Quorum: a co-operative top-down space exploration and shooter game

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**Revision History**

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| --- | --- |
| Wednesday, April 29, 2009 |  |
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| Wednesday, April 29, 2009 | Checkpoint 3 update |

# Game Summary

The word "Quorum" is related to politics, and is defined as the minimum number of members necessary to make official decisions on behalf of a committee or group. The game Quorum is a top-down shooter set in space where one to four players attempt to fill all the roles of an under-staffed starship command bridge. Each player may pilot the ship, fire gun turrets, operate the shield, or repair ship components - but he can perform only one of these tasks at a time - as dictated by the control station he stands in front of.

# Game Details

## Concept

You are the sole surviving crewmember after suffering a large blow at the hands of an enemy ambush while in enemy territory. It is now up to you to repair your damaged ship and deal the final blow to the evil “Vick-arians” to end the suffering of the people of the “Atarii” quadrant.

## Background Story

Early in its formation, the “Atarii” quadrant of space housed a large number of advanced civilizations. For many years the civilizations lived in harmony; that is until the sun collapsed. The devastation that followed threw the quadrant into disarray; all of the inner planets were destroyed and many more where left with no source of energy and highly irradiated.

It wasn’t long before the once peaceful quadrant fell in to war. Each race devastated by the collapse of the sun fought to regain a foothold on any planet within their grasp, whether occupied or not. This is the beginning of the “Dev” wars; a 100 year long war between all of the races in a race to occupy the most worlds and expand their power. By the end of the war only a handful of races had survived. The races that lost their planets were enslaved, killed off, or escaped to become pirates.

After the war most of the races fell into paranoia; each one building bigger and better defensive and offensive systems, but never firing. During this time, while the races were busy with their own defenses, an outside force fell upon the quadrant. A race, known as “Vick-arians”, arrived quickly and promptly began to purge the planets of their inhabitants. Before anyone could react most of the planets had been enslaved, those that fought back where quickly destroyed.

What was left of the races bound together to form a rebel alliance. One by one the rebel alliance’s fleets were destroyed. Eventually, the alliance was worn down to its last ship. Captained by the famed Dale Houston, the “S.J. Maniacal” and its crew flew off to finally end the genocide – only to suffer a crushing defeat and limp away to fight another day. You (the player) are one of the sole surviving members of the Maniacal’s crew, and it is your duty to repair the ship and reap vengeance upon the “Vick-arians.”

## Objectives

The players' goals throughout the game are divided between immediate-, short-, medium- and long-term objectives. The immediate-term objectives are the mechanics and skills the player uses to get by in space. The short-term objectives are the levels that set the stage for use of the mechanics. The medium-term objectives encapsulate the levels and give the player cause to complete the short-term objectives. The long-term objectives ground the entire story and give rise to the end-game conditions. This layered hierarchy of tasks provides a convenient organizational structure both for us developers during production and our players during game play.

Immediate-term objectives are the mechanics and skills the player uses to get by in space. The players must master these skills in order to progress through the game. Since the game is played with a two player co-operation at its core, the abilities for certain individuals to learn and progress faster in one or more of the skills is a means of building a better dynamic when such skills are needed during a mission.

* Piloting
  + Driving the ship through space is important. If you don't have control of your own ship, you might as well be a hunk of space junk. The ship is equipped with two main thrust drives on the ship's aft, as well as directional thrusters around its perimeter. The aft thrusters provide the main source of forward momentum, and adjusting the relative strength between them provides coarse steering. For fine control and trajectory adjustment, the directional thrusters may be fired in streams or bursts. The aft thrusters may also be pivoted 180 degrees for retrograde thrust.
* Shooting
  + Shooting is arguably just as important as fancy flying. In addition to the standard fixed forward batteries, the ship has six external turret mounts for additional guns. These bays may be populated with any of the armaments described in the “Game Units” section.
* Shielding
  + Sometimes the best offense is a good defense (true at least any time the best defense is not a good offense). The shield operator's duty is to minimize any damage from incoming enemy energy weapons. The ship is equipped with a general-purpose umbrella shield that forms a bounding sphere around her. In addition, directional shields may be deployed to counteract specific threats. While the general shield is activated, the directional shields are not as resilient as if they were receiving dedicated power, and the ship moves slower due to the drag created by space dust. The well-seasoned shield operator also knows how to tune the shields to best counteract specific enemy fire, and has a sixth sense for activating the shields just in the nick-of-time.
* Repairing
  + Maintenance is crucial to the continuing functionality of the starship. In the heat of battle, damage sustained by enemy fire can be repaired on the fly. This can save a turret from dropping out of service, or being destroyed altogether. In peacetime, the engineer is responsible for operating the tractor beam and installing upgrades and additions to the ship's systems.
* Swapping
  + Because the whole premise of Quorum relies on an *understaffed* star ship, the core mechanic of swapping is central to the game. A player may take command of any of the above stations, but may only operate ONE of them at a time. Running from station to station quickly becomes crucial to the ship's survival. A player can jump out of a station and manually run to the next, or automatically transfer to adjacent stations at whim. The catch is he may only take command of an unoccupied station. If he finds his crewmate to be underperforming, he may slap the incompetent cadet forcing him to vacate the station, and thereby usurp control (this action has obvious consequences and tends towards insubordination, chaos, and mutiny - none of which are desirable qualities).
* Cooperating
  + The underlying mechanic involved in all other mechanics is player cooperation. Because the actions of any one station may potentially affect the others, communication and cooperation are vital to the smooth operation of the starship. This might involve the pilot maneuvering the ship to give a gunner a better shot; a gunner blasting a piece of debris into space dust to save the pilot the trouble of navigating around it; or the shield operator just being excellent at his job and saving the skins of all others. At the same time, two players may battle for the coveted driver’s seat, oblivious as the ship hurtles headlong into an asteroid. Our goal in designing this game is to make a system of such scenarios in which the players may find their own way to succeed marvelously, or fail hilariously, whichever direction their whims carry them.

