

SPV3.3 Changelog

- 3.3.0

• General

- Added in new version of MXAO, which not only improves frame rate but also adds shadowing onto environmental normal maps, creating a similar effect to what was broken from Xbox in the original PC port.
- Added ray traced screen space reflects (SSR) to the maps and launcher (Very performance intensive at higher resolutions)
- Removed Lens Flares from post processing options, and replaced with debanding, which helps color gradients appear more nature as if the game were more than 8 bit color.
- Adjusted damage flashes on screen for player to not be as jarring in dark environments.
- Entirely new vehicle health system
 - Fixes issues with player overshield being erased when in a vehicles
 - Fixes issue where the player shield could be “jammed” when in a vehicle
 - Fixes an issue where a vehicle could explode if damage applied was to high when player still had a shield
 - Restores vehicle effective durability to be equal for player and AI, thus restoring classic ghost fight mechanics.
 - Health now depletes and recharges for vehicles, regardless of occupancy, so marines in hogs are no longer as vulnerable to destruction.
 - Health restores in segments, so a vehicles in blue health will restore up to full blue (100%), yellow full yellow (66%), and red full red (33%).
- Updated ammo packets for human guns.
- Updated Forerunner metal shaders to be more light accurate.
- Updated some Forerunner textures.
- Changed waterfalls from being mostly static to more dynamic particles.
- Fixed an issue where armor ability icons may not correctly disappear when camo was picked up, or after death
- Fixed an issue where VISR would detect some warthogs as enemy vehicles.
- Added new mortar Wraith variant that fires fuel rods.
- Fixed an issue where there were unnecessary particles being generated, which should fix some effect popping across the board.
- Replaced a reflection map which was not creating visuals consistent with the Xbox version which primarily effected snow.

- Fixed an issue with the metal shaders in human levels, which was creating terrible tiling due to bungee's justifiably rushed texture work.
- Updated ODST textures and shaders.
- Updated all sand textures. It's rough and has gotten everywhere.
- Added new player hint system
 - 4 levels of frequency of hints
 - Can be used by streams to better understand and discuss the game with viewers
 - Goes over all new mechanics and features as you play
- Added new customization features
 - Chief appearances
 - SPV3 Armor
 - Updated H1 armor
 - SOI's "The Old Lords" updated H1 Armor
 - TSC: Evolved original release remastered armor
 - ODST Bodysuit
 - Cortana Appearances
 - SPV3 Blue
 - SPV3 Purple
 - Classic H1 Purple
 - SPV2 Blue
 - Windows 10
 - Level Appearances
 - TSC:E Day
 - TSC:E Dawn
 - Halo Foggy
 - Halo Early Xbox Sunset
 - Craig
 - You can be Craig. Or not.
 - Hints System
- Enemies
 - Fixed an issue where skirmishers with focus rifles were doing more damage than expected.
 - Fixed an issue where unshielded skirmishers were doing less damage with plasma pistols than expected.
 - Fixed an issue where Particle Carbine Skirmishers were not firing from proper distances.
 - Adjusted Sentinel weapon damage vs players

- Removed ability for marines to get headshotted, reducing random deaths from carbines or worse... their fellow marines with battle rifles.
- Removed the famous blood sprays on Elites and Jackals to reduce particle overloads when combined with certain weapons.
- Wraith AI has been upgraded making them a much greater threat to the player.
- Made a change to Phantom model that should both reduce overall auto aim pull, and increase aim assist pull and AI targeting of the engine pods (the weak points!)
- Fixed an issue where flood infected specop elites with needlers would T-pose.
- Fixed an issue with shade turret projectiles, which were doing more damage than expected and also tightened up their aiming parameters.
- Reduced Specop/Ultra Jackal shield strength so that enough firepower can destroy them, as the previous values made them completely immune to the effects of suppressor wielding sentinels in firefight. They shouldn't be easily breakable by weapon fire other than the suppressor or EMP blasts from the PP overcharge, Plasma and Gravity grenade explosions still destroy them.
- Fixed a bug which MIGHT have been causing some Elite minors doing 2x damage when firing.
- Updated Brutes to have far more aggressive berserk behavior.
- Hunters now also get berserk behavior.
- Human flood combat forms now all use regular SMGs on elite missions, and can now be upgraded to ODST forms on higher difficulties.
- Particle Carbine and Focus Rifle Brutes reduced overall, piercer now is more common.
- Lumoria Marines now have custom color scheme, new voice lines
- Weapons
 - Adjusted shade of green on SOCOM AR to better display at full brightness.
 - Fixed an issue where the pistol didn't do extra damage when meleeing when sprinting.
 - Melee now only hurts one flood infection form, but can still cause chain reactions.
 - Sparrowhawk cannons now fire in a 3 round burst, not 4. So is overall weaker per trigger pull.
 - BR has slightly larger gap between bullets in burst fire mode.
 - DMR had an issue where the textures were compiling with more compression than they were set to, shaders and textures now are higher quality.
 - Re-did incineration cannon projectiles and damage.

