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**NOTE**

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from: Dutch delegation  
to: Working Group on Information Exchange and Data Protection (DAPIX)

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Subject: "Prüm Decisions" - statistics and reports on automated data exchange  
Proposal for common statistics regarding DNA data exchange

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**1. Introduction**

At the previous DAPIX-DNA-meeting in Brussels on 14 March 2011, the leading scientist for DNA Dr.Ir. C.P. van der Beek MBA, presented a number of points to consider when thinking about how the results of the Prüm DNA-operation could be presented to the Council. He also presented two alternative ways of doing this including their advantages and disadvantages. This document summarises his presentation and asks the delegates to choose between these two alternatives.

**2. What are meaningful statistics?**

When the total number of Dutch Prüm results (10138 on 1 July 2011) are compared with the number of results which are actually reported to the public prosecution office and the police by the National Contact Point in the Netherlands (2175), it can be seen that most of the obtained results apparently are not relevant to the public prosecution office and the police.

In addition the National Contact Point in the Netherlands does not know how many of the reported Prüm-results are actually used by the public prosecution office and the police in an investigation by going into step 2 (requesting information from the matching country). The number of investigations aided by Prüm-results is of course the information that politicians would like to have (option 1) but unfortunately it is impossible in most countries to get hold of this information (also because it usually takes a lot of time and also other evidence to conclude an investigation). So we can forget about option 1.

The next best option (option 2) is to present the results that **could** aid an investigation. These are the results of which the Dutch public prosecution office and police have indicated that they may be relevant and that they want to receive them in order for them to decide to act on them or not. This option however requires a National Contact Point which is able and allowed to filter the initial results into relevant and irrelevant results and it is not known to the Dutch delegation whether this ability can be implemented in all EU-countries.

The last option (option 3) is to present all obtained results with a detailed explanation of what they mean. There are a number of points to consider in relation to the options 2 and 3. These are discussed below.

### **3. Points of consideration**

- **Outgoing and incoming requests**

Because most operational countries send both stain and person profiles to other countries, both outgoing and incoming requests can result in a relevant match which should be included in results presentation option 2. There is no difference in significance of an outgoing NL-stain “X” matching person “Y” in a foreign DNA-database and an incoming person “Y” matching NL-stain “X” in the Dutch DNA-database. A match may even be relevant to both countries and be included in the statistics of both countries. In spite of the fact that the match is then counted twice, this is still correct because apparently there are investigations in both countries which could be aided. When considering results presentation option 3 one may choose to count only the results of the outgoing requests to avoid double counting of matches.

- **Many matches are obtained more than once**

When two countries start their mutual exchange of DNA-profiles under Article 4, all stain-to-stain matches are obtained twice by both countries (e.g. a match between outgoing NL-stain-A and DE-stain-B plus a match between incoming DE-stain-B and NL-stain-A). Also when a DNA-profile is improved and hence automatically sent out again, the same match will be produced again (provided that the original match was not a false positive match). In both presentations option 2 and 3 the counting of duplicate matches should be avoided to prevent an overestimation of the number of results. The counting of duplicate matches becomes more complicated when countries rename all their DNA-profiles (e.g. DE) or profiles which have been retested (e.g. AT).

- **Match quality**

The Prüm software produces matches of different quality (1, 2, 3 or 4). Only quality 1 (full match) and quality 2 (match with a wildcard) should be presented as results. Quality 3 and 4 matches contain a mismatch and hence should not be reported as a result. The only purpose of quality 3 and 4 matches is to find false negative matches. To find out whether a quality 3 or 4 match is a real match, both countries have to reanalyse their raw data (electropherogram) to see whether a mistake has been made during the analysis or the processing of their DNA-profile. If a mistake is discovered, it will be corrected and a quality 1 match will be the result.