Short-term objectives include missions or jobs that the player obtains by visiting systems throughout the “Atarii” quadrant as well as the semi-random battles that form while exploring. Missions can include a multitude of various types, as well as some special hidden missions. The length of time to complete a mission depends on the users’ prowess in the skills needed to complete said mission; on average most missions will take approximately 10-15 minutes. Some examples of mission types include:

* Blockade or Gauntlet Running
  + Involves navigating the ship through a series of very dangerous portions of space. This will challenge the player’s abilities to coordinate in piloting the ship and destroying enemies.
* Survive waves of enemies
  + This will test player’s abilities to manage multiple weapon turrets together to effectively overcome large numbers of enemies.
* Death-race
  + This will challenge players’ piloting skills as well as being able to defending against enemy attacks.
* Defensive
  + This involves the protection of a region of space by holding back increasingly stronger waves of enemies. The difference between the survival mode and this mode has to do with the stationary aspect of the defensive mode.

Medium-term objectives are based on bettering your chances through the game through upgrades and forming alliances as well as collection achievements for special actions or abilities shown. As missions are completed in each solar system, the ability to hire crewmembers and obtain more advanced offensive/defensive systems becomes greater. The acceptance and completion of beneficial missions also increases your standing with the solar system and can allow for special items or reduced costs for the ship upgrades.

The game’s long-term objectives are the repair an upgrade of the “Maniacal” in order to face the fleet of the “Vick-arians”. If you are able to build up your ship and find the secret location of the home planet of the “Maniacals” then you will be given the chance to avenge the loss of your crew and restore balance to the “Atarii” quadrant.

## Game Play

The general pattern for the game involves sending the players on missions through space. The missions may involve search-and-retrieval, gauntlet run, space race, espionage, position defense, or rescue mission characteristics. Each type of mission will require the use of one or more skills available to the players: piloting, gunning, shielding, repairing, or tractor beaming. Completing a mission will earn players points and money, which are used for prestige and purchasing upgrades respectively. In order to complete the missions, a co-operative use of the resources and the players must be dealt with. The end game occurs when the players feel confident enough in their skills and ship to confront the enemy fleet responsible for damaging the original ship and crew. Defeating the enemy fleet brings closure and justice (revenge) to the game's story. The players may choose to replay any mission in pursuit of various achievements: completing the mission without firing, without leaving the starting command station, without shields, without repairing, etc.

Consider a mission that involves flying through an asteroid- and enemy ship-ridden swath of space to reach a specified planet within a certain period of time. This mission will require some combination of fancy flying, shooting, shield operation, and repair work to complete. Because there are more command stations than players, the nature of the mission encourages the players to run from station to station in order to adapt to the current conditions. Suppose two players are working together on this mission, one seated at the pilot station, the other at the left-gunner station. An enemy approaches from the right side of the ship thereby presenting the players with a choice. In response, the pilot may choose to rotate the ship so the enemy is within range of the left gun. The pilot may also choose to abandon his post and run to the right-gunner station, leaving the ship drifting along its current heading. Or, the left-gunner may decide to handle the situation by running to the right-gun station. Another possibility is that both players decide to react to the situation, in which case they may get in each other's way, or counteract the other's motion. This encourages inter-player communication, leads to other choices based on the state in which the ship is left, and rewards skillful task management.

