# System and Software Architecture Description (SSAD)

**LiveRiot Video Editing System and social networking enhancement**

**Team 04**

**Yang Li Project Manager, Life Cycle Planner**

**Haoyu Huang Feasibility Engineer, System Architect**

**Ye Tian Operational Concept Engineer, Prototyper**

**Zichuan Wang Operational Concept Engineer, Prototyper**

**Haishan Ye Requirement Engineer, Life Cycle Planner**

**Kaiqi Zhang Feasibility Engineer, System Architect**

**Mitra, Alok IIV&V**

12/08/2013

# Version History

| Date | Author | Version | Changes made | Rationale |
| --- | --- | --- | --- | --- |
| 10/13/13 | Haoyu Huang | 1.0 | Original for CSCI577 | Initial draft for use with LiveRiot social media v1.0 |
| 10/20/13 | Haoyu Huang | 2.0 | * Section 2.1.2 Behavior - use case changed * Section 3 added | Narrow down the requirement scope |
| 12/01/13 | Haoyu Huang | 2.1 | * System Context Diagram changed * Section 2.1.2 Behavior – use case description changed * Artifact & Information Section added | Improvement for TRR review |
| 12/08/13 | Haoyu Huang | 2.2 | * Few update |  |

# Table of Contents

System and Software Architecture Description (SSAD) i

Version History ii

Table of Contents iii

Table of Tables iv

Table of Figures vi

1. Introduction 1

1.1 Purpose of the SSAD 1

1.2 Status of the SSAD 1

2. System Analysis 2

2.1 System Analysis Overview 2

3. NDI/NCS Interoperability Analysis 13

3.1 Introduction 13

3.2 System Structure 13

3.3 System evaluation 14

# Table of Tables

Table 1 Actors Summary 2

Table 2 Artifacts and Information Summary 3

Table 3 Process Description (Facebook Login) 4

Table 4 Typical Course of Action (Facebook Login) 5

Table 5 Alternate Course of Action (Facebook Login) 5

Table 6 Alternate Course of Action (Facebook Login) 5

Table 7 Exceptional Course of Action (Facebook Login) 5

Table 8 Exceptional Course of Action (Facebook Login) 5

Table 9 Process Description (Share videos on Facebook) 6

Table 10 Typical Course of Action (Share videos on Facebook) 6

Table 11 Exceptional Course of Action (Share videos on Facebook) 6

Table 12 Process Description (Twitter Login) 6

Table 13 Typical Course of Action (Twitter Login) 7

Table 14 Alternate Course of Action (Twitter Login) 7

Table 15 Alternate Course of Action (Twitter Login) 7

Table 16 Exceptional Course of Action (Twitter Login) 7

Table 17 Exceptional Course of Action (Twitter Login) 7

Table 18 Process Description (Share videos on Twitter) 8

Table 19 Typical Course of Action (Share videos on Twitter) 8

Table 20 Exceptional Course of Action (Share videos on Twitter) 8

Table 21 Process Description (Tumblr Login) 8

Table 22 Typical Course of Action (Tumblr Login) 9

Table 23 Alternate Course of Action (Tumblr Login) 9

Table 24 Exceptional Course of Action (Tumblr Login) 9

Table 25 Exceptional Course of Action (Tumblr Login) 9

Table 26 Process Description (Share videos on Tumblr) 9

Table 27 Typical Course of Action (Share videos on Tumblr) 10

Table 28 Exceptional Course of Action (Share videos on Tumblr) 10

Table 29 Process Description (Search videos) 10

Table 30 Typical Course of Action (Search videos) 10

Table 31 Process Description (Tag videos) 10

Table 32 Typical Course of Action (Tag videos) 11

Table 33 Process Description (View top 10 videos) 11

Table 34 Typical Course of Action (View top 10 videos) 11

Table 35 Process Description (View timeline videos) 11

Table 36 Typical Course of Action (View timeline videos) 12

Table 37 NDI Product List 13

Table 38 NDI Evaluation 14

# Table of Figures

Figure 1: System Context Diagram 2

Figure 2: Artifacts and Information Diagram 3

### Introduction

#### Purpose of the SSAD

The purpose of the SSAD is to document the results of the object-oriented analysis and design (OOA&D) of the website being developed. The SSAD is used by the developer as reference to the system architecture. The website being developed should be faithful to the architecture specified in the SSAD. Furthermore, the SSAD is used by the maintainer and clients to help understand the structure of the system once the proposed website is delivered.

