HELIX 100 **Technical Tip No 11.**

PRODUCT: HELIX 100 AND HELIX 100 STANDALONE
SUBJECT: LARGE USER POPULATIONS
DATE: 14TH MAY 2009
REVISION: 1

Helix 100s are used in a wide variety of installations ranging from single-user secure cabinets, through residential applications with around a dozen enrolled users, small commercial access control systems with perhaps 80 users on several Helix 100s, up to larger corporate networks with a number of Helix 100s and hundreds of enrolled users.

In the situation where Helix 100s operate in 1:many mode (with a presented finger checked against all the known finger templates previously enrolled), as user populations increase the "matching" task becomes more difficult, the possibility of false acceptances increases and precautions become necessary.

Finger/Template Population Limits

The Helix 100 operating in its standalone mode should have no more than 50 finger/templates enrolled to ensure accuracy and performance.

The Helix 100 can also operate in standalone mode in conjunction with a Prox Card reader or Wiegand keypad using a 1:1 matching approach. In this situation, up to 500 fingers/templates can be supported.

The Helix 100 operating in network mode (with the PC software included), and using 1:many matching should not have more than 100 fingers/templates enrolled to ensure adequate accuracy and performance

The Helix 100 operating in network mode (with a Prox Card reader or Wiegand keypad) and using a 1:1 matching approach can theoretically accommodate a finger/template population that is only limited by available disk space on the PC/Server. However, we recommend that a practical limit of 10,000 templates should be considered.

There are two main issues with large user populations on the Helix 100 when using the 1:many matching approach: speed and matching errors.

Speed

As user finger templates are added to the database, the 1:many verification matching naturally takes longer (matching is very CPU-intensive). If measures are not planned or taken to manage this speed, users can become frustrated with the time required to open the door.

The first step is to ensure that the memory (RAM) is large enough. For small populations (up to around 40 finger templates), the memory that runs your operating system comfortably is adequate. For populations of up to around 100 finger templates, 1 Gb is adequate for Windows XP and 2Gb for Vista.

The second step is to ensure that the PC has sufficient CPU speed. Whilst things such as memory bus clock speeds and bandwidth can affect performance, broadly the rated CPU clock speed is the main determinant of matching speed. On commonly-available PCs, a CPU with a 2.8 GHz clock speed should give adequate performance for populations of up to around 100 finger templates.

Matching Errors

With 1:many matching, any finger presented to a Helix 100 is verified (matched) against all the enrolled finger templates in the database. As the database gets larger, the chance of the presented finger wrongly matching against a different (but similar) stored finger likewise grows. Some sensible precautions need to be taken as the population grows.

Firstly, make sure that unwanted finger templates are deleted. Often (especially in a commercial environment) temporary contractors, visitors or other people are given access, then later are no longer required, however the templates are left in the database. This is a potential security problem, so periodically cleaning up the database by deleting no-longer-wanted users/templates is good housekeeping.

Secondly, enrolment technique is critical, especially in large user populations. Common problems include enrolling the tips of fingers rather than the flats (the finger-ridge patterns on the tips of most fingers are very similar, so can give great potential for poor matches).

Read the Technical Tip on enrolment (support.brsgrp.com), and make a significant effort to achieve high enrolment quality/scores. The users will subsequently appreciate the convenience of less rejects, and the Helix 100 system will be more secure. For large populations (more than 80 finger templates), also raise the threshold at which you accept an enrolment quality score to be greater than 55 for the large majority of users. Do not, except in very rare circumstances, allow quality scores of less than 50 without having first tried all fingers/thumbs.

Thirdly, increase the security levels for all enrolled templates. There is a small increase in rejections, but the greatly reduced risk of false matches is much more significant.

Exceeding Recommended Limits

Please contact BRS Technical Support if you have a situation that may exceed our recommended population limits. We can advise you on the alternatives and configuration options available.

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