Ontrack Eraser Software

Erase patterns

Table of Contents

Welcome to Ontrack Eraser

Ontrack Eraser Software (in the following called OES) is a program which is used to erase data. Data can be erased from different media such as hard drives, SD cards, USB-discs and other storage media.

The expression erasing data is for many equal to, that data is whipped away from the media. This is, however, not correct. The method used to remove the data is instead writing over the data. This means that the old data is written over with new data and as such, the old data is removed.

Included in OES are 10 predefined erase standards. You also have the possibility to define your own erase standards.

OES is certified by the Norwegian authorities NSM (Nasjonal Sikkerhetsmyndighet) and the English authorities CESG (Communications-Electronics Security Group).

Introduction

Following erase standards are included with OES:

- US DoD 5220.22M
- Kroll Ontrack Algorithm
- German VSITR
- BSI S 2.167 (Minimum)
- BSI S 2.167 (Preferred)
- HMG Infosec Standard 5 (Lower overwriting standard)
- HMG Infosec Standard 5 (Higher overwriting standard)
- US Standards SP800-36 SP800-53
- Peter Gutmann

Besides above erase standards there is also the possibility to create user defined standards (simple standards).

The erase standard i selected in either Client Configurator (as a part of the erase policy) or in the erase client (when no predefined erase policy is defined). See the 'OES Getting Started' manual in order to learn more about how the Client Configurator is used, as well as how the erase client is used.

When data is saved on a media, data is written to blocks on the media. Erasing data, with software, is done by overwriting the data, with a given pattern, in the blocks, on the media. Therefore, the time is takes to erase a media, depends on the writing speed of the media.

The overwriting of the data can be controlled as a part of the erase process, in order to confirm the overwriting (full verify). This means, that data written is read and compared to the pattern chosen. Depending on the erase standard chosen, the erase process will terminated, if there is a difference between the written data and the data pattern from the erase standard (some erase standards do accept a given number of inconsistencies before the erase process is terminated).

The overwriting control can be disabled in some of the included erase standards. If this is done, a minor overwriting control still takes place (quick verify). The process will control 150 MB or 1/3 of the media, whichever is the smallest. The control will be done in the first, the middle and the last part of the media.

In the following is explained which data patterns is used in the individual erase standards.

Specifications for erase patterns

US DoD 5220.22M

In this standard, 3 overwriting circles are used as well as a full verify.

- Overwriting of all blocks with the pattern 0x00
- Overwriting of all blocks with the pattern 0xFF
- Overwriting of all blocks with a random pattern
- Full verify

Kroll Ontrack Algorithm

In this standard, 1 overwriting circles is used as well as 1 quick verify. Full verify can be enabled.

- Overwriting of all blocks with the Ontrack Eraser block pattern (traceable)
    - Block number and block pattern is written in all blocks.
- Quick verify

German VSITR standard

In this standard, 7 overwriting circles is used as well as 1 quick verify. Full verify can be enabled.

- Overwriting of all blocks with the pattern 0x00
- Overwriting of all blocks with the pattern 0xFF
- Overwriting of all blocks with the pattern 0x00
- Overwriting of all blocks with the pattern 0xFF
- Overwriting of all blocks with the pattern 0x00
- Overwriting of all blocks with the pattern 0xFF
- Overwriting of all blocks with the pattern 0xAA
- Quick verify

BSI s 2.167 (minimum)

In this standard, 4 overwriting circles is used as well as 1 quick verify. Full verify can be enabled.

- Overwriting of all blocks with the pattern 0xC1
- Overwriting of all blocks with the pattern 0x3E
- Overwriting of all blocks with the pattern 0xC1
- Overwriting of all blocks with the pattern 0x3E
- Quick verify

BSI s 2.167 (Preferred)

In this standard, 6 overwriting circles are used as well as 1 quick verify. Full verify can be enabled.

- Overwriting of all blocks with the pattern 0xC1
- Overwriting of all blocks with the pattern 0x3E
- Overwriting of all blocks with the pattern 0xC1
- Overwriting of all blocks with the pattern 0x3E
- Overwriting of all blocks with the pattern 0xC1
- Overwriting of all blocks with the pattern 0x3E
- Quick verify

HMG Infosec Standard 5 (Lower overwriting standard)

In this standard, 1 overwriting circle is used as well as a full verify.

- Overwriting of all blocks with the pattern 0x00
- Full verify

The standard accepts up to (and including) 50 bad blocks on the media. The physical address of the bad block will be written to the erase report. The erase process will be terminated if more than 50 bad blocks is being reported.

HMG Infosec Standard 5 (Higher overwriting standard)

In this standard, 3 overwriting circles are used as well as a full verify.

- Overwriting of all blocks with the pattern 0x55
- Overwriting of all blocks with the pattern 0xAA
- Overwriting of all blocks with a random pattern
- Full verify

The standard accepts up to (and including) 50 bad blocks on the media. The physical address of the bad block will be written to the erase report. The erase process will be terminated if more than 50 bad blocks is being reported.

