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Intelligence analysis and semantic interoperability for identity resolution

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Abstract. SPIRIT tries to define habitual patterns as social graph related entity patterns that tend to re-appear as the perpetrators attempt to perform identity hiding movements. The goal of the SPIRIT tools identity resolution service is to help break the perpetrator's tendency to resort to similar social graph related entity patterns, by bringing a certain external awareness of these patterns. Moreover, branching away from the natural idea of perpetrators habitual patterns where there is a hazy distinction between ethics preserving identity hiding behaviours and outlaw behaviour, the process of the SPIRIT identity resolution service is designed to learn the patterns and feed it (also visually) to the social graph related entity patterns to enable identity resolution investigation jobs.

The SPIRIT tools are developed in an implementation loop. The statement of overall general requirements from the End User partners (LEAs) clearly articulates the challenge that has to be solved by the SPIRIT architecture; To enhance the effectiveness and efficiency of LEAs to tackle crime, disorder and terrorism through the delivery of a toolkit to utilise the combined capabilities of one or more open source search engines to provide a wider and richer return for specified entities, presenting the results in a manner that supports further refined search or a final product that has been subject to (semi) automated categorisation, visualisation and verification. The toolkit must also comply with existing data protection and security protocols and be capable of receiving automated products from existing in-house Police systems to (semi) automatically produce a list of potential identities who may belong to a single person.

In this presentation we will discuss first the main task of entity resolution, and the SPIRIT prototypes that will realise the solution. Then we will discuss the ethical and privacy issues targeted by the project, and finally discuss also a specific technical challenge, i.e. semantic interoperability when integrating SPIRIT data.

Keywords. Identity resolution, Social graph, Semantic interoperability, Privacy, Ethics