When the game powers up, the first screen that the players see will be the logo of the development team, this is a quick mention and proceeds directly to the start screen. The start screen features the Quorum logo along with the “Play Game”, “Options”, and “Exit Game” options. The player is allowed to cycle between these options freely until one is chosen. If the player chooses “Play Game”, the game will show a loading screen with tips and hints for playing Quorum. When the loading is finished, the player will press the green A button to proceed onward. The “Options” menu will allow the player to toggle between windowed and full-screen mode as well as view the control layout for playing the game. Once the players have chosen to start the game, they are brought to the starship and are given direct control a crew member. From here it is up to the players to explore and navigate the Atarii Quadrant.

Since the game is a cooperative game, the multiplayer aspect to Quorum lies in the players’ abilities to work as a team to achieve a common goal. This teamwork is done through manning stations that will give the players the best chance of survival and victory in their missions. The combination of which stations are being manned can vary depending on the type of mission the players are partaking in. In some situations, it may be more beneficial to have players manning the turrets and leaving the ship stationary. In other situations, the players may need to perform a more run-and-gun type approach to a mission. Regardless of the situation, communication between the players is crucial to survival.

The difficulty of Quorum will not change in terms of the enemy’s ability to be destroyed. The difficulty lies in the amount of players playing the game at the time. It is more beneficial to have more than one playing the game at once since it allows for more coverage of stations throughout the ship. Quorum will be able to be beaten with fewer players, however having more players allows an easier traversal through the universe. Quorum will have many secrets and stories to unlock that may not pertain to the main story line of the game. We suspect that a full completion of the game can take anywhere from 10 to 15 hours. To complete the main story alone takes around 2 to 4 hours depending on success of the missions.

# Game Components

## Characters

The universe that is created in Quorum consists of many different types of personalities. These personalities can range from the crewmembers of the starship, to the enemy villain boss, to the emissaries that present the player-base with tasks to perform along their journey. Quorum will focus on the protagonist crewmembers of the starship. The players themselves will represent these crewmembers. There are no distinguishing characteristics that set crew members apart from each other. They are only there as player avatars in handling the control stations within the ship.

The enemies within the Quorum universe are a race of people who have set out to wage war with the humans. These enemies are relentless in their attacks and will do all they can to finish what they started with the humans. These enemies choose to not reveal their identities to the rest of the universe and have come to be known throughout the universe as the “Vick-arians”. The “Vick-arians” travel through the universe looking to destroy species that do not agree with their ideals and have targeted the humans as their next conquest. The “Vick-arians” are outsiders who have traveled from far reaches of the universe to attempt to gain a foothold into our quadrant and spread their tyranny. The leader of the “Vick-arians” commands vast armies of raider-like ships that are spread all over the quadrant. These armies will be the majority of resistance that the players will encounter along their journey.

Along our players’ travels they’ll encounter mercenaries looking to do business with anyone, outside of “Vick-arians”, who will look their way. These emissaries try to stay out of intergalactic business but that doesn’t mean they can’t attempt to earn a living. Emissaries can give the players tasks to complete in exchange for parts that the players can use to repair their ship.

