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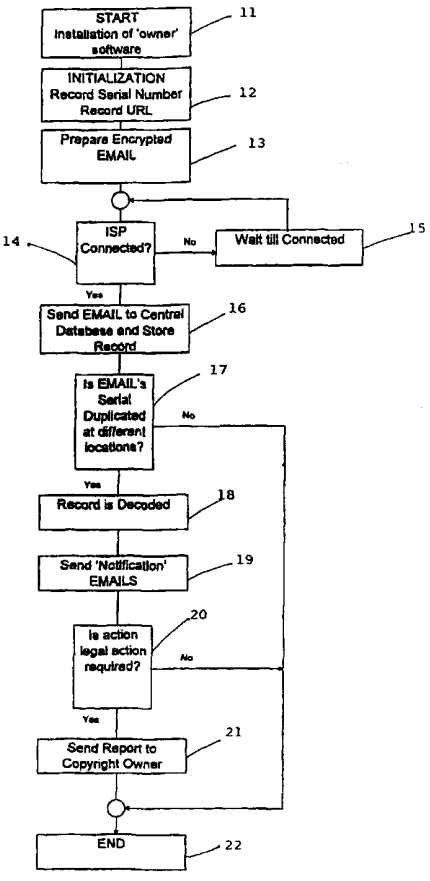
(54) Title: A SYSTEM FOR MONITORING USE OF SOFTWARE



(57) Abstract: A system for monitoring use of software comprising software having identifier means and a source data processor, a destination data processor and a communication network interconnecting the source data processor and destination data processor, wherein the software identifier means includes transmission software and identifier data and wherein the identifier means is adapted to be activated automatically when the software is installed in the source data processor, whereby the transmission software is adapted to activate the source data processor to automatically transmit the identifier data and source data processor identifier through the communication network to the destination address which is adapted to receive the identifier data and source data processor identifier and store the identifier data and source data processor identifier for monitoring purposes.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Title of the Invention

A SYSTEM FOR MONITORING USE OF SOFTWARE

Field of the Invention

The present invention relates to computer software piracy.

Background of the Invention

Software piracy is still a major problem for software manufacturers. One method which is employed to counteract software piracy is the software registration system. Typically software when it is installed on a computer results in a software registration program being activated with fields which must be completed for transmittal over the internet to the software manufacturer.

The problem with the above system is that failure to complete the registration fields does not prevent use of the software. Thus although there are benefits in registering the software, such as receiving updates and warranties, it is still possible for multiple users to use the same software without the manufacturer being aware of this other use and thus obtaining the applicable licence fee.

Summary of the Invention

The present invention is aimed at providing a method of monitoring use of computer software so that manufacturers can identify unauthorised use of software.

Accordingly the present invention provides a system for monitoring use of software comprising software having identifier means and a source data processor, a destination data processor and a communication network interconnecting the source data processor and destination data processor, wherein the software identifier means includes transmission software and identifier data and wherein the identifier means is adapted to be activated automatically when the software is installed in the source data processor, whereby the transmission software is adapted to activate the source data processor to automatically transmit the identifier data and source data

processor identifier through the communication network to the destination address which is adapted to receive the identifier data and source data processor identifier and store the identifier data and source data processor identifier for monitoring purposes.

According to another aspect of the present invention there is provided a storage medium having software stored therein, the software including an identifier means including transmission software and identifier data, wherein the transmission software is adapted to be activated when the software is installed in a source data processor and the source data processor is connected to the communication network, whereby the transmission software is adapted to automatically activate the source data processor to transmit the identifier data over the communication network to a destination data processor for storage thereby.

According to a further aspect of the present invention there is provided a method of monitoring use of software, the method including the steps of providing software including an identifier means having transmission software and identifier data, a source data processor, a communication network and a destination data processor, installing the software on the source data processor, using the transmission software to automatically activate the source data processor to transmit the identifier data over the communication network to the destination data processor for storage thereby and operating the destination data processor to compare the stored identified data to identify identical identified data and to output from the destination data processor a means of noting that duplication of the identifier data has occurred.

Preferably the software comprises transmission software and main software which main software is completely distinct from the transmission software and identifier data.

Preferably the transmission software is adapted

to read an identification means of the source data processor.

The identification means may comprise a URL.