#### Status of the SSAD

The status of the SSAD is currently at the Foundations phase version number 1.0. This is the first version of this document.

### System Analysis

#### System Analysis Overview

The primary purpose of Live Riot social network enhancement is to enable user to share videos to other mainstream social network system such as Facebook and Twitter. The Live Riot video app allows user to log in Facebook and Twitter via two approaches, either redirect to the app to authorize Live Riot video app or use web view. The Live Riot video app allows user to share video links to Facebook and Twitter with one click and user can view Live Riot videos on the Facebook and Twitter without redirection to the Live Riot website. Figure 1 is the System Context Diagram. Table 1 is the actors summary.

##### System Context

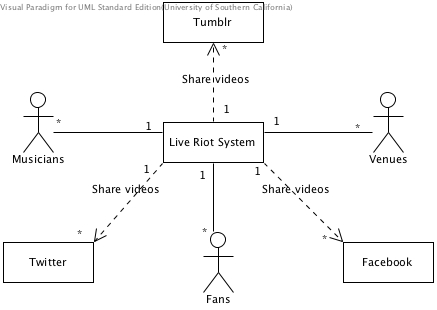


Figure : System Context Diagram

Table Actors Summary

| **Actor** | **Description** | **Responsibilities** |
| --- | --- | --- |
| Fans | People who love live music and use LiveRiot app. | * Record videos * Stream videos * Share videos * Edit videos * View analytic dashboard |
| Venues | People who hold live music shows and cooperate with LiveRiot | * Record audios * Construct venue page * View analytic dashboard |
| Musicians | People who perform in live music shows and cooperate with LiveRiot | * Construct musician page * Stream videos * Search videos * Share videos * Edit videos * View analyst dashboard |

##### Artifacts & Information

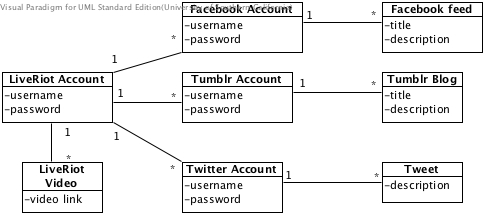


Figure : Artifacts and Information Diagram

Table Artifacts and Information Summary

|  |  |
| --- | --- |
| **Artifact** | **Purpose** |
| LiveRiot Account | Gives user ability to log in LiveRiot app |
| LiveRiot video | Gives video timeline and video detail |
| Facebook Account | Gives user ability to log in Facebook in LiveRiot app |
| Twitter Account | Gives user ability to log in Twitter in LiveRiot app |
| Tumblr Account | Gives user ability to log in Tumblr in LiveRiot app |
| Facebook feed | Gives user ability to share video as facebook feed in LiveRiot app |
| Tweet | Gives user ability to post tweets in LiveRiot app |
| Tumblr Blog | Gives user ability to post blogs to Tumblr in LiveRiot app |

##### Behavior

Figure 2 illustrates the process diagram of Live Riot social network enhancement. Fans can share videos to Facebook and Twitter.

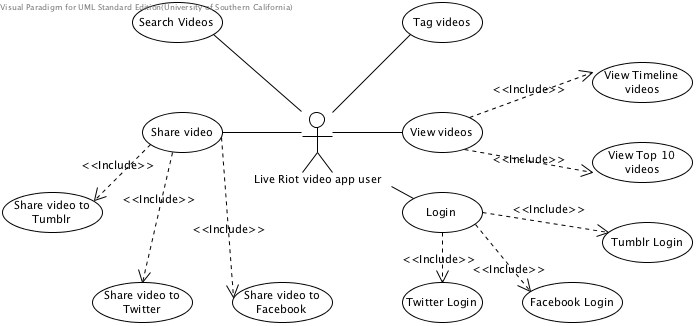


Figure 3: Process Diagram

1. Facebook Login

Table 4 is the process description of Facebook Login. Table 5, Table 6, Table 7 illustrates the different Facebook login process via Facebook app, webpage and iOS native built-in Facebook. Table 8 and Table 9 is the exceptional courses of Facebook login. The primary reason for this exception is due to the third-party app is not authenticated on Facebook.

