



## **D7.4 VIRTUAL STUDIO INTEGRATION REPORT**



<b>Grant Agreement nr</b>	856879
<b>Project acronym</b>	PRESENT
<b>Project start date (duration)</b>	September 1st, 2019 (36 months)
<b>Document due</b>	31/08/2022
<b>Actual delivery date</b>	31/08/2022

<b>Leader</b>	Brainstorm
<b>Reply to</b>	jmontesa@brainstorm3d.com
<b>Document status</b>	Final

**Project funded by H2020 from the European Commission**

<b>Project ref. no.</b>	856879
<b>Project acronym</b>	PRESENT
<b>Project full title</b>	<b>Ph</b> otoreal <b>RE</b> altime <b>S</b> entient <b>ENT</b> ity
<b>Document name</b>	Interim Virtual Studio Integration Report
<b>Security (distribution level)</b>	Confidential
<b>Contractual date of delivery</b>	31/08/2022
<b>Actual date of delivery</b>	31/08/2022
<b>Deliverable name</b>	D7.4 Virtual Studio Integration Report
<b>Type</b>	Report
<b>Status &amp; version</b>	Submission version
<b>Number of pages</b>	39
<b>WP / Task responsible</b>	BRA
<b>Other contributors</b>	FS
<b>Author(s)</b>	Javier Montesa (BRA), Richard Ollosson (FS)
<b>EC Project Officer</b>	Ms. Diana MJASCHKOVA-PASCUAL Diana.MJASCHKOVA-PASCUAL@ec.europa.eu
<b>Abstract</b>	This document describes the activities carried out to make available all the functionalities provided by the agent from Unreal Engine, as well as the new capabilities implemented in InfinitySet to make them available in InfinitySet. It describes the integration of the virtual studio and the agent, and all the functionalities of the system. Thanks to this integration the system has become fully functional as it is shown in the Final Proof of Concept. Moreover, it provides

	brief instructions to set the environment up and test it in the Annex.
<b>Keywords</b>	InfinitySet, Virtual Agent, Integration, Proof of concept, Authoring Tool, Response Launching System, Storyboard.
<b>Sent to peer reviewer</b>	Yes
<b>Peer review completed</b>	Yes
<b>Circulated to partners</b>	Yes
<b>Read by partners</b>	Yes
<b>Mgt. Board approval</b>	Yes

## Document History

Version and date	Reason for Change
0.1 01-06-2022	Document created. Javier Montesa
0.2 04-07-2022	Analysis and adjustments. Javier Montesa / Richard Ollosson
1.0 29-07-2022	Version Ready for Peer Review. Javier Montesa
1.1 24-08-2022	Final version

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## 1. EXECUTIVE SUMMARY

In the first period of the project, a first version of the integration between the virtual agent and the studio was developed and then reported in the document "D7.2 Interim Virtual Studio Integration Report". This document shows the complete integration of the system with all the improvements and new functionalities that have been added during the second period of the project, such as adding the presenter and agent shadows, improving the Authoring Tool interface, the extension of database contents, the development of new 3D Aston graphics, the integration of the Reference Implementation last updates, among others. To differentiate the old version from the new one, it has been used italic font for any part that was mentioned in the previous report. Also, in order to make these additions clearer and easier to find along the document a tag has been added on each additional description:



NEW

*Figure 3. Tag used along the document to identify modules modifications and additions.*

Firstly, the document starts by introducing the Virtual Studio Pipeline with all the modules in the system that have been involved the virtual agent and the virtual studio integration. The activities carried out to achieve the integration of the system have involved the following modules:

- The virtual agent integration: After the first 18 months of work, a first version of the agent integration into the virtual studio was accomplished not delivering full functionality. During this second period, it has been finished and updated with new functionalities and bug fixing. For example, one of the most important issues related to UE and InfinitySet integration optimization issues has been solved and the agent behaviour has been correctly integrated with all its parts and with the addition of new actions.
- The virtual studio development: The development of the virtual studio was achieved during the first period of the project, and it has not been modified in any way.
- The authoring tool: The Authoring Tool development is finally finalized, so the final Proof of Concept has been based on the real and completed script developed by the virtual agent operator.
- The response launching system: The development of the response launching system that led the execution of the virtual agent actions and interactions was started already in the first developments period, and now, during the second period of the project, the development has been completed with new functionalities such as the possibility of trigger actions and interactions by the operator at the right moment synchronized with the presenter script.
- Development of 3D graphics by Aston 3D graphics tool: For the first proof of concept that was designed at the halfway of the project, some Aston 3D graphics were developed. Now that the project has reached its end, there have been developed all the Aston 3D graphics that are needed for the use case.

Afterwards, an explanation is given on how the virtual agent features are related with the components implemented in the Virtual Studio side and how they interact from a procedural point of view.

Secondly, the implementation of the Final Proof of Concept for the use case is presented in detail along with its results and conclusions. It allows not only to check how modules work together and how well they integrate, but also to understand the nature of the results that can be expected, and the kind of interactions that presenters and virtual scenario operators can expect from PRESENT agents.

Finally, the results obtained in the technical validation based on the final PoC are reported to provide a general vision of the system behavior and its capabilities.