- Incineration Cannon now is a wieldable weapon for players.
- Chaingun added to Lumoria.
- New Focus Rifle firing sounds.
- Sniper rifle now has sprint animations where it didn't before.
- Fixed a spelling mistake when zoomed in with the Battle Rifle.
- Fixed an issue where Launcher could be spelled incorrectly when picking up ammo.
- Fixed an issue with the hunter cannons when in a warthog side seat.
- Fixed an issue where Needle grenades wouldn't always reflect off hunter armor.
- Fixed an issue where playable Elites would take the damage blocked by a Jackal shield when wielded.
- Fixed an issue where needle grenades wouldn't damage enforcers or vehicles.
- Fixed an issue where pistol bullets could go through multiple Brutes and other Covenant.
- Brute Plasma Pistol overcharge no longer sticks to Shields or Vehicles.
- Made changes to Gravity Grenade sounds and effects, in hopes of mitigating or erasing unexplainable crashes.
- Updated Piercer visuals to save more memory, and provide more accurate materials.
- Removed a broken bitmap ref for the silver part of the plasma rifles, shaders now not only show more detail but use less memory.
- Lowered flamethrower damage vs shields
- Redid Brute Piercer to now be more like Halo Infinite's Mangler
 - 6 round magazine
 - Each projectile does massive damage, similar to AMPED DMR
 - Travel time on projectiles means you have to lead them
 - Piercing nature means they can pass through brute helmets for 1 sk, go through multiple grunts and flood
 - Does headshot damage
 - No more homing
- Added Sentinel Boltshot to Firefight
- Added Sentinel Suppressor to Firefight
- Added Sentinel Railgun/Spartan Laser to Firefight
- Added Golden Pistol (M6Z) to Firefight
- Missions
 - Pillar of Autumn

- Fixed a shader that was not referencing its normal map, resulting in a lack of depth (also applies to Maw).
 - Fixed a bitmap that had lower than expected reflectivity, making it more difficult to see in the dark (also applies to Maw)
 - Fixed an issue where the last human datapad was incorrectly labeled as Covenant.
- Halo
 - Added a new encounter based on dialog recovered from leaked Halo 1 beta build (1749)
 - Fixed a shader blending error on some rocks found throughout the level.
 - Updated all water shaders.
 - Fixed an issue where Forerunner terminal 3 was a repeat of 2.
 - Sped up the rate the dropships land at alpha base.
 - Increased vibrancy and color saturation of ground.
 - Truth and Reconciliation
 - Fixed some audio issues which prevented music from switching, playing and fading correctly.
 - Added Fuel Rod Wraith
 - Silent Cartographer Classic
 - Fixed an issue where the Honor Guard wouldn't walk through the door in the cinematic once the security system is disabled.
 - Silent Cartographer Evolved
 - Adjusted water fog to mitigate a tool issue from 3.1->3.2.
 - Adjusted some dead bodies that clipped into rocks or didn't make physical sense.
 - Fixed an issue that was preventing the warthog selection from not correctly randomizing.
 - Lowered enemy counts in the Cartographer room on legendary and noble.
 - Removed Hunters from lid area.
 - Improved stability.
 - AOTCR
 - Fixed a bitmap issue with the bridge shaders.
 - Fixed an issue where the player could jump or fall out of insertion pelican prematurely.
 - Fixed an issue where the player could fall through the geometry in the area before the tank.
 - Swapped out AA wraith in light bridge room for mortar Wraith.
 - Adjusted the final encounter before going indoors after the tank section to have less enemies.

- Added Fuel Rod Wraith, and replaced some older AA and Mortar Wraiths with new variant.
- 343 GS
- Thanks to Lolibox, restored the missing tree line in the swamp that was broken in the Xbox->PC port.
 - Fixed an issue where all Covenant terminals displayed the same message, Grunt and Specop Elite terminals now restored.
 - Fixed an issue where the BRG Loadout wasn't displaying the accurate starting ammo.
 - Fixed an issue where rain droplets wouldn't show in the second swamp area.
- Library
- Fixed an issue where a Covenant terminal was labeled forerunner
 - Fixed a striped texture that was rotated in the wrong direction.
 - Fixed an issue that could result in AI being deleted at the top of the final (red) floor.
 - Fixed a broken cross map unlock for T&R, so you can now get an extra wraith on the second floor.
 - Made slight alterations to some encounters so there is less downtime when with allied enforcers.
- 2 Betrayals
- Fixed an issue where geometry would disappear in one of the new sections.
 - Fixed an issue where recharge stations would function.
 - Adjusted where the remaining Wraiths in the "cake" area would go after player has destroyed the first pulse generator, making the encounter overall easier in some instances and increasing the importance of player interference in others.
 - Updated light maps in new areas.
 - Fixed an issue where the glass in the beginning area was very hard to see, and is now much bright and more visible.
 - Added a spare health pack and over shield to room after underground light bridges.
 - Added a new ability to the Sparrowhawk, where flashlight gives you night vision to spot enemies in the dark due to inability to bright dark areas.
 - Fixed a legacy bug from Xbox where a new banshee spawning could force your old one off a platform and fall off as well.
 - Fixed an issue where sometimes a Sparrowhawk could not be entered.
 - Added Fuel Rod Wraith, and replaced some older AA and Mortar Wraiths with new variant.

- Moved weapons at last human weapon drop into the final battlefield, to encourage more player activity in the area before and require less backtracking for weapons and ammo.
- Keyes
 - Fixed an issue where the hangar bay doors you would fly out of were in the closed position, rather than open.
 - Fixed and improved effect popping.
- None Left Behind
 - Updated lighting
 - Added Fuel Rod Wraith, and replaced some older AA and Mortar Wraiths with new variant.
 - Lowered some enemy counts at the last tower.
- Commander
 - Fixed an issue where the Wraith once repaired wouldn't have proper effects.
 - Added in some new scripts so if playing with the Keyes skull on, Usze will pilot the wraith to destroy the flood nest/web.
 - Moved Covenant Cruiser closer to the island.
 - Fixed an issue where sometimes the wraith repair sequence wouldn't start.
 - Increased commonality of Piercer.
 - Updated Elite allies to not be collideable with the player.
- Commander Evolved
 - Fixed an issue where the last Forerunner terminal was not accessible
 - Flood now will not wield BRs, only DMRs
 - Increased frequency of piercer.
 - Removed Jackal shield.
 - Updated Elite allies to not be collideable with the player.
 - Improved Elite allies ability to follow and more failsafes for when they get stuck.
 - Fixed lights on the beach that were blue, when they should have been orange.
- The Maw
 - Fixed an issue where some grenade launcher weapons not intended to be used by the player could be found.
 - Fixed blending issue on the exterior grass.
 - Fixed a broken label on the third Covenant data pad.
 - Fixed an issue where the right intro cinematic would not always play if you had previously saved marines in None Left Behind.

