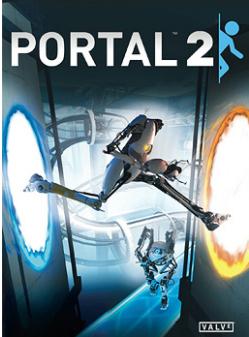


Portal 2

<i>Portal 2</i>	
	
<i>Portal 2</i> retail cover art. The co-op campaign robot characters Atlas (bottom) and P-Body (top) are featured	
Developer(s)	Valve Corporation
Publisher(s)	Valve Corporation
Distributor(s)	Valve Corporation (online) Electronic Arts (retail)
Director(s)	Joshua Weier
Producer(s)	Gabe Newell
Artist(s)	Jeremy Bennett Randy Lundein (art directors)
Writer(s)	Erik Wolpaw Jay Pinkerton Chet Faliszek
Composer(s)	Mike Morasky Jonathan Coulton (song)
Series	Portal
Engine	Source
Version	Build 4560
Platform(s)	Microsoft Windows Mac OS X Xbox 360 PlayStation 3
Release date(s)	Retail <ul style="list-style-type: none"> • NA April 19, 2011 • EU April 21, 2011 • AUS April 21, 2011 Steam <ul style="list-style-type: none"> • INT April 19, 2011
Genre(s)	Puzzle-platform game Science fiction
Mode(s)	Single-player Co-operative

Rating(s)	<ul style="list-style-type: none"> ESRB: E10+^[1] OFLC: PG^[2] PEGI: 12^[3]
Media/distribution	Blu-ray Disc, DVD, digital distribution
System requirements	
Windows	
<ul style="list-style-type: none"> Windows XP or later^[4] 3.0 GHz Intel Pentium 4 or 2.0 GHz Dual Core Processor 1 GB of RAM on Windows XP or Windows 7 (2 GB on Windows Vista) 7.6 GB hard disk space DirectX 9 graphics card with 128 MB RAM Sound card DirectX 9.0c compatible 	
Mac OS X	
<ul style="list-style-type: none"> Mac OS X v10.6.7 or later 2.0 GHz Intel Core Duo processor 2 GB of RAM 7.6 GB hard disk space ATI Radeon HD 2400 / NVIDIA GeForce 8600M / Intel HD Graphics 3000 or higher 	

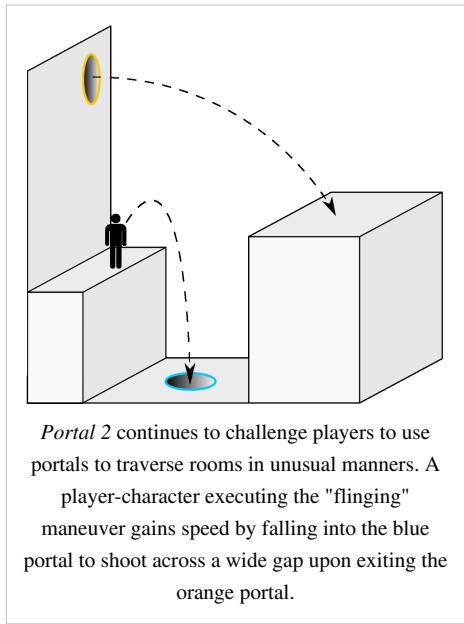
Portal 2 is a first-person puzzle-platform video game developed and published by Valve Corporation. The sequel to the 2007 video game *Portal*, it was announced on March 5, 2010, following a week-long alternate reality game based on new patches to the original game. Though initially slated for release in the fourth quarter of 2010, the game was postponed to the week of April 18, 2011. The game was released by Valve through Steam for Microsoft Windows and Mac OS X, while the PlayStation 3, Xbox 360, and retail Windows/OS X versions of the game are distributed by Electronic Arts. The game's release on Steam was preceded by a second multi-week alternate reality game, the Potato Sack, involving 13 independently-developed titles which culminated in a distributed computing spoof to release *Portal 2* several hours early.

Like *Portal*, *Portal 2* primarily comprises a series of puzzles that must be solved by teleporting the player's character and simple objects using the "portal gun", a device that can create inter-spatial portals between two flat planes. The game's unique physics allow momentum to be retained through these portals, and requires the creative use of portals to maneuver through the game's challenges. Most gameplay elements of the original *Portal* were retained in the sequel, but many elements were added to *Portal 2*, including tractor beams, laser redirection, and paint-like gels that impart special properties to objects they cover. These gels were created by the team from the Independent Games Festival-winning DigiPen student project *Tag: The Power of Paint*.

Within the single player campaign, the player returns as the human Chell, having awoken from stasis after many years. Chell must navigate the now-dilapidated Aperture Science Enrichment Center and its test chambers with the portal gun while the facility is rebuilt by the reactivated GLaDOS, an artificially-intelligent computer that first appeared in *Portal*. The game has a larger storyline than *Portal*; Valve introduced additional characters, including Wheatley, a robotic personality sphere voiced by Stephen Merchant, and recordings of Aperture Science CEO Cave Johnson, voiced by J.K. Simmons. Ellen McLain reprised the role of GLaDOS. Music from Jonathan Coulton and The National appears in the game. *Portal 2* also includes a two-player co-operative mode, in which the robotic player-characters Atlas and P-Body are each given a portal gun and are required to work together to solve test chambers specifically designed for co-operation.

Though many reviewers were concerned about the difficulty of expanding *Portal* into a full sequel, critics universally praised *Portal 2*. The game's writing, pacing, and black humor were highlighted as stand-out elements, with critics applauding the voice work of McLain, Merchant, and Simmons. Reviews also highlighted the new gameplay elements, the game's challenging but surmountable learning curve, and the additional co-operative mode.

Gameplay



Portal 2 is a puzzle game presented from the first-person perspective. Players act as Chell in the single-player campaign and as one of two robots, Atlas and P-Body, in the co-operative campaign. All three can move, look, and interact with the environment. The character can withstand damage for a brief period but will die under sustained injury. There is no penalty for falling onto a solid surface, even at high speed, but falling into bottomless pits or pools of toxic liquid kills the player-character immediately. When Chell dies in the single-player game, the game restarts from a recent checkpoint,^[5] in the co-op game, the robot respawns shortly afterwards without restarting the puzzle.^[6] The goal of both campaigns is to maneuver the character(s) through the Aperture Science facility. While most of the game takes place in modular "test chambers" with clearly-defined entrances and exits, other parts occur in behind-the-scenes areas where the objectives are less clear.

The initial levels provide a tutorial on general movement controls and how to interact with the environment. Afterwards, the player is required to solve puzzles using the "portal gun", formally the Aperture Science Handheld Portal Device, which can create two portals connecting two distant surfaces. Only some surfaces can accept portals; these are depicted as matte white, continuous, and flat. As in *Portal*, characters can use these portals to move unconventionally between rooms, or to "fling" objects or themselves across a distance. Unlike in *Portal*, outlines of placed portals are visible through walls and other obstacles for easy location.^{[7] [8]}

New game elements include Thermal Discouragement Beams (lasers replacing the energy balls from *Portal*), Excursion Funnels (tractor beams), and Hard Light Bridges, all of which can be transmitted through portals.^{[5] [9] [10]} ^[11] The new Aerial Faith Plates launch the player or objects through the air, and sometimes into portals. The turrets from *Portal* return, and players must disable them or avoid their line of sight. The Weighted Storage Cube has been redesigned, and there are new types: Redirection Cubes, which have prismatic lenses that redirect laser beams, and spherical Edgeless Safety Cubes, which made a brief appearance in one of *Portal*'s advanced chambers.^{[5] [12]} The heart-decorated Weighted Companion Cube reappears briefly.^[13] Early demonstrations included Pneumatic Diversity Vents, shown to transport objects and transfer suction power through portals, but these do not appear in the final game because the technology was not ready in time.^{[14] [5] [12] [15]} All of these game elements either open locked doors, or aid or hamper the character from physically reaching the exit.

Portal 2 also introduces paint-like gels that impart certain properties to a surface or object coated with them. Gels are dispensed from pipes and can be transported through portals.^[5] Orange Propulsion Gel boosts Chell's speed as she crosses a surface, blue Repulsion Gel allows her to bounce from a surface,^[16] and white Conversion Gel allows many surfaces to accept portals.^[17] Some surfaces, such as grilles, cannot be coated with a gel. Water can wash away gels, returning the surface or object to its normal state.

The game includes a two-player co-operative mode in addition to the single player mode.^[18] Two players can play at the same console with a split screen, or at their own computers or consoles; Microsoft Windows, Mac OS X, and PlayStation 3 users can play with each other regardless of platform. Both player-characters are robots who control separate portal guns and can use the other character's portals as necessary.^[5] Each player's portals are of a different color scheme, one in blue and purple and the other in orange and red, to distinguish between the two sets.^{[11] [19]} An initial "calibration" chamber separates the characters to teach the players to use the communication tools and portals. Most later chambers are less structured and require players to use both sets of portals for laser or funnel redirection,

launches, and other maneuvers.^[20] The game provides voice communication between players, and online players have the ability to temporarily enter a split-screen view to help coordinate actions.^[19] Players can "ping" to draw the other player's attention to walls or objects, start countdown timers for synchronized actions, and perform joint "gestures" such as waving or hugging.^{[5] [10] [20]} The game tracks which chambers each player has completed and allows players to replay chambers they have completed with new partners.

According to Valve, each of the two campaigns (single-player and co-operative) is 2 to 2.5 times as long as the campaign in *Portal*, with the overall game five times as long.^{[10] [21] [8]} Erik Wolpaw, *Portal 2*'s lead writer, estimates each campaign is about six hours long.^[6] *Portal 2* contains in-game commentary from the game developers, writers, and artists, as in previous Valve games. The commentary, accessible after completing the game once, appears on node icons scattered through the chambers.^[22]

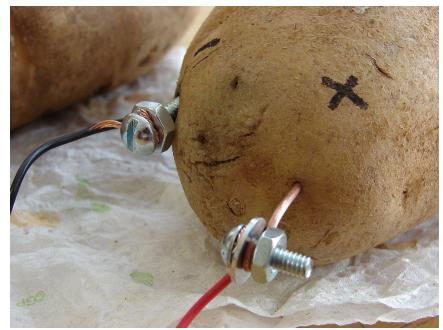
Plot

Portal 2 follows the player-character Chell after the end of *Portal*, in which she defeats GLaDOS, destroying the artificial intelligence's chamber. The ending of the first game, retroactively patched just prior to the sequel's official announcement, shows Chell being dragged away from the remains of GLaDOS by an unseen figure with a robotic voice, later identified by writer Erik Wolpaw as the "Party Escort Bot."^[23] Chell is placed in stasis within Aperture Science for many years, during which the facility decays.^[5] The Aperture setting is part of the *Half-Life* series and, although *Portal*'s events occur before *Half-Life 2*, *Portal 2* takes place much later than that game.^[24] One hidden area of the game shows the former location of Aperture Science's cargo ship, the Borealis, in the bowels of the facility; this ship is mentioned as part of the *Half-Life* universe at the end of *Episode 2*. The ship was discovered in the Arctic in a seemingly-impossible position, with all hands lost. *Portal 2* suggests the ship was relocated as a result of an experimental teleportation device being developed by Aperture Science to compete with the Black Mesa Research Facility, a competitor featured in *Half-Life*.^[25]

Single-player campaign

Chell wakes to find herself in what appears to be a motel room. An announcer's voice guides her through a cognitive test before she is put back to sleep. When she next awakens, many years have passed. Wheatley (Stephen Merchant), a personality core, moves the room—located in one of hundreds of shipping containers among a giant warehouse—to help her to escape through the test chambers of the Aperture Science facility.^{[26] [27]} Wheatley, having failed in his duty to sustain the life functions of the other stored test subjects, tries to escape from the facility, which is nearing total destruction. He guides Chell through the test chambers to the dormant GLaDOS (Ellen McLain); they accidentally wake her up while attempting to activate an escape pod. GLaDOS has not forgiven Chell for "murdering" her years ago.^[5] She begins rebuilding the ruined facility so she can continue Chell's testing for the rest of her life, stating: "I think we can put our differences behind us, for science ... you monster."^{[28] [29]}

With Wheatley's help, Chell escapes the test chambers and disables the neurotoxin and turret manufacturing plants. When they confront GLaDOS a second time, Chell exchanges Wheatley's personality for GLaDOS's. Wheatley becomes intoxicated with power, and places GLaDOS personality into a module powered by a potato battery. He betrays Chell and sends both Chell and GLaDOS into a retired area of the facility miles underground. As they fall, GLaDOS chastises Chell for putting Wheatley in the position of power, claiming that he was "the product of the greatest minds of a generation working together with the express purpose of building the dumbest moron who ever lived", and designed to hamper GLaDOS's decision-making processes^[30] in an attempt to make her less dangerous.



Potatoes are a recurring motif of *Portal 2*. Wheatley traps GLaDOS's core personality in a potato battery while he takes over the Aperture Science facility.

