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# Non-functional requirements

### User requirements

### **Product requirements**

#### Usability requirements

#### Learn to play the game

It shall be easy for the player to learn how to play the game and understand the game's objectives. The graphical interface will provide help for new players to understand how to play and the game's objectives.

Rationale: Because of the competitive nature between different web based strategic games it is important that the game is easy to learn and easy to understand the game's objective.

#### Short game sessions

It shall be possible for the player to play the game for a short period of time every day and still succeed to complete the game's objectives.

Rationale: The players live stressful life and don't have time to play a game for longer periods of time.

#### Short game rounds

**One round of the game is only for a couple of weeks, making it possible for new players to compete with the more experienced players.** When a new round starts all players will begin with the same equipment and have the same chance to compete with each other.

Rationale: Even if new players start in the middle of a round of the game they can gain experience to use when a new round start.

#### Language

**Everything written in the game shall be in English.** No other languages will be supported in the first version of the game.

Rationale: Most potential players of the game understand English and the developers have moderate to extensive knowledge of the language.

#### Documentation in the game

**Documentation how to use the game shall be included in the first version of the game.** The language of the documentation shall be English.

Rationale: Some players prefer to read documentation before they start playing a game.

#### **Client user interface**

# The game's graphical user interface (GUI) shall be implemented using XHTML, CSS and JavaScript working the web browser Mozilla Firefox.

Rationale: This type of GUI makes it possible for the player to access the game from different computers as long as the computer has the web browser Mozilla

#### Firefox.

#### **Efficiency requirements**

#### **Performance requirements**

#### Number of players totally

#### The game shall support many concurrent players in the same round at one server.

Rationale: For the game to be interesting and fun to play many players must play in the same round.

#### Number of player logged in on the same time

# At least half of the maximum number of players in one round shall be able to be logged in at the same time.

Rationale: More players logged in at the same time mean that players will observe changes of game map.

#### Client side performance

#### A computer with the hardware recommended for using Mozilla Firefox shall be enough to play the game.

Rationale: The game is designed for Mozilla Firefox and, therefore, it is likely that the recommended system requirements for Mozilla Firefox are enough to play the game.

#### Network is necessary

# Both the server and the client have to have access to internet. Internet is provided by the web server provider and the players' internet service providers (ISP).

Rationale: The game is a multiplayer game and, therefore, the server has to be connected to the internet. Hence, the players also need to have internet access to connect with their web browser to the server.

#### Space requirements

#### Web hosting

# The game shall be installed on a usual web hosting server. The player will not be able to upload anything or add any default content.

Rationale: The developers don't have money to pay for a enterprise web server solution.

#### **Reliability requirements**

#### **Uptime**

The game shall be accessible at least six days every week. Even after the release of the game many things need to done to balance the game.

Rationale: The developers don't have money to pay for better uptime.

#### **Portability requirements**

#### Web browsers

The game shall work with the web browser Mozilla Firefox. Other web browsers can not guaranteed to work for the player.

Rationale: Different web browsers use different standards of the programming languages used. Therefore, it would take too much time implement the game for different web browsers.

### **Organisational requirements**

#### **Delivery requirements**

#### Delivery of the requirement document

#### The requirement document shall be delivered in the end of December 2007.

Rationale: The developers must have time to complete the design document before the deadline for the final version.

#### Delivery of design document

The design document for the game will be delivered to the programmers during the first months of 2008.

Rationale: The developers must have time to complete the game before the deadline for the final versio

#### Delivery of first version

The first version of the game will be delivered in the beginning of May 2008. The first version will be in beta and all functional requirements will be implemented.

Rationale: To balance the game correctly the first version will be in beta stage.

#### **Implementation requirements**

#### Web server software

The game will run on web servers using Apache HTTP Server (Apache), which the world most used web server software. No other web server software will be supported.

Rationale: There is no time to implement the game on different servers. Besides, the game will not be sold to customer; therefore, it's no need to provide support for more than one server. Apache is open source and, therefore, free to use for the developers.

#### Database management system

The game shall use the database management system MySQL to save information about different parameters in the game. For example, it's saving parameters about the game map and the players.

Rationale: MySQL is one of the most popular database management systems for web based software. It is also open source and, therefore, free to use for the developers.

