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Deliverable D4.4

VICINITY Client Components Continuous Upgrades

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¹ Deliverable Type:

R: Document, report (excluding the periodic and final reports)
DEM: Demonstrator, pilot, prototype, plan designs
DEC: Websites, patents filing, press & media actions, videos, etc.
OTHER: Software, technical diagram, etc.

² Dissemination level:

PU: Public, fully open, e.g. web
CO: Confidential, restricted under conditions set out in Model Grant Agreement
CI: Classified, information as referred to in Commission Decision 2001/844/EC.

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0.2	06 December 2018	Update of adapters ontology added to GitHub	Poveda (UPM), Cimmino (UPM), Kostelnik (IS)
0.3	09 December 2018	Update of executive summary and introduction	Heinz (UNIKL), Kostelnik (IS)
0.4	21 December 2018	Utilized comments from reviewers. Quality check and final Draft reviewed	Kostelnik (IS)
1.0	21 December 2018	Submission to the EC	Zivkovic (UNIKL)

Executive Summary

This deliverable summarizes the outcomes of task T4.4 VICINITY Clients Operation and Continuous Upgrades of the VICINITY project (Grant Agreement No.: 688467), funded by the European Commission's Directorate-General for Research and Innovation (DG RTD), under its Horizon 2020 Research and Innovation Programme (H2020). The deliverable D4.4 is a part of the WP4 VICINITY Client Infrastructures Implementation. This document is first of two releases of deliverable D4.4. First version of deliverable is released in M36, second release is delivered in M48.

From architectural point of view, D4.4 covers actual implementation status of VICINITY Client Infrastructure Components. The VICINITY Client Infrastructure Components consist of VICINITY Gateway Adapters (T4.1), VICINITY Agent and Auto-Discovery platform (T4.2) and VICINITY Security Services (T4.3).

The VICINITY Client Infrastructure Components were updated within VICINITY Project development and integration activities, mostly as part of integration in lab testing and evaluation of pilots. There were 10 issues identified, resolved and documented by this release. However, lot of minor bug fixes, improvements and optimizations were done on the fly during the development and integration work.

This deliverable is accompanying document to all living documentation held in corresponding GitHub repositories. For each component, links to GitHub documentation will be provided.

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List of Definitions & Abbreviations

Abbreviation	Definition
API	Application Programming Interface
IoT	Internet of Things
JSON	JavaScript Object Notation
P2P	Peer to Peer

1. Introduction

This deliverable describes the status of implementation of VICINITY Gateway Adapters (T4.1), VICINITY Agent and Auto-Discovery platform (T4.2) and VICINITY Security Services (T4.3).

1.1. Context within VICINITY

Deliverable D4.4 is the overview of continuous upgrades in all WP4 tasks. Work documented in this deliverable follows the requirements specified in WP1, covers the continuous upgrade of semantic models delivered within WP2 and was designed and implemented with very tight cooperation with the VICINITY core components delivered by WP3.

Important is the mutual influence with work in WP5 (Value-Added Services), WP6 (Integration and Testing) and WP7 (Pilot Deployment and Installations). Output of this deliverable was driven by work in this work packages and is further important input into all three mentioned work packages. Many requirements that arose during the progress in these work packages influenced (and will further influence) the design, implementation and functionality of client infrastructure components. The relationships between work packages are illustrated in Figure 1.

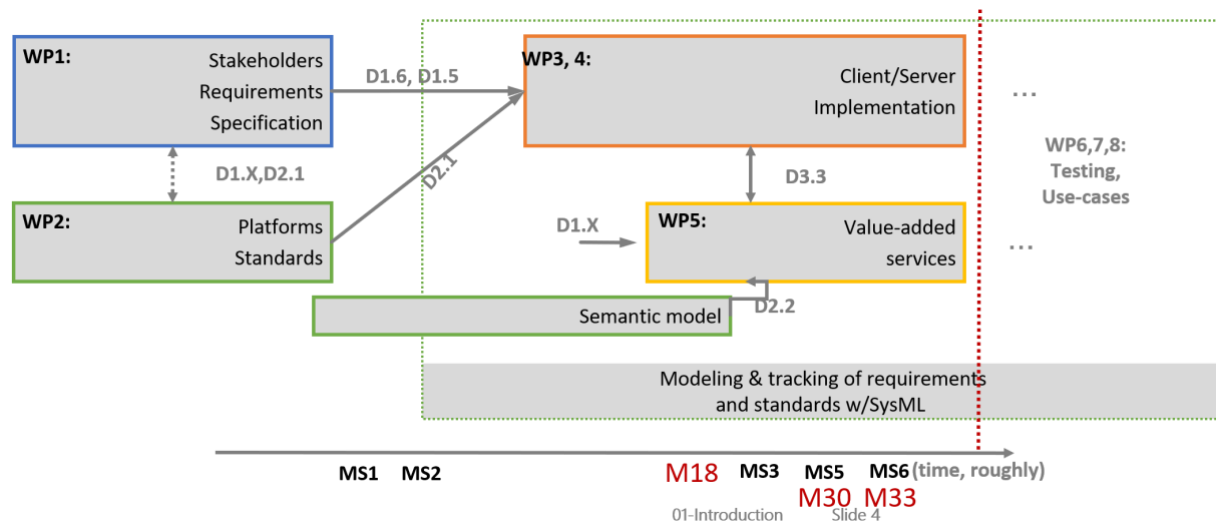


Figure 1 Relationships between work packages.