After landing deep underground, GLaDOS is abducted by a bird, while Chell explores the oldest decommissioned section of the facility. There, she works to climb back to the higher levels through a series of old test chambers, where she is greeted by recordings of Aperture Science's CEO, Cave Johnson (J. K. Simmons).^[31] Chell learns that Johnson became increasingly deranged over time, poisoned from moon dust used in Aperture's portal technology, while his company lost money and prestige. His assistant, Caroline (McLain), eventually became a test subject for a mind-to-computer transfer system and placed in charge of the facility, ultimately becoming part of GLaDOS' personality makeup. Chell and GLaDOS are reunited and form a partnership to stop Wheatley before his incompetence destroys the complex, while GLaDOS struggles with the revelation about Caroline.^[32]

Chell and GLaDOS return to the modern facility and face Wheatley, who is driven by GLaDOS's body to continue to test them.^[33] In a final "surprise", Wheatley tricks Chell into a series of death traps. Chell escapes due to Wheatley's clumsiness and lack of logical thinking, and makes her way to his chamber.^[34] In their final confrontation, Chell distracts Wheatley by adding defective core modules in order to allow GLaDOS to initiate another core transfer and put herself back in control of the facility. However, just as Chell is about to conclude the core transfer, Wheatley reveals that he has booby-trapped the process. As the facility's nuclear reactor enters its final phase of meltdown, the roof collapses, revealing the night sky. Chell shoots a portal at the moon overhead, causing the vacuum of outer space to pull her and Wheatley through the other end of the portal still inside the chamber. GLaDOS pulls Chell back inside, where she falls unconscious, leaving Wheatley stranded in space, along with a corrupt, space-obsessed core.^[35]

When Chell awakens, GLaDOS explains that she learned valuable lessons about humanity from her Caroline persona.^[35] She promptly deletes this aspect of her personality, reverting to her standard antagonistic attitude. She finally allows Chell to leave the facility, explaining that trying to kill Chell has proven so difficult that it will be easier to just let her go.^[36] The game ends as Chell is taken to the surface and, after a brief interlude,^[37] exits into a wheat field from a corrugated tin shed. The charred and battered Weighted Companion Cube (supposedly incinerated during the events of *Portal*) is then flung out the door after her before it slams shut.^[37] ^[38] In the epilogue, Wheatley floats helplessly through space (with the Space Core) and expresses regrets about betraying Chell.^[35] ^[37]

Co-operative campaign

The co-operative story takes place after the single player campaign and has some ties into it, but players do not "necessarily need to play them in that order".^[39] Player characters Atlas and P-Body are bipedal robots, each with a fully functioning portal gun, who navigate five sets of test chambers together. After completing a test chamber, the robots are disassembled and reassembled at the next chamber. After completing each set of chambers, they are returned to a central hub. The puzzles in each set of chambers focus on a particular testing element or technique. In the first four sets, GLaDOS prepares the robots to venture outside of the test systems of Aperture Laboratories to

recover a data disk. She then destroys them and restores their memories to new bodies. The collected data shows the location of "the Vault". At the conclusion of the fifth test chamber, the robots discover and gain entry into the Vault, where humans are stored in stasis.^[34] GLaDOS gleefully congratulates the robots, as she sees the humans as new test subjects. She destroys the robots, telling them "we still have a lot of work to do".

Development

After the success of *Portal*, which was originally an add-on product to the game compilation *The Orange Box*, Valve decided to make *Portal 2* its own product. Work began almost immediately after the release of *Portal*.^[36] They committed more resources than for the first game;^[5] *Portal* had a team of seven or eight people, but *Portal 2* had a team of 30 or 40.^{[36] [40]} The initial team of four expanded as subgroups formed to devise game mechanics and plot the story. Participants in internal review processes were inspired to join the project by what they saw. According to Erik Wolpaw, some *Portal 2* developers worked on the *Left 4 Dead* games to help them meet milestones, but then returned to *Portal 2*, "with extra people in tow."^[41] Kim Swift, *Portal*'s designer, left Valve for Airtight Games halfway through *Portal 2*'s development.^[42]

Project manager Erik Johnson said Valve's goal for *Portal 2* was to find a way to "re-surprise" players, which he considered a "pretty terrifying" prospect.^[29] In March 2011, one month before the game's release, Valve president Gabe Newell called *Portal 2* "the best game we've ever done."^[43]

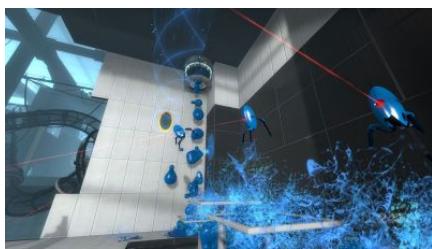
After *Portal 2*'s release Geoff Keighley reported that, according to Newell, "Portal 2 will probably be Valve's last game with an isolated single-player experience".^[14] Keighley later stated that the use of the word "probably" suggests that "this could change."^[44] Newell said that Valve is not "giving up on single-player at all", but intends include more social features on top of the single player experience, akin to the co-operative mode in *Portal 2*.^[45]

Design

Initially, the development team planned to drop the portals from *Portal 2*. For five months Valve focused on a new gameplay mechanic called "F-Stop", the specifics of which are not yet known outside of Valve,^[46] because they have considered using it for a new game.^[47] Though the new mechanics prompted some positive feedback, every playtester expressed disappointment at the omission of portals.^[47] Following a report in Kotaku of some leaked aspects of the game's plot then under consideration, Newell directed the team to reconsider their plans for *Portal 2*, including the lack of portals.^[14]

Johnson stated that Valve's aim was not to make *Portal 2* more difficult than its predecessor, but instead to produce "a game where you think your way through particular parts of the level, and feel really smart when you solve it."^[29] *Portal 2* give the player incremental steps in understanding game mechanics, an approach that led to two basic types of test chambers. The first type, which Valve calls "checklisting", provides a relatively safe environment for the player to experiment with a new gameplay concept; the second type combines elements in new ways to force the player to think laterally, producing challenging and rewarding puzzles. Chambers were first developed through whiteboard via isometric drawings. The developers performed a sanity check on the chamber before crafting simple levels with the Hammer level editor. Extensive play-testing ensured the solutions to each chamber were neither too obvious nor difficult, as well to observe alternative solutions discovered by playtesters. Based on their input, the design team would either keep these alternative solutions viable or block them if they were too easy.^[48] Once a chamber was considered ready, artists would add elements such as detailed texturing, dynamic lighting, and vegetation, for rendering within an advanced version of the Source game engine.^[8] These versions would then be sent back for further play-testing to verify the new elements did not prevent players from finding solutions, with further iterations between artists and playtesters until such issues were resolved.^[48]

Several of *Portal 2*'s early chambers were built by applying decay, collapse, and overgrowth to *Portal* chambers. This was done to give *Portal* players a sense of nostalgia and a sense of how much time had passed in the game world. It also let the team replace the less resolved textures from the first game with higher-resolution, dirty textures the newer engine could support.^[49] The middle section of the single-player campaign takes place in larger in-game spaces, where the developers made most surfaces unable to accept portals, to force players to find creative ways to cross them.^[34] In the final section, when Wheatley controls the Aperture facility, "the level designers just had a blast" creating deranged chambers reflecting Wheatley's stupidity, according to writer Jay Pinkerton.^[50] The designers recognized that solving puzzles would tire players mentally, so they inserted occasional "experiences" to give the player a rest and advance the plot.^[51]



Portal 2 features gels that impart special properties to surfaces or objects they coat. Here, blue Repulsion Gel causes the painted turrets to bounce off any surface.

Portal 2 integrates a game mechanic from Tag Team's *Tag: The Power of Paint*: paint-like gels that impart special properties to surfaces or objects they coat. Impressed by *Tag*, Valve hired its creators to develop the mechanic further and only later decided to include it in *Portal 2*,^[36] however, Valve's vice president of marketing says that "the decision to combine their tech with *Portal 2* came naturally".^[52] Journalists have likened *Tag* to *Narbacular Drop*, the DigiPen student project which became *Portal*.^{[53] [54] [55]} The Repulsion (jumping) and Propulsion (running) gels in *Portal 2* are original to *Tag*. The third *Tag* gel, which allows the player to walk on any coated surface regardless of gravity, caused motion sickness in playtesters. It was replaced by Conversion

gel, which integrates with the portal mechanic.^[56] The gels give the player more control over the environment, which increased the challenge for the puzzle designers.^[48] The gels are rendered using fluid dynamics routines specially developed at Valve by the former Tag Team.^{[23] [14]}

In addition to the gels, *Portal 2* uses advanced rendering techniques for liquid pools, developed for *Left 4 Dead 2*. *Portal 2* combines "flowing" surface maps to mimic the motion of water with "debris flow" maps and random noise



Several of the early test chambers in *Portal 2* reused the original chambers from *Portal*; deterioration and aging were added to provide familiarity to the player while suggesting the length of time between the two games.

to create realistic real-time rendering of water effects.^[57]

The co-operative gameplay came about from requests from players as well from anecdotes of players working together on the same computer or console to solve the game's puzzles, likened by Wolpaw to players working together on the same computer to solve point-and-click adventure games.^{[29] [52] [36]} The co-operative campaign was also inspired by Valve's *Left 4 Dead* co-operative games, where players would enjoy discussing their personal experiences with the game when they were done playing.^[7] While the single player campaign in *Portal 2* is designed to avoid frustrating the player, the co-operative levels are focused on coordination and communication, and are recognized by Valve as being much more difficult than the single-player puzzles.^[58] Valve avoided including timed puzzles into the single-player experience in *Portal* and *Portal 2*, but found that their inclusion into the co-operative mode was effective, as it gives players a positive feeling after they successfully plan and execute difficult maneuvers.^[6] Other puzzle elements, such as the light bridges, are further inspirations from *Left 4 Dead*.^[7] Each puzzle chamber in the co-operative mode requires four portals to solve it; this is to prevent puzzles being solved by the actions of only one player. As soon as a playtester discovered a way to complete a puzzle with one set of portals, the level was sent back to the drawing board for further work.^{[6] [23]} Except in a few cases, the chambers were designed so that both players would remain in sight of each other in order to promote communication and co-operation. Some of the puzzle chambers were designed as asymmetric chambers, where one player would manipulate portals and controls to allow the other player to cross the room. This helped emphasize that the two characters, while working together, are also separate entities.^[6] The ability to tag surfaces with instructional icons for one's partner was soon realized as a necessary element, as it was found to be much more effective for co-operation than simple verbal instruction.^[36]

In addition to the co-operative mode, Valve considered a competitive mode. According to Wolpaw, the mode resembled a variation of speedball, where one team would attempt to transport a ball from one side of the playing field to the other using portals, while the other team would attempt to stop them with their own use of portals. Wolpaw said the matches would begin with this objective in mind, but quickly descend into chaos. They realized people enjoyed solving puzzles with portals more and therefore focused on the co-operative mode.^[59]

Writing

Erik Wolpaw returned to write the game's script, along with *National Lampoon* veteran Jay Pinkerton and Chet Faliszek, the main writer for the *Left 4 Dead* games and a partner with Wolpaw on *Old Man Murray*.^[5] Wolpaw and Pinkerton wrote the single-player campaign story, while Faliszek developed GLaDOS's lines for the co-operative campaign.^[60] There are 13,000 lines of dialogue in the single player and co-operative campaigns combined.^[61] While the writers felt they needed to create a larger story for a stand-alone title, they wanted the game to "feel relatively intimate", so they avoided adding too many new characters.^[60] The writers considered expanding on the "sterility and dryness" from *Portal*, while injecting more comedy. Wolpaw noted that, while some developers have been moving towards art games, no one had made a comedic video game.^[60] The game's story was developed in tight coordination with the gameplay development and testing.^[62] The writing team had to avoid placing spoilers in the achievement descriptions; for example, the achievement for reaching Wheatley's death trap, named "The Part Where He Kills You", was described vaguely to make players believe that "he" referred to Cave instead of Wheatley.^[34]

Portal 2 was originally envisioned as a prequel to *Portal*, to be set in the 1950s, before GLaDOS's takeover of the Aperture Science facility, with events set in motion when Aperture CEO Cave Johnson becomes trapped within a computer.^[47] Johnson would have eventually led an army of robots against the player to rise to power within Aperture.^{[46] [14]} In June 2008, based on information from a casting call website and leaked script samples, Kotaku reported that Valve was seeking voice actors for Johnson, naming him as an AI and identifying the game as a prequel.^{[63] [64]} Valve attributed this leak to an "overeager agent".^[14] Following negative playtester feedback to the omission of Chell and GLaDOS, *Portal 2* was re-conceived as a sequel. Challenged to incorporate the gel mechanic

into the new storyline, the team returned to the idea of exploring parts of the facility from Aperture's early days, when the gel would have been newly invented. Johnson appears as a series of recordings.^[14]

The story for *Portal 2* takes cues from the first game. After the player destroyed the Aperture Science facility and GLaDOS in *Portal*, Wheatley reawakens her and she begins to rebuild it.^[36] Aperture Science is depicted as a "living, breathing place", with GLaDOS given full control to restructure and arrange the setting.^[36] While new characters are introduced, the focus of the *Portal 2* storyline is the interaction between Chell and GLaDOS, particularly the fallout from Chell's destruction of GLaDOS in the first game.^[36]

Wolpaw commented that, while many story elements of *Portal* are revisited in *Portal 2*, he avoided some of the memes—such as the frequently-repeated "the cake is a lie"—stating that "if you thought you were sick of the memes, I was sick of it way ahead of you".^[65] However, Wolpaw "couldn't resist putting in just one" cake joke.^[8] The writers did not attempt to predict or write new memes, believing that "you can't really plan for [dialogue to become a meme] because if you do it probably seems weird and forced".^[66] There are separate ending sequences for the single player and the co-operative campaign that include different surprises.^[67]

Single-player campaign characters



Stephen Merchant (top) voices Wheatley, the personality sphere, while J.K. Simmons (bottom) voices Cave Johnson, the eccentric CEO of Aperture Science.