- Removed some of Bungie's commands that made AI in the engine room target you over other enemies, AI should now focus on each other more than you.
- With Keyes skull on, player gets a speed boost for hog run
- Fixed an issue where chief could endlessly reload his weapon in cinematic.
- Fixed an issue where players could die doing the big jump in the goose
- Lumoria Landfall
 - Fixed an issue in the final cinematic that could occur with May's animation.
 - Removed Camo towers and replaced them with more frequent cloaked enemies.
 - Fixed an issue where the water droplets could appear on screen at any time.
 - Updated stars to use improved textures which got left out of 3.2.
- Valley Battle
 - Removed Camo towers and replaced them with more frequent cloaked enemies.
 - Added Chaingun.
 - Adjusted music volumes.
- Fight for the Future
 - Removed Camo towers and replaced them with more frequent cloaked enemies.
 - Added Chaingun.
 - Fixed an issue where the game could become soft locked once getting in the tank.
 - Fixed issues with the optional light bridge in the final room.
 - Removed Unstable Carbine from being usable for player, due to memory and model constraints.
- Added Firefight
 - Rockslide Spartan VS Covenant
 - Rockslide Spartan VS Flood
 - Engine Room Spartan VS Covenant
 - Engine Room Spartan VS Flood

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- 3.2.0

- General

- Added in new post processing making reshade irrelevant, and drastically overhauling the visuals of the game.
- Made changes to how data is stored, which should result in smaller overall (relative) installation size and make the mod fully incompatible with regular Halo CE installs, so people who accidentally merge both games suffer more.
- Overhaul of textures throughout the game, lowering compression and either remaking, using less compressed, or machine learning upscalers to improve visual fidelity for 4K users, although everyone will see improvements.
- Improved Cortana's facial expressions.
- Removed some extraneous data from the opening cutscene.
- Improved flashlight effect.
- Fixed an issue where some shield generators were generating lights when they were not supposed to.
- Added Revive system for story critical characters.
- Reduced rate of health regeneration armor ability, and slightly upped the health you gain back.
- Added new volumetric fog "fix" throughout the game.
- Fixed an issue where flood pods could display text to press E/ Action to "flip". This also means no more text is displayed to flip vehicles, although you still can do it.
- Brought in a number of fixes from the Halo CE Refined and Enhanced projects.
- Getting near waterfalls makes water droplets appear on your visor.
- Snowy areas create frost on your visor.
- Temporarily removed skulls, as we will be adding them back in when firefight comes out. The plan is as we develop the firefight skulls, to updated an add them into the maps.
- Fixed a bug where active camo conflicted with the armor abilities, making enemies be able to see fully cloaked players.
- Updated various animations for first person weapons and some cinematics.

- Enemies.

- Reduced Flood Jackal Forms scream frequency and replaced old sound.
- Fixed an issue where some infected Elite ultras would get red armor instead of white/silver.

- Fixed an issue where infected (black armored) Specop Elites had different colored lights than Specop Elites.
- Overhauled Brute AI aiming values for Brutes with Brute Shots
- Fixed some discrepancies between marines and ODST AI. Both are identical now, with ODSTs getting night vision and more emphasis on sneaking.
- Fixed an issue where the Specops jackals would hold the trigger on their shredders.
- Made a change to Sentinel Enforcer AI so they stay further away from each other, so there is less of a chance of a chain reaction of deaths when they die.
- Fixed a bad animation reference for Skirmishes being infected by the Flood so they now react properly.
- Fixed an issue where some Flood Elite runners could have their infection form destroyed and still stay alive.
- Found a problem with Brute Flood upgrading to cut "major" rank with no visible changes and only receiving health buff, so major rank has removed. This means all Brute combat forms have a base 120 health, rather than some 120 and some 160. In short, Brute flood are easier to kill on higher difficulties than before
- Fixed an issue where the minor Brute Flood assault rifle rank dropped less ammo than it should.
- Changed Brute Flood pistol ammo drop amount to be between the drop count of the old minor and major ranks, since now there is only one rank.
- Brute Flood forms with turrets do 10% less damage to player than before, keeping it in line with other flood wielded weapons. (All AI in H1 do 50% less damage, with a few doing 40% less which seems to be a mistake in 99% of case)
- Brute Melee does less damage to human characters (other than player) so it is not an instant kill.
- Fixed an issue with the Skirmisher minor head, which should result in slightly easier headshots.
- Made Skirmishers react more to damage.
- Fixed an issue that made Skirmishers harder to headshot than they should have.
- Honor Guard Shield has better shaders, which turn red according to their vitality. Bullets won't make the shield visible, but they will play a ricochet sound.
- Added new Cortana lines to better help players understand how Honor Guard Shields work.
- Added new Elite armor variants, so each rank has its own distinct look.
- Fixed some issues with compression and other assorted errors in the Elite bitmaps, resulting in a substantial visual upgrade.
- Made Elites eyes more reptilian and less human.

