalid characters in a vehicle's performance section
- Fixed bug where time adjusted in the time preview screen would still be applied when canceled in certain cases
- Fixed bug that caused other views to black out when resizing a view in full screen
- Fixed bug where virtual cockpit view could still be entered on vehicles with no interior by cycling views using the keyboard
- Fixed issue in add-ons UI where folder names containing a "." would be truncated
- Add-on system no longer removes required entries if a load failure occurs
- Fixed issue with GMT time in startup screen when changing locations
- Fixed crash that could occur when reloading SimConnect based C gauges
- Fixed bug where saving or resetting a scenario could be entered multiple times before finishing
- Fixed jitter seen in F-35 when on runway
- Default radio system no longer created in vehicles unless specified in aircraft/sim.cfg
- Fixed crash that would occur when switching aircraft while using progressive taxi
- Fixed issue where camera could not be panned around vehicles in spot view at high framerates
- Fixed several cases where pressing Esc would not close UI windows
- Fixed cockpit textures in Beech King Air 350
- Fixed SpeedTree and land class specular values
- Fixed bug with emitter offsets not being respected in some cases
- Fixed issue that could cause attach point based particle effects to be spawned twice
- Fixed terrain error that could occur when changing airports when using multiple views
- Fixed bug that could prevent terrain from correctly reloading when changing weather to and from snowy conditions
- Fixed bug that prevented attached effects on user vehicle from drawing correctly when dynamic lighting was off
- Fixed bug that prevented attached scenery effects from resetting with the scenario
- Improved handling of fog and precipitation in multiple views
- Fixed issue that could cause large number of batched objects to flicker or stop drawing in certain cases
- Adjusted specular values on SpeedTree trees
- Removed "Terrain Detail Textures" option, this is now always enabled
- Improved environment map appearance at night
- Improved the appearance of curved taxiway markings
- Expanded the pop-free autogen feature to include polyline buildings
- Improved appearance of airport path intersections
- Improved appearance of taxiway transitions
- Fixed bug that could cause incorrect night shadows and cloud lighting at certain times
- Improved scenery culling
- Fixed issue that caused certain bridges to draw incorrectly
- Added dynamic lighting to default first party aircraft
- Fixed missing texture on industrial buildings
- Adjusted lighting in the vehicle preview screen
- Adjusted runway, taxiway, and apron reflection values
- Scale of SpeedTree models is now factored in to wind effect
- Fixed issue where skid marks would appear slightly above surface
- Shadows now apply on reflections
- Improved star visibility on high resolution displays

- Fixed graphics memory leak that could occur when rapidly switching views
- Fixed issue where all effects would draw even at extremely far distances
- Fixed issue where attached effects would not draw if the parent object was no longer visible

Multiplayer Updates

New Features

- Added avatar attach/detach support

Fixes and Improvements

- Fixed issue with failure systems properly synchronizing
- Fixed bug with multiplayer weapon damage after client avatar attach/detach
- Fixed issues in multiplayer that could prevent Multichannel users from joining the session
- Fixed bug that prevented rejoining a multiplayer session if disconnected due to timeout
- Fixed issue where invalid multiplayer state could be entered when canceling while selecting a role
- Fixed issues seen when creating multiplayer scenarios in Viewer Sim

SimDirector Updates

New Features

- Added support for generic shape objects
- AttachEffectActions can now be applied to PlacementObjects
- Added Open in File Explorer button
- Variables can now be referenced in OnScreenText strings

Fixes and Improvements

- Fixed issue that could prevent the main Prepar3D window from reloading when leaving SimDirector
- Fixed bug that could prevent exiting out of the backstage menu in SimDirector
- Fixed bug where taking a screenshot would not capture the main view if a preview window was open
- Fixed bug that could cause logic expressions to be clear out when modifying ScenarioVariable trigger conditions
- Fixed bug where avatar could be detached when previewing a scenario
- Fixed bug where incorrect camera would be used when launching SimDirector from command line without first running Prepar3D
- Fixed issues with Goal objects including preventing negative values and better GroupGoal support
- Fixed bug that caused the loading bar to appear in the wrong location
- Fixed bug where timing for camera change actions would not be affected when changing the sim rate
- EffectName custom template no longer displays or saves effect file extension
- Fixed lasso selection bug in SimDirector when using high DPI settings
- Fixed bug that prevented date and time from updating properly in SimDirector when changing locations in the backstage menu
- Fixed bug where two objects could be created in SimDirector when drag and dropping after a double click
- Fixed bug where main window would not be restored after exiting SimDirector in certain cases
- Fixed bug that could prevent CylinderPathArea collision from detecting in certain cases

SimOperator Updates

New Features

- Kneeboard now available
- Added additional hotkeys for common SimOperator operations

