

# System Requirements Specification

Monday 15<sup>th</sup> February, 2016

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# 1 Introduction

## 1.1 Purpose

The purpose of this document is to define and explain the website we build that caters to the fanbase of a board game, Twilight Imperium 3. The user for this website are the fans and the player of the TI3. The document should achieve the following goals:

- Give an overview of the website.
- Provide definitions, acronyms, and abbreviations from this document.
- State the website's function clearly and completely.
- State the requirements of the website's functions and systems

## 1.2 Scope

This document outlines the requirements of a website for the fans and players of the board game Twilight Imperium 3. The game plays with 3-8 people and can take anywhere from 5-12+ hours to play, typically consuming, at minimum, an entire day. The website we create will be dedicated solely to TI3 and support specific features not found elsewhere. Users will be able to discuss specific game elements with more advanced support.

This website should fill the gaps in the current mediums that are currently used for discussion of TI3. It should not replace but support other mediums of discussion such as *reddit.com* and *boardgamegeek.com*. It's design should facilitate discussion among players and disseminate information about the game itself. The website's primary draw will be online apps that will promote the game and encourage community participation by being both novel and useful. The website should also be useful for new players and veterans alike and provide relevant information in a manner that is easy to peruse through its online apps.

## 1.3 Definitions

TI3: The abbreviation of Twilight Imperium 3.

JS: The JavaScript programming language

CSS: Cascading Style Sheets

IE: Internet Explorer, a browser developed by MicroSoft

## 1.4 Overview

The remainder of this document is split into sections grouped by function. Section 1 has given an overview of the product and its general purpose. Section 2 gives a more precise description of the product, its use, and the environment surrounding its use. Section 3 will cover specific requirements of the product and requirements of the implementation. Section 4 contains supporting material and various appendices.

## **2 Overall Description**

### **2.1 Product Perspective**

This subsection of the SRS should put the product into perspective with other related products. If the product is independent and totally self-contained, it should be so stated here. If the SRS defines a product that is a component of a larger system, as frequently occurs, then this subsection should relate the requirements of that larger system to functionality of the software and should identify interfaces between that system and the software.

#### **2.1.1 System interfaces**

Hosting of the website will be outsourced to a third party service, Gear Host. Domain hosting will be outsourced to another third party service, Google. These parties have excellent service and it's their responsibility to host content and meet standard performance requirements.

This website will operate independent of other community mediums. It will not directly associate with other community elements but will rely on indirect association for traffic and new users. The features of this website are also independent in function but will share data when it is beneficial.

#### **2.1.2 User interfaces**

The user will primarily interact by viewing their browser, changing pages, and entering input via keyboard.

#### **2.1.3 Hardware interfaces**

The user will interact differently depending on the interface. Desktop users will use a keyboard and mouse to interact while mobile users will primarily use touch screen technology.

#### **2.1.4 Software interfaces**

All versions of IE8+ are supported. Google Chrome and Mozilla Firefox are also supported. Other browsers like Opera will not be tested, but should also work.

JS, CSS, and HTML will be required. It should be assumed that users have access to all 3 of these languages through their browser.

#### **2.1.5 Communications interfaces**

The website will not interact with other websites so no communication interface is needed.

### **2.1.6 Data Transmission**

Memory impact is minimal for all the planned features. Data impact is also minimal, the largest impact in memory will be delivering images when necessary. Libraries like JQuery and Bootstrap will also add a small amount to the data transmission.

## **2.2 Product Functions**

This subsection of the SRS should provide a summary of the major functions that the software will perform. For example, an SRS for an accounting program may use this part to address customer account maintenance, customer statement, and invoice preparation without mentioning the vast amount of detail that each of those functions requires.

### **2.2.1 Increment I Features**

The first increment will include a homepage and login/logout functionality for users.

### **2.2.2 Increment II Features**

Turn Tracker: the game takes a very long time to play in real-life. Often, players will forget whose turn it is and the game will stall pointlessly. The turn tracker is intended for mobile use during the game, it displays the active player's color and number to remind that player to finish their turn.

Game planner: will send automated emails about upcoming games to players in them.

Tech tree: a tech tree for the game that is mobile friendly and easy to peruse. Usability should be stressed here to combat the tree's complexity.

Rule discussion page: the base game rules are very long and players have endless 'house rules' they've added in. This page will allow players to discuss these rules.

### **2.2.3 Future Features**

Combat Simulator: in game battles work similar to Risk, players roll a 10-sided die for each of their units and fight in rounds until one side has no remaining units.