- Made Elite weapon switches to sword and Void's Tear more rare and less predictable.
- Changed blind wolf behavior so that the wolves will get violent when a percentage of their herd strength reaches a threshold, rather than how many are killed.
- Improved Blind Wolf animations.
- Fixed an issue where the Brute Combat form would sometimes float in midair after dying.
- Slightly lowered Enforcer health.
- Changed Enforcer debris to be something less taxing on memory and particles.
- Jackals can now melee.
- Added more armor permutations to marines.
- Weapons
 - Assault Rifle now has an accuracy boost when zoomed with a lower rate of fire.
 - Revised Particle Carbine contrail and firing sounds, and should result in some better performance in situations with lots of transparent textures.
 - Fixed some issues with the Particle Carbine's display.
 - Fixed an issue where the Hunter weapons would not show all their firing effect in first person.
 - Fixed an issue where some weapons didn't have collision sounds.
 - Fixed an issue where the Battle Rifle wouldn't always generate the right effects when impacting energy shields.
 - DMR has extended range on its projectiles now, since Halo's red reticule system was falsely reporting valid shots when out of range.
 - Fixed an issue where the Sentinel Sniper Beam firing sounds sometimes would not play.
 - Improved Focus Rifle energy core effect.
 - Fixed an audio issue with the focus rifle.
 - Plasma pistol no longer does damage to Hunter armor/Chieftain armor.
 - Fixed a bug where plasma pistols would drain the battery of other weapons when you switched away from them.
 - Updated flamethrower textures and shaders
 - Fixed a reference to some textures that the Battle Rifle was loading, but not actually using.
 - Fixed an issue where the LMG didn't make proper collision sounds, or have material effects when dropped.
 - Fixed an issue where when in zoom, the Focus Rifle still wasn't giving the player a red reticule.

- Fixed an issue with incorrect ammo pickup on the LMG.
- The grenade launcher projectile now uses a lower resolution bitmap which makes it more visible in flight, and also cuts back on loaded unneeded resources.
- Increased Shade projectiles/heavy plasma bolts damage vs vehicles and Hunters. Also increased splash damage that all enemies receive.
- Decreased fuel rod damage vs vehicles. Now does less impact damage, but splash damage is higher. Also increased its damage to Hunters.
- Burning damage from Sentinel beams now slowly degrades active camo.
- Updated and revised models for the LMG, Sentinel Beam, Sentinel Sniper beam
- Specop SMG now has greater accuracy and fires in bursts when in scope.
- Fixed a visual inconsistency with how SMG's are presented in both model and HUD.
 - Standard SMG has stock collapsed in first person, third person and HUD now.
 - Specops SMG has scope, stock extended in first person, third person, and HUD now.
 - Amped SMG has stock extended in first person, third person, and HUD.
- Overhauled Piercer (back ported from cancelled project known as Oddball/Banished: An ODST Story) to better perform as a more scary needler type weapon for high ranking units.
 - Bursts for .6 seconds instead of .7.
 - Bursts is more evenly distributed.
 - Burst is more consistent in projectiles fired.
 - Reduced spread to make enemies more effective with it at close range.
 - Damage reduced at far ranges.
 - Projectiles weigh less, since speed is slower they need to have less time to drop.
 - speed of projectile is halved, to make it more fair to fight against at range.
 - Projectile class changed so that ai sound needler/impaled dialog instead of burn.
 - Projectiles depower active camo.
 - Stun removed (this is NOT the same as the animation played when a unit takes damage).
 - Damage multiplied against all flesh by 2x.

- Brutes get an additional damage bonus (used to receive 80% of base damage, now receive 200%).
- Shielded units no longer receive as much of a damage reduction (but base damage is lower so overall the same).
- Receives reddish orange color, to better distinguish from spiker.
- Added red orange flare when held so more easily seen from distance. (todo)
- Projectiles no longer effected by player movement when fired.
- homing reduced to compensate for higher base accuracy and slower speed (which means the projectile has more time to home than needing to home).
- Redid Brute Plasma Pistol overcharge to more closely resemble our original vision for it.
 - Flames now stick to targets
 - Flames spread over time
 - Damage recalibrated now that it sticks
 - Pistol now has an animation when fired in third person by ai.
 - Works better as an inverse of the regular plasma pistol
 - can't really hurt shields, devastating vs flesh.
 - Can now be fatal to players who do not move when set on fire, as damage stacks the longer more fire spreads on the area.
- Brute PR was not using an updated set of effects for the overheat. Now it does.
- Vehicles
 - Redid how vehicles damage effects and particles are done, significantly reducing strain on the engine, improving quality and can change in visual fidelity and engine stress based on mission requirements.
 - Fixed a bug where the Banshee fuel rod was not doing the same damage as the Hunter fuel rod. (Banshee fuel rod does same damage now as Hunter and Shade fuel rods, but has less arc and different physics). This mean it is more effective against certain targets where previously it seemed to do no damage.
 - Fixed an issue where one of the warthogs wheels would not animate properly with the vehicles suspension.
 - Fixed an issue that should eliminate all crashes from hijacking Ghosts.
 - Made a change to Grizzly animations, which fixes reports of accuracy issues.
 - Increased Grizzly heath
 - Made some small changes to aiming and deviation angles for the Grizzly, due to changes with the animations.

- Decreased Wraith mortar impact damage, increased splash damage. Will now kill a spartan with yellow health majority of the time. Overall, splash damage does more, impacts do less, overall damage is lower but higher chance of doing damage. Damage overall increased for unshielded enemies.
 - Redid Wraith mortar physics for the projectile so that it feels more natural and is easier to aim, and thus they are featured more prominently for the player to use in new missions.
 - Made a change to Wraith ai so they fire the mortar more accurately at range.
 - Changed model and textures of Grizzly debris so that it takes up less memory.
 - Increased bounding radius on Grizzly, making it easier to enter and also making marines less likely from running into the tracks.
 - Upgraded the Elites that are in the shadow gunner seat to be of major rank, in order to avoid them dying before the driver.
 - AA Wraith no longer fires fuel rod and overheats, now has rapid fire heavy plasma/shade projectiles and is less stressful on game and lets us properly balance the fuel rod.
 - Reduced particles on destroyed Wraith scenery.
 - Changed particles for Warthog destruction to be more realistic and be less stressful on the engine.
 - Fixed an issue where some Covenant Shade turrets created more particles than others.
 - Upgraded Warthogs to share more resources between variants, resulting in us allowing more hog variants in more maps while taking up less space.
 - Fixed a bug that totally messed up what the Shadow health should be, so basically it works more as it should between the durability of a Ghost and Wraith.
 - Shade has a Fuel Rod variant now.
 - Shadow has a Fuel Rod variant now.
- HUD
 - All new version of HUD with 4k support and post processing effects.
 - Pistol model and icons no longer show extended mag.
 - Levels
 - Pillar of Autumn
 - Fixed an issue where you could not continue it via the UI
 - Removed some support for vehicles and other backend things to improve stability.
 - Fixed an issue where some flickering lights were not visible when they were supposed to be.

