# An Intelligent Plot-Centric Interface for Mastering Computer Role-Playing Games

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**Abstract.** Role-Playing Game Mastering is one of the most cited examples of "ordinary life Interactive Storytelling" in scientific literature. There are some computer interfaces for game mastering, but most of them are designed as part of the toolkits that are used to control low-level events of specific videogame engines. In this paper a more abstract application has been developed, an intelligent graphic interface that allows human Game Masters to direct stories in virtual environments from a more comfortable and narration-oriented point of view.

## 1 Introduction

The Game Master (GM) of Role-Playing Games (RPGs) is the most intuitive model of Interactive Storytelling found in ordinary life [1–4]. Despite this fact and the need of high-level control of game engines [5], there is little reported work on implementing this approach to direction of narrative virtual environments.

Due to the complexity and difficulty of adapting game contents to the unpredicted actions of the players, current approaches to mastering Computer Role-Playing Games (CRPGs) usually depends on particular game systems. This forces GMs to learn how each particular system works internally and how it should be controlled using an specific Graphic User Interface (GUI).

This paper presents a working prototype of an engine-independent plot-centric GUI for game mastering. Its goal is to improve the toolkits available to GMs for directing interactive storytelling in a virtual environment.

## 2 A Narrative Approach for Role Playing Mastering

In order to develop our proposed GUI for game mastering, a layered architecture is used, which hides details in high-level *layers* allowing a more narrative-like managing of the gameplay. The architecture, described in Figure 1 is the ground on top of which we create the real system, called Imp.

In the main window of our Imp everything can be modified by using the mouse, dragging boxes and arrows. It is possible to create whole stories from

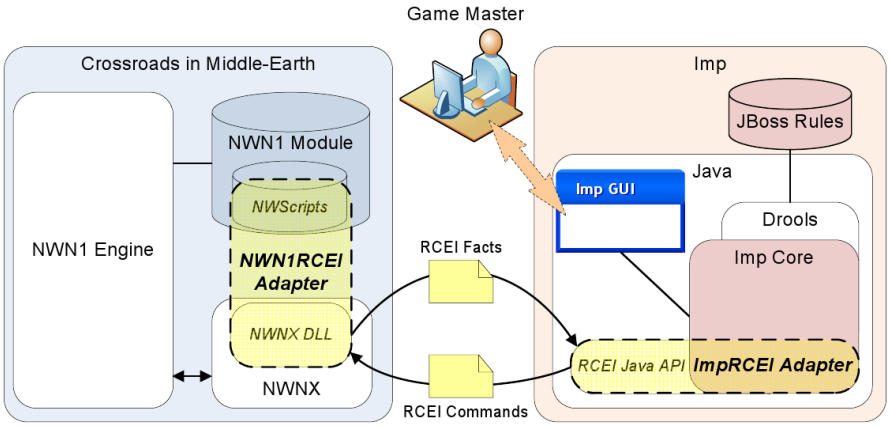


**Fig. 1.** The layered architecture of IMP.

scratch by adding characters, setting their characteristics, creating events, etc. The main window has three areas: The Timeline, the Objects Tree and the Characteristics Editor.

The Timeline contains a schematic, time-ordered representation of the game story. The GM can easily edit its events: Moving them by *dragging and dropping* with the mouse, creating new ones or deleting them. IMP displays a layout where characters' timelines are presented and, for each character, its sequence of events are laid out from left to right.

Interactivity forces the application to consider some time-specific notation in the interface. The GUI for this system is provided with a *time-bar*, which moves from left to right in the Timeline area showing the current time in the gameplay. With the time-bar, GMs have information about the moments their events or relations are going to be executed in the system.

The Objects Tree shows a hierarchical layout of the narrative objects inside the game. These objects can be *characters*, *places* or *items*. Relations between these narrative objects are also present as elements in this tree. Using the Objects Tree, the user can easily access to any object of the game. In order to configure characters, locations or events, the Characteristics Editor allows the GM to set the details for each object.

Monitoring the game state is performed without user intervention. IMP receives commands from the game and updates the main window information that layouts automatically. New events arise in the Timeline area, and character's properties change as the game continues. Then, the GM can keep on modifying it or just watching the story as it is created by the players' actions. Stories can be saved in a human readable XML format and then, be reloaded in IMP for a later study of the game, or to replay a version of the story.

The system operates according to the next sequence: after connecting IMP with the game engine, it creates messages corresponding to the current events being played (those which are under the time-bar), and sends them to the game. Once the game engine run those messages, new information is created inside the game and sent it back. IMP, then, gets that information, inferring narrative facts that arae not explicitly represented inside the game and updating what is shown to the GM.

An example of how IMP is used for directing a RPG is shown in Figure 2.

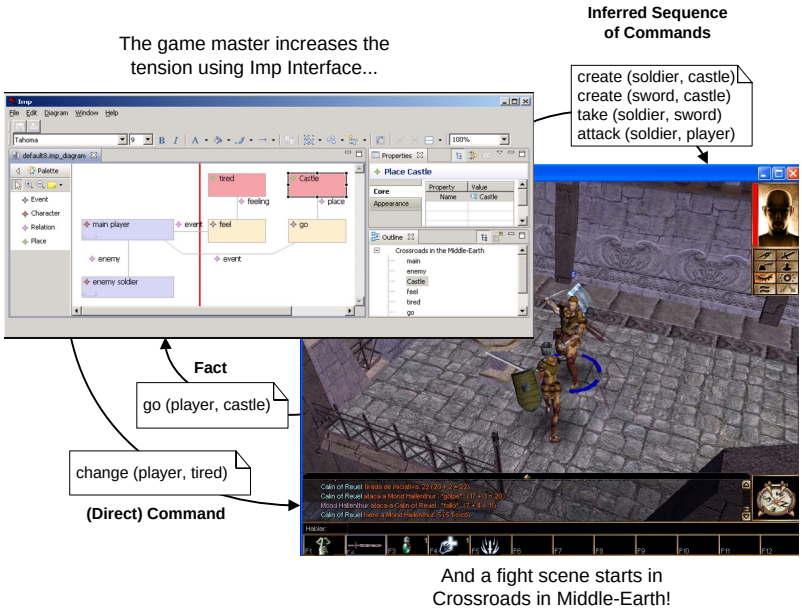


**Fig. 2.** A Game Master using IMP for directing a RPG.

The engine of Neverwinter Nights$^{TM}$ (NWN) is the technology we have chosen for implementing our test game: "Crossroads in Middle-Earth". NWN is a CRPG with that present opportunities for high-level creation of narrative scenarios [6]. IMP is connected to the NWN engine via RCEI (Remote-Controlled Environments Interface [7]) and Neverwinter Nights Extender (NWNX), which offers a basic but powerful communication pipe between our application and the game, getting results without too much development effort. Finally, JBoss Drools [8] has been chosen as the rule-based system behind our application, which is fully integrated with Java, the platform in which IMP is implemented.

## 3 Conclusions

In this paper a new plot-centric GUI for game mastering called Imp is presented. This application is designed to improve GM performance in the direction of CRPGs. Firstly, GMs will not need to learn the secrets of many particular game engines, focusing solely on gameplay after learning how to use a simpler GUI. Secondly, they will benefit from the efficiency of high-level direction instead of dealing with low-level details of the virtual environment. Thirdly, rules for game management are defined in a editable file so the GM can customize the behaviour of the system. Nevertheless it is true that there is a loss of control granularity due to the abstraction effort required for communicating two different systems in an independent way.

The next step is to evaluate Imp in game situations in order to probe that the game experience has been significantly improved.

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