

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

ROACH et al.

Serial No.: Not yet assigned

Filed: Herewith

Atty. File No.: 6982-2-CON-1

Entitled: "AUTOMATIC REAL-TIME FILE
MANAGEMENT METHOD AND
APPARATUS"

Group Art Unit: Not yet assigned

Confirmation No.: Not yet assigned

Examiner: Not yet assigned

Customer No. **104600**

Submitted via EFS-Web

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Dear Sir/Madam:

Prior to the initial review of the above-identified patent application by the Examiner, please enter the following Preliminary Amendment.

Amendments to the Specification begin on page **2** of this paper.

Amendments to the Claims are reflected in the listing of claims which begins on page **3** of this paper.

Remarks begin on page **5** of this paper.

**DROPBOX, INC. ET AL.,
EXHIBIT 1002**

AMENDMENTS TO THE SPECIFICATION:

Please replace paragraph [0001] with the following amended paragraph:

[0001] This application is a continuation of U.S. Patent Application No. 13/925,768 filed June 24, 2013, which is a continuation of U.S. Patent Application No. 09/957,459 filed September 21, 2001, now U.S. Patent No. 8,473,478, which claims the benefit of U.S. Provisional Application No. 60/234,221 filed Sep. 21, 2000, each of which is herein incorporated by reference.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) In a computing device, a method for archiving files comprising:
detecting an instruction from a resident program to perform an operation on an operating file; and
capturing the operating file temporally proximate to the operation being performed on the operating file,
responsive to the detection of the instruction.
2. (Original) The method of claim 1 wherein capturing the operating file includes
creating an archive file and storing the archive file in a storage location.
3. (Original) The method of claim 2 wherein the archive file includes a copy of the
operating file.
4. (Original) The method of claim 2 wherein the archive file includes portions of the
operating file.
5. (Original) The method of claim 4 wherein the archive file includes pointers directed
to one or more storage locations, wherein each of the one or more second storage locations contains
at least a portion of the operating file.
6. (Original) The method of claim 2 wherein capturing the file includes saving the
archive file prior to the operation being performed on the operating file.
7. (Original) The method of claim 6 wherein capturing the file includes saving the
archive file subsequent to detecting the instruction to perform the operation.
8. (Original) The method of claim 2 wherein capturing the file includes saving the
archive file subsequent to the operation being performed on the operating file.
9. (Original) The method of claim 2 wherein the storage location includes a buffer.
10. (Original) The method of claim 2 wherein the first storage location includes a
storage device.

11. (Original) The method of claim 10 wherein the storage device includes at least one of a group comprising a magnetic storage medium, an optical storage medium, and a solid-state storage device.

12. (Original) The method of claim 10 wherein the storage location includes a directory disposed on said storage device.

13. (Original) The method of claim 1 further comprising determining whether the operating file is intended to be captured prior to said capturing step.

14. (Original) The method of claim 1 further comprising determining whether the operating file has previously been captured prior to capturing the file.

15. (Original) The method of claim 1 wherein the operation causes a change in the operating file.

16. (Original) An article of manufacture comprising a computer usable medium having computer readable program code for performing the method of claim 1.

17. (Original) A data transmission signal having computer readable program code for performing the method of claim 1.

18. (Original) An article of manufacture comprising a processor configured to perform the method of claim 1.

19. (Original) In a computing device, a method for moving files from a first storage location to a second storage location comprising:

searching a first storage location for files responsive to the occurrence of a first event;

moving the files from the first storage location to the second storage location responsive to a second event.

20. (Original) The method of claim 19 wherein the first storage location includes a buffer.

21-51. (Cancelled)

REMARKS/ARGUMENTS

The present Preliminary Amendment is submitted to update the priority claim information and cancel excess claims. By this Amendment, claims 21-51 have been cancelled without prejudice or disclaimer to the subject matter contained therein. Accordingly, claims 1-20 are currently pending in the application. No new matter has been added.

Should the Examiner feel that there are any issues outstanding after consideration of this response; the Examiner is invited to contact the Applicant's undersigned representative at the number below to expedite prosecution.

Respectfully submitted,

ASPIRE IP

By: /Yiu F. Au/
Yiu F. Au
Registration No. 67,529
444 East Pikes Peak Avenue
Suite 105
Colorado Springs, CO 80903
(719) 359-9335

Date: December 15, 2015

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of
Invention

AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS

As the below named inventor, I hereby declare that:

This declaration
is directed to:

☐

The attached application, or

☒

United States application or PCT international application number 13/925,768

filed on June 24, 2013

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Troy Reiber

Date (Optional): 8/30/2013

Signature: Troy Reiber

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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LEGAL NAME OF INVENTOR

Inventor: Warren Roach

Date (Optional): 8/24/2013

Signature: Warren P. Roach

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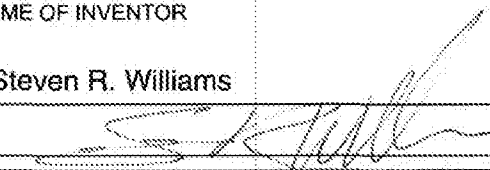
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LEGAL NAME OF INVENTOR

Inventor: Steven R. Williams

Date (Optional): 2 SEP 2013

Signature: 

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The information provided by you in this form will be subject to the following routine uses:

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

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This declaration
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The attached application, or



United States application or PCT international application number 13/925,768

filed on June 24, 2013

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I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

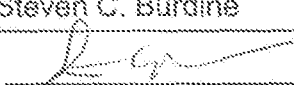
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LEGAL NAME OF INVENTOR

Inventor: Steven C. Burdine

Date (Optional): 9/3/2013

Signature: 

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Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS			
First Named Inventor/Applicant Name:	Warren Roach			
Filer:	Yiu Fai Au/sher Weisbeck-Raslich			
Attorney Docket Number:	6982-2-CON-1			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	70	70
Utility Search Fee	2111	1	300	300
Utility Examination Fee	2311	1	360	360
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				730

Electronic Acknowledgement Receipt

EFS ID:	24370261
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	104600
Filer:	Yiu Fai Au/Sherri Weisbeck-Raslich
Filer Authorized By:	Yiu Fai Au
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	15-DEC-2015
Filing Date:	
Time Stamp:	17:16:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 730
RAM confirmation Number	4507
Deposit Account	506481
Authorized User	AU, YIU F

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		2015_12_15_Patent_Application_files.pdf	3730386 3a1c57649278ef31360ccb3493e4c80b57203e8d	yes	24
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	17	
	Claims		18	23	
	Abstract		24	24	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	2015_12_15_FIGS_files.pdf	510115 989c5d5c81e11e7669a7531128c49ce9bc8938e9	no	6
Warnings:					
Information:					
3	Application Data Sheet	2015_12_15_Application_Data_Sheet_files.pdf	1256065 e3527d58663c24c094be90b4fdaca63928a1f1d5	no	7
Warnings:					
Information:					
4	Preliminary Amendment	2015_12_15_Preliminary_Amendment_files.pdf	125511 37aeb3c8870aee5e3bb2ad04de14180653a99938	no	5
Warnings:					
Information:					
5	Oath or Declaration filed	Executed_Declaration_Reiber.pdf	383435 a495de91ebde929d04e06ccc38fc047fde3f7d7	no	1
Warnings:					
Information:					
6	Oath or Declaration filed	Executed_Declaration_Roach.pdf	383116 5698a04220f43e5789f6f9da21e3cdca6d707bae	no	1

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Information:					
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Warnings:					
Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	35272 d0262656f50922dfc43064ba041f79f721b142cc	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			8098813		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

APPARATUS AND METHOD FOR FILE CAPTURE, PRESERVATION AND MANAGEMENT

[0001] This application claims the benefit of Provisional Application No. 60/234,221 filed September 21, 2000, which is herein incorporated by reference.

Field of the Invention

[0002] This invention relates to file preservation, file capture, file management and file integrity techniques for computing devices.

Background of the Invention

[0003] One of the greatest challenges faced by information technology (IT) professionals and computer users today, particularly in the business environment is the protection and management of data. Data may be stored on user workstations, e.g., laptop computers, home or office desktop computers, network servers or other devices external to the workstations. Important data may even be stored on hand-held computing devices such as PDAs, PALs and other like devices. Complicating the problem is the fact that the criticality of data is increasing and the difficulty of managing it, protecting it from loss and keeping it available is increasing. This is due to a variety of factors, including: 1) the explosion in data volume, particularly that stored on desktop and laptop computers, 2) the increasing complexity of desktop and laptop computer software and hardware and increasing trends toward a paperless environment were absolute reliance (because paper copies are becoming less the norm) on data integrity is increasingly significant.

[0004] Many home computer users do not realize the vulnerability of their computer data. Many that do understand the very real potential for data loss, purchase backup

systems whose operation and user interface is often confusing and/or time-consuming to use, dramatically decreasing their effectiveness or dependability. As a result, many computer users remain very much at risk of data loss resulting from hardware and/or software failures, fires, stolen equipment, etc. While these risks are significant, the most frequent cause of data loss is user error (accidental file deletes, file overwrites, errant programs, etc.), to which users remain very vulnerable even with most present day backup systems.

[0005] The financial impact of information loss is substantial. As reported by the Safeware Insurance Agency, in 1999 alone, insurance claims for damaged, lost and stolen computers (primarily notebook computers) totaled more than \$1.9 billion. This figure does not include the untold billions lost in intellectual capital and time. It is costly to recreate lost data and there are significant related costs such as lost productivity and lost opportunity. Consider, for example, the financial and health related impact of a doctor losing all patient contact information and medical histories due to a hard disk crash or some other type of computer failure. In addition, it is costly to keep desktop and laptop computers up and running in the wake of their increasing complexity.

[0006] A variety of products have been developed to address data preservation and integrity issues. These products may be loosely grouped into three categories, manual backup systems, schedule based backup systems and mirroring backup systems.

[0007] The least efficient and probably one of the most frequently used backup systems is the manual backup. At times determined by the user, the user selects files to be backed up and either utilizes the built in backup procedure for the corresponding application or manually copies the selected files to a desired backup storage media.

[0008] The problems with this method of preserving data are self-evident. Backup procedures are often confusing and may differ from application to application. Accordingly, the user must familiarize itself with the various methods for performing backups. In addition, users may forget to backup or elect not to on a given occasion due to time constraints or other reasons. Manual backups often do not allow the user to continue to use the system during the backup procedure. Furthermore, data stored to the backup media is really only a "snapshot" of the data at the time that the backup is performed. Any changes made between manual backups would be lost if there was a failure on the computer's storage device.

[0009] Schedule based backup systems typically perform backups according to a schedule either set by the user or preset by the backup software. One of the major disadvantages of each type of schedule-based backup system is that as with manual backups, they miss work done between schedule points. This may cause the user to loose critical information as they work between schedule points. Another disadvantage of schedule-based backups systems is that they are frequently confusing and cumbersome for the user. Still another disadvantage of schedule-based backup systems is that they function poorly if at all when the backup storage device is unavailable, i.e., they cannot be written to due to a communications error or because the device has reached its capacity, is bandwidth limited, or is non-operational for some other reason.

[0010] Mirroring is a technique typically applied to disk based backup systems. Mirroring backup systems are the most comprehensive in that everything that happens to the source storage device immediately happens to the backup storage device. That

is the backup drive becomes a mirror image of the source drive. Accordingly, if a failure occurs on the source disk, processing can be switched to the backup disk with little or no service interruption.

[0011] The strongest advantage of mirroring systems is also their strongest disadvantage. Because there is no operational discrimination, if a file is accidentally deleted from the source disk, it is deleted and cannot be preserved on the backup disk. Likewise, if a virus infects the source disk it is likely to infect the backup disk. Another disadvantage of mirroring systems is that separate backup disks are required for each source disk, doubling the disk requirement for the system. The backup disk must be at least as large as the source disk and the disks must be configured with identical volume mapping. Any extra space that may be present on the backup disk is unavailable.

[0012] All of these methods require that the user specify which files/directories to back up, but many users have no concept of files and directories in their thought process, much less are they able to correlate a particular application (e.g. Microsoft Excel) with the kinds and locations of files they generate. These systems simply require too much user knowledge, and too much user intervention. The backup user's risk increases dramatically the lower his computer knowledge may be.

[0013] In view of the foregoing, there is a need for a file capture, preservation and management system that captures files just before and/or just after they have been changed to minimize loss of data between backup events. There is also a need for file capture and preservation system that captures files even when the destination storage medium for the files is unavailable. There is a further need for a system that allows users to recover easily and quickly from any type of information loss, including simple

user errors, failed software installations or updates, hardware failures (attached storage devices), and lost or stolen laptop computers. Users should be able to recover on their own, without the intervention of the IT staff, and their backup systems should be as "behind the scenes" as possible, requiring little user attention and extremely small amounts of user computer knowledge.

Summary of the Invention

[0014] It is an object of the invention to a file capture, preservation and management method and apparatus that captures files just before and/or just after the files are changed.

[0015] It is another object of the invention to provide a file capture, preservation and management method and apparatus that has an imperceptible impact on system performance from the user's point of view.

[0016] It is a further object of the invention to provide a file capture, preservation and management method and apparatus that captures and stores files even when there is no connection to the desired storage location.

[0017] Still another object of the invention is to provide a file capture, preservation and management method and apparatus that captures and stores files even when the desired storage location is unavailable.

[0018] In accordance with an aspect of the invention, a method for archiving files is provided. The method includes, in a computing device, detecting an instruction from a resident program to perform an operation on an operating file. Upon detection of the instruction, capturing the operating file temporally proximate to the operation being performed on the operating file.

[0019] In accordance with another aspect of the invention, a method for moving files from a first storage location to a second storage location is provided. The method includes, in a computing device, searching a first storage location for files responsive to the occurrence of a first event and moving the files from the first storage location to the second storage location responsive to a second event.

[0020] In accordance with still another aspect of the invention, a method for archiving files is provided. The method includes detecting an instruction from a resident program to perform an operation on an operating file. The method further includes creating an archive file from the operating file and storing the archive file in a first storage location temporally proximate to the operation being performed on the operating file and responsive to detecting the instruction. In keeping with the method, the first storage location is searched for an archive file responsive to the occurrence of a first event. The archive file is then moved from the first storage location to the second storage location responsive to a second event.

[0021] The accompanying figures show illustrative embodiments of the invention from which these and other of the objectives, novel features and advantages will be readily apparent.

Brief Description of the Drawings

[0022] Figure 1 illustrates a block diagram of a computing device in accordance with the present invention.

[0023] Figure 2A is a flow chart depicting a process for moving files in accordance with the present invention.

[0024] Figure 2B is a flow chart showing another process for moving files in accordance with the invention.

[0025] Figure 3 is a time line illustrating a sequence of events in an exemplary operation in accordance with the invention.

[0026] Figure 4 is a time line illustrating a sequence of events in another exemplary operation in accordance with the invention.

[0027] Figure 5 is a time line illustrating a sequence of events in still another exemplary operation in accordance with the invention.

Detailed Description of the Embodiment

DEFINITIONS

[0028] **Operating System (OS)** – A computer program that allocates system resources such as memory, disk space, and processor usage and makes it possible for the computer to boot up to a human user interface allowing the user to interact with the computer and control its operation.

[0029] **Operating File** – a system or user file.

[0030] **Archive File** – a file containing all of the data of an operating file in a native or altered format and/or a file containing at least some of the data of an operating file and including references to the location of the remainder of the data of the operating file.

[0031] **Computing Device** – a personal computer, a laptop or notebook computer, a server, a hand-held computing device, a PDA or a PAL. The term computing device is not specific to the kind of operating system being run on such computing device, and includes devices running Microsoft operating systems, Apple Macintosh operating

systems, UNIX operating systems, Linux operating systems, and other operating systems.

[0032] Storage Location -- any storage device, or a buffer, folder, directory or designated area on a storage device.

[0033] Personal Attached Storage Device -- any internal or external storage device connected to a computing device.

[0034] Network Attached Storage Device -- any storage device connected directly to a network to which a first computing device is also temporarily or permanently connected, or any storage device connected to a second computing device that is also temporarily or permanently connected to the network to which the first computing device is temporarily or permanently connected.

[0035] Internet storage area network -- any storage area (device, collection of devices, etc.) that can be accessed by the computing device when the computing device is temporarily or permanently connected to the Internet.

[0036] Peer-to-Peer Storage Device -- any storage area (device, collection of devices, etc.) that can be accessed by the computing device when it is sharing resources with other network or Internet accessible computers.

[0037] Resident Program -- an operating system (OS) or other program that has control over file operations such as "read", "write", "save", "rename", "delete", "copy", "move", "open", "close", etc.

[0038] User Program -- an application software program or other computing program installed by the user or by the computer manufacturer for user creation of desired data, documents, or other information that is designed to enhance the

functionality and/or enjoyment and/or usability of the computing device. The present invention is directed to an apparatus and/or method for file capture, preservation and management. The invention includes a file capture aspect and smart data management aspect. The invention may be realized as a method and/or an apparatus. More particularly, the invention may be realized as a set of program code instructions stored on a computer usable medium, a set of program code instructions embodied in a signal for transmitting computer information, and a processor and/or computing device configured as described herein.

[0039] Figure 1 depicts a block diagram in accordance with the present invention comprising a computing device 5 including a file capture block 10 (or file capturer), a smart data management block 15 (or smart data manager), an input buffer 20, output buffer(s) 25, and a database 30. A storage device 35 is also provided and may be either internal or external to computing device 5. The invention functions in conjunction with a resident program on computing device 5.

[0040] In accordance with an embodiment of the invention, file capture block 10 detects an instruction to perform an operation on an operating file initiated by the resident program of computing device 5. At a moment temporally proximate to when the resident program actually performs the operation, i.e., just before and/or just after the operation is performed on the operating file, or, more preferably, the instant before and/or the instant after the operating file is changed, file capture block 10 captures the operating file or portions thereof. Preferably, the operating file is captured within a few clock cycles of the detection of the instruction.

[0041] In keeping with a preferred aspect of the invention, file capture block 10 causes the location of the captured operating file to be recorded in database 30. The continued process of recording information about captured operating files, or portions thereof, in database 30 creates a record of each version of the operating file, which may be accessed by the user or by other programs.

[0042] File capture is preferably executed by creating an archive file from the operating file. The archive file is preferably stored in a temporary storage location, internal or external to the computer, such as input buffer 20. However, the archive file may be stored directly in storage device 35. In accordance with a preferred aspect of the invention, storage device 35 may be a personal attached storage device, a network attached storage device, an Internet storage area network, a peer-to-peer storage device, or other storage device.

[0043] In keeping with a preferred aspect of the invention, smart data management block 15 manages the migration of the archive file from the input buffer 20 through the output buffers 25 to storage device 35. This migration may take place either synchronously or asynchronously with the file capture procedures described herein. The time duration from a file arriving in input buffer 20 and when it arrives on archive storage device 35 is managed by the smart data management block 15. More particularly smart data management block 15 regularly examines input buffer 20 for the presence of archive files. Smart data management block 15 performs this examination upon the occurrence of an event, e.g., messages from the file capture block 10 and/or various messages from the resident program(s), messages from an input buffer timer sent at time intervals controlled by a timer or at time intervals selected by the user.

Optionally, smart data management block 15 may then examine database 30 to determine a defined storage location for each of the archive files stored in input buffer 20. Each archive file stored in the input buffer 20 may be directed to the same storage location or to different storage locations and archive files may be directed to multiple storage locations for redundancy. Preferably, smart data management block 15 moves the archive files to one or more output buffers 25. More preferably each archive file is moved to output buffer(s) 25 corresponding to the final storage location(s) for that archive file. Alternatively, all archive files may be moved to a single common output buffer 25 if desired. Upon the occurrence of an event, and/or at defined time intervals, smart data management block 15 moves the archive files from the output buffers 25 to their respective storage device(s) 35. Exemplary events include but are not limited to messages indicating when storage device 35 is connected and ready for use, messages indicating when storage device 35 is inserted/removed, full, defective, etc., and messages indicating when storage device 35 is disconnected or unavailable, and messages from a storage device timer sent at time intervals controlled by the timer or at time intervals controlled by the user. The input buffer timer and the storage device timer may operate synchronously or non-synchronously.

[0044] Under certain conditions, smart data management block 15 may be unable, or may elect not to move the archive files. For example, if storage device 35 is unavailable then smart data management block 15 will not move the archive files to storage device 35. Among the conditions that may cause storage device 35 to be unavailable are i) storage device 35 is disconnected from computing device 5, ii) the connection between storage device 35 and computing device 5 is faulty or unacceptably

slow, iii) storage device 35 is full, or iv) storage device 35 is malfunctioning. In addition, smart data management block 15 may also regulate movement of archive files according to time schedules set by the user, by monitoring connection bandwidth availability and moving files only during times of high bandwidth availability, or by monitoring other factors including messages that may be received from storage location server requests for archive file transmittal.

[0045] A preferred operational mode for smart data management block 15 is illustrated in the flowcharts of Figures 2A and 2B. In step 100 of Figure 2A, smart data manager 15 examines input buffer 20 to determine whether any archive files are stored therein. If no archive files are present, smart data manager 15 rests idle until the next event occurs. If archive files are detected, in step 105, smart data manager 15 updates database 25 to indicate the location of the archive files; that is, to indicate that the archive files are resident in input buffer 20. In step 110, smart data manager 15 examines database 30 to determine the proper destination for each archive file. In step 115, smart data manager 15 moves the archive files to output buffers 25. In step 120, smart data manager 15 updates database 30 to indicate that the archive files are now stored in the output buffer.

[0046] In Figure 2B in step 125, the archive files are moved to one or more storage devices 30. If smart data manager 15 is unable to move the archive files to any of the storage devices 30, smart data manager 15 rests idle and does not move the archive files until it is notified that the storage device is available. Accordingly, the archive files remain in either input buffer 20 or output buffer 25 until smart data management block

15 is notified. In step 130 smart data manager 15 updates database 25 to indicate that the archive files are stored in one or more storage devices 30.

Use Specific to User Program Operations

[0047] The following examples are directed to embodiments of the invention specific to operations performed by a user program. The file capture, preservation and management processes of the invention are not limited to execution with the exemplary operation discussed below. The processes of the invention are preferably executed when a resident program causes a change or a change to be imminent in the operating file. Therefore, the following examples are intended to be exemplary only and non-limiting.

File Capture at File Open

[0048] As illustrated in Figure 3, in step 205, the user or a program selects an "open" operation to open an operating file and an instruction to perform that "open" operation on the operating file is sent to the resident program. In step 210, file capture block 10 detects the instruction and captures the operating file. Optionally, prior to capturing the operating file, file capture block 10 may check database 30 to a) determine whether the operating file has previously been archived, b) determine whether the user has selected the operating file for protection, or c) determine a match to other defined conditions. If the go-ahead conditions exist, then file capture block 10 creates an archive file and stores the archive file in a storage location such as input buffer 20 or storage device 35 just before the resident program opens the operating file. Preferably, file capture block 10 stores the archive file in input buffer 20. In step 215 the resident program opens the operating file and in step 220 the user program displays the

operating file as originally requested, e.g. Microsoft Word, and makes it available for the user to alter, e.g., edit a word processing document, amend or add to a database, etc. Step 210 is performed by momentarily delaying the execution of step 215 in such a manner as to have little or no perceptible impact on system performance from the user's point of view.

[0049] In step 225, the user program begins a process to save the altered operating file and an instruction to save the altered operating file is sent to the resident program. In step 230 the resident program saves the altered operating file pursuant to the instruction. In step 235, immediately after the altered operating file is saved by the resident program, file capture block 10 captures the altered operating file, preferably by creating and storing an archive file of the altered operating file in input buffer 20. In accordance with a preferred feature of the invention, file capture block 10 may save the archive file in such a way that previous revisions of the operating file are retained. That is, every time the operating file is changed, file capture block 10 saves an archive file and database 30 is updated with information about the archive file. Accordingly, over time, a plurality of archive files may be created from the original operating file. Each archive file represents a revision of the original operating file.

File Capture in the "RENAME" Operation

[0050] As illustrated in Figure 4, step 305, in performing an operating file rename operation, the user or a program generates an instruction for the resident program to select a new name for an old operating file. In step 310, file capture block 10 detects the instruction and captures the old operating file. Optionally, prior to capturing the old operating file, file capture block 10 may check database 30 to a) determine whether the operating file has previously been archived, b) determine whether the user has selected

the operating file for protection, or c) determine a match to other defined conditions. If the go-ahead conditions exist, then file capture block 10 creates an archive file of the old operating file and stores the archive file in a storage location such as storage device 35 or, more preferably, input buffer 20 just before the resident program renames the old operating file. In step 315 the resident program renames the old operating file, thus creating a new operating file. Immediately after the old operating file is renamed, file capture block 10 captures the new operating file. Optionally, prior to capturing the new operating file, file capture block 10 may determine whether the new operating file has previously been archived, whether the user has selected the new operating file for protection, or other matching conditions exist. Like the archive file for the old operating file, the archive file for the new operating file is preferably stored in input buffer 20. In step 325 file capture block 10 and smart data management block 15 associate or link the new operating file with each of the versions of the old operating file to create a continuous operating file revision history.

File Capture in the "Delete" Operation

[0051] Figure 5 illustrates the file capture process in the delete operation. In step 405, the user or a program identifies an operating file to delete and generates an instruction to the resident program. In step 410, file capture block 10 detects the instruction and captures the operating file just before it is deleted in step 415. Optionally, prior to capturing the operating file, file capture block 10 may check database 30 to a) determine whether the operating file has previously been archived, b) determine whether the user has selected the operating file for protection, or c) determine a match to other defined conditions. If the go-ahead conditions exist, then file

capture block 10 preferably captures the operating file. In step 420, the resident program deletes the operating file.

[0052] As shown by the examples given, a clear advantage of the invention is, regardless of the operation being performed, after each file capture step, file capture block 10 preferably updates database 30 to indicate the location of the corresponding archive file. Database 30 may keep track of multiple versions of an operating file, any of which may be accessed at the request of the user or other program.

[0053] Another advantage of the invention is that by capturing the operating file just before and/or just after an operation is performed thereon, the invention achieves near real-time operating file archiving while achieving minimal missed alterations to an operating file.

[0054] A further advantage of the invention in its preferred embodiment, is that by intelligently managing the migration of operating files from the input buffer 20 through the output buffer 25 to the storage device 35, the invention achieves protection of operating files even when the desired storage device is permanently or temporarily unavailable.

Industrial Applicability

[0055] The present invention is suited for any application that requires or benefits from near real time file capture, that seeks improved file integrity and/or that seeks efficient management of file storage. For example, the present invention is particularly useful in backup systems, audit trail systems, computer security systems, systems for monitoring computer users and others.

[0056] Although the present invention has been described in terms of particular preferred embodiments, it is not limited to those embodiments. Alternative embodiments, examples, and modifications which would still be encompassed by the invention may be made by those skilled in the art, particularly in light of the foregoing teachings.

We Claim:

1. In a computing device, a method for archiving files comprising:
detecting an instruction from a resident program to perform an operation on an operating file; and
capturing the operating file temporally proximate to the operation being performed on the operating file, responsive to the detection of the instruction.
2. The method of claim 1 wherein capturing the operating file includes creating an archive file and storing the archive file in a storage location.
3. The method of claim 2 wherein the archive file includes a copy of the operating file.
4. The method of claim 2 wherein the archive file includes portions of the operating file.
5. The method of claim 4 wherein the archive file includes pointers directed to one or more storage locations, wherein each of the one or more second storage locations contains at least a portion of the operating file.
6. The method of claim 2 wherein capturing the file includes saving the archive file prior to the operation being performed on the operating file.
7. The method of claim 6 wherein capturing the file includes saving the archive file subsequent to detecting the instruction to perform the operation.
8. The method of claim 2 wherein capturing the file includes saving the archive file subsequent to the operation being performed on the operating file.
9. The method of claim 2 wherein the storage location includes a buffer.

10. The method of claim 2 wherein the first storage location includes a storage device.
11. The method of claim 10 wherein the storage device includes at least one of a group comprising a magnetic storage medium, an optical storage medium, and a solid-state storage device.
12. The method of claim 10 wherein the storage location includes a directory disposed on said storage device.
13. The method of claim 1 further comprising determining whether the operating file is intended to be captured prior to said capturing step.
14. The method of claim 1 further comprising determining whether the operating file has previously been captured prior to capturing the file.
15. The method of claim 1 wherein the operation causes a change in the operating file.
16. An article of manufacture comprising a computer usable medium having computer readable program code for performing the method of claim 1.
17. A data transmission signal having computer readable program code for performing the method of claim 1.
18. An article of manufacture comprising a processor configured to perform the method of claim 1.
19. In a computing device, a method for moving files from a first storage location to a second storage location comprising:
searching a first storage location for files responsive to the occurrence of a

first event;

moving the files from the first storage location to the second storage location responsive to a second event.

20. The method of claim 19 wherein the first storage location includes a buffer.

21. The method of claim 20 wherein the second storage location includes a storage device.

22. The method of claim 19 wherein the first event includes a message from a timer.

23. The method of claim 19 wherein the first event includes a message from a program resident on the computing device.

24. The method of claim 19 wherein the second event includes a message from a timer.

25. The method of claim 19 wherein the second event includes a message indicating when the second storage location is available.

26. The method of claim 19 further comprising:
after detecting the files, updating a database to indicate that the detected files are located in the first storage location;
determining a destination for each of the detected files;
moving detected files from the first storage location to an intermediate storage location;
updating the database to indicate that the detected files are located in the intermediate storage location; and
after moving the file to the second storage location, updating the database to indicate that the files are located in the second storage location.

27. The method of claim 26 wherein the second storage location includes a personal attached storage device.
28. The method of claim 26 wherein the second storage location includes a network attached storage device.
29. The method of claim 26 wherein the second storage location includes a peer-to-peer storage device.
30. The method of claim 26 wherein the second storage location includes an Internet storage area network.
31. An article of manufacture comprising a computer usable medium having computer readable program code for performing the method of claim 19.
32. A data transmission signal having computer readable program code for performing the method of claim 19.
33. An article of manufacture comprising a processor configured to perform the method of claim 19.
34. In a computing device, a method for archiving files comprising:
detecting an instruction from a resident program to perform an operation on an operating file;
creating an archive file from the operating file and storing the archive file in a first storage location temporally proximate to the operation being performed on the operating file and responsive to detecting the instruction;
searching the first storage location the archive file responsive to the occurrence of a first event; and
moving the archive file from the first storage location to the second storage location responsive to a second event.

35. The method of claim 34 wherein storing the archive file includes storing the archive file prior to the operation being performed on the operating file.

36. The method of claim 35 wherein storing the archive file includes storing the archive file prior to the operation being performed on the operating file and subsequent to the operation being performed on the archive file.

37. The method of claim 34 wherein storing the archive file includes storing the archive file subsequent to the operation being performed on the operating file.

38. The method of claim 34 wherein the first storage location includes a buffer.

39. The method of claim 34 wherein the first event includes a message from a timer.

40. The method of claim 34 wherein the first event includes a message from a program resident on the computing device.

41. The method of claim 34 wherein the second event includes a message from a timer.

42. The method of claim 34 wherein the second event includes a message indicating when the second storage location is available.

43. The method of claim 34 wherein the second storage location is an output buffer.

44. The method of claim 34 further comprising:
after detecting the files, updating a database to indicate that the detected files are located in the first storage location;
determining a destination for each of the detected files;

moving detected files from the first storage location to an intermediate storage location;

updating the database to indicate that the detected files are located in the intermediate storage location; and

after moving the file to the second storage location, updating the database to indicate that the files are located in the second storage location.

45. The method of claim 44 wherein the second storage location includes a personal attached storage device.

46. The method of claim 44 wherein the second storage location includes a network attached storage device.

47. The method of claim 44 wherein the second storage location includes a peer-to-peer storage device.

48. The method of claim 44 wherein the second storage location includes an Internet storage area network.

49. An article of manufacture comprising a computer usable medium having computer readable program code for performing the method of claim 44.

50. A data transmission signal having computer readable program code for performing the method of claim 44.

51. An article of manufacture comprising a processor configured to perform the method of claim 44.

Abstract

A method for archiving files includes determining when a change in an operating file is imminent, capturing the operating file immediately before the change in the operating file occurs, if the operating file has not already been captured; and capturing the operating file immediately after the change in the operating file has occurred.