#### Server side implementation language

On the server PHP: Hypertext Preprocessor (PHP) shall be used to implement the game on the web server software. The web server used support PHP as standard.

Rationale: The developers have moderate experience of the programming language. It is used for enterprise web solutions. It is also open source and, therefore, free for the developers to use. PHP is also supported on web hosting providers.

#### Client side implementation languages

On the client side, i.e. web browser, *Extensible HyperText Markup Language* (XHTML), Cascading Style Sheets (CSS) and JavaScript shall be used to create the graphical interface. JavaScript will make it possible to implement the interactive features of the game.

Rationale: All three languages work with the specified web browser and the developers have moderate knowledge about them.

#### Version control system

**During the development of the game Subversion(SVN) shall be used to keep track of the changes in the code base.** Both the code base for the server and client side shall be added to the revision control.

Rationale: There must be a system to keep track of the code during the development; therefore, a version control system is necessary. Even if the developers only have little experience in using version control systems they have to have one. SVN is open source and, therefore, free to use.

#### **Documentation** system

**During the development of the game MediaWiki shall be used to keep track of the documentation of the project.** MediaWiki is the web based management system used by Wikipedia.

Rationale: MediaWiki is easy to use, even for beginners, and it works in different web browsers. It is easy to organize and keep track of different pages in the system. MediaWiki is open source and, therefore, free to use.

#### Forum system

The game will provide a forum where players can ask for help and exchange information with each other. The forum is not used in the game but is more like a help function.

Rationale: A forum is a good way of communication between the developers and the players. The developers can obtain immediate feedback from the players.

#### **Standards requirements**

#### **Client side standard requirements**

# The game shall be able to pass the test provided by the World Wide Web Consortium's (W3C) validators for XHTML and CSS.

Rationale: To be sure that it will work with the specified web browser the validators are good tool.

### **External requirements**

#### **Interoperability requirements**

#### **Ethical requirements**

#### **Offensive language and pictures**

**Offensive language shall not be included in the game's storyline, objectives, pictures or documentation.** The game cannot guarantee that players of the game don't use offensive language and pictures during communication between each other.

Rationale: Younger players should be able to play the game. It is outside the scope of the project to develop tools to scan for offensive language and pictures in the communication between players.

#### Legislative requirements

#### **Privacy requirements**

#### Usage of cookies

Web browser's cookies shall be used to store information to guarantee that the players continue to be logged in to the game. There shall be information about how cookies are used to save information about the user, following Swedish's law.

Rationale: The game is likely to be hosted on a Swedish web server and, therefore, the game has to follow Swedish regulations of using cookies.

#### Safety requirements

#### Information saved about the user

Only information needed to play the game will be saved for every player. The only information the players have to provide to play the game is a username, password. All other information saved in the database is about what the players do in the game.

Rationale: The game is not depended on using personal information; therefore, it is not necessary to ask for them. The players having unique player accounts result in that the game has to save information about username and password.

#### Secure connection

**The game shall not provide secure connection during any part of the game.** The players will be informed when creating accounts that secure connection will not be used and, therefore, they shall use insensitive passwords for the accounts. However, the password will be encrypted in the database.

Rationale: The developers don't have time to implement the use of secure connection between the server and the client of the game.

### System requirements

Description: A Metric: A Measure: A Goal: A Side effects: A

### **Product requirements**

#### Usability requirements

#### Learn to play the game

Description: It shall be easy for the player to learn how to play the game.
Metric: Minutes
Measure: The period of time it takes from creating an account to the player understands the game's objectives and how to play the game.
Goal: 10 minutes
Side effects: The game's objective and how to play must be briefly described after the

**Side effects:** The game's objective and how to play must be briefly described after the players have created their accounts.

#### Short game sessions

**Description:** The player shall be able to play the game for a short period of time every day. **Metric:** Minutes

**Measure:** During a period of one week how many minutes a player need to use every day to move towards the game objectives.

Goal: 10 minutes

**Side effects:** The game has to be balanced in such a way that the player only need to play for the specified number of minutes.

#### Short game rounds

**Description:** One game round shall be short enough for new players to be bored if they joined late. When a new game round starts, all players, both new and old, start with same parameters.

Metric: Days

**Measure:** How many days take it for the players to meet the game's objectives. **Goal:** 21 days

**Side effects:** The game must be balanced so that players can meet the game's objectives in the specified number of days.

