

NIST Fingerprint Exception Handling Guidelines

5/23/08

#	Exceptional case	Action	Commentary
1	<p>For cases where no two fingers are physically available either because they're missing or not presentable due to plaster casts, bandages, or other not immediately removable occlusions.</p> <p>In cases where injured fingers can be expected to heal, consider deferring the fingerprint acquisition process.</p>	<p>Include the PIV fingerprint record, as usual, and Encapsulate in CBEFF as usual:</p> <ol style="list-style-type: none"> 1. Set the number of minutia to be zero in each finger's record. This applies to Line 31 of Table 3 in the INCITS 378:2004 profile appearing in NIST Special Publication 800-76-1. 2. Set finger quality to 20 (i.e. lowest). This applies to Line 30 of Table 3 in the INCITS 378:2004 profile appearing in NIST Special Publication 800-76-1. 3. Set quality = -1 in the CBEFF header, line 11 of Table 8 of the INCITS 378:2004 profile appearing in NIST Special Publication 800-76-1. 	<p>This solution is attractive because:</p> <ol style="list-style-type: none"> 1. No changes to the 800-76-1 are needed. 2. The resulting data is fully conformant. 3. An attempt to authenticate by an impostor will execute normally and fail gracefully with a correct rejection. 4. The record is digitally signed, as usual. This prevents substitution-with zero-minutia templates.
2	<p>As above, but with one (but not two fingers) are presentable.</p>	<p>As above, line 1. Insert the one finger's template into the first view of the INCITS 378 record, and insert a zero-minutia view into the second (as above).</p>	<p>Single finger authentication is common.</p>
3	<p>For cases where fingerprints are "unusable": This concept is a recurring theme in the industry. For example, some elderly subjects are sometimes considered to have prints so poor they cannot be matched. This is certainly true in some cases.</p> <p>Quality should not be judged by an attending official. Thus after a proper attempt at capture an attending</p>	<p>Follow the practice of 800-76-1 as written. The outcome in all cases is conformant INCITS 378:2004 minutia records being written to the card.</p> <p>In the cases where the parent images might be categorized by an observer as "unusable", the parent images should be passed to a certified minutiae extractor and the resulting templates stored as</p>	<p>Matching algorithms have improved since the development of NIST Special Pub. 800-76-1 was authored.</p> <p>The accuracies of minutia matchers and template generators have been measured on reference data sets in the MINEX program. Some certified implementations are significantly more accurate than others.</p> <p>The results are reported here:</p>

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<p>official should not deem the prints "unusable". Instead, as addressed in SP 800-76-1, the application of the NFIQ quality assessment algorithm should be followed for the selection of fingerprints for the PIV Card. This procedure has a catch-all case that mandates processing of whatever images are available after several re-acquisition attempts [Table 2, SP 800-76-1].</p>	<p>required by NIST Special Publication 800-76-1.</p> <p>A legitimate cardholder's authentication attempt may result in a rejection.</p>	<p>http://fingerprint.nist.gov/minex/Results.html</p>
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