Though *Portal 2* introduced some new characters, the writers wanted to maintain the one-on-one relationship between each character and the player-character. When they had two characters talking to each other, they wanted the player-character be a silent observer of the conversation and make the surrounding situations engaging.^[23] Wolpaw observed that the game actually has three endings, one for each of the main characters: GLaDOS learns a lesson until she deletes it; Wheatley learns a lesson and longs to apologize for it; and Chell escapes into an unknown world possibly controlled by the Combine, the brutal transhuman empire from *Half-Life 2*.^[37]

Valve explored introducing a new protagonist for *Portal 2*. Though playtesters accepted playing as a different character for the first part of the game, they became disoriented when GLaDOS did not recognize the

player-character. Ultimately the writers returned to Chell, the silent protagonist of *Portal*.^[68] Valve artists explored different outfits for Chell, and considered changing her (ambiguous) nationality.^[69] Ultimately they returned to the orange "dehumanizing" jumpsuit from *Portal*, now with the top tied around Chell's waist to enhance freedom of movement and help her "stand out more as an individual".^[70] *PSM3* called the new look "controversially sexy".^[71] As in the first game, Chell's facial appearance is based on that of voice actress Alésia Glidewell.^[71] Chell continues her role as a silent protagonist, as the straight man in response to the insanity around her and as a way to refuse to give her antagonists any satisfaction.^[72]

GLaDOS, the primary antagonist in *Portal*, returns as a major character, with Ellen McLain again as voice actor.^[73] As part of her overall character arc, the plot moves GLaDOS from a state of anger with Chell for her actions in *Portal*, which Wolpaw believed "was going to get old pretty quick", to an internal struggle.^[36]

The writers considered introducing about six portable personality spheres,^[74] whose main function would be story advancement.^[22] They planned spheres based on Morgan Freeman's character Red from *The Shawshank Redemption*^[75] and Quint from *Jaws*,^[14] among others. Ultimately they decided to concentrate on a single sphere, Wheatley,^[74] but they found places for two of the rejected spheres, the Adventure and Fact Spheres, in the final fight with Wheatley.^[75] Nolan North voices these spheres, as well as the Space Sphere and the malfunctioning turrets.^[76]
^[77]

Wheatley is voiced by Stephen Merchant; early demonstrations at trade shows used the voice of Valve animator Richard Lord.^[14] ^[78] ^[79] The writers wrote Wheatley's lines with Merchant in mind, citing his unique "vocal silhouette" and his ability to ad lib in a "frantic" manner.^[7] They initially assumed Merchant would be unavailable and contacted *The IT Crowd*'s writer Graham Linehan to try to get Richard Ayoade, but then discovered Merchant was interested.^[8] Merchant spent around sixteen hours recording lines and was given freedom to improvise.^[23] ^[31] Karen Prell led the animation team for Wheatley and the other personality spheres.^[14]

J. K. Simmons voices Cave Johnson, Aperture Science's founder and CEO.^[80] Simmons's selection helped to solidify the character's development.^[23] Pictures of Johnson, based on the face of lead animator Bill Fletcher, appear throughout *Portal 2*.^[56] Though comparisons have been made between Cave and Andrew Ryan, the wealthy industrialist that created the fictional underwater city of Rapture in *BioShock*, Wolpaw says they did not consider this character while creating Cave.^[37] The writers found they needed another character to play off Johnson, so they enlisted McLain to play Johnson's assistant, Caroline.^[37] This led to development of a backstory for GLaDOS's creation, and eventually, the development of her full story arc.^[60] Wolpaw and Faliszek consider Aperture Science, which is shown through several eras, to be another character in the story. Faliszek described it as "a science company that's gone mad with science, where they put that first in front of everything else".^[81]

Co-operative campaign characters

The co-operative campaign contains a separate story involving the two robotic characters and GLaDOS. The dialogue Wolpaw initially wrote for GLaDOS would have been between Chell and a new character, "Mel", who were assumed to have "image issues". This dialogue was retained after the co-op characters were changed to robots.^[58] GLaDOS seems troubled by the robots' co-operation, and attempts to aggravate their relationship through verbal trickery, such as praising one robot over the other.^[10] Valve initially considered having GLaDOS deliver separate lines to each player, but they found this to be a significant effort for minimal benefit. The writers also tried adding lines for GLaDOS that would make the players compete against each other for rewards such as meaningless points, but playtesters did not respond well.^[6] Faliszek noted that in co-operative games, it can be difficult to deliver key dialogue or in-game events to players, who may not be looking in the right direction at the right time; instead, using lessons learned from *Left 4 Dead*, Faliszek and Wolpaw kept the story and key comedic lines short, and repeated them frequently.^[82] The two robotic characters were originally more human and less robotic, similar to designs seen in the movie *Westworld*. To reflect the nature of the Aperture Science facility, the final designs are a modified personality sphere and a turret gun. The numerous deaths players would endure throughout the game would

be rather gruesome with human or human-like characters, but the deaths of robotic characters provide comical animations, such as struggling while being crushed by a lowering ceiling.^[58] The artists felt the look of the robots would help tell the story, and the fact that they are holding hands emphasizes the co-operative mode.^[69] "Expressive noises" are used in place of distinguishable dialogue, and mannerisms were designed to be a double act, similar to Laurel and Hardy.^{[52] [37] [10] [83]} The robots' voices were provided by voice actor Dee Baker, who had done similar robot voices for the various *Star Wars: The Clone Wars* media.^[84]

Music



The indie rock band The National composed a new song, "Exile Vilify", for inclusion in *Portal 2*.

Jonathan Coulton's song "Still Alive" was a large part of *Portal*'s success, so Valve included more music in *Portal 2*, including further involvement from Coulton.^[5] Coulton wrote a new song for the game's ending credits, "Want You Gone", which is written from GLaDOS's viewpoint.^[85] Coulton had been in discussions with Wolpaw since 2009 about a possible ending song, including how they could create "an emotional moment" that was as strong as "Still Alive" had been at the end of the first game, and whether *Portal 2* would even need a final song.^[14] The task was made difficult, as the ending had yet to be determined for the game. Other options were considered, such as several "joke songs" and false endings for the game.^[14] Ultimately the game's finale, where GLaDOS effectively "breaks up" with Chell, was

set by the last quarter of 2010, and Coulton played the game as it had been developed to that point to generate ideas. Elements of the ending, such as Chell being told to leave Aperture with the door slamming behind her, led to the development of main chorus line "I used to want you dead, but now I only want you gone." Coulton wrote the lyrics and compose the song over the course of several days, with John Flansburgh assisting on electronic drums, and traveled to Valve's headquarters in January 2011 to record it with McLain.^[14]

The indie rock band The National provided another original song, "Exile Vilify", with lyrics composed by the group and reviewed by Valve to ensure it fit in with the tone of the game.^{[84] [86] [87]} After the game's release, Valve and The National ran a contest encouraging users to create their own music video for "Exile Vilify", offering as prizes Valve merchandise and a guitar signed by members of the band.^[88]

Mike Morasky was the lead composer for the rest of the game's music, including the turret opera performed in the game's finale.^[89] Morasky incorporated the singing turrets—all voiced by McLain—after recalling that she was a former opera singer, and used snippets of her singing to create something that still sounded synthetic.^[84] Morasky also created procedurally generated music, which is generated in real time based on the player's actions. Morasky claims that one piece of music "only repeats itself every 76,911 years, 125 days, 7 hours, 56 minutes and 30.3 seconds".^[56] Morasky designed this dynamic music as a reward for successfully completing puzzles.^[14] Valve has released the game's soundtrack, titled *Songs to Test By*, across three volumes free of charge via the game's official website.^[90] Two of the three volumes have been released so far.

Hardware support

PlayStation 3

The announcement that *Portal 2* would be available on PlayStation 3 came as a surprise, because Gabe Newell had criticized that console in the past.^[91] The move toward the PlayStation 3 was a result of growing frustration with Microsoft's policies for Xbox 360 content, including the difficulty of pushing patching and new content to players. Newell saw Sony's publication model as more open, allowing for Steam-like features on the console side.^[14]

Portal 2 is the first game on the PlayStation 3 to support a subset of features from Steamworks, including auto-updates, downloadable content, and community support.^[92] The game supports cross-platform play between the PlayStation 3 and the Windows and Mac OS X versions.^[93] On the PlayStation 3, the Steam overlay shows the player's friends on both Steam and the PlayStation Network, with achievements rewarded for both Steam and PlayStation Network trophies.^[94] PlayStation 3 players can unlock the game on Steam for Windows and Mac OS X for no additional charge.^{[93] [94]} The integration of Steamworks on the PlayStation 3 allows Valve to collect data about problems that arise after shipping and push appropriate updates.^[8] Valve has stated they do not plan on integrating other PlayStation 3 features, such as 3D television or PlayStation Move support.^{[95] [96]}

Valve has said that, despite additional support for PlayStation 3 over Xbox 360, the "core game" is the same across both platforms.^[97]

Razer Hydra

Valve developed a version of *Portal 2* native to the Razer Hydra motion controller for PC that allows for enhanced control of some game elements.^[98] Ten additional single-player levels are available as downloadable content for this version.^[99] Writer Chet Faliszek said Razer developers spent nine months to a year in-house at Valve preparing the native version.^[100] The Razer Hydra comes bundled with a copy of *Portal 2* for PC.^[101]

Downloadable content

A feature called "Robot Enrichment" allows players to customize the co-op campaign characters with new gestures or cosmetic items such as hats or flags. These can be earned in-game, traded with other players, or bought through microtransactions at the in-game store.^[102]

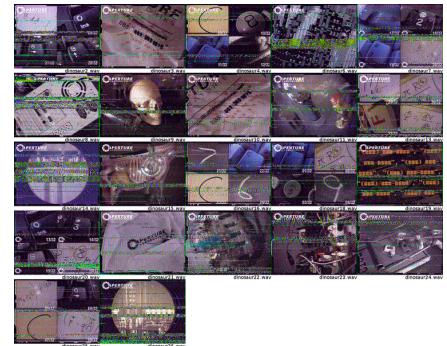
Valve plans to produce downloadable content for *Portal 2*, with the first content expected to arrive in mid-2011.^[34] The content, which will be free for all users regardless of platform, includes new test chambers and a "challenge mode" similar to that which appeared in the first *Portal*—players must complete a chamber under specific time, movement, or portal restrictions or with new elements added to each room. The challenge modes will be available for both single player and co-operative modes.^{[103] [104]}

According to Faliszek, user-generated content for *Portal 2* will be available on all platforms through various delivery methods, but the necessary modding tools will only be available for Windows due to software dependencies.^[105] Valve released beta versions of the modding tools on May 10, 2011.^[106]

Announcement

In January 2008 Valve spokesman Doug Lombardi told Eurogamer, "There'll be more Portal, for sure."^[107] *Portal* designer Kim Swift confirmed work on *Portal 2* the next month.^[108] Swift said multiplayer *Portal* was possible "from a technology standpoint",^[109] but would be "less fun than you'd think."^[110]

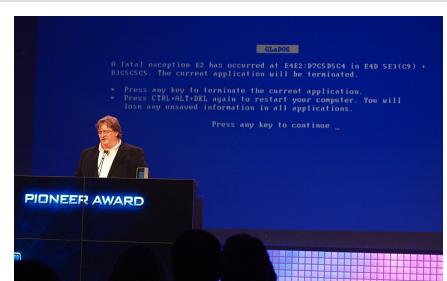
Portal 2 was officially announced on March 5, 2010. Events during the preceding week foreshadowed the announcement. On March 1 Valve released a patch for *Portal* that included a new achievement, "Transmission Received", requiring the player to manipulate in-game radios. This revealed new sound effects that became part of an alternate reality game (ARG).^[111] The effects included Morse code strings that suggested GLaDOS was rebooting, and SSTV images from a grainy Aperture Science video. The images included hints to a BBS phone number that, when accessed, provided a large number of ASCII-based images relating to *Portal* and segments of fictional Aperture Science documents.^[112] Many of these ASCII pictures were later published in *Game Informer*.^[5] New ASCII images continued to appear on the BBS after the official announcement. Background on the ARG is embedded in additional SSTV images found in a hidden room in *Portal 2*. According to these, the ARG had a budget of US\$100 and was designed to attract casual players, who would find radios in *Portal*, and more enthusiastic players, through the decoding and deciphering. The BBS connected to a PC in a Valve employee's kitchen; the Valve office phone lines were too modern to support a BBS.^[113]



The alternate reality game that led up to *Portal* 2's announcement included decoding SSTV images embedded in an update to *Portal*.

A second *Portal* patch on March 3 altered the game's ending sequence.^[114] Gaming journalists speculated that an announcement of *Portal 2* was imminent.^{[115] [116]} On March 5 *Game Informer* unveiled the cover of its April issue; *Portal 2* was officially launched.^[117]

During the week following *Portal 2*'s announcement, Gabe Newell's speech accepting the Pioneer Award at the 2010 Game Developers Conference ended with a fake blue screen of death appearing on a screen behind him. The message purported to be from GLaDOS, and hinted of further *Portal 2* news at the upcoming Electronic Entertainment Expo 2010 (E3).^[118] Two weeks before E3, game journalists received a cryptic e-mail, worded as a press release from Aperture Science, hinting that the presentation on *Portal 2* would be replaced with "a surprise" jointly hosted by Aperture Science and Valve. This prompted speculation that the surprise would be the announcement of *Half-Life 2: Episode Three*,^[119] but Valve confirmed that it would be about *Portal 2*.^[120] The surprise was the announcement of *Portal 2* on PlayStation 3.^[121]



Gabe Newell and the GLaDOS blue screen of death at the 2010 Game Developers Conference.