#### Language

**Description:** All text shall be written in English in the game.

Metric: -

**Measure:** A native English speaker shall understand how to play the game and the game's objectives.

Goal: -

Side effects: Everything has to be written in English.

#### Documentation in the game

**Description:** More extensive documentation about how to play the game shall be included in the first version of the game.

Metric: Minutes

**Measure:** A player shall be able to understand the how to play the game and the game's objective by only reading the documentation in a specified number of minutes. **Goal:** 20 minutes

Side effects: The developers have to write documentation about the game.

#### Client user interface

**Description:** The graphical user interface shall be based on XHTML, CSS and JavaScript. **Metric:** Version of the web browser Mozilla Firefox.

**Measure:** It shall work in the web browser Mozilla Firefox of specified version. **Goal:** 2.0.0.9

**Side effects:** The developers and the players have to use the specified version of Mozilla Firefox.

#### **Efficiency requirements**

#### **Performance requirements**

#### Number of players totally

Description: The game shall support many concurrent players in the same game round.Metric: Number of playersMeasure: The number of players joined one game round.Goal: 1000 playersSide effects: The web server has to have space to host information about the specified number of players.

#### Number of player logged in on the same time

Description: The number of players logged in at the same time in one game round.Metric: Number of playersMeasure: The number of concurrent logged in players on one game round.Goal: 500 playersSide effects: The web server has to support the specified number of players concurrently connecting to the server.

#### Client side performance

Description: A computer with the system specification recommended for Mozilla Firefox shall be enough to play the game
Metric: RAM in MB, and CPU in Mhz.
Measure: The RAM of the computer and the CPU shall be as specified below.
Goal: 128 mb and 500 Mhz.
Side effects: -

#### Network is necessary

**Description:** Both the server and the client shall be connected to the internet. **Metric:** Kbps **Measure:** The client and the server shall be able to access KTH's web site with a web browser to ensure that the computer is connected to internet.

#### Goal: 128 Kpbs Side effects: -

#### Space requirements

#### Web hosting

**Description:** A usual web hosting provider shall be enough to store and run the game **Metric:** Space MB, MB per month

**Measure:** The specified amount of storage and the number of MB transferred every month. **Goal:** 1000 mb, 5000 mb per month

**Side effects:** Minimize the amount of pictures used in the graphical user interface to ensure that the game doesn't transfer to much every month.

#### **Reliability requirements**

#### **Uptime**

Description: The game shall be accessible at least the specified number of days every month.
Metric: Days per month (30 days)
Measure: During one month the game shall be accessible from a web browser the specified number of days.
Goal: 26
Side effects: Ensure that the web host provider can guarantee the uptime.

#### **Portability requirements**

#### Web browsers

Description: The game shall be possible to play with the specified web browser.Metric: Web browser, VersionMeasure: The player shall be able to play the game with the specified web browserGoal: Mozilla Firefox, 2.0.0.8Side effects: The developers have to use the specified web browser during the development of the game.

### **Organisational requirements**

**Delivery requirements** 

#### Delivery of the requirement document

Description: The requirement document shall be delivered on the specified date.Metric: DateMeasure: Rand Waltzman shall have the requirement document on the specified date.Goal: 21 December, 2007Side effects: The developers have to follow the Gantt chart provided in the appendix of this document.

#### Delivery of design document

**Description:** The design document shall be delivered on the specified date. **Metric:** Date **Measure:** Rand Waltzman shall have the design document on the specified date. Goal: 1 March, 2007 (preliminary date)

**Side effects:** The developers have to make a Gantt chart for the period January to March 2008.

#### **Delivery of first version**

Description: The first version of the game shall be provided to Rand Waltzman on the specified date.
Metric: Date
Measure: Rand Waltzman shall have the first version of the game on the date specified.
Goal: 1 May, 2008 (preliminary date)
Side effects: The developers have to make a Gantt chart for the period March to May 2008.

#### **Implementation requirements**

#### Web server software

Description: The game will run on the specified web browser.
Metric: Web server, version
Measure: Is shall be possible to install the game on a web server with the specified version of web server software.
Goal: Apache HTTP Server (Apache), 2.2
Side effects: During the development of the game the web server need to be the one specified.

