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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G07F 7/10, H04L 9/08

A3

(11) International Publication Number: **WO 99/16031**

(43) International Publication Date: 1 April 1999 (01.04.99)

(21) International Application Number: PCT/US98/19756

(22) International Filing Date: 22 September 1998 (22.09.98)

(30) Priority Data:
08/934,838 22 September 1997 (22.09.97) US

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(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

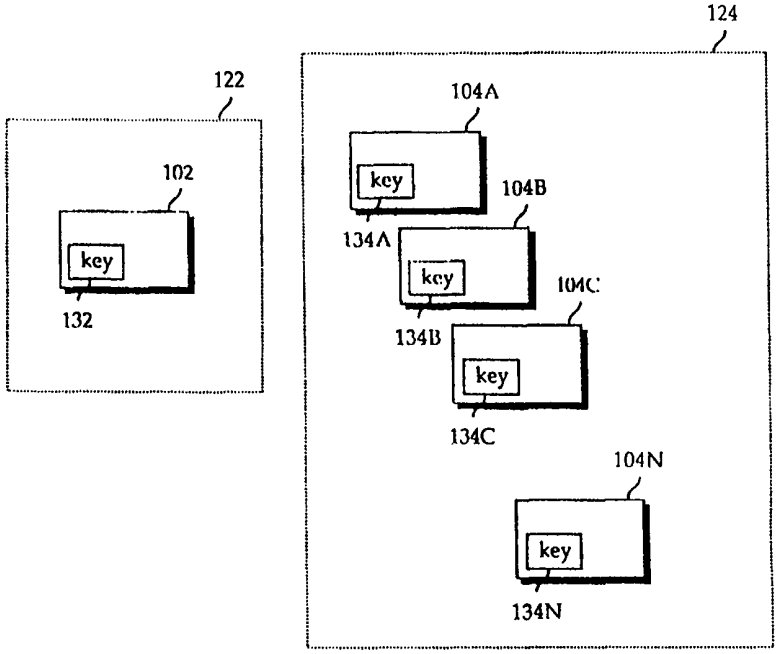
Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(88) Date of publication of the international search report:
8 July 1999 (08.07.99)

(54) Title: METHOD AND APPARATUS FOR ASYMMETRIC KEY MANAGEMENT IN A CRYPTOGRAPHIC SYSTEM

(57) Abstract

A method and apparatus for asymmetrical key management in a cryptographic system is provided. Embodiments of the invention implement varying levels of diversification to manage the encryption keys. In one embodiment, a unique key per device approach is used that minimizes the risks due to unauthorized key access. In yet another embodiment, a unique key per device per transaction is used. The keys generated in embodiments of the invention can be used to authenticate one device with another. An authenticating device generates a current key that is initially unknown to an unauthenticated device. The authenticating device sends information to an unauthenticated device to assist it in determining the value of the current key. The unauthenticated device uses the determined value of the current key to derive the authenticating device's authentication value. Each device generates an authentication value that must be correctly determined by an unauthenticated device for successful authentication. Authentication is performed between two devices such that each device is authenticated with the other device. Computing devices of a system can be grouped. In one embodiment devices are grouped such that one group includes devices that have a master key and another group includes devices that have a key that is derived from the master key. Another embodiment includes groups whose devices have the group's master key and a key derived from each of the master keys of the other group(s). In this embodiment, a dual authentication process can be used to authenticate two devices from different groups.



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INTERNATIONAL SEARCH REPORT

Intern ial Application No
PCT/US 98/19756

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G07F7/10 H04L9/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G07F H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	EP 0 253 722 A (BULL CP8) 20 January 1988 see abstract; claims; figures see column 3, line 24 - column 5, line 26	1,42 7-10, 44-46
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[X] Further documents are listed in the continuation of box C.

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Date of the actual completion of the international search	Date of mailing of the international search report
12 May 1999	21/05/1999

Name and mailing address of the ISA	Authorized officer
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Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Intern. al Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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