Game Content Discussion page: should be able to sort by favored races, favorite actions cards, most played races, races with the highest win rates, etc.

User page: a page dedicated to a single user. On this page users can see comments they've made and a short profile written by that user.

## 2.3 User Characteristics

The website designed for player who play the Twilight Imperium 3 game and want to find an efficient place that discussed for this board game. It does not require a lot of knowledge, people who know how to use mobile phone or a desktop browser can easily use the system.

## 2.4 Constraints

This website was designed as mobile-first, but player also can open it by computer web browsers such as Chrome and Firefox. It should be noted that *mobile-first* does not mean *mobile only*, mobile-first means that the website initially loads in a mobile friendly format. After the initial loading, the same website content adapts to non-mobile devices through clever use of CSS and JS. And since we use JQuery library to help support IE8 and IE9, which are no longer kept up-to-date with modern web technology.

## 2.5 Assumptions and Dependencies

This website depends on any device that can open browser and connect to the Internet. But if the internet down, we can not guarantee that the website will be work properly. Also the web browser has specific requirements that are list in the section 2.4.

# 3 Website Content Requirements

## 3.1 General Page Requirements

All pages should contain a header bar with links to the other pages including the home page. The home page should be most prominently displayed. They must also contain a footer at the bottom with a short disclaimer and contact information. All pages must have similar color schemes and be mobile-first. All pages must have a login/logout button in the header. Users should be able to login/logout from any page.

Mobile-first means the page first loads in a mobile friendly format. When the screen size is detected to be greater than a certain dimension, such as 992 pixels wide, it changes format to make use of the larger screen space. This serves to counteract the slower bandwidth and processing power that mobile devices are more prone to. Mobile-first does not mean only mobile.

## 3.2 Specific Page Requirements

### 3.2.1 Landing Page, Increment I

This is the homepage of the website that's most likely to be hit initially by new users. It serves to introduce the purpose of the website and has links with descriptions of all the features and content offered.(Figure 1)

1. It must contain an introduction that clearly states the website's purpose and gives information on the content/apps provided throughout.
2. The user must be able to view all the content and be able to navigate to it intuitively.

### 3.2.2 Combat Simulator, Increment III

The combat simulator simulates space combat as seen in TI<sub>3</sub>. (Figure 2) Its purpose is to display the *the most likely outcome of a battle*. Ground combat is excluded. Space combat in TI<sub>3</sub> is similar to Risk but with greater complexity. Units called ships are the primary combatants in space battles. Each ship has a combat rating between 1-10 where lower is strictly better. Ships fight enemy ships in rounds. In each round every ship has a 10-sided die rolled for it and a resulting number equal or greater to that ship's combat rating means it dealt damage. One ship, the War Sun, has 3 dies and can deal up to 3 damage. All ships have 1 health and 2 ships, War Suns and Dreadnaughts, have an ability called Sustain Damage which can be used once during combat. This ability gives them 2 effective health points. Their combat rating does not diminish. After each round, destroyed ships are removed and a new round begins. Combat continues with a new round of combat until one side is eliminated and a victor is declared.

A table of ships and their attributes. Cost, carry capacity, and movement are irrelevant to the combat simulator but should be shown to players as a reference.

Ship Name	Combat Rating	Health	Carry Capacity	Cost	Movement	Priority
Dreadnaught	5	2	0	5	1	2,8
War Sun	3x3	2	6	12	2	1,7
Destroyer	9	1	0	1	2	4
Cruiser	7	1	0	2	2	5
Fighter	9	1	0	0.5	-	3
Carrier	9	1	6	3	1	6

1. The user should be able to create two fleets of any combination of ships they desire. For example, one fleet may consist of 2 Destroyers, 1 War Sun, 1 Carrier, and 10 Fighters. The user should then be able to simulate combat between their two fleets by clicking a button.
2. The simulation results should be displayed to the user in a coherent manner where, at minimum, the 5 most likely results from each round of combat are displayed up to the final round of combat.

In-game, players choose where damage from opposing ships is dealt. For the purposes of simulation, a simple priority ranking has been included that will allow the simulator to assign damage automatically in a realistic fashion. Of note, Dreadnaughts and War Suns should always take 1 point of damage first, using their Sustain Damage ability, and their second point of damage last.

