

***DactyScan84(n) to
DactyScan84c
Migration Guide***

September 2012



Table of Contents

[1 Introduction](#)

[3](#)

[1.1 Documentation conventions.....3](#)

[1.1.1 General Conventions.....3](#)

[1.2 Documentation revisions.....3](#)

[2 Changes Overview](#)

[4](#)

[3.1 New low level dll \(ds84c.dll\).....5](#)

[3.2 New acquisition mode for flat objects.....5](#)

[3.3 New functions for frame-rate control.....5](#)

[3.4 Different USB driver supported.....6](#)

[3.5 Different size for calibration image.....6](#)

[3.6 Fixed sound tone.....7](#)

[3.7 DS84C.ini configuration file.....7](#)

1 Introduction

This document provides a simple guide for developers migrating from DactyScan84(n) to DactyScan84c device

1.1 Documentation conventions

1.1.1 General Conventions

Green Bit saves the right to make changes, integrations or enhancements to this manual without notice, and this cannot be a reason to consider this present publication inadequate.

To highlight some important text parts the following graphical structure is used:



In this manual the following acronyms are used:

- IAFIS Integrated Automated Fingerprint Identification System
- IQS Image Quality Specifications

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1.2 Documentation revisions

Revision	Date	Description
V1.0	September 2011	Original
V1.1	September 2012	Added remark on different size between preview images and on the fact that normally scanners start acquisition in preview mode

2 Changes Overview

In this chapter a table that shows what's new and what's different is given.

What's new	What's different
New low level dll (ds84c.dll instead of ds84u.dll) must be used and delivered	Only GB Universal Driver is supported
New acquisition mode for flat objects (single fingerprint and slap): low resolution preview for flat area has been implemented.	Size of calibration image is different.
Two new functions for frame-rate control have been added: GBMSAPI_SetFrameRateComplete, that must be used instead of the GBMSAPI_SetFrameRate, declared obsolete, and GBMSAPI_GetFrameRateRange	Sound tone is fixed

3 Changes in detail

3.1 New low level dll (ds84c.dll)

The ds84c.dll low level library must be used instead of the ds84u.dll one. For delivering use the rules specified in the MultiScan_SDK_Overview document.

3.2 New acquisition mode for flat objects

New acquisition mode is implemented – **low-resolution preview mode for flat area** - as an alternative to the flat high-resolution for flat area acquisition mode. In this mode total acquisition process of full scanning window for all flat scans is internally divided into two phases:

- 1) Low-resolution preview with higher frame rate – where a stream of low-resolution images is generated for preview purposes.
- 2) Final single high-resolution fingerprint image

The passage from preview phase to the final image phase is triggered by either internal auto-capture sub-system or manual stop by operator.

This new acquisition mode is designed to allow, for all flat scans, **the DactyScan84C device to run on very low-performance platforms (older PC/Notebook, NETBOOK, TABLET)** due to the fact that USB2.0 data transfer bandwidth required during low-resolution preview phase is significantly less comparing to high-resolution image continues transfers.

NOTE: normally the scanners start acquisition in preview mode, unless the "GBMSAPI_AO_FULL_RES_PREVIEW" (see GBMSAPI_Defines.h file for more details) is specified in the "GBMSAPI_StartAcquisition(...)" function. When operating with DactyScan84n device, the size of preview frames is the same as full-resolution ones, so that doesn't matter whether this option is specified or not. When operating with DactyScan84c device, instead, frames size is different between preview and full-resolution phase. Therefore, when migrating, take care of this fact and **ALWAYS** check the "FrameSizeX" and "FrameSizeY" parameters in the "GBMSAPI_AcquisitionEventsManagerCallback(...)" function. In order to have an identical behaviour (that is, same image size in preview and full-resolution phase) when migrating, set the "GBMSAPI_AO_FULL_RES_PREVIEW" option in the "GBMSAPI_StartAcquisition(...)" function. The same result can be achieved by setting to "1" the "ForceFullResPreviewForDS84C" parameter in the GBMSAPI.ini file, that forces the DactyScan84c device to behave like a DactyScan84 one.

3.3 New functions for frame-rate control

Two new functions for frame-rate control have been added: GBMSAPI_SetFrameRateComplete(...), that must be used instead of the GBMSAPI_SetFrameRate(...), declared obsolete, and GBMSAPI_GetFrameRateRangeSpecific(...).