## Game Units

* “Maniacal”
  + This is the ship you and your crewmates will be piloting and navigating the “Atarii” quadrant with. Try not to destroy it.
* Enemy Units – “Vick-arians”
  + Fast Cruisers
    - These ships are quick but have little firepower
  + Medium Cruisers
    - Basic speed, armor, and firepower.
  + Battle Cruisers
    - Highly defensive, slow moving. Has the ability to build and launch small ships. Some of these ships can fire highly concentrated energy beams; they take a lot of time to charge, but you better be moving if its aimed at you.
  + End Boss
    - The worst enemy you ever faced.
* Enemy Units – “Pirates”
  + Fast Cruisers
    - These ships are quick but have little firepower
  + Medium Cruisers
    - Basic speed, armor, and firepower.
  + Kamikaze Cruisers
    - Really high defense, but no firepower. These ships like to take you out the old fashion way, through the front door. These are also the ships that can board your ship and cause a ruckus.
* Stations
  + Shield
    - Basic Shield
      * The basic shielding unit, only covers a small area of the ship but has a control interface to move the shield around.
    - Reflector Shield
      * Similar to the basic shield but this time it rebounds energy fire back in the direction it came from.
    - Recharger Shield
      * Need to get back some of that shield power, well this is your shield. Each hit recharges a bit of the shield; only works on energy weapons though. You’re just going have to dodge those asteroids.
  + Pilots seat
    - Where the pilot sits to control the navigation of the ship.
  + Engineering seat
    - This seat gives you the ability to repair aspects of the ship as well as see the damage on the ship.
  + Cannons/Turrets
    - Swivel Cannon
      * This light gun is built for agility. It can move very quickly, and fires a rapid stream of low-energy bolts. It does not have the power of its bigger brothers, but as a result does not suffer from a cool-down period. It is effective against enemy fighters and lightly armored craft.
    - Blitz Cannon
      * This medium gun is a crossover. It moves and fires at a moderate rate, with mid-energy bolts. Its shots pack more punch than the Swivel Cannon, but at a price - after a series of salvos it must go through a brief cool-down period. The Blitz Cannon is the general-purpose artillery of choice.
    - Heavy Cannon
      * Heavy says it all. This cannon is so large and powerful, it lurches the ship whenever fired. Because of this kickback, its mount is very securely anchored into the core of the ship's substructure. It can be aimed, slowly, but most find it more effective and expedient to maneuver the ship into the desired firing position. The massive throughput requires pulls from all of the ship's systems (most noticeably shields and thrust), and a longer cool-down period. The Heavy Cannon's bolt will pass right through fighters and lightly armored craft, and put divots in even the thickest armor.
    - Blaze Cannon
      * The Blaze Cannon fires a concentrated beam of intense energy along a laser-straight line. When not firing it is quite agile, but as soon as a stream begins, its motion is controlled so as not to disrupt the focusing mechanisms involved. Blazes are best used for slicing through armor to expose the enemy's soft underbelly to the Blitz and Swivel guns. This weapon suffers a cool-down period in between that of the Blitz and the Heavy Cannons.
    - Tractor Beam
      * Not so much an offensive weapon, but its ability to grab objects can be quite useful in a tight situation.

# Controls

The primary control system will feature the Xbox 360 controller. Button layouts between stations will be similar but depending on the station the player is at, the buttons may have different functionality. Also, the crewmembers themselves will share a similar button layout when they are not manning a station. The buttons that allow the player to change station will never change – regardless of which station the player currently occupies. To enter and exit a station, the player hits the red B button. Hitting this button will allow the player to freely move about the bridge of the ship. If the player wishes to quickly jump to a station the player will have to use a combination of buttons. The combination starts by having the player hold the right bumper button. By activating this button, the player will see a button associated with the Xbox 360 controller over the vacated station. By pressing one of the corresponding buttons, the player will exit this interface and be automatically moved to the station that they have chosen.

## Turret button configuration

* The turrets will have two primary functions to them, rotating and firing. Depending on the type of turret the player is at will depend on how much of a firing range the turret will have, as well as how often the turret can fire. Turrets that are used for short-range defensive barrages will have a wider range of motion and a quicker fire rate. Turrets used for long-range bombardments have shorter ranges of motion and slower fire rates. In any case, all types of turrets will use the left stick on the Xbox 360 controller to move left and right along their rotation point to maneuver the turret and the right trigger button to fire the turret. To activate the ships booster jets, the player navigating the ship can press and hold the green A button.

## Piloting the ship

## When the player is stationed at the navigation station, they have two main functions. Moving the ship and maintaining its speed. The ship will always move in the direction that the thrusters are facing so the player must have a good sense of direction in order to man the station efficiently. To maintain the ships speed, the player will use the right trigger for forward acceleration and the left trigger to slow the ship down and even put it into reverse. To maneuver the ship, the player uses the left thumb stick to steer the ship through the level.

## Shield station configuration

## Should the player be stationed at the shield battery, the player’s main task is to protect the ship from enemy fire. This is done by modulating the shield to create focus points in the shield grid. This is done by using the left thumb stick to move the focus point of the shield left or right. To do this the player will push the left thumb stick in the left or right position respectively.

## Repairing the ship

## Repairing the ship is another key task to the survival of the players. The button layout for the repair station is similar to moving station to station quickly; only the right bumper button is not used. When the player is in the repair station, buttons associated with the Xbox controller will appear overhead of each station. Pressing and holding the button associated with its station will repair the stations in fixed amounts. The player in the repair station can only repair one station at a time so balancing the load becomes a necessity to the players.

## World

The Atarii Quadrant is the sole level in Quorum. It represents the entire known galaxy that the rebel forces have charted and therefore will be accessible to the player through exploration. The level will feature well known space phenomena such as asteroid belts, black holes, collapsed suns, nebulas, stars, and a planet here and there. The ship will be able to navigate freely through the open-world level. Should the player reach the edge of the map, the ship will wrap around to the other side of the map with a fluid transition. This ensures that the players cannot get caught in a corner when trying to complete a mission or fend off waves upon waves of enemies.