### 3.2.3 Turn Tracker, Increment II

Before the game begins, players choose their races and colors clockwise. The game progresses in rounds, typically 4-8. Rounds take 1 to 2 hours to complete. Each round has 3 phases in a definite order: strategic, action, and status. In the strategy phase, the players choose strategy cards that determine their play order for the action phase. In the action phase, players do their turns iteratively in the order determined in the strategy phase. Players can perform as many turns as they want until they pass for the remainder of that action phase. Players can perform 3 primary types of actions: tactical, transfer, and strategic. All players must perform their strategic action before passing. After passing, they can perform no more actions that round. Once all players have passed, the status phase begins. Many events occur in the status phase but they are irrelevant to the turn tracker. Following the status phase is the end of the current round and beginning of the next round and its' strategy phase.

The purpose of the Turn Tracker is to display the current player's color and race prominently for all to see. This would reduce downtime where players are unaware it's their turn. It should accurately reflect the current player order of the game.

1. The turn tracker should display: the current round, the current player's color, and the current player's race.
2. The users should be able to first choose their races and colors before the game begins in a clockwise order.(Figure 5) Then the game begins with the Strategy Phase of the first round.
3. The users should be able to select Strategy Cards during the strategy phase.
4. The users should be able to record and take actions during the action phase.

### 3.2.4 Game Content Discussion Page, Increment III

This page exists for users to discuss in game content, primarily through rating and commenting. Comment chain style should be similar to Facebook with a simple time-ordered stack and ratings should be similar to Reddit where the head content has a like/dislike option and each comment also has a like/dislike option. Game content includes:

- technologies
- races
- action cards
- political cards
- strategy cards

1. Users should be able to view content and filter by type and rating.
2. Users should be able to rate content with a like/dislike and comment on content.
3. Users should be able to like/dislike comments as well in a manner similar to Reddit.



### **3.2.5 Game Planner, Increment II**

Games are planned in advance due to the time required for a playthrough. The game planner should allow users to schedule future games with information such as date, time, and location. The game planner should have the ability to send email notifications before the event and serve as a hub for the planned game. Each planned game should have a unique URL so that a link can be shared easily among users.

1. Users should be able to attach other users to a scheduled game or enter in emails for players that don't have accounts.
2. Users should be able to select whether they want emails sent out and when they should be sent, like 1,2,3,etc days in advance.
3. Users should be able to comment on the planned games.

### **3.2.6 Tech Tree, Increment II**

There exists an in-game tech tree. Techs have assigned colors(green, yellow, blue, and red) and can have 1 or 2 required prerequisites.(Figure 3) The tech tree page's primary purpose is to provide an online tech tree for reference that is easily navigable for mobile users and has all needed information.

1. It should also allow users to rate techs with a like/dislike option.
2. Users should be able to filter techs by their color.
3. There should be an overview displaying techs with their name, color, and lines indicated prerequisites.
4. There should also be a card view that displays a single single tech along with its full description, a list of prerequisites, its color, its name, its rating, and a like/dislike button.
5. The card view should allow users to go to a requisite or prerequisite tech to the tech they are viewing.

### **3.2.7 Rules Hub, Increment II**

There exists a large number of rules in the base game and its expansions. There are also online official erratas that clarify edge cases by adding additional rules and changing existing ones. Player groups also have house rules they've added to the game. Rules typically involve other rules and/or game elements.

This page has 2 primary purposes. The first purpose is to allow players to browse the official rules by searching tags and keywords.(Figure 4) For example, searching the tag Dreadnaught should bring up all rules directly involving the Dreadnaught. The second purpose is for users to be able to browse, submit, comment, and rate house rules.

1. Users should be able to add tags themselves and then attach them to house rules and/or official rules.
2. Users should be able to search for house rules by tag, keywords, submitter, or ratings.
3. Users should be able to submit a rule with a title, description, and tags.
4. Users should be able to submit their own tags along with a rule.
5. Users should be able to visibly comment on other house rules.
6. Users should be able to rate comments with a good/bad option (like upvote/downvote, thumbs up/down, or like/dislike).

The official rules have been attached to this sheet.

### **3.2.8 User Page, Increment III**

The user page is an individual page dedicated to a single user. It should have information such as their comment history, submitted house rules, and a brief profile. The profile should contain, at minimum:

- Email
- User Name
- First Name
- Last Name
- Location

1. Users must be able to view the profile of other users as well as their own.
2. They must be able to add profile information to their own page and modify existing information.

## **3.3 Performance**

The website will be able to run on any internet browsing capable device. Each game will take maximum of 8 users, but the amount of games running concurrently and the amount of users that can use the website will be unlimited.