#### Database management system

Description: The game will use the specified database management system (DBMS).Metric: DBMS, versionMeasure: The game shall be able to be in an environment using the specified DBMS.Goal: MySQL, 5.0.32Side effects: The developers have to use the DBMS specified.

#### Server side implementation language

**Description:** The specified programming language shall be used to implement the game on the web server.

Metric: Programming language, version

**Measure:** The game shall be able to run with the specified version of the programming language.

**Goal:** PHP, 5.2.5

**Side effects:** During the development of the game the specified version of the programming language will be used on the web server.

#### Client side implementation languages

**Description:** On the client side of the game Extensible HyperText Markup Language (XHTML), Cascading Style Sheets (CSS) and JavaScript will be used to implement the graphical user interface (GUI) of the game.

Metric: XHTML version, CSS version, JavaScript version

**Measure:** The specified version of programming languages shall be able to run on Mozilla Firefox and be validated with the World Wide Web Consortium's validators.

Goal: 1.1, Level 2, ????

**Side effects:** During the development continues testing shall be done with validators and the web browser Mozilla Firefox specified.

#### Version control system

Description: During the development of the game a version control system shall be used to keep track of the development.
Metric: Version of version control system
Measure: Goal: Subversion, 1.4.5
Side effects: The developers have to order a version control system.

#### **Documentation** system

Description: During the development of the game all documentation shall be saved on the content management system (CMS) specified.
Metric: Version of CMS
Measure: Goal: MediaWiki, 1.11.0
Side effects: The developers have to a version of the CMS.

#### Forum system

Description: During The player and developers can use a the forum for announcing information and answer questions.
Metric: Forum system, Version
Measure: Goal: PHP Bulletin Board (PhpBB), 3.0.RC7
Side effects: The developers have to learn more how the specified forum system is used and how it can be implemented in the game.

#### **Standards requirements**

#### **Client side standard requirements**

Description: To assure that the graphical user interface (GUI) follows the standard of Extensible HyperText Markup Language (XHTML) and Cascading Style Sheets (CSS).
Metric: Web address for the validators, number of errors
Measure: The game shall pass the validators with specified number of errors.
Goal: validator.w3.org, 0
Side effects: During the development of the game the validators should be continues used.

### **External requirements**

#### **Interoperability requirements**

#### **Ethical requirements**

#### Offensive language and pictures

**Description:** No offensive language and pictures in the description of the game, the game's objectives.

Metric: Number of offensive words

**Measure:** A native English speaker shall only found the specified number of offensive words

**Goal:** 0

**Side effects:** During the development of the game the person responsible for the project will control that no offensive language is used.

#### Legislative requirements

#### **Privacy requirements**

Usage of cookies

**Description:** The game will use cookies to keep players logged in to game. Sweden has laws regulating the use of cookies.

Metric: -

**Measure:** Control that a text is included in the game explaining how cookies are used. **Goal:** -

Side effects: Create a text explaining how the game uses cookies.

#### Safety requirements

#### Information saved about the user

**Description:** No personal information about the player will be saved except username, password and e-mail. The web host providers will save information.

#### Metric: -

**Measure:** Control that a text describing what information the game saves about the player is included in the game.

Goal: -

**Side effects:** The developers have to write a description of what information that is saved about the user. Ask the web host provider what information they save about the players.

#### Secure connection

**Description:** The game will not provide a secure connection, i.e. encrypt the data transferred between the server and the client. Not even when the players logs in to the game.

Metric: -

**Measure:** Control that a text explaining that the game doesn't provide a secure connection exist.

Goal: -

**Side effects:** The developers have to write a text, which explains that the game doesn't provide secure connection during the log on phase.

### **Functional Requirements**

### The web page

### Web page

• Visitors shall be able to create an account, log in with an existing account, read about the game or visit the forum

### The Game

### Game map

- The game map will be a coordinate system where the players can move freely. There will be another layer placed upon this coordinate system which will be a grid field.
- There is a worm-hole located at the origin of the game map. The goal of the game is to reach it. When the player succeeds in this, he/she wins the current game round and then a new round starts up where all players will be assigned a default ship.
- All players will start at an equidistance from the origin of the game map. This will result in all players starting in a circle.
- New players will start near each other.
- When a new round starts up, if the amount of players are not enough to be divided around the whole circle, i.e. they are too far away from each other, they will be spread out over a part of the circle.
- Each player will be able to view the entire map and all other players by moving the map view.
- A grid square on the map can only be occupied by one player at a time.
- There will be some grid squares on the game map that contain resources. These squares will be represented differently and so will squares that are occupied by other players.