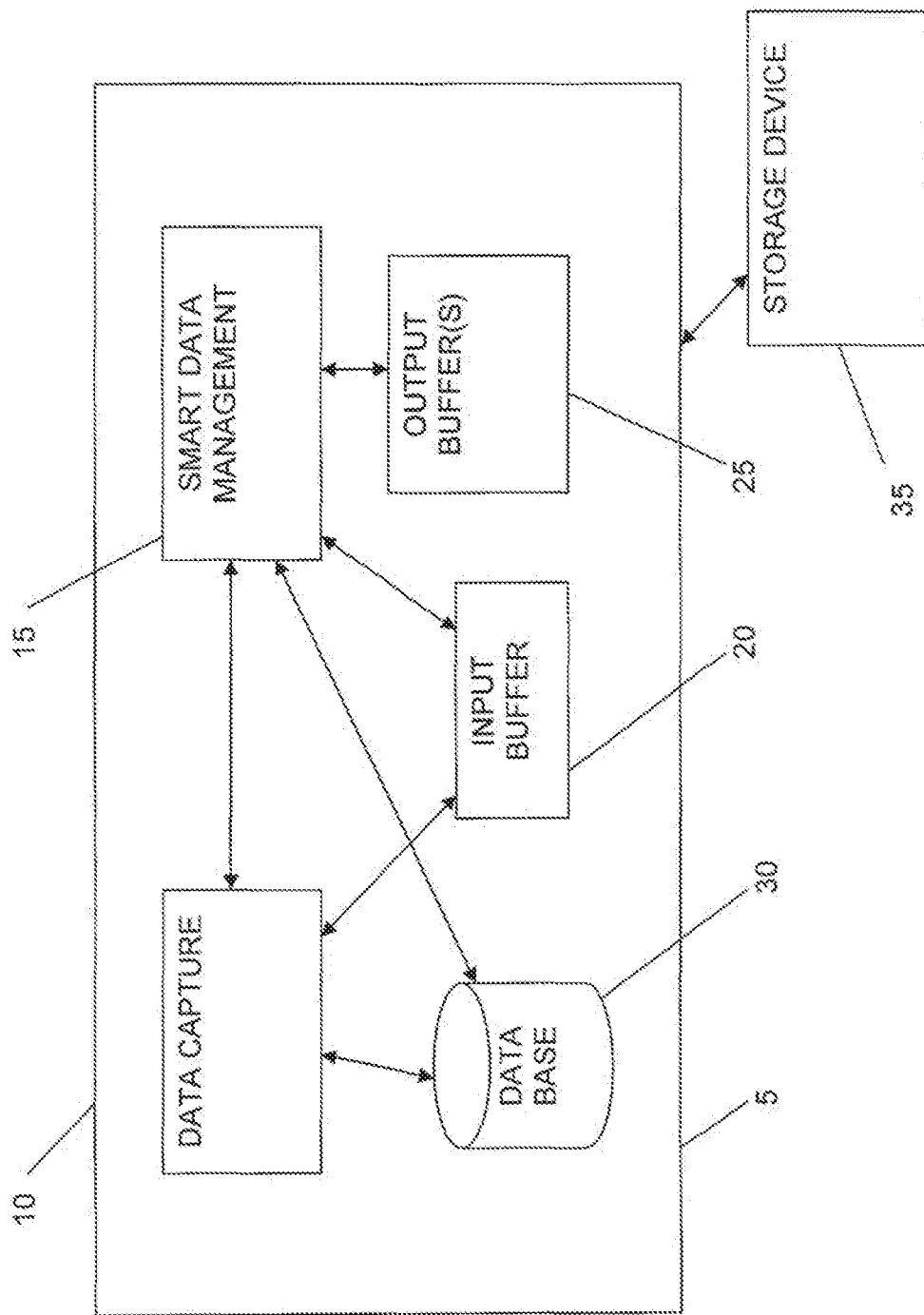


FIGURE 1

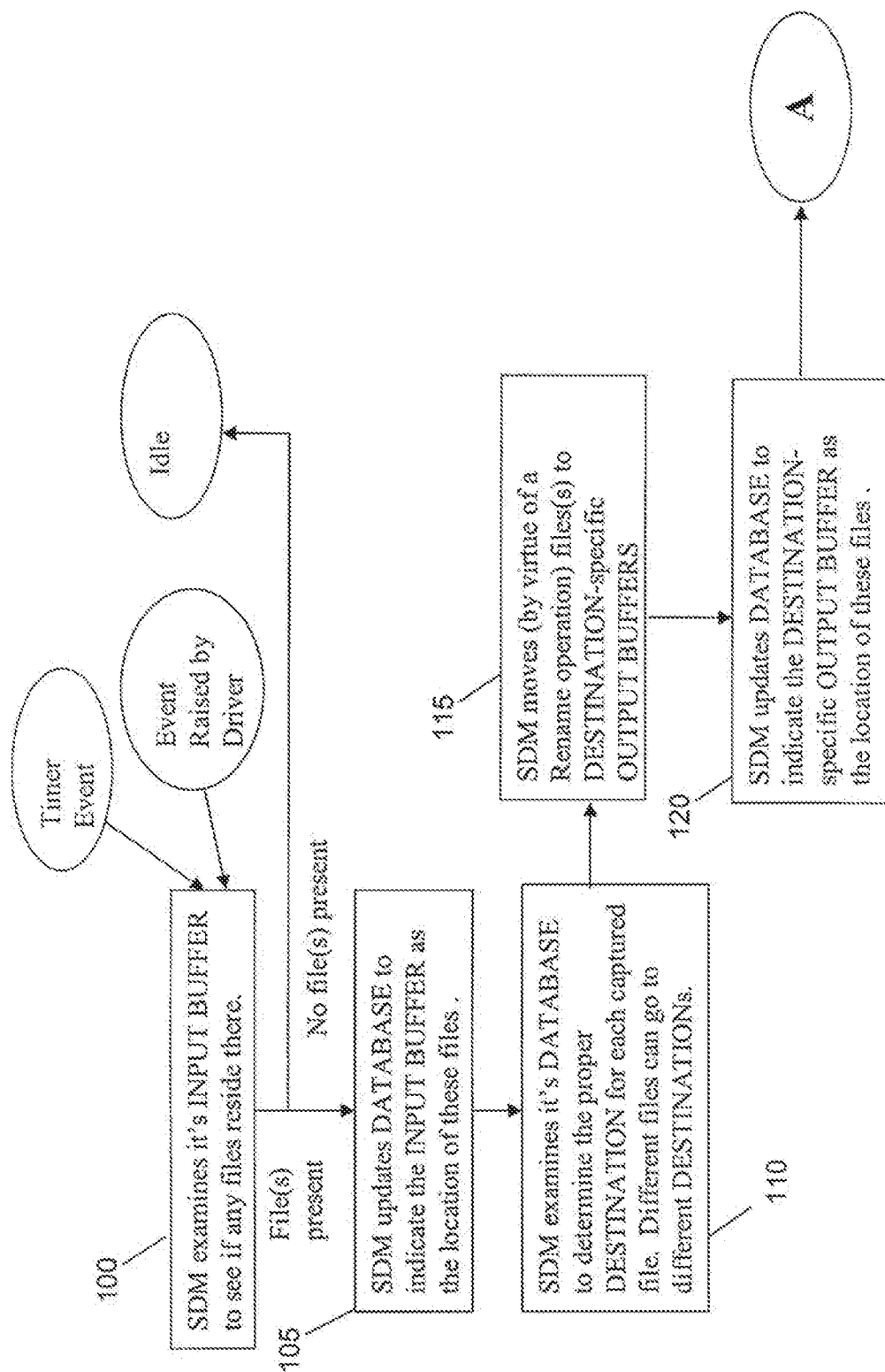


FIGURE 2A

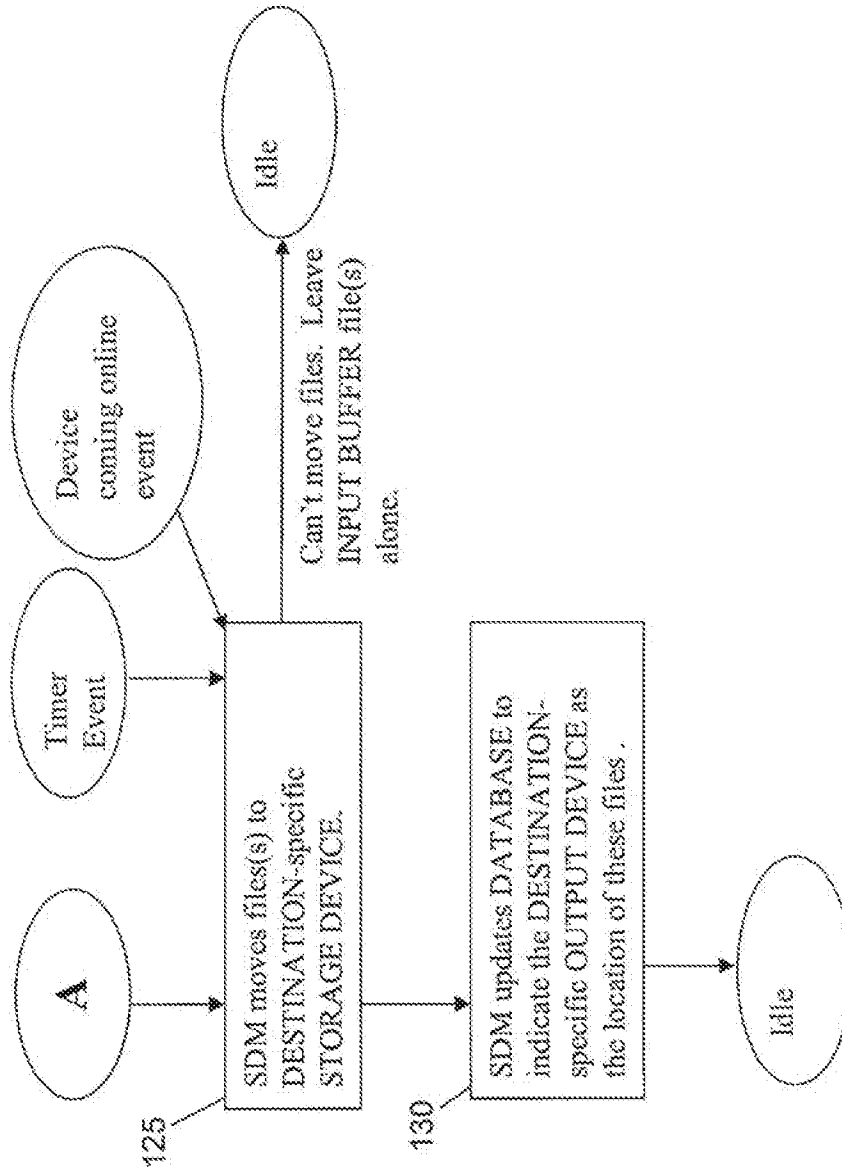


FIGURE 2B

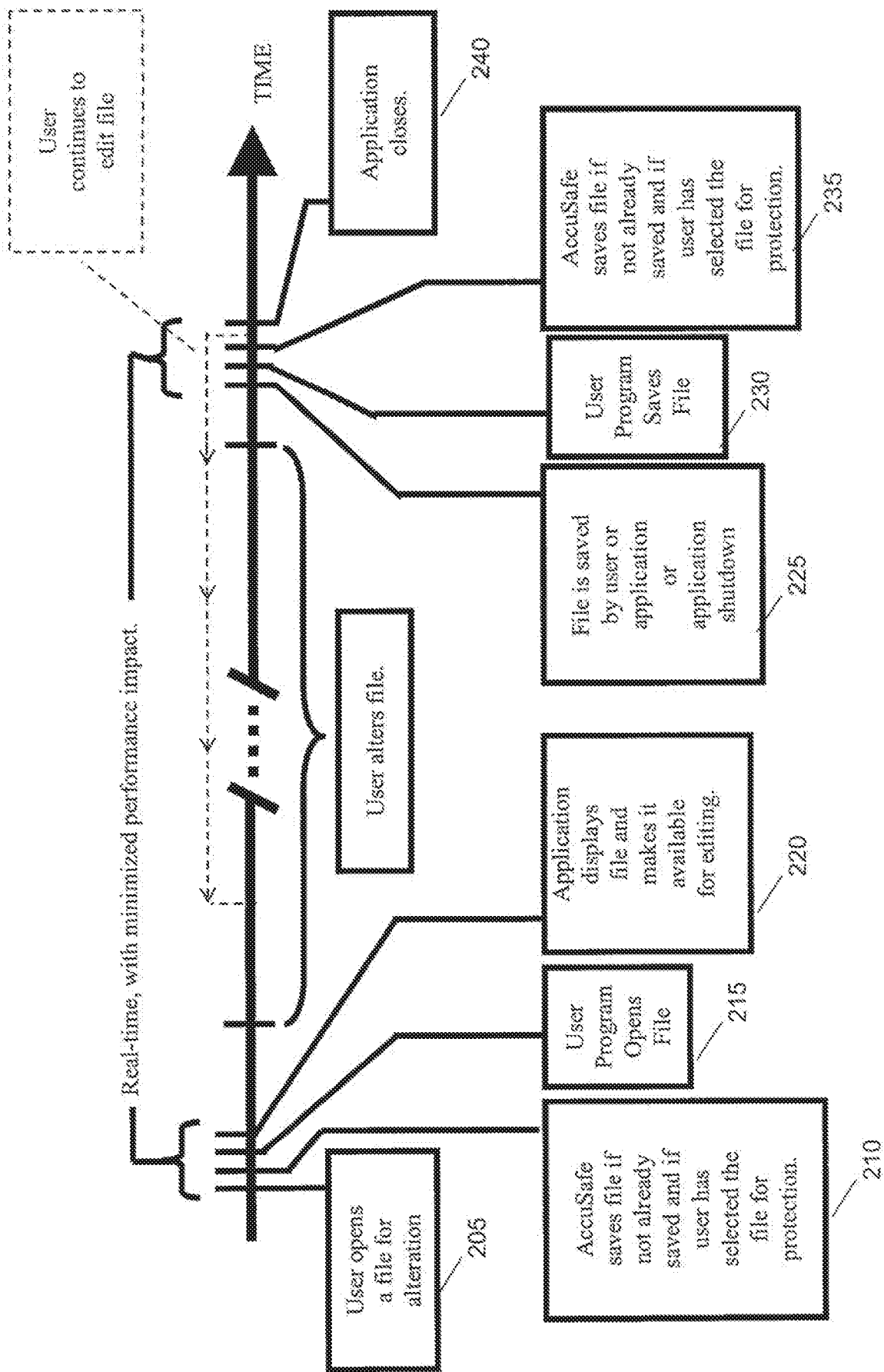


FIGURE 3

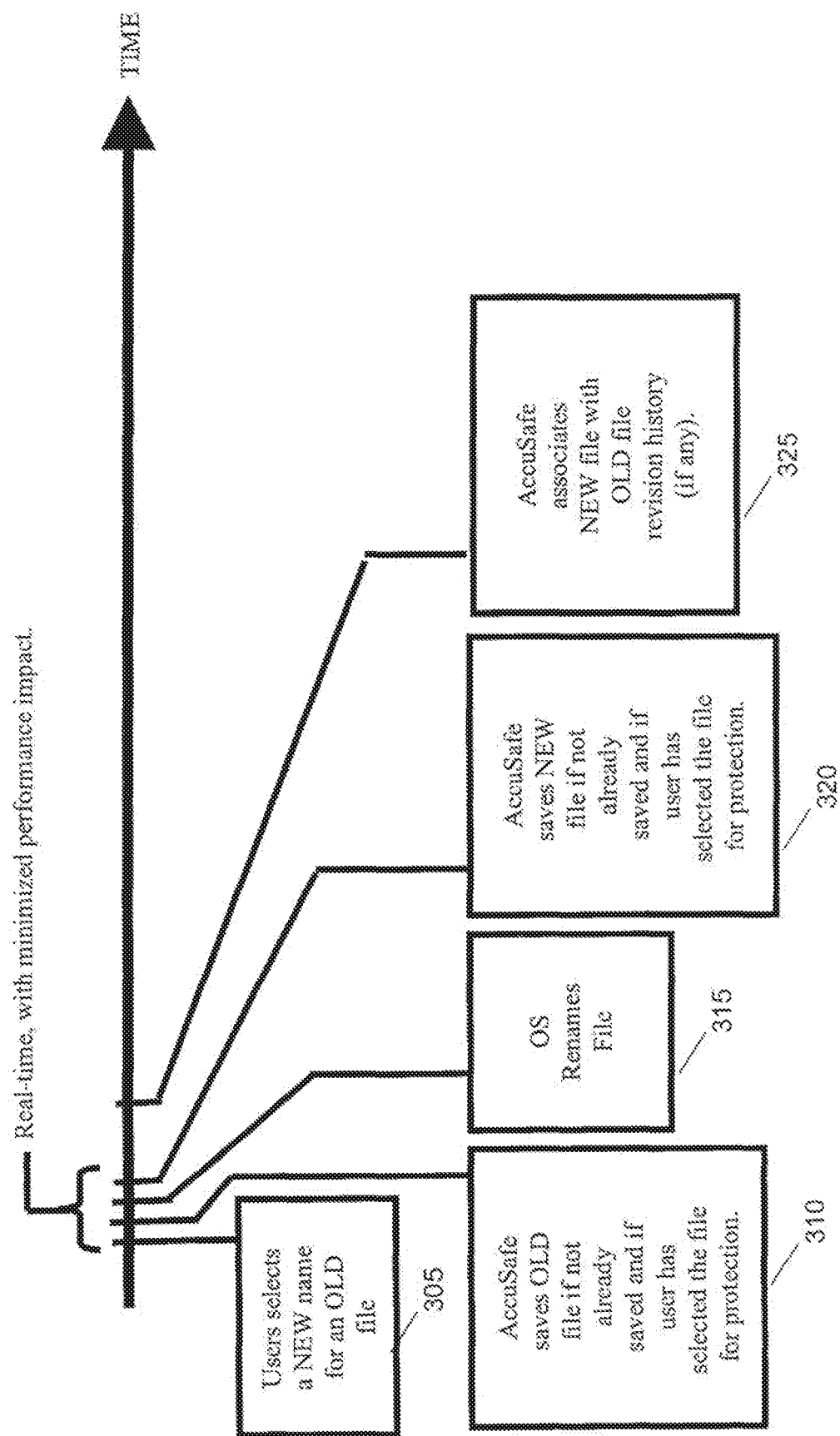


FIGURE 4

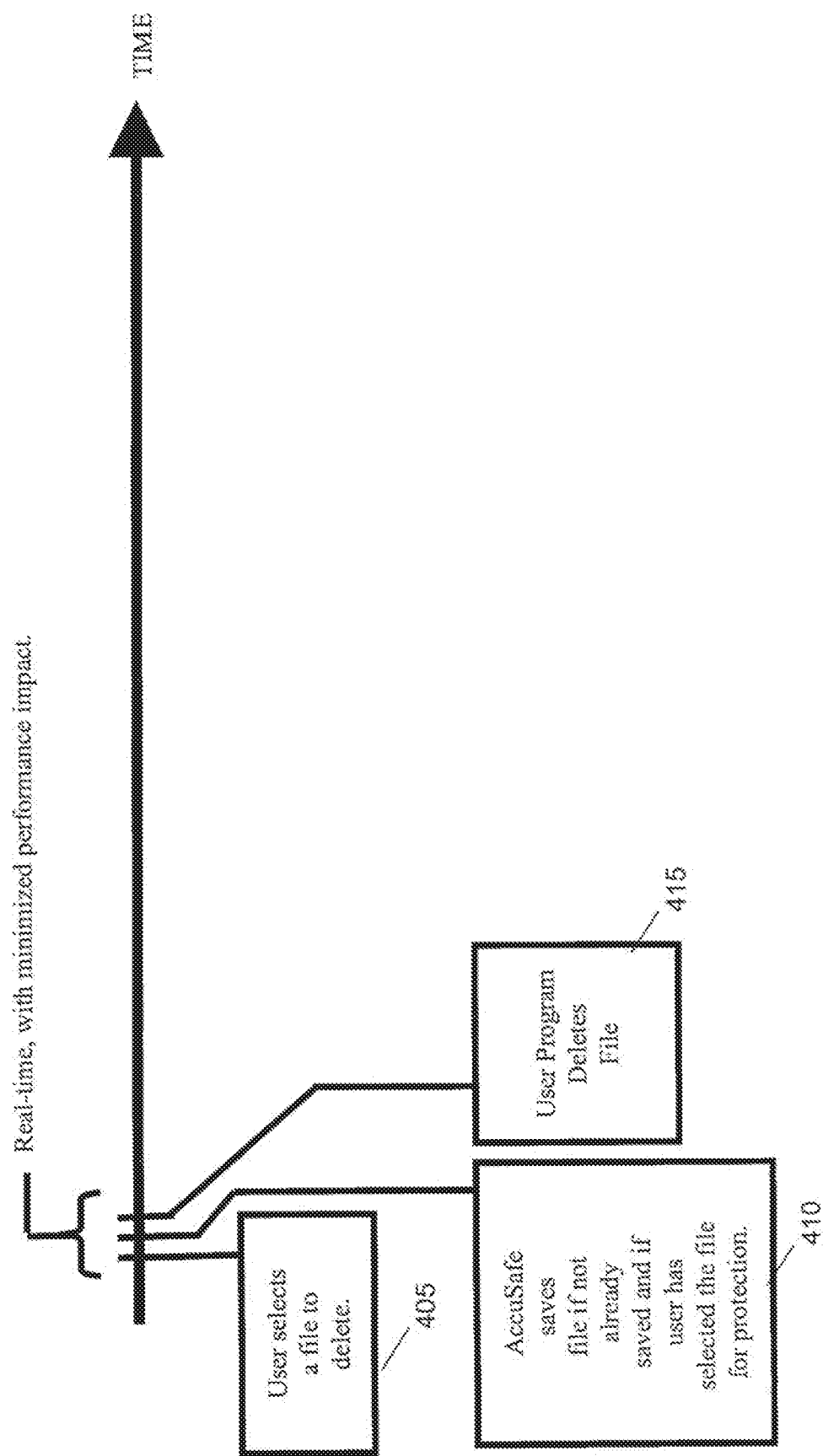


FIGURE 5

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6982-2-CON-1
		Application Number	
Title of Invention	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6982-2-CON-1	
		Application Number		
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All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					

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☐ An Address is being provided for the correspondence Information of this application.			
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Email Address	USPTOMAIL@aspireip.com	Add Email	Remove Email

Application Information:

Title of the Invention	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS		
Attorney Docket Number	6982-2-CON-1	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	6	Suggested Figure for Publication (if any)	1

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6982-2-CON-1
		Application Number	
Title of Invention	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS		

Publication Information:

☐	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.			
Please Select One:			
☒	Customer Number	☐	Limited Recognition (37 CFR 11.9)
Customer Number	104600		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.					
Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
	Continuation of	13/925768	2013-06-24		
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/925768	Continuation of	09/957459	2001-09-21	8473478	2013-06-25
Prior Application Status	Expired	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
09/957459	non provisional of	60/234221	2000-09-21		
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					Add

Foreign Priority Information:

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6982-2-CON-1
		Application Number	
Title of Invention	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS		

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			<input type="button" value="Remove"/>
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
<input type="text"/>	<input type="text"/>	<input type="text"/>	
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			<input type="button" value="Add"/>

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

<p align="center">Authorization to Permit Access to the Instant Application by the Participating Offices</p> <p>If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.</p> <p>In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.</p> <p>In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.</p>
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6982-2-CON-1
		Application Number	
Title of Invention	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant	1	Remove
<p>If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.</p> <p style="text-align: right;">Clear</p>		
☒ Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:		
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
Name of the Deceased or Legally Incapacitated Inventor :		
If the Applicant is an Organization check here. ☒		
Organization Name	INTEGRITY PC INNOVATIONS, INC.	
Mailing Address Information For Applicant:		
Address 1	1220 Lake Plaza Drive	
Address 2		
City	Colorado Springs	State/Province
Country	US	Postal Code
Phone Number		Fax Number
Email Address		
Additional Applicant Data may be generated within this form by selecting the Add button. Add		

Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6982-2-CON-1
		Application Number	
Title of Invention	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS		

Assignee	1			
Complete this section only if non-applicant assignee information is desired to be included on the patent application publication in accordance with 37 CFR 1.215(b). Do not include in this section an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest), as the patent application publication will include the name of the applicant(s).				
Remove				
If the Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mailing Address Information For Non-Applicant Assignee:				
Address 1		<input type="text"/>		
Address 2		<input type="text"/>		
City	<input type="text"/>	State/Province	<input type="text"/>	
Country ⁱ	<input type="text"/>	Postal Code	<input type="text"/>	
Phone Number	<input type="text"/>	Fax Number	<input type="text"/>	
Email Address	<input type="text"/>			
Additional Assignee Data may be generated within this form by selecting the Add button. Add				

Signature:[Remove](#)

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.					
Signature	YIU AU/			Date (YYYY-MM-DD)	2015-12-15
First Name	Yiu	Last Name	Au	Registration Number	67529
Additional Signature may be generated within this form by selecting the Add button. Add					

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/970,044	Filing Date 12/15/2015	☐ To be Mailed
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ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO**APPLICATION AS FILED – PART I**

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	12/15/2015	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X \$40 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0	X \$210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
						TOTAL ADD'L FEE

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/TYWANA LOVELACE/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
14/970,044	12/15/2015	2161	730	6982-2-CON-1	20	2

CONFIRMATION NO. 8673

FILING RECEIPT



0000000079735594

104600
ASPIRE IP
444 East Pikes Peak Avenue
Suite 105
Colorado Springs, CO 80903

Date Mailed: 01/07/2016

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Warren Roach, Colorado Springs, CO;
Steven R. Williams, Colorado Springs, CO;
Troy J. Reiber, Colorado Springs, CO;
Steven C. Burdine, Middleton, WI;

Applicant(s)

INTEGRITY PC INNOVATIONS, INC., Colorado Springs, CO;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 13/925,768 06/24/2013 PAT 9218348
which is a CON of 09/957,459 09/21/2001 PAT 8473478
which claims benefit of 60/234,221 09/21/2000

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: No

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 01/06/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/970,044**

Projected Publication Date: 04/14/2016

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS

Preliminary Class

707

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

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SelectUSA

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 14/970,044	
APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(j))	20	minus 20 = *	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
			TOTAL	730		TOTAL	
* If the difference in column 1 is less than zero, enter "0" in column 2.							
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	OR	x =
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	OR	x =
	Application Size Fee (37 CFR 1.16(s))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
				TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	OR	x =
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	OR	x =
	Application Size Fee (37 CFR 1.16(s))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
				TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.							



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1

CONFIRMATION NO. 8673

PUBLICATION NOTICE



OC000000082189121

104600
ASPIRE IP
444 East Pikes Peak Avenue
Suite 105
Colorado Springs, CO 80903

Title:AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS

Publication No.US-2016-0103843-A1

Publication Date:04/14/2016

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

ROACH et al.

Serial No.: 14/970,044

Atty. File No.: 6982-2-CON-1

Entitled: "AUTOMATIC REAL-TIME FILE
MANAGEMENT METHOD AND
APPARATUS"

Group Art Unit: 2154

Confirmation No.: 8673

Examiner: ALAM, HOSAIN T

Customer No. **104600**

Submitted via EFS-Web

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SECOND PRELIMINARY AMENDMENT

Dear Sir/Madam:

Prior to the initial review of the above-identified patent application by the Examiner, please enter the following Second Preliminary Amendment.

Amendments to the Claims are reflected in the listing of claims which begins on page **2** of this paper.

Remarks begin on page **8** of this paper.

AMENDMENTS TO THE CLAIMS

1-51. (Cancelled)

52. (New) A method of restoring a file to a previous version of the file, a current version of the file being available at a local storage location, comprising the steps of:

(A) presenting information for a collection of one or more previous versions of the file, the information for the collection including information indicative of at least one or more of previous versions of the file, wherein a restorable representation of each version, V, of the previous versions, is retrievable from a remote storage location, the restorable representation having at least information required for recovering the version V by a computational machine with the current version being accessible, the remote storage location being accessible through a network;

(B) responsive to a selection to preview a selected previous version of the file based on the presented information for the collection of (A), presenting a presentable representation of the selected previous version, the selected previous version being one of the previous versions of the file in the presented information for the collection, the presentable representation having at least information required for presenting at least a portion of the selected previous version by the computation machine with the current version being accessible; and

(C) responsive to a selection to restore the selected previous version, retrieving the restorable representation of the selected previous version from the remote storage location and storing the selected previous version by the computational machine as the current version on the local storage location, the selected previous version available from the restorable representation of the selected previous version.

53. (New) The method of claim 52, wherein, for the presenting of (B), the presentable representation is presented using an application that created the file or the selected previous version.

54. (New) The method of claim 53, wherein the application is in a read-only mode.

55. (New) The method of claim 52, wherein the information includes at least two previous versions of the file.

56. (New) The method of claim 52, wherein the information for the collection includes information indicative of at least one or more of a timestamp, an original file location, and a comment of the previous versions or the file.

57. (New) The method of claim 52, further comprising the steps of:

(B2) after the presenting of (B) and responsive to a selection to not restoring the previous version and responsive to a second selection of a second previous version of the previous versions, version presenting a second presentable representation of the selected second previous version, the second presentable representation having at least information required for presenting at least a portion of the selected previous version; and

(C2) responsive to a selection to restore the second selected previous version, retrieving the restorable representation of the second selected previous version from the remote storage location and storing the second selected previous version as the current version on the local storage location, the second selected previous version available from the restorable representation of the second selected previous version.

58. (New) The method of claim 52, wherein the restorable representation of the selected previous version comprises one or more of a compressed and encrypted version of the selected previous version.

59. (New) The method of claim 52, wherein the restorable representation of the selected previous version comprises an incremental change to the file.

60. (New) The method of claim 52, wherein the method has a substantially imperceptible impact on system performance from a user's point of view by delaying one or more operations to prevent a perceptible impact on system performance from a user's point of view.

61. (New) A method of restoring a file to a previous version of the file, a current version of the file being available at a local storage location, comprising the steps of:

(A) presenting information for a collection of one or more previous versions of the file, the information for the collection including information indicative of at least one or more of previous versions of the file, wherein a restorable representation of each version, V, of the previous versions, is retrievable from a remote storage location, the restorable representation having at least information required for recovering the version V, the remote storage location being accessible through a network;

(B) responsive to a selection to preview a selected previous version of the file based on the presented information for the collection of (A), presenting a presentable representation of the selected previous version, the selected previous version being one of the previous versions of the file in the presented information for the collection, the presentable representation having at least information required for presenting at least a portion of the selected previous version;

(C) responsive to a selection to restore the selected previous version, retrieving the restorable representation of the selected previous version from the remote storage location and storing the selected previous version as the current version on the local storage location, the selected previous version available from the restorable representation of the selected previous version.

62. (New) The method of claim 61, wherein, for the presenting of (B), the presentable representation is presented using an application that created the file or the selected previous version.

63. (New) The method of claim 61, wherein the information includes at least two previous versions of the file.

64. (New) The method of claim 61, wherein the information for the collection includes information indicative of at least one or more of a timestamp, an original file location, and a comment of the previous versions or the file.

65. (New) The method of claim 61, further comprising the steps of:

(B2) after the presenting of (B) and responsive to a selection to not restoring the previous version and responsive to a second selection of a second previous version of the previous versions, version presenting a second presentable representation of the selected second previous version, the second presentable representation having at least information required for presenting at least a portion of the selected previous version; and

(C2) responsive to a selection to restore the second selected previous version, retrieving the restorable representation of the second selected previous version from the remote storage location and storing the second selected previous version as the current version on the local storage location, the second selected previous version available from the restorable representation of the second selected previous version.

66. (New) The method of claim 61, wherein the restorable representation of the selected previous version comprises one or more of a compressed and encrypted version of the selected previous version.

67. (New) The method of claim 61, wherein the restorable representation of the selected previous version comprises an incremental change to the file.

68. (New) The method of claim 61, wherein the method has a substantially imperceptible impact on system performance from a user's point of view by delaying one or more operations to prevent a perceptible impact on system performance from a user's point of view.

69. (New) A method of restoring a file to a previous version of the file, a current version of the file being available at a local storage location, comprising the steps of:

(A) iteratively transmitting a representation of at least a portion of a current version of a file to a remote storage location for archiving the current version responsive to a determination of an availability of the remote storage location for accepting a transmission of the representation, the current version being accessible at a computational machine, the remote storage location being accessible through a network;

(B) presenting information for a collection of one or more previous versions of the file, the information for the collection including information indicative of at least one or more of previous versions of the file, wherein a restorable representation of each version, V, of the previous versions, is retrievable from the remote storage location, the restorable representation having at least information required for recovering the version V by the computational machine, the remote storage location being accessible through a network;

(C) responsive to a selection to preview a selected previous version of the file based on the presented information for the collection of (B), presenting a presentable representation of the selected previous version, the selected previous version being one of the previous versions of the file in the presented information for the collection, the presentable representation having at least information required for presenting at least a portion of the selected previous version by the computation machine with the current version being accessible; and

(D) responsive to a selection to restore the selected previous version, retrieving the restorable representation of the selected previous version from the remote storage location and storing the selected previous version by the computational machine as the current version on the local storage location, the selected previous version available from the restorable representation of the selected previous version.

70. (New) A method of restoring a file to a previous version of the file, a current version of the file being available at a local storage location, comprising the steps of:

- (a) receiving a request to display a list of captured revisions for a file;
- (b) displaying a list of captured revisions for said file;
- (c) receiving a selection from said list indicating a revision of said file to restore;
- (d) previewing selected revision of said file, wherein said selected revision of said file is received from an Internet storage area network;
- (e) receiving another selection from said list indicating another revision of said file to restore;
- (f) previewing selected another revision of said file, wherein said selected another revision of said file is received from a network attached storage location; and

(g) restoring selected another revision of said file following said previewing step in (f), optionally, decrypting said selected revision of said file prior to step (d) and decrypting said selected another revision of said file prior to step (f).

71. (New) The method of claim 70, wherein said method comprises decompressing said selected revision of said file prior to (d) and decompressing said selected another revision of said file prior to (f).

72. (New) The method of claim 70, further comprising the step of decompressing said selected revision of said file prior to step (d) and decompressing said selected another revision of said file prior to step (f).

REMARKS/ARGUMENTS

By this Amendment, claims 1-51 have been cancelled. Claims 52-72 are newly added. Accordingly, claims 52-72 are currently pending in the application. No new matter has been added.

Should the Examiner feel that there are any issues outstanding after consideration of this response; the Examiner is invited to contact the Applicant's undersigned representative at the number below to expedite prosecution.

Respectfully submitted,

ASPIRE IP

/Yiu F. Au/

By: _____
Yiu F. Au
Registration No. 67,529
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Colorado Springs, CO 80903
(719) 359-9335

Date: October 27, 2016

Electronic Patent Application Fee Transmittal

Application Number:	14970044			
Filing Date:	15-Dec-2015			
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS			
First Named Inventor/Applicant Name:	Warren Roach			
Filer:	Yiu Fai Au/Sherri Weisbeck-Raslich			
Attorney Docket Number:	6982-2-CON-1			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
INDEPENDENT CLAIMS IN EXCESS OF 3	2201	1	210	210
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				210

Electronic Acknowledgement Receipt

EFS ID:	27345190
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	104600
Filer:	Yiu Fai Au/Sherri Weisbeck-Raslich
Filer Authorized By:	Yiu Fai Au
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	27-OCT-2016
Filing Date:	15-DEC-2015
Time Stamp:	16:52:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$210
RAM confirmation Number	102816INTEFSW16533000
Deposit Account	506481
Authorized User	Sherri Weisbeck-Raslich

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37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		2016-10-27_Second_Preliminary_Amendment_Filed.pdf	119029	yes	8
			76889ea7e8b4013080d5357faca866a4cedc1bc7		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Claims		2	7	
	Applicant Arguments/Remarks Made in an Amendment		8	8	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30539	no	2
			ceb61d7d5213ecf175f608bdad24a762173b0259		
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/970,044	Filing Date 12/15/2015	☐ To be Mailed
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ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	10/27/2016	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 21	Minus	** 20	= 1	X \$40 =	40
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0	X \$210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE							40

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
TOTAL ADD'L FEE						

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

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/BRENDA J. DENNY/

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14970044
	Filing Date		2015-12-15
	First Named Inventor	ROACH et al.	
	Art Unit	2154	
	Examiner Name	Hosain T Alam	
	Attorney Docket Number	6982-2-CON-1	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5524190	A	1996-06-04	Schaeffer et al.	
	2	5638509	A	1997-06-10	Dunphy et al.	
	3	5649196	A	1997-07-15	Woodhill et al.	
	4	5813017	A	1998-09-22	Morris	
	5	6134660	A	2000-10-17	Boneh et al.	
	6	6212512	B1	2001-04-03	Barney et al.	
	7	6269431	B1	2001-07-31	Dunham	
	8	6317845	B1	2001-11-13	Meyer et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		14970044
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First Named Inventor	ROACH et al.	
Art Unit	2154	
Examiner Name	Hosain T Alam	
Attorney Docket Number	6982-2-CON-1	

9	6332200	B1	2001-12-18	Meth et al.	
10	6353878	B1	2002-03-05	Dunham	
11	6366988	B1	2002-04-02	Skiba et al.	
12	6434681	B1	2002-08-13	Armangau	
13	6496944	B1	2002-12-07	Hsiao et al.	
14	6564215	B1	2003-05-13	Hsiao et al.	
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16	6611850	B1	2003-08-26	Shen	
17	6615225	B1	2003-09-02	Cannon et al.	
18	6802025	B1	2004-10-05	Thomas et al.	
19	6847984	B1	2005-01-25	Midgley et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
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Application Number		14970044
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First Named Inventor	ROACH et al.	
Art Unit	2154	
Examiner Name	Hosain T Alam	
Attorney Docket Number	6982-2-CON-1	

20	4959774	A	1990-09-25	Davis	
21	5086502	A	1992-02-04	Malcolm	
22	5212784	A	1993-05-18	Sparks	
23	5241670	A	1993-08-31	Eastridge et al.	
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28	5604862	A	1997-02-18	Midgely et al.	
29	5608865	A	1997-03-04	Midgely et al.	
30	5633999	A	1997-05-27	Clowes et al.	

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STATEMENT BY APPLICANT**
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Filing Date		2015-12-15
First Named Inventor	ROACH et al.	
Art Unit	2154	
Examiner Name	Hosain T Alam	
Attorney Docket Number	6982-2-CON-1	

31	5634052	A	1997-03-27	Morris	
32	5638059	A	1997-06-10	Pilkington	
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**INFORMATION DISCLOSURE
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First Named Inventor	ROACH et al.	
Art Unit	2154	
Examiner Name	Hosain T Alam	
Attorney Docket Number	6982-2-CON-1	

42	6101507	A	2000-08-08	Cane et al.	
43	6173377	B1	2001-01-09	Yanai et al.	
44	6298319	B1	2001-10-02	Heile et al.	
45	6351776	B1	2002-02-26	O'Brien et al.	
46	6366987	B1	2002-04-02	Tzelnic et al.	
47	6460055	B1	2002-10-01	Midgley et al.	
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51	6625623	B1	2003-09-23	Midgley et al.	
52	6629109	B1	2003-09-30	Koshisaka	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		14970044
Filing Date		2015-12-15
First Named Inventor	ROACH et al.	
Art Unit	2154	
Examiner Name	Hosain T Alam	
Attorney Docket Number	6982-2-CON-1	

53	6779003	B1	2004-08-17	Midgley et al.	
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55	6983227	B1	2006-01-03	Thalhammer-Reyero	
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58	8473478	B2	2013-06-25	Roach et al.	
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60	6112024	A	2000-08-29	Almond et al.	
61	6106570	A	2000-08-22	Mizuhara	
62	6151674	A	2000-11-21	Takatani	
63	6269371	B1	2001-07-31	Ohnishi	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number	14970044
Filing Date	2015-12-15
First Named Inventor	ROACH et al.
Art Unit	2154
Examiner Name	Hosain T Alam
Attorney Docket Number	6982-2-CON-1

64	6505200	B1	2003-01-07	Jms et al.
65	5774717	A	1998-06-30	Porcaro
66	5909700	A	1999-06-01	Bitner et al.
67	5991771	A	1999-11-23	Falls et al.
68	6032227	A	2000-02-29	Shaheen et al.

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	1	20020107877	A1	2002-08-08	Whiting et al.	

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Application Number	14970044
Filing Date	2015-12-15
First Named Inventor	ROACH et al.
Art Unit	2154
Examiner Name	Hosain T Alam
Attorney Docket Number	6982-2-CON-1

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	1	PDC BUDTOOL LIVE(TM) AVAILABLE ON SOLARIS; SOLARIS PORT WILL BRING SAFE, LIVE BACKUP CAPABILITY TO LEADING OPERATING SYSTEM, PR Newswire, 06/06/1995, 2p.	
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(11) Publication number:

0 259 912 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication of patent specification: **16.10.91** (51) Int. Cl.⁵: **G06F 11/14**

(21) Application number: **87201556.5**

(22) Date of filing: **18.08.87**

(54) **File backup facility for a community of personal computers.**

(30) Priority: **12.09.86 GB 8622010**

(43) Date of publication of application:
16.03.88 Bulletin 88/11

(45) Publication of the grant of the patent:
16.10.91 Bulletin 91/42

(84) Designated Contracting States:
DE FR GB

(56) References cited:

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Description

The present invention relates to the backing up of files in a personal-computer community made up of a plurality of independently-operable personal computers communicating with a central station. In the present context, the term 'personal computer' is intended to mean an independently-operable computer work station arranged to operate under a file-based operating system to store and retrieve working files from a non-volatile storage area (floppy disc, hard disc or virtual disc) associated with that personal computer.

As is well known, it is customary to refer to different copies of the same computer file in terms of the function served by that copy. Thus, the copy of a file that is used on a day-to-day basis for computer processing purposes is referred to as the working copy. For reasons of data integrity, it is good practice to keep a relatively up-to-date copy of the working file to mitigate against the worst consequences of destruction of the working copy; this second copy is known as a backup copy. A third type of copy, known as an archive copy, may be used to store past, no longer current, versions of the file for record and other purposes.

The present invention relates to the taking of backup copies of the working files of a personal computer.

For backup copies to be an effective means of preserving data integrity, such copies must be taken regularly. A new computer user is usually difficult to convince that the time and effort involved in making backup copies is worthwhile - at least until the user suffers his or her first massive loss of data. Even experienced computer users are not well disciplined in taking backup copies. This is particularly true where the user has been used to working at a mainframe terminal where backup is the mainframe operators responsibility and not that of the individual user; the replacement of the terminal with a personal computer requires the user to take over the responsibility for data integrity and backup.

Added to the problem of educating users to be responsible for taking backup copies when operating personal computers, are the dis-incentives to performing backup that are dependent on the backup method used; such dis-incentives include length of time taken and cost of equipment required. Thus for example, backing up a hard disc by means of copying files to floppy discs, is generally unacceptable due to the time taken in terms of continual user intervention in swapping floppy discs. A much more suitable method for backing up the hard disc of a personal computer is to use a local tape device, often referred to as a tape streamer; however, the disadvantage of this solu-

tion is the high cost of providing a tape streamer for each computer (or alternatively, the inconvenience of transporting the streamer between a number of computers).

The document DATABASE AND NETWORK JOURNAL, Vol. 16, No. 2, 1986, pages 12-13, London, GB; "The 3+ network family" describes a personal computer community providing a file backup for the personal computers. The system comprises a plurality of independently operable personal computers, a central mainframe and a communications arrangement between the personal computers and the mainframe and provides a backup and a restore mode for the files. The system of this document does not disclose a concurrent backup request from several personal computers with the files subject to being divided into blocks interleaved for storage on the storage device of the mainframe.

The document DIGEST OF PAPERS OF THE SPRING COMPCON 85, 30th IEEE COMPUTER SOCIETY INTERNATIONAL CONFERENCE, San Francisco, 25th-28th February 1985, pages 144-147, IEEE, US; B. EISENHARD: "Network disk and file servers" relates to personal computers network system providing backup servers to backup data onto video tape. Dual processors control the placement of data onto video tape. One processor is dedicated to translation of the video data stream, and the second processor reads or writes data over the network to a target disk server.

It is an object of the present invention to provide a backup facility for a community of personal computers which is both convenient to use and relatively inexpensive.