Portal 2: Lab Rat

To help develop the history of Aperture Science, Valve expanded upon the unseen character of the "Rat Man" in *Portal 2* and through a digital comic, "Portal 2: Lab Rat", whose storyline takes place between *Portal* and *Portal 2*.^[8] The Rat Man's triptych-like artwork is seen by the player at the start of the game, when it is used to recap the events from *Portal* in some early test chambers.^[81] Valve's in-house artist Andrea Wicklund created the graffiti-like style for the game,^[81] while the comic was developed with the aid of Michael Avon Oeming, who previously did comics for *Team Fortress 2* and *Left 4 Dead*. The story was written by Ted Kosmatka. The artists worked with the game's writers, Laidlaw, Faliszek, Wolpaw, Pinkerton and team leader Josh Weir, to tie the comic's story to the plot of *Portal 2*. The comic was made available online in two parts about two weeks before the game's release.^{[122] [123] [124]} It will be published by Dark Horse Comics in *Valve Presents: The Sacrifice and Other Steam-Powered Stories*, a volume along with other comics created by Valve for *Team Fortress 2* and *Left 4 Dead*, expected to be released in November 2011.^[125]



An abandoned area in *Portal 2*, showing the effect of flora overgrowth and deterioration on the Aperture Science facilities. The art on the wall, created by the "Rat Man" character, depict the events of the first game, and also tie in with the "Lab Rat" comic.

Within the comic the Rat Man, aka Doug Rattmann, is a schizophrenic scientist at Aperture who escapes from the neurotoxin released by GLaDOS that wiped out the rest of the Aperture staff and slowly becomes insane.^[14] Among the thousands of test subjects stored by Aperture, he sees that Chell is uniquely tenacious. He seeks to protect her and moves her to the top of the subject queue to allow her to escape. He writes messages on walls to guide and warn Chell during the events of the first game, and witnesses GLaDOS's defeat. His drawings, created in the months after the events, summarize the first game during *Portal 2*'s introduction. Though the Rat Man is able to escape after GLaDOS's destruction, he returns to the facility when he sees a robot drag the unconscious Chell back inside. Although he is severely wounded by turrets on his way to her, he ensures that Chell is kept in indefinite cryostorage, before he enters a cryogenic unit himself.^{[8] [81] [123] [124]}

Marketing and release

The March 2010 announcement called for *Portal 2* to be released in late 2010.^[126] ^[5] In August 2010 Valve announced that the game's release had been moved to February 2011, with a Steam release date of February 9.^[127] This was to complete changes to the game's dialogue, to fill and connect the sixty-some test chambers already created, and to finish refinements to the gel gameplay mechanic.^[14] Valve announced a further delay in November 2010, setting the week of April 18, 2011, for worldwide release through retail and online channels.^[128] Wolpaw stated that this delay of eight weeks at the end of the project was used to expand the content of the game before reaching an internal milestone called a "content lock", where no further content could be added. The remaining development work involved debugging. Newell allowed the delay, given the added benefits of the new content, because he felt there would not be the loss of any commercial opportunities as a result.^[41] On February 18, 2011, Newell confirmed that Valve had completed the development work on *Portal 2* and that they were "waiting for final approvals and to get the discs manufactured".^[129]

Portal 2 was the first Valve product simultaneously released for Windows and Mac OS X computers through the Steam platform.^[130] Retail copies for all platforms are distributed by Electronic Arts.^[131]



Portal 2 advertisements on the back of buses in Seattle, Washington and Leeds, West Yorkshire.

Valve created their own series of television commercials to promote *Portal 2*. Valve had worked with advertising agencies in the past, but Lombardi found the advertisements created had shown little ingenuity; Lombardi's frustrations included "Copycat treatments. Cliché treatments. Treatments that reveal the agency wasn't listening in the initial meeting."^[132] Using viewer feedback, Valve tailored the ad content until they were satisfied with the results. The ads took eight weeks to complete.^[132] Valve also developed additional online promotional videos, featuring J.K. Simmons narrating as Cave Johnson, to promote new elements of *Portal 2*'s gameplay. These videos were part of a larger effort described by Newell as a "documentary-style investment opportunity" for *Portal 2*.^[133] An earlier video release on February 14, 2011, promoted the co-operative aspect of *Portal 2* as an ideal Valentine's gift. The video "lit up our preorders, our buzz, all the metrics that are used and collected by publishers and retailers". Lombardi felt the videos "dwarfed the demos and interviews we did".^[34]

At the PAX East exposition in March 2011, Wolpaw stated they would provide material before the game's release to tie the *Portal* and *Portal 2* timeline together.^[24] Valve produced the "Lab Rat" comic, released about two weeks before *Portal 2*, to provide a tie-in story between the two games.^{[123] [124]} Valve offered *Portal 2*-themed merchandise, such as posters, drinking glasses, and t-shirts, including one that parodies the Three Wolf Moon shirt.^[134]

Portal 2's release was preceded by another alternate reality game, called the Potato Sack, which includes thirteen independently-developed games. Envisioned by Newell around December 2010, the developers were brought to Valve to discuss and plan the "Cross Game Design Event", to culminate with the early release of *Portal 2* on Steam. The developers were given access to Valve's art and audio assets to incorporate *Portal*-themed content into their games.^[135] The game was launched on April 1, 2011, with a Steam bundle sale of these titles.^{[136] [137]} Players worked to solve the multi-tiered puzzle, coordinating efforts through web sites and chat rooms, which some journalists believed pointed to the release of *Portal 2* on April 15, 2011, instead of the target release date of April 19, 2011.^{[138] [139] [140] [141]} Eventually, on April 15, the players discovered "GLaDOS@Home", a distributed computing spoof that encouraged participants to play the various games to unlock *Portal 2* earlier.^{[142] [143]} As a result of these coordinated efforts, the game was unlocked about ten hours early.^[144]

The game includes bonus content based on the 2011 film *Super 8*. The content is an interactive trailer inspired by the film, constructed with the Source game engine.^[145]

Reception

Pre-release

Portal 2 was a strong favorite of gaming journalists during closed-door previews at the 2010 E3 convention. The Game Critics Awards, selected by a large number of journalists and critics, awarded *Portal 2* the title of Best PC Game and Best Action/Adventure Game,^[146] and nominated the game for Best of Show and Best Console Game.^[147] IGN named *Portal 2* as its Best of E3 for PC, Xbox 360, and PlayStation 3 systems as well as Best Puzzle Game, and nominated the game as Best Overall Game.^[148] Gamespy named *Portal 2* the Best Overall Game and Best Puzzle Game of E3.^[149] *Portal 2* won the 2010 Spike Video Game Award for "Most Anticipated Game for 2011".^[150]



A crowd gathering for the *Portal 2* demonstration booth at the 2010 PAX Prime Expo

Reception	
Aggregate scores	
Aggregator	Score
GameRankings	(PC) 95.26% ^[151] (X360) 94.47% ^[152] (PS3) 93.85% ^[153]
Metacritic	95/100 ^[154] [155] [156]
Review scores	
Publication	Score
1UP.com	A+ ^[157]
Edge	9/10 ^[158]
Eurogamer	10/10 ^[159]
Famitsu	37 (10/9/9/9) ^[160]
G4	5/5 ^[161]
Game Informer	9.5/10 ^[162]
GameSpot	9.0/10 ^[163]
IGN	9.5/10 ^[164]
PC Gamer US	94/100 ^[165]

Post-release

Portal 2 received universal acclaim from reviewers on its release, resulting in an average score of 95 out of 100 according to review aggregator Metacritic;^[166] several reviewers identified *Portal 2* as an early contender for "Game of the Year",^{[157] [159] [167] [168]} while others called it one of the best games of all time.^{[161] [17] [169] [170]} Prior to its launch, several critics had expressed concern that Valve might be unable to take the shorter, experimental, *Portal* from *The Orange Box* and make it into a full retail game, but upon release the game was widely considered to be as good as or better than the original. Eurogamer's Oli Welsh said that the game was able to avoid the normal pitfalls

that developers introduce in sequels, stating that "Portal is perfect. Portal 2 is not. It's something better than that."^[159] Gus Mastrapa of the A.V. Club commented that with *Portal 2*, Valve had alleviated any doubts that "*Portal* could be expanded into a big, narrative experience with all the bells and whistles of a mainstream gaming hit".^[171] IGN's Charles Onyett considered that the sequel "makes the original look like the prototype it was" by expanding the game in gameplay and story.^[164] *Wired*'s Chris Kohler felt that *Portal 2* avoided the pitfalls of most sequels, and instead was "the perfect marriage of sharp young designers' fresh ideas and big-studio polish".^[172] The *Sydney Morning Herald*'s Jason Hill said Valve has "managed to engineer a worthy successor that expands on the original and provides significantly more entertainment".^[173] Ryan Kuo from the *Wall Street Journal* contrasted the two games: "If Portal was a song, then Portal 2 is the song, its liner notes, critical annotations, and remastered anniversary edition".^[174] Brett Molina of *USA Today* claimed that *Portal 2* passes the hype of being the sequel to *Portal* "with flying colors" and considered the title "easily the year's most imaginative and engrossing video game".^[167]

Reviewers praised the writing and voice acting in the game. *CNN*'s Larry Frum said that "the writing and dialogue remain one of the cornerstones to this series", with dialog that remains "dark and dangerous", like its predecessor.^[175] Evan Narcisse of *Time* considered that *Portal 2*'s writing "evinces a certain weariness and wariness" suitable for the game's plot of Chell versus GLaDOS, in contrast with the predecessor's "chilly and academic" dialogue.^[176] Mike Nelson of *IUP.com* considered that the game's "tight writing and quick dialog" serves well as "Valve dangling a carrot" in front of the player to continue forward in the game to explore its story while solving the puzzles along the way.^[157] *Entertainment Weekly*'s Dan Stapleton of *PC Gamer* was able to predict many of the plot twists within *Portal 2*'s story but "still looked forward to witnessing exactly how the characters would react"; he praised the development of the characters, as "their charm makes what would otherwise be an empty and lifeless world feel boisterous and alive".^[165] Garrett Martin of the *Boston Herald* concluded his review of the game with ""Portal 2" is as good as entertainment gets."^[177] In contrast, Peter Bright of *Ars Technica* commented that, compared to the loneliness and despair he felt while playing the first game, the additional characters, specifically Wheatley and GLaDOS, lost some of this feeling and "the inane babble served only to disrupt the mood".^[178]

John Young of *Entertainment Weekly* identified Valve's writing as having a "delectably British sensibility to the jokes" and praised Merchant as Wheatley, claiming the personality sphere is "the most delightful artificial-intelligence program one could hope to meet".^[179] Oynett believed that Merchant's "obvious enthusiasm for the role benefits the game" and that the "consistently clever writing perfectly complements the onscreen action".^[164] Morgan Webb of G4 TV claims that "GLaDOS is just as creepy and funny" as she was in *Portal*, and that "Wheatley's emotional banter is the perfect foil to GLaDOS's deadpan".^[161] *Edge* also considered Wheatley as an "unforgettable presence" within *Portal 2*, in part due to Valve's animation of the character and story machinations.^[158] *Edge* praised the selection of Simmons for the character of Cave Johnson as the "surprise star turn" of the game, with lines that are "perfectly pitched, and funny to the bone".^[158] *Game Informer*'s Adam Biessener considered Johnson to be an even better character than GLaDOS, a tribute to "pitch-perfect delivery" with "brilliant comedic timing".^[162] Chad Sapienza of the *Globe and Mail* called the selection of Simmons "brilliant" to create the "perfectly pompous and maniacal personality" of Cave Johnson.^[168] Oynett noted that the game's second act, in which the player explores the past of Aperture Science, is somewhat slower-paced than other parts of the story, but still remained "far more creative and confidently original" than most other video games.^[164] Kuo also commented on this act, saying that Simmons was "more grating" than the other characters in the game and that "the whys and wherefores of Aperture's past are less interesting, to me, than the current state of affairs".^[174]

Portal 2's additional gameplay elements, like light bridges, lasers, and the gels, were praised as appropriate additions to the game. Narcaisse had stated that he feared the addition of the new gameplay elements would "dilute the purity of the experience", but instead was pleased with the results as "everything's still executed with Valve's high level of charm and panache".^[176] Tom Hoggins of *The Telegraph* praised the manner in which these elements were introduced through a "brilliant learning curve of direction, rather than instruction", and considered it a "design ethos that is supremely generous, but dealt with marvellous economy".^[17] Stapleton was not as pleased with the gel

additions as with the other new mechanics, calling it "difficult to control". He felt that they have "only a couple of uses at most".^[165] The co-operative puzzle solving aspect was highlighted as a valuable addition to the game. Biessener stated: "I wasn't sure about co-op puzzle-solving beforehand, but Portal 2 made me a rabid believer."^[162] Welsh called the co-operative mode "one of the most satisfying and genuinely collaborative gaming experiences you can have with a friend".^[159] Onyett praised Valve for using the lessons they learned from *Left 4 Dead* to build the co-operative mode that requires "a game design that doesn't simply encourage but requires you to work together".^[164] *Edge* magazine commented that Valve created a good balance between puzzle solving and physical comedy in the co-operative mode, stating "When you get it right, there's a sense of a shared achievement; when you get it wrong, it can be laugh-out-loud funny."^[158] Webb appreciated that the puzzles in the co-operative mode require more precise timing compared to the single player campaign, giving the two "a subtly different feel".^[161] Several reviewers praised the non-verbal cues that players could initiate to work with their partners.^{[167] [164] [162]}
^[163]