Table Process Description (Facebook Login)

|  |  |
| --- | --- |
| **Identifier** | UC-1: Facebook Login |
| **Purpose** | Log in Facebook |
| **Requirements** | WC\_2799, WC\_2511 |
| **Development Risks** | Facebook Integration |
| **Pre-conditions** | User clicks on Facebook share button |
| **Post-conditions** | User log in Facebook |

Table Typical Course of Action (Facebook Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User clicks Facebook share button | Redirect the user to the Facebook app |
| **2** | User authorize Live Riot video app to get contents from Facebook | User log in the Facebook |

Table Alternate Course of Action (Facebook Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User clicks Facebook share button | Redirect the user to the Facebook login webpage in the web view |
| **2** | User tap in user name and password and click login button | User log in the Facebook |

Table Alternate Course of Action (Facebook Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User clicks Facebook share button | Redirect the user to the iOS native built-in Facebook |
| **2** | User tap in user name and password and click login button | User log in the Facebook |

Table Exceptional Course of Action (Facebook Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User clicks Facebook login button | Unauthenticated app, requires authentication. |

Table Exceptional Course of Action (Facebook Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User tap in user name and password and click login button | Incorrect password or username doesn’t exist. |

1. Share videos on Facebook

Table 10 illustrates the process description of sharing videos on Facebook. Table 11 demonstrates the course of action for the user to share videos on Facebook. Table 12 shows the exceptional courses of action via sharing videos. The primary reason is that the third-party app is not authenticated on Facebook.

Table Process Description (Share videos on Facebook)

|  |  |
| --- | --- |
| **Identifier** | UC-2: Share videos on Facebook |
| **Purpose** | Share Live Riot Video on Facebook |
| **Requirements** | WC\_2799, WC\_2511 |
| **Development Risks** | Facebook Integration |
| **Pre-conditions** | User log in Facebook |
| **Post-conditions** | User shares Live Riot video on Facebook |

Table Typical Course of Action (Share videos on Facebook)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User writes description about the video | Format of description is legal |
| **2** | User clicks the Facebook share button | Share success. |

Table Exceptional Course of Action (Share videos on Facebook)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User writes description about the video | Format of description is legal |
| **2** | User clicks the Facebook share button | Unauthenticated app, requires authentication. |

1. Twitter Login

Table 13 illustrates the process description of twitter login. Table 14, table 15, table 16 demonstrates the different approaches for Twitter login via Twitter app, webpage and native built-in twitter. Table 17 and Table 18 are the exceptional course of action for sharing videos on twitter. The primary reason is due to the third-party app is not authenticated on Twitter.

Table Process Description (Twitter Login)

|  |  |
| --- | --- |
| **Identifier** | UC-3: Twitter Login |
| **Purpose** | Log in Twitter |
| **Requirements** | WC\_2799, WC\_2511 |
| **Development Risks** | Twitter Integration |
| **Pre-conditions** | User log in Twitter |
| **Post-conditions** | User shares Live Riot video on Twitter |

Table Typical Course of Action (Twitter Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User clicks Twitter share button | Redirect the user to the Twitter app |
| **2** | User authorize Live Riot video app to get contents from Twitter | User log in the Twitter |

Table Alternate Course of Action (Twitter Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User clicks Twitter share button | Redirect the user to the Twitter login webpage in the Safari |
| **2** | User tap in user name and password and click login button | User log in the Twitter |

Table Alternate Course of Action (Twitter Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User clicks Twitter share button | Redirect the user to the iOS native built-in Twitter |
| **2** | User tap in user name and password and click login button | User log in the Twitter |

Table Exceptional Course of Action (Twitter Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User clicks Twitter login button | Unauthenticated app, requires authentication. |

Table Exceptional Course of Action (Twitter Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User tap in user name and password and click login button | Incorrect password or username doesn’t exist. |

1. Share videos on Twitter

Table 19 illustrates the process description of sharing videos on Twitter. Table 20 demonstrates the course of action for user to share videos on Twitter. Table 21 shows the exceptional courses of action via sharing videos. The primary reason is that the third-party app is not authenticated on Twitter.