### Resources

- There are two types of resources. The main one is obtained by building power plant modules and the other one can be gathered from resource squares on the game map at the cost of the the main resource.
- Players can use their resources to improve their ship.

## **The Resource Squares**

- The player will be able to gather the additional resource on resource squares on the map when he/she occupies it. The gathering of this resource costs the main resource.
- The resource squares will be identical to the other squares on the main map apart from the fact that the player can gather the additional resource and the appearance

of the squares.

### The ship

- Each player start with their own default ship and cannot under any circumstances gain another one.
- The default ship only contain one power plant module (more on this under "modules")
- Modules can be attached to the ship, e.g. weapons, engines. However, only a fixed amount of modules can be added to the ship. More on this under "Modules"
- When the condition status of the ship reaches zero percent, the ship will be destroyed and the player has been defeated. The player will then be assigned a new default ship.
- If damaged the ships condition status can be improved in exchange for a certain value of recourses. The pace in which the ship regenerates condition status will depend on the repair module/modules that the player has and the amount of recourses spent.
- Movements of the ship cost resources and it takes time to travel from one place to another.

## Modules

Modules can be attached to the ship for an exchange of resources. All modules except for the power plant module needs to be researched before the player can build them. Each module can be upgraded to another level. These are the following modules which can be added:

- Offensive weapons are used to attack players.
  - Missile batteries module: Missiles can reach any player on the entire game map. However, it takes time for the missile to travel through space. Missile battery modules may launch a fixed number of missiles at a time. They can store a certain number of missiles and produce a fix number of missiles. For each level this module is upgraded, the storage of missiles is expanded, the amount of missiles that can be produced at a time is increased and the amount of missiles fired at a time is increased.
  - Canons module: Cannon shells can only reach players close to the ship. There is a delay time before impact, i.e. it takes time for the projectile to travel through space. Cannon modules may fire a fixed number of shells at a time. They can store a certain number of shells and produce a fix number of shells. For each level this module is upgraded, the storage of shells is expanded, the amount of shells that can be produced at a time is increased and the player can fire more shells at a time.
- Defensive weapons are used to avoid attacks.
  - The teleportation module moves the ship to a random grid square within a short distance. This can be used to avoid incoming missiles and canon attacks from close players. It costs a lot more of the main resource to use teleportation than to actually travel the equal distance. For each level this module is upgraded, the costs when using this module decreases. Teleportation can also be used on other players ships but teleportation has a

certain range in which it can be used.

- The missile decoy module are used to avoid incoming missiles by producing missile decoys to intercept them. For each level this module is upgraded the overall capacity of decoys deployed at a time is increased and the production capacity of decoys is increased.
- Storage modules: Is used to store recourses. The amount of resources that can be stored depends on the level of this module.
- The engine module. The level of the engines determines how fast the ship can travel to a specified coordinate.
- Power plant module that produces the main resource. All players starts with one power plant that constantly generates the main resource. When upgrading the power plant module, the player receives more resources over time.
- The repair module. The repair module repairs the ship for an exchange for recourses. By upgrading this module, the ship repairs faster.

# **High-Score** lists

There will be two types of lists:

- A list that shows players sorted after distances from the center of the map (the worm-hole) in falling order.
- A high-score list of players' Escape points (More on this under "Escape Points")

## **Escape Points**

Escape points will be gained when the player adds modules, upgrades modules or researches (more on this under "Research"). Each time a player gains a certain amount of escape points, he/she will be awarded stars that can be appointed on different skills. Each star the player appoints on a skill decreases the time it takes to research in the corresponding category. These are the following skills that the player can invest stars in:

- Missiles skill
- Cannons skill
- Missile decoys skill
- Repair skill
- Engines skill
- Powerplants skill
- Resource collection skill

Three points will be gained at the start of the game and each skill can be appointed a maximum of 10 points. This means that a total of 70 points can be placed on the different skills. When a player has reached far in the game i.e. he/she has gained a big amount of escape points, a total average of around 15 points should have been awarded.