In general, the reviewers were pleased with the level of difficulty of the puzzles throughout the game, appearing visually complicated at first but with uncomplicated solutions. Kohler considered that the game "never require excessively complicated solutions", and that much of the puzzle solving is "filled with moments that will have you slapping your forehead".^[172] Gamespot's Chris Watters stated that *Portal 2* "does a great job of introducing you to new tools and then challenging you to use them in clever ways" and that the game contains "some very tricky situations that you must puzzle your way out of, and figuring them out is always immensely satisfying".^[163] Seth Schiesel of the *New York Times* praised how *Portal 2* can "tap into our intuitive understanding of physics" without making the puzzles "impossibly complex and not at all fun".^[180] *Famitsu*'s reviewers noted that it is "easy to lose yourself in this really fresh puzzle-solving experience".^[160] Hoggins believed that, in the process of finding the solution, "simply mucking around is enjoyable in and of itself", and that "every failed experiment is just another step towards revealing a puzzle's secrets".^[17] Will Freeman of *The Observer* stated that *Portal 2* helps the player to think in new ways and considered that "to experience a game manipulating your thinking processes as you play is a unique and extraordinary pleasure".^[170] Kirk Hamilton of *Paste* compared *Portal 2*'s puzzles to a Domino effect; while the players in either the single player or co-operative campaigns may be initially confused by numerous elements within a chamber, the game guides the players to find the right sequence of events necessary to complete the chambers.^[181] Sapieha summarized his review by stating "*Portal 2*'s genius is that it makes the player feel like a genius".^[168] Bright felt that *Portal 2* was easier than its predecessor, in part that he felt much of the game was effectively tutorials for the new gameplay additions, requiring "careful use of the tools provided", leaving him with the impression that "the game was on rails".^[178]

Portal 2 was praised for its detail in design, sound, and music. Nelson credited the "sheer amount of detail" put into the game's world, and felt it was "very real and natural with brief moments where you're simply sucked into this world".^[157] Onyett was impressed with the amount of visual details and capabilities Valve achieved from their Source game engine and that the added details and animations of the levels "consistently serv[ed] not only to entertain the eye but to expand our understanding of the game's characters".^[164] Hoggins believed that the game's world reacted to the player "in a startlingly organic way", and praised Valve's design as "an achievement of world-building that compares favourably with *BioShock*'s underwater city of Rapture".^[17] Stapleton stated the "everything is impressively modeled and textured", and appreciated the more dynamic visual look, as the "scripted activity animates what would otherwise be still and samey-looking rooms due to *Portal*'s lack of foes other than stationary turrets".^[165] Some reviewers did note that the second act of the game, taking place in the less-structured portion of the old Aperture facilities, while filled with impressive vistas, may be confusing to some players. Young believed in this section the game "cranks up the difficulty level at a speed that may dishearten casual gamers", and recounted several difficulties, including having "absolutely no idea where I was supposed to head next".^[179] Mastrapa, though praising the areas as a break from the testing chambers, felt these cavernous areas were "downright extravagant when all it takes is one portal jump to cross their gaping spans".^[171] Kohler further considered that, while the player would explore the abandoned areas of Aperture, there is very little to do in these areas, and called

them "a lot of sterile, duplicated, non-interactive environments".^[172] Watters noted that the loading time between the game's levels, in contrast to earlier Valve games, are "long enough to make you take notice and wish they were shorter".^[163] Watters also commented on the lack of challenge chambers or other advanced features packaged with the shipped product that were present in the original, though that *Portal 2* is "not light on content" without these.^[163] Welsh noted that the attempt to recapture the spirit of the song "Still Alive" in the end credits of *Portal 2* "was a mistake".^[159]

Journalists noted that many of the user reviews for *Portal 2* on Metacritic evoked a negative opinion of the game.^[182] ^[183] These users cited complaints about the game being too short (with some saying it is only four hours long), the existence of paid downloadable content at launch for some versions, and supposed evidence that the game on Microsoft Windows and Mac OS X were ports of the console version. Journalists have defended Valve in these claims, countering that the game's length depends on the amount of immersion the player puts into the game, that the downloadable content is only cosmetic additions for the co-op mode, and that the quality of the graphics on the Windows and Mac version do not suggest a simple console port. Some journalists also identify that the minimal impact of *The Potato Sack* alternative reality game on the early release of *Portal 2* may be influencing the user scores.^[184] ^[185] ^[186]

Sales

Based on sales data from Amazon.com, *Portal 2* was the best-selling game in the United States in the first week of its release.^[187] It fell behind others, including *Mortal Kombat*, in its second week.^[188] According to NPD Group, *Portal 2* was the second-best selling game in the U.S. in April 2011,^[189] at 637,000 copies,^[190] and the fourth-best selling in May.^[191] However, NPD does not include sales on Valve's Steam platform.^[190]

Portal 2 was the best selling game in the United Kingdom in the week of its release, the first time a Valve game had placed first.^[192] It retained the top spot during its second week.^[193]

Portal 2 was released days before the PlayStation Network outage. Gamasutra analyst Matt Matthews concluded, based on NPD Group data, that the outage "did not seriously affect retail sales of software",^[194] but some developers did report drops in sales.^[195] ShopToNews analyst Joe Anderson expected that the effect of the outage on UK sales of *Portal 2* would be mild.^[196]

On June 22 Newell announced that *Portal 2* had sold 3 million copies.^[197]

References

- [1] "Official ESRB Rating" (<http://www.esrb.org/ratings/synopsis.jsp?Certificate=30729>). *ESRB*. . Retrieved 2011-07-02.
- [2] "Official OFLCA Rating" (<http://www.classification.gov.au/www/cob/find.nsf/d853f429dd038ae1ca25759b0003557c/865a676154d89b71ca2578250057f262?OpenDocument>). *OFLCA*. . Retrieved 2011-07-02.
- [3] "Official PEGI Rating" (http://www.pegi.info/en/index/global_id/505/?searchString=portal+2). *PEGI*. . Retrieved 2011-07-02.
- [4] "Steam, The Ultimate Online Game Platform" (<http://store.steampowered.com/about/>). Valve. .
- [5] VanBurkleo, Meagan (April 2010). "Portal 2". *Game Informer*: pp. 50–62.
- [6] Francis, Tom (2010-09-10). "Interview: Valve on their insane Portal 2 ideas" (<http://www.pcgamer.com/2010/09/10/interview-valve-on-their-insane-portal-2-ideas/>). *PC World*. . Retrieved 2010-09-10.
- [7] "Portal 2 influenced by Left 4 Dead – Valve" (<http://www.computerandvideogames.com/288474/news/portal-2-influenced-by-left-4-dead-valve/>). *Computer and Video Games*. 2011-02-11. . Retrieved 2011-02-11.
- [8] Brown, David (2011-03-04). "Portal 2 developer interview: Chet Falisek and Erik Wolpaw" (<http://www.telegraph.co.uk/technology/video-games/8359173/Portal-2-developer-interview-Chet-Falisek-and-Erik-Wolpaw.html>). *The Daily Telegraph*. . Retrieved 2011-03-04.
- [9] Jackson, Mike (2010-06-29). "Two more Portal 2 E3 gameplay videos" (<http://www.computerandvideogames.com/253854/news/two-more-portal-2-e3-gameplay-videos/>). Computer and Video Games. . Retrieved 2010-07-01.
- [10] Johnson, Stephen (2010-09-03). "PAX Prime 2010: Portal 2 Co-Op Hands-On Impressions" (<http://g4tv.com/games/xbox-360/63787/portal-2/articles/72045/PAX-Prime-2010-Portal-2-Co-Op-Hands-On-Impressions/>). G4 TV. . Retrieved 2010-09-03.
- [11] Gies, Arthur (2010-09-06). "Portal 2 Multiplayer Preview" (<http://xbox360.ign.com/articles/111/1118382p1.html>). IGN. . Retrieved 2010-09-06.
- [12] de Matos, Xas (2010-06-30). "Portal 2 E3 Demo Videos Part 4 and Part 5 Incite Anger" (<http://www.shacknews.com/onearticle.x/64559>). Shacknews. . Retrieved 2010-07-01.

- [13] Senior, Tom (2011-02-28). "12 new high-res Portal 2 screenshots confirm Companion Cube comeback" (<http://www.pcgamer.com/2011/03/01/12-new-high-res-portal-2-screenshots-confirm-companion-cube-coming-back/>). *PC Gamer*. . Retrieved 2011-03-01.
- [14] Keighley, Geoff (2011). *The Final Hours of Portal 2*. ASIN B004XMZZKQ. Also available as iPad or Steam application.
- [15] Frushtick, Russ (2011-04-29). "Behold Some Amazing 'Portal 2' Cube Tricks" (<http://multiplayerblog.mtv.com/2011/04/29/behold-some-amazing-portal-2-cube-tricks/>). MTV. . Retrieved 2011-04-29.
- [16] Nunneley, Stephany (2010-07-01). "Portal 2 E3 demo: final parts 6 and 7 out now" (<http://www.vg247.com/2010/07/01/portal-2-e3-demo-final-parts-6-7-out-now/>). VG247. . Retrieved 2010-07-01.
- [17] Hoggins, Tom (2011-04-19). "Portal 2 Review" (<http://www.telegraph.co.uk/technology/video-games/8458871/Portal-2-review.html>). *The Daily Telegraph*. . Retrieved 2011-04-19.
- [18] Gonzalez, Annette (2010-03-05). "Portal 2 For Two" (<http://gameinformer.com/b/news/archive/2010/03/05/Portal-2-For-Two.aspx>). *Game Informer*. . Retrieved 2010-03-05.
- [19] Hatfield, Damien (2010-06-16). "E3 2010: Portal 2 Preview" (<http://ps3.ign.com/articles/109/1098375p1.html>). IGN. . Retrieved 2010-06-16.
- [20] Molina, Brett (2011-04-19). "'Portal 2': A closer look at co-operative play" (<http://content.usatoday.com/communities/gamehunters/post/2011/04/portal-2-a-closer-look-at-cooperative-play/1>). *USA Today*. . Retrieved 2011-04-20.
- [21] Benedetti, Winda (2010-09-08). "Dear Valve, 'Portal 2' better be awesome. But no pressure." (http://technolog.msnbc.msn.com/_news/2010/09/08/5068274-dear-valve-portal-2-better-be-awesome-but-no-pressure). MSNBC. . Retrieved 2010-09-08.
- [22] Sheffield, Brandon (2010-11-08). "Rewarding The Players: Valve On Portal 2" (http://www.gamasutra.com/view/feature/6198/rewarding_the_players_valve_on_.php). Gamasutra. . Retrieved 2010-11-10.
- [23] Braga, Matt (2011-04-19). "Q&A with Portal 2 writers Erik Wolpaw and Jay Pinkerton" (<http://arts.nationalpost.com/2011/04/19/qa-with-portal-2-writers-erik-wolpaw-and-jay-pinkerton/>). *National Post*. . Retrieved 2011-04-20.
- [24] Totilo, Stephan (2011-03-11). "Valve Plans To Bridge Portal And Portal 2 With A Surprise, Keep Gordon Freeman Out Of It" (<http://kotaku.com/5781121/valve-plans-to-bridge-portal-and-portal-2-with-a-surprise-keep-gordon-freeman-out-of-it>). Kotaku. . Retrieved 2011-03-11.
- [25] Johnson, Stephen (2011-04-20). "Portal 2 Easter Egg Video: Finding Borealis" (<http://www.g4tv.com/thefeed/blog/post/712006/portal-2-easter-egg-video-finding-borealis/>). G4 TV. . Retrieved 2011-04-20.
- [26] Onyett, Charles (2011-01-14). "Jumping into Portal 2" (<http://uk.xbox360.ign.com/articles/114/1144048p1.html>). IGN. . Retrieved 2011-01-14.
- [27] Frushtick, Russ (2011-02-17). "The Very Beginning Of 'Portal 2' Revealed" (<http://multiplayerblog.mtv.com/2011/02/17/portal-2/>). MTV. . Retrieved 2011-02-17.
- [28] Kuchera, Ben (2010-06-16). "Portal 2 given story, British friend, deeper gameplay" (<http://arstechnica.com/gaming/news/2010/06/portal-2-given-story-british-friend-deeper-game-play.ars>). Ars Technica. . Retrieved 2010-06-16.
- [29] Stewart, Keith (2010-06-18). "E3 2010: Portal 2 preview" (<http://www.guardian.co.uk/technology/gamesblog/2010/jun/18/e3-2010-portal-2>). *The Guardian*. . Retrieved 2010-06-21.
- [30] Sapieha, Chad (2011-04-20). "Top five GLaDOS insults in Portal 2" (<http://www.theglobeandmail.com/news/technology/video-games/controller-freak/top-five-glados-insults-in-portal-2/article1992165/>). *The Globe and Mail*. . Retrieved 2011-04-20.
- [31] Krantz, Justin (2011-04-19). "Portal 2 releases – Unreview, unreview, unstudiovisit" (<http://www.vg247.com/2011/04/19/portal-2-releases-unreview-unreview-unstudiovisit/>). VG247. . Retrieved 2011-04-20.
- [32] Valve. *Portal 2*. (Valve). PC/Mac/PlayStation 3/Xbox 360. Level/area: Chapter 7: The Reunion. (April 19, 2011)
- [33] Valve. *Portal 2*. (Valve). PC/Mac/PlayStation 3/Xbox 360. Level/area: Chapter 8: The Itch. (April 19, 2011)
- [34] Ohannessian, Kevin (2011-04-27). "Portal 2's Creators On Crafting Games Through Experiential Stories" (<http://www.fastcompany.com/1750003/portal-2-valve-eric-wolpaw-jeep-barnett-doug-lombardi>). Fast Company. . Retrieved 2011-04-27.
- [35] Valve. *Portal 2*. (Valve). PC/Mac/PlayStation 3/Xbox 360. Level/area: Chapter 9: The Part Where He Kills You. (April 19, 2011)
- [36] Remo, Chris (2010-09-20). "Synthesizing Portal 2" (http://www.gamasutra.com/view/feature/6141/synthesizing_portal_2.php). Gamasutra. . Retrieved 2010-09-20.
- [37] Stanton, Rich (2011-04-26). "Erik Wolpaw on Portal 2's ending: "the (spoiler) is probably lurking out there somewhere"" (<http://www.pcgamer.com/2011/04/26/erik-wolpaw-on-portal-2s-ending-the-spoiler-is-probably-lurking-out-there-somewhere/>). *PC Gamer*. . Retrieved 2011-04-26.
- [38] Walker, John (2011-04-27). "Valve On Portal 2: Spoiler Interview Part One" (<http://www.rockpapershotgun.com/2011/04/27/valve-on-portal-2-spoiler-interview-part-one/>). Rock Paper Shotgun. . Retrieved 2011-04-28.
- [39] "Valve drop Portal 2 co-op details" (<http://www.computerandvideogames.com/296191/news/valve-drop-portal-2-co-op-details/>). *Computer and Video Games*. 2011-03-31. . Retrieved 2011-03-31.
- [40] Larstuk, Travis (2011-04-19). "Portal 2: A Student Video Game Project, All Grown Up" (<http://www.npr.org/2011/04/19/135511250/portal-2-a-student-video-game-project-all-grown-up?ps=cprs>). NPR. . Retrieved 2011-06-18.
- [41] Crossley, Rob (2011-05-10). "Valve on Portal 2" (<http://www.develop-online.net/features/1189/VALVE-ON-PORTAL-2>). *Develop*. . Retrieved 2011-05-11.
- [42] Remo, Chris (2009-12-07). "Portal Designer Kim Swift Leaves Valve For Dark Void Dev" (http://www.gamasutra.com/view/news/26404/Portal_Designer_Kim_Swift_Leaves_Valve_For_Dark_Void_Dev.php). Gamasutra. . Retrieved 2010-07-09.