## Interfaces

* Introduction Screen
* Heads Up Display
  + Ship hull damage
  + Ship component damage
  + Shield levels
  + Ammunition/cool-down periods
  + Character health
  + Enemy damage
  + Score/Lives
* Planet Information
* Storefronts
* Game Options
* Credits/End Game

## Graphics and Sound Assets

On screen, the ship is saucer-shaped and viewed from above. Around the edges of the ship there are six mounting locations for turrets. The roof of the ship is translucent or transparent, and is cut-away to reveal the interior of the command bridge. Around the perimeter of the bridge, proximally located to each turret, are six control stations, each one responsible for its own turret. A seventh control station, belonging to the pilot, is at the center of the bridge. The player is represented as a small sprite, distinguished by color, free to move about the bridge and sit at any unoccupied station. The ship itself looks grungy and run-down, as one would expect of a vessel on the verge of failure. Portions of this rust-bucket of a space cruiser can be repaired or replaced over the course of the game, and replacement parts will look shiny and new.

The action takes place in space with a parallax-layered star-field as backdrop. The game is played on a two-dimensional open world with star systems, asteroid belts, comets, black holes, debris, and other spacecraft. In contrast to the player's ship, everything in the outside world (except the debris) is polished; sleek and clean (imagine if Apple designed the universe). This is done to add contrast between the players' ship and the world, and to motivate the players to fix up the ship.

## System Requirements

* Windows XP/Vista
* 2+ Xbox 360 Wired controllers
* DirectX 10 enabled graphics card
* 1 GB of Memory
* 100 MB of Hard Drive space

# Development Timeline

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Assignee** | **Component** | **Created** | **Due** | **Milestone** | **Summary** |
| Joe P. | <none> | Sun Mar 22 21:10:29 UTC 2009 | 3/30/2009 | Viable Engine | Input Manager |
| Josh W. | Engine | Sun Mar 22 21:16:53 UTC 2009 | 3/30/2009 | Viable Engine | Sprites |
| Jonathan L. | Engine | Sun Mar 22 21:17:27 UTC 2009 | 3/30/2009 | Viable Engine | Services Manager |
| Joe P. | Game Components | Sun Mar 22 21:24:17 UTC 2009 | 3/30/2009 | Viable Engine | Art sketches/prototypes |
| Joe P. | <none> | Mon Mar 30 01:50:09 UTC 2009 | 3/31/2009 | Checkpoint 1 - Design Doc | Design Document Formaterization |
| Jonathan L. | Engine | Sun Mar 22 21:18:31 UTC 2009 | 3/30/2009 | Checkpoint 2 - Simple Prototype | Cameras |
| Eric M. | Game Components | Sun Mar 29 17:50:11 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | Turrets |
| Eric M. | Game Components | Sun Mar 29 17:53:01 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | Ship |
| Eric M. | Game Components | Sun Mar 29 17:56:03 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | GameUnit |
| Eric M. | Game Components | Sun Mar 29 18:03:28 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | EnemyUnit |
| Josh W. | Game Components | Sun Mar 29 18:04:07 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | Crew |
| Eric M. | Game Components | Sun Mar 29 18:04:55 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | EnvironmentObject |
| Jonathan L. | Game Components | Sun Mar 29 18:27:29 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | Tiling / Paralax background |
| Joe P. | Art Assets | Tue Mar 31 01:40:34 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | Initial Game Unit Art |
| Josh W. | Game Components | Tue Mar 31 01:41:55 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | Quadrant Loader |
| Joe P. | Engine | Tue Mar 31 01:42:20 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | World Designer |
| Joe P. | Game Mechanics | Tue Mar 31 01:42:39 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | Initial Input binding |
| Jonathan L. | Game Mechanics | Tue Mar 31 01:43:32 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | Ship controls |
| Jonathan L. | Game Components | Tue Mar 31 01:43:58 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | Game State / Save State |
| Josh W. | Game Mechanics | Tue Mar 31 01:44:10 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | Intro screen |
| Josh W. | Game Mechanics | Tue Mar 31 01:44:53 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | Basic Planetary physics system |
| Joe P. | Art Assets | Tue Mar 31 01:46:17 UTC 2009 | 4/9/2009 | Checkpoint 2 - Simple Prototype | Background Textures |
| Josh W. | Engine | Tue Mar 31 01:46:17 UTC 2009 | 4/9/2009 | Checkpoint 2 – Simple Prototype | Screen State Manager |