Preferably the identifier data comprises a serial number or code number/character of the software.

The transmission software may be adapted to form a data package comprising the URL of the source data processor and the software serial number and send this package to an email outbox for its transmission therefrom.

The transmission software is preferably adapted to form an encrypted data package including the identifier data and identification means and to transmit the data package to a data transmitter of the source data processor.

The transmission software may be adapted to monitor the source data processor until the source data processor is connected to the communication network.

Preferably when the transmission software detects that the source data processor is connected to the communication network, the transmission software is adapted to transmit the data package to an output of the source data processor and activate the source data processor to transmit the data package over the communication network.

The software may include main software which is adapted for a specific purpose of a purchaser and registration software which includes the identifier means.

The registration software may be encrypted.

The registration software may be hidden so that it is not flagged when the software is installed.

The software may include detection software for detecting when the source data processor is connected to a communication network and for activating transmission software of the registration software to transmit identifier data to a location in the source data processor where it is able to be automatically transmitted to the communication network when other data exclusive of registration software is transmitted to the communication network.

Preferably the location is an outbox of an email storage area.

The detection software may be activated whenever the source data processor is used (activated). It is preferred that the detection software is periodically activated until the identifier data is transmitted by the source data processor.

It is preferred that the system includes feedback means located at the destination data processor for transmitting a receipt signal to the source data processor when the identifier data is received, whereby detection software of the source data processor is adapted to disable transmission of the identifier data.

The receipt signal preferably includes a code for deactivating the main software if a receipt signal is received from the destination data processor.

The software preferably includes deactivating software for deactivating the main software when the receipt signal is received through the communication network.

Preferably the registration software includes a counter which is incremented whenever the main software is installed on a data processor having a different URL from that stored by the detection software during a first installation of the software.

It is preferred that the identifier data is transmitted over the communication network with the latest counter number.

Brief Description of the Drawing

A preferred embodiment of the present invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 shows a block diagram of a flow chart for implementing a system for monitoring use of software in accordance with a preferred embodiment of the invention; and

Figure 2 shows a block diagram of a communication

structure for implementing the system according to the preferred embodiment of the invention.

Detailed Description of the Drawing

According to the preferred embodiment of the present invention software is sold on a hard disc and the software includes the main program, which is the program the purchaser wanted to buy and monitoring software which is hidden from the purchaser.

The monitoring software is effectively separate from the main program although it is activated as soon as the main program is installed on a computer.

The monitoring software includes a set program which records the serial number of the computer in which the main program is installed.

If the computer is connected to the internet via an ISP a sub program of the monitoring software searches through transmission software of the computer and records the computer URL.

If the computer is not connected to a communication network such as the internet, a sub program of the monitoring software routinely checks the computer and looks to see if the computer has been configured so that it can communicate over the internet or a similar communication network.

The continual monitoring may take the form of checking the computer every time it is turned on.

As shown in the figure the process of monitoring use of the main program begins with installation of the purchased software as shown in block (11).

The monitoring software then records the serial number of the computer and if the computer is connected to an ISP it then records the URL as shown in block (12).

The monitoring software then prepares an encrypted email including both the serial number of the computer and the URL of the computer as shown in block (13).

The monitoring software then monitors the

computer to see if it is connected to an ISP (14). If the computer is not connected to an ISP the monitoring software then waits until the computer is connected to an ISP (15).

If the computer is connected to an ISP the email is sent to a central data base and is stored therein (16). The main data base typically would be a data base set up by the manufacturer of the main program and the data base stores the decrypted email which contains the serial number of the computer as well as its URL.

If the data base already has a record of the URL and serial number of the computer (17) then this indicates that the software has been installed on another computer and has thus been duplicated as shown in block (18).

The central data base is then adapted to issue a notification email 19 to the computer from which the encrypted email was received. If no reply is received from the computer then the central data base can issue a notification to the manufacturer indicating that legal action may be required (20). A report would then be sent to the copyright owner 21 and then whatever legal recourse is required can be enacted.

If no legal action is required because the computer responds in a manner requested in block 19 then the monitoring procedure is completed (22).

The above system could be modified by having the monitoring software including a deactivation software which is able to be deactivated upon receipt of a deactivation signal from the central data base. Such a signal would be transmitted from the central data base if duplication is recorded at the central data base.

