

# Companion - A Software Toolkit For Digitally Aided Pen-and-Paper Tabletop Roleplaying

Sebastian Stickert, Hagen Hiller, Florian Echter

Bauhaus-Universität Weimar

Weimar, Germany

firstname.lastname@uni-weimar.de

## ABSTRACT

We present Companion, a software tool tailored towards improving and digitally supporting the pen-and-paper tabletop role-playing experience. Pen-and-paper role-playing games (P&P RPG) are a concept known since the early 1970s [20]. Since then, the genre has attracted a massive community of players while branching out into several genres and P&P RPG systems to choose from. Due to the highly interactive and dynamic nature of the game, a participants' individual impact on narrative and interactive aspects of the game is extremely high. The diversity of scenarios within this context lead to a variety of players' needs, as well as factors limiting and enhancing game-play. Companion offers an audio management workspace for creation and playback of soundscapes based on visual layouting. It supports interactive image presentation and map exploration which can incorporate input from any device providing TUIO tracking data [11]. Additionally, a mobile app was developed to be used as a remote control for media activation on the desktop host.

## INTRODUCTION & RELATED WORK

P&P RPGs are highly interactive, imaginary story-telling games. As such, participants engage in a fictional adventure by assuming the role of a playable character (PC). Players describe how their character wishes to perform non-spoken actions and clarify rules or other questions they have out-game. Spoken words of PCs are presented in-game. The in-game setting, general arc of the story, behavior of non-playable characters (NPC), as well as application of rules is narrated by a game master (GM). Various publications have focussed on the ludologic aspects of such games [6, 9, 18]. These have established a framework of factors enhancing and limiting game experience.

Several software tools have already been created to digitally aid the roleplaying experience in various domains. Numerous mobile apps simulate dice rolls on smartphones and tablets [7]. The "GM Wizard: Character Generator" mobile app helps GMs create NPCs in fantasy roleplaying settings [10]. While

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Figure 1. The left image shows Companions desktop tile canvas. The right image shows the same project layout on a smartphone.

this tool is agnostic to a variety of P&P RPG systems, other products are available to manage skills of PCs and NPCs [3, 4, 15], generate quest items [5, 13], or fictional language translations [14] for specific game systems. Programs like "Ye Olde Map Maker" [19] and "Dungeon Builder" [16] can serve to create environment maps using both desktop as well as mobile devices. It is common practice to enrich the atmosphere of game sessions with audio playback. Apart from conventional web and offline platforms for music and ambient sound, contributions have been made which follow a more P&P RPG context focused approach. For instance, Tabletop Audio is a web service which offers a categorized collection of ambient sounds with the ability to setup custom sound pads [1].

While prior research has often focused on creating a digitally-augmented game environment in which (some) rules are automated, such as W41K by Hinske and Langheinrich [8], we aim to keep the digital interaction component in the background to support and enhance the analog game experience itself.

## COMPANION

Existing tools available to the P&P RPG community integrate only a subset of digital media resources commonly used in the realm of P&P RPG. From personal roleplaying experience, we found that switching between, and interacting with several software contexts hinders narrative flow as well as immersion into the fictional world. Therefore, we propose a comprehensive cross-media system that minimizes digital interaction, so the time spent enjoying the analog nature of P&P RPGs is maximized. Our current state of work suggest a novel approach to the creation and live management of atmospheric soundscapes, which is based on visual layouting of audio media. Dragging sound files onto a 2D canvas creates a rectangular tile at the dropped position. Resource activation is toggled by mouse-click or by pressing an activation key, which

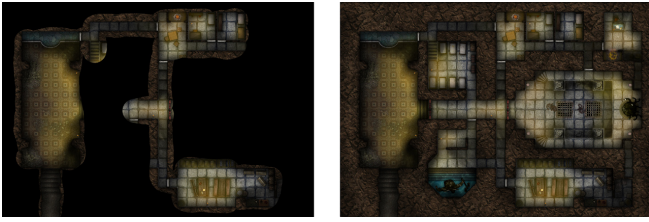


Figure 2. The left image shows a map overlaid with the "fog of war" effect and uncovered using a tracked physical token. The right image shows the same map without the effect. Image © Mario Sainz Martínez, CC-BY-NC-SA 2.0 [17].

can be assigned by the user. Additionally, visual properties (size, position and background image) and playback settings (volume, loop, shuffle and randomized interval playback) can be configured.