Frame rate control function GBMSAPI_SetFrameRateComplete(...) is provided to tune frame rate separately for low-resolution and high-resolution on flat area image acquisitions and roll acquisitions in order **to be able to adjust DactyScan84C operation to available performance level of different platforms.**

In particular:

- 1) For low-performance platforms (older PC/Notebook, NETBOOK, TABLET) it is possible to decrease significantly frame rate without an essential impact to final image quality. This is especially **important for many mobile applications where PC resource is extremely limited.** For the best effect, combination of low-resolution full-frame preview acquisition with lower frame rate setting must be used to **ensure that DactyScan84C will be able to operate at theoretically all existing platforms despite their inherent low performance.** For example, it is possible to go down with frame rate for flat low-resolution full-frame preview mode as low as 3.1 fps and for flat high-resolution full-frame as low as 1.4 fps.
- 2) Instead, for high-performance PC platforms, it is possible to increase frame rate to achieve very fast real-time scanning performance. For example, it is possible to achieve **LIVE-VIDEO frame rate for flat low-resolution preview acquisition (up to 27 fps) and for roll acquisition (up to 25 fps).** Maximum frame rate for flat high-resolution image acquisition is 8.6 fps.

Default frame-rate values for all acquisition modes (flat low-resolution preview – 13.5 fps, flat high-resolution image acquisition – 4.3 fps, roll acquisition – 12.5 fps) are selected by such a way that required PC performance for DactyScan84C model is very similar to the previous DactyScan84(N) model requirement. **Default frame-rate values are suitable for most applications ensuring optimal <quality/required performance> ratio.**

3.4 Different USB driver supported

Differently from DactyScan 84 device (that supports older Ds84.sys as well as GB Universal USB drivers), the DactyScan84c supports GreenBit Universal Driver only. This is due to the fact that a new Product ID (0086 hex) has been introduced for this device.

Therefore, both in development and in delivering, if not already done, the newer GB Universal driver must be installed (this driver is also supported by the DactyScan84 device).

3.5 Different size for calibration image

Differently from DactyScan 84 device, the DactyScan84c has a calibration image whose size is different from the acquired image one. Therefore a new function has been introduced, `GBMSAPI_GetCalibrationImageSize(...)`, that must be used instead of `GBMSAPI_GetMaxImageSize(...)`, for getting calibration image size. Since now, this function should be used for all the other devices also.

3.6 Fixed sound tone

Differently from DactyScan 84 device, sound tone is fixed, that is: tone change is not more supported, the corresponding `<Tone>` parameter value will be ignored by `GBMSAPI_Sound()` function for DactyScan84C.

3.7 DS84C.ini configuration file

DS84C is provided with a .ini file (`ds84c.ini`), where some options are configurable. They are:

- `EnableBulk1024Transfer`: this option deals with the USB transfer. In case problems are encountered with the USB traffic (especially at high frame rates), set this option (set = 1) in order to enable the bulk 1024 usb transfer. Note that this is out of USB 2.0 specifications, therefore, even if most of PC/Operating Systems support this transfer mode, there is the possibility that on some hw and/or operating system this mode does not work. This option is not settable by means of the GBMSAPI library, therefore, in order to activate the bulk 1024 usb transfer, `ds84c.ini` file is necessary.
- `Default<Acq_mode>FrameRate`: where `<Acq_mode>` stands for FFLR (Full-frame Low Resolution preview) or FF (Full-frame) or PF (Partial-Frame). This option allows to set the default frame-rate for the given acquisition modes. Even if this options are settable by means of the GBMSAPI library (see chapters regarding the frame-rate in the `GBMSAPI_Defines.h` and `GBMSAPI_Library.h` files), it could be useful to use the `ds84c.ini` file when modifications to the applications are not easy to be made. Anyway, since the .ini file is loaded when the `ds84c.dll` file is loaded, the modifications operated through the GBMSAPI library "overwrite" the options set by means of the .ini file.

If the .ini file is not used, default settings will be applied by the `ds84c.dll`. When used, the `ds84c.ini` file must be put inside the same directory where the `ds84c.dll` library is.



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