According to the present invention, there is provided a personal-computer community comprising a plurality of independently-operable personal computers, a central station, and a communications arrangement communicating each personal computer with the central station, each personal computer being arranged to operate under a file-based operating system to store and retrieve working files from a non-volatile storage area associated with that personal computer, the operating system maintaining a directory of said files and in order to provide a file backup facility for personal computers:

- the central station is provided with a mass storage device,
- each personal computer is operative
 - a) in a backup mode, to enable user-selection of files for backup and to transmit the selected files to the central station, and
 - b) in a restore mode, to enable user-selection of files to be restored from backup, to request and receive the files selected for restore from the central station, and to update

- the operating system file directory with an entry corresponding to each restored file; and
- the central station is arranged to store files transmitted thereto in said mass storage device and to return selected files when so requested;

said central station comprising a multi-tasking computer characterized by being operative to handle the file backup requirements of several said personal computers concurrently and to transfer files to said mass storage device in the central station in the form of blocks of data of predetermined maximum size, the central station when backing up several personal computers concurrently interleaving blocks from files of different personal computers.

This arrangement enables a plurality of personal computers to use a single resource for concurrently backing up files.

Advantageously, each personal computer is arranged to keep a backup directory of files backed up, this directory being accessible to a user to facilitate the selection of files for restore.

In order to avoid backing up files which have not been changed since they were last backed up, the backup directory is arranged to store file version data. If backup of the same file is subsequently requested, this version data is used to check whether any changes have been made to the file since its last backup.

BRIEF DESCRIPTION OF THE DRAWINGS

A file backup facility embodying the invention and for use in a community of personal computers, will now be described, by way of non-limiting example, with reference to the accompanying drawings, in which:

Figure 1

is a schematic representation of the personal computer community showing three personal computers each running a requestor program and linked to a central station running a server program;

Figure 2

is a diagrammatic representation of a tree-structured directory such as used by the personal computers of Figure 1;

Figure 3

is a diagram depicting the data structures making up a backup directory held by each personal computer;

Figure 4

is a diagram illustrating an inter-active file selection process forming part of the requestor program;

Figure 5

is a diagram depicting the data structures mak-

ing up a file selection list generated in response to user inputs in the Figure 4 selection process; Figure 6

is a flow chart of a requestor-program algorithm for changing in the file selection list, the selection status of all files in a particular sub-directory;

Figure 7

is a flow chart of a requestor-program algorithm for changing, in the file selection list, the selection status of a particular file;

Figure 8

is a flow chart of a requestor-program algorithm for interrogating the selection list to derive the selection status of a particular file;

Figure 9

is a flow chart illustrating the overall operation of the requestor program in backing up a selection of files to the central station;

Figure 10

is a flow chart of a requestor-program algorithm for checking the current/noncurrent status of files listed in the backup directory;

Figure 11

is a flow chart illustrating the overall operation of the requestor program in restoring a selection of files from the central station;

Figure 12

is a diagram illustrating the main processes, tasks and data structures of the server program run by the central station;

Figure 13

is a flow chart illustrating the main functions of a scheduler process of the server program;

Figure 14

is a flow chart illustrating the general form of a backup task and also of a restore task of the server program;

Figure 15

is a flow chart outlining the main functions of a tape handler process of the server program;

Figure 16A,B

are flow charts of two routines characterising a said backup task; and

Figures 17A,B

are flow charts of two routines characterising a said restore task.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Shown in Figure 1 is a community of personal computers (PCs) referenced PC1, PC2 and PC3 which are linked to a central station 10 via a local area network (LAN) 11 of any suitable form, including point-to-point and clustered configurations.

The central station 10 comprises in the present example, a mini computer 12 and its associated

peripheral devices including a hard disc storage device 13 and a low-cost mass storage device 14 here constituted by a tape storage device. The mini computer operates under a multi-tasking operating system.

As is illustrated in Figure 1 for PC3, each of the personal computers comprises a processor box 15, a disk storage device 16, an input device 17 (here shown as a keyboard), and a display unit 18. The disc device 16 may be one or more floppy disc drives and/or a hard disc unit; indeed, the device 16 may be a virtual disc device. In standard manner, the processor box 15 comprises a central processing unit 20 interfacing via a bus system 23 with memory (namely, volatile RAM memory 21, non volatile RAM memory 22 and the disc device 15) and also with the display unit 18 via a display controller 24, with the keyboard 17 via an I/O controller 25, and with the LAN 11 via a communications controller 26.

Each PC operates under a file-based operating system that utilises a tree-structured file directory, for example, MS-DOS versions 2.0 and above (MS-DOS is a trademark of MicroSoft Corporation). Files, whether data or program, are stored by the disc device 16 and are called into RAM memory 21 by the operating system as and when required.

Although the disc device 16 constitutes a permanent memory for the files, for reasons already discussed in the opening of the present specification, it is prudent to take regular backup copies of the files. To this end, and in accordance with the present invention, each PC is arranged under the control of a Requestor program, to backup files to and restore files from, the tape device 14 of the mini computer 12, the latter being controlled for this purpose by a continuously-available Server program.

The Requestor program for each PC is held in the local disc device 16 and is arranged to run under the local operating system. This program gives the user the choice of functions shown on the screen of the display unit 18 in Figure 1, namely the choice of:

1. backup of selected files,
2. backup of all files included in a predetermined list,
3. restoration of selected files.

Both backup choices involve the generation of a selection list of files to be backed up, the first choice requiring the generation of this list each time the choice is selected while the second choice utilises a list previously generated and stored (the pre-generation of this list being the fourth choice of the illustrated menu).

As will be more fully described hereinafter the generation of the backup selection list involves the presentation to the user of the current contents of

the file directory of the PC's operating system (referred to below as the OS directory). The user then makes his choice of files for backup from the presented files.

In a similar manner, the restore choice involves the generation of a restore selection list by the user. In this case, however, the user makes his selection from the contents of a "backup" directory that records details of all files previously backed up from the PC concerned to the tape device 14 of the central station. In the present example, the maintenance of the backup directory is made the responsibility of each PC and the master copy of this directory is stored on the local disc device 16. However, a copy of the backup directory of each PC is also held centrally on the disc device 13 so that should a PC find that the local copy of the backup directory is missing or corrupted upon running the Requestor program, then a fresh copy of the directory can be rapidly called up from the central station. As an alternative to the above described arrangement, the backup directories for all the PCs could be maintained by the mini computer 12 and information from these directories only passed to the PCs upon request.

The backup directory may list different versions of the same file. Unless otherwise stated, the term 'versions' will be used herein to denote copies of the same file which differ in one or more specified version parameters such as file size, local operating-system time and date stamps, and access permissions. In order to distinguish between file versions, version data (size, time and date stamps, permissions) are held in the backup directory. Of course, only one version of a file listed in the backup directory can be 'current' in the sense that it is also listed in the current OS directory; indeed, if a file has been deleted from the OS directory, then all backed up versions will be non-current.

The backup directory is used not only to enable a user to make a restore selection, but also during backup to ensure that the same version of a file is not backed up twice at different times.

Returning now to a general consideration of the backup process, once the backup selection list has been generated or called up, a PC proceeds to establish communications with the central station 10 and to pass the selected files thereto in accordance with the relevant communications protocol. The files are in fact passed to the station 10 in predetermined maximum block sizes (64K). Since generally the data rate over the LAN 11 will be much lower than that required to stream the tape device 14, the received file blocks are first buffered to the disc device 13 before being recorded en bloc to the tape device 14.

The mini computer 12, under the control of the

server program, is arranged to handle simultaneously the backup requirements of a number of PCs, this being possible due to the multi-tasking nature of the mini-computer's operating system. In implementing this arrangement, the server program is arranged to interleave file blocks received from different PCs before streaming them to the tape device. Tape position information on each block is passed back to the relevant PC for storage in its backup directory together with data on the breakdown of each file into blocks.

During restore, block information on the files selected for restore is retrieved from the backup directory of a PC and used to request the mini computer to forward the appropriate file blocks. These blocks when received back at the PC are stored in the disc device 15 and the local OS directory is updated accordingly.

Due to the fact that the files selected for restore may be scattered over the whole length of the tape media of the tape device 14, it is preferable to arrange for the central station 10 to service only one restore request at a time.

Having outlined the general operation of the backup and restore facility of the Figure 1 PC community, a fuller description will now be given of the main novel functional components. However, before describing the backup and restore mode operations, the structures of the OS directory and backup directory will be considered so as to permit a proper understanding of the system functioning.

Directory Structures

Figure 2 is a diagrammatic depiction of the tree-structured file directory of each PC operating system. The first level or 'root' directory lists a first group of files F1 and, in the present example, two sub-directories D1 and D2. In a similar manner, each sub-directory lists one or more files and/or further sub-directories; thus, the sub-directory D1 has files F2 and two sub-directories D3 and D4. Files in different directories can have the same name and to identify uniquely a file, it is necessary to specify not only the file name but also the drive and chain of directories leading to that file, this combination being generally termed the file pathname. The pathname of the files F6 in Figure 2 is thus:

A:\D1\D4\D5

Typical data structures for implementing the OS directory are well known to persons skilled in the art and will not be described therein.

Figure 3 illustrates the data structures used for the backup directory. The backup directory comprises four linked lists the first of which is a path list containing an entry 30 for each different pathname of the backed up files.

The second backup directory list is a file list containing an entry 31 for each different backed-up file associated with a particular pathname. The file list entries associated with particular pathname are linked to each other and to the relevant path-list entry while the latter contains a pointer to the first associated file-list entry.

The third backup directory list is a versions list containing an entry 32 for each backed-up version of a file entered in the file list. The versions-list entries associated with a particular file are linked to each other and to the relevant file-list entry while the latter contains a pointer to the first associated versions-list entry. Each versions-list entry contains version identification data (file size, operating-system time and date stamps, permissions) and version status data (current or noncurrent).

The fourth backup directory list is a block-map list containing for each entry 32 in the versions-list, one or more linked entries 33 identifying the blocks into which the file version was divided when backed up. Each versions-list entry contained a pointer to the first associated block-map list entry. Each block-map entry contains information identifying the file block and indicating the position of this block on the tape storage media of the device 14.

File Selection Process

A basic operation associated with all three main requestor program functions ('selective backup'; 'backup all'; 'restore') is the interactive generation of a selection list by the user. As already noted, selection-list generation involves the display of the relevant directory (the OS directory in the case of the backup functions, and the backup directory in the case of restore). Thereafter, the user indicates which files are selected by using the PC input device 17 which, in the present example, is a keyboard.

In the present embodiment, the user can effect selection by file and by (sub) directory with the selection of a directory being taken as selection of all files in that directory and all sub-directories. Furthermore, files and directories can be specifically deselected so as to exclude these elements from a more general selection previously effected by choosing a higher level directory. The latest-in-time selection/deselection operation overrides earlier choices.

Figure 4 is a diagram illustrating the flow of control during the inter-active user-selection process. The first operation (block 40) is the display of the root directory of the OS or backup directory; the display of the root directory involves the display of all the files and subdirectories in the root directory. Next, a user selection phase is entered (block 41) in which the user is presented with a

number of choices any one of which he can select by pressing an appropriate one of the keyboard keys.

A first choice, referenced 42 in Figure 4, provides for movement of the cursor around the display to pick out one of the files or directories presented. It will be appreciated that this cursor movement may be controlled by one or more keys as is considered appropriate. Selection of the cursor movement choice 42 results in the PC effecting the relevant cursor movement (block 43) before re-entering the user-selection phase (block 41).

A second choice, referenced 44, initiates the display (block 45) of a sub-directory picked out by the cursor before control is returned to the user-selection phase (block 41). A third choice 46 reverses this process in that it causes the parent directory of the currently displayed directory to replace the latter on the screen display. Choices 42, 44 and 46 together thus enable the contents of the whole of the OS or backup directory to be displayed starting from the root directory.

A fourth choice, referenced 47, enables the whole of the currently-displayed directory to be selected, or if already selected, to be de-selected (the operation of the keyboard key relating to choice 47 thus being a toggling action). Selection of choice 47 results in the selection list being appropriately updated in a manner to be described, but here indicated by block 48. This is followed by the highlighting or dehighlighting of all the files and sub-directories of the currently-displayed directory to indicate the selection or de-selection respectively brought about by the toggling of choice 47. Highlighting control is effected by block 49.

A fifth choice, referenced 50, offered by the user-selection block 41 is the selection/de-selection of cursor-picked files or sub-directories. Again, the operation of the relevant keyboard key acts as a toggle between the select and de-select functions. Selection of choice 50 results in appropriate updating of the selection list (block 51) followed by appropriate up-dating of the screen highlighting (block 52).

Use of the user-selection choices 47 and 50 enables any desired combination of files to be selected. Thus, for example, the following sequence of operations enables the selection of all files with the exception of all-but-one of the files in a first level sub-directory:

Choice 47 - toggles Root directory selection/deselection ; since initially the Root director is unselected, this directory becomes selected and all the files and sub-directories entered in the root directory are highlighted on the display.

Choice 42 - the cursor is moved to pick out the sub-directory in which all files but one are to be deselected.

Choice 50 - toggles selection/deselection for the picked sub-directory; since this directory was previously selected, it now becomes deselected and is dehighlighted.

Choice 44 - replaces the root directory display with the contents of the sub-directory of interest

Choice 42 - the cursor is moved to pick out the file to be selected

Choice 50 - toggles selection/deselection of the picked file; since this file was previously deselected, it now becomes selected and is highlighted

Once the desired files have been selected, the user exits the user-selection phase (block 41) by selecting choice 53 labelled "proceed" in Figure 4.

The foregoing description of the interactive selection-list generation process is complete so far as the selection of files from the OS directory for backup is concerned. However, the generation of a selection list from the backup directory during a restore operation is somewhat more complicated due to the possible presence of several versions of the same file. This complication is dealt with in the following manner. First, for each directory displayed from the main backup directory, the file names of all entries from the relevant portion of the file list (that is the portion linked to the appropriate pathlist entry) are presented on the screen. For each file, there is an indication of whether any of the versions of that file contained in the backup-directory versions list is a current version, that is, is a version currently in the OS directory. If a file is picked and then selected via user choice 50, then the current version of that file will automatically be selected in preference to other versions; if no current version exists, then user choice 50 is ignored. In order to select a non-current version of a file, a user choice reference 54 must be selected to result in the display of all versions of a picked file (block 55). The user is now presented with three choices (see block 56) these being cursor movement 57, toggling (selection/deselection) of the cursor-picked version 58, and returning to the relevant directory (choice 59). Only one version of the file may be selected at any one time.

The selection status of a non-current file version is arranged to be unaffected by a subsequent change in selection status of its parent (or any ancestor) directory.

Selection List

In a preferred embodiment of the present in-

vention, each selection list, rather than being a straight list of all the files to be backed up or restored, takes the form of a two-part list in order to minimize the storage requirements of the list. The form of data structures used for the selection list will now be described with reference to Figure 5 followed by a description of the algorithms used to update and read the list (Figures 6, 7 and 8)

The selection list comprises a pathlist crosslinked with a filelist. Each entry 60 in the pathlist corresponds to a particular path and includes a pointer to any entries 61 in the filelist corresponding to files coming under that path.

Each pathlist entry and each filelist entry has an "include/exclude" flag for indicating whether the corresponding files are to be taken as included or excluded from the selection list.

At the start of a selection list generation process, the selection filelist is empty and the pathlist contains a single entry corresponding to the root directory of the disc device 15. For selection list generation during selective backup or during restore, this single pathlist entry has its include/exclude flag marked for "exclude"; however for generation of the predetermined selection list for use during the "backup all" mode, the include/exclude flag is preferably set to "include" and the root directory is appropriately highlighted when put up on the display screen 18.

Updating of the selection list in response to user selection choices 47 and 50 in Figure 4 is effected on the basis that the selection status of the particular directory or file has been toggled - the updating algorithms used are such as to automatically change the selection status of the corresponding file or directory. There is thus no need to indicate to these updating algorithms the absolute selection status of a file or directory.

Figure 6 is a flow chart of an algorithm for updating the selection list upon the selection status of a directory being toggled by the user. As can be seen, the first operation carried out by the updating algorithm is to search the selection pathlist to see if an entry already exists that corresponds to the directory concerned (block 62). If no entry is found in the pathlist (block 63), then a new entry is created for that directory (block 64) and this entry has its include/exclude flag set opposite to that of its nearest ancestor (block 65). Thus, if a sub-directory of an already included directory is toggled, then an entry is created for this sub-directory and the entry is marked for exclusion - this correctly reflects the user's choice since prior to being toggled, the sub-directory would have been displayed highlighted so that the toggling of the sub-directory must have been effected with a view to excluding the sub-directory from selection.

Returning to block 63, if an entry is found in

the pathlist for a toggled directory, then the basic consequential operation is to change the status of the include/exclude flag of the directory entry. However, this operation will often result in redundant entries in the selection list as, for example, where several files have been specifically excluded from a selected directory and then this latter is subsequently deselected - in this case, the filelist will contain redundant exclusion entries for the files of the deselected directory. Since one of the main purposes of using the present selection list structure is to minimize the storage requirements for the selection list, the toggling of any pre-existing entry will generally be accompanied by housekeeping operations for removing entries rendered redundant by this toggling. In the present case, upon toggling of a directory for which an entry already exists in the pathlist, all filelist entries corresponding to current files of the directory and of all its sub-directories are deleted (blocks 66 and 67) since these entries will now be redundant. Furthermore, if the filelist of any subdirectory to the toggled directory is empty, then the pathlist entry corresponding to this sub-directory can also be removed (block 68). It should be noted that the filelist of the sub-directory will not necessarily be empty as it may contain one or more entries corresponding to non-current file versions; as previously mentioned, the toggling of the selection status of a directory does not affect the selection status of non-current files. The reason why the sub-directory entry is left if a filelist entry exists that corresponds to a non-current file version, is that the algorithm to be described hereinafter with reference to Figure 8 for reading the selection list, requires the presence of a parent-directory entry as well as a file entry to properly identify the status of a non-current file contained in the filelist.

Following the deletion of unnecessary sub-directory entries in the pathlist, the include/exclude flag of the toggled directory is changed (block 69). If the status of this flag then corresponds to that of the nearest ancestor directory entered in the pathlist (block 70), and if the filelist of the toggled directory is empty (block 71), then the pathlist entry of the toggled directory is also redundant and can be removed (block 72).

Figure 7 is a flow chart of an algorithm for updating the selection list in response to the toggling of the selection status of a file (user choice 50 in Figure 4). The first step in this updating algorithm is to search the pathlist for an entry corresponding to the parent directory of the file (block 73). If no such entry is found (block 74) then one is created in the pathlist and its include/exclude flag is set the same as the nearest ancestor directory entry (block 75). Thereafter, a filelist entry is created for the toggled file (block 76)

and if the file is a current one (block 77) the include/exclude flag of the filelist entry is set opposite to that of the parent directory (block 78) as a current file will only have been toggled where its selection status is to be different to that of its parent directory. In the case of a non-current file, its include/exclude flag is set to "include" (block 79), the selection status of non-current files being independent of their parent directories.

Returning to block 74, if the initial pathlist search turns up an entry for the toggled file's parent directory, the filelist is then searched for an entry corresponding to the toggled file (block 80). If no such entry is found (block 81), then one is created in the filelist and its include/exclude flag is set as described above (see block 76 to 79). However, if a filelist entry is found for the toggled file, this entry is removed (block 82).

The updating algorithms described with respect to Figures 6 and 7 are those used by the inter-active user selection process to create a selection list. The algorithm shown in the flowchart of the Figure 8 is that used by the main Requestor program to interrogate a selection list to discover whether any particular file has been selected or not.

To check the selection status of a given file, the pathlist is first searched for an entry corresponding to the file's parent directory (block 84). If no such entry is found (block 85) then there is no need to search the filelist since the Figure 7 updating algorithm will always cause the creation of a parent directory entry whenever a file list entry is generated. In the absence of a parent directory entry in the pathlist, the selection status of the file of interest is, of course, determined by the selection status of the nearest ancestor directory. Accordingly, the pathlist is next searched for the entry corresponding to the nearest ancestor entry (block 86) and the status of the include/exclude flag of this entry is returned as the selection status of the file of interest (block 87).

Where the initial pathlist search finds an entry corresponding to the parent directory file of interest, the Figure 8 algorithm proceeds to search the filelist for an entry corresponding to the file (block 88). If a filelist entry is found (block 89) the status of the entry's include/exclude flag is returned as the selection status of the file (block 90). If an entry corresponding to the given file is not found, then the status of the include/exclude flag of the parent directory entry is returned as the selection status of the file of interest (block 91).

It should be noted that when using the algorithms of Figures 6 and 7 in relation to a selection list for backup, the checking of the files identity can be based solely on the file's name since the only file versions being dealt with are current ones.

However, in the case of a selection list created for restore, the checking of a file's identity must be based on a check not only of the file's name but also of its version data.

Having described the inter-active user selection process and the updating and interrogation of the resultant selection lists, a description will now be given of the backup and restore function themselves.

Backup Functions

Referring to Figure 9, if the user chooses the "selective backup" function from the main menu presented by the Requestor program, then a backup selection list is first produced in the manner already described with reference to Figure 4; this process is indicated in Figure 9 by block 92. Where the "backup all" function is selected by the user then a previously created selection list is fetched from store (block 93).

In either case, once a selection list is available, the Requestor program opens up the link via LAN 11 with the central station 10 and requests the services of the latter for effecting a backup operation (block 94). The Server program will either grant this request or in certain circumstances (such as where a request for restore is already being serviced) ask the requesting PC to wait for a pre-determined delay time before requesting again (block 95). Where the Requestor program is asked to wait, it will close the link with the central station (block 96) and wait for the specified period of time (block 97) before reinitiating the backup request.

Once the Server program has indicated to a requesting PC that the central station's backup facilities are available, the PC Requestor program proceeds to identify the files to be backed up.

It will be appreciated from the form of the selection list that this list in itself does not contain adequate information to identify all files to be backed up. Instead, the selection list must be used in conjunction with the current OS directory to identify the files for backup. The file identification process involves walking through the OS directory and checking whether each file found is encompassed by the current backup selection list. Algorithms for walking through the OS directory to find each file in turn will be apparent to persons skilled in the art and will therefore not be elaborated herein. However, it should be noted that so far as the main Requestor program is concerned (Figure 9) this walking of the OS directory is only required to be carried out one step at a time and that it is therefore necessary to maintain a pointer indicating the progress of this walkthrough.

The initial step in identifying the files to be backed up is therefore to initialise an OS search

pointer to the start of the OS directory (block 98). Thereafter, the walkthrough of the OS directory is commenced (block 99) and when a file is found the search pointer is updated and the identity of the file is extracted (blocks 99,100).

The backup selection list is then interrogated in the manner previously described to check whether the file found by walking the OS directory is one selected for backup (block 101). If the file is not to be backed up, walking through of the OS directory continues from the new pointer position.

If, however, the file is found to be one selected for backup, a check is next made to see if that particular file version has already been backed up (block 102). This check is made by searching the backup directory and, again, appropriate search algorithms will be apparent to persons skilled in the art. If the current file version has already been backed up, then the walkthrough of the OS directory is continued. Where the file version is not already backed up, the Requestor program creates a new entry for the file version in the backup directory (block 103) before proceeding to split the file into blocks and transmit them over the LAN 11 to the central station 10 (block 104). The creation of a new backup directory entry will always involve the creation of a new entry in the versions list (see Figure 3) and may also involve new entries in the filelist and pathlist. The splitting of the file into blocks results in appropriate entries being generated in the block map list.

The correct receipt of the file blocks by the central station 10 is, of course, checked for in accordance with the communications protocol being used. However, in addition, a check is made that the transmitted file blocks have been recorded on the storage media of the tape device 14. This check may be implemented by arranging for an appropriate message to be passed by the Server program to the requesting PC following a successful read-after-write operation on a file block. The Requestor program of the PC checks that messages have been received on all transmitted file blocks by maintaining a temporary transport acknowledgement list linked to the block map list. The messages passed back from the Server program to the Requestor program also contain data mapping block identity to relative position on the tape media, this information being stored in the relevant block map list entry for each file.

After all file blocks have been acknowledged as having been correctly recorded on the tape media, the walkthrough of the OS directory is continued to find the next file. If one or more file blocks are not acknowledged as having been correctly recorded on the tape media after a predetermined timeout, then an alarm is raised (see blocks 105 and 106).

In due course, the walkthrough of the OS direc-

tory will be complete. Thereafter, an end-of-data (EOD) message is transmitted and the backup directory is updated in respect of which file versions listed therein are current (see blocks (135 and 107). Figure 10 shows in flow-diagram form a suitable algorithm for effecting this file-version status check. As can be seen, this check is carried out by walking through the backup directory and stopping at each file version marked as current to see if that file version is still listed in the OS directory. The process of walking through the backup directory is controlled by a search pointer initialised to the start of the backup directory (block 110). Upon a file version marked current being found, (blocks 111 and 112) the search pointer is updated and then a check is made as to whether that file version is still present in the OS directory- (113). If the file version is present in the OS directory, the process of walking through the backup directory continues from the position indicated by the search pointer. However, if the file version is no longer contained in the OS directory, the status of that file version is marked as non-current in the versions list of the backup directory (block 114).

After the updating of the file-version status information in the backup directory, the Requestor program proceeds to transmit the updated backup directory to the central station 10 (block 108) before sending an end-of-transmission (EOT) message to initiate closing of the link (block 109). The updated backup directory is stored in the central station on the disc device 13.

For reasons which will become clear below, it is desirable to enable the Server program to abort a backup operation. This can be achieved by substituting an abort message for a file block acknowledgement normally transmitted during execution of block 104; upon detecting such an abort message, the Requestor program can simply be arranged to close the link and terminate the current backup session, the whole backup operation being automatically re-initiated from block 94 after a predetermined delay.

The Restore Function

Selection of the restore choice from the opening menu presented by the Requestor program results in the sequence of operation illustrated in Figure 11.

The first operation is the inter-active generation of the restore selection list (block 115) in the manner already described with reference to Figure 4. Thereafter, the Requestor program opens the link with the central station 10 and passes a request thereto asking for the facilities of the central station to be made available for restoring one or more files to the requesting PC (block 116). As already noted,

to facilitate access to the serial storage device constituted by the tape device 14, only one restore operation is allowed to be in progress at any one time and this operation cannot be effected at the same time as a backup operation. The Server program is therefore arranged to grant a restore request only if no other restore or backup process is in operation. If a restore or backup operation is running, then the Server program asks the requesting PC to wait (block 117) and, in this case, the Requestor program will close the link with the central station (block 118) and waits a pre-determined time before re-opening the link and re-submitting its restore request to the central station (block 119).

In due course, the restore request will be granted. Thereupon, the Requestor program will identify the files to be restored by walking the backup dictionary and checking each entry against the restore selection list. The step-by-step walkthrough of the backup directory requires the maintenance of a search pointer which is initialised to the start of the directory and updated each time a file is found and the walkthrough interrupted to check whether that file is in the restore selection list (see blocks 120, 121 and 122). Suitable algorithms for searching the backup directory on a file version by file version basis will be apparent to persons skilled in the art.

Each file version found in the backup directory is checked against the selection list in the manner already described with reference to Figure 8 (block 123, Figure 11). If the file is not indicated as being selected upon inspection of the list, the walkthrough of the backup directory is continued.

Upon identification of a file version selected for restore, the Requestor program first checks to see whether the existing OS directory is already structured with the path relevant to that file (block 124). If no such path exists, then the appropriate directory entries are created in the OS directory using the operating system functions which, in the case of MS-DOS are accessible through interrupt 21H (see block 125 in Figure 11).

If the path of the file to be restored already exists in the OS directory, then a check is next made as to whether the OS directory contains an entry corresponding to that file (block 126).

Where no file entry is pre-existing, then both in the case of a pre-existing path and in the case of a newly created path, a file entry is created in the OS directory corresponding to the file to be restored (block 127). Thereafter, the Requestor program utilises the data stored in the block map list of the backup directory to request the central station to forward the appropriate file blocks making up file to be restored (block 128). As will be explained hereinafter, the Server program does not respond

to the file-block requests immediately but awaits the receipt of an EOD message before doing so. Once all the relevant blocks have been requested, the Requestor program continues its walk through the backup directory.

Returning to block 126, if the search of the OS directory shows that the file to be restored is already entered in the directory (albeit a different version of the file), the Requestor program prompts the user to confirm that he wishes the existing entry to be overwritten by one corresponding to the file version previously indicated as required for restoration (block 129). If the user indicates that he wishes the restore operation to continue (block 130), then the previous OS directory entry is overwritten (block 131) and the Requestor program proceeds to request the appropriate file blocks from central station 10. On the other hand, where the user indicates that he no longer wishes the restoration of the selected file to continue, the Requestor program returns to its walk through of the backup directory.

In due course, the walkthrough of the backup directory will be completed whereupon the Requestor program transmits an EOD message the effect of which is to trigger the Server program to retrieve and forward the requested file blocks (see blocks 132,133). After all requested file blocks have been received, the Requestor program send an EOT message to initiate closing of the link with the central station 10 (block 134).

The process of walking through the backup directory can generally be considerably shortened due to the fact that files selected for restore are normally to be found in only one or two sub-directories. Rather than walking the whole backup directory, the selection list can be examined to ascertain which directories are going to be relevant and then only these directories are walked.

A second type of restore request may be made by the Requestor program itself, this being a request for restoration of the appropriate backup directory; such a request is made by the Requestor program if upon initialisation the latter discovers that the directory is not present at the PC. A directory restore request will generally be granted immediately by the Server, the restore operation itself being terminated with an EOT message.

The Server Program

Having described the operation of the requestor program run by each PC, the functioning of the server program at the central station 10 will now be explained.

As already noted, the server program is designed to run under a multi-tasking operation system. The program comprises three main processes

which run concurrently on the computer 12; as show in Figure 12, these three processes are respectively a monitor process 140, a scheduler process 141 and a tape handler process 142.

Whenever a PC makes a request to the central station 10 to backup or restore one or more files, the PC first establishes a virtual circuit with the computer 12 and directs its request to the monitor process 140. This process 140 is arranged to create for each requesting PC a respective task 143 which will be either a backup or restore task depending on the nature of the request. This task 143 then deals with all further communication between the server program and the particular PC concerned. On termination of a request due to its successful execution or otherwise, the task closes down the virtual circuit with the associated PC and then dies. At anyone time, several tasks 143 may be in existence.

As will be more fully explained hereinafter, upon creation, each task 143 checks in with the scheduler 141 which determines whether the request from the corresponding PC can be dealt with straight away or must be delayed. In the present embodiment, the scheduler is arranged such that a backup request cannot be granted whenever a previously-granted restore request is still being serviced though a restore request will cause any current backup task to be cancelled; furthermore, only one restore request may be serviced at a time though several backup requests can be serviced together.

Upon the scheduler granting a request, the relevant task 143 then proceeds to interface with the tape handler 142 to transfer file blocks in the appropriate direction between the requesting PC and the tape device 14. Communication between the task 143 and the tape handler process 142 is by way of:

- Request messages passed from the task 143 to the handler in response to inputs received from the corresponding PC; the main types of request messages are for the backup of a file block just received from the PC (a backup request message) and for the restore of a file block requested by the PC (a restore request message).
- Acknowledgement messages passed from the tape handler to the task to acknowledge the completion of a requested operation. Again, the main types of acknowledgement are backup acknowledgements output when a file block has been stored on tape, and restore acknowledgements output when a requested block has been read from the tape.

In the case of a backup operation, the task 143, as well as interfacing with the tape handler 142, also takes care of buffering file blocks to the disc

device 13 prior to these blocks being streamed to the tape device 14 by the tape handler 142. The disc device 13 is also used to store the backup directories relating to each PC.

As will become clear below, an important data structure in the file-block transfer operation is a block table 144 which is a list of file blocks to be transferred to or from the tape device 14. Each active task has a version 144A of this table for the blocks it is responsible for, while the tape handler has a single table 144B which deals with all blocks that have been passed to it.

Another important data structure is a user status list 143 associated with the tape handler 142. This list 145 records for each user PC whether that PC is in one of the following four states:

Inactive

Active

Complete

Acknowledged

The last three states correspond to a user PC being at different stages in the process of transferring data to/from the central station 10. Each user entry in the user status list also contains other information such as the number of outstanding blocks waiting to be transferred to or from the tape device 14. A more detailed explanation of the operation of the server program will now be given starting with a description of the scheduler process 141.

The Scheduler

As already noted, the function of the scheduler is to decide whether a newly-created task 143 should be allowed to run immediately or delayed for a predetermined period (in which case the task is, in practice, terminated and recreated by the monitor 140 in response to the relevant PC repeating its request after the predetermined delay).

The scheduler maintains a list of currently active tasks previously allowed to run by the scheduler.

Upon a newly-created task 143 checking in with the scheduler, the latter checks to see if a restore task is already current since if this is the case, no further tasks will be allowed and the scheduler will return a pre-set delay time, for example, 15 minutes, via the new task to the requestor PC (see blocks 150, 154, 159 in Figure 13). Where a restore task is not currently running, the scheduler next ascertains whether the checking-in task is a backup task or a restore task (block 155). In the latter case, the new task will have priority over any current task (as such tasks will be backup tasks,) so that the scheduler proceeds to abort all current tasks, grant the restore task request and update the current task list

(blocks 156, 157, 158). On the other hand, if the checking-list task is a backup task, this will be allowed to run alongside the existing current backup tasks provided no more than a predetermined maximum number (for example, four) of such tasks are simultaneously current (block 153); if this condition is not fulfilled, the scheduler does not allow the task to run and returns a delay time.

When a task has been completed, it checks out with the scheduler which then removes the task from the list of tasks being run (block 160).

In order to facilitate the restoration of a PC backup directory, the scheduler can be arranged to grant such requests immediately (this facility is not shown in Figure 14). This does not cause currently active Backup tasks to be cancelled.

General Form of Backup and Restore Tasks

The general form of the task 143 created by the monitor process 140 is the same for backup and restore; Figure 14 is a flow chart representation of this general form.

Following task creation (block 161) the task receives various necessary items of data from the monitor process and the associated requestor PC (block 162); this data includes the messaging addresses for the scheduler and tape-handler processes 141, 142 and the return address of the requestor PC. Thereafter, the task checks in the scheduler process 141 by sending an appropriate message to the process (block 163).

As already described with reference to Figure 13, the scheduler will either allow the task to proceed or will return a delay time. If a delay time is returned (tested for in block 164), the task proceeds to report this delay back to the associated PC (block 165); thereafter, the task closes the virtual circuit link with the PC (block 166), checks out with the scheduler (block 167) and then dies (block 168).

If the scheduler allows the task to proceed immediately, the task informs the tape-handler by passing an access request message to the handler (block 169); the acknowledgement returned from the tape handler is then passed back by the task to the requesting PC (block 170) to indicate to the latter that it may proceed with the requested backup or restore function.

The task thereafter enters a cyclic phase in which it receives messages from the requesting PC and the tape handler (block 171), determines the origins of these messages (block 172) and then executes an appropriate routine in dependence on the message origin (routine 1 for messages from the requestor PC and routine 2 for messages from the tape-handler).

The task continues to receive messages and

execute the appropriate routine until it receives an EOT acknowledgement from the tape-handler (block 173) as a consequence of the requestor PC having completed the desired function and sent an end-of-transmission message via the task to the handler which has thereupon acknowledged the receipt of the EOT message. Upon detection of the EOT acknowledgement, the task proceeds to close the link, check out with the scheduler and die (block 166 to 168).

The nature of routines 1 and 2 does, of course, depend on whether the task is a backup or restore task. Routines 1 and 2 will be described in greater detail hereinafter following a general outline of the tape-handler process 142.

The backup task in fact includes one additional branch not shown in Figure 14, permitting the scheduler process to abort a current backup task. This branch originates at a further exit from block 172 and is taken upon an abort message being received by the scheduler; the branch controls the passing of an abort message to the corresponding requestor PC and to the tape-handler, after which blocks 166 to 168 are executed.

The Tape-Handler

The basic operation of the tape-handler process is to service request messages passed to it by the currently task or tasks 143. Five separate types of request messages can be distinguished, these being:

- 1) access request messages from newly allowed tasks whereby the associated requesting PC is noted as active by the tape-handler;
- 2) backup request messages from backup tasks requesting the tape-handler to store to tape file blocks received by the task from their associated PCs - these requests may not be complied with immediately by the tape-handler as it may wait for sufficient file blocks to be present to facilitate streaming of the tape;
- 3) restore request messages from a currently running restore task requesting the tape-handler to read off particular file blocks from the tape device and pass them back to the appropriate PC;
- 4) directory request messages from tasks wishing to backup or restore PC backup directories stored on the disc device 13;
- 5) abort request messages from a backup task, requesting the tape-handler to note that the task is being aborted.

The tape-handler process can reside in any one of the three main modes namely a no-operation mode (NOP mode), a backup mode in which the handler is dealing with one or more backup requests only, and a restore mode in which the

handler is dealing with single restore request only. The current mode of the tape-handler depends on the type of task currently being allowed to run by the scheduler process; when no task is current the tape-handler is in the NOP mode.

Referring now to the tape-handler flow chart shown in Figure 15, the cycle of operation of the tape-handler starts with the latter reading in a message sent to it from a task (block 175). After determining the message type (block 176), the tape-handler proceeds to process the message accordingly.

Starting from the situation where the tape-handler is in its NOP mode, the next message that it will receive is an access request message from a backup or restore task. Having determined the message type, the tape-handler resets its mode to correspond to that of the originating task (backup or restore), an indication of the task type being contained in the access request message (block 177). In the case of an access request being made by a backup task when similar tasks are already running, the latest access request will already find the tape-handler in the appropriate mode so that the mode-setting operation is skipped by carrying out an appropriate test (block 178). Thereafter, the tape handler updates the user status list 145 by noting that the user PC initiating the current task is "active" (block 179). Once the user list has been updated, the tape-handler acknowledges the access request by passing back a message to the task concerned (block 180); as previously noted, this acknowledgement is forwarded by the task to the requesting user PC (see block 170, Figure 14).

After a task has signed on with the tape-handler by means of an access request message, it proceeds to send backup or restore request messages to the tape-handler and receives appropriate acknowledgements therefrom until the desired function of backup or restore is complete. A detailed description of the processing of backup and restore request messages by the tape-handler will be given hereinafter when describing the routines 1 and 2 that are at the heart of the backup and restore tasks.

The tape handler responds to a directory request message either by backing up to, or restoring from, an allocated disc file, the backup directory of the PC associated with the task sending the request message (block 233, 181).

Finally, on receipt of an abort message, the tape handler will set the status of the corresponding user to "inactive", remove any relevant entries from the tape-handler block table 144B, and, if all users are then "inactive", reset its mode to NOP (see blocks 230 to 232).

