STAR SAGA: ONE Beyond the Boundary
Play-by-Email (or Solo) Using the VASSAL Engine

Michael Sternberg

Abstract

STAR SAGA: ONE Beyond The Boundary and its sequel are members of a class of computer game that is difficult to play without possessing the original game materials. This document proposes using the VASSAL engine to simulate the use of the game board and paragraph booklets needed to play the game.

Contents

Introduction

STAR SAGA: ONE Beyond the Boundary is a hybrid role-playing/tabletop/computer game developed by Rick Dutton, Walter Freitag, Andrew C. Greenberg, and Mike Massimilla and released in 1988 for the Apple II/IIgs family of computers, the IBM PC and its clones, and the Tandy 1000 [Mst88a]. Due to the scarcity of surviving physical copies of the game and its reliance on a hefty set of non-digital components (booklets, maps, etc), a present-day Apple II user may miss the opportunity to explore this unique game design.

One solution proposed here is to use the VASSAL Engine. VASSAL is a modern software system for playing computerized adaptations of traditional tabletop board games. It can be used to provide access to the non-digital components, maintain the state of the game board, and allow a multiplayer game to be conducted across the Internet (Play by Email).

The purpose of this document is to guide the reader through the steps involved in acquiring, configuring, and using the software components needed to conduct a game of *STAR SAGA: ONE Beyond the Boundary* using an Apple II emulator and a *STAR SAGA: ONE* module for VASSAL.

1. Historical Context

1.1 Real-World Role-Playing Games

By the late 1970's and early 1980's, role-playing games such *Dungeons & Dragons* had become a cultural phenomenon. Some people began finding ways to take the role-playing game out into the real world. At MIT, participants in the *Assassins' Guild* played both the role of hit man and target with the campus providing the game's boundary. In 1981, a group in Boulder, Colorado asked the authors of *Dream Park*, a science-fiction novel published the same year involving immersive, hologram-fueled role-playing games,

to adopt the name of the book's the ruling committee, the International Fantasy Gaming Society, as the name for their own club.

1.2 Society for Interactive Fiction
It was in this environment that university students, Walter Freitag, Michael Massimilla, and Rick Dutton, founded the Harvard Society for Interactive Literature in 1982. This was later shortened to the Society for Interactive Literature or SIL. The group innovated a theatre-style form of role playing game and in 1983 SIL began organizing weekend-long game events called Rekon (Recon-1, Rekon-2, etc) which were played at the Boskone science fiction conventions held in Boston. Two years later SIL would begin to host their own annual event, SILiCON, which, as of 2014, continues as Intercon [OD98].

1.3 From SIL to Star Saga
Just before Rekon-2, Michael Massimilla, had a chance encounter with Andrew C. Greenberg, creator of the *Wizardry* series of computer adventure games, when both competed in a bridge tournament. Massamilla introduced Greenberg to Dutton and Freitag. This led to Greenberg attending Rekon-2 and sparked the idea to capture the experience in the form of a computer game. So Dutton, Frietag, Greenberg, and Massamilla set out to create a trilogy of computer role-playing games using some of the elements of Rekon. The first game of the trilogy was *STAR SAGA: ONE Beyond the Barrier* [Mst88b].

1.4 Critical Reception
Reviews of the game ranged from favorable to enthusiastic with the highest accolades coming from *Computer Gaming World*. Here are excerpts from several computer and game magazines that reviewed *STAR SAGA: ONE - Beyond the Boundary*:

> ...Star Saga is a genre-buster. It can be compared to no other game on the market. The best way to describe Star Saga's playing experience is to compare it to participating in the *Foundation* series of books by Issac Asimov. We're talking grand scale adventure here, folks.
>
> (*Computer Gaming World* August 1988 - pp. 30)

★★★¹/₂ (of 5)

> Patience, the ability to read text and instructions, and a willingness to use the computer only as a record keeper are the keys to this game's enjoyment. After the first few turns, even the most addicted computerphile will enjoy this text and book-based adventure.
>
> (*Dragon* # 142 - pp. 48)

> The game seems far more social event than a computer game, for much of its entertainment value comes from the interaction between players, not between human and computer.
>
> (*Compute!* August 1988 - pp. 60)