### Alliances

- Players should be able to form alliances with each other, but only one player can win.
- The only benefit from being in an alliance is that other players can see that you are in an alliance, and also what other players are also in it. It is not possible to trade

resources between members of the alliance or at all.

## Movement

The map consists of one large square. The ships will be able to move around in any direction. The grid will be used for identifying if two ships are in the same area. A ship will therefore have coordinates within a grid square.

## Communication

All players will be able to send short private text messages to each other. There will also be a forum on the main web-page where players can discuss various topics.

## Research

This list depicts what items can be researched, and what benefit the player gains from researching the item:

- Missiles. (decreases the time it takes for missiles to travel to another player. Increases the accuracy of the missiles)
- Cannons. (increases the range of the weapon and increases the damage done by the weapon)
- Missile decoys (increases the interception rate of the decoys)
- Teleportation (increases the range in which you can use it on other players)
- Engines (decreases the costs of resources when traveling through space)
- Resource collection (decreases the cost of gathering)
- Repair (decreases the cost of ship repair)

#### Complete set of use cases

Use case: Create New Account

<u>Topics:</u> Game information. Create account.

#### Main success scenario:

Bob is easily bored. An hour ago he played solitaire to excite himself but the joy didn't last as long as he wanted it to, so he asks his friend Tom what to do. Tom gives Bob a link to a new free web-based game. Bob opens up mozilla firefox (a web browser) and enters the address. After reading a little about the game he choose to create a new account. He decides upon a username and password and type them in, as well as a verification of the password. Now when all the required information is submitted the creation can be completed. The system presents that the creation was successful and Bob can now proceed into the game by logging in.

#### Alternate Scenarios:

If the username is already taken by someone else. Inform the user and ask for a different username.

If the password and the verification of the password do not match exactly. Inform the user and request the user to retype the password and the verification of the password.

Use case: Survive an Attack

<u>Topics:</u> Log in. Fighting. Reparation. Teleport. Missiles. Modules. Research.

#### Main Success Scenario:

Bob logs in and discovers that he has been a victim of three attacks, two of them landed and his ships condition status has dropped a bit. He now decides to repair his ship to be able to receive more hits without being destroyed. While he play he discovers that a new attack is incoming. To avoid this attack he randomly teleports to make the incoming missiles loose their lock on him. Bob realize that he seems to be a target by several other players right now and therefore he upgrade his defensive modules and research to make them better, making it harder to destroy his ship.

#### Alternate Scenarios:

The enemies attack hit your ship, and your condition status drops to 0 or below, your ship

are now destroyed and you loose.

Use case: Fight scene.

<u>Topics:</u> Startup. Recourses. Strategy development. Alliances. Traveling. Worm-hole. Messaging. Cannons. Teleport.

Bob and two of his friends have played the game for about two weeks. They started out a small distance from each other and they decided to gather up at a resource rich area a bit away from the bulk of the other players. They also started an alliance and acclaimed to the world that they henceforth should be known as; The Invincible Force (the name of their alliance).

Now during the course of the last two weeks they have spent their resources to travel to this promised patch of wealth where they planned to spend some time getting fat and plotting their future course to world domination, and ultimately, to reach the alluring goal of anyone, the worm-hole to escape. But now that they all have arrived they see new problems on the horizon. There are about four other players that are obviously also traveling to the same patch. They do not seem to be organized in the same way as Bob and his friends. Bob *could* ask them to join his alliance or at the least come to a agreement that they should not hurt each other. But if they where allowed to reach the patch, there would obviously not be enough resources for everyone to make a serious attempt at reaching the wormhole.

Bob sees the truth about what must be done and he tells his friends to start building cannons and ammunition (cannons are a short range weapon that have a maximum range. They are also more effective than missiles in terms of damage/resource). Next he sends a short message to each of the four approaching players stating that they should agree on not attacking each other while gathering recourses from the patch. Bob knows that he must be careful. If he attack the first player that comes within reach of their cannons then the other three would obviously notice it. If he on the other hand lets some of them stay for too long at the patch, they will both gather up Bobs and his friends recourses, and spend it.