Relation to other deliverables:

- D1.5 VICINITY technical requirements specification summarized the basic requirements identified for VICINITY Client Infrastructure Components
- D1.6 VICINITY architectural design describes the position of VICINITY Client Infrastructure Components within the VICINITY architecture
- D4.1 Set of open sample VICINITY gateway adapters describes the architecture and implementation of Adapters, work in this deliverable is the update of deliverable D4.1
- D4.2 VICINITY Agent and Auto-Discovery Platform describes the core of client node design and implementation.
- D3.4 Open Interoperability, Gateway API describes the VICINITY Gateway implementation, which serves as the proxy to VICINITY cloud and P2P network, updates described in this deliverable were tightly coordinated with updates of Gateway API component

- D2.2 Detailed Specification of the Semantic Model describes the VICINITY ontology, updates of VICINITY ontologies, especially the update of adapters ontology is part of this deliverable
- D3.5 VICINITY semantic discovery and dynamic configuration services describes the VICINITY server-side twin, updates documented in this deliverable was closely coordinated with updates of D3.5
- D3.6 VICINITY core components continuous upgrades were coordinated with updates in this deliverable
- There is mutual influence of work in this deliverable and deliverables D5.2 VICINITY value-added services implementation framework, D6.1 VICINITY integrated prototype, D6.2 VICINITY test-bed deployment, including Validation, Parameterization and Testing and D6.3 Auto-Discovery space deployment validation report.

1.2. Objectives in Work Package WP4 and Task 4.4

The goal of WP4 - VICINITY Client Infrastructures Implementation is to provide an easy-to-use framework for integration of IoT infrastructures. Objectives of work package 4 are as follows:

- Objective 4.1: A framework implemented for designing a general VICINITY Gateway Adapter,
- Objective 4.2: VICINITY Gateway Adapters implemented for specific IoT infrastructures needed in pilot applications and serving as samples at the implementation of further adapters,
- Objective 4.3: VICINITY Auto-Discovery platform implemented and discovering standard IoT assets,
- Objective 4.4: Agents for pilot applications implemented and configured using Auto-Discovery platform,
- Objective 4.5: VICINITY Security Services implemented

The objectives were covered in WP4 tasks:

- T4.1 VICINITY Gateway Adapters covers objectives 4.1 and 4.2. The set of VICINITY Gateway Adapters are implemented, deployed and running, new Gateway Adapters are continually being developed within work in WP5 Value-Added Services Implementation and WP7 On-site Deployment and Pilot Installations
- T4.2 VICINITY Agent and Auto-Discovery platform covers objectives 4.3 and 4.4. Agent and Auto-Discovery Platform is implemented, deployed and running on multiple VICINITY nodes
- T4.3 VICINITY Security Services covers objective 4.5. Security services were successfully integrated into VICINITY Client Infrastructure Components

Objective of task T4.4 is to manage the upgrades of components delivered in all WP4 tasks.

2. VICINITY Client Infrastructure Components Updates

This section contains the summarization of most important improvements covered by this deliverable with links pointing to living documentation on VICINITY GitHub and Nextcloud

- VICINITY Gateway Adapters: for each adapter implementation, there exist the separate project on GitHub. Actual catalogue of all available adapters is available via VICINITY NextCloud Platform at link:
 - <https://cpscloud.cs.uni-kl.de/index.php/apps/files/?dir=/VICINITY/WPs%20Activities/WP9/IPR&fileid=191120>
- VICINITY Agent and Auto-Discovery platform is continually updated and all changes are on-the-fly documented on Agent Service Project on GitHub.
 - Full VICINITY Agent and Auto-Discovery platform documentation is available at: <https://github.com/vicinityh2020/vicinity-agent>
 - All changes are continually tracked per each particular platform release at: https://github.com/vicinityh2020/vicinity-agent/blob/master/docs/AGENT_CHANGELOG.md
- VICINITY adapter ontology updates are part of this deliverable, the changelog of adapter ontologies is available at: https://github.com/vicinityh2020/vicinity-semantic-platform/blob/master/docs/ADAPTERS_ONTOLOGY.md

Summarization of most important improvements covered by this deliverable:

- VICINITY Gateway Adapters: adapters are continuously developed
- VICINITY Agent and Auto-Discovery platform:
 - fixed major bugs in communication between Agent Service and Gateway API
 - redesign of UPDATE/UPGRATE operations refreshing the actual content of IoT descriptors in Neighbourhood Manager and semantic repository
 - OpenProject Bug 19 Problem sending greek characters to vicinity neighbourhood API
 - OpenProject Bug 20 Problem sending greek characters to vicinity neighbourhood API
 - OpenProject Bug 22 Static configuration for events doesn't work when trying to subscribe to event
 - OpenProject Task 26 Delete adapter and its things when adapter-id is missing from agent config file
 - OpenProject Bug 33 Event publisher ID unknown (gets lost)
 - OpenProject Bug 34 Null pointer if endpoint is missing
 - OpenProject Feature 44 Modification suggestion of Agent Response when [adapter-id: xxx] [infrastructure-id: yyy] doesn't exist in configuration
 - OpenProject Bug 45 Too big TD payload
 - OpenProject Bug 86 Invalid JSON in agent config file deletes all adapters and their items in NM
 - OpenProject Task 90 Error propagation from agent
 - All bug fixes and continual improvements are tracked in Agent Service Changelog (see link above)
- VICINITY Security Services: there are no relevant updated up to deliverable D4.3 VICINITY Security Services

- VICINITY adapters ontology: semantic models are continually updated following the requirements of adapter developers

3. Conclusions

This deliverable described the updates of the VICINITY Client Infrastructure components during integration in lab testing and evaluation of pilots. The Client Infrastructure Components were put under testing during integration which resulted in 10 issues which were fixed.

The Client Infrastructure Components are subject of the VICINITY Platform evaluation in upcoming phase of the project to evaluate its technical functional and non-functional properties in controlled piloting environment. The results will be compiled in the next iteration of this deliverable D4.4 VICINITY Clients Operation and continuous upgrades, final version.