- **False positive quality 1 matches**

The Prüm matching rules say that two matching DNA-profiles should at least contain 6 fully matching loci. However, it can be calculated that 6- and also 7-locus matches have a non-negligible chance of being false positives (= adventitious matches). The Netherlands has already analysed many of these matches in the past 3 years and has found out that 5-10 % of all quality 1 matches on 7 loci and over 60% of all quality 1 matches on 6 loci are false positives. So reporting quality 1 matches on 6 and 7 loci should be avoided to prevent innocent persons from being accused of a crime they did not commit. The only way to determine if a 6- or a 7-locus match is a real match or a false positive match is to determine additional loci to make the match more reliable.

- **Matches which are considered irrelevant**

The Dutch public prosecution office regards certain matches as irrelevant and hence does not want the National Contact Point to report those matches to them

- Foreign DNA-profiles matching Dutch convicted persons (unless they are a suspect in a new case or if they are on the wanted-list)
- Quality 1 stain-to-stain-matches on 6 or 7 loci (since they require additional DNA-testing)

If results presentation option 3 (all results) is chosen, it should be kept in mind that the presentation of 6- and 7-locus match results implies that also false positive results are presented.

#### **4. Conclusions**

- Both outgoing and incoming search request may result in relevant matches
- Multiple matches should only be reported once but this requires attention or smart software (reverse order; recoding)
- Quality 3 and 4 matches should not be part of any statistics presentation. Their only purpose is to find false negative matches
- Including quality 1 matches on 6 and 7 loci in the statistics will give an overestimation due to the presence of false positives

#### **Decision to be made**

Do we choose to present unfiltered statistics with an explanation how these should be interpreted (option 3) or do we choose to filter the statistics to make them more meaningful (option 2)?

#### **Contents of results presentation option 2 (see annex 1)**

- Only those matches which could aid a criminal investigation (sorted by country and match type<sup>1</sup>)
- Number of unique profiles sent and received in the reporting year
- Number of profiles in DNA-database at the start and the end of the year
- An explanation of the meaning of the data

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<sup>1</sup> Match type: Stain-Person, Stain-Stain or Person-Person)

### Content of results presentation option 3 (see annex 2)

- All unique quality 1 and 2 matches (sorted by country and match type)
- Only matches based on outgoing requests (to prevent duplicate counting)
- Number of unique profiles sent and received in the reporting year
- Number of profiles in DNA-database at the start and the end of the year
- An explanation of the meaning of the data

### **5. Way forward**

Delegations are invited to discuss this note in the DAPIX / DNA meeting of 14 July 2011 and to choose between these two alternatives (option 2 or option 3) in order to enable the setting up of common statistics for the Prüm DNA data exchange so as to allow for the evaluation procedure in accordance with 2008/616/JHA, Art. 21 and Chapter 4, point 2.2 thereto.

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## Match results for {year} for {country}

### DNA-database statistics

	Stains <sup>1</sup>	Persons	Total
Nr of DNA-profiles in DNA-database on January 1			
Nr of DNA-profiles in DNA-database on December 31			
Nr of unique DNA-profiles sent to other countries			
Nr of unique DNA-profiles received from other countries			

### Match statistics

Country	Number of matches <sup>2</sup>			Total
	Stain-Person	Stain-Stain	Person-Person	
AT				
DE				
ES				
NL				
Etc.				

<sup>1</sup> Stains which have not yet matched a person in the national DNA-database

<sup>2</sup> Matches which may (have) aid(ed) an investigation obtained by both sent and received DNA-profiles

## Match results for {year} for {country}

### DNA-database statistics

	Stains <sup>1</sup>	Persons	Total
Nr of DNA-profiles in DNA-database on January 1			
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Nr of unique DNA-profiles sent to other countries			
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### Match statistics

Country	Number of matches <sup>2</sup>			Total
	Stain-Person	Stain-Stain	Person-Person	
AT				
DE				
ES				
NL				
Etc.				

<sup>1</sup> Stains which have not yet matched a person in the national DNA-database

<sup>2</sup> All unique quality 1 and 2 matches obtained with sent DNA-profiles

(Many) match results may not have been used to aid an investigation because of national police or prosecution policies

Matches on 6 or 7 loci may be false positives