While the players arrive one by one, the invincible Force spends their resources on preparations. Now three of the players has arrived and the stage is set. At three o'clock at night, three devious persons makes a login into the game. Bob the mighty leader of the alliance writes a single word to his friends via the message system: "fire". 100% of the gathered recourses during an entire week is at once unleashed in a form of hardened steel and explosives from the barrels of 100 cannons based on three mighty warships. Now it is a matter of waiting. Will they notice the danger in time? Or rather, if they notice, will they be able to do anything about it? If they have researched the teleport ability they could make one single blink and all fired shots will miss. Three satisfied and somewhat nervous warriors goes to bed that night.

It does not require Bobs specific wish for the three friends to log in the next morning. The information displayed on their screens speaks of a clear outcome. Two of the unsuspecting, totally innocent and probably very sad players are totally annihilated. The three friends grin. The remaining players wont state a problem. After all, Bob and his friends are; The Invincible Force.

Use case: Alliance diplomacy.

<u>Topics:</u> Alliances. Forum. Wormhole. Teleports. Missiles. Cannons. Offensive and defensive strategies. Escape points. "Close to center" list Text messages. Energy use.

Casandra knows how to manipulate the world of men. She is a member of one of the biggest alliances; The White Snakes. They consists of roughly 25 players. They have set up a White Snakes forum in the game where they have somewhat gotten to know each other and where they discuss their strategy. The goal is clear, the alliance is supposed to make steady pace towards the middle and when the time is ripe, the alliance commander Olof and his select group of officers will make a steadfast breakout to the wormhole while the rest of the alliance will keep up and use their teleport modules (players can teleport other players short random distances. This disables missile lock and cannon munition) to selflessly keep them out of danger.

Everything is proceeding to plan. Olof and his officers is steady at the top of the Escape points list(The list is based on different factors like research, modules and weapons). Its a clear indication that they are the strongest in the game. They are the the strongest, and everybody knows it. However, Cansandra knows that there are other sources of strength than brute power. She has been a busy bee in the alliance forum and made friends.

The game is now in on its fifth week. The Escape points list displays that The White Snakes have a clear domination of the game. A quick glance at the "close to center" ranking list also says that they are among the closest to the middle. They have the mightiest players and they have the most members. The officers have upgraded their defenses well. If, contrary to popular belief, any missiles would slip through their teleportation maneuvers, they have a large store of missile decoys and their repair modules are state of the art. The rest of the members have upgraded and researched their teleport modules so that they have greater range and take less energy to use. The vast distances of space is their ally. If, or rather when the other alliances launches their missile swarms against them, it will take at the very least five to six hours for the closest alliance to deliver their missiles on target. Olof decides that the time has come to make the attempt to reach the wormhole. He announces in the alliance forum and sends short text messages to all the members that they will line up the ships and at nine o'clock the next day they will start their engines and race

towards the middle. This is where Casandra makes her move.

At nine o'clock the next day the alliance has lined up. The officers are in the front and in the rear are the other alliance members. They all start their engines. The distance is vast, the perils are plenty, but they have gathered massive amounts of energy in their energy stores. The engines fire up. Most of the energy will be used to fire the engines. They are on their way. Later in the day the response is as expected. Many of the big alliances has fired away their first wave of missiles which are locked on Olof and the officers. Strange however that they have fired so many? One teleport is enough to fool the missiles lock system and render them scrap metal in space. Olof text message the alliance and gives the order to teleport them out of the missile locks and harms way. Time passes. He later logs in and finds three unexpected things. No one has used any teleports. Most of the support ships in the alliance has stopped a distance back, and above all else, there is only 1 hour, 2 minutes and 6 seconds left until the massive wave of missiles impacts his ship. Panic.

Casandra sits back. Her friends in the alliance did their part perfectly. The other alliances too. She had doubted that she would be able to persuade them all but it was not necessary. A few would suffice. Instead of sending their missiles in small waves, which would otherwise be needed to not loose them all to teleporation, she persuaded the alliances that the officers of The White Snakes would not get any teleportation. They would be sitting ducks in space. Sure, a few players in the alliance would still use their teleports to save some officers. But once used on teleport, huge amounts of the energy will be gone. The plan consisted of strength in numbers. Now that the numbers are gone, so is also the strength. But after all. There can only be one winner of the game, one master of the round, and Casandra will make damned sure, it is someone she likes.