Table Process Description (Share videos on Twitter)

|  |  |
| --- | --- |
| **Identifier** | UC-4: Share videos on Twitter |
| **Purpose** | Share Live Riot Video on Twitter |
| **Requirements** | WC\_2799, WC\_2511 |
| **Development Risks** | Twitter Integration |
| **Pre-conditions** | User log in Twitter |
| **Post-conditions** | User shares Live Riot video on Twitter |

Table Typical Course of Action (Share videos on Twitter)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User writes description about the video | Format of description is legal |
| **2** | User clicks the Twitter share button | Share success. |

Table Exceptional Course of Action (Share videos on Twitter)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User writes description about the video | Format of description is legal |
| **2** | User clicks the Twitter share button | Unauthenticated app, requires authentication. |

1. Tumblr Login

Table 22 illustrates the process description of Tumblr login. Table 23, table 24 demonstrates the different approaches for Tumblr login via Tumblr app, webpage. Table 25 and Table 26 are the exceptional course of action for sharing videos on Tumblr. The primary reason is due to the third-party app is not authenticated on Tumblr.

Table Process Description (Tumblr Login)

|  |  |
| --- | --- |
| **Identifier** | UC-5: Tumblr Login |
| **Purpose** | Log in Tumblr |
| **Requirements** | WC\_2799, WC\_2511 |
| **Development Risks** | Tumblr Integration |
| **Pre-conditions** | User log in Tumblr |
| **Post-conditions** | User shares Live Riot video on Tumblr |

Table Typical Course of Action (Tumblr Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User clicks Tumblr share button | Redirect the user to the Tumblr app |
| **2** | User authorize Live Riot video app to get contents from Tumblr | User log in the Tumblr |

Table Alternate Course of Action (Tumblr Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User clicks Tumblr share button | Redirect the user to the Tumblr login webpage in the Safari |
| **2** | User tap in user name and password and click login button | User log in the Tumblr |

Table Exceptional Course of Action (Tumblr Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User clicks Tumblr login button | Unauthenticated app, requires authentication. |

Table Exceptional Course of Action (Tumblr Login)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User tap in user name and password and click login button | Incorrect password or username doesn’t exist. |

1. Share videos on Tumblr

Table 27 illustrates the process description of sharing videos on Tumblr. Table 28 demonstrates the course of action for user to share videos on Tumblr. Table 29 shows the exceptional courses of action via sharing videos. The primary reason is that the third-party app is not authenticated on Tumblr.

Table Process Description (Share videos on Tumblr)

|  |  |
| --- | --- |
| **Identifier** | UC-6: Share videos on Tumblr |
| **Purpose** | Share Live Riot Video on Tumblr |
| **Requirements** | WC\_2799, WC\_2511 |
| **Development Risks** | Tumblr Integration |
| **Pre-conditions** | User log in Tumblr |
| **Post-conditions** | User shares Live Riot video on Tumblr |

Table Typical Course of Action (Share videos on Tumblr)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User writes description about the video | Format of description is legal |
| **2** | User clicks the Tumblr share button | Share success. |

Table Exceptional Course of Action (Share videos on Tumblr)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User writes description about the video | Format of description is legal |
| **2** | User clicks the Tumblr share button | Unauthenticated app, requires authentication. |

1. Search videos

Table 30 illustrates the process description of searching videos. Table 31 demonstrates the typical course of action for user to search videos by search criteria like band’s genre, location, keywords or band’s name.