- [43] Leone, Matt (2010-03-11). "Gabe Newell: Portal 2 is "The Best Game We've Ever Done"" (<http://www.1up.com/do/newsStory?cId=3178323>). 1UP.com. . Retrieved 2010-03-12.
- [44] Keighley, Geoff. "The Final Hours of Portal 2 blog is live" (<http://thefinalhoursofportal2.com/blog/finalhours/welcometotheblog/>). . Retrieved 2011-06-18.
- [45] Nunneley, Stephany (2011-05-07). "Valve's not "giving up on single-player at all," plans to add more social features to titles" (<http://www.vg247.com/2011/05/07/valves-not-giving-up-on-single-player-at-all-plans-to-add-more-social-features-to-titles/>). VG247..
- [46] Tolito, Stephen (2011-04-21). "Portal 2 Wasn't Going To Include Portals, According To New iPad App" (<http://kotaku.com/#!5794465>). portal-2-wasnt-going-to-include-portals-according-to-new-ipad-app). Kotaku. . Retrieved 2011-05-06.
- [47] Alexander, Leigh (2011-05-06). "Valve's Wolpaw Offers Behind-The-Scenes Peek Into Portal 2" (http://www.gamasutra.com/view/news/34406/Valves_Wolpaw_Offers_BehindTheScenes_Peek_Into_Portal_2.php). Gamasutra. . Retrieved 2011-05-06.
- [48] Reeves, Ben (2010-03-17). "Thinking With Portals: Making a *Portal 2* Test Chamber" (<http://gameinformer.com/b/features/archive/2010/03/17/thinking-with-portals-making-a-test-chamber.aspx>). *Game Informer*. . Retrieved 2010-03-17.
- [49] Valve Corporation. *Portal 2* (in English). Microsoft Windows. Scene: Chapter 1. Level/area: Intro 4 developer commentary. (2011-04-19)
- [50] Walker, John (2011-04-27). "Valve On Portal 2: Spoiler Interview Part One" (<http://www.rockpapershotgun.com/2011/04/27/valve-on-portal-2-spoiler-interview-part-one/>). Rock Paper Shotgun. . Retrieved 2011-04-27.
- [51] Walker, John (2011-04-28). "Valve On Portal 2: Spoiler Interview Part Two" (<http://www.rockpapershotgun.com/2011/04/28/valve-on-portal-2-spoiler-interview-part-two>). Rock Paper Shotgun. . Retrieved 2011-04-28.
- [52] Kao, Ryan (2010-09-04). "Portal 2: A Look at the Hotly Anticipated Videogame" (<http://blogs.wsj.com/speakeasy/2010/09/04/portal-2-a-look-at-the-hotly-anticipated-videogame/>). *Wall Street Journal*. . Retrieved 2010-09-04.
- [53] Leahy, Brian (2010-03-08). "Valve Hires DigiPen Team; Seemingly for Portal 2" (<http://www.shacknews.com/onearticle.x/62689>). Shacknews. . Retrieved 2010-03-08.
- [54] Ryckert, Dan (2010-03-08). "From Narbacular Drop To Portal" (<http://gameinformer.com/b/features/archive/2010/03/08/narbacular-drop.aspx>). *Game Informer*. . Retrieved 2010-03-08.
- [55] Gaskill, Jake (2010-06-18). "E3 2010: Portal 2 Preview" (<http://e3.g4tv.com/games/xbox-360/63787/portal-2/articles/71011/E3-2010-Portal-2-Preview/>). *G4TV*. . Retrieved 2010-06-19.
- [56] Saltzmann, Marc (2011-04-14). "Five things you didn't know about 'Portal 2'" (<http://content.usatoday.com/communities/gamehunters/post/2011/04/five-things-you-didnt-know-about-portal-2/1>). *USA Today*. . Retrieved 2011-04-14.
- [57] Vlachos, Alex (2010-07-28). "Water Flow in Portal 2" (http://www.valvesoftware.com/publications/2010/siggraph2010_vlachos_waterflow.pdf). SigGraph 2010. . Retrieved 2010-08-10.
- [58] Grant, Christopher (2010-06-21). "Preview: Portal 2 (co-op)" (<http://www.joystiq.com/2010/06/21/preview-portal-2-co-op/>). *Joystiq*. . Retrieved 2010-06-21.
- [59] Watts, Steve (2010-08-26). "Valve Cut Portal 2 Competitive Multiplayer" (<http://www.1up.com/news/valve-cut-portal-2-competitive>). 1UP.com. . Retrieved 2010-08-26.
- [60] Welch, Oli (2011-04-25). "Portal 2: "Let's make Caddyshack"" (<http://www.eurogamer.net/articles/2011-04-24-portal-2-lets-make-caddyshack-interview>). Eurogamer. . Retrieved 2011-04-25.
- [61] Meer, Alec (2011-01-14). "13,000 Lines of Chat in Portal 2" (<http://www.rockpapershotgun.com/2011/01/14/13000-lines-of-chat-in-portal-2/>). Rock Paper Shotgun. . Retrieved 2011-01-14.
- [62] de Matos, Xav (2011-03-21). "Interview: Portal 2 project lead Joshua Weier and writer Erik Wolpaw" (<http://www.shacknews.com/article/67873/interview-portal-2-project-lead>). Shacknews. . Retrieved 2011-03-21.
- [63] Plunkett, Luke (2008-06-10). "Casting call reveals Portal 2 details" (<http://kotaku.com/5014851/rumor-casting-call-reveals-portal-2-details>). Kotaku. . Retrieved 2008-07-18.
- [64] Plunkett, Luke (2008-06-10). "More details on Portal 2's bad guy" (<http://kotaku.com/5015122/more-details-on-portal-2s-bad-guy>). Kotaku. . Retrieved 2008-07-18.
- [65] Remo, Chris (2010-06-18). "Portal 2's Wolpaw: 'I Do Not Want To Resurrect A Three-Year-Old Meme'" (http://www.gamasutra.com/view/news/29015/Portal_2s_Wolpaw_I_Do_Not_Want_To_Resurrect_A_ThreeYearOld_Meme.php). Gamasutra. . Retrieved 2010-06-18.
- [66] Arendt, Susan (2011-03-14). "Portal 2's Writer Didn't Try to Reinvent the Cake" (<http://www.escapistmagazine.com/news/view/108449-Portal-2s-Writer-Didnt-Try-to-Reinvent-the-Cake>). The Escapist. . Retrieved 2011-03-14.
- [67] Cullen, Johnny (2011-01-24). "Portal 2 to feature user-created levels on all platforms, two end credit sequences, says Valve" (<http://www.vg247.com/2011/01/24/portal-2-to-feature-user-created-levels-on-all-platforms-two-end-credit-sequences-says-valve/>). VG247.. Retrieved 2011-01-24.
- [68] Hillier, Brenna (2011-03-14). "Wolpaw: Players Don't Care About Portal's Chell" (<http://www.vg247.com/2011/03/14/wolpaw-players-dont-care-about-portals-chell>). VG247.. Retrieved 2011-06-20.
- [69] Reeves, Ben (2010-03-22). "Redesigning Portal: Valve's Artist Speaks" (<http://gameinformer.com/b/news/archive/2010/03/22/redesigning-chell-valve-s-artist-speaks.aspx>). *Game Informer*. . Retrieved 2010-03-22.
- [70] McWheator, Michael (2011-02-23). "The New Look For Portal 2's Heroine Explained" (<http://kotaku.com/5767246/the-new-look-for-portal-2s-heroine-explained>). Kotaku. . Retrieved 2011-02-23.
- [71] "Meet the real-life Chell from Portal 2" (<http://www.computerandvideogames.com/295904/blog/meet-the-real-life-chell-from-portal-2>). Computer and Video Games. 2011-03-29. . Retrieved 2011-04-20.
- [72] Goldman, Tom (2011-05-07). "Valve: Portal's Chell is Silent Because It's Funnier" (<http://www.escapistmagazine.com/news/view/109845-Valve-Portals-Chell-is-Silent-Because-Its-Funnier>). The Escapist. . Retrieved 2011-05-22.

- [73] Ramadge, Andrew (2011-02-21). "GLaDOS, the greatest video game villain of all time, is back for more cake and chaos in Portal 2" (<http://www.news.com.au/technology/gaming/glados-the-greatest-video-game-villain-of-all-time-back-for-cake-and-chaos-in-portal-2/story-e6frf9t1226010080569>). News.com.au. . Retrieved 2011-03-23.
- [74] Valve Corporation. *Portal 2* (in English). Microsoft Windows. Scene: Chapter 3. Level/area: Bridge the Gap developer commentary. (2011-04-19)
- [75] Navarro, Alex (2011-05-06). "'So, Here's Something Pretentious!' – Anecdotes and Thoughts from Erik Wolpaw's Portal 2 Discussion at the NYU Game Center" (<http://www.giantbomb.com/news/so-heres-something-pretentious-anecdotes-and-thoughts-from-erik-wolpaws-portal-2-discussion-at-the-nyu-game-center/3148/>). Giant Bomb. . Retrieved 2011-05-06.
- [76] Minkley, Johnny (2011-05-09). "Being Nathan Drake – Interview" (<http://www.eurogamer.net/articles/2011-05-09-being-nathan-drake-interview>). Eurogamer. . Retrieved 2011-05-09.
- [77] Plunkett, Luke (2011-05-02). "Proof That Nolan North Is In Too Many Damn Video Games" (<http://www.kotaku.com.au/2011/05/proof-that-nolan-north-is-in-too-many-damn-video-games/>). Kotaku. . Retrieved 2011-05-14.
- [78] Mastrapa, Gus (2010-06-16). "Portal 2 Gains a Talkative Companion" (<http://www.wired.com/gamelife/2010/06/portal-2-wheatley/>). Wired. . Retrieved 2010-06-16.
- [79] Kollar, Phil (2010-08-18). "Portal 2 Has A Release Date And A New Voice Actor" (<http://gameinformer.com/b/news/archive/2010/08/18/portal-2-has-a-release-date.aspx>). Game Informer. . Retrieved 2010-08-18.
- [80] Miller, Greg (2011-03-11). "PAX: Portal 2 Nabs J.K. Simmons" (<http://ps3.ign.com/articles/115/1155074p1.html>). IGN. . Retrieved 2011-03-11.
- [81] Griliopoulos, Dan (2011-03-28). "Portal 2: Test Subjects" (<http://pc.ign.com/articles/115/1157988p1.html>). IGN. . Retrieved 2011-03-28.
- [82] Maiberg, Emanuel (2011-01-21). "Portal 2 preview" (<http://www.gamepro.com/article/previews/217934/portal-2-preview/>). Gamepro. . Retrieved 2011-01-21.
- [83] Donlan, Christian (2011-02-04). "Portal 2 Hands-on" (<http://www.eurogamer.net/articles/2011-02-04-portal-2-hands-on>). Eurogamer. . Retrieved 2011-02-04.
- [84] *Portal 2: Collector's Edition Guide*. Future Press. 2011. ISBN 9783869930381.
- [85] Vinson, Dana (2011-04-20). "Portal 2 Ending Song: Want You Gone by Jonathan Coulton Video and Lyrics" (<http://www.g4tv.com/thefeed/blog/post/712014/portal-2-ending-song-want-you-gone-by-jonathan-coulton-video-and-lyrics/>). G4 TV. . Retrieved 2011-04-21.
- [86] Walker, John (2011-03-11). "The National To Provide Song For Portal 2" (<http://www.rockpapershotgun.com/2011/03/11/the-national-to-provide-song-for-portal-2/>). Rock, Paper, Shotgun. . Retrieved 2011-03-11.
- [87] Spicer, Nathan (2011-04-19). "The National Release "Exile Vilify" off Portal 2 Soundtrack" (<http://www.pastemagazine.com/articles/2011/04/the-national-release-exile-vilify-off-portal-2-sou.html>). Paste Magazine. . Retrieved 2011-04-19.
- [88] Koller, Phil (2011-06-15). "Valve Announces Portal 2 Music Video Contest" (<http://www.gameinformer.com/b/news/archive/2011/06/15/valve-announced-portal-2-music-video-contest.aspx>). Game Informer. . Retrieved 2011-06-17.
- [89] Coulton, Jonathan (2011-04-29). "FAQs About the Portal 2 Song" (<http://www.jonathancoulton.com/2011/04/29/faqs-about-the-portal-2-song/>). jonathancoulton.net. . Retrieved 2011-05-20.
- [90] Dutton, Fred (2011-05-25). "Valve offers Portal 2 soundtrack for free" (<http://www.eurogamer.net/articles/2011-05-25-valve-offers-portal-2-soundtrack-for-free>). Eurogamer. . Retrieved 2011-05-25.
- [91] Peckham, Matt (2010-06-15). "Valve Apologizes For Sony-Bashing, Announces Portal 2 for PS3" (http://www.pcworld.com/article/198935/valve_apologizes_for_sonybashing_announces_portal_2_for_ps3.html?tk=hp_blg). PC World. . Retrieved 2010-06-15.
- [92] Thorsen, Tor (2010-06-15). "Portal 2, Steamworks PS3-bound in 2011" (<http://e3.gamespot.com/story/6265808/portal-2-steamworks-ps3-bound-in-2011>). Gamespot. . Retrieved 2010-06-16.
- [93] Yin-Poole, Wesley (2011-01-18). "Portal 2 PS3, Steam cross-platform play" (<http://www.eurogamer.net/articles/2011-01-18-portal-2-ps3-steam-cross-platform-play>). Eurogamer. . Retrieved 2010-01-18.
- [94] "Valve details PS3 Steam support for Portal 2" (<http://www.computerandvideogames.com/298024/news/valve-details-ps3-steam-support-for-portal-2/>). Computer and Video Games. 2011-04-13. . Retrieved 2011-04-13.
- [95] Ingham, Tim (2010-06-22). "Valve 'no plans' for 3D, Move support in Portal 2" (<http://www.computerandvideogames.com/article.php?id=253007>). Computer and Video Games. . Retrieved 2010-06-22.
- [96] Watts, Steve (2011-02-17). "Portal 2 on PS3 Will Not Feature Move Support (Updated)" (<http://www.shacknews.com/onearticle.x/67555>). Shacknews. . Retrieved 2011-02-17.
- [97] Nunneley, Stephany (2011-01-22). "Core Portal 2 game is the same "whether you buy it on PS3 or 360", says Valve" (<http://www.vg247.com/2011/01/22/the-core-portal-2-game-is-the-same-whether-you-buy-it-on-ps3-or-360-says-valve/>). VG247. . Retrieved 2011-01-24.
- [98] McLeod, Gord (2011-06-24). "Review: The Razer Hydra Savages Portal 2 (In a Good Way!)" (<http://geekbeat.tv/review-the-razer-hydra-savages-portal-2-in-a-good-way/>). GeekBeat.tv. . Retrieved 2011-06-24.
- [99] Horsey, Jillian (2011-06-20). "Portal 2 First DLC Content, Designed Specifically For Razer Hydra Controller" (<http://www.geeky-gadgets.com/portal-2-first-dlc-content-designed-specifically-for-razer-hydra-controller-20-06-2011/>). . Retrieved 2011-06-24.
- [100] Yin-Poole, Wesley (2011-02-25). "Why Portal 2 doesn't support PS Move" (<http://www.eurogamer.net/articles/2011-02-25-why-portal-2-doesnt-support-ps-move>). Eurogamer. . Retrieved 2011-02-25.