As shown in Figure 2 new software incorporating monitoring software in accordance with the present invention is identified by item 30. This software may be recorded on a CD ROM and includes the user App 31 and monitoring software 32. In this example the monitoring software 32 uses a COM object and OLE automation.

The user App can be in any supported language.

It is preferred that the COM object produces a standard HTTP request directly from the program and this allows a server App 33 to be a standard active server page ASP. The monitoring software ASP collects the application and processor ID information and passes it on to a monitoring validation module for authentication. The response is then encoded and sent back to the monitoring software COM object.

It is noted that the monitoring validation module 34 contains business logic which determines how validation requests are dealt with. Unique IDs from requests are stored in a data base. Responses are created for the end users and (also if required) violation/usage information is created for developers. This module contains all the logic associated with the validation process, but is a passive module. It is preferably the responsibility of other modules to query this module and communicate any responses.

The above system thus provides a simple way of monitoring use of new software without the purchaser being aware of this use or having to complete registration requirements in the conventional fashion.

CLAIMS

1. A system for monitoring use of software comprising software having identifier means and a source data processor, a destination data processor and a communication network interconnecting the source data processor and destination data processor, wherein the software identifier means includes transmission software and identifier data and wherein the identifier means is adapted to be activated automatically when the software is installed in the source data processor, whereby the transmission software is adapted to activate the source data processor to automatically transmit the identifier data and source data processor identifier through the communication network to the destination address which is adapted to receive the identifier data and source data processor identifier and store the identifier data and source data processor identifier for monitoring purposes.

2. The system as claimed in claim 1 wherein the software comprises transmission software and main software which main software is completely distinct from the transmission software and identifier data.

3. The system as claimed in claim 1 or 2 wherein the transmission software is adapted to read an identification means of the source data processor.

4. The system as claimed in claim 3 wherein the identification means comprises a URL.

5. The system as claimed in claim 4 wherein the identifier data comprises a serial number or code number/character of the software.

6. The system as claimed in claim 5 wherein the transmission software is adapted to form a data package comprising the URL of the source data processor and the software serial number and send this package to an email out box for its transmission therefrom.

7. The system as claimed in claim 6 wherein the transmission software is adapted to form an encrypted data package including the identifier data and identification

means and to transmit the data package to a data transmitter of the source data processor.

8. The system as claimed in claim 7 wherein the transmission software is adapted to monitor the source data processor until the source data processor is connected to the communication network.

9. The system as claimed in claim 8 wherein the transmission software, when it detects that the source data processor is connected to the communication network, is adapted to transmit the data package to an output of the source data processor and activate the source data processor to transmit the data package over the communication network.

10. The system as claimed in claim 9 wherein the software includes main software which is adapted for a specific purpose of a purchaser and registration software which includes the identifier means.

11. The system as claimed in claim 10 wherein the registration software is encrypted.

12. The system as claimed in claim 11 wherein the registration software is adapted to be hidden so that it is not flagged when the software is installed.

13. The system as claimed in claim 12 including feed back means located at the destination data processor for transmitting a receipt signal to the source data processor when the identifier data is received whereby detection software of the source data processor is adapted to disable transmission of the identifier data.

14. The system as claimed in claim 13 wherein the receipt signal includes a code for deactivating the main software if a receipt signal is received from the destination data processor.

15. A storage medium having software stored therein, the software including an identifier means including transmission software and identifier data, wherein the transmission software is adapted to be activated when the software is installed in a source data

processor and the source data processor is connected to the communication network, whereby the transmission software is adapted to automatically activate the source data processor to transmit the identifier data over the communication network to a destination data processor for storage thereby.

16. The storage medium as claimed in claim 15 wherein the transmission software is adapted to read an identification means of the source data processor.

17. The storage medium as claimed in claim 16 wherein the identifier data comprises a serial number or code number/character of the software.

18. The storage medium as claimed in claim 18 wherein the transmission software is adapted to form a data package comprising the URL of the source data processor and the software serial number and send this package to an email output for its transmission therefrom.

19. The storage medium as claimed in claim 18 wherein the transmission software is adapted to form an encrypted data package including the identifier data and identification means and to transmit the data package to a data transmitter of the source data processor.

20. The storage medium as claimed in claim 19 wherein the transmission software is adapted to monitor the source data processor until the source data processor is connected to the communication network.

