

# Literary Worlds Javascript Client

John Lewis, Owen Watson, Tim Cunningham

November 9, 2014

# Table of contents

Background

Introduction

Xpress interface

Design Decisions

Stories

Implementation

Testing

Security

# Background

- ▶ Literary Worlds is an multiuser text based game used for English education at WMU.
- ▶ These games are known as MOOs (Multiuser Object Oriented), or MUDs (Multi User Domains)
- ▶ Most of these games provide a telnet interface for playing, Literary Worlds uses enCore with MOOTcan, a Java applet.
- ▶ The aim of this project is to provide a drop-in replacement user interface in Javascript.

# Introduction

- ▶ LambdaMOO is distributed as a source tarball, deploying it on a new sever entails compiling it, and running it using the enCore database.
- ▶ enCore is an graphical interface and MUD database package that works with a LambdaMOO server to provide a browser based text client as well as a graphical, mouse driven interface.
- ▶ The Java applet is the text interface, it makes a telnet to LambdaMOO, as though the user were using a command line telnet client.

# enCore Xpress interface

Fall  
Apart</i>, [SL] to Shakespeare Learning Library, [1984  
(Thoughtcrimes)] to <i>1984</i>, [PP] to Pied Piper Courtyard Entrance, [BN] to  
<i>Native Son</i>  
- Bigger's World, [MM] to Midsummer Madness, [TOS] to Taming of the  
Shrew,  
[DL] to Mrs. Dalloway's London, [D] to <i>Democracy</i> - The  
Inmutable Hill,  
[ILY] to <i>An Island Like You</i>, [F451] to <i>Fahrenheit  
451</i>, [GM] to  
"Glass Menagerie" The Wingfield Apartment, [ASP] to Middangeard  
Anglo-Saxon  
Mead-Hall, [AIA] to Angels in America, [WIG] to Wild Irish Girl,  
[GG] to  
<i>The Great Gatsby</i>, [SB] to Shelter Bay, [CD] to Charles  
Dickens -  
London Bridge, [T] to Virtual Teapest, [MM] to <i>Of Mice and  
Men</i>, [LOTF]  
to <i>Lord of the Flies</i>, [#62] to General Prologue--Tabard Inn  
Cheapside,  
[#62] to <i>Number the Stars</i>, [#62] to Moll's World, [#62] to  
La Mancha  
-----  
MESSAGE OF THE DAY: Lord, what fools these mortals be!  
-----  
##ncp version: 2.1 to: 2.1  
Johnson the Literary Worlds Security Guard says, "Hi Dickens\_Guest!  
Name Connected Idle time Location  
-----  
Dickens\_Guest (#169) 29 seconds 0 seconds Literary Worlds  
Welcome Center  
DrHaughey (#713) an hour an hour Dr. Haughey's  
Office  
MrsHaughey (#5526) a day a day Mrs. Haughey's  
Fourth-Grade CL  
Total: 3 persons, 1 of whom has been active recently.  
You say, "hello"  
say  
normal  
say  
emote

me to Literary Worlds. Enjoy your visit! **Welcome** to Literary Worlds. E

## Literary Worlds Welcome Center

Follow the links below to virtual museums and interactive worlds!

**You see:**

- [Literary Worlds Newspaper](#)
- [Coffee bar](#)
- [Johnson the Literary Worlds Security Guard](#)
- [Dickens Guest](#)

**Links:**

- [Teaching to Exceed Virtual School](#)
- [Campus](#)
- [Brave New World](#)
- [Things Fall Apart](#)
- [Shakespeare Learning Library](#)
- [1984](#)
- [Pied Piper Courtyard Entrance](#)
- [Native Son - Bigger's World](#)
- [Midsummer Madness](#)
- [Taming of the Shrew](#)

# Client-Server Design

- ▶ It is not possible to initiate a raw TCP connection in clientside Javascript, unlike Java applets.
- ▶ Therefore, we need an intermediary server to connect over TCP, as well as to the browser client, and send data back and forth between the two.
- ▶ This server must also support multiple concurrent users and handle asynchronous tasks and events.

# Client-Server Diagram

# Client Technology

- ▶ Socket.io
  - ▶ Allows realtime communication between a server program and browser clients.
- ▶ Backbone
  - ▶ Backbone is a templating library for Javascript web applications
- ▶ Bootstrap
  - ▶ Bootstrap is a frontend layout toolkit
- ▶ Coffeescript
  - ▶ Coffeescript is a simple language that translates to Javascript



# Server Technology

- ▶ Node.js
  - ▶ Node.js is a server side runtime that uses the asynchronous features of Javascript to build web application servers. It provides a rich set of networking libraries, and uses the Google Chrome Javascript engine, V8.
  - ▶ It is the first class citizen for socket.io, so it was natural to choose it for the server.
- ▶ Express
  - ▶ Express is a web app framework for Node.js

# Stories

- ▶ Text Mode
  - ▶ Text
- ▶ Graphical Mode
  - ▶ Serving enCore GUI

# Continuous Integration

- ▶ Purpose

- ▶ Continuous integration aims to merge code from a developer's working copy many times a day into a shared mainline.
- ▶ Before any code is merged a, build server runs unit tests on the code, and if passed will be merged into the mainline.f
- ▶ This helps to improve the quality of the software and reduce the time to deliver it.
- ▶ The end goal of this process is to be able to automatically build and deploy the software whenever all of the tests are passing

- ▶ Tools

# Jenkins

- ▶ Pros:

- ▶ Widely used and documented
- ▶ open sourced
- ▶ Wide range of support for different systems
- ▶ Can be extended with plugins
- ▶ Github integration

- ▶ Cons:

- ▶ Manual setup required
- ▶ Have to get a server to run Jenkins

# Unit Testing

- ▶ Framework
- ▶ Matching Tools

# Security

- ▶ Telnet is plain text TCP, so it is inherently insecure to eavesdropping.
- ▶ In the future, the telnet server can be protected from external network using containerization such as docker
- ▶ This way only the Node.js server can connect via telnet, and user data can be protected with SSL in transport.