- [101] Buchanan, Levi (2011-01-08). "CES: Razer Gets Portal 2 Exclusives" (<http://pc.ign.com/articles/114/1143181p1.html>). IGN. . Retrieved 2011-01-08.
- [102] Senior, Tom (2011-04-19). "Portal 2 has item store, trading coming soon" (<http://www.pcgamer.com/2011/04/19/portal-2-has-item-store-trading-coming-soon/>). PC Gamer. . Retrieved 2011-04-19.
- [103] Orland, Kyle (2011-04-29). "Valve Offering Free Portal 2 DLC On All Available Platforms This Summer" (http://www.gamasutra.com/view/news/34403/Valve_Offering_Free_Portal_2_DLC_On_All_Platforms_This_Summer.php). Gamasutra. . Retrieved 2011-04-29.
- [104] Molina, Brett (2011-04-29). "Free DLC for 'Portal 2' launching this summer" (<http://content.usatoday.com/communities/gamehunters/post/2011/04/free-dlc-for-portal-2-launching-this-summer/1>). USA Today. . Retrieved 2011-04-29.
- [105] "Portal 2 Mod Levels 'For All Platforms'" (<http://www.nowgamer.com/news/5030/portal-2-mod-levels-for-all-platforms>). NowGamer. 2001-01-24. . Retrieved 2011-06-24.
- [106] McWhertor, Michael (2011-05-10). "Now You Can Make Your Own Custom *Portal 2* Puzzles (I Said NOW!!)" (<http://kotaku.com/5800623/now-you-can-make-your-own-portal-2-puzzles-i-said-now>). Kotaku. . Retrieved 2011-06-24.
- [107] Purchese, Rob (2008-01-31). "More *Portal* for sure – Valve" (http://www.eurogamer.net/article.php?article_id=91768). Eurogamer. . Retrieved 2008-01-30.
- [108] "Portal (<http://www.g4tv.com/videos/20385/face-time-portal/>)". Face Time. G4TV. 2008-02-21. Retrieved on 2011-06-26.
- [109] "Valve Releases the Pressure (<http://www.gametrailers.com/episode/gametrailers-tv/10&ch=2&sd=1?ep=10&ch=2&sd=1>)". GT.TV with Geoff Keighley. GameTrailers. 2008-03-01. Retrieved on 2011-06-26.
- [110] Faylor, Chris (2008-02-23). "GDC 08: Portal Creators on Writing, Multiplayer, Government Interrogation Techniques" (<http://www.shacknews.com/featuredarticle.x?id=784>). Shacknews. . Retrieved 2008-02-23.
- [111] Wawro, Alex (2010-04-26). "Anatomy of an Alternate-Reality Game" (http://www.pcworld.com/article/195026/anatomy_of_an_alternatereality_game.html). GamePro. . Retrieved 2010-05-13.
- [112] O'Connor, Alice, and Brian Leahy (2010-03-01). "Portal Patch Adds Morse Code, Achievement – Portal 2 Speculation Begins (Updated)" (<http://www.shacknews.com/onearticle.x/62575>). Shacknews. . Retrieved 2010-03-02.
- [113] Fletcher, JC (2011-04-20). "Portal 2 Easter egg: Valve never meta-ARG it didn't like" (<http://www.joystiq.com/2011/04/19/portal-2-easter-egg-valve-never-meta-arg-it-didnt-like/>). Joystiq. . Retrieved 2011-04-20.
- [114] Faylor, Chris (2010-03-03). "Portal Mystery Deepens with Second Update" (<http://www.shacknews.com/onearticle.x/62622>). Shacknews. . Retrieved 2010-03-03.
- [115] Mastrapa, Gus (2010-03-02). "Geeky Clues Suggest Portal Sequel Is Coming" (<http://www.wired.com/gamelife/2010/03/portal-viral/>). Wired. . Retrieved 2010-03-02.
- [116] Gaskill, Jake (2010-03-03). "Rumor: Valve To Make Portal 2 Announcement During GDC 2010" (<http://g4tv.com/thefeed/blog/post/702963/Rumor-Valve-To-Make-Portal-2-Announcement-During-GDC-2010.html>). X-Play. . Retrieved 2010-03-03.
- [117] Webster, Andrew (2010-03-05). "Portal 2 is official, first image inside" (<http://arstechnica.com/gaming/news/2010/03/portal-2-is-official-first-image-inside.ars>). . Retrieved 2010-03-05.
- [118] Plunkett, Luke (2010-03-11). "Portal 2 Hijacks Blue Screen of Death At GDC Awards" (<http://kotaku.com/5491651/portal-2-hijacks-blue-screen-of-death-at-gdc-awards>). Kotaku. . Retrieved 2010-03-12.
- [119] Purchase, Robert (2010-06-02). "E3 Portal 2 event replaced by "surprise"" (<http://www.eurogamer.net/articles/e3-portal-2-event-replaced-by-surprise>). Eurogamer. . Retrieved 2010-06-02.
- [120] Faylor, Chris (2010-06-09). "Valve Delays Portal 2, Confirms E3 Surprise Is 'PORTAL-2-THEMED-FOR-GOD'S SAKE'" (<http://www.shacknews.com/laryn.x?story=64185>). Shacknews. . Retrieved 2010-06-09.
- [121] Francis, Tom (2010-06-15). "Valve's E3 surprise is... oh. Portal 2 on PS3" (<http://www.pcgamer.com/2010/06/15/valves-e3-surprise-is-oh-portal-2-on-ps3/>). PC Gamer. . Retrieved 2011-06-26.
- [122] Esposito, Joey (2011-04-06). "Expanding the World of Portal 2" (<http://uk.comics.ign.com/articles/116/1160119p1.html>). IGN. . Retrieved 2011-04-06.
- [123] Esposito, Joey (2011-04-08). "Portal 2: Lab Rat – Part 1" (<http://comics.ign.com/articles/116/1160605p1.html>). IGN. . Retrieved 2011-04-11.
- [124] Esposito, Joey (2011-04-11). "Read Portal 2: Lab Rat – Part 2" (<http://comics.ign.com/articles/116/1161043p1.html>). IGN. . Retrieved 2011-04-11.
- [125] Rose, Mike (2011-07-11). "Comic Book Based On Valve Strips Coming This November" (http://www.gamasutra.com/view/news/35767/Comic_Book_Based_On_Valve_Strips_Coming_This_November.php). Gamasutra. . Retrieved 2011-07-11.
- [126] Bramwell, Tom (2010-03-05). "Portal 2 due out this Christmas" (<http://www.eurogamer.net/articles/portal-2-due-out-this-christmas>). Eurogamer. . Retrieved 2010-03-05.
- [127] Gay, Gregory (2010-08-18). "Portal 2 Teleports to Shelves Next February" (<http://www.escapistmagazine.com/news/view/102867-Portal-2-Teleports-to-Shelves-Next-February>). Escapist. . Retrieved 2011-04-21.
- [128] de Matos, Xav (2010-11-18). "Portal 2 Delayed to 'The Week of April 18'" (<http://www.shacknews.com/onearticle.x/66536>). Shacknews. . Retrieved 2010-11-18.
- [129] "Newell: Portal 2 'pretty much' ready for release" (<http://www.computerandvideogames.com/289822/news/newell-portal-2-pretty-much-ready-for-release/>). Computer and Video Games. 2011-02-19. . Retrieved 2011-02-20.
- [130] Faylor, Chris (2010-03-08). "Steam Coming to Mac in April, Portal 2 This Fall" (<http://www.shacknews.com/onearticle.x/62687>). Shacknews. . Retrieved 2010-03-08.