21. The storage medium as claimed in claim 20 wherein the transmission software is adapted to transmit the data package to an output of the source data processor and activate the source data processor to transmit the data package over the communication network when the transmission software detects that the source data processor is connected to the communication network.

22. The storage medium as claimed in claim 21 wherein the software includes main software which is adapted for a specific purpose of a purchaser and registration software which includes the identifier means.

23. The storage medium as claimed in claim 22 wherein the registration software is adapted to be hidden so that it is not flagged when the software is installed.

24. The storage medium as claimed in claim 23 wherein the software includes detection software for detecting when the source data processor is connected to the communication network and for activating transmission software of the registration software to transmit identifier data to a location in the source data processor where it is able to be automatically transmitted to the communication network when other data exclusive of registration software is transmitted to the communication network.

25. The storage medium as claimed in claim 24 wherein the detection software is adapted to be periodically activated whenever the source data processor is used until the identified data is transmitted by the source data processor.

26. The storage medium as claimed in claim 25 wherein the software includes deactivation software for deactivating the main software when a receipt signal is received through the communication network from the destination data processor.

27. A method of monitoring use of software, the method including the steps of providing software including an identifier means having transmission software and identifier data, a source data processor, a communication network and a destination data processor, installing the software on the source data processor, using the transmission software to automatically activate the source data processor to transmit the identifier data over the communication network to the destination data processor for storage thereby and operating the destination data processor to compare the stored identified data to identify identical identified data and to output from the destination data processor a means of noting that duplication of the identifier data has occurred.

28. The method as claimed in claim 27 wherein the transmission software is adapted to read an identification means of the source data processor and is adapted to form an encrypted data package including the identifier data and identification means and to transmit the data package to a data transmitter of the source data processor.

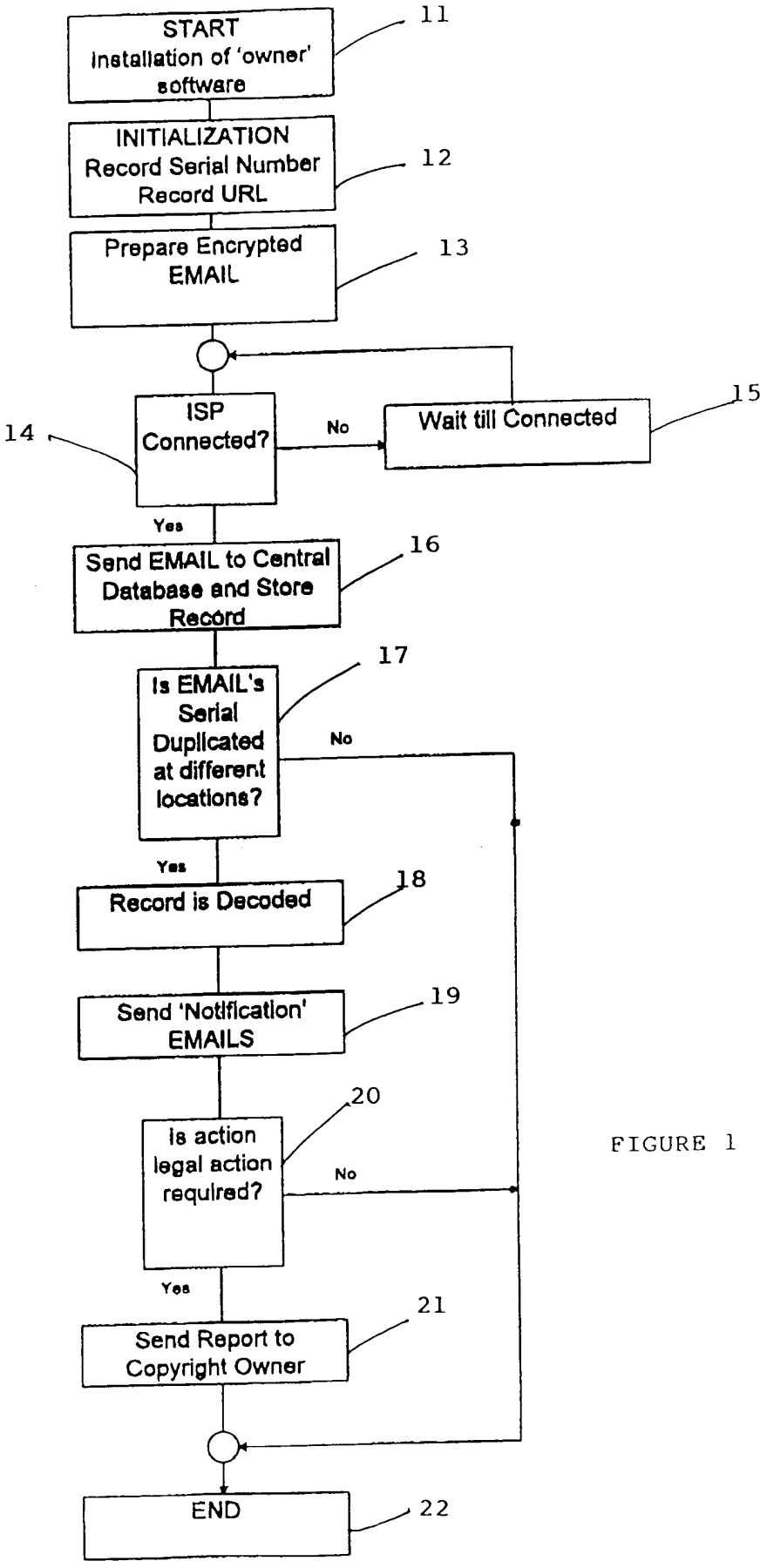
START
Installation of 'owner' software
11
INITIALIZATION
Record Serial Number
Record URL
12
Prepare Encrypted EMAIL
13
ISP Connected?
14
No
Wait till Connected
15
Yes
Send EMAIL to Central Database and Store Record
16
Is EMAIL's Serial Duplicated at different locations?
17
No
Yes
Record is Decoded
18
Send 'Notification' EMAILS
19
Is action legal action required?
20
No
Yes
Send Report to Copyright Owner
21
END
22