Fixes and Improvements

- Follow button now makes Prepar3D the active tab
- Easier to correlate Player Roles and Player Names
- Loading scenario now loads scenario to all clients
- Fixed bug where user could spawn in an incorrect location after crashing and then rejoining a SimOperator session
- Fixed bug where operator's detached avatar would show up on client machines
- Fixed bug where previous aircraft's lights would stay visible after loading a scenario
- Fixed several vehicle placement issues
- Fixed bug where camera controls would no longer work when operator was following a player that disconnected
- Fixed issue with failure systems properly synchronizing
- Fixed crash that could occur when entering SimOperator with a view group active
- Fixed issue where clients could spawn off of the ground

SDK and SimConnect Updates

New Features

- Compiler and SDK updated to Visual Studio 2015
- Scripting capabilities (Scenery/Model/Material)
- Added PDK functions to draw primitive objects
- Reorganized and updated SDK Documentation and samples
- Support for loading managed dll add-ons
- Avatar object collision can now be configured
- Added temperature value and scripting to materials
- Specific cameras can be configured to not output sound when active
- Custom materials now supported for runways, taxiways, and aprons
- Added PDK service for reporting plugin errors
- Added IsSelectableVehicle override to Aircraft and Sim configs allowing vehicle to bypass the category based selection filter
- Precipitation rate now exposed through ISimObject, Simulation, and Object variables
- Added rope visual effect support to SDK
- Added detail texture material scripting support including offset, rotation, blend weight, blend mode, and alpha channel support
- The PDK is now accessible through the Panels SDK
- Panel API now available through the PDK
- Added Environment Force Service to PDK
- Added IgnorePostProcess entry to camera definition to disable HDR or FXAA on a per camera basis
- Added interfaces to play sounds in xml gauges using Lua
- Added second UV channel in model exports and files
- Exposed Final Alpha Blend material property to material scripts
- Weather information now available through RPN and Lua scripts
- Added UV offset property to material scripts and shaders
- Update materials to support additional Detail Alpha Flags
- Updated Material Scripting to support second UV Channel and new Detail Properties
- Friendly names can now be added to control events

Fixes and Improvements

- Improved performance of XtoMDL tool
- Fixed offset bug with AttachObjectToSimObject SimConnect function
- Fixed problems with error logging in XtoMDL
- Now report error when passing invalid datatypes into the SimConnect RequestDataEntry::DataEqual function
- Fixed bug that caused certain instances of PBH to XYZ conversions to be incorrect in external interfaces
- Fixed crash and other issues that prevented the RedirectStdOutToConsole SimConnect.ini flag from properly functioning
- Fixed issue that prevented the width of polyline buildings from being set in the Annotator tool
- Adding menu items through SimConnect now updates the menu bar
- Added Content Error Reporting for content attempting to load 32 bit dlls
- Improved XtoMDL to better handle large models
- Decoupled camera and window PDK interfaces
- Fixed export issue in XtoMdl related to international decimal formatting
- Fixed bug in VisualFX tool that prevented changes from saving from the menu
- Fixed bug where RegisterProperty could generate duplicate event IDs

Multichannel Updates

New Features

- Added avatar attach/detach support

Fixes and Improvements

- Fixed bug that could cause view groups to load incorrectly when joining a multiplayer session using Multichannel
- Fixed bug that could prevent clouds from synchronizing correctly in Multichannel
- Fixed bug where attach point based particle effects could be spawned multiple times on Multichannel slaves
- Fixed bug that prevented weather from syncing properly in Multichannel
- Fixed SpeedTree LOD issue in Multichannel
- Fixed bug that could cause Multichannel client machines to hang when changing time
- Fixed crash that could occur after loading several scenarios in Multichannel

DIS Updates

New Features

- Added DIS Exercise Region allowing only objects within a certain range to be processed

- Added defensive flare DIS entity type
- Added munition definitions for three phosphorous smoke effects

Fixes and Improvements

- Fixed bug that caused avatar to sink into the ground on remote DIS clients when in death state
- Clarified DIS connection settings in UI
- Improved DIS performance with large numbers of entities

Default User Selectable Vehicles

Aircraft

- Alabeo Extra 300s
- Beech Baron 58
- Beech King Air 350
- Carenado A36 Bonanza
- F-22 Raptor
- F-35A Lightning II
- Fury 1500
- F-16A
- F-16AM
- F-16C
- Lockheed C69
- Lockheed Electra 10A
- Lockheed L049
- Maule M7260C
- Milviz P-38L
- Mooney Acclaim
- Mooney Bravo
- Piper Cub

Rotary

- Robinson R22
- Sikorsky MH-60K
- Sikorsky S-70A
- Sikorsky UH-60A
- Sikorsky UH-60L
- Sikorsky UH-60M
- Sikorsky UH-60Q

Underwater

- Submarine Ohio Class
- Submersible

Avatars

- Army Infantry
- Civilian Male

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