- [131] Graff, Kris (2010-12-22). "EA, Valve Confirm Distribution Agreement For Portal 2" (http://www.gamasutra.com/view/news/32162/EA_Valve_Confirm_Distribution_Agreement_For_Portal_2.php). Gamasutra. . Retrieved 2010-12-22.
- [132] Hillier, Brenna (2011-03-17). "Valve's in-house Portal 2 ad the result of "copycat" agency treatments (Update)" (<http://www.vg247.com/2011/03/17/valves-in-house-portal-2-ads-the-result-of-copycat-agency-treatments/>). VG247. . Retrieved 2011-03-17.
- [133] Molina, Brett (2011-03-22). "Trailer Park: 'Portal 2'" (<http://content.usatoday.com/communities/gamehunters/post/2011/03/trailer-park-portal-2-1/1>). USA Today. . Retrieved 2011-03-22.
- [134] Davidson, Pete (2011-04-19). "Portal 2 goodies now on sale" (<http://www.gamepro.com/article/news/218934/portal-2-goodies-now-on-sale/>). GamePro. . Retrieved 2011-04-19.
- [135] Brown, Nathan (2011-04-20). "Potato Sack Developers Helped Design Portal 2 ARG" (<http://www.next-gen.biz/news/potato-sack-developers-helped-design-portal-2-arg>). Edge. . Retrieved 2011-04-20.
- [136] Goldman, Tom (2011-04-04). "Portal's GlaDOS Invades Steam With Potato-Related ARG" (<http://www.escapistmagazine.com/news/view/108965-Portals-GlaDOS-Invades-Steam-With-Potato-Related-ARG>). Escapist. . Retrieved 2011-04-04.
- [137] Watts, Steve (2011-04-04). "Valve hides ARG in Potato Sack sale" (<http://www.shacknews.com/article/68001/valve-hides-arg-in-potato>). Shacknews. . Retrieved 2011-04-04.
- [138] Phillips, Tom (2011-04-13). "Portal 2 to get early release on Steam?" (<http://www.metro.co.uk/tech/games/860768-portal-2-to-get-early-release-on-steam>). The Metro. . Retrieved 2011-04-13.
- [139] Greyson, Nathan (2011-04-13). "Portal 2 to release early? Potato sack ARG signs point to "yes"" (<http://www.vg247.com/2011/04/13/portal-2-to-release-early-potato-sack-arg-signs-point-to-yes/>). VG247. . Retrieved 2011-04-13.
- [140] Senior, Tom (2011-04-13). "Portal 2 levels appear in potato sack games, clues suggest Portal 2 could be released early" (<http://www.pcgamer.com/2011/04/13/portal-2-levels-appear-in-potato-sack-games-clues-suggest-portal-2-could-be-released-early/>). PC Gamer. . Retrieved 2011-04-13.
- [141] Kohler, Chris (2011-04-13). "Valve May Release Portal 2 On Friday, Not Tuesday" (<http://www.wired.com/gamelife/2011/04/valve-may-release-portal-2-on-friday-not-tuesday/>). Wired. . Retrieved 2011-04-13.
- [142] Davidson, Pete (2011-04-15). "Play indie games, help Portal 2 release early" (<http://www.gamepro.com/article/news/218877/play-indie-games-help-portal-2-release-early/>). GamePro. . Retrieved 2011-04-15.
- [143] Schreier, Jason (2011-04-15). "Play Steam Games, Launch Portal 2 Early" (<http://www.wired.com/gamelife/2011/04/portal-2-early-launch/>). Wired. . Retrieved 2011-04-15.
- [144] Hillier, Brenna (2011-04-18). "No more potatoes: Portal 2 available right now on Steam" (<http://www.vg247.com/2011/04/19/portal-2-available-now/>). VG247. . Retrieved 2011-04-18.
- [145] Senior, Tom (2011-04-19). "Portal 2 has hidden interactive Super 8 teaser level" (<http://www.pcgamer.com/2011/04/19/portal-2-has-hidden-interactive-super-8-teaser-level/>). PC Gamer. . Retrieved 2011-04-19.
- [146] "2010 Winners" (<http://www.gamecriticsawards.com/winners.html>). Game Critics Awards. 2010-07-06. . Retrieved 2010-07-06.
- [147] Snider, Mike (2010-06-29). "E3 2010: Game Critics Awards nominees announced" (<http://content.usatoday.com/communities/gamehunters/post/2010/06/e3-2010-game-critics-awards-nominees-announced/1>). USA Today. . Retrieved 2010-06-30.
- [148] "E3 2010: Best of E3 Awards" (<http://games.ign.com/articles/109/1094418p1.html>). IGN. 2010-06-17. . Retrieved 2010-06-30.
- [149] "GameSpy's Best of E3 2010 Awards" (<http://www.gamespy.com/articles/110/1102167p1.html>). Gamespy. 2010-06-25. . Retrieved 2010-06-30.
- [150] Anderson, Joe (2010-12-10). "Spike VGA 2010 winners – Red Dead Redemption scoops GOTY" (<http://www.vg247.com/2010/12/12/spike-vga-2010-winners-red-dead-redemption-scoops-goty/>). VG247. . Retrieved 2011-05-27.
- [151] "Portal 2 for PC" (<http://www.gamerankings.com/pc/991073-portal-2/index.html>). Game Rankings. . Retrieved 2011-04-19.
- [152] "Portal 2 for X360" (<http://www.gamerankings.com/xbox360/991101-portal-2/index.html>). Game Rankings. . Retrieved 2011-05-08.
- [153] "Portal 2 for PS3" (<http://www.gamerankings.com/ps3/997849-portal-2/index.html>). Game Rankings. . Retrieved 2011-05-08.
- [154] "Portal 2 for PC Reviews, Ratings, Credits, and More at Metacritic" (<http://www.metacritic.com/game/pc/portal-2>). Metacritic. . Retrieved 2011-04-23.
- [155] "Portal 2 for Xbox 360 Reviews, Ratings, Credits, and More at Metacritic" (<http://www.metacritic.com/game/xbox-360/portal-2>). Metacritic. . Retrieved 2011-04-23.
- [156] "Portal 2 for PlayStation 3 Reviews, Ratings, Credits, and More at Metacritic" (<http://www.metacritic.com/game/playstation-3/portal-2>). Metacritic. . Retrieved 2011-05-02.
- [157] Nelson, Mike. "Portal 2 Review" (<http://www.1up.com/reviews/portal-2-review>). 1UP. . Retrieved 2011-04-21.
- [158] "Portal 2 Review" (<http://www.next-gen.biz/reviews/portal-2-review>). Edge. 2011-04-19. . Retrieved 2011-04-30.
- [159] Welsh, Oli (2011-04-19). "Portal 2" (<http://www.eurogamer.net/articles/2011-04-19-portal-2-review>). Eurogamer. . Retrieved 2011-04-19.
- [160] Gifford, Kevin (2011-05-11). "Japan Review Check: Portal 2, Ghost Recon" (<http://www.1up.com/news/japan-review-check-portal-2>). 1UP.com. . Retrieved 2011-05-11.
- [161] Webb, Morgan (2011-04-19). "Portal 2 Review – Xbox 360" (<http://www.g4tv.com/games/xbox-360/63787/portal-2/review>). G4 TV. . Retrieved 2011-04-19.
- [162] Biessener, Adam (2011-04-18). "Portal 2" (http://www.gameinformer.com/games/portal_2/b/pc/archive/2011/04/18/the-sequel-you-were-hoping-for.aspx). Game Informer. . Retrieved 2011-04-19.
- [163] Watters, Chris (2011-04-19). "Portal 2 Review" (<http://www.gamespot.com/pc/action/portal-2/review.html>). GameSpot. .

- [164] Onyett, Charles (2011-04-19). "Portal 2 Review" (<http://uk.pc.ign.com/articles/116/1162215p1.html>). IGN. . Retrieved 2011-04-19.
- [165] Stapleton, Dan (2011-04-19). "Portal 2 review" (<http://www.pcgamer.com/2011/04/19/portal-2-review/>). *PC Gamer*. . Retrieved 2011-04-26.
- [166] Cowen, Danny (2011-04-20). "Critical Reception: Valve's Portal 2" (http://gamasutra.com/view/news/34200/Critical_Reception_Valves_Portal_2.php). Gamasutra. . Retrieved 2011-04-20.
- [167] Molina, Brett (2011-04-19). "Review: 'Portal 2' aces the sequel test" (<http://content.usatoday.com/communities/gamehunters/post/2011/04/review-portal-2-aces-the-sequel-test/1>). *USA Today*. . Retrieved 2011-04-19.
- [168] Sapieha, Chad (2011-05-01). "Portal 2 is for smarty-pants only" (<http://www.theglobeandmail.com/news/technology/video-games/game-reviews/review-portal-2-is-for-smarty-pants-only/article2004276/>). *Globe and Mail*. . Retrieved 2011-05-01.
- [169] Cowen, Nick (2011-04-19). "Portal 2 – Review" (<http://www.guardian.co.uk/technology/gamesblog/2011/apr/19/portal-2-game-review>). *The Guardian*. . Retrieved 2011-04-19.
- [170] Freeman, Will (2011-04-23). "Portal 2 – review" (<http://www.guardian.co.uk/technology/2011/apr/24/portal-2-will-freeman-review>). *The Observer*. . Retrieved 2011-04-23.
- [171] Mastrapa, Gus (2011-04-25). "Portal 2" (<http://www.avclub.com/articles/portal-2,55020/>). A.V. Club. . Retrieved 2011-04-25.
- [172] Kohler, Jeff (2011-04-21). "Portal 2 Review"" (<http://www.wired.com/gamelife/2011/04/portal-2-review/>). *Wired*. . Retrieved 2011-04-21.
- [173] Hill, Jason (2011-05-06). "Portal 2 Review" (<http://www.smh.com.au/digital-life/games/portal-2-20110506-1eaxb.html>). *Sydney Morning Herald*. . Retrieved 2011-05-11.
- [174] Kuo, Ryan (2011-04-19). "Portal 2 Is A Hole In One" (<http://blogs.wsj.com/speakeasy/2011/04/19/portal-2-is-a-hole-in-one/>). *Wall Street Journal*. . Retrieved 2011-04-19.
- [175] Frum, Larry (2011-04-19). "'Portal 2' is a dark, humorous joy (and that's no lie)" (<http://edition.cnn.com/2011/TECH/gaming.gadgets/04/19/portal.2.review/>). CNN. . Retrieved 2011-04-19.
- [176] Narcisse, Evan (2011-04-19). "Portal 2 Review: Our First Perfect 10" (<http://techland.time.com/2011/04/19/portal-2-review-our-first-perfect-10/>). *Time*. . Retrieved 2011-04-19.
- [177] Martin, Garrett (2011-04-25). "'Portal 2' sure to gel with fans" (http://www.bostonherald.com/entertainment/music/reviews/view_bg?articleid=1333006). *Boston Herald*. . Retrieved 2011-05-01.
- [178] Bright, Peter (2011-05-02). "Thinking on rails: why Portal 2 isn't as good as the original" (<http://arstechnica.com/gaming/reviews/2011/05/portal-2-a-good-game-but-not-a-great-one.ars/>). Ars Technica. . Retrieved 2011-05-02.
- [179] Young, John (2011-04-20). "'Portal 2' videogame review: Physics is phunny" (<http://popwatch.ew.com/2011/04/20/portal-2-review/>). *Entertainment Weekly*. . Retrieved 2011-04-20.
- [180] Schiesel, Seth (2011-05-10). "Physics, With Wormholes by You" (<http://www.nytimes.com/2011/05/11/arts/video-games/portal-2-a-video-brain-game-review.html>). *New York Times*. . Retrieved 2011-05-10.
- [181] Hamilton, Kirk (2011-04-26). "Portal 2 Review (Multi-Platform)" (<http://www.pastemagazine.com/articles/2011/04/portal-2-review-multi.html>). *Paste*. . Retrieved 2011-05-05.
- [182] Jenkins, David. "Fans protest Portal 2 on Metacritic" (<http://www.gamesindustry.biz/articles/2011-04-20-fans-protest-portal-2-on-metacritic>). GameIndustry.biz. .
- [183] Jenkins, David (2011-04-20). "Portal 2 hit by user review backlash on Metacritic" (<http://www.metro.co.uk/tech/games/861383-portal-2-hit-by-user-review-backlash-on-metacritic>). *Metro*. . Retrieved 2011-04-20.
- [184] Walker, John. "Let's Address Some Portal 2 Nonsense" (<http://www.rockpapershotgun.com/2011/04/19/lets-address-some-portal-2-nonsense/>). Rock Paper Shotgun. .
- [185] Tolito. "The People are Panning Portal 2" (<http://kotaku.com/#!5793543/the-people-are-panning-portal-2>). Kotaku. .
- [186] Dutton, Fred. "Portal 2 Metacritic user score pounded" (<http://www.eurogamer.net/articles/2011-04-19-portal-2-metacritic-user-score-pounded>). Eurogamer. .
- [187] Cowen, Danny (2011-04-22). "Saling The World: *Portal 2* Leads Cross-Platform Charts Worldwide" (http://www.gamasutra.com/view/news/34245/Saling_The_World_Portal_2_Leads_CrossPlatform_Charts_Worldwide.php). Gamasutra. . Retrieved 2011-06-27.
- [188] Cowen, Danny (2011-04-29). "Saling The World: Mortal Kombat Overtakes Portal 2 Stateside" (http://www.gamasutra.com/view/news/34356/Saling_The_World_Mortal_Kombat_Overtakes_Portal_2_Stateside.php). Gamasutra. . Retrieved 2011-04-29.
- [189] Dutton, Fred (2011-05-12). "NPD: Mortal Kombat beats Portal 2 in US" (<http://www.eurogamer.net/articles/2011-05-12-npd-mortak-kombat-beats-portal-2-in-us>). Eurogamer. . Retrieved 2011-06-27.
- [190] Klepek, Patrick (2011-06-22). "Portal 2 Has Sold More Than 3 Million Copies" (<http://www.giantbomb.com/news/portal-2-has-sold-more-than-3-million-copies/3412/>). Giant Bomb. . Retrieved 2011-06-022.
- [191] Graft, Kris (2001-06-13). "NPD: May U.S. Retail Game Industry Sales Lowest Since Oct. '06" (http://www.gamasutra.com/view/news/35201/NPD_May_US_Retail_Game_Industry_Sales_Lowest_Since_Oct_06.php). . Retrieved 2011-06-27.
- [192] Rose, Mike (2011-04-26). "Portal 2 Scores Valve First Ever Top Spot In UK Sales Charts" (http://www.gamasutra.com/view/news/34287/Portal_2_Scores_Valve_First_Ever_Top_Spot_In_UK_Sales_Charts.php). Gamasutra. . Retrieved 2011-04-26.
- [193] Rose, Mike (2011-05-03). "Portal 2 Holds On To Top Spot For Second Week In UK Sales Charts" (http://www.gamasutra.com/view/news/34468/Portal_2_Holds_On_To_Top_Spot_For_Second_Week_In_UK_Sales_Charts.php). Gamasutra. . Retrieved 2011-05-03.
- [194] Matthews, Matt (2011-06-21). "Analysis: Did The PSN Outage Hurt U.S. PS3 Hardware Sales?" (http://www.gamasutra.com/view/news/35290/Analysis_Did_The_PSN_Outage_Hurt_US_PS3_Hardware_Sales.php). Gamasutra. . Retrieved 2011-06-27.

- [195] Graft, Kris (2001-04-26). "Developers Say PSN Outage Affecting Sales, But Remain Hopeful" (http://www.gamasutra.com/view/news/34306/Developers_Say_PSN_Outage_Affecting_Sales_But_Remain_Hopeful.php). Gamasutra. . Retrieved 2011-06-27.
- [196] Anderson, Joe (2011-04-26). "Has PSN outage affected Portal 2 PS3 sales?" (<http://www.shoptonews.net/2011/04/26/has-psn-outage-affected-portal-2-ps3-sales/>). ShopToNews. . Retrieved 2011-06-27.
- [197] Orland, Kyle (2011-06-22). "Newell: Portal 2 Has Sold 3 Million Copies" (http://www.gamasutra.com/view/news/35402/Newell_Portal_2_Has_Sold_3_Million_Copies.php). Gamasutra. . Retrieved 2011-06-22.

External links

- Official website (<http://http://www.thinkwithportals.com>)
- *Portal 2* (<http://www.imdb.com/title/tt1648163/>) at the Internet Movie Database
- Valve Corporation (<http://www.valvecorporation.com/>)
- Eric Wolpaw *Portal 2* presentation (<http://vimeo.com/23534126>) as part of the New York University Game Design Series, May 6, 2011
- "The Final Hours of Portal 2" (<http://www.thefinalhoursofportal2.com/>) Digital book by Geoff Keighley

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