## **3.4 Security**

User's password information should be encrypted to ensure it would be as secure as possible. Database information should have restricted communication, database would only send what is needed to the website to prevent leak.

### **3.5 Maintainability**

The database should be designed well enough so that it will not be cluttered, and it should be easy to find certain information.

### **3.6 Response Time**

The website should load in a reasonable time of less than 2 seconds, preferably less than 1 second. Individual apps, features, and script response time should be less than .5 seconds, preferable less than .25 seconds.

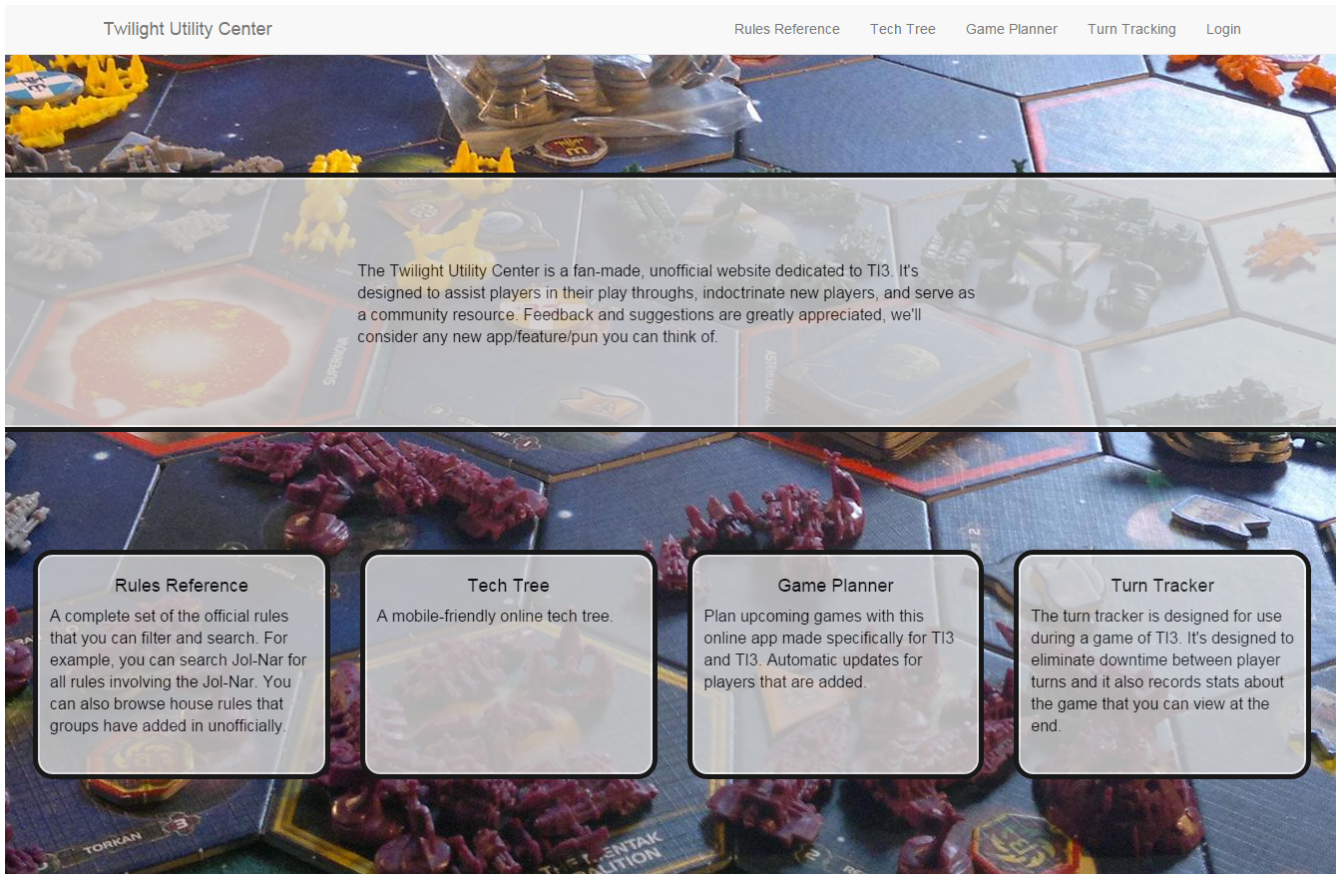


Figure 1: Example of a home page.

