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| TCS logo B&Y_June_2006USE.jpg | Feature Requirements Document |

NBGM RePlayer

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| **Version Number** | **Revision Number** | **Date** | **Description of Changes** | **Author** |
| 1.0 | 0.0 | 26-Feb-13 | * First draft | Ben Tian |
| 1.0 | 0.1 | 25-Mar-13 | * New requirement for RePlayer Core, output runtime status | Ben Tian |
| 1.0 | 0.2 | 26-Mar-13 | * New requirement: mouse/keyboard input | Ben Tian |

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# Introduction

## Overview

This FRD contains the following additions and enhancements to the NBGM render engine and replay tool:

1. Run environment of the replay tool
2. Create/log replay command.
3. Replay a 3D scene using pre-generated render command.
4. Configuration and porting.

## Goals

We have three goals to make the RePlayer:

1. Make NBGM debugging more easier
2. Enhance NBGM demonstrate functionality
3. Make automatically test

.

## High-Level Summary of New Features

|  |  |  |
| --- | --- | --- |
| Feature | Level of Effort |  |
| **Command binary format** |  |  |
| **Command parser** |  |  |
| **RePlayer driver** |  |  |
| **Command generation** |  |  |
| **Porting** |  |  |

These features will be developed for the win32 platform, but they could also be integrated with Android, RIM, BB10, Windows Phone 8, Linux, and iPhone releases.

# Assumptions and Prerequisites

The NBGM RePlayer is based on current NBGM rendering engine, but use Python as the driver script.

## External Dependencies

## Feature Delivery

# User Scenarios for NBGM render engine RePlayer

The following user scenarios demonstrate how an end-user may interact with this feature.

## Debug NBGM

QA Bob got a map rendering issue when he tested VzNavigation, he thought this issue was caused by NBGM. He logged a new bug, and upload NBGM render log to Bugzilla.

Later this bug was assigned to Jeff, Jeff downloaded the render log. Then he used the RePlayer to load render log, and replay the render command stored in this log. Finally, he fixed the bug.

## Enhance NBGM demonstrate functionality

James got a task that need make a map demonstrate to customer. He wrote couples of NBGM RePlayer command files. When shown the demo to customer, he just needed run NBGM RePlayer, and load the command files he created before.

## Make automatically test

Jeff is a developer of NBGM team, and needed change NBGM codes to fix a bug. But he wanted to make sure his changes will not bring in regression bugs. Then he made a NBGM RePlayer command file. After his changes done, he run the command file, found all things works fine, then he checked in his codes.

# Functional Requirements for NBGM RePlayer

## Core Requirements

The core requirements for this feature are based on Vx1, but with enhancements in the following areas.

| **Reference Number** | **Description of the Requirement** |
| --- | --- |
| **PRD-NBGM-REP-1.0** | **Run environment** |
| FRD-NBGM-REP-1.1 | Shall support OpenGL, OpenGL ES, DirectX. And can be configured to use different render system |
| FRD-NBGM-REP-1.2 | Shall use script language(Python) to make the RePlayer |
| FRD-NBGM-REP-1.3 | The RePlayer shall implement RenderPal for NBGM render engine |
| FRD-NBGM-REP-1.4 | The RePlayer can be easily port to different platform |
| FRD-NBGM-REP-1.5 | Shall support multiple threads |
| **PRD-NBGM-REP-2.0** | **Replay command record file** |
| FRD-NBGM-REP-2.1 | Shall define a binary format to store command as a command record file. |
|  | Shall define a configuration file (.xml) for reading/writing command record file. |
|  | Shall not change read/write codes after format configuration file changed. |
|  | Shall define an action script that can be used by whom doesn’t know programming to use the NBGM RePlayer. |
|  | Shall modify current NBGM\_MapView, to accept different replay command |
|  | NBGM\_MapView shall log all calls in to a command record file |
| **PRD-NBGM-REP-3.0** | **Replay command** |
| FRD-NBGM-REP-3.1 | Shall contain function ID |
|  | Shall contain all function parameters |
|  | Shall contain time information |
|  | Shall contain threading information |
| **PRD-NBGM-REP-4.0** | **Replay core** |
|  | Shall be written in Python |
|  | Shall contain three components: Command generation, Command parser, Command driven |
|  | Shall have capability to specify tile fold where stores NBM tile and resource fold where stores resource folder |
|  | Shall have capability to start/stop/pause reply |
|  | Can read the action script and play it. |
|  | Map View should have a console |
|  | Map View should have a status bar |
| **PRD-NBGM-REP-4.0** | **Action script** |
|  | Shall support flow control(loop, condition, jump) |
|  | Shall support interpolation |
|  | Shall support time line |
|  | Shall support threading |
| **PRD-NBGM-REP-5.0** | **Map View Console** |
|  | Shall support log all NBGM command during running |
|  | Shall support input a NBGM command and run it |
|  | After run a command file, the console shall output a summary including: file size, command count, run time, FPS |
| **PRD-NBGM-REP-6.0** | **Map View Status Bar** |
|  | Shall output FPS |
|  | Shall output current triangle number |
|  | Shall output map center |
|  | Shall output camera status(Height, Rotate angle, Tile angle) |
|  | Shall output mouse location(lat/long) |
| **PRD-NBGM-REP-7.0** | **Map View Mouse/Keyboard input** |
|  | Shall accept mouse input to control map view |
|  | Shall accept keyboard input to control map view |
|  | Mouse/Keyboard input can be enabled/disabled by map view console and RePlayer Core |
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# Non-functional Requirements

Non-functional requirements include attributes such as performance, security, usability, compatibility, reliability, portability, modifiability, accuracy and precision, legal, platform constraints and operating constraints. These are not "feature" of the system, but are a required characteristic. Each requirement must be objective and quantifiable; there must be some measurable way to assess whether the requirement has been met.

| **Reference Number** | **Description of the Requirement** |
| --- | --- |
| FRD-3DC-NF.1 | Integration of feedback/improvements resulting from usability testing. |