FIGURE 1

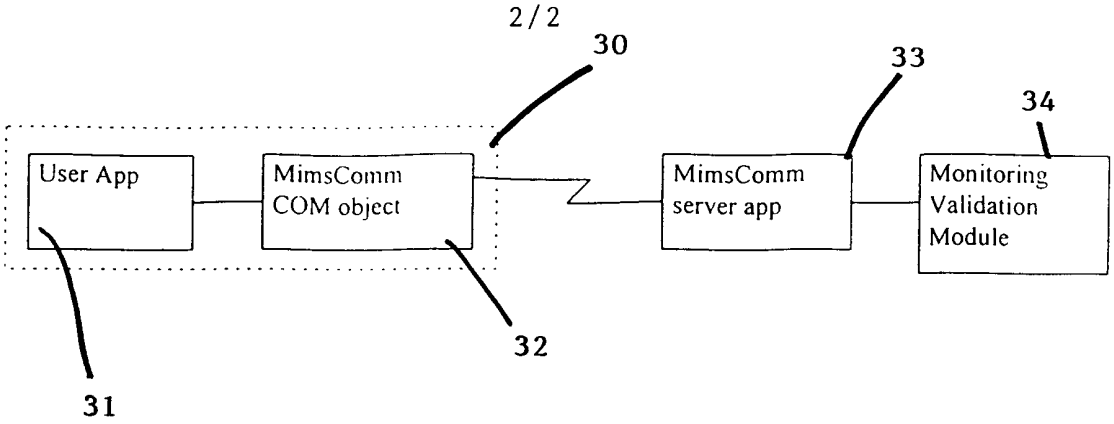
30
33
34
User App
MimsComm
COM object
MimsComm
server app
Monitoring
Validation
Module
31
32

FIGURE 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/01434

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. [7]: G06F 12/14

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)

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 practicable, search terms used)
WPAT KEYWORDS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CA, 2231978 A1, (BRISSON) 20 November 1999 See whole document	1-28
X	US, A, 5790664, (COLEY et al) 4 August 1998	1-28

☐ Further documents are listed in the continuation of Box C ☒ See patent family annex

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
17 January 2001	19 January 2001
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized officer **Stephen Lee** Telephone No : (02) 6283 2205

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/01434

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member			
US	5790664	AU	20545/97	WO	9730575

END OF ANNEX