> CGG's **Special Award for Literary Achievement** goes to Masterplay for *Star Saga One: Beyond the Boundary* - [Ed: This is the first time CGW has ever given an award for the fiction presented in a computer game. Star Saga One *is the most marvelously well-written adventure game ever presented on a computer. Although the game lacks any on-screen graphics, sound effects, or technical chrome, this humorous, challenging, frustrating, exciting, and addictive game holds its own as a benchmark of adventure gaming on the computer.]* (*Computer Gaming World* October 1989 - pp. 8)

2. The Game

2.1 Overview
STAR SAGE: ONE Beyond the Boundary is a turn-based, science fiction-themed game for one to six players. Each player chooses to be one of six available characters. The characters travel between different planets to trade goods, acquire resources, improve their spacecraft's capabilities, and progress through the game's narrative. A text-only program called the Computer Game Master (or CGM) maintains the game's state. Players plot their moves using colored stone-like tokens on a game-board map and take turns entering their actions into the CGM. The program returns the results. Often this requires having the player read one or more narrative passages found in a set of thirteen booklets.

2.2 Object of Game
The players are assigned a set of goals unique to their chosen characters. These goals are intended to remain undisclosed to the other players and can only be completed by exploring and interacting with the game's universe. The game is won for the player when the character has completed its assigned goals. Play can continue for the other players who have not yet completed their goals.

2.3 Original Game Components
The original game included many physical components. **(See figure 1.)** It would be meaningless to play the game without possessing these items (or facsimiles of these items).

- (1) Host Guide / Player Reference Manual
- (1) small map used during the tutorial phase
- (1) large map used after the tutorial phase (not shown in figure 1
- (6) Colored tokens to indicate players' locations on map
- (6) "Dear Player" cards - starting point for the game
- (6) Character biographies / tutorials

- (2) 5.25" or (1) 3.5" floppy diskette
- (13) Paragraph narrative books (labelled A-M) containing entries numbered 1-888
- (1) Computer system instructions

3. Software Components Needed

3.1 Overview

To conduct a game of *STAR SAGA: ONE Beyond the Boundary* using digitized game components will require these items.

- The VASSAL Engine
- The VASSAL module for *STAR SAGA: ONE*
- Apple II or IBM PC DOS emulator
- Disk images for *STAR SAGA: ONE*

3.2 VASSAL

The VASSAL Engine is a contemporary, open source, cross-platform software system that enables people to play traditional tabletop board or card games by email or across the Internet. Modules for specific board games are downloaded from the Internet and added to your VASSAL game library.

There is no artificial intelligence inherently provided by VASSAL. The purpose for the system is to provide board game hobbyists a way to play against others without geographic restrictions. Initially created to enable play-by-email games of *Advanced Squad Leader*, over time the engine has been generalized to support a vast number of games through community-created game modules.

VASSAL provides a graphical user interface for managing installed modules. Modules will normally contain a facsimile of the game board, game pieces, and/or cards. The movements of game pieces or the playing of cards, along with text-based chats are stored into a log file that is shared with the opponent. The opponent is able to play back the log file to advance the game to its current state, then record his/her own turn to be shared with the original player. And thus, log files are traded back and forth to progress the game to its conclusion.

3.3 Game Master Program

The tokens, game board, and narrative booklets provide the majority of the game's experience for the players. However it is *STAR SAGA: ONE*'s Game Master program that manages the details of the game. It generates random events, provides an interface for players to enter their moves, returns the results of player actions, coordinates trades, etc.

The Game Master program was available for the four platforms listed in **Table 1**.

3.4 Emulator

To host a game of *STAR SAGA: ONE* requires running the Game Master program on a real or emulated computer. When playing a solitaire or multiplayer game where all participants are at the same physical location, then you are free to choose to run the Game Master program on a real computer or your favorite emulator and operating system.

If organizing a multiplayer game to be played via email, you must select an emulator that that satisfies two conditions:

1. the emulator includes a save state feature
2. the emulator is available for all participants' platforms / operating systems

These two requirements are necessary because the Game Master's save function is only accessible at the start of each turn. Once any player begins their turn, the save game function is not available again until all the players have plotted their moves. See **Table 2** for a list of commonly used emulators and whether a save state feature is currently available for each.