Table Process Description (Search videos)

|  |  |
| --- | --- |
| **Identifier** | UC-7: Search videos |
| **Purpose** | Find designated videos effectively |
| **Requirements** | WC\_2564, WC\_2509 |
| **Development Risks** | Tag videos |
| **Pre-conditions** | User type in search criteria |
| **Post-conditions** | User view videos list related to search criteria |

Table Typical Course of Action (Search videos)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User tap in band’s genre or location or keywords or band name | Video list related to search criteria |

1. Tag videos

Table 32 illustrates the process description of tagging videos. Table 33 demonstrates the typical course of action for user to tag videos.

Table Process Description (Tag videos)

|  |  |
| --- | --- |
| **Identifier** | UC-8: Tag videos |
| **Purpose** | Categorize videos for effective search |
| **Requirements** | WC\_2564 |
| **Development Risks** | Get music tags from schema.org |
| **Pre-conditions** | User has uploaded videos. |
| **Post-conditions** | User can view videos by tag |

Table Typical Course of Action (Tag videos)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User select videos categorize them with corresponding tags | Videos has been tagged successfully |

1. View top10 videos

Table 34 illustrates the process description for user to view the top 10 videos. Table 35 demonstrates the typical course of action for user to view top 10 videos.

Table Process Description (View top 10 videos)

|  |  |
| --- | --- |
| **Identifier** | UC-9: View top 10 videos |
| **Purpose** | Gain public awareness of most popular live music |
| **Requirements** | WC\_2504 |
| **Development Risks** | The schema to measure the top 10 videos. |
| **Pre-conditions** | User has uploaded videos. |
| **Post-conditions** | User view top 10 videos |

Table Typical Course of Action (View top 10 videos)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User tap the view top 10 videos sidebar menu | The top 10 videos list. |

1. View Timeline videos

Table 36 illustrates the process description for user to view timeline videos. Table 37 demonstrates the typical course of action for user to view timeline videos.

Table Process Description (View timeline videos)

|  |  |
| --- | --- |
| **Identifier** | UC-10: View timeline videos |
| **Purpose** | User can view high-quality video rendered by Live Riot |
| **Requirements** | WC\_2504 |
| **Development Risks** | None |
| **Pre-conditions** | User has uploaded videos. |
| **Post-conditions** | User view timeline videos |

Table Typical Course of Action (View timeline videos)

|  |  |  |
| --- | --- | --- |
| **Seq#** | **Actor’s Action** | **System’s Response** |
| **1** | User tap the view timeline videos sidebar menu | The timeline video list. |

### NDI/NCS Interoperability Analysis

#### Introduction

In this project, Live Riot iOS video app will share video links to social medias such as Twitter, Facebook and Tumblr.

##### COTS / GOTS / ROTS / Open Source / NCS

Table NDI Product List

|  |  |
| --- | --- |
| **NDI/NCS Products** | **Purposes** |
| CocoTouch | iOS app development |
| Twitter | Share video links to Twitter |
| Facebook | Share video links to Facebook |
| Tumblr | Share video links to Tumblr |

##### Connectors

In this project, we use Twitter API, Faecbook API and Tumblr API in the Live Riot iOS app as connectors to connect to Twitter, Facebook and Tumblr.

##### Legacy System

The project should work on iOS 7.

#### System Structure

Figure 4 illustrates the system structure.

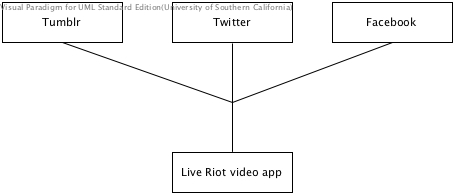


Figure 4: System Structure

#### System evaluation

Table NDI Evaluation

|  |  |  |
| --- | --- | --- |
| **NDI** | **Usages** | **Comments** |
| **CocoTouch** | iOS app development | * Easy to use * Effective User Interface Builder |
| **Facebook** | Share video links | * Use Open Graph protocol * Easy to use Facebook app dashboard to authorize the app used in prototype |
| **Twitter** | Share video links | * Use Open Graph protocol * Easy to use Twitter app dashboard to authorize the app used in prototype * Fast validation and authorization for twitter photo card |
| **Tumblr** | Share video links & embedded video params | * Use iframe to share videos * Easy to use Tumblr app dashboard to authorize the app used in prototype |