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A demonstration of the VIP platform interoperability capabilities

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VIP (Virtual Imaging Platform) is a web portal for the simulation and processing of massive data in medical imaging. VIP users can access applications as a service and significant amounts of computing resources and storage (provided by the biomed EG VO) with no required technical skills beyond the use of a web browser. In this demonstration, we will show that VIP enables i) application interoperability across execution environments and ii) data interoperability between storage and execution platforms.

We will begin by a short run-through of the main features of the VIP web portal, focused on selecting an application and launching it. Then, after an introduction of the Boutiques tool (https://github.com/boutiques/boutiques) we will use it to easily create and integrate a new application in VIP, and so making it usable by all the VIP community. We will then go further and publish this application in the open research repository zenodo (https://zenodo.org/) with a single click through VIP and Boutiques. Openly available on Zenodo in the Boutiques format, and with a DOI attached, the application can now be referenced in papers, and anybody interested can use Boutiques tools to fetch it and run it locally or in a VIP-like platform. Through all these features, this first part will demonstrate how VIP encourages to include applications and software as a first-class elements in research projects and to make them more open and interoperable.

In a second part, we will present the VIP REST API, based on the CARMIN specification (https://github.com/CARMIN-org/CARMIN-API) and we will use it to launch an execution on VIP without going on the VIP web portal. Then we will use the most recent CARMIN feature, implemented on VIP, to reference external storage platforms as inputs and outputs of execution. In order to demonstrate that, we will use an instance of a girder server (https://github.com/girder/girder) hosting the inputs (and outputs) of the execution to be executed. And we will make the VIP REST API requests from the girder web portal thanks to a plugin we developed, as this allows girder users to launch massive treatments on their files in the same tool they use to manage their research data. But the same CARMIN REST requests could be submitted on any other CARMIN execution platform hosting the same application (for instance a Boutiques application), allowing for data interoperability across the storage platforms and all the CARMIN execution platforms.

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