The Backup Operation

The inter-action of a backup task and the tape-handler process in carrying out the backup operation to the tape device 14 will now be described with reference to the tape-handler flowchart Figure 15 and to the flowcharts of Figures 16A and 16B which respectively illustrate the form of the routines 1 and 2 in the back up task.

It will be assumed that a PC requiring backup has made an appropriate request to the central station and that a corresponding backup task has been created by the monitor process 140; it will also be assumed this task has been allowed to proceed by the scheduler process 141 and that the task has signed on with the tape-handler process 142 and returned the acknowledgement received therefrom back to the requesting PC. The backup task is therefore at the position of block 171 in the Figure 14 task flowchart and is ready to receive messages from the requesting user PC and the tape-handler process; the tape-handler itself is in its backup mode and ready to receive messages from the backup task.

The first message received by the backup task will be from the associated PC and will include a file block to be backed up to tape. On receipt of this message, the backup task executes backup routine 1 shown in Figure 16A. This routine first tests the contents of the message received from the PC (block 182) to ascertain whether the message contains file data to be backed up to the tape device, backup directory data to be stored on the disc device, or an end-of-data (EOD) or end-of-transmission (EOT) signal. As already noted, the first message received from the PC will contain file data and the backup routine 1 proceeds by spooling this data to a temporary disc file (block 183). Having spooled the file data to disc, the routine updates the task block table 144A with an entry identifying the file block and its origin (block 184). Thereafter, the routine notifies the tape-handler process that it has a file block waiting to be backed up to tape, this notification being by way of a backup request message (block 185). The backup task then exits routine 1 and waits to receive another message.

The tape-handler, having received the backup request message from the backup routine 1, first tests to see whether the message is informing it of the presence of a file block to be backed up or whether the message contains an EOD or EOT indication in respect of the current backup operation (block 186). Having determined in the present case that the backup request message relates to the presence of a file block to be backed up, the tape-handler process first notes the existence of the file block awaiting backup by both making an entry in the block table 144B and updating the blocks outstanding field for the appropriate user

entry in the user status list 145 (see block 187). Thereafter, the tape-handler checks to see whether the aggregate size of the file blocks temporarily held on the disc device is sufficient to enable streaming of the tape device 14 (block 188). If this is not the case, the tape-handler takes no immediate further action and awaits receipt of the next message. On the other hand, if the aggregate size of outstanding blocks is such as to enable the tape device to be streamed, then the tape-handler initiates transfer of the corresponding file blocks from the disc device to the tape device (see block 189), the necessary information on the blocks being available to the tape-handler in the block table 144B. As each file block is written to tape a read-after-write check is carried out and, assuming that the results of this check are satisfactory, the tape then passes an acknowledgement message back to the appropriate backup task and updates the block table 144B and the blocks-outstanding information in the appropriate user list entry.

It should be noted that since more than one backup task may be running, the question of whether there is sufficient file data to stream the tape device will not necessarily depend upon whether sufficient data has been received from any particular PC. Furthermore, the updating of the user status list and the destination of acknowledgement messages will depend upon the user (requesting PC) associated with each file block backed up to tape.

The flowchart blocks 190 and 191 shown as following the write-to-tape block 189 in Figure 15 relate to happenings that occur at the end of the backup operation and will be described later on; for the moment, it will be assumed that they do not apply to the backup operation under consideration so that after carrying out the functions indicated in block 189 the tape-handler returns to await the receipt of the next message.

Returning now to the backup task, the next message received by this task will generally either be a further file-block-containing message from the requesting PC or, if the tape-handler decided that it could stream from the tape device, an acknowledgement message from the tape-handler indicating that the previously-received file block has been successfully written to tape. In this latter case, the backup task will proceed to execute routine 2 illustrated in Figure 16B. This routine involves an initial test of the acknowledgment message to see whether it is an acknowledgment of file block data or of an EOD/EOT signal (block 192). Where a fileblock has been acknowledged, the routine looks after passing on the acknowledgement back to the requesting PC (block 193), deleting the block from the temporary disc file where it was stored on receipt (block 194), and updating of the task block

table 144A by removal of the corresponding entry (block 195). On exiting routine 2, the backup task returns to block 171 to await receipt of the next message.

In the general case, in due course another message will be received from the requesting PC containing fileblock data to be backed up. Such a message is dealt with in the manner already described by the backup task calling routine 1 to notify the tape-handler of the presence of the newly received file block. Furthermore, the tape-handler will deal with the new backup receipt in the manner already described, only returning acknowledgements when the file block is written to tape and checked.

When the requesting PC has transmitted all the fileblocks intended, it sends an EOD message. This message is identified by backup routine 1 and passed to the tapehandler in a backup request message (see block 196 in Figure 16A). On detecting the presence of an EOD signal in the backup request message, the tape-handler sets the status of the corresponding user PC as "complete" in the user status list 145 - that is, the PC has completed its transmission of file data (block 197 in Figure 15). However, this status does not mean that the backup of file data is complete since there may still be file blocks temporarily stored on disc waiting to be written to tape. If a test shows that this is not the case (block 198) then the EOD signal is acknowledged and the user status in the user status list 145 is set to "acknowledged" (block 191). On the other hand, if there are still file blocks waiting to be written to tape, then a check is made (block 191) as to whether there are any other user PCs active since, if not, this means that the critical size for streaming will not be reached in the near future and the backup operation could effectively be suspended until some indeterminate time when another backup task is initiated. To avoid this situation, if there are no other active users, the tape handler writes any outstanding blocks to tape and acknowledges the blocks in the usual way. When the last block has been written to tape and acknowledged the status of the user is changed from "complete" to "acknowledged" and an EOD acknowledgement sent (blocks 190, 191). If, however, the test carried out in block 199 shows that there are users still active, then the writing of outstanding blocks is deferred as it is quite likely that a streamable mass will be shortly achieved; of course, even in this deferred situation once all outstanding blocks of a "completed" user have been written to tape, that user's status is set to "acknowledged".

On receipt of an EOD acknowledgement message, the backup task relays this acknowledgement to the corresponding PC (see block 200 of backup

routine 2 in Figure 16B).

It should be noted that the file block acknowledgements passed back by the backup routine 2 to the corresponding PC contain tape location information for the corresponding file block and this information is stored by the requesting PC in the block map list of its backup directory.

After the requesting PC has transmitted all the file data to be backed up and followed it with an EOD message, the PC next sends up the updated backup directory for storage by the disc device 13. Upon the backup task ascertaining that the contents of a message from its associated PC contains backup directory data (see block 182 in Figure 16A), the task after having first spooled the data to a temporary disc file, sends a directory request to the tape-handler requesting the latter to backup the directory to disc (blocks 201,202). The tape-handler then proceeds to write the directory data to a predetermined disc file associated with the requesting PC overwriting any existing information in that file (block 233). The tape handler then passes an acknowledgement to the backup task which forwards this acknowledgement to the PC (block 203, Fig. 16B).

Finally, the requesting PC will transmit an EOT message. This message is passed by backup routine 1 to the tape-handler as a consequence of which the status of the corresponding user PC is set as "inactive" in the user status list (see block 205 in Figure 15). The EOT message is then acknowledged by the tape handler (block 206) and if no non-inactive users remain, the tape-handler reverts to its NOP mode (blocks 207 and 208). After passing back the EOT acknowledgement from the tape handler to the requesting PC, the backup task closes the link with the PC and checks out in the manner previously described.

The Restore Operation

The inter-action of the restore task and the tape-handler process in carrying out a restore operation will now be described with reference to the tape-handler flowchart of Figure 15 and the flowcharts of Figures 17A and 17B which respectively relate to the restore routines 1 and 2. As with the description of the backup operation, the following description of the restore operation will assume that a restore task has already been created in response to a request from a PC and that this task, after having been allowed and having checked in with the tape handler, is awaiting receipt of a message from the requesting PC.

The PC concerned may request either the restoration of one or more files by making requests for the constituent file-blocks or, alternatively, may request the restoration of the backup directory asso-

ciated with the PC and stored on the disc device 13.

Considering first the case where the PC requests the restoration of one or more files, upon receipt of a message from the PC identifying the first file block to be restored, the restore routine 1 (see Figure 17A) having tested for the type of restore requested (blocks 210), makes an entry in the task block table 144A in respect of the requested fileblock and then notifies the tape-handler of the restore request (blocks 211,212).

On receipt of a restore request message from the restore task, the tape handler first checks whether the message is a true request or merely one containing EOD/EOT information (blocks 213 of Figure 15). The tape-handler in response to receiving a file-block restore request, makes an appropriate entry in its block table 144B and also updates the user list 145 regarding the number of blocks to be restored (block 214); however, block restoration does not take place immediately.

The process of receiving file-block restore requests and logging them continues in the above manner until all such requests from the requesting PC has been received. In due course, the PC will send an EOD message which will be passed by the restore routine 1 to the tape-handler (see block 215 in Figure 17A). On receipt of an EOD indication in a restore request message, the tape-handler changes the status of the user PC in the user status list 145 from "active" to "complete" (block 216). The tape-handler then proceeds to read off the required blocks from the tape back to the requesting PC (block 217). This process involves the tape-handler referring to the block table 144B to identify each block to be restored and its location on the tape, this information having been passed up to the central station from the requesting PC. In order to facilitate this process the entries in the block table 144B are linked in the order in which the fileblocks appear on the tape, this linking being carried out at the time each newly received block is entered into the block table.

As each block is read off the tape and passed to the restore task, the block table 144B and blocks outstanding information contained in the corresponding user list entry are updated.

Each file-block-containing message received by the restore task from the tape-handler is forwarded with an acknowledgement to the requesting PC (blocks 218, 219 Figure 17B). In addition, the restore task updates the block table 144A by removing the entry corresponding to the file block passed back to the PC (block 220).

After all the requested blocks have been restored, the tape-handler passes an EOD acknowledgement message to the restore task (block 221) and the status of the user PC in the user status list

145 is changed from "complete" to "acknowledged" (block 222). On receipt of the EOD acknowledgement from the tape-handler, the restore task routine 2 passes on this acknowledgement to the requesting PC (block 223, Figure 17B).

In due course, the requesting PC transmits an EOT message which is passed by the restore-task routine 1 to the tape-handler. The latter, on receipt of the restore request message containing an EOT indication, changes the corresponding entry in the user status list from "acknowledged" to "inactive", passes an EOT acknowledgement message to the restore task, and resets itself into its NOP mode (blocks 224, 225 and 226 in Figure 15).

On receiving the EOT acknowledgement from the tape-handler, the restore task forwards the acknowledgement to the requestor PC and then closes the link and checks out in the manner previously described.

In the case where the requesting PC requests restoration of the last-stored backup directory, the restore-task routine 1, on detection of such a request, asks the tape-handler to forward it the backup directory (block 227 of Figure 17A). On receipt of this request the tape-handler, reads off the backup directory information from the disc device 13 and forwards it to the restore task which, in turn, forwards it to the requesting PC together with an acknowledgement of the request (block 228). Thereafter, the requesting PC transmits an EOT message which is forwarded by the restore task in a restore request message to the tapehandler to be dealt with in the manner explained above.

It is convenient to arrange for backup-directory restore requests to queue jump the normal operation of the server program. This can be readily achieved by arranging for the scheduler process always to allow such requests. In addition, it would be necessary to arrange for the tape handler not to reset its mode upon receiving an access request for directory restore or upon an EOT indication being receiving at the end of processing such a request. With these modifications, a backup-directory restore request could be processed alongside any other type of request.

It will be appreciated that the above-described algorithms have been simplified in certain respects to aid the clarity of the description. In particular, the various error condition traps that would normally be included in such algorithms have not been specifically disclosed as suitable implementations of such traps will be readily apparent to persons versed in good programming practice.

Furthermore, many variations are possible from the disclosed algorithms without loss of the benefits of the present invention. Thus, for example, instead of the tape handler in its restore mode waiting until all desired files have been requested

before initiating file restore, each file block could be restored immediately following receipt of the restore request by the tape handler. Such an arrangement would only be practical, however, where the requestor program carried out an initial sort of the files required so as to transmit file-block restore requests in the order that the file blocks appear on the tape media.

In another possible variation, the scheduler process is arranged to generate a queue list of requests that it cannot immediately grant; this queue is in time order of request receipt except that restore requests are placed above backup requests. Instead of a refused requester PC being asked by the scheduler to try again after 15 minutes without any priority as compared to a first time requester, the scheduler now returns to the requester PC a delay time calculated to be the time after which the scheduler can grant its request taking into account its position in the queue and the types of tasks in front of it. If upon retrying, a PC's request still cannot be granted, it retains its position in the queue and a new estimate of when the server will be free is returned to the requesting PC.

Again, whereas in the described embodiment, the transmission of data (file or directory) takes places separately from EOD or EOT indications, such indications can, in fact, be included in data-transmitting messages provided that the indication is not acted upon until the transmitted data has been appropriately handled.

The above-described backup and restore arrangement only backs up file versions not previously backed up. For various reasons, it may be desirable to provide a user with the option to backup a file version already backed up on a previous occasion. In this case, in order to distinguish between the two otherwise identical backups of the same file, the file version information stored in the versions list of the backup directory, must be expanded to include a backup time and date stamp; this stamp is then presented to the user whenever he selects the "display versions" option of the restore user-selection menu (see Figure 4).

In the described backup and restore arrangement it has been assumed that all backed-up file data is stored on a single tape media. Where large volumes of data are to be backed up, provision can be made for using multiple tape volumes arranged in one or more volume sets. Various strategies are possible for using and accessing the tape volumes. Thus, for example, it is convenient normally to have on-line a particular empty or only partially-full tape volume to which all backups can be made regardless of their originating PC; this tape volume would only be replaced either temporarily when carrying out a restore from an earlier tape volume,

or when the tape volume becomes full. It is of course, necessary for the tape location information held in the block map list of a PC's backup directory, to identify uniquely the tape volume holding each fileblock. During a restore operation, each tape volume containing relevant file blocks is called up in turn and all fileblocks of interest are read off before another volume is mounted; this orderly retrieval of fileblocks is achieved by appropriately linking the entries in the block table 144. The actual changeover between tape volumes may be automatic or effected by a central-station operator in response to an appropriate prompt generated by the tape-handler process.

To facilitate future usage of tape volumes, it is convenient to arrange the volumes in sets and to store on one volume of each set, the backup directories of all the PCs. These backup directories are arranged to be read off from the disc device 13 to a pre-designated area of the tape volume when the last volume of the volume set becomes full.

Claims

1. A personal-computer community comprising a plurality of independently-operable personal computers (PC 1-3), a central station (10), and a communications arrangement (11) communicating each personal computer (PC 1-3) with the central station (10), each personal computer (PC 1-3) being arranged to operate under a file-based operating system to store and retrieve working files from a non-volatile storage area (16) associated with that personal computer, the operating system maintaining a directory of said files and in order to provide a file backup facility for the personal computers:
 - the central station (10) is provided with a mass storage device(14),
 - each personal computer (PC 1-3) is operative
 - a) in a backup mode, to enable user-selection of files for backup and to transmit the selected files to the central station (10), and
 - b) in a restore mode, to enable user-selection of files to be restored from backup, to request and receive the files selected for restore from the central station (10), and to update the operating system file directory with an entry corresponding to each restored file; and
 - the central station (10) is arranged to store files transmitted thereto in said mass storage device (14) and to return selected files when so requested;
 said central station (10) comprising a multi-tasking computer characterized by being oper-

ative (12) to handle the file backup requirements of several said personal computers (PC 1-3) concurrently and to transfer files to said mass storage device (14) in the central station (10) in the form of blocks of data of predetermined maximum size, the central station (10) when backing up several personal computers concurrently, interleaving blocks from files of different personal computers (PC 1-3).

2. A personal-computer community according to claim 1, wherein said mass storage device is a tape device (14), the central station (10) further comprising a disc memory device (13) for buffering file block transfer to the tape device (14).
3. A personal-computer community according to claim 2, wherein for each personal computer (PC 1-3) requiring backup, the central station-(10) is operative to run a respective backup task (143) for receiving file blocks from that personal computer and transferring them to said disc memory device (13); the central station (10) being further operative to run a tape handler process (142) for transferring file blocks from the disc memory device (13) to the tape device (14), the identity of file blocks to be transferred from the disc device (13) to the tape device (14) being held in a block table (144B) to which entries are added as a said backup task (143) transfers blocks to the disc device (13) and from which entries are cancelled upon transfer of said blocks from the disc device (13) to the tape device (14).
4. A personal-computer community according to claim 3, wherein the tape handler process (142) is arranged to defer transfer of file blocks held on the disc device (13) to the tape device (14) until a minimum amount of data is ready to be transferred, the tape handler process (142) ascertaining the amount of data to be transferred to the tape device (14) by referencing the block table (144B).
5. A personal-computer community according to claim 2, wherein for each personal computer (PC 1-3), a backup directory (30-33) of files backed up from that computer (PC 1-3) is maintained within the community, said backup directory (30-33) including information relating each file block of a backed up file to its position on the tape storage media of the device (14).
6. A personal-computer community according to claim 2, wherein the central station (10) is

arranged to handle file restoration to one personal computer (PC 1-3) only at a time, the file blocks of the files selected for restore being read off from the tape device (14) in the order in which they occur on tape (14) whereby to facilitate the tape read process.

7. A personal-computer community according to claims 5 and 6 in combination, wherein the order of occurrence on tape (14) of the file blocks to be restored is determined at the time of restore by reference to the relevant backup directory containing information on the tape position of the file blocks.
8. A personal-computer community according to claim 2, wherein for each personal computer (PC 1-3) a backup directory (30-33) of files backed up from that personal computer (PC 1-3) is maintained within said community, the arrangement being such that when in its restore mode, each personal computer (PC 1-3) has its backup directory (30-33) present and is operative to display the contents thereof to the user for selection.
9. A personal-computer community according to claim 2, wherein for each personal computer (PC 1-3), a backup directory (30-33) of files backed up from that personal computer (PC 1-3) is maintained within said community, the directory (30-33) for each personal computer (PC 1-3) including version data of each file at backup; the arrangement being such that when in its backup mode, each personal computer (PC 1-3) has its backup directory (30-33) present and is operative to compare information on the operating-system files selected for backup with the information in said backup directory (30-33) and to backup only those files which either do not appear in the backup directory (30-33) or have different version data.
10. A personal-computer community according to claim 8 or 9, wherein the central station (10) is arranged to keep said backup directories (30-33) on said disc device (13), the central station (10) being further arranged to pass a copy of the backup directory (30-33) relevant to a particular personal computer (PC 1-3) to that personal computer (PC 1-3) upon request therefrom, and each personal computer (PC 1-3) being operative to request the central station (10) to forward the relevant backup directory (30-33) where the latter is not present in the personal computer when it is to operate in a said mode requiring its backup directory (30-33) to be present.

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11. A personal-computer community according to claim 10, wherein the request from a personal computer (PC 1-3) for a copy of its backup directory (30-33) is given priority by the central station (10) over any current backup or restore operations.

Revendications

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1. Communauté d'ordinateurs personnels, comprenant une pluralité d'ordinateurs personnels (PC1-3) utilisables individuellement, un poste central (10) et un système de communication (11) faisant communiquer chaque ordinateur personnel (PC1-3) avec le poste central (10), chaque ordinateur personnel (PC1-3) étant agencé pour fonctionner sous un système d'exploitation à base de fichiers en vue du stockage et de l'extraction de fichiers de travail d'une zone de mémoire rémanente (16) associée à cet ordinateur personnel, le système d'exploitation maintenant un répertoire de ces fichiers et, dans le but de fournir un moyen de sauvegarde de fichiers pour les ordinateurs personnels:

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- le poste central (10) est pourvu d'une mémoire de grande capacité (14),
- chaque ordinateur personnel (PC1-3) est opérationnel
 - a) dans un mode de sauvegarde afin de permettre la sélection par l'utilisateur de fichiers pour la sauvegarde et pour transmettre les fichiers sélectionnés au poste central (10), et
 - b) dans un mode de restauration afin de permettre la sélection par l'utilisateur de fichiers à restaurer depuis la sauvegarde, pour demander et recevoir les fichiers sélectionnés à restaurer du poste central (10) et pour actualiser le répertoire de fichiers du système d'exploitation par un article correspondant à chaque fichier restauré; et
- le poste central (10) est agencé pour stocker les fichiers qui lui sont transmis dans la mémoire de grande capacité (14) et pour retourner les fichiers sélectionnés lorsqu'il en reçoit la demande;

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le poste central (10) comprenant un ordinateur à tâches multiples, caractérisé en ce qu'il est opérationnel (12) pour traiter simultanément les besoins de sauvegarde de fichiers de plusieurs ordinateurs personnels (PC1-3) et pour transférer des fichiers à la mémoire de grande capacité (14) au poste central (10) sous la forme de blocs de données de taille maximale prédéterminée, le poste central (10), lors de la sauvegarde simultanée de fichiers de plusieurs ordi-

- nateurs personnels, imbriquant des blocs de fichiers de différents ordinateurs personnels (PC1-3).
2. Communauté d'ordinateurs personnels selon la revendication 1, dans laquelle la mémoire de grande capacité est un dispositif à bande (14), le poste central (10) comprenant en outre une mémoire à disque (13) pour la mémorisation temporaire de blocs de fichiers lors de leur transfert au dispositif à bande (14). 5
 3. Communauté d'ordinateurs personnels selon la revendication 2, dans laquelle, pour chaque ordinateur personnel (PC1-3) nécessitant une sauvegarde, le poste central (10) est opérationnel pour exécuter une tâche de sauvegarde (143) respective pour la réception de blocs de fichiers de cet ordinateur personnel et leur transfert à la mémoire à disques (13); le poste central (10) étant en outre opérationnel pour exécuter un processus de manipulation de bande (142) en vue du transfert de blocs de fichiers de la mémoire à disque (13) au dispositif à bande (14), l'identité des blocs de fichiers à transférer de la mémoire à disque (13) au dispositif à bande (14) étant conservée dans une table de blocs (144b), à la laquelle sont ajoutés des articles lorsque la tâche de sauvegarde (143) transfère des blocs à la mémoire à disque (13) et de laquelle des articles sont supprimés lors du transfert de blocs de la mémoire à disque (13) au dispositif à bande (14). 10 15 20 25 30
 4. Communauté d'ordinateurs personnels selon la revendication 3, dans laquelle le processus de manipulation de bande (142) est agencé pour différer le transfert de blocs de fichiers contenus dans la mémoire à disque (13) au dispositif à bande (14) jusqu'à ce qu'une quantité minimale de données soit prête à être transférée, le processus de manipulation de bande (142) déterminant la quantité de données à transférer au dispositif à bande (14) en consultant la table de blocs (144b). 35 40 45
 5. Communauté d'ordinateurs personnels selon la revendication 2, dans laquelle, pour chaque ordinateur personnel (PC1-3), un répertoire de sauvegarde (30-33) de fichiers sauvegardés provenant de cet ordinateur (PC1-3) est maintenu dans la communauté, ce répertoire de sauvegarde (30-33) contenant de l'information indiquant la relation entre chaque bloc d'un fichier sauvegardé et sa position sur le support d'enregistrement du dispositif à bande (14). 50
 6. Communauté d'ordinateurs personnels selon la revendication 2, dans laquelle le poste central (10) est agencé pour traiter la restauration de fichiers à seulement un ordinateur personnel (PC1-3) à la fois, les blocs des fichiers sélectionnés pour la restauration étant lus sur le dispositif à bande (14) dans l'ordre où ils apparaissent sur la bande (14), de manière à faciliter le processus de lecture de la bande. 55
 7. Communauté d'ordinateurs personnels selon les revendications 5 et 6 prises ensemble, dans laquelle l'ordre d'apparition sur la bande (14) des blocs de fichiers à restaurer est déterminé, au moment de la restauration, par la consultation du répertoire de sauvegarde concerné, contenant l'information relative à la position des blocs de fichiers sur la bande.
 8. Communauté d'ordinateurs personnels selon la revendication 2, dans laquelle, pour chaque ordinateur personnel (PC1-3), un répertoire de sauvegarde (30-33) de fichiers sauvegardés provenant de cet ordinateur personnel (PC1-3) est maintenu dans cette communauté, l'agencement étant tel que lorsqu'il est dans son mode de restauration, chaque ordinateur personnel (PC1-3) a son répertoire de sauvegarde (30-33) présent et est opérationnel pour afficher le contenu de ce répertoire en vue de la sélection par l'utilisateur.
 9. Communauté d'ordinateurs personnels selon la revendication 2, dans laquelle, pour chaque ordinateur personnel (PC1-3), un répertoire de sauvegarde (30-33) de fichiers sauvegardés provenant de cet ordinateur personnel (PC1-3) est maintenu dans la communauté, le répertoire (30-33) pour chaque ordinateur personnel (PC1-3) contenant des données relatives à la version de chaque fichier sauvegardé; l'agencement étant tel que lorsqu'il est dans son mode de sauvegarde, chaque ordinateur personnel (PC1-3) a son répertoire de sauvegarde (30-33) présent et est opérationnel pour comparer l'information sur les fichiers du système d'exploitation sélectionnés pour être sauvegardés avec l'information contenue dans le répertoire de sauvegarde, et pour sauvegarder seulement les fichiers qui, soit n'apparaissent pas dans le répertoire de sauvegarde (30-33), soit ont des données de version différentes.
 10. Communauté d'ordinateurs personnels selon la revendication 8 ou 9, dans laquelle le poste central (10) est agencé pour conserver les répertoires de sauvegarde (30-33) dans la mémoire à disque (13), le poste central (10) étant

agence en outre pour transmettre une copie du répertoire de sauvegarde (30-33) se rapportant à un ordinateur personnel (PC1-3) particulier à cet ordinateur personnel (PC1-3) lorsqu'il en reçoit la demande de celui-ci, et chaque ordinateur personnel (PC1-3) étant opérationnel pour demander au poste central (10) de lui faire parvenir le répertoire de sauvegarde (30-33) se rapportant à lui au cas où ce répertoire n'est pas présent dans l'ordinateur personnel lorsqu'il doit fonctionner dans le mode nécessitant la présence de son répertoire de sauvegarde (30-33).

11. Communauté d'ordinateurs personnels selon la revendication 10, dans laquelle la demande émanant d'un ordinateur personnel (PC1-3) pour une copie de son répertoire de sauvegarde (30-33) est traitée par le poste central (10) avec priorité par rapport à toutes opérations de sauvegarde ou de restauration éventuellement en cours.

Patentansprüche

1. Eine Personal-Computer-Gemeinschaft mit einer Mehrzahl von unabhängig betreibbaren Personal-Computern (PC 1-3), einer Zentralstation (10) und einer Übertragungsanordnung (11) für die Datenübertragung zwischen jedem Personal-Computer (PC 1-3) und der Zentralstation (10), wobei jeder Personal-Computer (PC 1-3) angeordnet ist, um unter einem auf einer Datei basierenden Betriebssystem zum Speichern und Wiedergewinnen von Arbeitsdateien von einem nicht-flüchtigen Speicherbereich (16), der dem Personal-Computer zugeordnet ist, betrieben zu werden, wobei das Betriebssystem ein Verzeichnis der Dateien aufrechterhält und wobei zur Schaffung einer Dateisicherungsmöglichkeit für die Personal-Computer folgendes vorgesehen ist:

- die Zentralstation (10) hat ein Massenspeichergerät (14),
- jeder Personal-Computer (PC 1-3) ist betreibbar
 - a) in einer Sicherungsbetriebsart, um eine Anwenderauswahl von Dateien für die Sicherung und für die Übertragung der ausgewählten Dateien zu der Zentralstation (10) zu ermöglichen, und
 - b) in einer Umspeicherbetriebsart, um eine Anwenderauswahl von Dateien für eine Umspeicherung von der Sicherung zu ermöglichen, um die für die Umspeicherung ausgewählten Dateien von der Zentralstation (10) anzufordern und zu

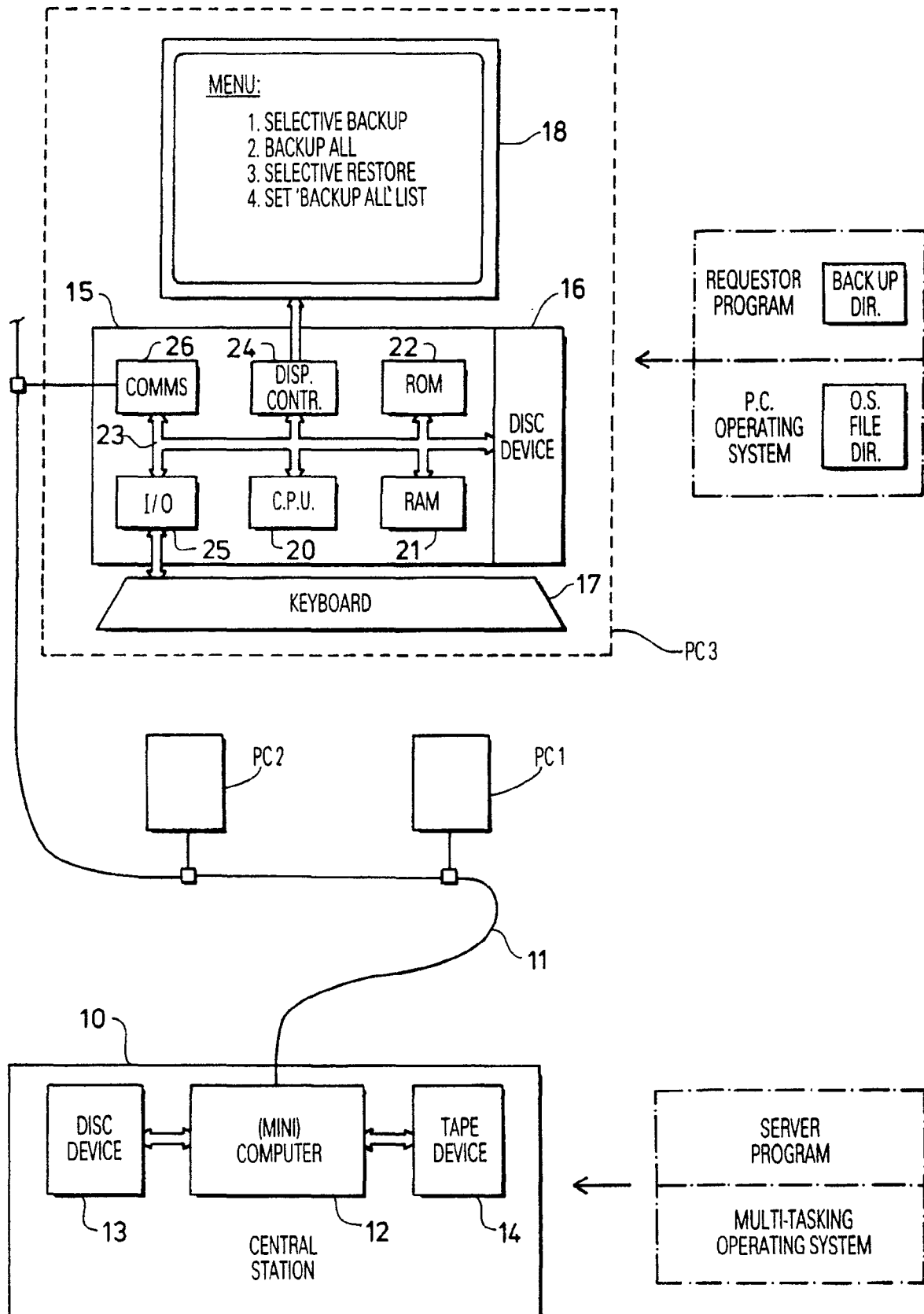
empfangen, und um das Betriebssystem-Dateiverzeichnis mit einem Eingang entsprechend einer jeden umgespeicherten Datei auf den neuesten Stand zu bringen; und

- die Zentraleinheit (10) ist angeordnet, um die zu dieser übertragenen Dateien in dem Massenspeichergerät (14) zu speichern und um ausgewählte Dateien bei Anforderung zurückzuschicken;

wobei die Zentralstation (10) einen Parallelverarbeitungs-Computer aufweist, dadurch gekennzeichnet, daß dieser betreibbar (12) ist, um die Dateisicherungsanforderungen der mehreren Personal-Computer (PC 1-3) gleichzeitig zu handhaben und um die Dateien zu dem Massenspeichergerät (14) in der Zentralstation (10) in der Form von Blöcken von Daten von vorbestimmter maximaler Größe zu übertragen, wobei die Zentralstation (10) bei der gleichzeitigen Rücksicherung für verschiedene Personal-Computer Blöcke der Dateien von unterschiedlichen Personal-Computern (PC 1-3) verschachtelt.

2. Eine Personal-Computer-Gemeinschaft gemäß Anspruch 1, bei der das Massenspeichergerät ein Bandgerät (14) ist, wobei die Zentralstation (10) ferner ein Plattenspeichergerät (13) zum Puffern der Dateiblockübertragung zu dem Bandgerät (14) umfaßt.
3. Eine Personal-Computer-Gemeinschaft gemäß Anspruch 2, bei der die Zentralstation (10) für jeden Personal-Computer (PC 1-3), der eine Sicherung erfordert, betreibbar ist, um eine jeweilige Sicherungsanforderung (143) zum Empfangen von Dateiblocken von dem Personal-Computer und zum Übertragen derselben zu dem Plattenspeichergerät (13) zu bearbeiten, wobei die Zentralstation (10) ferner betreibbar ist, um einen Bandhandhabungsprozeß (142) zum Übertragen von Dateiblocken von dem Plattenspeichergerät (13) zu dem Bandgerät (14) zu verarbeiten, wobei die Identität der Dateiblocke, die von dem Plattengerät (13) zu dem Bandgerät (14) zu übertragen sind, in einer Blocktabelle (144B) gehalten wird, zu der Eingänge zugefügt werden, wenn die Sicherungsanforderung (143) Blöcke zu dem Plattengerät (13) überträgt und von der Eingänge beseitigt werden, wenn die Blöcke von dem Plattengerät (13) zu dem Bandgerät (14) übertragen werden.
4. Eine Personal-Computer-Gemeinschaft gemäß Anspruch 3, bei der der Bandhandhabungspro-

- zeß (142) angeordnet ist, um eine Übertragung von Dateiblöcken, die auf dem Plattengerät (13) gespeichert sind, zu dem Bandgerät (14) zu verzögern, bis eine minimale Datenmenge für die Übertragung bereitsteht, wobei der Bandhandhabungsprozeß (142) die zu übertragende Datenmenge zu dem Bandgerät (14) durch Bezugnahme auf die Blocktabelle (144B) sicherstellt.
5. Eine Personal-Computer-Gemeinschaft gemäß Anspruch 2, bei der für jeden Personal-Computer (PC 1-3) ein Sicherungsverzeichnis (30-33) der von dem Computer (PC 1-3) gesicherten Dateien innerhalb der Gemeinschaft aufrechterhalten wird, wobei das Sicherungsverzeichnis (30-33) Informationen bezüglich jedes Dateiblockes einer gesicherten Datei bezüglich ihrer Lage auf dem Bandspeichermedium des Gerätes (14) umfaßt.
 6. Eine Personal-Computer-Gemeinschaft gemäß Anspruch 2, bei der die Zentralstation (10) angeordnet ist, um eine Dateiumspeicherung zu einem einzigen Personal-Computer (PC 1-3) zu einem Zeitpunkt zu handhaben, wobei die Dateiblöcke der ausgewählten Dateien für die Umspeicherung von dem Bandgerät (14) in der Reihenfolge ausgelesen werden, in der sie auf dem Band (14) auftreten, um dadurch den Bandausleseprozeß zu erleichtern.
 7. Eine Personal-Computer-Gemeinschaft gemäß Anspruch 5 und 6 in Kombination miteinander, bei der die Reihenfolge des Auftretens der umzuspeichernden Dateiblöcke auf dem Band (14) zu dem Zeitpunkt der Umspeicherung durch Bezugnahme auf das relevante Sicherungsverzeichnis ermittelt wird, welches Informationen über die Bandlage der Dateiblöcke enthält.
 8. Eine Personal-Computer-Gemeinschaft gemäß Anspruch 2, bei dem innerhalb der Gemeinschaft für jeden Personal-Computer (PC 1-3) ein Sicherungsverzeichnis (30-33) der von diesem Personal-Computer (PC 1-3) gesicherten Dateien aufrechterhalten wird, wobei die Anordnung derart ist, daß jeder Personal-Computer (PC 1-3) bei seiner Umspeicherungsweise sein Sicherungsverzeichnis (30-33) vorliegen hat und betätigbar ist, um die Inhalte desselben für den Anwender zur Auswahl anzuzeigen.
 9. Eine Personal-Computer-Gemeinschaft gemäß Anspruch 2, bei der für jeden Personal-Computer (PC 1-3) ein Sicherungsverzeichnis (30-33) von Dateien, welche von diesem Personal-Computer (PC 1-3) gesichert sind, innerhalb der Gemeinschaft aufrechterhalten wird, wobei das Verzeichnis (30-33) für jeden Personal-Computer (PC 1-3) für jede gesicherte Datei Daten bezüglich der Version aufweist; wobei die Anordnung derart ist, daß jeder Personal-Computer (PC 1-3) während seiner Sicherungsbetriebsart sein Sicherungsverzeichnis (30-33) vorliegen hat und betätigbar ist, um Informationen auf Betriebssystem-Dateien, welche zur Sicherung ausgewählt sind, mit Informationen in dem Sicherungsverzeichnis (30-33) zu vergleichen und um lediglich solche Dateien zu sichern, die entweder nicht in der Sicherungsdatei (30-33) erscheinen oder abweichende Daten bezüglich der Version haben.
 10. Eine Personal-Computer-Gemeinschaft gemäß Anspruch 8 oder 9, bei der die Zentralstation (10) angeordnet ist, um die Sicherungsverzeichnisse (30-33) auf dem Plattengerät (13) zu halten, wobei die Zentralstation (10) ferner angeordnet ist, um eine Kopie des Sicherungsverzeichnisses (30-33), das für einen speziellen Personal-Computer (PC 1-3) relevant ist, zu diesem Personal-Computer (PC 1-3) auf dessen Anforderung hin weiterzuleiten, und daß jeder Personal-Computer (PC 1-3) für eine Anforderung an die Zentralstation (10) betätigbar ist, so daß diese das relevante Sicherungsverzeichnis (30-33) weiterleitet, wo das letztgenannte nicht in dem Personal-Computer gegenwärtig ist und wo dieser in der Betriebsart zu betätigen ist, die das Vorliegen seines Sicherungsverzeichnisses (30-33) erfordert.
 11. Eine Personal-Computer-Gemeinschaft gemäß Anspruch 10, bei der die Anforderung von einem Personal-Computer (PC 1-3) für eine Kopie seines Sicherungsverzeichnisses (30-33) durch die Zentralstation (10) prioritätsmäßig bevorzugt gegenüber jeglichen momentanen Sicherungsoder Umspeicherungs-Operationen behandelt wird.



