RFID card, magnetic card, iButton ID variations

Introduction

After a RFID card or an iButton reader reads an ID number, it sends this information to the FM device. In other case, user enters Wireless Driver ID in the "OnTrack Connect" app, which then sends it to the device via Bluetooth. In the device these IDs are handled differently. Depending on where you look, you might find that the ID has a new representation unlike the original number, which was written on the card, iButton or the app. Here we will provide a summary of different ID variations.

Legal information

Document change log

Date	Version	Change details
2016-09-05	1.0	Initial draft.
2016-12-22	1.1	Improvements related to Authorized ID's list changes; 1-Wire RFID ID conversion description improved.
2017-03-17	1.2	Improvements related to Authorized ID's list changes; Magnetic card's ID conversion description added.

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Devices and ID numbers

We will consider a case where one of these devices is used:
- A RS232 RFID card reader.
- A 1-Wire RFID card reader.
- An iButton ID reader.
- Magnetic card reader.
- A smartphone with the "OnTrack Connect" app.

Places where an ID number might show up:
- An ID number written on the card, iButton or entered in the "OnTrack Connect" app.
- An ID number that should be entered in the FM device configurator, in the "Authorized ID's list".
- An ID number in the FM device's terminal log.
- An ID number in the TrustTrack's raw data report.

RS232 RFID reader

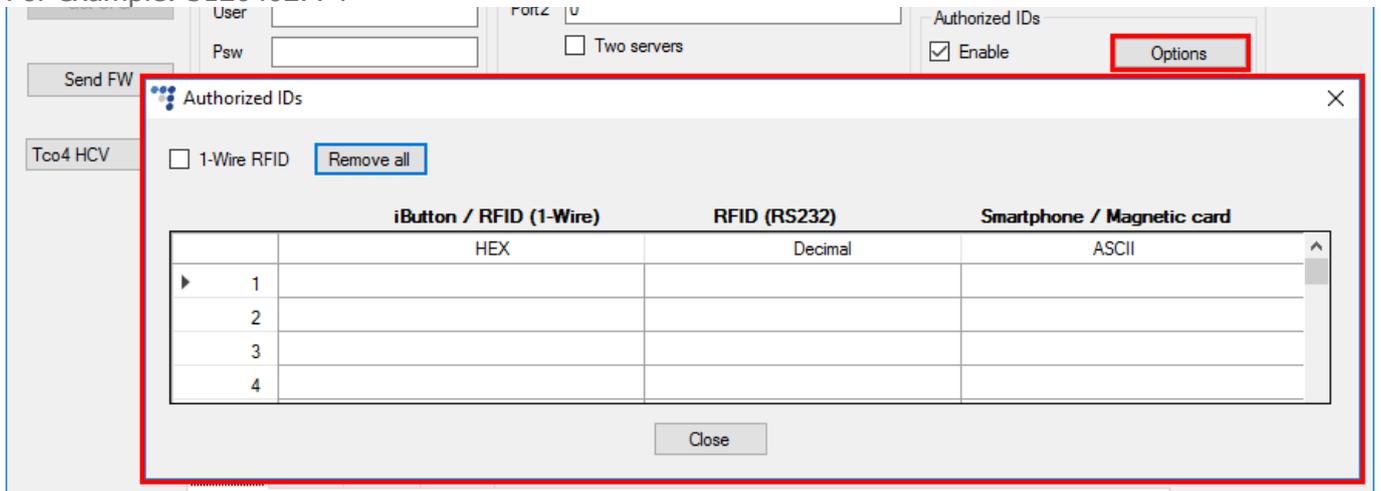| Reader	RFID card ID	Authorized ID's list	FM device terminal log	TrustTrack raw data report
RS232 RFID reader	3126402774	**HEX**: 00000000BA591ED6 **DEC:** 3126402774	0x00000000BA591ED6	3126402774

ID number on the card
On the RFID card you can see an ID number in the decimal format.
For example: 3126402774
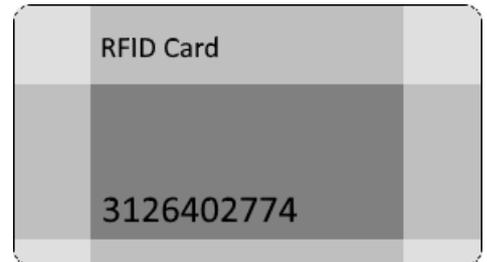
ID number in the Authorised ID's list
The list itself is divided into three columns. ID can be entered in any row and any column. Each column will contain the same ID number represented in "HEX", "Decimal" and "ASCII" formats. It doesn't matter, which column is used, the remaining two fields in the same row will be filled automatically. More details about "Authorised ID's list" available in this document: "FM ECO4 PRO4 TCO4 Driver registration".