Table 1. Game Master Platforms

Computer	Operating System	Media
Apple II	ProDOS 8	(2) 5.25" diskettes
Apple IIgs	ProDOS 16	(2) 3.5" diskette
IBM PC	MS-DOS	5.25" or 3.5" diskettes
Tandy 1000	MS-DOS	

Table 2. Emulators capable of executing the Game Master program

Emulator	Target	Native OS	Save State
Virtual II	II	OSX	✓
AppleWin	II	All[1]	✓
JACE	II	All	–[2]
Linapple	II	Linux	✓
Sweet 16	IIgs	OSX	–
Kegs/GSport	IIgs	Linux/OSX	–
DOSBox	PC	All	✓[3]

1. Using WINE under OS X or Linux
2. Possibly under development
3. Using Game Wizard Pro 32 Utility and Microsoft MS-DOS

4. *STAR SAGA: ONE* Game Mechanics in VASSAL

4.1 Overview

This section concentrates on reviewing the game mechanics employed in the original game, such as player movement, taking notes, etc. and comparing these to each one's counterpart as implemented within the VASSAL module for *STAR SAGA: ONE*.

Figure 1. Original Game Components

4.2 Game Maps and Player Tokens

Two poster-like game maps were included with *STAR SAGA: ONE*. The smaller one, titled "Starweb" is used only during the tutorial phase. The larger map, titled "Document Two", is used throughout the remainder of game play. Each space on the map is defined by a colored and uniquely numbered triangle (or "trisector" in the game's idiom). Most trisectors are void. A few contain planets.

Each player's current location on the map is marked by the placement of a stone-like token within the boundary of a trisector. **(See figure 2)**. In the original game, the assignment of colored tokens to player characters is arbitrary; players may choose any token to represent their characters. However in the VASSAL module, each of the token colors have been assigned to a specific character. A cross reference between token color and player character is available by clicking on the *Help → Player Tokens* menu items. **(See figure 3 and figure 4).**

Movement of player tokens on the map is only allowed from the current trisector to one of the three immediately adjacent trisectors that share the sides of the triangle (not the vertices). Through a clever distribution of colors across the trisectors, an unambiguous path can be described given the current trisector and an ordered list of the colors along the route. **(See figure 5).** Player movements on the gameboard must also be entered in the Computer Game Master program. Only legal moves will be allowed by the CGM program.

4.3 Plotting Sheet

If you were conducting the original game with multiple players sharing the same computer, it would become apparent a need exists to minimize a player's time at the terminal. It
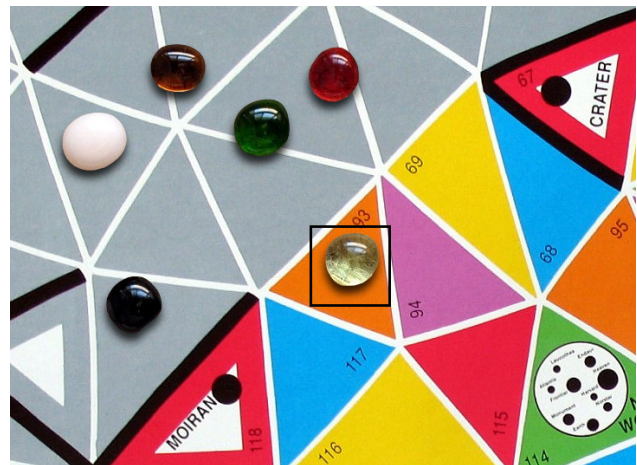

Figure 2. Gameboard and tokens within VASSAL

is not the place for the player decide which moves to make. Instead the game's designers recommend planning the next move while away from the computer and writing down the intended moves on a piece of paper. **(See figure 6)**. This way, the player only needs to enter the moves and obtain results when it is his his/her turn at the terminal.