DRIVE A:

FIG 2

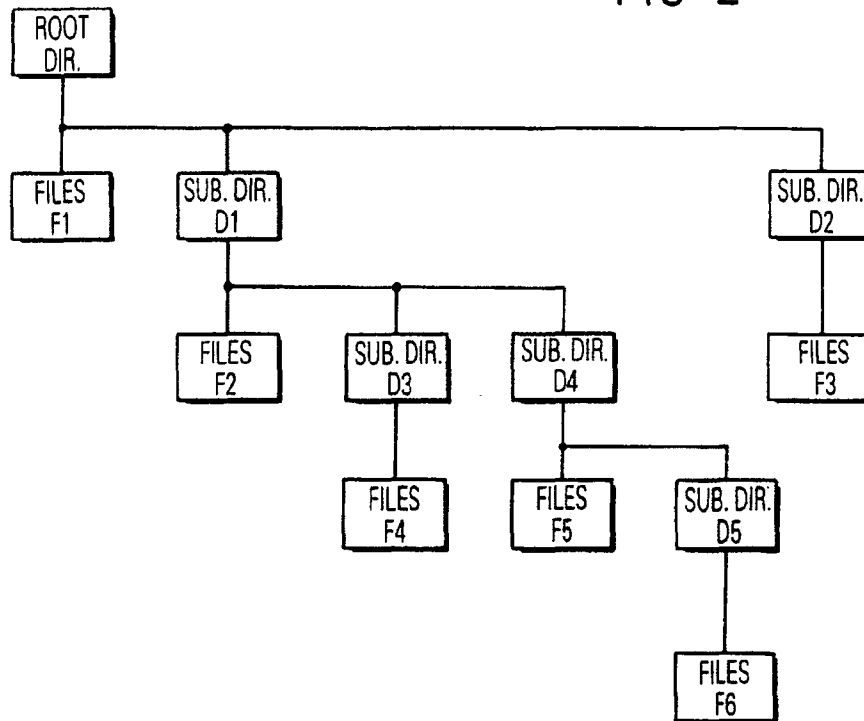


FIG 5

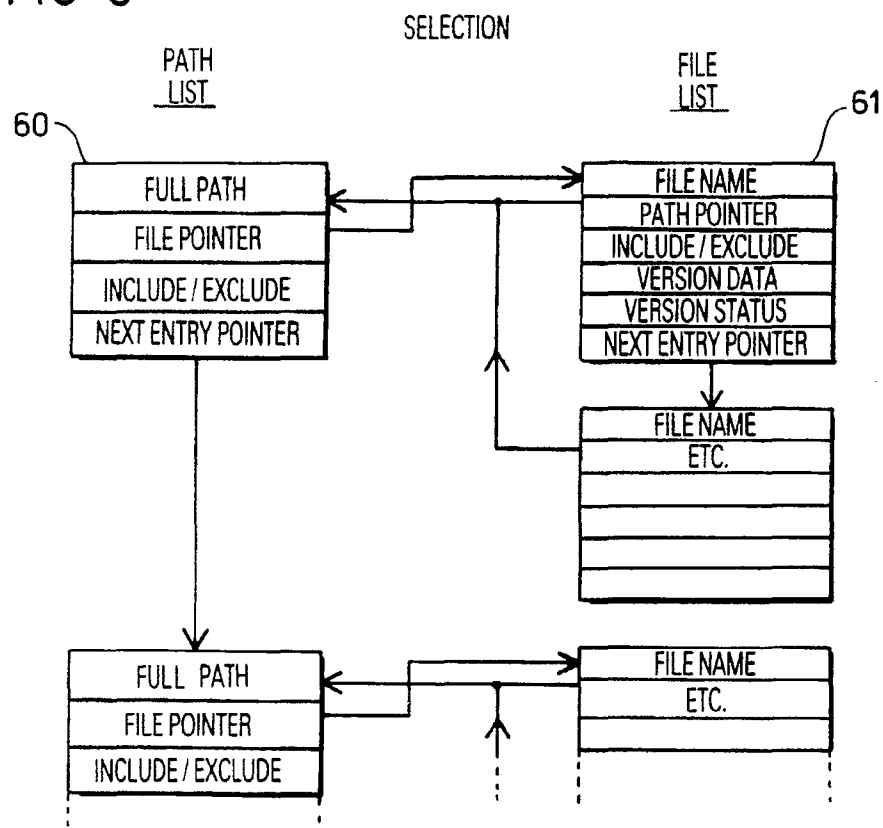


FIG 3

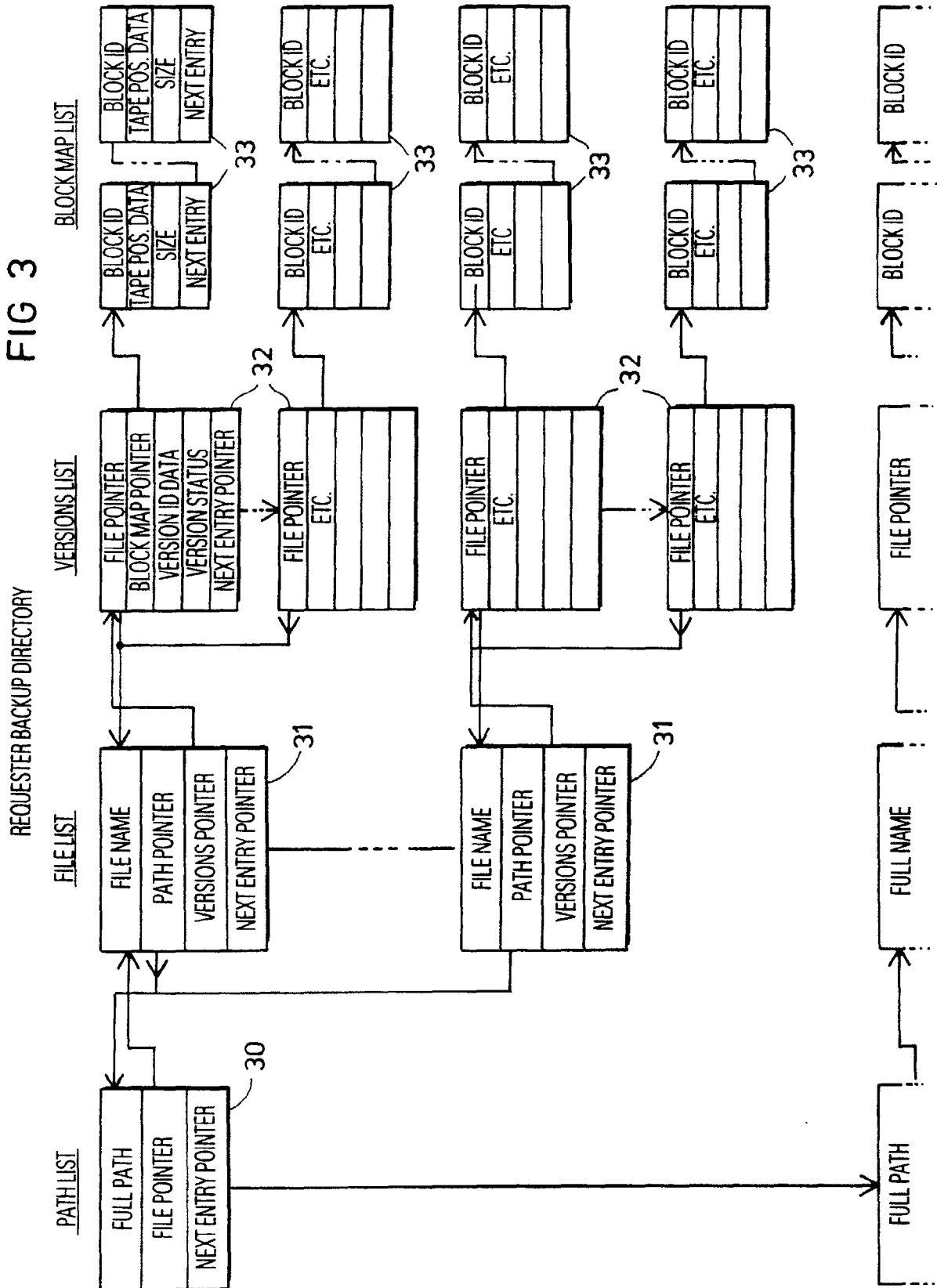


FIG 4

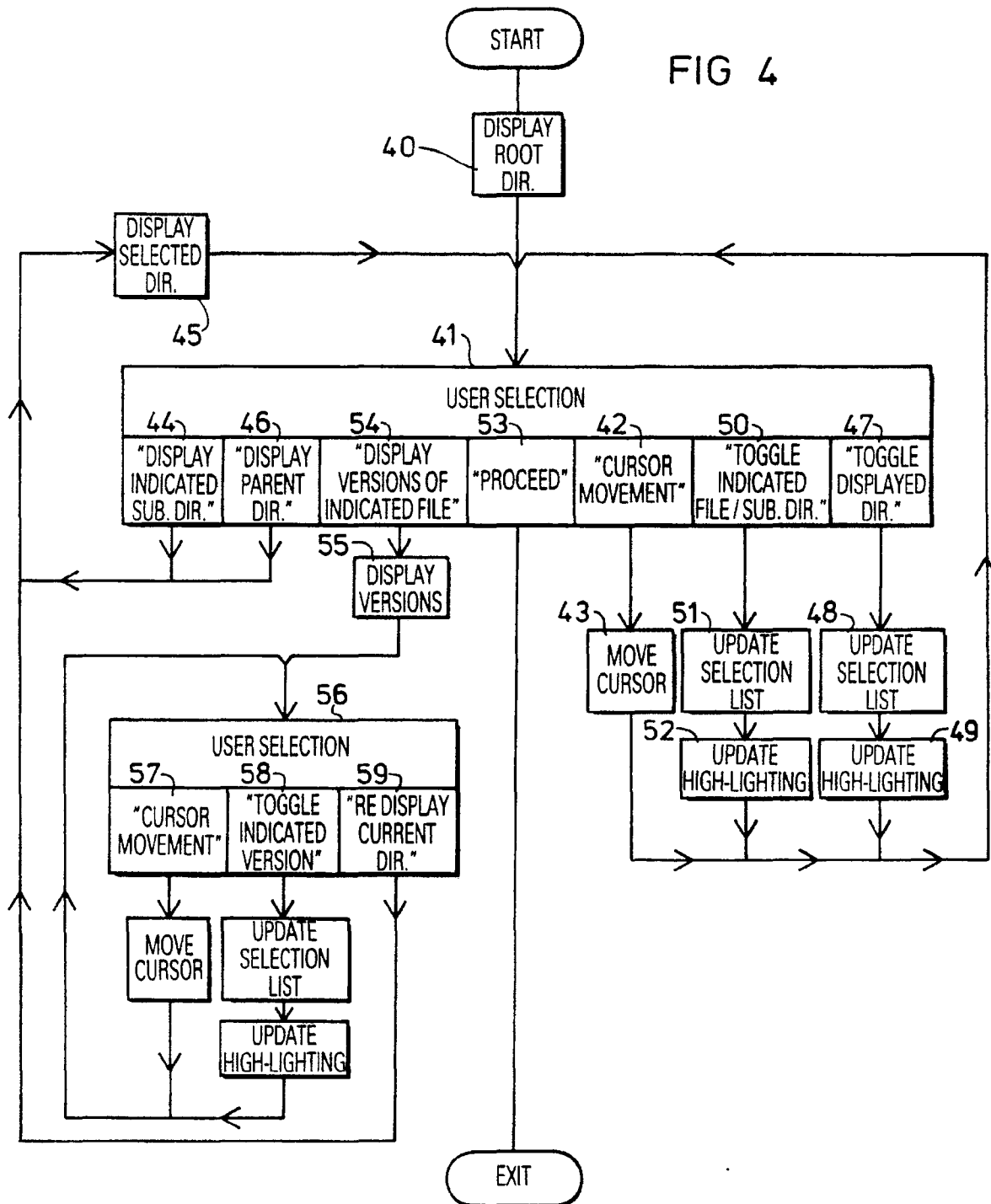


FIG 6

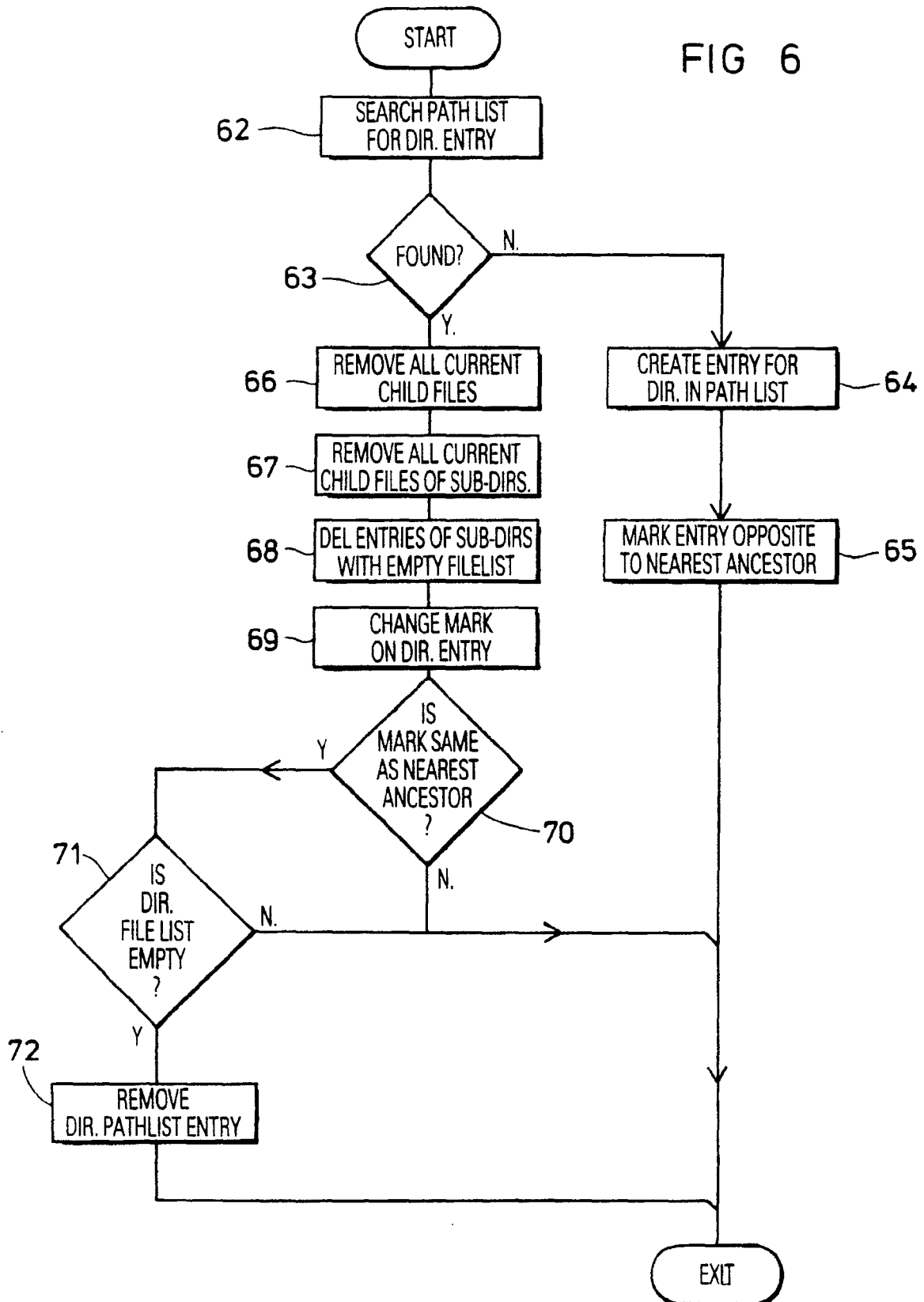


FIG 7

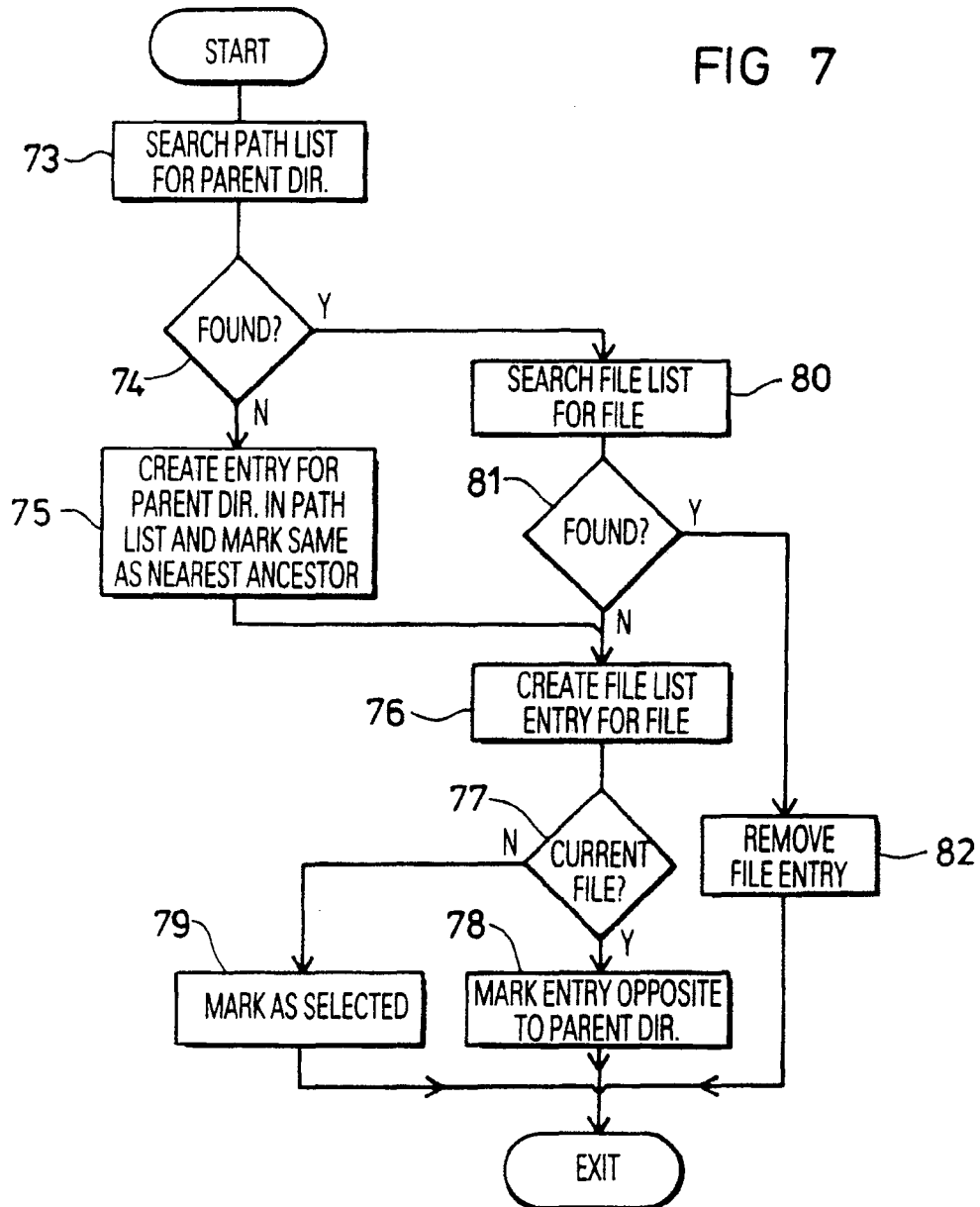
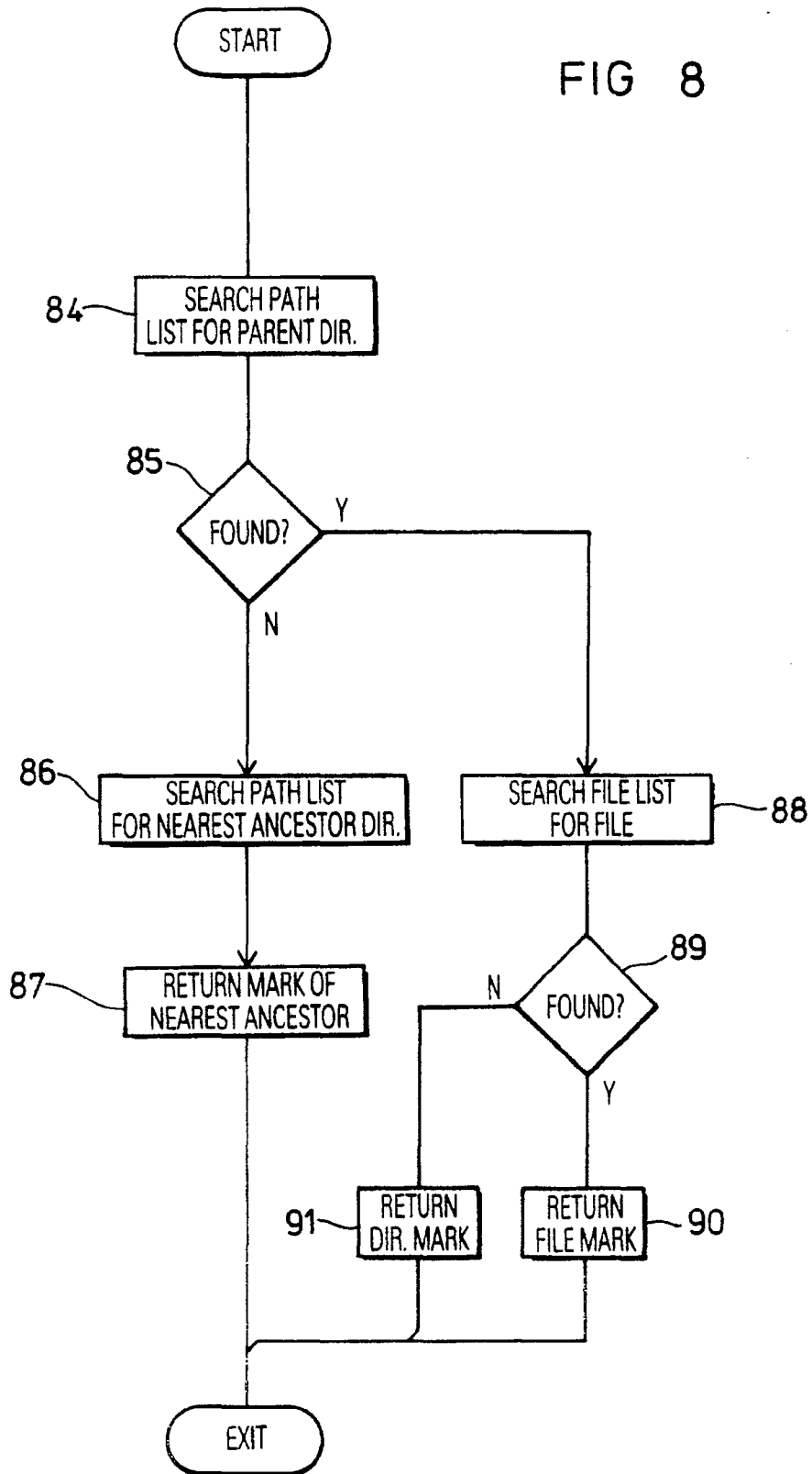
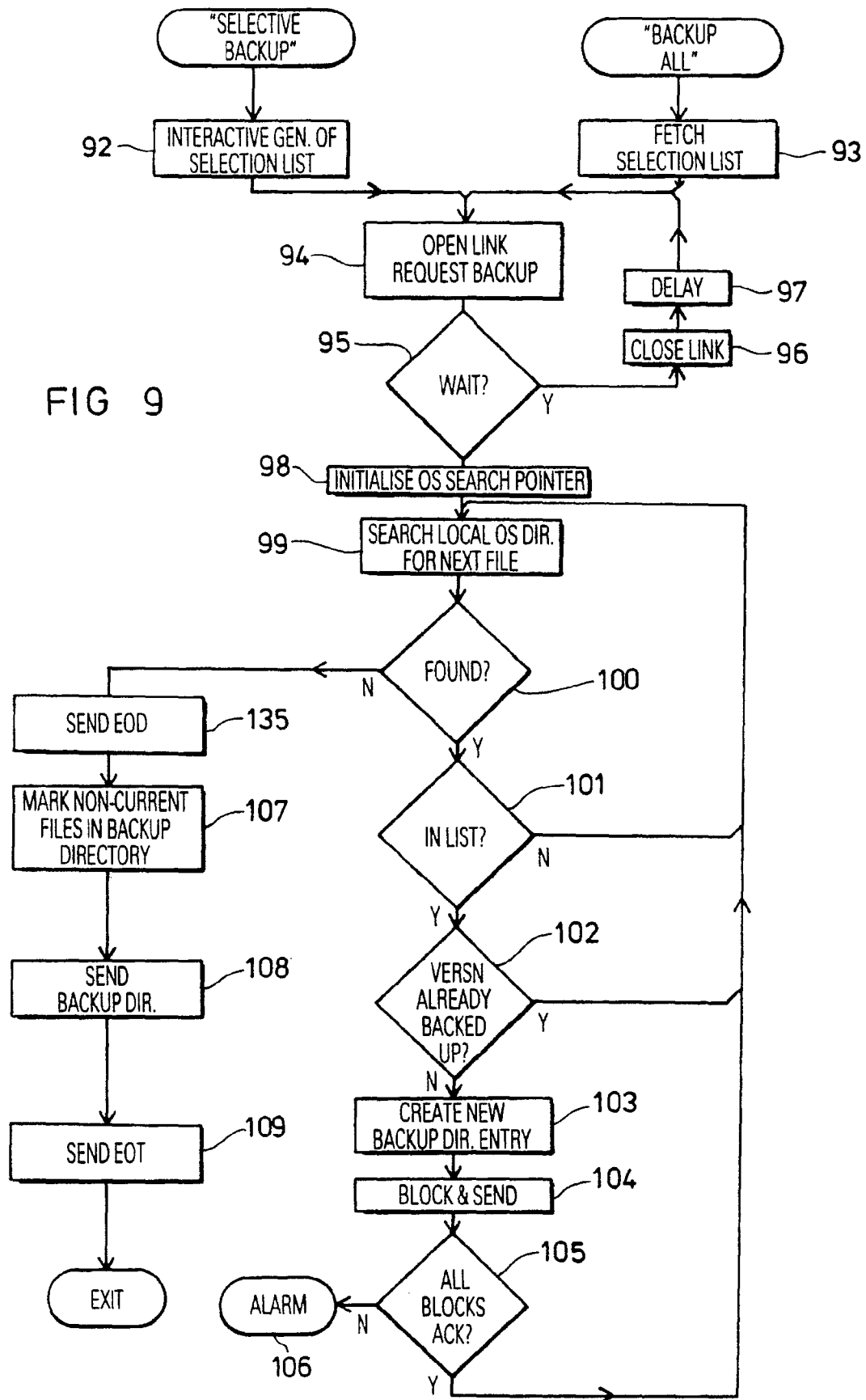


FIG 8





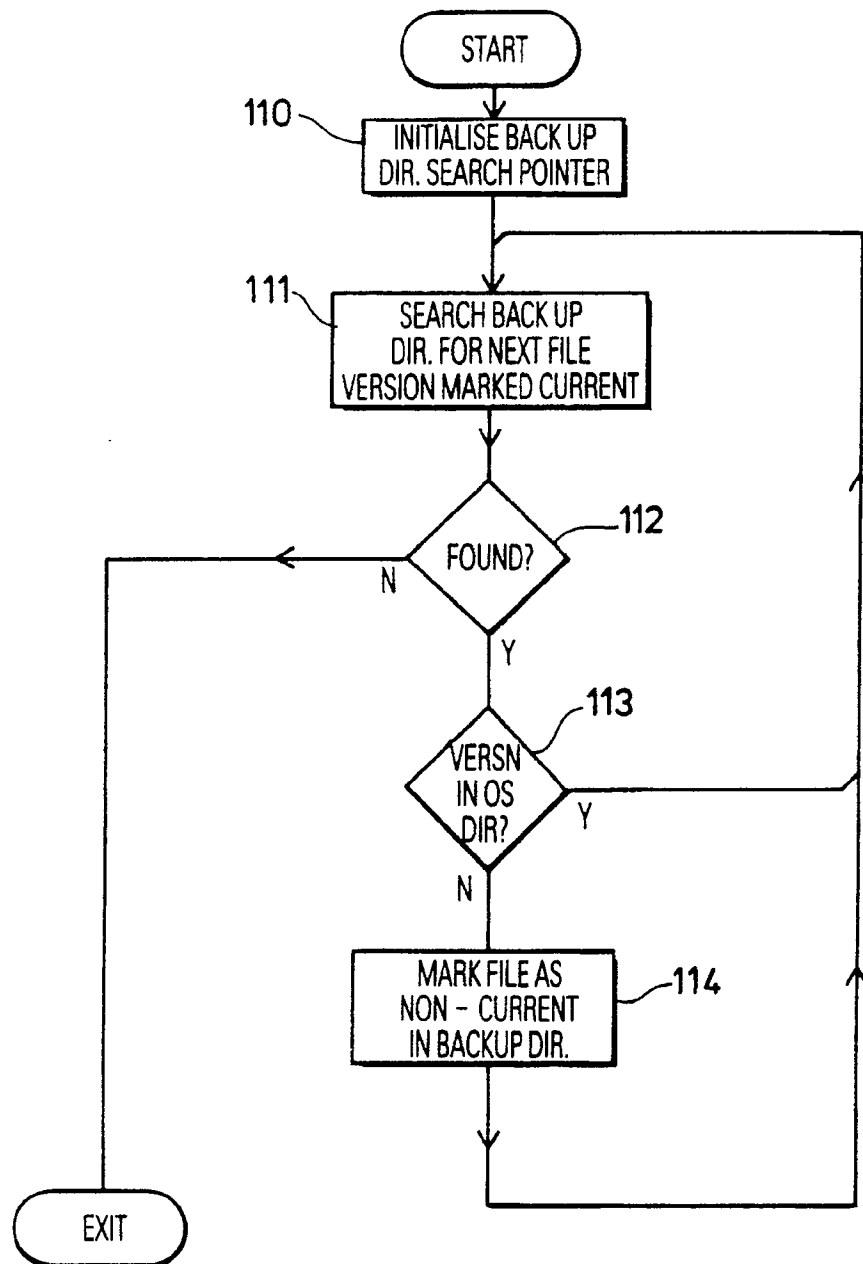
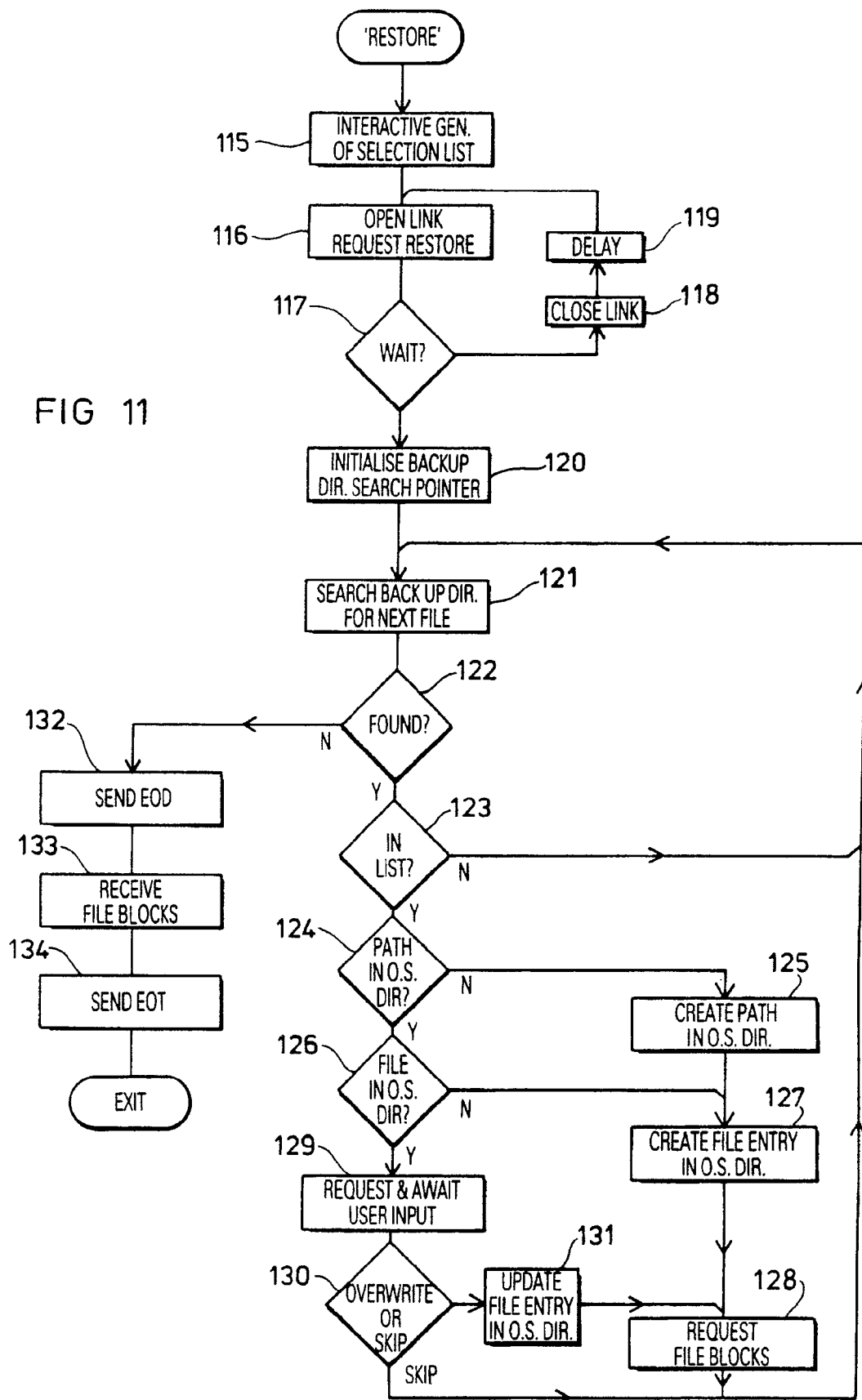
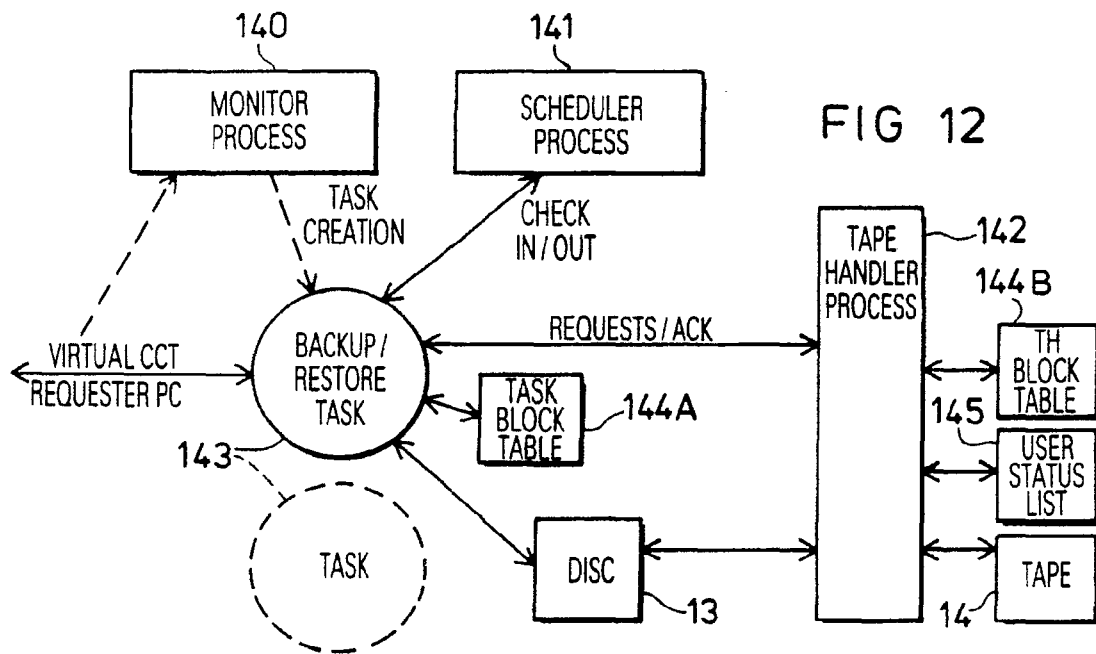
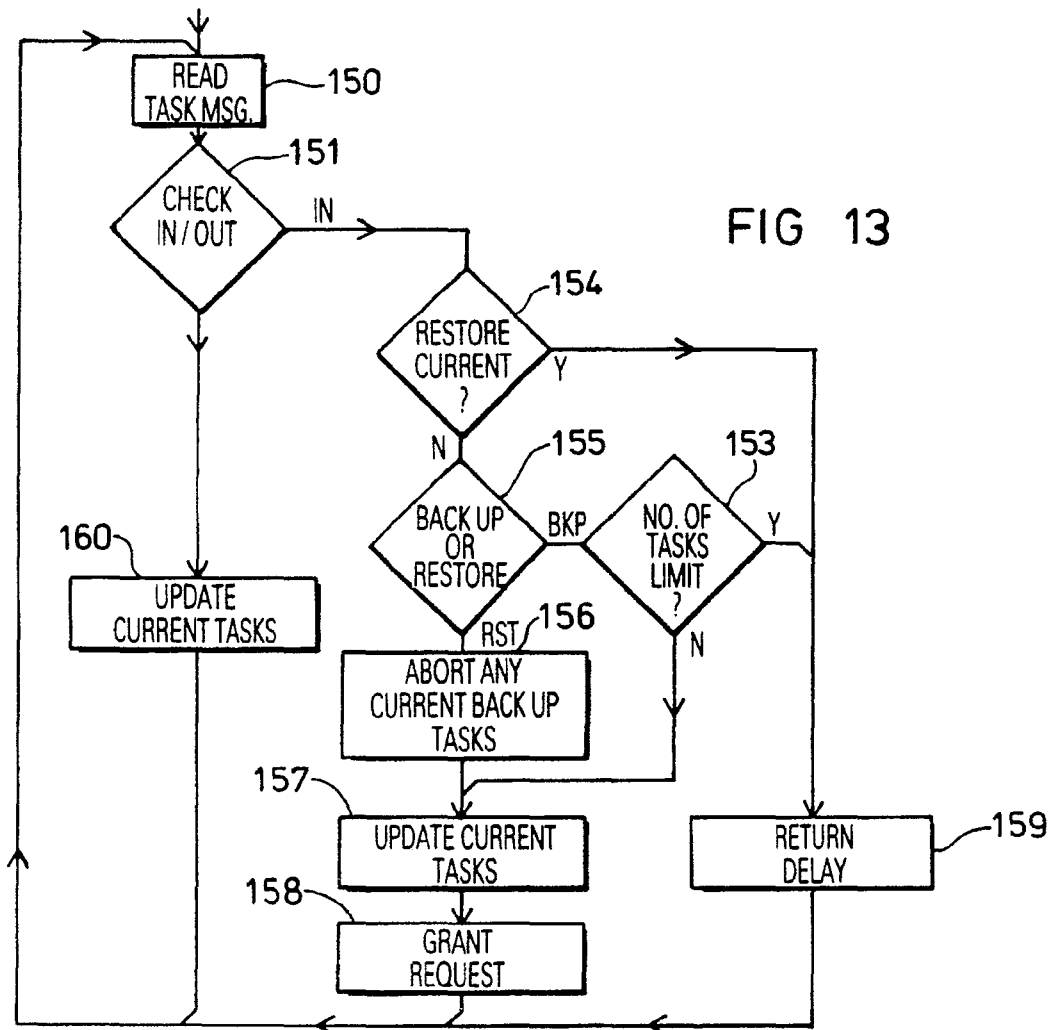


