

Tamr Provides Rapid, Trusted Entity Resolution To The Department of Homeland Security

Developing the Global Travel Assessment System

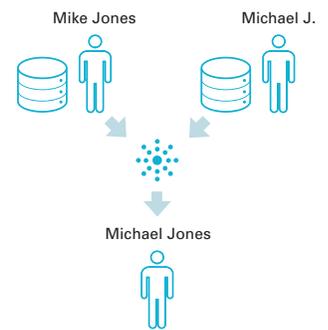
The United States Department of Homeland Security (DHS) is committed to keeping its citizens, and those of its foreign allies, safe in an environment where global security is increasingly a concern. As such, in its pursuit of combating the threats of global terrorism and in response to UN Security Council Resolution 2178 on Foreign Terrorist Fighters, U.S. Customs and Border Protection (CBP) sought to develop and publicly release the Global Travel Assessment System (GTAS) - an open source, turn-key application that provides nation-states and border security entities the capacity to collect, process, query and construct risk criteria against standardized air traveler information. The application provides the necessary capabilities to pre-screen travelers - ensuring terrorists and criminals are being identified when they travel. Beyond counterterrorism, GTAS capabilities could also extend into other areas of interest for nations, such as public health - by ensuring travelers from a particular region where a recent outbreak occurred receive health screenings - or travel and tourism marketing - by identifying which foreign citizens seem to be visiting a particular nation most frequently.

DHS Looks To The Private Sector For Expertise Around Entity Resolution

In developing the GTAS application, CBP evaluated novel approaches and software solutions that would greatly advance its capabilities - particularly in the areas of visualization, predictive models and entity resolution. CBP turned to the private sector in pursuit of these advances because, as Ari Schuler, Director of Analytics Integration at U.S. Customs and Border Protection, articulated "Technology is moving so quickly, we wanted to expand our innovation ecosystem and go straight to the source"

The GTAS application provides all of the features necessary to make decisions about travelers. It can receive and store air traveler data, both Advanced Passenger Information (API) and Passenger Name Record (PNR), provide real-time risk assessment against this data based on a country's own specific risk criteria, and show high risk travelers as well as their associated flight and reservation information. CBP approached Tamr for help enhancing their basic name/date of birth (DoB) and document matching algorithms by supporting more advanced entity identification and matching algorithms. Specifically, this included:

- Resolving a passenger entity against a "known" list of people by using the biographic selectors available in API/PNR data
- Resolving and matching a person's identity transmitted on API transmission with the one on PNR transmission so as to create a "complete" travel instance for the passenger
- Resolving a passenger entity against the entire population of historical data so as to build a unique yet comprehensive person profile over time for an individual



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Tamr “Fit The Bill Perfectly” In Advancing Entity Identification Algorithms

Tamr was selected by CBP to advance the entity resolution capability within GTAS in large part due to its unique approach - specifically human-guided machine learning. In this approach:

- Tamr would use machine learning to identify potential matches within and across disparate datasets - whether API or PNR
- The machine learning itself is based on input from subject matter experts well-versed in travelers from a particular region
- Tamr enables human screeners to be more effective by flagging records that match or that may match against a given list of travelers to be checked. Tamr gives a decimal probability of match, allowing staffing managers to make an informed decision regarding number of screeners
- Continuous expert input enables the machine learning models to be more accurate and trusted over time

Ultimately, this approach provides rapid and scalable entity resolution versus traditional, rules-based techniques. Moreover, due to the fact there is a human-in-the-loop, the results can be trusted.

Beyond these obvious benefits of Tamr’s approach to entity resolution, Mr. Schuler also elaborated on other reasons why Tamr was selected to help fuel the GTAS application by stating “When we were looking for companies, Tamr fit our bill perfectly. They were interested in the mission - they understood what we were trying to do and why it was important to international security - and they had demonstrated the capacity to execute at a commercial level. They were a really great fit and showed that our model of engagement can work.”

Moving forward, the GTAS platform will attempt to achieve its vision of enhancing security around the world. CBP is bringing together partner nations, universities, and vendors like Tamr to help allied nations develop more robust capabilities around traveler security. This vision reinforces DHS’s commitment to using collaboration and data to keep citizens safe around the world.

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Ari Schuler, Director of the CBP Commercial Technology Innovation Program.