To simulate this, a virtual Plotting Sheet is available in the *STAR SAGA: ONE* VASSAL module and can be found by accessing (right-clicking) the context menu bound to a player's token. **(See figure 7)**. A simple spreadsheet will appear where moves can be entered. **(See figure 8)**. On first use, you may be required to enter column headers and row numbers. The VASSAL engine will save the spreadsheet contents as part of the log file and can be recalled and appended on later turns.
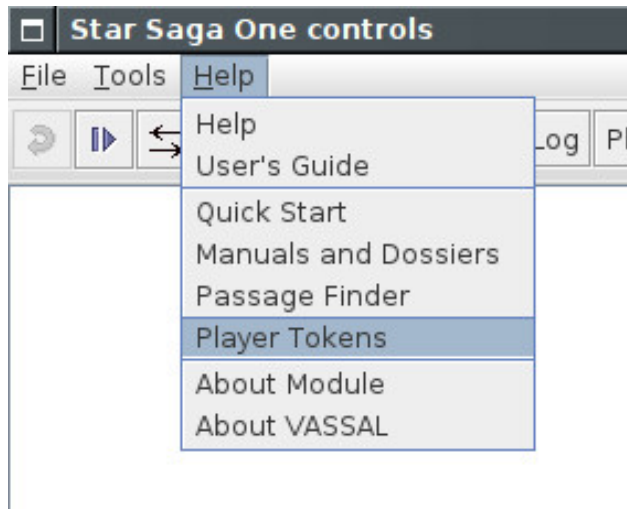
Figure 3. Click on *Help → Player Tokens* to review token assignment

Figure 4. Cross-reference between token color and character available in the VASSAL module

4.4 Cargo Sheet

At the start of the game each player's ship has the capacity to store ten units of cargo. The Computer Game Master will maintain the current state of cargo. But you can also make note of it within VASSAL by accessing the Cargo Sheet from your token's context menu. **(See figure 9)**. A free-form spreadsheet will appear where you can enter data as needed. **(See figure 10)**.

4.5 Items and Abilities

Similar to the Cargo Sheet, another free-form spreadsheet is available from your player token's menu for recording special items and abilities gained during play. Use this as needed.

Figure 5. An example path described as 114 to Orange, Violet, Green, Yellow, Red

Figure 6. Example of plotting turns 1 and 2 as found in the original manual

4.6 Passage Finder

The original game included thirteen booklets labelled A through M, containing passages numbered 1 through 888. Throughout much of the game, the Computer Game Master will instruct a player to read a specific passage from one of the books. These passages form the game's narrative.

The VASSAL module contains scans of these passages created by an early abondonware/archival group called *The Underdogs* and a user named Ranger55[?]. They developed a javascript program to retrieve individual passages requested by the player. In VASSAL, select *Help → Passage Finder* to open the Passage Finder tool **(see figure 11)**. Then enter the requested passage number in the text box on the form **(see figure 12)**. Whenever necessary, enter passage 000 to return to the title page.

4.7 Planet Log

Much of playing *STAR SAGA: ONE* involves trading goods between planets. Planets may also provide opportunities to perform actions, such as searching through a junkyard for special items. The game's designer's recommend creating a planet log on paper to record the exchange rates for goods and the special activities available for a particular planet.

Virtual planet log sheets are available in the VASSAL module. As described in more detail later, you will pull a new Planet Log game piece for each planet visited. In order to keep Planet Logs private between players, a Planet
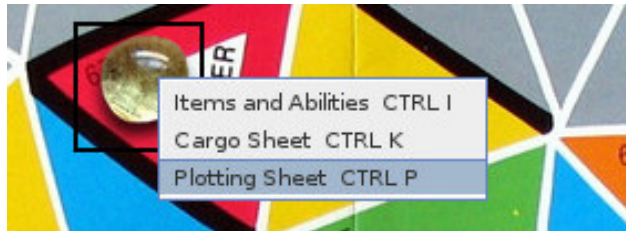
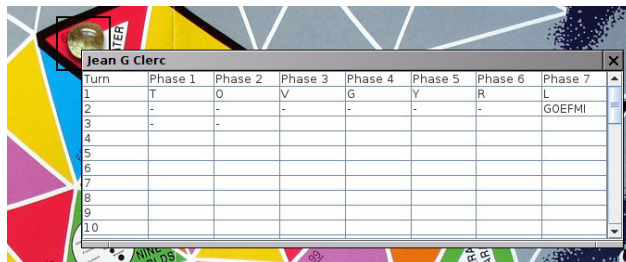**Figure 7.** Accessing the Plotting Sheet menu item in VASSAL

Figure 9. Accessing the Cargo Sheet menu item in VASSAL

Figure 8. Example of plotting turns 1 and 2 using VASSAL

Figure 10. Cargo Sheet in VASSAL

Log piece placed on the map is accessible only to its owner. For this reason, a separate palette exists for each character. Select the palette for your character before adding a new Planet Log piece to the game.