Enter card's ID into the "Decimal" column in the "Authorised ID's list".
For example: 3126402774

ID number in the FM device terminal log
The RFID reader scans a card and sends data to the FM device. The FM device assigns this number to a specific IO. This can be seen in the FM device terminal. In the log card ID is displayed as an 8 byte hexadecimal number.
For example: 0x00000000BA591ED6

ID number in the TrustTrack raw data report
The FM device transmits records to the server. There, card ID is converted back to the decimal format. You can see it displayed in the raw data report as a decimal number.
For example: 3126402774

PCB Temperature	RFID Port B	Virtual Odometer
37	3126402774	29256
37	3126402774	29256

iButton reader

Reader	iButton ID	Authorized ID's list	FM device terminal log	TrustTrack raw data report
iButton ID reader	F60000012B733D01	**HEX:** F60000012B733D01 **DEC:** 17726168138354212097	0x013D732B010000F6	F60000012B733D01

ID number on the iButton
On the iButton you can see an ID number in the hexadecimal format.
For example: F60000012B733D01

ID number in the Authorised ID's list
The same hexadecimal number has to be added into the "HEX" column.
For example: F60000012B733D01

ID number in the FM device terminal log
In the FM device terminal the iButton ID is displayed as an 8 byte hexadecimal number, but in a reversed order. Here the first byte is displayed in the 8th position, the second byte in the 7th position, … , the last byte in the 1st position.
For example: 0x013D732B010000F6

ID number in the TrustTrack raw data report
In the raw data report the ID is again displayed in its usual form as a number in the hexadecimal format.
For example: F60000012B733D01

1-Wire RFID reader

Reader	RFID card ID	Authorized ID's list	FM device terminal log	TrustTrack raw data report
1-Wire RFID reader	3126402774	**HEX:** 080000BA591ED601 **DEC:** 576461552662533633	0x01D61E59BA000008	080000BA591ED601

ID number on the iButton
On the RFID card you can see an ID number in the decimal format.
For example: 3126402774

ID number in the Authorised ID's list
The decimal ID on the card has to be converted to the hexadecimal format number in a special manner and only then added into the "HEX" field in the "Authorised ID's list". More details about the conversion:
The read-out UID data are sent through 1-wire bus, emulating Maxim (Dallas) 1990A iButton. In case of transponders with UID longer than 4 bytes and up to 6 bytes, the oldest 2 bytes UID[4] and UID[5] are sent as 0x00 (zero).

control sum	constant value	producer's code	serial no.	code DS1990A
CRC	0x00	1 byte	4 bytes	0x01

MSB   LSB

Whereas for UID with length of 7 or more, are truncated to the 6 most significant UID bytes.

control sum	UID			code DS1990A
CRC	UID[5]	…	UID[0]	0x01

MSB   LSB

In this case decimal ID "3126402774" after conversion would look like this: 080000BA591ED601

We can compare it with the example in the "RS232 reader" chapter. There, we used the same decimal ID for the conversion. As you can see, in this hexadecimal ID the first and the last bytes are different.

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ID number in the FM device terminal log
In the FM device terminal the card ID is displayed as a properly converted 8 byte hexadecimal number. However, it is shown in a reversed order. Here the first byte is displayed in the 8th position, the second byte in the 7th position, … , the last byte in the 1st position.
For example: 0x01D61E59BA000008

ID number in the TrustTrack raw data report
In the raw data report the ID is displayed as a properly converted 8 byte hexadecimal number.
For example: 080000BA591ED601

Magnetic card reader

Magnetic card's ID can be read from one of three tracks. Depending on FM device configuration it can be 8 or 16 bytes long. More details can be found in "Magnetic card reader connection and configuration" and "FM ECO4 PRO4 TCO4 Driver registration" documents available here.
Example below will be given with an 8 byte ID taken from the first track.

Reader	Magnetic card ID	Authorized ID's list	FM device terminal log	TrustTrack raw data report
Magnetic card reader	% SMITH$JOHN$MR.^?	**HEX:** 00002520534D4954 **DEC:** 40820766755156 **ASCII:** % SMIT	0x2520534D4954	*Not implemented yet*

ID number on the magnetic card (the first magnetic card track)
In the magnetic card tracks you can see an ID in the ASCII format.
For example: % SMITH$JOHN$MR.^?

ID number in the Authorised ID's list
The same ID has to be added into the "ASCII" column, however here we take only the first 8 bytes of data.
For example: % SMIT

ID number in the FM device terminal log
In the FM device terminal the ID is displayed as an 8 byte hexadecimal number.
For example: 0x2520534D4954

ID number in the TrustTrack raw data report
Feature is not implemented yet.

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"OnTrack Connect" app

Source	Driver ID	Authorized ID's list	FM device terminal log	TrustTrack raw data report
"OnTrack Connect" app	Name	**HEX:** 000000004E616D65 **DEC:** 1315007845 **ASCII:** Name	0x000000004E616D65	Name

Driver ID in the "OnTrack Connect" app
"OnTrack Connect" app contains Driver ID represented in ASCII format.
For example: Name

ID number in the Authorised ID's list
Enter the same ID into the "ASCII" column in the "Authorised ID's list".
For example: Name

Note
ID will be automatically converted into the decimal and hexadecimal formats and displayed in the columns on the left. If Driver ID is shorter than 8 symbols, empty bytes in the hexadecimal representation are filled with zeros.

ID number in the FM device terminal log
In the FM device terminal the Driver ID is displayed as an 8 byte hexadecimal number.
For example: 0x000000004E616D65

ID number in the TrustTrack raw data report
In the raw data report the Driver ID is displayed in ASCII format.
For example: Name

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