

## Executive Summary

The Scent Intelligence Engine (SIE) is the central focal point of the Scent Toolbox that deals with analyzing various types of data collected by the Scent system and supplying the output of that analysis to other components in the Scent system.

The purpose of this report is to document the requirements, design considerations and detailed architectural design that will assist in developing the SIE components. This report is the outcome of the work done in Task T5.1 in work package 5, that set out to collect and analyze the requirements and create the architectural design for the SIE.

This report is intended to be used by the software developers of the various SIE components as a guide to how the various internal SIE components interact, via the documentation of the control and information flows, interface mechanisms and metadata payload formats. Other parties (aside from the developers) can read this document to gain useful insights into the various design considerations and internal structure and operation of the SIE.

The requirements for building the SIE were reviewed and expanded upon to reflect the current understanding of how the Scent system is to function. Design guidelines were specified and key design decisions were justified. Where feasible, data and control flow will use MQ based pub/sub topics, allowing for maximum flexibility during the development and deployment of the SIE.

Detailed designs for the management layer (SIEM) of the SIE were described, including the internal and external interface specifications, metadata object payload structure, and data/control flows. An in-depth analysis of the Metadata Taxonomy Matching Tool (MTMT) was conducted to determine what existing technologies could be exploited for development. Detailed designs for data and control flows were also developed for the SIE Image Analysis Tool (IAT), SIE Water Level Measurement Tool (WLMT), SIE Water Velocity Calculation Tool (WVCT), and SIE Map Segmentation, Delineation and Annotation Tool (MSDAT).

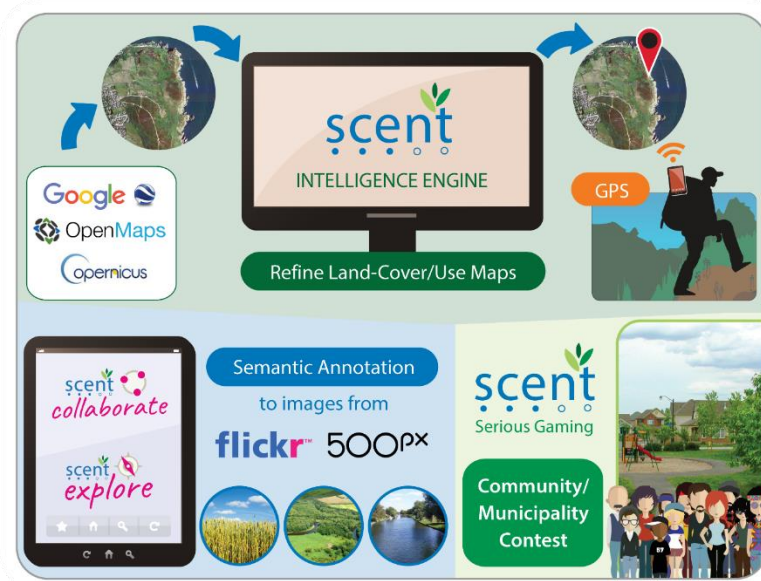


Figure 1: Scent overview diagram