- Fixed an issue where you could crash when zooming with pistol, and when approaching the second gravity terminal.
 - Fixed a mislabeled a misplaced data pad and resequenced the order in which you find them.
 - Updated a ton of displays and computer readouts with new fancy visuals.
 - Made an alteration to how the game is doing checkpoints in places, to avoid people potentially get stuck in loop where they get a checkpoint as they die
- Halo
- Removed some old Hunter references to cut down on file size.
 - Fixed an issue where Johnson could Tpose.
 - Added the revive mechanic onto Johnson.
 - Fixed an issue where the game wasn't calling some of the more fancy effects on some forerunner objects.
 - Entirely new shader overhaul (the whole game has one, but Halo's is exceptionally huge) to give it a more classical look.
 - All new lightmaps that have more contrast and enhance the mood of the level.
 - Restored some drop ship and banshees in the opening area, as well as a better intro to the particle carbine, jackals.
 - Added some covenant patrols in the distance of multiple parts of the map.
 - Restored Xbox faithful water, thanks to the Halo CE Refined team.
 - Restored doors and holograms designed for the maps's geometry shown at E3 2000. Bungie left the door frames, holo control panel geometry in the levels but never included the doors.
- Truth and Reconciliation
- Improved compression on cliff normal maps to make them look much better.
 - Removed unneeded dynamic lights.
 - Fixed a potential issue with a grenade launcher box.
 - You can find Jackals eating people inside the ship.
 - Yes. Jackals. Eat. People.
 - Fixed a bug with a cross map unlock that wasn't working.
 - Cross map unlock makes the Wraiths on this mission usable, if mission is restarted or you return to it later without having started a mission without the continue button.
- Silent Cartographer
- Boosted the strength of some of the lights the holograms give off because we live in the future and our hardware can handle it.

- Fixed an animated light in the top floor of the Cartographer.
 - Added some cool doors designed for TSC:E, but fit perfectly in other areas of the map to make the facilities seem larger than they are.
 - Fixed some issues with the beach rocks slightly being above the ground.
 - Added in some removed drop ships and banshees that existed in old Halo footage for extra ambience.
 - Added in a shadow that can be used with the fixed cross map unlock linked to T&R.
- Silent Cartographer Evolved
- Removed some dynamic lights from objects to improve performance
 - Removed energized crates to improve performance.
 - Removed Grunt easter egg to save memory.
 - Removed Metroid easter egg to save memory.
 - Added in other Warthog variants
 - Made some Warthogs spawn randomly.
 - Removed Gungoose.
 - Changed some internal scripts to provide stability.
 - Removed some Covenant weapons that were found on map.
 - Removed Skirmishers to make room for the new hogs, shadows, shades, and sprint.
 - Revised entire maps shaders
 - Fixed some long standing bugs where the normal maps were applied in the color specular map channel of the shaders
- Assault on the Control Room
- Due to an unsolvable bug, we were unable to delete vehicles when you go inside structures and thus they were always there, generating particles and eating into the games budget, with the new vehicle effects system, this bug produces significantly less effect and particle popping for players under certain circumstances.
 - Made some changes to the last octagon weapon drop room with the hunters
 - Specops BR instead of DMR
 - More AR ammo
 - Made it less likely to see enemies spawn in the exit area of the room.
 - Removed a command that forced a grunt out of a turret, which may have been causing crashes for some people who speed run.
 - Removed Jackals with BPP from last tank section, so that we don't accidentally get particle overloads and so they won't kill all the marines with a lucky shot

- Fixed an issue where at the control room one of the Shadows would drift into the other's territory and a Wraith could be discouraged to fire.
 - Fixed a shader issue on the elevators
 - Reduced the chance of elites being majors, and changed one to use a plasma pistol and removed an elite entirely on the last exterior encounter before going inside after you have to get out of your vehicle before heading inside the labyrinth that leads you to the underground bridge room.
 - New snow effects.
 - Post processing allows us to let your visor frost over when outside.
- 343 GS
- Fixed a problem where more lights were being generated than they should have, causing reducing effect and particle popping.
 - Fixed an issue where you could get weapons the marines in the cinematic dropped.
 - Removed lights upon the first meeting with the sentinels to improve performance.
 - Exterior fog is now more dense and using fake volumetrics.
 - Radar is now an available (and introduced) AA on this mission, in place of VISR.
- The Library
- Removed references to old placeholder data to reduce file size.
 - With placeholder data removed, lowered compression on some environmental textures.
 - Added new fog effects.
- 2 Betrayals
- Fixed some empty Banshees being spawned during Sparrowhawk vs banshee fight in the cavern that never got used.
 - Fixed an issue that made some Sparrowhawks have problems being entered.
 - Changes glass shader to make it more visible.
 - Redid lighting for "cakewalk" area.
 - Fixed lighting for the interior of the Control Room.
 - Fixed a shader issue on the elevators.
 - Fixed an issue where all AI wouldn't move to their new position by the Pelican after destroying the first pulse generator.
 - Swapped out AA Wraith in the tunnel for a mortar wraith.
 - Changed the spawn location for some Flood forms in the new area's field with the damaged Wraiths.
 - In new area on the left path, fixed some AI that weren't as mobile as they should have been.