FIG 10

FIG 11





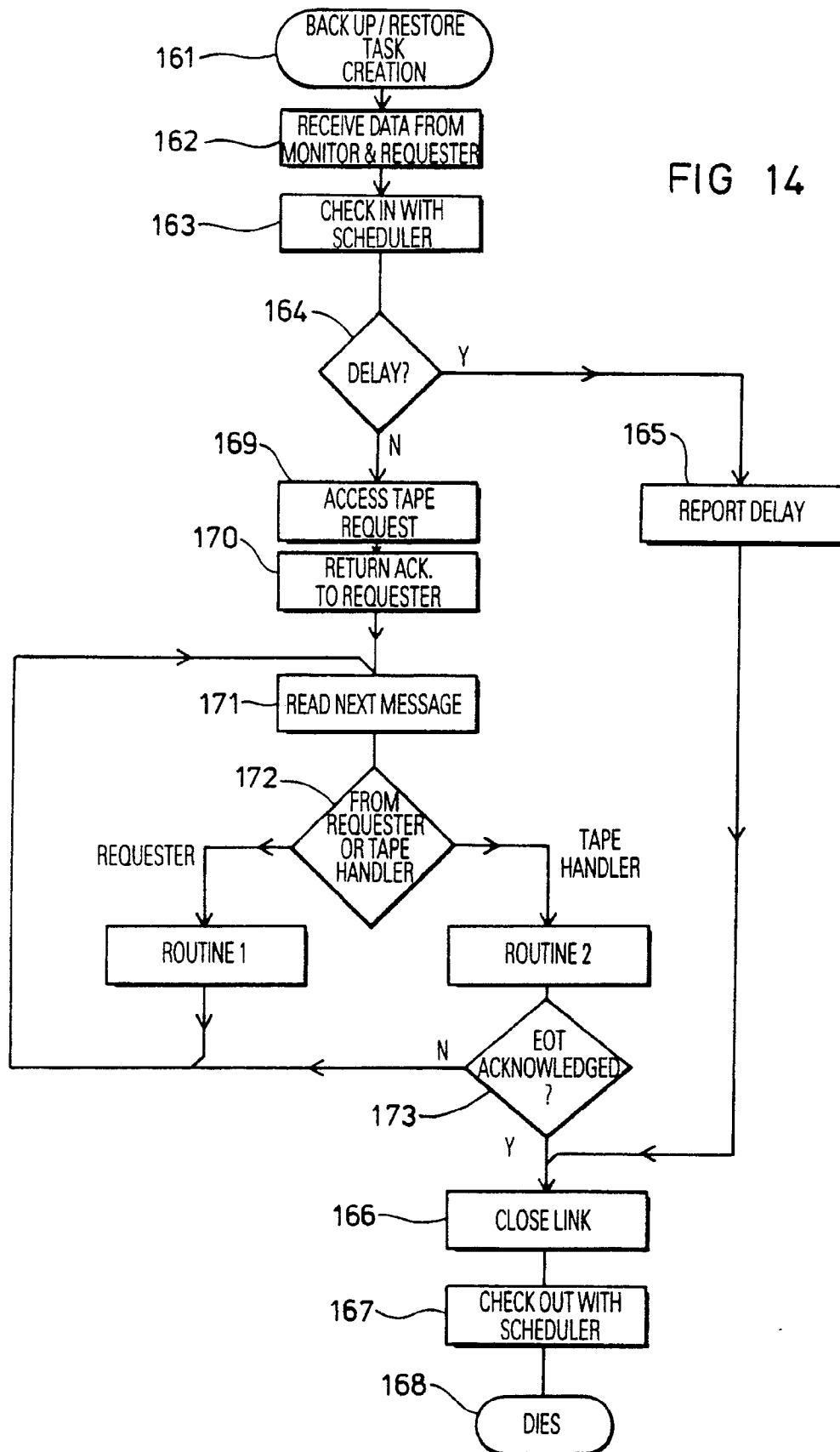
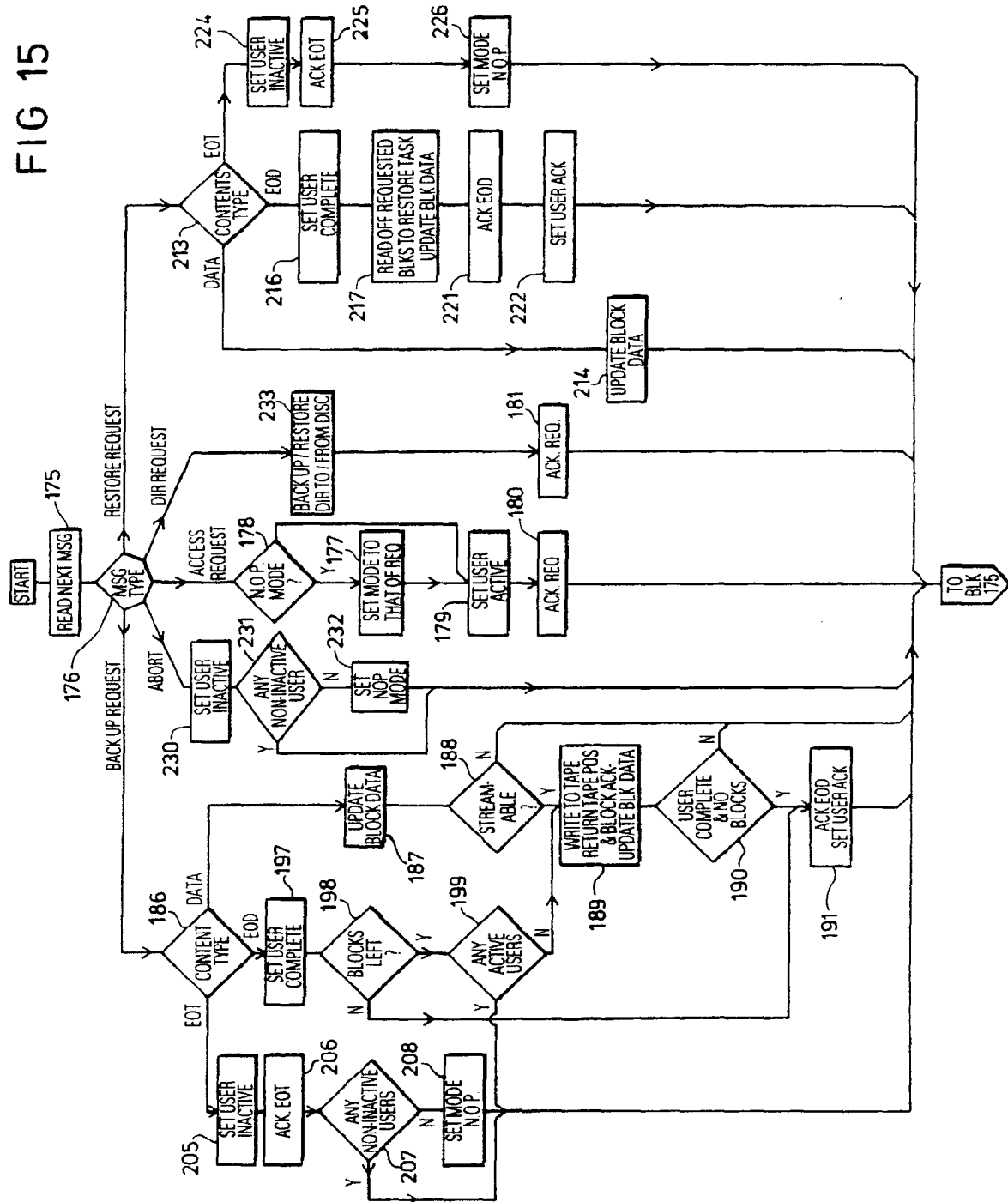


FIG 15



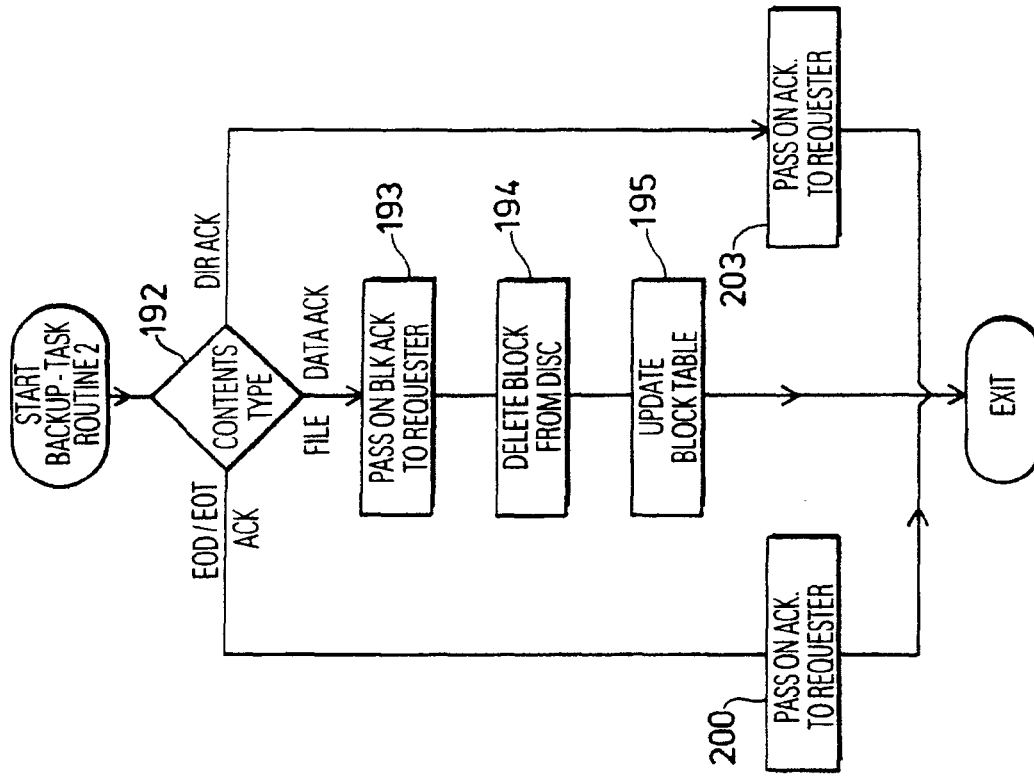


FIG 16B

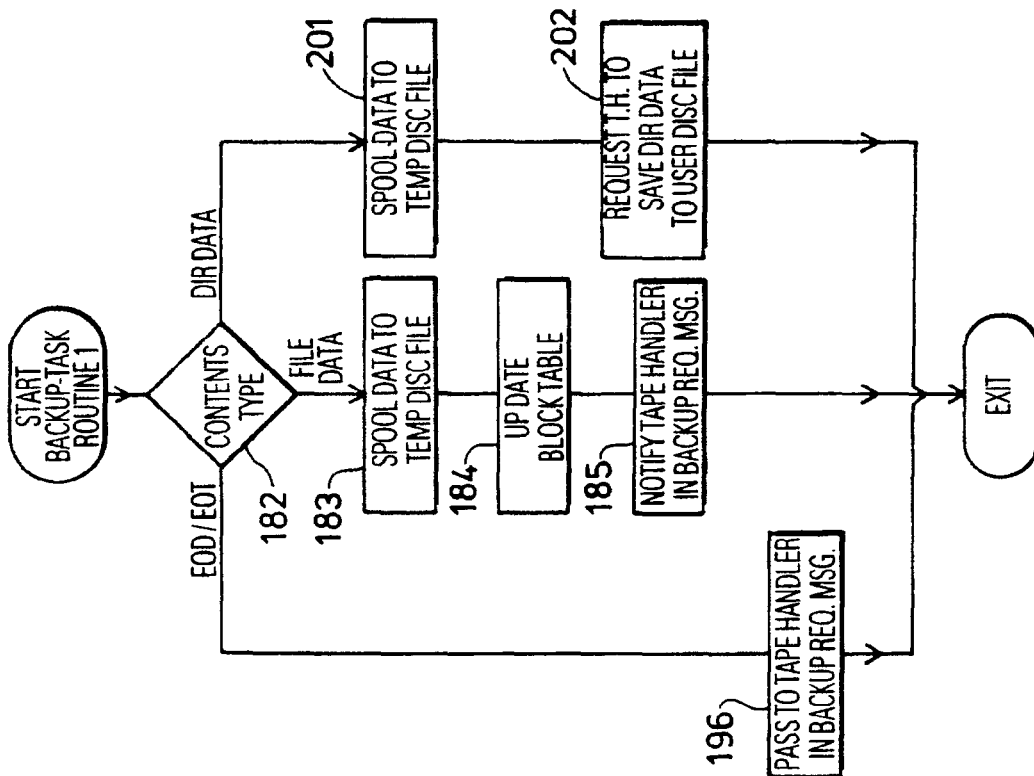


FIG 16A

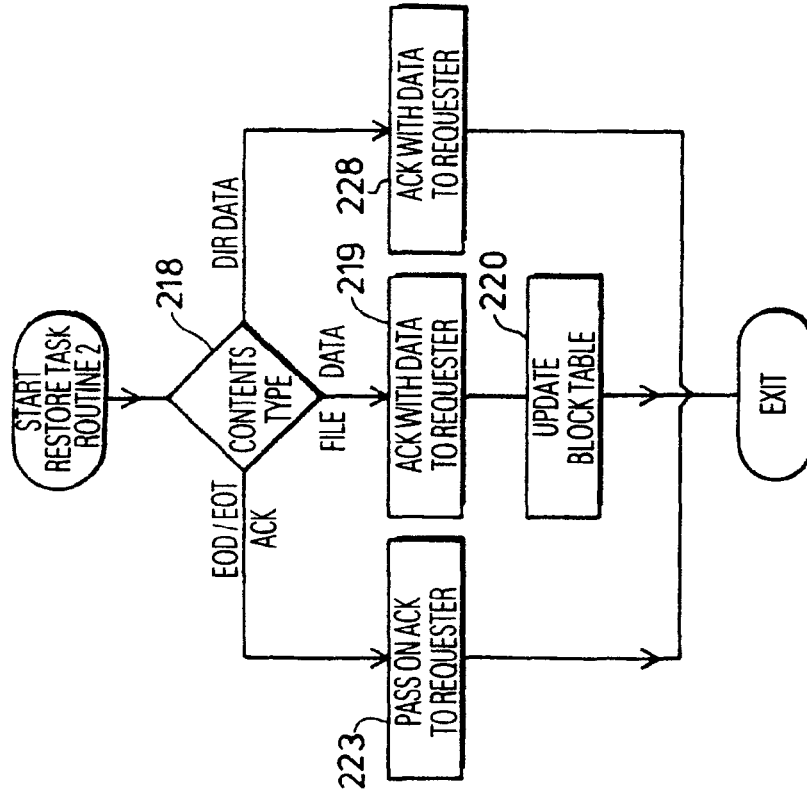


FIG 17B

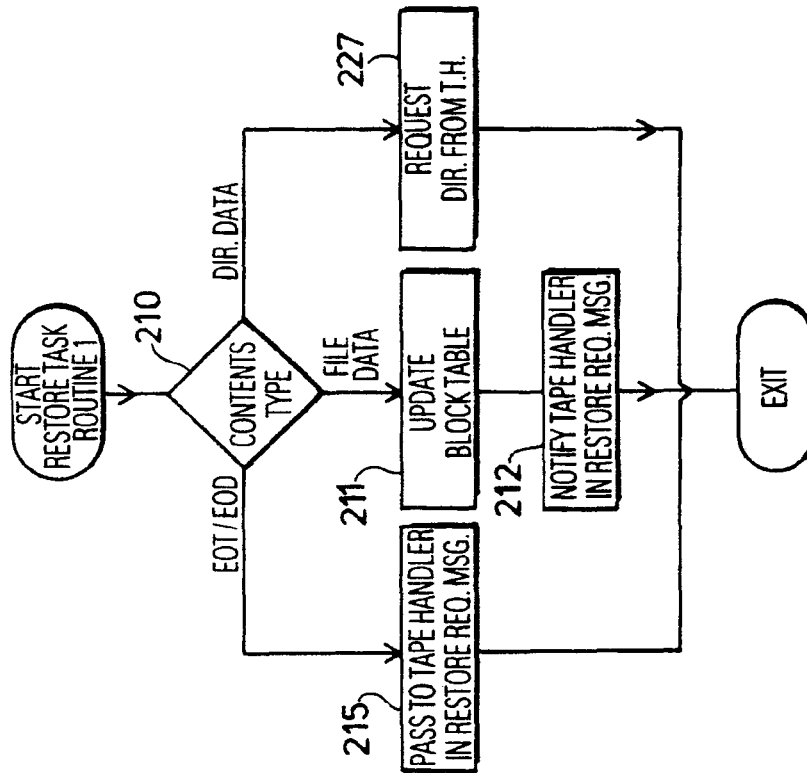


FIG 17A

Electronic Acknowledgement Receipt

EFS ID:	27594207
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	104600
Filer:	Scott Joseph Hawranek/Sherri Weisbeck-Raslich
Filer Authorized By:	Scott Joseph Hawranek
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	23-NOV-2016
Filing Date:	15-DEC-2015
Time Stamp:	13:04:12
Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	2016-11-22_IDS_Transmittal.pdf	261571	no	2
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Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	2016-11-22_IDS.pdf	615500	no	12
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3	Foreign Reference	EP259912.pdf	2316431	no	37
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4	Non Patent Literature	1995_PDC_Budtool_Live_Available_On_Solaris_Solaris_Port_Will_Bring_Safe_Live_Backup.pdf	92246	no	2
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5	Non Patent Literature	1992_De_Silva_Performance_Parallel_Network_Backup_Manager.pdf	1122981	no	9
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9	Non Patent Literature	1998_Sixth_Goddard_Coference_Mass_Storage_Systems_Technologies_2_.pdf	21114661	no	100
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16	Non Patent Literature	1991_Shumway_Issues_Online_Backup.pdf	851080 ecb35f013528bc166481f26b07415fcd5b38b404	no	8
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	Filing Date	2015-12-15	
	First Named Inventor	ROACH et al.	
	Art Unit	2154	
	Examiner Name	Hosain T Alam	
Total Number of Pages in This Submission	14	Attorney Docket Number	6982-2-CON-1

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Date	2016-11-22	Reg. No.	52411

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	27594574
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	104600
Filer:	Scott Joseph Hawranek/Sherri Weisbeck-Raslich
Filer Authorized By:	Scott Joseph Hawranek
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	23-NOV-2016
Filing Date:	15-DEC-2015
Time Stamp:	13:05:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	1997_Van_Meter_VISA_Netstat ions_Virtual_Internet_SCSI_Ad apter.pdf	342975 18c23fbd68e82a576a3b2043db8120e113d 5fe46	no	8

Warnings:

Information:					
2	Non Patent Literature	2003_Zwicky_Further_Torture_More_Testing_BACKup_Archive_Programs.pdf	975892	no	8
			f603e5cb4af96f86a348237304297dc5a14088f7		
Warnings:					
Information:					
3	Non Patent Literature	1984_Tichy_RCS_System_Version_Control.pdf	1672090	no	19
			621e9cd2741c10fa8f4447ecd9b700b007512a0f		
Warnings:					
Information:					
4	Non Patent Literature	1992_Kistler_Disconnected_Operation_in_the_Coda_File_System.pdf	4427120	no	23
			190b050ebc751a4c80daf85a1f6bd0dddf8b1724		
Warnings:					
Information:					
5	Non Patent Literature	1993_Kistler_Disconnected_Operation_in_a_Distributed_File_System.pdf	1249699	no	270
			a30e2b7f5d55868f0a2fdf253ca1d07dc4f16a58		
Warnings:					
Information:					
6	Non Patent Literature	1997_Munson_Sync_Java_Framework_Mobile_Collaborative_Applications.pdf	2879222	no	8
			e111c64db71209036eb11e93465190dfa2a12693		
Warnings:					
Information:					
7	Non Patent Literature	1993_Satyanarayanan_Experience_with_Disconnected_Operation_in_a_Mobile_Computing_Environment.pdf	7120859	no	21
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Information:					
8	Non Patent Literature	1990_Satyanarayanan_Coda_Highly_Available_File_System_Distributed_Workstation_Environment.pdf	449392	no	13
			d7cc2fc13d8909c3f8b31bb538e2bd5479d7e9ac		
Warnings:					
Information:					

9	Non Patent Literature	2000_Introducing_Filo_and_Sy nc.pdf	714225	no	5
			7feee3c74095e497e003588048d51a13b79 df7d9		
Warnings:					
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Total Files Size (in bytes):				19831474	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1	8673
104600	7590	01/31/2019	EXAMINER	
ASPIRE IP			TO, BAOQUOC N	
444 East Pikes Peak Avenue				
Suite 105				
Colorado Springs, CO 80903				
			ART UNIT	PAPER NUMBER
			2154	
			NOTIFICATION DATE	DELIVERY MODE
			01/31/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPTOMAIL@aspireip.com
scott@aspireip.com
sherri@aspireip.com

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Parent Data

14970044, filed 12/15/2015 is a continuation of 13925768, filed 06/24/2013 ,now U.S. Patent #9218348 and having 1 RCE-type filing therein

13925768 is a continuation of 09957459, filed 09/21/2001 ,now U.S. Patent #8473478

09957459 Claims Priority from Provisional Application 60234221, filed 09/21/2000

Child Data

15789788, filed on 10/20/2017 is a continuation of 14970044 , filed on 12/15/2015

15789841, filed on 10/20/2017 is a continuation of 14970044 , filed on 12/15/2015

Preliminary Amendment

1. Applicant(s) amend as follow:

Claims original filed: 1-51

Claims newly added: 52-72

Claims pending: 52-72

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 11/12/2015. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Specification

3. The abstract of the disclosure is objected to because abstract does not represent the claimed invention. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 52-72 are rejected under 35 U.S.C. 101 because the claimed invention is directed to abstract idea without significantly more. The claim(s) recite(s) the steps of presenting the list of versions which retrieved from the attached storage and internet storage, allowing user previewing the different versions of the backup file based on the accessed file and choosing the file to restore either based on the accessing file or a file. This judicial exception is not integrated into a practical application because the system include general idea of selecting the file to be store from the backup data either from the internet storage and/or network attached storage and setting the restore version as the current version for the use. The claim(s) 52-72 does/do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the system is known in the arts as one user can pull up a name of a file if corrupted or in accessible by some reason. A person decrypts and restores different version regardless whether it is coming from network attached storage and/or internet storage as disclosed by whiting et al. (Patent No. 5,778,395) and Crawford (Patent No. 5,771,356).

Claims are rejected under 35 U.S.C. 101 because the claimed invention is directed to abstract without significantly more. The claim(s) recite(s). The claim(s) 52-72 does/do not include additional elements that are sufficient to amount to significantly more than the judicial exception

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the

first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

5. Claims 52-72 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 9,218,348 of U.S. Patent No. 1-31. Although the claims at issue are not identical, they are not patentably distinct from each other because the 348 is the application which captured operating files and stored on secondary or internet storage and instant application using the captured files were used to restore the application. Although, there are differences in claims language; however, the purpose of this application restore the captured file.

6. Claims 52-72 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 8,473,478 of U.S. Patent No. 1-11. Although the claims at issue are not identical, they are not patentably distinct from each other because the 348 is the application which captured operating files and stored on secondary or internet storage and instant application using the captured files were used to restore the application. Although, there are differences in claims language; however, the purpose of this application restore the captured file.

Claim Rejections - 35 USC § 103

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
7. Claims 52-69 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Whiting et al. (Patent No. US 5,778,395).

1-51. (Cancelled)

As to claim 52. (New) Whiting discloses a method of restoring a file to a previous version of the file, a current version of the file being available at a local storage location, comprising the steps of:

(A) presenting information for a collection of one or more previous versions of the file, the information for the collection including information indicative of at least one or more of previous versions of the file, wherein a restorable representation of each version, V, of the previous versions, is retrievable from a remote storage location, the restorable representation having at least information required for recovering the version V by a computational machine with the current version being accessible, the remote storage location being accessible through a network (the user is presented with the list of previous backup operations, each identified with the backup time, date and descriptions (e.g., from the user backup log file such as 150)) (col. 31, lines 52-55);

(B) responsive to a selection to preview a selected previous version of the file based on the presented information for the collection of (A), presenting a presentable representation of the selected previous version, the selected previous version being one of the previous versions of the file in the presented information for the collection, the presentable representation having at least information required for presenting at least a portion of the selected previous version by the computation machine with the current version being accessible (from which the selects the desired backup set) (col. 31, line 56); and

(C) responsive to a selection to restore the selected previous version, retrieving the restorable representation of the selected previous version from the remote storage location (the restore software retrieve the file contents from the backup data) (col. 32, lines 1-3) excepting storing the selected previous version by the computational machine as the current

version on the local storage location, the selected previous version available from the restorable representation of the selected previous version. However, Whiting discloses storing the selected previous version by the computational machine as the current version on the local storage location, the selected previous version available from the restorable representation of the selected previous version (it also works around the common problem of inadvertently over-writing the current version of a file from a backup set using a conventional restore program) (col. 32, lines 33-35). Therefore, it would have been obvious to one ordinary skill in the art before the effective filing date of the instant application to include storing the selected previous version by the computational machine as the current version on the local storage location, the selected previous version available from the restorable representation of the selected previous version as disclosed by Whiting to restore the file.

As to claim 53. (New) Whiting discloses the method of claim 52, wherein, for the presenting of (B), the presentable representation is presented using an application that created the file or the selected previous version (the user selects a file from the current disk contents and is presented with a list of all previous versions of that file contain in all backup set) (col. 31, lines 53-55).

As to claim 54. (New) Whiting discloses the method of claim 53, wherein the application is in a read-only mode (read-only) (col. 32, line 11).

As to claim 55. (New) Whiting discloses the method of claim 52, wherein the information includes at least two previous versions of the file (col. 11, lines 53-55).

As to claim 56. (New) Whiting discloses the method of claim 52, wherein the information for the collection includes information indicative of at least one or more of a

timestamp, an original file location, and a comment of the previous versions or the file (col. 11, lines 53-55).

As to claim 57. (New) The method of claim 52, further comprising the steps of:

(B2) after the presenting of (B) and responsive to a selection to not restoring the previous version and responsive to a second selection of a second previous version of the previous versions, version presenting a second presentable representation of the selected second previous version, the second presentable representation having at least information required for presenting at least a portion of the selected previous version (col. 31, lines 50-64); and

(C2) responsive to a selection to restore the second selected previous version, retrieving the restorable representation of the second selected previous version from the remote storage location and storing the second selected previous version as the current version on the local storage location, the second selected previous version available from the restorable representation of the second selected previous version (col. 31, lines 50-64).

As to claim 58. (New) Whiting discloses the method of claim 52, wherein the restorable representation of the selected previous version comprises one or more of a compressed and encrypted version of the selected previous version (encryption) (col. 5, lines 35-40)

As to claim 59. (New) Whiting discloses the method of claim 52, wherein the restorable representation of the selected previous version comprises an incremental change to the file (incremental backup) (col. 2, lines 22-48).

As to claim 60. (New) whitening discloses the method of claim 52, wherein the method has a substantially imperceptible impact on system performance from a user's point of view by delaying one or more operations to prevent a perceptible impact on system performance from a user's point of view (col. 34, lines 14-23).

Claim 61 is rejected under the same reason as to claim 52.

Claims 69 is rejected under the same reason as to claim 52, Whiting also discloses (A) iteratively transmitting a representation of at least a portion of a current version of a file to a remote storage location for archiving the current version responsive to a determination of an availability of the remote storage location for accepting a transmission of the representation, the current version being accessible at a computational machine, the remote storage location being accessible through a network (this list is typically presented as a selectable set of icons on calendar showing when new versions were backup) (col. 31, lines 59-60).

7. Claims 70-72 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Whiting et al. (Patent No. US 5,778,395) in view of Crawford (Patent No. US 6,411,943).

As to claim 70. (New) A method of restoring a file to a previous version of the file, a current version of the file being available at a local storage location, comprising the steps of:

(a) receiving a request to display a list of captured revisions for a file (the user select a file from a current disk contents) (col. 31, lines 56-57);

(b) displaying a list of captured revisions for said file (list of previous versions) (col. 31, lines

(c) receiving a selection from said list indicating a revision of said file to restore (selectable icons on a calendar...) (col. 31, lines 59-60);

(d) previewing selected revision of said file, (is presented with a list of all previous versions of that file contained in backup set) (col. 31, lines 56-57)

(e) receiving another selection from said list indicating another revision of said file to restore (is presented with a list of all previous versions of that file contained in backup set) (col. 31, lines 56-57);

(f) previewing selected another revision of said file (is presented with a list of all previous versions of that file contained in backup set) (col. 31, lines 56-57), wherein said selected another revision of said file is received from a network attached storage location (fig. 1); and

Whiting does not explicitly disclose wherein said selected revision of said file is received from an Internet storage area network; (g) restoring selected another revision of said file following said previewing step in (f), optionally, decrypting said selected revision of said file prior to step (d) and decrypting said selected another revision of said file prior to step (f).

Whiting discloses restoring selected another revision of said file following said previewing step in (f) (it also works around the common problem of inadvertently over-writing the current version of a file from a backup set using a conventional restore program) (col. 32, lines 33-35), optionally, decrypting said selected revision of said file prior to step (d) and decrypting said selected another revision of said file prior to step (f) (these blocks are then read,

decrypted, and decompressed to provide to provide the original content (col. 14, lines 53-54).

Therefore, it would have been obvious to one ordinary skill in the art before the effective filing date of the instant application to include (g) restoring selected another revision of said file following said previewing step in (f), optionally, decrypting said selected revision of said file prior to step (d) and decrypting said selected another revision of said file prior to step (f) as disclosed by Whiting to protect and restore the file.

On the other hand, Crawford discloses wherein said selected revision of said file is received from an Internet storage area network (restore option flag, incremental flag, full restore, restore file list same as backup list above except files are restored from the on-line service...) (col. 33, lines 7-11).

Therefore, it would have been obvious to one ordinary skill in the art before the effective filing date of the instant application to modify Whiting to include wherein said selected revision of said file is received from an Internet storage area network as disclosed by Crawford to protect and restore the file.

As to claim 71. (New) Whiting discloses the method of claim 70, wherein said method comprises decompressing said selected revision of said file prior to (d) and decompressing said selected another revision of said file prior to (f) (decompressed) (col. 14, line 54).

As to claim 72. (New) Whiting discloses the method of claim 70, further comprising the step of decompressing said selected revision of said file prior to step (d) and decompressing said selected another revision of said file prior to step (f) (decompressed) (line 14, line 54).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BAOQUOC N TO whose telephone number is (571)272-4041. The examiner can normally be reached on Mon-Sat 9 - 10:30.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain S Alams can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BAOQUOC N. TO
Examiner
Art Unit 2154

/BAOQUOC N TO/
Primary Examiner, Art Unit 2154

Notice of References Cited	Application/Control No. 14/970,044		Applicant(s)/Patent Under Reexamination Roach et al.	
	Examiner BAOQUOC N TO		Art Unit 2154	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-5778395-A	07-1998	Whiting; Douglas L.	G06F11/1464	1/1
*	B	US-5675802-A	10-1997	Allen; Larry W.	G06F8/71	717/103
*	C	US-5771354-A	06-1998	Crawford; Christopher M.	G06F9/5061	707/999.202
	D					
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
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	P					
	Q					
	R					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Index of Claims</i> 	Application/Control No. 14/970,044	Applicant(s)/Patent Under Reexamination Roach et al.
	Examiner BAOQUOC N TO	Art Unit 2154

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	01/21/2019								
	1	-								
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	4	-								
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<i>Index of Claims</i> 	Application/Control No. 14/970,044	Applicant(s)/Patent Under Reexamination Roach et al.
	Examiner BAOQUOC N TO	Art Unit 2154

CLAIM		DATE								
Final	Original	01/21/2019								
	43	-								
	44	-								
	45	-								
	46	-								
	47	-								
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<i>Search Notes</i> 	Application/Control No. 14/970,044	Applicant(s)/Patent Under Reexamination Roach et al.
	Examiner BAOQUOC N TO	Art Unit 2154

CPC - Searched*		
Symbol	Date	Examiner
G06F11/1469;	01/21/2019	Bto

CPC Combination Sets - Searched*		
Symbol	Date	Examiner
G06F11/1469;	01/21/2019	Bto

US Classification - Searched*			
Class	Subclass	Date	Examiner
707	671, 655	01/21/2019	Bto

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
East search - (USPAT, USAD, EPO, JPO, DERWENT, IBM_TDB)	01/20/2019	Bto
PALM - related cases	01/21/2019	Bto
East search - (USPAT, USAD, EPO, JPO, DERWENT, IBM_TDB)	01/21/2019	Bto

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	136	(US-14970044-\$ US-1959774-\$ US-20020107877-\$ US-3473478-\$ US-5014676-\$ US-5023710-\$ US-5032227-\$ US-5047294-\$ US-5086502-\$ US-5101507-\$ US-5106570-\$ US-5112024-\$ US-5134660-\$ US-5151674-\$ US-5173377-\$ US-5212512-\$ US-5212784-\$ US-5241670-\$ US-5269371-\$ US-5269431-\$ US-5276867-\$ US-5298319-\$ US-5317845-\$ US-5332200-\$ US-5351776-\$ US-5353878-\$ US-5366987-\$ US-5366988-\$ US-5434681-\$ US-5460055-\$ US-5479654-\$ US-5496944-\$ US-5505200-\$ US-5513112-\$ US-5524190-\$ US-5526418-\$ US-5535381-\$ US-5535894-\$ US-5549992-\$ US-5564215-\$ US-5571280-\$ US-5604862-\$ US-5608865-\$ US-5611850-\$ US-5615225-\$ US-5625623-\$ US-5629109-\$ US-5633999-\$ US-5634052-\$ US-5638059-\$ US-5638509-\$ US-5649196-\$ US-5668991-\$ US-5721916-\$ US-5751997-\$ US-5765173-\$ US-5771354-\$ US-5774717-\$ US-5779003-\$ US-5802025-\$ US-5804689-\$ US-5813017-\$ US-5847984-\$ US-5909700-\$ US-5978815-\$ US-5983227-\$ US-5991771-\$ US-5991772-\$ US-7117371-\$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:28
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L8	1	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (select\$4 near15 version\$3 near15 presentat\$4) and ((set\$3 or configur\$5) near15 (previous near3 version\$1) near15 (current\$1 near3 version\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:42
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EAST Search History (Interference)

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Doc code: IDS

PTO/SB/08a (01-10)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 07/31/2012. OMB 0651-0031

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number	14970044
Filing Date	2015-12-15
First Named Inventor	ROACH et al.
Art Unit	2154
Examiner Name	Hosain T Alam Baoquoc N. To
Attorney Docket Number	6982-2-CON-1

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5524190	A	1996-06-04	Schaeffer et al.	
	2	5638509	A	1997-06-10	Dunphy et al.	
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20	4959774	A	1990-09-25	Davis
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Attorney Docket Number	6982-2-CON-1		

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	1	20020107877	A1	2002-08-08	Whiting et al.	

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	1	259912	EP	B1	1988-03-16	Bartlett et al.		