US Standard SP800-36 & SP800-53

In this standard, 3 overwriting circles are used as well as 1 quick verify. Full verify can be enabled.

- Overwriting of all blocks with a random pattern
- Overwriting of all blocks with the pattern 0x55
- Overwriting of all blocks with the pattern 0xAA
- Quick verify

Peter Gutmann

In this standard, 35 overwriting circles are used as well as 1 quick verify. Full verify can be enabled.

- Overwriting of all blocks with a random pattern
- Overwriting of all blocks with a random pattern
- Overwriting of all blocks with a random pattern
- Overwriting of all blocks with a random pattern
- Overwriting of all blocks with the pattern 0x555555
- Overwriting of all blocks with the pattern 0xAAAAAA
- Overwriting of all blocks with the pattern 0x924924
- Overwriting of all blocks with the pattern 0x492492
- Overwriting of all blocks with the pattern 0x249249
- Overwriting of all blocks with the pattern 0x000000
- Overwriting of all blocks with the pattern 0x111111
- Overwriting of all blocks with the pattern 0x222222
- Overwriting of all blocks with the pattern 0x333333
- Overwriting of all blocks with the pattern 0x444444
- Overwriting of all blocks with the pattern 0x555555
- Overwriting of all blocks with the pattern 0x666666
- Overwriting of all blocks with the pattern 0x777777
- Overwriting of all blocks with the pattern 0x888888
- Overwriting of all blocks with the pattern 0x999999
- Overwriting of all blocks with the pattern 0xAAAAAA
- Overwriting of all blocks with the pattern 0xBBBBBB
- Overwriting of all blocks with the pattern 0xCCCCCC
- Overwriting of all blocks with the pattern 0xDDDDDD
- Overwriting of all blocks with the pattern 0xEEEEEE
- Overwriting of all blocks with the pattern 0xFFFFFF
- Overwriting of all blocks with the pattern 0x924924
- Overwriting of all blocks with the pattern 0x492492
- Overwriting of all blocks with the pattern 0x249249
- Overwriting of all blocks with the pattern 0x6DB6DB
- Overwriting of all blocks with the pattern 0xB6DB6D
- Overwriting of all blocks with the pattern 0xDB6DB6
- Overwriting of all blocks with a random pattern
- Overwriting of all blocks with a random pattern
- Overwriting of all blocks with a random pattern
- Overwriting of all blocks with a random pattern
- Quick verify

Support

Norway

Ibas Norge
Postboks 1250
Arkoveien 14
2206 Kongsvinger
Norway
Web: www.ibas.no

Software Sales

Free Telephone: +47 62 81 01 00
Fax: +47 62 81 01 10
E-mail: erasure@ibas.no

Technical Support

Telephone: +47 62 81 01 00
E-mail: support@ibas.no
Web: www.ibas.no/support

Sweden

Ibas AB
Märstagatan 4
753 23 Uppsala
Sweden
Web: www.ibas.se

Software Sales

Telephone: +46 (0) 18 10 44 40
Fax: +46 (0) 18 10 99 20
E-mail: erasure@ibas.se
Web: www.ibas.se

Technical Support

Telephone: +47 62 81 01 00
E-mail: support@ibas.no
Web: www.ibas.se/support

Denmark

Ibas Danmark
Teknikerbyen 25
2830 Virum
Denmark
Web: www.ibas.dk

Software Sales

Telephone: +45 70 22 34 00
Fax: +45 70 22 34 01
E-mail: erasure@ibas.dk

Technical Support

Telephone: +47 62 81 01 00
E-mail: support@ibas.no
Web: www.ibas.dk/support

Finland

Norman Ibas Oy
Läkkisepäntie 11
00620 Helsinki
Finland
Web: www.ibas.fi

Software Sales

Telephone: +358 9 2727 210
Fax: +358 9 2727 2121
E-mail: ibas@norman-ibas.fi

Technical Support

Telephone: +47 62 81 01 00
E-mail: support@ibas.no
Web: www.ibas.fi/support

The Netherlands

Kroll Ontrack Netherlands
Holland Office Center
Kruisweg 825c
2132 NG Hoofddorp
Nederland
Web: www.krollontrack.nl

Software Sales

Tel. 0800 5 765 565
Tel. +31 (0)23 - 56 73 030
Fax +31 (0)23 - 56 73 031
E-mail: info@krollontrack.nl

Technical Support

Telephone: +47 62 81 01 00
E-mail: support@ibas.no
Web: www.ontrackdatarecovery.nl/software-support/

USA

Kroll Ontrack Inc.
9023 Columbine Road
Eden Prairie, MN 55347
Free Telephone: 800-872-2599
Telephone: 952-937-5161
Web: www.ontrackeraser.com