The layout and media resources managed on the canvas are serializable, so they can be stored to a JSON formatted project file. In that way, GMs can prepare and save soundscapes prior to an adventure. When starting a game session, the project can be loaded to simply toggle tile states and transition between different audio atmospheres. This reduces the invasiveness of digital interaction on gameplay practices. To allow for a clean layout and quick visual reference, Companion supports nesting of tiles. A nested tile contains its own canvas, thereby grouping tiles otherwise scattered across the main canvas. When a nested tile's activation is toggled, it toggles the active state of all tiles contained by it. Companion also integrates the Spotify Web API [2]. Users can authenticate with the service from within our application and spawn Spotify tiles by dragging and dropping playlist or track links onto the canvas. An Android application was developed to serve as a remote interface for quick tile activation using handheld devices. It receives project descriptions from the desktop host over a network connection. Additionally, projects can contain multiple layout definitions, so users can create and store various tile arrangements compatible with their respective device.

Companion integrates an image display, which we suggest to be moved onto a secondary monitor facing all players. To reduce the chance of unintentionally revealing images to players, file names in the image browser can be hovered to produce a thumbnail of the referenced resource. Furthermore, we support named draggable tokens on maps to represent players. As figure 2 illustrates, we provide a "fog of war" effect that can be overlaid on any image. The path of a token is tracked on the image and will remove the black overlay created by the effect, allowing for visual support of explorative game scenarios. A generic tracking system has been implemented, which utilizes the TUIO [11] protocol. Users can connect tokens to trackers via TUIO object properties (such as class IDs of printed fiducials). A unique name is set for each tracker, so GMs can identify and assign a manipulation source for map tokens.

### PRELIMINARY EVALUATION

The authors of this document are part of an active group of experienced players and GMs in pen-and-paper tabletop role-playing. As such, we integrate Companion into our own role-playing practices actively, allowing for an iterative design and implementation process. Apart from that, we supplied 3 GMs

unfamiliar with the system with a sound library, containing 587 files sorted across 33 nested folders. They were briefly introduced to the drag and drop feature for tile creation and observed while thinking aloud on the interaction with Companion. All testers reported they found it simple to create and activate tiles on the canvas while freely interacting. One user had supplied the sound library used for testing and was quickly able to setup a multi-layered soundscape. When we gave a similar task to the other testers, they commented it would be difficult to explore the list of sounds that were provided. One user specifically mentioned the lacking of a quick play functionality in the file browser. Finally, users were asked to present the soundscape they had created, while continuously modifying settings and activation of tiles to support their narration. We observed that they quickly managed to recall the layout of tiles they had setup. Consequently, none of the GMs accidentally toggled activation of the wrong tile. However, modification of volume within a tile imposed a negative impact on narrative flow for all users, who reported an issue in having to open a configuration dialog from which a slider would be available to change volume of a tile. We consider changing this functionality to use a simple scroll event over the tile in the future.

### CONCLUSION & FUTURE WORK

Initial tests of our system show a promising outlook for Companion. The ease of interaction and merging of several media resources into one application toolkit has already improved our own roleplaying experience drastically. Feedback gained so far made apparent that the integration of individually used resource pools outweighs the need for innovative content interaction. We therefore strive for an easy way to integrate existing online and offline solutions for content management. Providing an integration of Pinterest boards and Google Images albums might be a good starting point. The aforementioned integration of Spotify's Web API was a huge improvement to support preferences of different GMs with regards to their adventure preparation. Therefore, seamlessly integrating YouTube content might add the possibility of including atmospheric video streams into the story told. This would also directly improve sharing project files across several devices, since different GMs could pull from shared online resources rather than local file storage. In addition, Companion should have the ability to stream the media it manages to other devices. This would improve portability across devices and enable remote playing sessions if voice transmission was also supported.

Our map interaction system is currently being extended with a shape editing interface, thereby allowing for proximity sensing of areas drawn onto the map. Moving digital tokens into such areas serves as a trigger to uncover wider areas (e.g. building interior), toggle the activation state of sound tiles, or extend the fog of war (disable to "see through walls"). Switching to the more advanced shape descriptors provided by TUIO 2.0 [12] could also help in providing a more natural game experience, e.g. by visually detecting and tracking game miniatures without requiring printed fiducials. Furthermore, map storage should be integrated into project management, which most intuitively might be achieved by providing a map

tile. To strengthen and test our claims, a more structured formal study is required, taking into account the multitude of features and use-cases of our software. We aim for an open-source alpha release in early 2019 with several additional features implemented.

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