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Attorney Docket Number	6982-2-CON-1

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	PDC BUDTOOL LIVE(TM) AVAILABLE ON SOLARIS; SOLARIS PORT WILL BRING SAFE, LIVE BACKUP CAPABILITY TO LEADING OPERATING SYSTEM, PR Newswire, 06/06/1995, 2p.	
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	4	EpochBackup 7 Administration and User Guide, 03/1997, 138p.	
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19	MUNSON et al., "Sync: A Java Framework for Mobile Collaborative Applications," Computer, 30:6, 6/1997, pp. 59-66.
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Examiner Name	Hosain T Alam Baoquoc N. To	
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Application Number	14970044
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First Named Inventor	ROACH et al.
Art Unit	2154
Examiner Name	Hosain T. Alam Baoquoc N. To
Attorney Docket Number	6982-2-CON-1

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Signature	/Scott J. Hawranek/	Date (YYYY-MM-DD)	2016-11-22
Name/Print	Scott J. Hawranek	Registration Number	52,411

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L2	1	"5778395".pn. and encrypt\$4 and increment\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 20:57
L3	0	"5778395".pn. and lazy	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:01
L4	1	"5778395".pn. and (lazy or delay\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:01
L5	1	"5778395".pn. and (lazy or delay\$3 or schedul\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:01
L6	1	"5778395".pn. and decompress\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:07
L7	0	"5778395".pn. and backup and archiv\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:16
L8	2	"5778395".pn. and backup	US-PGPUB;	OR	ON	2019/01/21

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			21:26
L9	1	"5778395".pn. and (restor\$5 near15 (internet or network\$1 or wan))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:40
L10	2	"5778395".pn. and (internet or network\$1 or wan)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:41
L11	2	"5778395".pn. and (backup near10 network\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:46
L12	1	"5778395".pn. and (restor\$5 near10 network\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:47
L13	1	"5778395".pn. and (restor\$5 near20 network\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:47
L16	0	"5778395".pn. and (restor\$5 near20 local near2 disk)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:02
L17	0	"5778395".pn. and (restor\$5 near20 local near15 disk)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:03
L18	0	"5778395".pn. and (restor\$5 near20 local near15 (memory or cache or proxy or disk))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2019/01/21 22:03

			IBM_TDB			
L19	1	"5778395".pn. and (restor\$5 near20 (local or system) near15 (memory or cache or proxy or disk))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:04
L20	0	"5778395".pn. and (attached near3 storage\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:16
L21	1	"5778395".pn. and decrypt\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:16
L22	1	"5778395".pn. and (decrypt\$4 same restor\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:23
L23	0	"5778395".pn. and ((network near2 attach\$3 near2 storage) or NAS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:52
L24	2	"5778395".pn. and ((network near2 attach\$3 near2 storage) or NAS or tap or disk\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:52
L25	2704	backup near15 restor\$5 near15 ((network near2 attach\$3 near2 storage) or NAS or tap or disk\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:56
L26	118	(backup near15 restor\$5 near15 ((network near2 attach\$3 near2 storage) or NAS or tap or disk\$1)) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:56
L27	19	26 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2019/01/21 22:57

			EPO; JPO; DERWENT; IBM_TDB			
L28	20	(backup near15 restor\$5 near15 internet) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:00
L29	4	(backup near15 restor\$5 near15 (internet near4 storage\$1)) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:00
L30	0	29 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:01
L31	4	(backup near15 restor\$5 near15 ((internet or (wide near2 area near2 network)) near4 storage\$1)) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:01
L32	0	31 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:01
L33	0	(backup near15 restor\$5 near15 ((internet or (wide near2 area near2 network)) near4 storage\$1)) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3) near15 restor\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:04
L34	0	(backup near15 restor\$5 near15 ((internet WAN or (wide near2 area near2 network)) near4 storage\$1)) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3) near15 restor\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:04
L35	57	(backup near15 restor\$5 near15 ((internet WAN or (wide near2 area near2 network)) near4 storage\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:04
L36	3	35 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT;	OR	ON	2019/01/21 23:04

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
L37	6	(backup near15 restor\$5 near15 ((internet or online or on-line or (wide near2 area near2 network)) near4 storage\$1)) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:05
L38	0	37 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:05
L39	87	(backup near15 restor\$5 near15 ((internet or online or on-line or (wide near2 area near2 network)) near4 storage\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:05
L40	12	39 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:05
L41	12	39 and (@ad<"20000921" or @rlad<"20000921") and restor\$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:07
L42	1	"5778395".pn. and performance\$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:24
S1	136	(US-14970044-\$ US-1959774-\$ US-20020107877-\$ US-3473478-\$ US-5014676-\$ US-5023710-\$ US-5032227-\$ US-5047294-\$ US-5086502-\$ US-5101507-\$ US-5106570-\$ US-5112024-\$ US-5134660-\$ US-5151674-\$ US-5173377-\$ US-5212512-\$ US-5212784-\$ US-5241670-\$ US-5269371-\$ US-5269431-\$ US-5276867-\$ US-5298319-\$ US-5317845-\$ US-5332200-\$ US-5351776-\$ US-5353878-\$ US-5366987-\$ US-5366988-\$ US-5434681-\$ US-5460055-\$ US-5479654-\$ US-5496944-\$ US-5505200-\$ US-5513112-\$ US-5524190-\$ US-5526418-\$ US-5535381-\$	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:28

		US-5535894-\$ US-5549992-\$ US-5564215-\$ US-5571280-\$ US-5604862-\$ US-5608865-\$ US-5611850-\$ US-5615225-\$ US-5625623-\$ US-5629109-\$ US-5633999-\$ US-5634052-\$ US-5638059-\$ US-5638509-\$ US-5649196-\$ US-5668991-\$ US-5721916-\$ US-5751997-\$ US-5765173-\$ US-5771354-\$ US-5774717-\$ US-5779003-\$ US-5802025-\$ US-5804689-\$ US-5813017-\$ US-5847984-\$ US-5909700-\$ US-5978815-\$ US-5983227-\$ US-5991771-\$ US-5991772-\$ US-7117371-\$).DID.				
S2	2	S1 and (restor\$5 near15 version\$1 near15 (network\$1 or internet or remote\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:28
S3	2	S1 and (restor\$5 near15 version\$1 near15 (network\$1 or internet or remote\$1)) and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:30
S4	76	(restor\$5 near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:37
S5	0	(restor\$5 near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (@ad<"20000921" or @rlad<"20000921") and (select\$4 near15 version\$3 near15 presentat\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:38
S6	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (@ad<"20000921" or @rlad<"20000921") and (select\$4 near15 version\$3 near15 presentat\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:39
S7	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (@ad<"20000921" or @rlad<"20000921") and (select\$4 near15 version\$3 near15 presentat\$4) and ((set\$3 or configur\$5) near15 (previous near3 version\$1) near15 (current\$1 near3 version\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:41
S8	1	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (select\$4 near15 version\$3 near15 presentat\$4) and	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2019/01/20 16:42

		((set\$3 or configur\$5) near15 (previous near3 version\$1) near15 (current\$1 near3 version\$1))	DERWENT; IBM_TDB			
S9	0	S8 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:42
S10	1	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (select\$4 near15 version\$3 near15 presentat\$4) and ((set\$3 or configur\$5) near15 (previous near3 version\$1) near15 (current\$1 near3 version\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/21 13:49
S11	1	S10 AND ((707/654).CCLS. OR (G06F17/30).IPCR.)	US-PGPUB; USPAT	OR	OFF	2019/01/21 13:50
S12	40	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$1 or version\$1) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (select\$4 near15 (revision\$1 or version\$3) near15 (display\$3 or presentat\$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:30
S13	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$1 or version\$1) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (select\$4 near15 (revision\$1 or version\$3) near15 (display\$3 or presentat\$4)) and ((decrypt\$4 or decod\$3) near15 (restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision or version\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:34
S14	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$1 or version\$1) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (select\$4 near15 (revision\$1 or version\$3) near15 (display\$3 or presentat\$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:36
S15	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$1 or version\$1) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or presentat\$4 or preview\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:36
S16	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or presentat\$4 or preview\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:44
S17	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1	US-PGPUB; USPAT;	OR	ON	2019/01/21 14:47

		or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6) near15 preview\$3)	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S18	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6) near15 (view\$3 or watch\$3 or preview\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:49
S19	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6) near15 (view\$3 or watch\$3 or preview\$3))).ti,clm,ab.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:49
S20	0	S12 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/21 15:10
S21	1	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (select\$4 near15 version\$3 near15 presentat\$4) and ((set\$3 or configur\$5) near15 (previous near3 version\$1) near15 (current\$1 near3 version\$1))	US-PGPUB; USPAT	OR	OFF	2019/01/21 15:10
S22	1	S21 AND ((G06F11/1469 OR G06F9/451).CPC. OR (707/654).CCLS.)	US-PGPUB; USPAT	OR	OFF	2019/01/21 15:12
S24	1	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6 or view\$3 or watch\$3 or preview\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 16:55
S25	0	S24 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/21 16:55
S26	8	(9218348 8473478).pn.	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2019/01/21 17:13

			EPO; JPO; DERWENT; IBM_TDB			
S27	31	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:34
S28	10	S27 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/21 17:34
S29	192	((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6 or view\$3 or watch\$3 or preview\$3) near15 (restor\$5 or reconstruct\$4 or repair or rebuild\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:34
S30	197	((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3 or edition\$1) near15 (display\$3 or present\$6 or view\$3 or watch\$3 or preview\$3) near15 (restor\$5 or reconstruct\$4 or repair or rebuild\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:34
S31	14	S30 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/21 17:35
S32	0	S28 and S31	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/21 17:35
S33	0	S27 and (@ad<"20000921" or @rlad<"20000921") and ((captur\$3 or backup or (back\$3 near2 up)) near15 (writ\$3 or sav\$3 or delet\$4 or chang\$3 or modif\$7))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:38
S34	0	S27 and (@ad<"20000921" or @rlad<"20000921") and ((captur\$3 or mirro\$3 or shadow\$3 or backup or (back\$3 near2 up)) near15 (writ\$3 or sav\$3 or delet\$4 or chang\$3 or modif\$7))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:39
S35	6	S27 and ((captur\$3 or mirro\$3 or shadow\$3 or backup or (back\$3 near2 up))	US-PGPUB; USPAT;	OR	ON	2019/01/21 17:39

		near15 (writ\$3 or sav\$3 or delet\$4 or chang\$3 or modif\$7))	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S36	0	S35 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:39
S37	74	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6 or view\$3 or watch\$3 or preview\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:40
S38	3	S37 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:41

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S23	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6) near15 (view\$3 or watch\$3 or preview\$3))).ti,clm,ab.	US-PGPUB; USPAT	OR	ON	2019/01/21 14:50
S39	1	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6 or view\$3 or watch\$3 or preview\$3))).ti,clm,ab.	US-PGPUB; USPAT	OR	ON	2019/01/21 16:54

1/ 21/ 2019 11:28:59 PM
C:\ Users\ bto\ Documents\ EAST\ Workspaces\ 14970044.wsp

Bibliographic Data

Application No: 14/970,044

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☒ No ☐ Met After Allowance

Verified and Acknowledged:

/BAOQUOC N TO/

bto

Examiner's Signature

Initials

Title:

AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/15/2015	707	2154	6982-2-CON-1
RULE			

APPLICANTS

INTEGRITY PC INNOVATIONS, INC., Colorado Springs, CO,

INVENTORS

Warren Roach Colorado Springs, CO, UNITED STATES

Steven R. Williams Colorado Springs, CO, UNITED STATES

Troy J. Reiber Colorado Springs, CO, UNITED STATES

Steven C. Burdine Middleton, WI, UNITED STATES

CONTINUING DATA

This application is a CON of 13925768 06/24/2013 PAT 9218348

13925768 is a CON of 09957459 09/21/2001 PAT 8473478

09957459 has PRO of 60234221 09/21/2000

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

01/06/2016

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

ADDRESS

ASPIRE IP

444 East Pikes Peak Avenue

Suite 105

Colorado Springs, CO 80903

UNITED STATES

FILING FEE RECEIVED

\$730

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14970044
Filing Date	12/15/2015
First Named Inventor	Warren Roach
Title	Automatic Real-Time File Management Method and Apparatus
Art Unit	2154
Examiner Name	Baoquoc N To
Attorney Docket Number	6982-2-CON-1

SIGNATURE of Applicant or Patent Practitioner

Signature	/Ramraj Soundararajan/	Date (Optional)	
Name	Ramraj Soundararajan	Registration Number	53832
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐

*Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
14970044	12/15/2015

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☒ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

150773

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☒ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

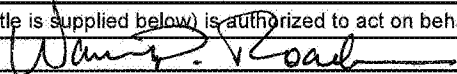
I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

--

- ☐ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	1/3/2018
Name	Warren Roach		
Title	Member, Datanet, LLC		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of 1 forms are submitted.

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If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	36051926
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	104600
Filer:	Ramraj Soundararajan/Brandi Franklin
Filer Authorized By:	Ramraj Soundararajan
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	20-MAY-2019
Filing Date:	15-DEC-2015
Time Stamp:	00:19:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	6982-2-CON-1_POA.pdf	1052007	no	2
			265116c28d04a009693a0754ae54358650f2b6c3		

Warnings:

Information:	
Total Files Size (in bytes):	1052007
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>	



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1

104600
ASPIRE IP
444 East Pikes Peak Avenue
Suite 105
Colorado Springs, CO 80903

CONFIRMATION NO. 8673
IMPROPER CPOA LETTER



Date Mailed: 05/22/2019

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 05/20/2019. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney has not been accepted because the party who is giving power has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A party who is not the applicant must become the applicant in accordance with 37 CFR 1.46(c) and appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. For a reissue application, reexamination proceeding, or supplemental examination proceeding, a patent owner who was not the applicant under 37 CFR 1.46 must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

/hteffer/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

150773
DATANET, LLC
110 BOARDMOOR HILLS DR
SUITE 100
COLORADO SPRINGS, CO 80906
UNITED STATES



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1

CONFIRMATION NO. 8673

IMPROPER CFR REQUEST



104600
ASPIRE IP
444 East Pikes Peak Avenue
Suite 105
Colorado Springs, CO 80903

Date Mailed: 05/22/2019

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Power of Attorney, Claims, Fees, System Limitations, and Miscellaneous

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

- Any request to correct or update the name of the applicant must include an application data sheet (ADS) in compliance with 37 CFR 1.76 specifying the correct or updated name of the applicant in the applicant information section. Any request to change the applicant after an original applicant has been specified under 37 CFR 1.46(b) must include a new ADS in compliance with 37 CFR 1.76 specifying the applicant in the applicant information section and comply with 37 CFR 3.71 and 3.73. See 37 CFR 1.46(c).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/hteffer/

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
14970044	12/15/2015

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

- ☒ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 150773
- OR
- ☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

- ☒ The address associated with the above-mentioned Customer Number
- OR
- ☐ The address associated with Customer Number:
- OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

DATANET, LLC

- ☐ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	<u>Warren Roach</u>	Date (Optional)	<u>1/3/2018</u>
Name	Warren Roach		
Title	Member, Datanet, LLC		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	36099152
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	104600
Filer:	Yiu Fai Au/Sherri Weisbeck-Raslich
Filer Authorized By:	Yiu Fai Au
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	23-MAY-2019
Filing Date:	15-DEC-2015
Time Stamp:	15:00:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		2019-05-23_POA.pdf	1214111	yes	2
			fa6e9f1c0a37fcdff613a06f8784cb8273bbaa4e		

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Transmittal Letter	1	1
	Power of Attorney	2	2
Warnings:			
Information:			
Total Files Size (in bytes):		1214111	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>			

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14/970,044
Filing Date	December 15, 2015
First Named Inventor	Warren Roach
Title	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
Art Unit	2154
Examiner Name	TO, BAOQUOC N
Attorney Docket Number	6982-2-CON-1

SIGNATURE of Applicant or Patent Practitioner

Signature	/Yiu F. Au/	Date (Optional)	2019-05-23
Name	Yiu F. Au	Registration Number	67,529
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.



*Total of 1 forms are submitted.

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United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1

104600
ASPIRE IP
444 East Pikes Peak Avenue
Suite 105
Colorado Springs, CO 80903

CONFIRMATION NO. 8673
IMPROPER CPOA LETTER



Date Mailed: 05/29/2019

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 05/23/2019. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney has not been accepted because the party who is giving power has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A party who is not the applicant must become the applicant in accordance with 37 CFR 1.46(c) and appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. For a reissue application, reexamination proceeding, or supplemental examination proceeding, a patent owner who was not the applicant under 37 CFR 1.46 must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

/snguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

150773
DATANET, LLC
110 BOARDMOOR HILLS DR
SUITE 100
COLORADO SPRINGS, CO 80906
UNITED STATES



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1

CONFIRMATION NO. 8673

IMPROPER CFR REQUEST



104600
ASPIRE IP
444 East Pikes Peak Avenue
Suite 105
Colorado Springs, CO 80903

Date Mailed: 05/29/2019

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Power of Attorney, Claims, Fees, System Limitations, and Miscellaneous

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

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/snguyen/

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14970044
Filing Date	12/15/2015
First Named Inventor	Warren Roach
Title	Automatic Real-Time File Management Method and Apparatus
Art Unit	2154
Examiner Name	Baoquoc N To
Attorney Docket Number	6982-2-CON-1

SIGNATURE of Applicant or Patent Practitioner

Signature	/Yiu Au/	Date (Optional)	
Name	YIU AU	Registration Number	67529
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐

*Total of _____ forms are submitted.

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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
14970044	12/15/2015

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☒ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

150773

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☒ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name				
Address				
City	State	Zip		
Country				
Telephone	Email			

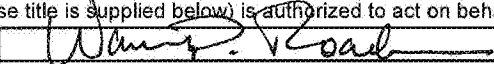
I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

DATANET, LLC

- ☐ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	1/3/2018
Name	Warren Roach		
Title	Member, Datanet, LLC		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	36201747
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	104600
Filer:	Ramraj Soundararajan/Brandi Franklin
Filer Authorized By:	Ramraj Soundararajan
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	04-JUN-2019
Filing Date:	15-DEC-2015
Time Stamp:	17:52:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Assignee showing of ownership per 37 CFR 3.73	6982-2-CON-1_Statement373C.pdf	119529 c043a7c3b6ee3a475057cce6a6aeb08167c70c36	no	3

Warnings:

Information:					
2	Power of Attorney	6982-2-CON-1_POA.pdf	1085762	no	2
			87cf2638690b2b12e339506710641bc72fc3ce4f		
Warnings:					
Information:					
Total Files Size (in bytes):				1205291	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: Warren Roach et al.Application No./Patent No.: 14970044Filed/Issue Date: 12/15/2015Titled: Automatic Real-Time File Management Method and ApparatusDatanet, LLC, a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose one of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose one of options A or B below):

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Inventors To: Integrity PC Innovations, Inc.The document was recorded in the United States Patent and Trademark Office at
Reel 049191, Frame 0558, or for which a copy thereof is attached.2. From: Integrity PC Innovations, Inc. To: Datanet, LLCThe document was recorded in the United States Patent and Trademark Office at
Reel 049191, Frame 0577, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Yiu Au/

5/23/2019

Signature

Date

YIU AU

67529

Printed or Typed Name

Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1

104600
ASPIRE IP
444 East Pikes Peak Avenue
Suite 105
Colorado Springs, CO 80903

CONFIRMATION NO. 8673
IMPROPER CPOA LETTER



Date Mailed: 06/06/2019

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 06/04/2019. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney has not been accepted because the party who is giving power has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A party who is not the applicant must become the applicant in accordance with 37 CFR 1.46(c) and appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. For a reissue application, reexamination proceeding, or supplemental examination proceeding, a patent owner who was not the applicant under 37 CFR 1.46 must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

/zmoguss/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

150773
DATANET, LLC
110 BOARDMOOR HILLS DR
SUITE 100
COLORADO SPRINGS, CO 80906
UNITED STATES

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
14970044	12/15/2015

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☒ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

150773

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☒ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

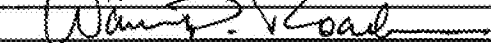
I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

DATANET, LLC

- ☐ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	1/3/2018
Name	Warren Roach		
Title	Member, Datanet, LLC		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	36280324
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	104600
Filer:	Yiu Fai Au/Sherri Weisbeck-Raslich
Filer Authorized By:	Yiu Fai Au
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	12-JUN-2019
Filing Date:	15-DEC-2015
Time Stamp:	15:50:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	2019-06-12_Request_Change_Applicant.pdf	194116 89c148234e4d11998f0d38034e75ce88d1c25a1a	no	2

Warnings:

Information:					
2	Application Data Sheet	2019-06-12_Amended_ADS.pdf	1705461 d890c9a4b1eedefdbfb12ff7657875297e16c1b3	no	7
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
3	Assignee showing of ownership per 37 CFR 3.73	2019-06-12_Statement_Under_37_CFR_373.pdf	119489 6ae28aac71f61ee3e859913b9fc1e85ffb4bd23c	no	3
Warnings:					
Information:					
4		2019-06-12_POA.pdf	1246798 0371fe1d59bc2ceb3bc327bec829246cc5e4bce3	yes	2
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Miscellaneous Incoming Letter		1	1	
	Power of Attorney		2	2	
Warnings:					
Information:					
Total Files Size (in bytes):			3265864		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

**REQUEST TO CORRECT OR UPDATE
THE NAME OF THE APPLICANT UNDER
37 CFR 1.46(c)(1), OR CHANGE THE
APPLICANT UNDER 37 CFR 1.46(c)(2)
(FOR USE ONLY IN APPLICATIONS FILED ON OR AFTER
SEPTEMBER 16, 2012)**

Application Number	14/970,044
Filing Date	December 15, 2015
First Named Inventor	Warren Roach
Art Unit	2154
Examiner Name	TO BAOQUOC N
Practitioner Docket Number	6982-2-CON-1

**To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**

Applicant hereby requests that the name of the applicant be corrected or updated under 37 CFR 1.46(c)(1), or that the applicant be changed under 37 CFR 1.46(c)(2), in the above-identified application. Requests under 37 CFR 1.46(c)(1) or (c)(2) cannot be submitted after payment of the issue fee or if the application has been patented.

Please check the applicable box(es) below.

☐ 1. This request is to **correct or update the name of the applicant (under 37 CFR 1.46(c)(1))** and includes:

☐ An application data sheet (ADS) in accordance with 37 CFR 1.76(c) with the corrected or updated information shown with markings (e.g., underlining for insertions, strikethrough for deletions). A Corrected Web-based ADS may be used.

Note: Requests under 37 CFR 1.46(c)(1) may be filed to correct typographical errors in the name of the § 1.46 applicant, or for updating the name of the § 1.46 applicant (i.e., where there is no change in the applicant itself but just in the applicant's name). See the Manual of Patent Examining Procedure (MPEP) section 605.01.

☒ 2. This request is to **change the applicant (under 37 CFR 1.46(c)(2))** and includes:

☒ An application data sheet (ADS) in accordance with 37 CFR 1.76(c) that identifies the changes with proper markings (underlining for insertions and strikethrough for deletions). A Corrected Web-based ADS may be used.

☒ A Statement Under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent). See MPEP 325.

I am the

☐ applicant*

☒ attorney or agent of record

Registration number 67,529

☐ attorney or agent acting under 37 CFR 1.34

Registration number _____

Signature /Yiu F. Au/

Typed or printed name Yiu F. Au

Date June 12, 2019

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. *Juristic entities must be represented by a patent practitioner (See 37 CFR 1.31, applicable to any paper filed on or after September 16, 2012 that is presented on behalf of a juristic entity, regardless of application filing date). Submit multiple forms if more than one signature is required, see below**.

☒ ** Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.36. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND**

TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6982-2-CON-1
		Application Number	14/970,044
Title of Invention	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)	
--	--

Inventor Information:

Inventor	1				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Warren		Roach		
Residence Information (Select One) • US Residency Non US Residency Active US Military Service					
City	Colorado Springs	State/Province	CO	Country of Residence	US

Mailing Address of Inventor:

Address 1	3260 Gilcrest Terrace				
Address 2					
City	Colorado Springs	State/Province	CO		
Postal Code	80906	Country	US		

Inventor	2				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Steven	R.	Williams		
Residence Information (Select One) • US Residency Non US Residency Active US Military Service					
City	Colorado Springs	State/Province	CO	Country of Residence	US

Mailing Address of Inventor:

Address 1	3310 Ashford Court				
Address 2					
City	Colorado Springs	State/Province	CO		
Postal Code	80920	Country	US		

Inventor	3				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Troy	J.	Reiber		
Residence Information (Select One) • US Residency Non US Residency Active US Military Service					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6982-2-CON-1
		Application Number	14/970,044
Title of Invention	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS		

City	Colorado Springs	State/Province	CO	Country of Residence	US
------	------------------	----------------	----	----------------------	----

Mailing Address of Inventor:

Address 1	15745 Pineycove Court				
Address 2					
City	Colorado Springs	State/Province	CO		
Postal Code	80921	Country	US		
Inventor	4				<input type="button" value="Remove"/>
Legal Name					

Prefix	Given Name	Middle Name	Family Name	Suffix	
	Steven	C.	Burdine		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Middleton	State/Province	WI	Country of Residence	US

Mailing Address of Inventor:

Address 1	1232 North High Point Road				
Address 2					
City	Middleton	State/Province	WI		
Postal Code	53562	Country	US		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. <input type="button" value="Add"/>					

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence information of this application.	
Customer Number	104600 150773
Email Address	USPTOMail@aspireip.com <input type="button" value="Add Email"/> <input type="button" value="Remove Email"/>

Application Information:

Title of the Invention	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS		
Attorney Docket Number	6982-2-CON-1	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	6	Suggested Figure for Publication (if any)	1

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6982-2-CON-1
		Application Number	14/970,044
Title of Invention	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS		

Publication Information:
☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	104600 150773		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
	Continuation of	13/925768	2013-06-24		
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/925768	Continuation of	09/957459	2001-09-21	8473478	2013-06-25
Prior Application Status	Expired	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
09/957459	non provisional of	60/234221	2000-09-21		
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					Add

Foreign Priority Information:

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6982-2-CON-1
		Application Number	14/970,044
Title of Invention	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS		

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)¹ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			<input type="button" value="Remove"/>
Application Number	Country ¹	Filing Date (YYYY-MM-DD)	Access Code ¹ (if applicable)
<input type="text"/>	<input type="text"/>	<input type="text"/>	
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			<input type="button" value="Add"/>

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

<p>Authorization to Permit Access to the Instant Application by the Participating Offices</p> <p>If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.</p> <p>In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.</p> <p>In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.</p>

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6982-2-CON-1
		Application Number	14/970,044
Title of Invention	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant	1	Remove
------------------	---	------------------------

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

[Clear](#)

☒ Assignee	<u>Applicant</u>	Legal Representative under 35 U.S.C. 117	Joint Inventor
--	------------------	--	----------------

Person to whom the inventor is obligated to assign. Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. ☒

Organization Name	INTEGRIFY-PC-INNOVATIONS, INC. <u>DATANET, LLC</u>
-------------------	---

Mailing Address Information For Applicant:

Address 1	1220 Lake Plaza Drive	<u>110 Broadmoor Hills Dr</u>	
Address 2	<u>Suite 100</u>		
City	Colorado Springs	State/Province	CO
Country	US	Postal Code	80906
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. [Add](#)

Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6982-2-CON-1
		Application Number	14/970,044
Title of Invention	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS		

Assignee	1			
Complete this section only if non-applicant assignee information is desired to be included on the patent application publication in accordance with 37 CFR 1.215(b). Do not include in this section an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest), as the patent application publication will include the name of the applicant(s).				
				Remove
If the Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee Data may be generated within this form by selecting the Add button.				Add

Signature:[Remove](#)

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.					
Signature	YIU AU/		Date (YYYY-MM-DD)	2019-06-12 2015-12-15	
First Name	Yiu	Last Name	Au	Registration Number	67529
Additional Signature may be generated within this form by selecting the Add button.				Add	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: DATANET, LLCApplication No./Patent No.: 14970044 Filed/Issue Date: 12/15/2015Titled: Automatic Real-Time File Management Method and ApparatusDatanet, LLC, a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is ____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Inventors To: Integrity PC Innovations, Inc.The document was recorded in the United States Patent and Trademark Office at
Reel 049191, Frame 0558, or for which a copy thereof is attached.2. From: Integrity PC Innovations, Inc. To: Datanet, LLCThe document was recorded in the United States Patent and Trademark Office at
Reel 049191, Frame 0577, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Yiu Au/

6/12/2019

Signature

Date

YIU AU

67529

Printed or Typed Name

Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14970044
Filing Date	12/15/2015
First Named Inventor	Warren Roach
Title	Automatic Real-Time File Management Method and Apparatus
Art Unit	2154
Examiner Name	Baoquoc N To
Attorney Docket Number	6982-2-CON-1

SIGNATURE of Applicant or Patent Practitioner

Signature	/Yiu Au/	Date (Optional)	2019-06-12
Name	YIU AU	Registration Number	67529
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.



*Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
14/970,044	12/15/2015	2154	980	6982-2-CON-1	20	2

CONFIRMATION NO. 8673

CORRECTED FILING RECEIPT



0000000108912151

150773
DATANET, LLC
110 BOARDMOOR HILLS DR
SUITE 100
COLORADO SPRINGS, CO 80906

Date Mailed: 06/14/2019

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Warren Roach, Colorado Springs, CO;
Steven R. Williams, Colorado Springs, CO;
Troy J. Reiber, Colorado Springs, CO;
Steven C. Burdine, Middleton, WI;

Applicant(s)

DATANET, LLC, Colorado Springs, CO

Power of Attorney: The patent practitioners associated with Customer Number 150773

Domestic Priority data as claimed by applicant

This application is a CON of 13/925,768 06/24/2013 PAT 9218348
which is a CON of 09/957,459 09/21/2001 PAT 8473478
which claims benefit of 60/234,221 09/21/2000

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: No

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 01/06/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/970,044**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS

Preliminary Class

707

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1

150773
DATANET, LLC
110 BOARDMOOR HILLS DR
SUITE 100
COLORADO SPRINGS, CO 80906

CONFIRMATION NO. 8673
POA ACCEPTANCE LETTER



Date Mailed: 06/14/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/12/2019.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/qnghuyen/

Electronic Patent Application Fee Transmittal

Application Number:	14970044			
Filing Date:	15-Dec-2015			
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS			
First Named Inventor/Applicant Name:	Warren Roach			
Filer:	Ramraj Soundararajan/Brandi Franklin			
Attorney Docket Number:	6982-2-CON-1			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 2 months with \$0 paid	2252	1	300	300
Miscellaneous:				
Total in USD (\$)				300

Electronic Acknowledgement Receipt

EFS ID:	36470941
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	150773
Filer:	Ramraj Soundararajan/Brandi Franklin
Filer Authorized By:	Ramraj Soundararajan
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	01-JUL-2019
Filing Date:	15-DEC-2015
Time Stamp:	21:56:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 300
RAM confirmation Number	070219INTEFSW00007490600107
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	2019-06-30-Response_to_Non-Final_Office_Action_dated_2019-01-31.pdf	162057	no	9
			4600f048427df11b9fe65f142139a3d7e14c97ce		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30881	no	2
			c39fe5e8df7671c496eb493ab74e3a501fe5f0d5		
Warnings:					
Information:					
Total Files Size (in bytes):			192938		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No. 14/970,044 <i>In re</i> Patent Application of: Warren Roach et al. Filed: December 15, 2015 Attorney Docket No. 6982-2-CON-1 For: AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS	Confirmation No.: 8673 Art Unit: 2154 Examiner: TO, BAOQUOC N Customer No.: 150773
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Mail Stop: AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY AND AMENDMENT UNDER 37 C.F.R. § 1.111

Sir:

In response to the Non-Final Office Action mailed January 31, 2019, Applicant respectfully requests reconsideration of the application in view of the following Amendments and Remarks.

A fee for a two (2)-month extension of time under 37 C.F.R. §1.136(a) is filed herewith extending the period for response through July 1, 2019. It is not believed that any further extensions of time are required. If extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a). Applicant believes that no further fees for net addition of claims are required at this time. Any fees required for further extensions of time, and any fees for the net addition of claims are hereby authorized to be charged to our Deposit Account No. 60-0107.

Amendments to the specification begin on page 2 of this response.

Remarks begin on page 3 of this response.

AMENDMENT TO THE ABSTRACT

Please **REPLACE** the Abstract with the following paragraph.

A method of restoring a file to a previous version of the file, where a current version of the file being available at a local storage location is disclosed. The method includes receiving a request to display a list of captured revisions for a file; displaying a list of captured revisions for said file; receiving a selection from said list indicating a revision of said file to restore; previewing selected revision of said file, wherein said selected revision of said file is received from an Internet storage area network; receiving another selection from said list indicating another revision of said file to restore; previewing selected another revision of said file, wherein said selected another revision of said file is received from a network attached storage location; and restoring selected another revision of said file following the previewing step.

REMARKS

At the outset, the Applicant appreciates the thorough review and consideration of the subject application. The Non-Final Office Action of January 31, 2019 has been received and its contents carefully noted. Claims 52-72 are currently pending. In view of the above Amendments and the following Remarks, Applicant respectfully requests reconsideration and timely withdrawal of the pending objections and rejections for the reasons discussed below.

Interview Summary

Applicant thanks the Examiner for the courtesies extended during the interview of June 27, 2019. During the interview, the outstanding double patenting rejection and rejections under 35 U.S.C. §§101 and 102 were discussed. Applicant appreciates the Examiner's helpful suggestions and comments.

Abstract Objection

In the Office Action, the Abstract was objected to as not representing the claimed invention.

The Abstract has been amended in this Response.

Accordingly, Applicant respectfully requests withdrawal of the objection to the Abstract.

Double Patenting

Claims 52-72 stand rejected on the grounds of non-statutory obviousness-type double patenting as being unpatentable over claims 1-31 of U.S. Patent No. 9,218,348 ('348 Patent) and claims 1-11 of U.S. Patent No. 8,473,478 ('478 Patent). Applicant respectfully traverses this rejection.

Applicant submits that the double patenting rejection is improper because the Office Action did not provide any analysis on how the presently pending claims 52-72 are obvious in view of the claims in the '348 and '478 Patents. Indeed, claims 52-72 are patentably distinguished over the claims in the '348 and '478 Patents. For example, with respect to Claim 52, the claims in the '348 and '478 Patents do not recite at least the following limitations of

Claim 52: “a method of restoring a file to a previous version of the file,” “a collection of one or more previous versions of the file, the information for the collection including information indicative of at least one or more of previous versions of the file,” and “presenting a presentable representation of the selected previous version, the selected previous version being one of the previous versions of the file in the presented information for the collection.” The chart below provides a comparison of the claim limitations of claim 52 and each claim 1 of the ‘348 and ‘478 Patents.

Presently Presented Claim 52	Claim 1 of U.S. Pat. No. 9,218,348	Claim 1 of U.S. Pat. No. 8,473,478
A method of restoring a file to a previous version of the file, a current version of the file being available at a local storage location, comprising the steps of: (A) presenting information for a collection of one or more previous versions of the file, the information for the collection including information indicative of at least one or more of previous versions of the file, wherein a restorable representation of each version, V, of the previous versions, is retrievable from a remote storage location, the restorable representation having at least information required for recovering the version V by a computational machine with the current version being accessible, the remote storage location being accessible through a network; (B) responsive to a selection to preview a selected previous version of the file based on the	In a computing device, a method for archiving files comprising: detecting an instruction from a resident program to perform an operation on an operating file; and capturing the operating file temporally proximate to the operation being performed on the operating file, responsive to the detection of the instruction.	In a computing device, a method for archiving files comprising: detecting an instruction by an operating system to perform an operation on an operating file; creating an archive file from the operating file and storing the archive file in a temporary first storage location temporally proximate to the operation being performed on the operating file and responsive to detecting the instruction; searching the first temporary storage location for the archive file responsive to the occurrence of a first event; and moving the archive file to a second storage location responsive to a second event, the second storage location being a permanent storage location, after storing the archive file in the first temporary storage location, updating a database

presented information for the collection of (A), presenting a presentable representation of the selected previous version, the selected previous version being one of the previous versions of the file in the presented information for the collection, the presentable representation having at least information required for presenting at least a portion of the selected previous version by the computation machine with the current version being accessible; and (C) responsive to a selection to restore the selected previous version, retrieving the restorable representation of the selected previous version from the remote storage location and storing the selected previous version by the computational machine as the current version on the local storage location, the selected previous version available from the restorable representation of the selected previous version.		to indicate that the archive file is located in the first temporary storage location; determining a final destination for the archive file; moving the archive file from the first temporary storage location to an intermediate storage location; updating the database to indicate that the archive file is located in the intermediate storage location; and after moving the archive file to the second storage location, updating the database to indicate that the archive file is located in the second storage location.
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Accordingly, Applicant respectfully requests withdrawal of the double patenting rejection.

Rejections Under 35 U.S.C. §101

Claims 52-72 stand rejected under 35 U.S.C. §101 as being allegedly directed towards non-statutory subject matter. Applicant respectfully traverses this rejection for at least the following reasons.

Applicant's representative respectfully submits that the current rejection under 35 U.S.C. §101 is not supported by the Revised Patent Subject Matter Eligibility Guidance. In particular, the Office has recognized that "[t]he growing body of precedent [under Alice] has become increasingly more difficult for examiners to apply in a predictable manner, and concerns have been raised that different examiners within and between technology centers may reach inconsistent results. *Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50, 52 (January 7, 2019) ("Revised Guidance").

In accordance with judicial precedent and in an effort to improve consistency and predictability, the 2019 Revised Patent Subject Matter Eligibility Guidance extracts and synthesizes key concepts identified by the courts as abstract ideas to explain that the abstract idea exception includes the following groupings of subject matter, when recited as such in a claim limitation(s) (that is, when recited on their own or per se):

- (a) Mathematical concepts—mathematical relationships, mathematical formulas or equations, mathematical calculations;
- (b) Certain methods of organizing human activity—fundamental economic principles or practices (including hedging, insurance, mitigating risk); commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations); managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions); and
- (c) Mental processes—concepts performed in the human mind (including an observation, evaluation, judgment, opinion).

Claims that do not recite matter that falls within these enumerated groupings of abstract ideas should not be treated as reciting abstract ideas, except as follows: In the rare circumstance in which a USPTO employee believes a claim limitation that does not fall within the enumerated groupings of abstract ideas should nonetheless be treated as reciting an abstract idea, the procedure described in Section III.C for analyzing the claim should be followed.

Id.

Under the Revised Guidance, the pending claims do not recite an abstract idea as the pending claims do not recite mathematical concepts, methods of organizing human activity, nor mental processes.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. §101 rejection of claims 52-72.

Rejections Under 35 U.S.C. §103

Claims 52-69 stand rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over U.S. Patent No. 5,778,395 issued to Whiting *et al.* (“Whiting”). Claims 70-72 stand rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Whiting in view of U.S. Patent No. 6,411,943 issued to Crawford (“Crawford”). Applicant respectfully traverses these rejections for at least the following reasons.

Independent claim 52 recites, *inter alia*, “*responsive to a selection to preview a selected previous version of the file based on the presented information for the collection of (A), presenting a presentable representation of the selected previous version*, the selected previous version being one of the previous versions of the file in the presented information for the collection, the presentable representation having at least information required for presenting at least a portion of the selected previous version by the computation machine with the current version being accessible.”

The Examiner contends on page 7 of the Office Action of 1/31/2019 that col. 31, line 56 of Whiting discloses such a feature. This contention is respectfully traversed.

Whiting in col. 31, line 56 merely states that “user selects from the desired backup set.” However, as noted in the Interview of 06/27/2019, Whiting neither discloses the feature of “a selection to preview a selected previous version of the file” nor discloses the feature of “presenting a presentable representation of the selected previous version, the selected previous version being one of the previous versions of the file in the presented information for the collection”.

Hence, at least for these reasons, Applicant respectfully submits that an improper 35 U.S.C. §103(a) rejection was issued with regards to independent claim 52.