- Fixed an issue where some AI may have not been going to their new positions after destroying the first pulse generator.
 - Fixed an issue where the legacy monitor asset and AI were being loaded.
 - Fixed an issue where AI at the base of the control room would not move to their firing positions.
- Keyes
 - Improved compression on cliff normal maps
 - Added in an active camo powerup in the muster bay instead of an overshield.
 - Removed dynamic lights from the shield generators, increasing performance and reducing effect and particle popping.
 - Restored coolant to be more like Xbox.
 - Radar is now an armor ability you can use on this mission.
 - Fixed an issue that let a door open into an endless void.
 - Added a bunch of goodies into a hallway with a really hard encounter required to pass if you wanted one of the terminals.
 - Maw
 - Fixed an issue where players could manipulate the endless flood spawns to overload the game.
 - Implemented a cut encounter at the bridge.
 - Replaced VISR with Radar as an AA.
 - Replaced dead marines in new area with crewmen.
 - Added Lumoria Campaign
 - Added SOCOM Pistol
 - Added SOCOM Assault Rifle
 - Added SOCOM Assault Rifle with grenade launcher
 - Added SOCOM Battle Rifle
 - Added Amped DMR
 - Added Amped SMG
 - Added Spiker
 - Added advanced Plasma Rifle
 - Added Grenade Launcher
 - Added Sentinel Light Rifle
 - Added Unstable Carbine.
 - Added new missions to Installation 04 Campaign
 - None Left Behind
 - The Commander
 - The Commander Evolved

- Added new playable character for Commander missions, The1 Vadumee.
- Added Energy Sword Armor Ability.

3.1.0f

- Fixes to launcher

3.1.0e

- Updated installer to allow the following features you've requested:
 - Custom installation path for SPV3!
- No more DirectInput issues!
- 1.10 patch is now optional for SPV3 (but still required for original Halo CE)
- Ability to mute installer sound (hopefully it won't be done often)
- Updated launcher to show proper error messages when crashing, additionally:
- Added a "Fallback" version which does the essential to start up SPV3 if the main one crashes
- Added a "Ultimate Resort" version which should be used in case nothing else works

- 3.1.0d

- Updated launcher and installer to fix remaining issues.
- 2 launchers exist now, lite should work for everyone, but has basic features
- While advanced enables things like 60 FPS.
- Added some missing credits for Ben, who was a concept artist.
- Added missing credits for 002 [SPV3.2 Edit: 002 is now known as Kavwuvi), who is the man who made 60 FPS possible!

- 3.1.0c

- Fixed the last human datapad from displaying text saying it was forerunner in Halo.

- 3.1.0b

- Fixed some issues with the launcher and installer
- Fixed a hovering tree in Halo.

- Fixed some errors in the readme.

3.1.0a

- (SPV3 Part 1, Missions 06)

- ###Global###

- 5 new missions added.
- All new UI.
- Skulls (other than mantis and moon) are now unlocked from the start in the UI.
- New weapon added, the Brute Piercer.
- Fixed an issue where Elite Ultras would try to overcharge their Plasma rifles and shoot their teammates.
- Changed the spread on the grizzly cannons so the first shot is more accurate.
- DMR does less damage to grunt backpacks.
- DMR's visual bloom adjusted to make it more consistent with weapons behavior.
- DMR projectile range slightly increased.
- Stealth Elites now use plasma grenades instead of gravity.
- Skirmishers only carry cluster grenades.
- Particle effects downgraded for ghost, banshee, and shade.
- Skull system removed and now entirely accessible via menu.
- Terminal system overhauled (see mission changes for details).
- Cleaned up optimizations for AOTCR to prevent particle popping.
- Overhauled brutes, ranks are just minor/follower, major/leader, ultra/commander, zealot/war chieftain.
- Plasma Rifle and Shredder Brutes now carry cluster grenades on all ranks.
- Particle Carbine, Focus Rifle, Brute Shot Brutes now carry gravity grenades on all ranks.
- New Brute rank added, War Chieftain who wields hunter cannons and uses gravity grenades.
- Shielded Ultra Brute rank which uses Brute Plasma Pistol removed.

- Shielded Ultra Brute rank which uses Piercer added to replace removed brute rank.
- Brute Minor/Followers will panic when an elite or superior brute is killed in combat.
- Increased effectiveness of AI ally gunner aim with the rocket hog.
- Inserted Heretic Hog unlockable.
- Updated shaders for the holograms in Halo's control center.
- Updated shaders for Cortana (added pulsing and flowing strings).
- Updated Cortana model to fix weird issues with her teeth.
- Brand new Energy Sword model and shaders.
- Hunter armor now takes no damage from projectiles, only explosives.
- Hunter shield now halves damage from impact explosives
- Hunter now 4x more resistant to melee attacks.
- Fixed an issue where gravity grenades could never detonate.
- Raised battery drain per shot on particle carbine.
- fixed an issue where the Focus Rifle could display wrong text
- Fixed an issue where blood physics weighed as much as rock instead of water.
- changed colors on the reflex booster to make it more distinct from overshield.
- fixed an issue where the banshee fuel rod could fire 2 shots at a time.
- Made revisions to Banshee AI.
- Changed the way grunt model permutations display. Grunt majors now get the backpack from the ultrarank, but no helmet.
- Fixed an issue with the SMG, Needler, Plasma Rifles, Plasma Pistols, Shredders making their shooters make pain sounds.
- Fixed an issue with the AA wraith fuel rod doing the wrong impact damage.
- Fuel Rod damage is now much greater vs vehicles.
- Redid Phantom health system to put higher emphasis on hitting engine pods than body.

