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Test Report on MD-Paedigree Beta Prototype

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Abbreviations

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1 Introduction

The purpose of this deliverable is to report on the activities of task T17.1 “MD-Paedigree Infrastructure testing and validation” which started on M18 and will end on M48. Task T17.1 is focused on ensuring the timely and efficient completion of the activities necessary to test and validate the MD-Paedigree Alpha and Beta Prototypes and the Final Platform developed under WP14.

It is the second of three deliverables associated with this task (D17.1, D17.2 & D17.3), and in particular this deliverable reports on the testing of the MD-Paedigree Beta Prototype released on M36 (see also deliverable D14.3).

2 Testing and agile methodology

With a distributed team both in terms of location and business centres, the standard scrum methodology could not fully and naturally apply. In this situation, the methodology has consisted in pragmatically keeping “agile” concepts with less formalism, and picking up every month the emergencies and tasks with the most concerned users to then implement one by one the functionalities that were missing or bugging. A quick production process has been used to make the functionalities usable (and so testable) as soon as possible.

3 Beta prototype test report

3.1 Definition of beta version

3.1.1 wiktory

(computing) An early version of a program or application that contains most of the major features, but is not yet complete. Sometimes these versions are released only to a select group of people, or to the general public, for testing and feedback. This is the second major stage of development following the alpha version, and comes before the release candidate.

3.1.2 wikipedia

Beta phase generally begins when the software is feature complete but likely to contain a number of known or unknown bugs. Software in the beta phase will generally have many more bugs in it than completed software, as well as speed/performance issues and may still cause crashes or data loss. The focus of beta testing is reducing impacts to users, often incorporating usability testing. The process of delivering a beta version to the users is called beta release and this is typically the first time that the software is available outside of the organization that developed it. Beta version software is often useful for demonstrations and previews within an organization and to prospective customers. Some developers refer to this stage as a preview, preview release, prototype, technical preview / technology preview (TP), or early access.

3.1.3 Current status

Some of the applications of the infostructure correspond to the wiktory definition whilst some other correspond to the Wikipedia one. Functionalities are fully or almost fully available. Tests, use and debugging will be the main focus of activities in the last year, whereas development was the primary focus in the earlier years.

3.2 Repository Unit tests

The infrastructure repository that manages the data sharing now consists of 10613 lines of code of unit tests for a total of 1584 assertions. (in comparison with the 1732 lines of code in Alpha version)

The tests are distributed on different topics :

	lines	Tests
General (initialisation)	720	24
Metadata (Types)	3743	505
Semantics (meaning)	550	161
Data	5177	837
Rights	423	57
Total	10613	1584

3.3 Functional tests and use

3.3.1 D17.1 postulate

The MD-Paedigree project is a federation of technologies. In this context, integration is a key feature and needs to be thoroughly tested. For this, depending on the integration need of each application, specific attention will be paid to the following tests:

- *Application is able to connect to the infostructure repository through web services*
- *Application is accessible through the portal*
- *Application is using MD-Paedigree access control (login password)*
- *Application is using MD-Paedigree rights (groups)*

3.3.2 Web service real condition tests

Web services are the main interfaces to the repository, to exchange data with other applications including importers All data is sent to the repository via web services.

Different partners use the web services to retrieve/push data from/to their application. All kind of data can be exchanged by different organisations using this. The real use that has taken place over the last period has demonstrated the usability and the stability of this interface.

3.3.3 Interfaces tests

Since the Alpha version, graphical user interfaces are available to enable the end users to upload data. Over the last year these interfaces have been used by different people with different skills. This culminated in a list of required updates that have been completed, and a detection of bugs that have been corrected.

3.3.4 Insertion tests

Lots of data had been produced before the installation of the Beta version. Data sources have been identified and more or less specific Importers have been developed. For all data inserted different tests have been implemented.