The game designers intended for the details for a particular planet to be known only to the players that have visited a planet. Therefore, in the VASSAL module the Planet Label game piece can be toggled to be invisible to other players.

Upon visiting a new planet, perform the following steps.

1. Click on the *Planet Log* button to toggle the display of the Planet Log palette **(See Figure 13)**.
2. Find the palette for your character.
3. Drag a new Planet Log game piece and drop it on the game board on top of the planet you are currently visiting.
4. Right click on the new Planet Log and select the "Rename" menu item. Rename the log to match the planet being visited. **(See Figure 14).**
5. Right click again on the renamed Planet Log and select the "Planet Log" menu item. A blank spreadsheet will appear.
6. Enter relevant information as required onto the spreadsheet. **(See Figure 15)**.
7. Right click again on the Planet Log and select *Toggle Visibility* so that the Planet Log is not visible or accessible by other players.

4.8 Planet Labels

After the tutorial phase is complete, the larger map, labeled *Document Two*, is used for the remainder of play. The *Document Two* map contains many yet-to-be-discovered planets denoted as black dots. To provide replayability, the Computer Game Mas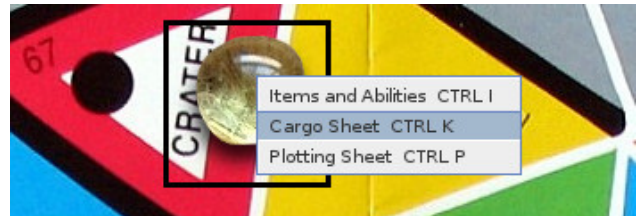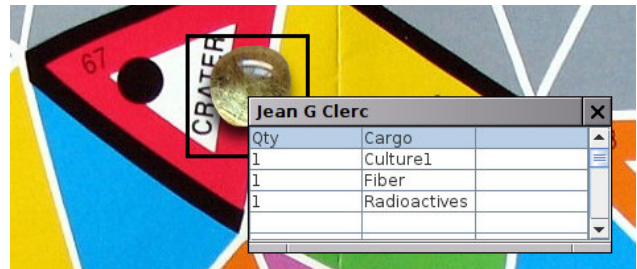ter program will randomly assign planets to map locations at the start of each new game. Once a planet is visited, the players will discover its name. The original documentation instructs players to lightly write the name of discovered planets using a pencil on the *Document Two* map.

Unlike the details found in the Planet Log, the name of the new planet is intended to be shared with all players. Therefore, within VASSAL, a game piece called a Planet Label is used as a way to virtually write the planet name on the map.

Upon discovering a new planet, a player should perform the following actions in VASSAL:

1. Click on the *Planet Label* button in VASSAL's toolbar area so the *Planet Label* palette is visible. **(See figure 16)**
2. Drag the *Planet Label* game piece (currently with the label "New Planet" from the planet to the black dot on the map **(See figure 17)**

5. How to Conduct a Multi-Player Game

5.1 System Preparation
1. Download and Install the VASSAL engine

2. Download the *STAR SAGA: ONE* module for VASSAL

3. Open the *STAR SAGA: ONE* module in VASSAL

   (a) Click *File → Open Module*

   (b) When the *Welcome* splash screen, Click *Cancel*

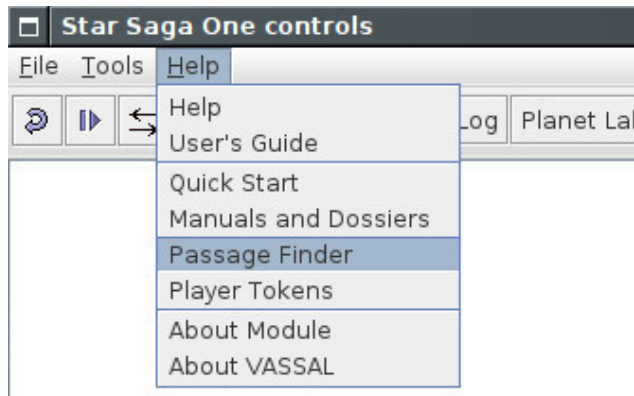4. If Play-by-Email then it's recommended to install AppleWin emulator