- Increased range of DMR and BR marines, so they can cover you on the climb up to the control room.
- Fixed an issue where the Elite wielding carbines did a 10% more damage than they should.
- Fixed an issue where Elites had inconsistent grenade throwing speeds.
- Increased grenade launcher damage vs vehicles and elite skin.
- Decreased pull on gravity grenades vs players by 50%.
- Removed the standard carbine firing sound from playing alongside new firing sound.
- Added a new empty sound for the particle carbine sound.
- Made some changes to Grizzly tank death explosion and effects.
- Replaced Warthog Chaingun sound.
- Fixed an issue where stealth elite would play their shield popped effect when dieing.
- Wraith Mortar does more impact damage when directly hitting bipeds and vehicles.
- Grizzly takes less splash damage.
- Removed an effect from inactive plasma grenades to increase performance.
- Removed some of the force behind heavy shade bolts.
- Regular sniper uses blue displays and lights, stealth uses classic green.
- Regular SMG has green lights, stealth uses red.
- Replaced green gunner grunts with regular ones.
- Reduced brightness of jackal shield in first person
- Removed crosshair for jackal shield.
- Made text in FP stand out more against light backgrounds.
- Added in some new lighting effects and particles for rockets.
- Made a change to some of the warthog effects, so kicking up dirt doesnt eat 40% of the particle budget.
- Fire you can walk into in the environment does 5x more damage.
- Removed alternating fire on ghost and banshee.

- Halved damage from light plasma bolts from vehicles. (back at stock levels).
- Fixed some red lights that were on the Void's Tear.
- Redid the energy tendrils on the Plasma Rifles and Pistols.
- Updated trees so they can be used for cover better.
- Updated visuals on blind wolves.
- Updated shaders on forerunner doors and devices.
- Made hunter backplate easier to break, and also makes the hunter play an animation when destroyed.

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- ###Pillar of Autumn###

- Added unlockable to effect other maps.
- Now has 12 unlockable terminals for all difficulties, up from 4 difficulties specifically.
- Made a change to how anger skull works to reduce potential problems
- Made changes to drought skull to make it work more reliably.
- Intro crewman cowers as the brute shot rounds go off above.
- Did some updates to the checkpoints not saving you in bad situations.

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- ###Halo###

- Now has 18 unlockable terminals for all difficulties, up from 6 difficulties specifically.
- Added an unlockable event that effects rest of mission and all other missions.
- Added unlockables because of player actions in POA and T&R.
- Removed some warthogs/geese at alpha base to improve performance. (specifically, with particles flickering in and out)
- And made some changes to the whole area.
- Fixed a bug where the pelican that picks up the brute prisoners never despawned.
- Fixed an issue where the wraith at alpha base dropped off by phantom didn't deploy it's gun.
- Fixed the wraith on noble difficulty not having the health system applied if jacked.

- Made a change to the hog healthpack player help text.
- Fixed a longstanding issue from the Xbox version, where certain grenades and projectiles could go through the "fat" trees.
- Restored chief's blurry vision at mission start.
- Redid some of the water shaders, which were broken in the PC port.
- Fixed an issue where the first dropship could sink into the ground.
- Made some adjustments to music if the player calls in the longsword strike at the first tower.
- Rejiggered some dialog surrounding alpha base.
- Changed some of the AI to not upgrade at the top of alpha base, so the jackals can EMP the AA wraith.
- Updated clouds.
- Added sapling pine trees.

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- ###Truth and Reconciliation###

- Now has 12 unlockable terminals for all difficulties, up from 4 difficulties specifically.
- Added an unlockable because of player actions in Halo.
- Wraiths no longer useable.
- Brute BPP rank removed and replaced with Brute Piercer rank.
- Specop Hunters removed, chieftain and bosses encounter instead.
- Grunt ultras now encountered only inside the ship after piercer introduction.
- Added an unlockable event that effects all other missions.
- Fixed an issue where some trees leaves would block bullets.
- New lighting with support for directional light mapping on the exterior.

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- ###Silent Cartographer###

- Now has 18 unlockable terminals for all difficulties, up from 6 difficulties specifically
- Got rid of jackals with brute plasma pistol at the crash site.
- Swapped out an elite on the exit of the cartographer with a shielded brute.

- Added grunt ultras throughout the mission.
- Diversified jackal ranks during cartographer escape.
- Added unlockables as a result of player actions in POA and T&R.
- Fixed some original music which didn't get replaced.
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- **###Silent Cartographer Evolved###**
 - Now has 18 unlockable terminals for all difficulties, up from 6 difficulty specific.
 - Removed findable skulls.
 - Added an unlockable as a result of player actions in Halo.
 - Cleaned up optimizations to prevent effect popping.
 - Removed Mantis skull. (sorry, had to sacrifice something to include the piercer).
 - Removed Gungoose (turns out more than the mantis skull had to go for new content).
 - Fixed an issue with some ramps not having their lights.
 - Fixed an issue where the door at the top of the elevator at LZ couldnt be bashed open.
 - Switched rocket hog to gauss hog.
 - Removed from auto loading, now only playable via the UI.
 - New visual theme and lighting similar to Halo 3's "The Covenant".
 - Fixed an issue where grunts at the pit would overcharge their plasma pistols.
 - Removed Phantoms.
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- **###Assault on the Control Room###**
 - Now has 18 unlockable terminals for all difficulties, up from 6 difficulty specific.
 - Removed findable skulls (excluding Mantis skull).
 - Made some adjustments to Mantis skull.
 - Added an unlockable as a result of player actions in Halo.
 - Added an unlockable as a result of player actions in T&R