Software Sales
Free Telephone: (800) 645-3649
E-mail: ontrackeraser@krollontrack.com

Technical Support
Telephone: 952-937-2121
E-mail: support@krollontrack.com
Web: www.ontrackeraser.com/support
Open: 8:00 a.m. – 5.00 p.m. M-F CST

Canada

155 Gordon Baker Road Suite 100
Toronto, Ontario M2H 2N7
Canada
Web: www.ontrackeraser.ca

Software Sales
Free Telephone: 800-645-3649
E-mail: software@ontrackeraser.ca

Technical Support
Telephone: 952-937-2121
E-mail: support@ontrackeraser.ca
Web: www.ontrackeraser.ca/support

United Kingdom

Kroll Ontrack
The Pavilions, 1 Weston Road
Kiln Lane, Epsom
Surrey, KT17 1JG
United Kingdom
Web: www.ontrackeraser.co.uk

Software Sales
Telephone: +44 (0)1372 741 999
E-mail: software@ontrackdatarecovery.co.uk

Technical Support
Telephone: +44 (0)1372 744 422
E-mail: support@ontrackdatarecovery.co.uk

Ireland

Kroll Ontrack
Marsh House
25-28 Adelaide Road
Dublin 2
Ireland
Web: www.ontrackeraser.ie

Software Sales
Telephone: +353 1 604 8250
E-mail: software@ontrackdatarecovery.ie

Technical Support
Telephone: 1800 930 183
E-mail: techsupport@ontrackdatarecovery.ie

Spain

Kroll Ontrack
Calle Anabel Segura 7, 1ª Planta,
Oficina B, 28108 Alcobendas
Madrid
Spain
Web: www.ontrackeraser.es

Software Sales
Telephone: +34 900 112 012
E-mail: software@ontrackdatarecovery.es

Technical Support
Telephone: +34 900 122 012
E-mail: soporte@ontrack.es

Australia

28 Donkin Street, Suite #8
West End, QLD 4101
Australia
Web: www.ontrackeraser.com.au

Software Sales
Free Telephone: 1800 972 259
E-mail: software@ontrackeraser.com.au

Technical Support
Telephone: +61 7 3255 1199
E-mail: support@ontrackeraser.com.au
Web: www.ontrackeraser.com.au/support

France

2, impasse de la Noisette
97371 Verrières-le-Buisson Cedex 413
France
Web: www.ontrackeraser.fr

Software Sales
Telephone: +33 (0) 1 69 53 66 92
E-mail: oes@ontrack.fr

Technical Support
Telephone: 0820 09 87 72
E-mail: support@ontrackeraser.fr
Web: www.ontrackeraser.fr/support

Germany

Kroll Ontrack GmbH
Hanns-Klemm-Strasse 5
71034 Böblingen
Germany

Web: www.ontrack.de/datenloeschung/

Software Sales
Telephone: +49 (0) 7031 / 644-123
E-mail: software@krollontrack.de

Technical Support
Telephone: +49 (0) 7031 / 644-244
E-mail: support@krollontrack.de
Web: www.ontrack.de

Austria

Zweigniederlassung Österreich
Landstraßer Hauptstraße 71/2
1030 Wien
Aiústria

Web: www.ontrack.at/daten-loeschen/

Software Sales
Telephone: +49 (0) 7031 / 644-123
E-mail: software@krollontrack.de

Technical Support
Telephone: +49 (0) 7031 / 644-244
E-mail: support@krollontrack.de
Web: www.ontrack.at

Switzerland

Kroll Ontrack S.a.g.l.
Piazza Boffalora, 4
P.O.Box 191
6830 Chiasso 3 Boffalora
Web: www.datenrettung.ch/daten-loeschen/

Software Sales
Telephone: +49 (0) 7031 / 644-123
E-mail: software@krollontrack.de

Technical Support
Telephone: +49 (0) 7031 / 644-244
E-mail: support@krollontrack.de
Web: www.datenrettung.ch

Italy

Kroll Ontrack Srl
Via Lario, 1
22070 Fenegrò (CO)
Telephone: 031 3525 611
Fax: 031 3525 621
Numero Verde 800 44 00 33
Italy
Web: www.ontrackeraser.it

Software Sales
Telephone: +39 031 3525 611
E-mail: info@krollontrack.it

Technical Support (English)
Telephone: +39 031 3525 628
E-mail: techsupport@krollontrack.it

Belgium

Kroll Ontrack België
Regus Pegasus Park
Pegasuslaan 5
1831 Diegem

Software Sales
Telephone: +32 (0)2 512 30 22
E-mail: info@ontrackdatarecovery.be

Poland

Kroll Ontrack sp. z o.o.
Ul. Jana III Sobieskiego 11
40-082 Katowice
Poland
Web: www.ontrackeraser.pl

Software Sales
Telephone: +48 32 77 999 46
E-mail: soft@krollontrack.pl