Figure 11. Accessing the Passage Finder tool from the VASSAL Help menu item

Figure 12. Passage Finder tool

(a) Download AppleWin

(b) If Mac OS X Mavericks then install WINE

    i. Install *XCode* from App Store

    ii. Enable command line tools in XCode

        A. From Terminal, run

```
xcode-select --install
```

    iii. Install *MacPorts* for OS X Mavericks

    iv. Update *MacPorts*

```
sudo port selfupdate
```

    v. Install WINE using *MacPorts*

        A. From Terminal, run

```
sudo port install wine-devel
sudo port install winetricks
```

    vi. Install Windows MFC 4.2 for WINE

        A. From Terminal, run

```
winetricks mfc42
```

    vii. Test AppleWin

        A. From Terminal, run

```
wine <path-to-exe>/Applewin.exe
```

where `<path-to-exe>` is the path to the directory containing the Applewin.exe executable file.

(c) If x86 Linux then install WINE

    i. From Terminal, run

```
sudo apt-get install wine-devel
sudo apt-get install winetricks
```
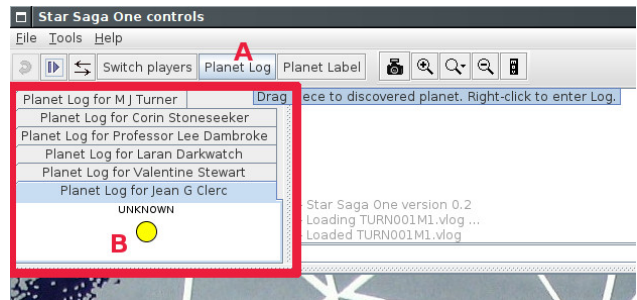

Figure 13. The *Planet Log* button in the toolbar (A) toggles the display of the Planet Log palette (B)
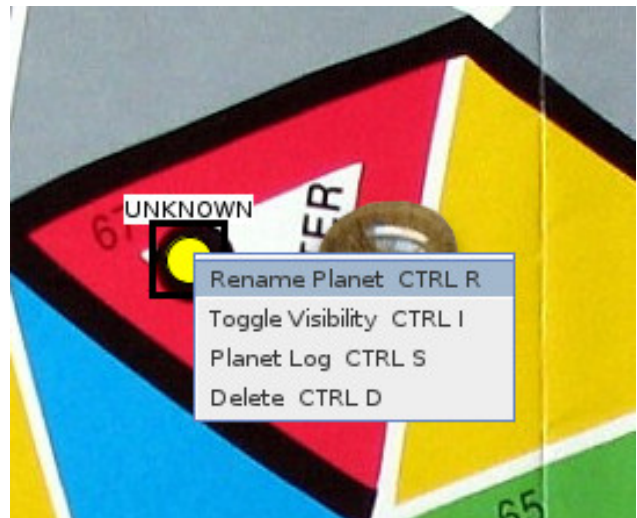

Figure 14. After dragging a new Planet Log piece to the gameboard, right click to access its context menu

    ii. Install MFC 4.2 for WINE

        A. From Terminal, run

```
winetricks mfc42
```

    iii. Test AppleWin

        A. From Terminal, run

```
wine <path-to-exe>/Applewin.exe
```

where `<path-to-exe>` is the path to the directory containing the Applewin.exe executable file.

5.2 Initial Setup

1. Launch Apple II Emulator

(a) Load *STAR SAGA: ONE* disk images in VASSAL

    i. Insert image for *STAR SAGA: ONE* DISK A BACK into S6D1

    ii. Insert image for *STAR SAGA: ONE* DISK B FRONT into S6D2

(b) Boot Apple II

Figure 15. Example of data entered into the Planet Log spreadsheet
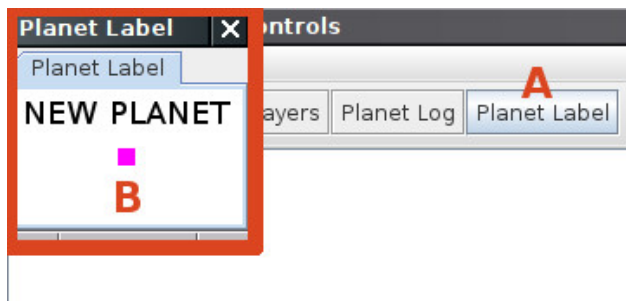

Figure 16. Click on the *Planet Label* button (A) to toggle the display of the Planet Label palette.