- Added an unlockable event to enable use of Grizzly in 2 Betrayals.
- Improved optimizations to reduce effect popping when too many encounters were skipped.
- Adjusted some grenade and ammo distribution.
- Added in gungoose, chaingun and rocket hog.
- Made numerous changes to underground cave room area, both encounter, saves, and performance wise.
- Made some changes to the first small bridge to diversify weapons.
- Redid light bloom.
- All new lighting in exterior areas.
- Fixed an issue where the first banshee could fall from the sky if not killed.
- Fixed an issue with specular properties in the underground lightbridge room.
- Fixed an issue by the second crashed pelican where some brutes could spawn or get trapped in the rocks.
- Swapped gauss and rocket hog spawns.
- Added some new rocks at the last exterior section after tank, to provide new routes and cover.
- Added bits of cyan lighting into some of the areas, to break up the visual tone.
- Fixed an issue where one of the Shadows could end up in the wrong area near downed pelican.

- 3.0.2
- ###Global###
 - All terminal text revised
- - ###Pillar of Autumn###
 - Added in cool POA logo to the bridge

- 3.0.1

- ###Global###

- Cinematic music lowered.
- Updated Gungoose physics.
- Made a change to rocket hog gunner AI which should reduce accidental deaths.
- Increased DMR damage vs Elite and Brute shields.
- Warthog bullets reduced damage vs other vehicles.
- Gold Elite shield strength boosted.
- Downgraded fuel rod explosion particles for better performance.
- Updated text in Skulls menu to reflect changes + notice of controller support, FOV change, and other info.
- Shadow HP reduced.
- Removed taunting behavior from Rocket Launcher marines... so they don't fire at the ground and kill themselves.
- Changed time of doublespeed and renamed to "Reflexes Enhanced"
- Focus Rifle zoom levels adjusted
- Powerups now tell you how many seconds they last.
- Brute Shot posing animation fixed.
- Gungoose passenger animations has been improved.
- Shredder firing sound volume reduced
- Removed a Focus Rifle melee animation that should have not been included.
- AR firing and reload sound volume has been increased.
- Fixes to Keyes's model.
- Particle Carbine display has been improved.
- Spec Ops SMG HUD now says "2x" while zooming.
- Added video tutorial link to readme.
- Gravity grenades should not "fly" in rare instances.
- Fixed broken controller support link in readme (that's this document!).
- Plasma grenades now do extra damage when stuck to vehicles.
- Fixed dev text glitch on all missions.

- Improved gungoose physics when dropped by Pelicans.
- Ghost boost removed.
- Overall stability improved.
- Changed default motion blue amount. (We still advise all players to play without it)
- Fixed a misspelling when picking up the Mantis Skull.
- Void's Tear gravity effect now uses the updated system for the gravity grenades. (no more flying!)
- Fixed the Specop Sniper rifle from saying "Loading... done" instead of displaying picked up ammo.
- Made edit to Plasma Rifle animations.
- Fixed a bug that didn't let all of Cortana's shaders display.
- Addressed an issue that could potentially mess with the Specop BR firing 4 bullets at once.

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- ###Pillar of Autumn###

- Made main window in Sub engine room in POA always have a broken window.
- Fixed a bad checkpoint after you first get the Reflex Enhancer powerup.
- Fixed a rare issue where players could have reflexive damage effects if quitting after opening cutscene.
- Placed a door that was missing.
- fixed a crooked display board in new area.
- Swapped ammo packets for DMR and made them DMR ammo boxes.
- Moon Skull does not show up on normal and heroic anymore.
- Fixed clipped barrel at Covenant Datapad #1.
- Fixed the first Covenant Datapad being labelled as the second.
- Fixed an issue where you could be pushed through the map after seeing the life pods being destroyed.
- Removed test map area to save space on file size.
- Removed unfinished destroyable computer banks.
- Fixed misplaced bashable door.
- Added some crates to ladders that are unclimbable so players don't get confused.

- Fixed Covenant sounds not playing in one of their boarding craft.
- Fixed an issue with color weights on the bulletin boards.
- Fixed an oxygen tank intersecting a wall.

- **###Halo###**

- Fixed an issue where the top of alpha base would report area clear before all AI are dead, and not show navpoint.
- fixed an issue in Halo where the alpha base ammo cache rear door would be open even if front door wasn't bashed in.
- AA wraith in Halo starts with lower health.
- Removed old button press prompt at a radio antenna.
- Fixed a broken string entry for the AA Wraith
- Mantis Skull does not show up on normal and heroic anymore and challenge encounter can no longer be "skipped".
- Made first phantom in halo take off soon as it deploys it's troops.
- Second warthog navpoint fixed.

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- **###Truth and Reconciliation###**

- Restored a line of dialog that rarely played in the original game.
- Phantom won't be called in if player if the wraith is occupied at the gravlift.
- If Pelican flies in the gravlift area, banshee waves are activated.
- Moved an object that players were not supposed to see further way so it can't be seen with VISR.

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- **###The Silent Cartographer Classic###**

- Added final lightmaps that didn't render in time for initial release.
- Made a fix to security cutscene where the BSP didn't load correctly.

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- ###The Silent Cartographer Evolved###
 - Removed egg on TSC:E hidden by Evolved team. (Sorry about that 343! We love you!)
 - Made some adjustments to placement of Covenant torches.
 - Fixed a log intersecting a rock.
 - Fixed an uplink crate that intersected the cliff.
 - Added more marines for beach assault.

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- ###Assault on the Control Room###
 - Improved effect optimization on AOTCR
 - Fixed a crash in AOTCR when going up the elevator.
 - Made ending AOTCR change difficulty and start you back at the start of the game once completed.
 - Fixed missing control panels in light bridge cave.