3.3.4.1 Manual Development Tests

For each data imported, a manual verification of samples has been processed by developers. One by one, fields of a small set of data have been checked to ensure the availability and the completeness of each importation.

3.3.4.2 Systematic comparison tests

When possible on the importer machine inside the secured network of the data centre, to ensure the absence of unplanned alteration in data, some systematic comparison tests have taken place. For simplicity, these tests have been processed by the exportation of data of a kind into CSV format and compared to the same set of data converted also to CSV. The two sheets were compared using an Excel utility, and it has been verified that only anonymization rules had altered the data in the importation process.

3.3.5 Access Rights

Access Rights has just been installed. Development time tests has only been realised with unit tests and simple focused functional tests. Since Beta had been deployed, access rights have been installed and the usability of the platform will directly be impacted by this functionality. User tests and functional tests will be directly done by users, using the platform.

3.4 Bug report and correction

Testing is not only happening when tests are done but also whilst the system is being operated in its functional mode. Users have different channels to provide feedback and to log problems: some have direct access to the reporting tool, whilst others use skype or mail. All problems, evolutions or bug reports are logged into the development management system. Presented below is an extract of problems solved or active corrections that have been performed during the last year directly related to Testing and stabilisation.

#	Statut	Sujet
6303	Resolved	update PCDR data to put back the truncated "Conclusions" data
6302	Resolved	Update Annotation to accept 65535 characters
6013	Resolved	Run Dicom Modality Update at Rome and IGG
5982	Resolved	Write getConclusionContent example for Emilie
5978	Resolved	Create Dicom Modality updater to put back modality in dicoms
5976	Resolved	ICT'15 Tests
5971	Resolved	write Dicom Updater to add missing fields
5846	Resolved	Repair OPBG fedEHR DB
5748	Resolved	Update the eCRF installations with the latest modifications for page reload issues
5568	Resolved	fix WADO DICOM Download
5107	Resolved	Fix importer License problem
5061	Resolved	Test Dicom Importer with obfuscation and license
4984	Resolved	From Training : fix server random crash
4982	Resolved	From Training : fix logout that it is not needed to close browser (especially for mac when it never closes)
4979	Resolved	From Training : simplify the way to reach research platform from website
4950	Resolved	try import JIA data from Sheffield
4795	Resolved	Check importer logic to see why CMD patients appears in NND for example
4479	Resolved	From Training : Create a routing page at login where to choose what to do and redirecting directly on where to do it.
4476	Resolved	From Training : Simplify account creation process.
4415	Resolved	From Training : Install a wizard
4216	Resolved	From Training : remove random number generated for query names
4214	Resolved	From Training : Show age of patient instead of dates
4206	Resolved	From Training : Patient Browser : multiple Dicom Download
4204	Resolved	From Training : change closing elements (red cross) to be bigger and more visible
4199	Resolved	From Training : Structure File Sharing Upload directory
2303	Resolved	Check import issues on Conclusions
2157	Resolved	Mox file analysis and comment

4 Training use cases

Training sessions, conceived by the developer partners and organised and managed by UCL, have taken place during Annual meetings 2 and 3. These sessions provided end users with the opportunity to engage with and to operate the infostructure in an environment in which support and training was immediately available, and provided important load testing of the systems.

A total of 8 use cases have been trained:

- Y2
 - Account creation
 - Looking for a patient
 - Creating a query
 - Gnúbila Similarity search
- Y3
 - Siemens Case Reasoner
 - HES-SO CBR
 - Athena DCV
 - Siemens Cardiac Simulation Result Viewer

These sessions have given back some user information about usability that have driven the evolution of the interfaces and processes.

5 Conclusions

At Beta status, more and more applications are integrating together. The central repository is filling with different kinds of data uses by modellers with different tools. Web application are more and more integrating into the portal with stronger and stronger interactions. Several users are testing the use cases as their usual work and stabilisation is taking place. Considering that Beta version should be the first time users try to use the system, the overall testing level of this project is better than foreseen.