5.3 Player 1 - Turn 1

1. Launch VASSAL

   (a) Open the *STAR SAGA: ONE* module in VASSAL

      i. Click *File → Open Module*

      ii. Browse to the directory containing the *STAR SAGA: ONE* module

      iii. At the *Select Play Mode* prompt, choose *Start New Game* and click *Next*

      iv. At the *Choose Side* prompt, select a character to be used by Player 1 and click *Next*

      v. At the *Select Board* prompt, choose the map named *Map 1 (Starweb)* and click *Finish*

   (b) Click *Help → Manuals and Dossiers* and read the *Host Guide and Player Reference*

   (c) Click *Help → Manuals and Dossiers* and read the *Dear Player Card*

   (d) Click *File → Begin Logfile* to start recording any moves

   (e) Click *Help → Manuals and Dossiers* and read the Player 1 character's biography

   (f) As you read the biography, you will be taught how to use the game system. Use the VASSAL

Figure 17. Accessing the Cargo Sheet menu item in VASSAL

features described earlier in the document (Plotting Sheet, Planet Log, etc) and the Computer Game Manager running on the Apple II as instructed.

2. Switch to the Apple II Emulator

   (a) When your turn is complete within the Computer Game Manager, save the state of the session using *Save State* feature of the emulator. (On AppleWin, it is found under the *Advanced* tab in the *AppleWin Configuration* dialog.) Note: AppleWin will work best if you save the state file in the same directory as the *STAR SAGA: ONE* disk images.

3. Switch to VASSAL

   (a) When your turn is complete, click *File → End Logfile* and save the logfile to a convenient location, such as a "Saved Games" folder. Be sure to name the file that somehow encapsulates the turn and move, such as *TURN001M1.vlog*.

   (b) Exit the *STAR SAGA: ONE* module and return to the VASSAL *Module Library* dialog.

   (c) Right-click on the *STAR SAGA: ONE* entry in the *Module Library* dialog and select *Add Saved Games Folder*. Browse to the location where you saved your logfile.

4. Share Files

   (a) Share the log file *TURN001M1.vlog* and the AppleWin save state file with the other players in the group using email or a file-sharing service such as Dropbox.

5.4 Player 2 - Turn 1

1. Obtain the log file *TURN001M1.vlog* created by the first player and store it in a convenient location, such as a directory called "Saved Games".

2. Launch VASSAL

   (a) Open the *STAR SAGA: ONE* module in VAS-SAL

      i. Click *File → Open Module*

      ii. Browse to the directory containing the *STAR SAGA: ONE* module

   (b) At the *Welcome* screen, select the radio button labelled *Load Saved Game* and click *Next*. **(See figure 18).**

   (c) On the next screen, browse to the location of the saved games and select the log file *TURN001M1.vlog* and click *Open*.

   (d) Back at the *Welcome* screen, click *Finish*.

   (e) After the game board appears, adjust the scale as needed using the zoom-in or zoom-out buttons in the VASSAL toolbar.

3. Launch Apple II Emulator

   (a) Load the state file created by Player one. (The load state button is found in the *Advanced* tab under the AppleWin configuration dialog.) It's best if the state file is located in the same directory as the disk images. Also, ensure the files for the disk images have the same name as used by Player one. Otherwise the state file may be confused when it can't find disk images.

4. Switch to VASSAL

   (a) Play back Player one's moves by clicking on the "Play" button found in the toolbar. Alternatively, you may press the *Page Down* key on your keyboard.

   (b) At the end of the log file, a dialog appears asking to start a new logfile. Answer affirmatively. **(See figure 19).**

   (c) Click *Help → Manuals and Dossiers* and read the Player 1 Character's Biography

   (d) As you read the biography, you will be taught how to use the game system. Use the VASSAL features described earlier in the document (Plotting Sheet, Planet Log, etc) and the Computer Game Manager running on the Apple II as instructed.