Attacking Force	Combat Display	Defending Force
<b>Fighter: 9</b> <input type="text" value="0"/> <input type="button" value="▲"/> <input type="button" value="▼"/>		<b>Fighters</b> <input type="text" value="0"/>
<b>Carrier: 9</b> <input type="text" value="0"/> <input type="button" value="▲"/> <input type="button" value="▼"/>		<b>Carriers</b> <input type="text" value="0"/> <input type="button" value="▲"/> <input type="button" value="▼"/>
		<b>Destroyers</b> <input type="text" value="0"/>
		<b>Cruisers</b> <input type="text" value="0"/>
		<b>Dreadnoughts</b> <input type="text" value="0"/>

Figure 2: Example of the layout for the simulation page.

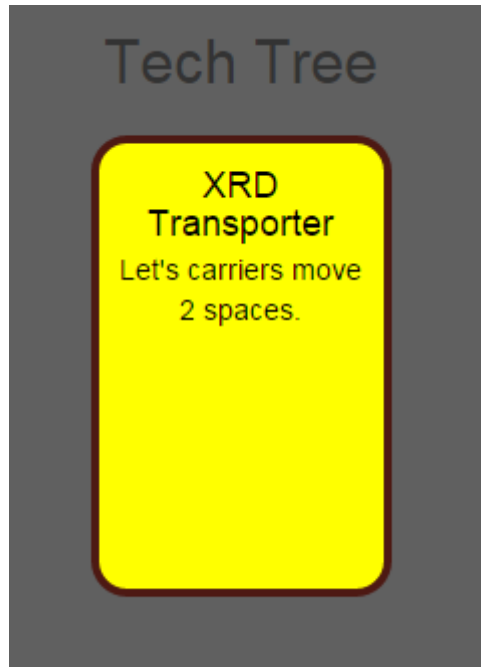


Figure 3: Example of a tech that would seen on the tech tree page.

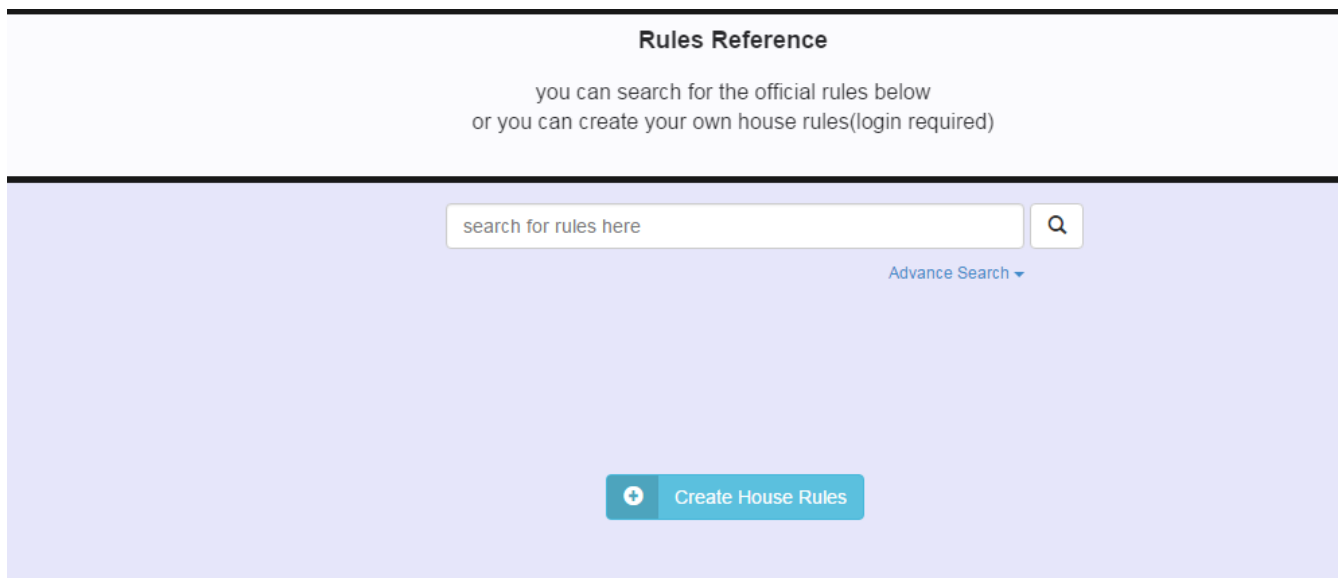


Figure 4: Example of the base rules page, letting users search for rules.



Figure 5: Example of the start of the turn tracker app, examples races are shown.