   (e) When your move is complete, click *File → End Logfile*.

5. Switch to the Apple II Emulator

   (a) When your turn is complete within the Computer Game Manager, save the state of the session using *Save State* feature of the emulator.

(On AppleWin, it is found under the *Advanced* tab in the *AppleWin Configuration* dialog.) Note: AppleWin will work best if you save the state file in the same directory as the *STAR SAGA: ONE* disk images.

6. Share Files

   (a) Share the log file *TURN001M1.vlog* and the AppleWin save state file with the other players in the group using email or a file-sharing service such as Dropbox.
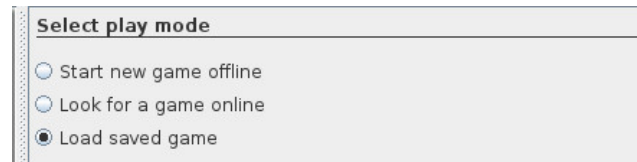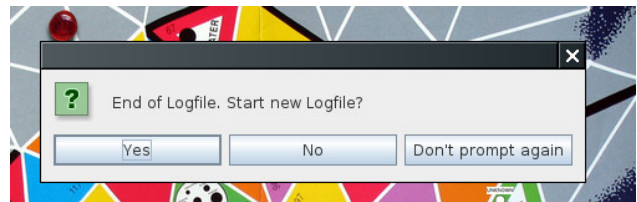

Figure 18. Radio Button for *Load Saved Game*

Figure 19. Dialog box that appears at the end of playing back a log file

5.5 Player 3 through *N* - Turn 1

If you have more than two players participating in the game, the remaining players should follow the instructions for *Player 2 - Turn 1*, with the exception that they must:

1. Load the most recent save-state file in the AppleWin emulator.

2. Play back the log files, in sequence, created by each of the previous players. To play back more than one log file, click *File → Load Continuation* and select the next log file.

5.6 Player 1 through *N* - Turn 2 through *N*

Similar to the instructions for **Player 3 through *N* - Turn 1**, in Turn 2 and thereafter, each player should:

1. Play back all the log files, in sequence, created by each player since the current player's previous turn.

6. Resources

Table 3. Disk Image Resources

Computer	Resource	URL
Apple II	disk image	ftp://ftp.apple.asimov.net/pub/apple_ii/images/games/rpg/misc/STAR_SAGA_ONE_DISKA_FRONT.dsk
	disk image	ftp://ftp.apple.asimov.net/pub/apple_ii/images/games/rpg/misc/STAR_SAGA_ONE_DISKA_BACK.dsk
	disk image	ftp://ftp.apple.asimov.net/pub/apple_ii/images/games/rpg/misc/STAR_SAGA_ONE_DISKB.dsk
Apple IIgs	disk image	ftp://ftp.apple.asimov.net/pub/apple_II/images/gs/games/adventure/Star_Saga_One.zip
	disk image	ftp://ftp.apple.asimov.net/pub/apple_II/images/gs/games/adventure/Star_Saga_Two.zip
	scans	http://mocagh.org/loadpage.php?getgame=starsaga
JVM	VASSAL	http://www.vassalengine.org/
	module	http://www.vassalengine.org/mediawiki/index.php?title=Category:Modules&from=S
	or	http://bit.ly/star_saga_one_module

References

[Mst88a] Masterplay Publishing Corp, Advertisement for *STAR SAGA: ONE - Beyond the Boundary*, *Computer Gaming World Number 50*, Golden Empire Publications, August 1988, pp. 38.

[Mst88b] *STAR SAGA: ONE - Beyond the Boundary - Host Guide and Player Reference Manual*, Masterplay Publishing Corp, 1988, pp. 46.

[OD98] Gordon Olmstead-Dean, *Theatre Style Live Roleplaying Events*, available at `http://www.interactivedramas.info/papers/theatredean.pdf`, 1998, pp 95-97.

[UD09] Underdogs, *Star Saga: One* article currently available at `http://www.hotud.org/component/content/article/38-content/games/adventure/23072-sp-1023092192` March 21, 2009