The same citation and rationale with regards to independent claim 52 is used by the Examiner to reject independent claims 61, 69, and 70. Applicant, therefore, respectfully submits

that an improper 35 U.S.C. §103(a) rejection was issued with regards to independent claims 61, 69, and 70.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. §103(a) rejection of independent claims 52, 61, 69 and 70. Since the none of the prior art of record, whether taken alone or in any combination, discloses or suggests all the features of the claimed invention, Applicant respectfully submits that independent claims 52, 61, 69 and 70 and all the claims that depend therefrom are allowable.

Other Matters

This amendment is not made for the purpose of avoiding prior art or narrowing the claimed invention, and no change in claim scope is intended. Therefore, Applicant does not intend to relinquish any subject matter by these amendments.

CONCLUSION

Applicant believes that a full and complete response has been made to the pending Office Action, and respectfully submits that all of the stated objections and grounds for rejection have been overcome or rendered moot. Accordingly, Applicant respectfully submits that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the Applicant's undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

IP AUTHORITY, LLC

/Ramraj Soundararajan/

Dated: July 1, 2019

Ramraj Soundararajan, Reg. No. 53,832
9435 Lorton Market St, #801
Lorton, VA 22079
Telephone: (571) 349-0047



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NOTICE OF ALLOWANCE AND FEE(S) DUE

150773 7590 10/25/2019
DATANET, LLC
110 BOARDMOOR HILLS DR
SUITE 100
COLORADO SPRINGS, CO 80906

EXAMINER	
TO, BAOQUOC N	
ART UNIT	PAPER NUMBER
2154	

DATE MAILED: 10/25/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1	8673

TITLE OF INVENTION: AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	01/27/2020

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

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IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

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Alexandria, Virginia 22313-1450

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1	8673

TITLE OF INVENTION: AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	01/27/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
TO, BAOQUOC N	2154	707-707000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

1 _____

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1	8673
150773	7590	10/25/2019	EXAMINER	
DATANET, LLC 110 BOARDMOOR HILLS DR SUITE 100 COLORADO SPRINGS, CO 80906			TO, BAOQUOC N	
			ART UNIT	PAPER NUMBER
			2154	

DATE MAILED: 10/25/2019

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 14/970,044	Applicant(s) Roach et al.	
	Examiner BAOQUOC N TO	Art Unit 2154	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07/01/2019.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 52-72. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some *c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☐ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. ☐ Other _____.
4. ☒ Interview Summary (PTO-413), Paper No./Mail Date. <u>06/27/2019</u> .	

/BAOQUOC N TO/ Primary Examiner, Art Unit 2154	
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Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

1. In response to the Office Action dated on 07/01/2019, applicant(s) amend the application as follow:

Claims amended: none

Claim previously canceled: none

Claims newly added: none

Claims pending: 52-72

Double Patenting

2. Per applicant argument the Obvious Double Patenting rejection is withdrawn.

Allowable Subject Matter

3. Claims 52-72 will be allowed over the prior art made of record.

The following is an examiner's statement of reasons for allowance:

As to claims 52, 61 and 69-70, examiner agreed with applicant argument filed on 07/01/2019 "whiting in col. 31 merely state that "user selects form the desired backup set."

However, as noted in the Interview of 06/27/2019, Whiting neither discloses...."

Dependent claims 53-60, 62-68 and 71-72 are allowed under the same reason.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BAOQUOC N TO whose telephone number is (571)272-4041. The examiner can normally be reached on Mon-Sat 9 - 10:30.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain S Alams can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BAOQUOC N. TO
Examiner
Art Unit 2154

/BAOQUOC N TO/
Primary Examiner, Art Unit 2154

<i>Applicant-Initiated Interview Summary</i>	Application No. 14/970,044	Applicant(s) Roach et al.	
	Examiner BAOQUOC N TO	Art Unit 2154	AIA (FITF) Status No

All participants (applicant, applicants representative, PTO personnel):

(1) BAOQUOC N. TO. (3) Scott Hawranek, Reg. No. 52,411.

(2) Ramrai Soundaranjan, Reg. 53,832. (4) Yiu Au, Reg. No. 67,529.

Date of Interview: 27 June 2019.

Type: ☒ Telephonic ☐ Video Conference
 ☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☐ No.
 If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☒103 ☒Others
 (For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1.

Identification of prior art discussed: Whiting.

Substance of Interview
 (For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

The discussion was including Obvious Double Patenting rejection and Whiting reference.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/BAOQUOC N TO/ Primary Examiner, Art Unit 2154	
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Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiners responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicants correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,-
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicants record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiners version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, Interview Record OK on the paper recording the substance of the interview along with the date and the examiners initials.

<i>Search Notes</i> 	Application/Control No. 14/970,044	Applicant(s)/Patent Under Reexamination Roach et al.
	Examiner BAOQUOC N TO	Art Unit 2154

CPC - Searched*		
Symbol	Date	Examiner
G06F11/1469;	01/21/2019	Bto
G06F11/1469;	10/15/2019	Bto

CPC Combination Sets - Searched*		
Symbol	Date	Examiner
G06F11/1469;	01/21/2019	Bto

US Classification - Searched*			
Class	Subclass	Date	Examiner
707	671, 655	01/21/2019	Bto
707	671, 655	10/15/2019	Bto

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
East search - (USPAT, USAD, EPO, JPO, DERWENT, IBM_TDB)	01/20/2019	Bto
PALM - related cases	01/21/2019	Bto
East search - (USPAT, USAD, EPO, JPO, DERWENT, IBM_TDB)	01/21/2019	Bto
East search - (USPAT, USAD, EPO, JPO, DERWENT, IBM_TDB)	10/15/2019	Bto
NPL - IEEE and ACM	10/15/2019	Bto
PALM - related cases	10/15/2019	Bto

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<i>Search Notes</i> 	Application/Control No. 14/970,044	Applicant(s)/Patent Under Reexamination Roach et al.
	Examiner BAOQUOC N TO	Art Unit 2154

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	Text search - (USPAT, USGPPUB) - (((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or configur\$5 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1))))).ti,clm,ab.	10/15/2019	Bto

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Issue Classification 	Application/Control No. 14/970,044	Applicant(s)/Patent Under Reexamination Roach et al.
	Examiner BAOQUOC N TO	Art Unit 2154

CPC						
Symbol					Type	Version
G06F	/	16	/	113	F	2019-01-01
G06F	/	16	/	10	I	2019-01-01
G06F	/	16	/	86	I	2019-01-01
G06F	/	11	/	1461	I	2013-01-01

CPC Combination Sets					
Symbol				Type	Set
	/		/		

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 21	
/BAOQUOC N TO/ Primary Examiner, Art Unit 2154 (Primary Examiner) _____ (Date) 22 September 2019		O.G. Print Claim(s) 1	O.G. Print Figure 1

Issue Classification 	Application/Control No. 14/970,044	Applicant(s)/Patent Under Reexamination Roach et al.
	Examiner BAOQUOC N TO	Art Unit 2154

INTERNATIONAL CLASSIFICATION			
CLAIMED			
G06F	/	17	/ 30
NON-CLAIMED			
	/		/

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
707	674

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	21	
/BAOQUOC N TO/ Primary Examiner, Art Unit 2154	22 September 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification 	Application/Control No. 14/970,044	Applicant(s)/Patent Under Reexamination Roach et al.
	Examiner BAOQUOC N TO	Art Unit 2154

☐ Claims renumbered in the same order as presented by applicant
 ☐ CPA
 ☐ T.D.
 ☐ R.1.47

CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19		28		37		46	4	55	13	64
	2		11		20		29		38		47	5	56	14	65
	3		12		21		30		39		48	6	57	15	66
	4		13		22		31		40		49	7	58	16	67
	5		14		23		32		41		50	8	59	17	68
	6		15		24		33		42		51	9	60	18	69
	7		16		25		34		43	1	52	10	61	19	70
	8		17		26		35		44	2	53	11	62	20	71
	9		18		27		36		45	3	54	12	63	21	72

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 21	
/BAOQUOC N TO/ Primary Examiner, Art Unit 2154 (Primary Examiner) _____ (Date) 22 September 2019		O.G. Print Claim(s) 1	O.G. Print Figure 1



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((restore or recovery) near (backup or mirror or shadow or version) near (select or input) near (display or preview or represent) near file near (network or online or internet or cloud)) and ((make or configure or archive or set) near (backup or shadow or mirror or version) near (current near version) near ((user or local) near (device or storage or memory))) and ((preview or display or represent) near (backup or version or mirror or shadow) near (file near (information or metadata or name or id or identifier or indicator)))

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((restore or recovery) near (backup or mirror or shadow or version) near (select or input) near (display or preview or represent) near file near (network or online or internet or cloud)) and ((make or configure or archive or set) near (backup or shadow or mirror or version) near (current near version) near ((user or local) near (device or storage or memory))) and ((preview or display or represent) near (backup or version or mirror or shadow) near (file near (information or metadata or name or id or identifier or indicator)))

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	((restor\$5 or recover\$3) near15 backup near15 version\$1 near15 preview\$3) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:45
L2	0	((restor\$5 or recover\$3) near15 backup near15 version\$1 near15 preview\$3) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:47
L3	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3) near15 version\$1 near15 preview\$3) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:49
L4	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3) near15 version\$1 near15 preview\$3) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:49
L5	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3) near15 version\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:51
L6	1	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:51
L7	2	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1)) and ((preview\$3 or	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:52

		display\$3 or present\$4) near15 backup near15 version\$3)				
L8	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:53
L9	6	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:54
L10	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 12:58
L11	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1)))) .ti,clm,ab.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 13:00
L14	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or configur\$5 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 13:13

		identifier\$1))))).ti,clm,ab.				
L15	0	((restore or recovery) near (backup or mirror or shadow or version) near (select or input) near (display or preview or represent) near file near (network or online or internet or cloud)) and ((make or configure or archive or set) near (backup or shadow or mirror or version) near (current near version) near ((user or local) near (device or storage or memory))) and ((preview or display or represent) near (backup or version or mirror or shadow) near (file near (information or metadata or name or id or identifier or indicator)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 13:18
L16	6	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version\$3)	US-PGPUB; USPAT	OR	OFF	2019/10/15 13:39
L17	2	9 and (@ad< "20000921" or @rlad< "20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 13:40
L18	6	16 AND ((G06F11/1469 OR G06F11/1458 OR G06F16/1873).CPC. OR (707/999.204 OR 707/999.01 OR 711/162 OR 715/229).CCLS. OR (G06F17/30).IPCR.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 13:41
L19	2	17 and (@ad< "20000921" or @rlad< "20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 13:42

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L12	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1))))).ti,clm,ab.	US-PGPUB; USPAT	OR	ON	2019/10/15 13:00

L13	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or configur\$5 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1))))).ti,clm,ab.	US-PGPUB; USPAT	OR	ON	2019/10/15 13:13
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10/ 15/ 2019 1:44:52 PM
C:\ Users\ bto\ Documents\ EAST\ Workspaces\ 14970044.wsp

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	((restor\$5 or recover\$3) near15 backup near15 version\$1 near15 preview\$3) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:45
L2	0	((restor\$5 or recover\$3) near15 backup near15 version\$1 near15 preview\$3) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:47
L3	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3) near15 version\$1 near15 preview\$3) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:49
L4	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3) near15 version\$1 near15 preview\$3) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:49
L5	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3) near15 version\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:51
L6	1	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:51
L7	2	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1)) and ((preview\$3 or	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:52

		display\$3 or present\$4) near15 backup near15 version\$3)				
L8	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:53
L9	6	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:54
L10	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 12:58
L11	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1))))).ti,clm,ab.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 13:00
L14	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or configur\$5 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 13:13

		near15 (file near3 (information or metadata or name or id or identifier\$1))))).ti,clm,ab.				
L15	0	((restore or recovery) near (backup or mirror or shadow or version) near (select or input) near (display or preview or represent) near file near (network or online or internet or cloud)) and ((make or configure or archive or set) near (backup or shadow or mirror or version) near (current near version) near ((user or local) near (device or storage or memory))) and ((preview or display or represent) near (backup or version or mirror or shadow) near (file near (information or metadata or name or id or identifier or indicator)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 13:18
S1	136	(US-14970044-\$ US-1959774-\$ US-20020107877-\$ US-3473478-\$ US-5014676-\$ US-5023710-\$ US-5032227-\$ US-5047294-\$ US-5086502-\$ US-5101507-\$ US-5106570-\$ US-5112024-\$ US-5134660-\$ US-5151674-\$ US-5173377-\$ US-5212512-\$ US-5212784-\$ US-5241670-\$ US-5269371-\$ US-5269431-\$ US-5276867-\$ US-5298319-\$ US-5317845-\$ US-5332200-\$ US-5351776-\$ US-5353878-\$ US-5366987-\$ US-5366988-\$ US-5434681-\$ US-5460055-\$ US-5479654-\$ US-5496944-\$ US-5505200-\$ US-5513112-\$ US-5524190-\$ US-5526418-\$ US-5535381-\$ US-5535894-\$ US-5549992-\$ US-5564215-\$ US-5571280-\$ US-5604862-\$ US-5608865-\$ US-5611850-\$ US-5615225-\$ US-5625623-\$ US-5629109-\$ US-5633999-\$ US-5634052-\$ US-5638059-\$ US-5638509-\$ US-5649196-\$ US-5668991-\$ US-5721916-\$ US-5751997-\$ US-5765173-\$ US-5771354-\$ US-5774717-\$ US-5779003-\$ US-5802025-\$ US-5804689-\$ US-5813017-\$ US-5847984-\$ US-5909700-\$ US-5978815-\$ US-5983227-\$ US-5991771-\$ US-5991772-\$ US-7117371-\$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:28
S2	2	S1 and (restor\$5 near15 version\$1 near15 (network\$1 or internet or remote\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:28
S3	2	S1 and (restor\$5 near15 version\$1 near15 (network\$1 or internet or remote\$1)) and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:30
S4	76	(restor\$5 near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2019/01/20 16:37

			DERWENT; IBM_TDB			
S5	0	(restor\$5 near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (@ad<"20000921" or @rlad<"20000921") and (select\$4 near15 version\$3 near15 presentat\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:38
S6	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (@ad<"20000921" or @rlad<"20000921") and (select\$4 near15 version\$3 near15 presentat\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:39
S7	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (@ad<"20000921" or @rlad<"20000921") and (select\$4 near15 version\$3 near15 presentat\$4) and ((set\$3 or configur\$5) near15 (previous near3 version\$1) near15 (current\$1 near3 version\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:41
S8	1	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (select\$4 near15 version\$3 near15 presentat\$4) and ((set\$3 or configur\$5) near15 (previous near3 version\$1) near15 (current\$1 near3 version\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:42
S9	0	S8 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/20 16:42
S10	1	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (select\$4 near15 version\$3 near15 presentat\$4) and ((set\$3 or configur\$5) near15 (previous near3 version\$1) near15 (current\$1 near3 version\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/21 13:49
S11	1	S10 AND ((707/654).CCLS. OR (G06F17/30).IPCR.)	US-PGPUB; USPAT	OR	OFF	2019/01/21 13:50
S12	40	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$1 or version\$1) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (select\$4 near15 (revision\$1 or version\$3) near15 (display\$3 or presentat\$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:30
S13	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$1 or version\$1) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (select\$4	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2019/01/21 14:34

		near15 (revision\$1 or version\$3) near15 (display\$3 or presentat\$4)) and ((decrypt\$4 or decod\$3) near15 (restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision or version\$1))	EPO; JPO; DERWENT; IBM_TDB			
S14	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$1 or version\$1) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (select\$4 near15 (revision\$1 or version\$3) near15 (display\$3 or presentat\$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:36
S15	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$1 or version\$1) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or presentat\$4 or preview\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:36
S16	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or presentat\$4 or preview\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:44
S17	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6) near15 preview\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:47
S18	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6) near15 (view\$3 or watch\$3 or preview\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:49
S19	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6) near15 (view\$3 or watch\$3 or preview\$3))) .ti,clm,ab.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 14:49
S20	0	S12 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/21 15:10

S21	1	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 version\$1 near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and (select\$4 near15 version\$3 near15 presentat\$4) and ((set\$3 or configur\$5) near15 (previous near3 version\$1) near15 (current\$1 near3 version\$1))	US-PGPUB; USPAT	OR	OFF	2019/01/21 15:10
S22	1	S21 AND ((G06F11/1469 OR G06F9/451).CPC. OR (707/654).CCLS.)	US-PGPUB; USPAT	OR	OFF	2019/01/21 15:12
S24	1	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6 or view\$3 or watch\$3 or preview\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 16:55
S25	0	S24 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/21 16:55
S26	8	(9218348 8473478).pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:13
S27	31	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:34
S28	10	S27 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/21 17:34
S29	192	((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6 or view\$3 or watch\$3 or preview\$3) near15 (restor\$5 or reconstruct\$4 or repair or rebuild\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:34
S30	197	((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3 or edition\$1) near15 (display\$3 or present\$6 or view\$3 or watch\$3 or preview\$3) near15 (restor\$5 or reconstruct\$4 or repair or rebuild\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:34

S31	14	S30 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/21 17:35
S32	0	S28 and S31	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/21 17:35
S33	0	S27 and (@ad<"20000921" or @rlad<"20000921") and ((captur\$3 or backup or (back\$3 near2 up)) near15 (writ\$3 or sav\$3 or delet\$4 or chang\$3 or modif\$7))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:38
S34	0	S27 and (@ad<"20000921" or @rlad<"20000921") and ((captur\$3 or mirro\$3 or shadow\$3 or backup or (back\$3 near2 up)) near15 (writ\$3 or sav\$3 or delet\$4 or chang\$3 or modif\$7))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:39
S35	6	S27 and ((captur\$3 or mirro\$3 or shadow\$3 or backup or (back\$3 near2 up)) near15 (writ\$3 or sav\$3 or delet\$4 or chang\$3 or modif\$7))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:39
S36	0	S35 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:39
S37	74	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6 or view\$3 or watch\$3 or preview\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:40
S38	3	S37 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 17:41
S40	1	"5778395".pn. and encrypt\$4	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2019/01/21 20:55

			EPO; JPO; DERWENT; IBM_TDB			
S41	1	"5778395".pn. and encrypt\$4 and increment\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 20:57
S42	0	"5778395".pn. and lazy	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:01
S43	1	"5778395".pn. and (lazy or delay\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:01
S44	1	"5778395".pn. and (lazy or delay\$3 or schedul\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:01
S45	1	"5778395".pn. and decompress\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:07
S46	0	"5778395".pn. and backup and archiv\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:16
S47	2	"5778395".pn. and backup	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:26
S48	1	"5778395".pn. and (restor\$5 near15 (internet or network\$1 or wan))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:40
S49	2	"5778395".pn. and (internet or network\$1 or wan)	US-PGPUB; USPAT;	OR	ON	2019/01/21 21:41

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S50	2	"5778395".pn. and (backup near10 network\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:46
S51	1	"5778395".pn. and (restor\$5 near10 network\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:47
S52	1	"5778395".pn. and (restor\$5 near20 network\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 21:47
S53	0	"5778395".pn. and (restor\$5 near20 local near2 disk)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:02
S54	0	"5778395".pn. and (restor\$5 near20 local near15 disk)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:03
S55	0	"5778395".pn. and (restor\$5 near20 local near15 (memory or cache or proxy or disk))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:03
S56	1	"5778395".pn. and (restor\$5 near20 (local or system) near15 (memory or cache or proxy or disk))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:04
S57	0	"5778395".pn. and (attached near3 storage\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:16

S58	1	"5778395".pn. and decrypt\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:16
S59	1	"5778395".pn. and (decrypt\$4 same restor\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:23
S60	0	"5778395".pn. and ((network near2 attach\$3 near2 storage) or NAS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:52
S61	2	"5778395".pn. and ((network near2 attach\$3 near2 storage) or NAS or tap or disk\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:52
S62	2704	backup near15 restor\$5 near15 ((network near2 attach\$3 near2 storage) or NAS or tap or disk\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:56
S63	118	(backup near15 restor\$5 near15 ((network near2 attach\$3 near2 storage) or NAS or tap or disk\$1)) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:56
S64	19	S63 and (@ad< "20000921" or @rlad< "20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 22:57
S65	20	(backup near15 restor\$5 near15 internet) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:00
S66	4	(backup near15 restor\$5 near15 (internet near4 storage\$1)) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2019/01/21 23:00

			DERWENT; IBM_TDB			
S67	0	S66 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:01
S68	4	(backup near15 restor\$5 near15 ((internet or (wide near2 area near2 network)) near4 storage\$1)) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:01
S69	0	S68 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:01
S70	0	(backup near15 restor\$5 near15 ((internet or (wide near2 area near2 network)) near4 storage\$1)) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3) near15 restor\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:04
S71	0	(backup near15 restor\$5 near15 ((internet WAN or (wide near2 area near2 network)) near4 storage\$1)) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3) near15 restor\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:04
S72	57	(backup near15 restor\$5 near15 ((internet WAN or (wide near2 area near2 network)) near4 storage\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:04
S73	3	S72 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:04
S74	6	(backup near15 restor\$5 near15 ((internet or online or on-line or (wide near2 area near2 network)) near4 storage\$1)) and ((present\$3 or display\$3) near15 backup near15 (select\$4 or choos\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:05
S75	0	S74 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR;	OR	ON	2019/01/21 23:05

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S76	87	(backup near15 restor\$5 near15 ((internet or online or on-line or (wide near2 area near2 network)) near4 storage\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:05
S77	12	S76 and (@ad<"20000921" or @rlad<"20000921")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:05
S78	12	S76 and (@ad<"20000921" or @rlad<"20000921") and restor\$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:07
S79	1	"5778395".pn. and performance\$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/01/21 23:24

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L12	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1))))).ti,clm,ab.	US-PGPUB; USPAT	OR	ON	2019/10/15 13:00
L13	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or configur\$5 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or	US-PGPUB; USPAT	OR	ON	2019/10/15 13:13

		id or identifier\$1))))).ti,clm,ab.				
S23	0	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6) near15 (view\$3 or watch\$3 or preview\$3))))).ti,clm,ab.	US-PGPUB; USPAT	OR	ON	2019/01/21 14:50
S39	1	((restor\$5 or reconstruct\$4 or repair or rebuild\$3) near15 (revision\$3 or edition\$1 or version\$3) near15 (decrypt\$4 or decod\$3) near15 (network\$1 or internet or remote\$1 or server\$1 or peer or p2p)) and ((select\$4 or click\$3 or choos\$3) near15 (revision\$1 or version\$3) near15 (display\$3 or present\$6 or view\$3 or watch\$3 or preview\$3))))).ti,clm,ab.	US-PGPUB; USPAT	OR	ON	2019/01/21 16:54

10/ 15/ 2019 1:28:04 PM
C:\ Users\ bto\ Documents\ EAST\ Workspaces\ 14970044.wsp

Bibliographic Data

Application No: 14/970,044

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☒ No ☐ Met After Allowance

Verified and Acknowledged:
Examiner's Signature Initials

Title:

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/15/2015	707	2154	6982-2-CON-1
RULE			

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CONTINUING DATA

This application is a CON of 13925768 06/24/2013 PAT 9218348

13925768 is a CON of 09957459 09/21/2001 PAT 8473478

09957459 has PRO of 60234221 09/21/2000

FOREIGN APPLICATIONS

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01/06/2016

**** SMALL ENTITY ****

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110 BOARDMOOR HILLS DR
SUITE 100
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UNITED STATES

FILING FEE RECEIVED

\$730



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Searched for ((restore +or +recovery) +near +(backup +or +mirror +or +shadow +or +version) +near +(select +or +input) +near +(display +or +preview +or +represent) +near +file +near +(network +or +online +or +internet +or +cloud)) +and +((make +or +configure +or +archive +or +set) +near +(backup +or +shadow +or +mirror +or +version) +near +(current +near +version) +near +((user +or +local) +near +(device +or +storage +or +memory))) +and +((preview +or +display +or +represent) +near +(backup +or +version +or +mirror +or +shadow) +near +(file +near +(information +or +metadata +or +name +or +id +or +identifier +or +indicator)))) [\[view search\]](#) [\[edit/save query\]](#) [\[advanced search\]](#)

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	((restor\$5 or recover\$3) near15 backup near15 version\$1 near15 preview\$3) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:45
L2	0	((restor\$5 or recover\$3) near15 backup near15 version\$1 near15 preview\$3) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:47
L3	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3) near15 version\$1 near15 preview\$3) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:49
L4	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3) near15 version\$1 near15 preview\$3) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:49
L5	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3) near15 version\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:51
L6	1	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3) near15 backup near15 version\$1 near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:51
L7	2	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1)) and ((preview\$3 or	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:52

		display\$3 or present\$4) near15 backup near15 version\$3)				
L8	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:53
L9	6	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1)) and ((preview\$3 or display\$3 or present\$4) near15 backup near15 version\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/15 12:54
L10	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 12:58
L11	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1)))) .ti,clm,ab.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 13:00
L14	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or configur\$5 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 13:13

		identifier\$1))))).ti,clm,ab.				
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EAST Search History (I nterference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L12	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1))))).ti,clm,ab.	US-PGPUB; USPAT	OR	ON	2019/10/15 13:00
L13	0	((restor\$5 or recover\$3) near15 (backup or mirror\$3 or shadow\$3 or version\$3) near15 (select\$4 or input\$4) near15 (display\$3 or preview\$3 or present\$5) near15 file\$1 near15 (network\$1 or online or internet or cloud\$1)) and ((mak\$3 or configur\$5 or archiv\$3 or set\$4) near15 (backup or shadow\$3 or mirror\$3 or version\$1) near15 (current near2 version\$1) near15 local) and ((preview\$3 or display\$3 or present\$4) near15 (backup or version\$3 or mirror\$3 or shadow\$3) near15 (file near3 (information or metadata or name or id or identifier\$1))))).ti,clm,ab.	US-PGPUB; USPAT	OR	ON	2019/10/15 13:13

10/ 15/ 2019 1:20:05 PM
C:\ Users\ bto\ Documents\ EAST\ Workspaces\ 14970044.w sp

Electronic Patent Application Fee Transmittal

Application Number:	14970044			
Filing Date:	15-Dec-2015			
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS			
First Named Inventor/Applicant Name:	Warren Roach			
Filer:	Ramraj Soundararajan/Brandi Franklin			
Attorney Docket Number:	6982-2-CON-1			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	4	50	200
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				200

Electronic Acknowledgement Receipt

EFS ID:	37991352
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	150773
Filer:	Ramraj Soundararajan/Brandi Franklin
Filer Authorized By:	Ramraj Soundararajan
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	10-DEC-2019
Filing Date:	15-DEC-2015
Time Stamp:	23:06:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$200
RAM confirmation Number	E2019B0N06513995
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment after Notice of Allowance (Rule 312)	6982-2- CON-1_AmendmentAfter- Allowance.pdf	156387	no	10
			0bf06ff3f49ec178a22fc0e124da6e60718dc acc		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30471	no	2
			cee25e521525d5ec8a740e5a7ad8d20d3b6 bb5ab		
Warnings:					
Information:					
Total Files Size (in bytes):			186858		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: WARREN ROACH ET AL.

Serial No.: 14/970,044

Art Unit: 2154

Filed: 12/15/2015

Examiner: Baoquoc N. To

Title: *Automatic Real-Time File Management Method and Apparatus*

AMENDMENT UNDER 37 CFR §1.312

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

In response to the Notice of Allowance mailed 10/25/2019, Applicants submit the following:

Amendments to the **Claims** begin on page 2 of this response.

Remarks begin on page 10 of this response.

AMENDMENTS TO THE CLAIMS

Please amend the Claims as follows:

1-51. (Cancelled)

52. (Previously Presented) A method of restoring a file to a previous version of the file, a current version of the file being available at a local storage location, comprising the steps of:

(A) presenting information for a collection of one or more previous versions of the file, the information for the collection including information indicative of at least one or more of previous versions of the file, wherein a restorable representation of each version, V, of the previous versions, is retrievable from a remote storage location, the restorable representation having at least information required for recovering the version V by a computational machine with the current version being accessible, the remote storage location being accessible through a network;

(B) responsive to a selection to preview a selected previous version of the file based on the presented information for the collection of (A), presenting a presentable representation of the selected previous version, the selected previous version being one of the previous versions of the file in the presented information for the collection, the presentable representation having at least information required for presenting at least a portion of the selected previous version by the computation machine with the current version being accessible; and

(C) responsive to a selection to restore the selected previous version, retrieving the restorable representation of the selected previous version from the remote storage location and storing the selected previous version by the computational machine as the current version on the local storage location, the selected previous version available from the restorable representation of the selected previous version.

53. (Previously Presented) The method of claim 52, wherein, for the presenting of (B), the presentable representation is presented using an application that created the file or the selected previous version.

54. (Previously Presented) The method of claim 53, wherein the application is in a read-only mode.

55. (Previously Presented) The method of claim 52, wherein the information includes at least two previous versions of the file.

56. (Previously Presented) The method of claim 52, wherein the information for the collection includes information indicative of at least one or more of a timestamp, an original file location, and a comment of the previous versions or the file.

57. (Previously Presented) The method of claim 52, further comprising the steps of:

(B2) after the presenting of (B) and responsive to a selection to not restoring the previous version and responsive to a second selection of a second previous version of the previous versions, version presenting a second presentable representation of the selected second previous version, the second presentable representation having at least information required for presenting at least a portion of the selected previous version; and

(C2) responsive to a selection to restore the second selected previous version, retrieving the restorable representation of the second selected previous version from the remote storage location and storing the second selected previous version as the current version on the local storage

location, the second selected previous version available from the restorable representation of the second selected previous version.

58. (Previously Presented) The method of claim 52, wherein the restorable representation of the selected previous version comprises one or more of a compressed and encrypted version of the selected previous version.

59. (Previously Presented) The method of claim 52, wherein the restorable representation of the selected previous version comprises an incremental change to the file.

60. (Previously Presented) The method of claim 52, wherein the method has a substantially imperceptible impact on system performance from a user's point of view by delaying one or more operations to prevent a perceptible impact on system performance from a user's point of view.

61. (Previously Presented) A method of restoring a file to a previous version of the file, a current version of the file being available at a local storage location, comprising the steps of:

(A) presenting information for a collection of one or more previous versions of the file, the information for the collection including information indicative of at least one or more of previous versions of the file, wherein a restorable representation of each version, V, of the previous versions, is retrievable from a remote storage location, the restorable representation having at least information required for recovering the version V, the remote storage location being accessible through a network;

(B) responsive to a selection to preview a selected previous version of the file based on the presented information for the collection of (A), presenting a presentable representation of the selected previous version, the selected previous version being one of the previous versions of the file in the presented information for the collection, the presentable representation having at least information required for presenting at least a portion of the selected previous version;

(C) responsive to a selection to restore the selected previous version, retrieving the restorable representation of the selected previous version from the remote storage location and storing the selected previous version as the current version on the local storage location, the selected previous version available from the restorable representation of the selected previous version.

62. (Previously Presented) The method of claim 61, wherein, for the presenting of (B), the presentable representation is presented using an application that created the file or the selected previous version.

63. (Previously Presented) The method of claim 61, wherein the information includes at least two previous versions of the file.

64. (Previously Presented) The method of claim 61, wherein the information for the collection includes information indicative of at least one or more of a timestamp, an original file location, and a comment of the previous versions or the file.

65. (Previously Presented) The method of claim 61, further comprising the steps of:

(B2) after the presenting of (B) and responsive to a selection to not restoring the previous version and responsive to a second selection of a second previous version of the previous versions, version presenting a second presentable representation of the selected second previous version, the second presentable representation having at least information required for presenting at least a portion of the selected previous version; and

(C2) responsive to a selection to restore the second selected previous version, retrieving the restorable representation of the second selected previous version from the remote storage location and storing the second selected previous version as the current version on the local storage location, the second selected previous version available from the restorable representation of the second selected previous version.

66. (Previously Presented) The method of claim 61, wherein the restorable representation of the selected previous version comprises one or more of a compressed and encrypted version of the selected previous version.

67. (Previously Presented) The method of claim 61, wherein the restorable representation of the selected previous version comprises an incremental change to the file.

68. (Previously Presented) The method of claim 61, wherein the method has a substantially imperceptible impact on system performance from a user's point of view by delaying one or more operations to prevent a perceptible impact on system performance from a user's point of view.

69. (Previously Presented) A method of restoring a file to a previous version of the file, a current version of the file being available at a local storage location, comprising the steps of:

(A) iteratively transmitting a representation of at least a portion of a current version of a file to a remote storage location for archiving the current version responsive to a determination of an availability of the remote storage location for accepting a transmission of the representation, the current version being accessible at a computational machine, the remote storage location being accessible through a network;

(B) presenting information for a collection of one or more previous versions of the file, the information for the collection including information indicative of at least one or more of previous versions of the file, wherein a restorable representation of each version, V, of the previous versions, is retrievable from the remote storage location, the restorable representation having at least information required for recovering the version V by the computational machine, the remote storage location being accessible through a network;

(C) responsive to a selection to preview a selected previous version of the file based on the presented information for the collection of (B), presenting a presentable representation of the selected previous version, the selected previous version being one of the previous versions of the file in the presented information for the collection, the presentable representation having at least information required for presenting at least a portion of the selected previous version by the computation machine with the current version being accessible; and

(D) responsive to a selection to restore the selected previous version, retrieving the restorable representation of the selected previous version from the remote storage location and storing the selected previous version by the computational machine as the current version on the

local storage location, the selected previous version available from the restorable representation of the selected previous version.

70. (Previously Presented) A method of restoring a file to a previous version of the file, a current version of the file being available at a local storage location, comprising the steps of:

- (a) receiving a request to display a list of captured revisions for a file;
- (b) displaying a list of captured revisions for said file;
- (c) receiving a selection from said list indicating a revision of said file to restore;
- (d) previewing selected revision of said file, wherein said selected revision of said file is received from an Internet storage area network;
- (e) receiving another selection from said list indicating another revision of said file to restore;
- (f) previewing selected another revision of said file, wherein said selected another revision of said file is received from a network attached storage location; and
- (g) restoring selected another revision of said file following said previewing step in (f), optionally, decrypting said selected revision of said file prior to step (d) and decrypting said selected another revision of said file prior to step (f).

71. (Previously Presented) The method of claim 70, wherein said method comprises decompressing said selected revision of said file prior to (d) and decompressing said selected another revision of said file prior to (f).

72. (Previously Presented) The method of claim 70, further comprising the step of decompressing said selected revision of said file prior to step (d) and decompressing said selected another revision of said file prior to step (f).

73. (New) A non-transitory computer readable medium comprising program instruction for performing the method of claim 52.

74. (New) A non-transitory computer readable medium comprising program instruction for performing the method of claim 61.

75. (New) A non-transitory computer readable medium comprising program instruction for performing the method of claim 69.

76. (New) A non-transitory computer readable medium comprising program instruction for performing the method of claim 70.

REMARKS

Claims 52 to 72 are currently allowed. Claims 73-76 are added via the current amendment without adding new matter. Applicants note that each of the newly added claims depend from an allowed claim and are in allowable form. Applicants, therefore, respectfully request the Examiner to enter the current Amendment.

Applicants submit herewith the fee for the four extra dependent claims. The Commissioner is hereby authorized to charge any deficiencies in the fees provided to Deposit Account No. 600107.

If it is felt that an interview would expedite prosecution of this application, please do not hesitate to contact Applicants' representative at the below number.

Respectfully submitted,

/Ramraj Soundararajan/

Ramraj Soundararajan
Registration No. 53,832

IP AUTHORITY, LLC
9435 Lorton Market St, #801
Lorton, VA 22079
(571) 349-0047 x 111

December 10, 2019

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

150773 7590 10/25/2019
DATANET, LLC
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SUITE 100
COLORADO SPRINGS, CO 80906

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1	8673

TITLE OF INVENTION: AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	01/27/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
TO, BAOQUOC N	2154	707-707000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Aspire IP, LLC

2

3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☒ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 600107

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Ramraj Soundararajan/

Date 1-27-2020

Typed or printed name RAMRAJ SOUNDARARAJAN

Registration No. 53832

Electronic Patent Application Fee Transmittal

Application Number:	14970044			
Filing Date:	15-Dec-2015			
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS			
First Named Inventor/Applicant Name:	Warren Roach			
Filer:	Ramraj Soundararajan/Brandi Franklin			
Attorney Docket Number:	6982-2-CON-1			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
UTILITY APPL ISSUE FEE	2501	1	500	500
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				500

Electronic Acknowledgement Receipt

EFS ID:	38412904
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	150773
Filer:	Ramraj Soundararajan/Brandi Franklin
Filer Authorized By:	Ramraj Soundararajan
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	27-JAN-2020
Filing Date:	15-DEC-2015
Time Stamp:	20:12:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 500
RAM confirmation Number	E20201QK14215392
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	6982-2-CON-1_IssueFeeTrans. pdf	105366	no	1
			328c8f86f09dc8ece2758c4ba5ddc2b2117e18e5		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32034	no	2
			9b5ab32d57793939e8c7fef020678700580723d0		
Warnings:					
Information:					
Total Files Size (in bytes):			137400		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1	8673
150773	7590	01/28/2020		
DATANET, LLC 110 BOARDMOOR HILLS DR SUITE 100 COLORADO SPRINGS, CO 80906			EXAMINER TO, BAOQUOC N	
			ART UNIT	PAPER NUMBER
			2154	
			NOTIFICATION DATE	DELIVERY MODE
			01/28/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

brandi@ip-authority.com
scott@aspireip.com
yiu@aspireip.com

Response to Rule 312 Communication	Application No. 14/970,044	Applicant(s) Roach et al.	
	Examiner BAOQUOC N TO	Art Unit 2154	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

1. ☒ The amendment filed on 10 December 2019 under 37 CFR 1.312 has been considered, and has been:

a) ☐ entered.

b) ☐ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☒ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

The newly added claims 72-76 have not been presented and/or examined. Newly added claims 72-76 are required further examination and/or consideration.

/BAOQUOC N TO/ Primary Examiner, Art Unit 2154	
---	--

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: WARREN ROACH ET AL.

Serial No.: 14/970,044

Art Unit: 2154

Filed: 12/15/2015

Examiner: Baoquoc N. To

Title: *Automatic Real-Time File Management Method and Apparatus*

AMENDMENT UNDER 37 CFR §1.312

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

In response to the Notice of Allowance mailed 10/25/2019, Applicants submit the following:

Amendments to the **Claims** begin on page 2 of this response.

Remarks begin on page 10 of this response.

REQUEST FOR REFUND

Reference # (Patent #, Application #, Trademark Serial #, Registration #, etc.)		Title of Invention or Mark Information	
14970044		Automatic Real-Time File Management Method and Apparatus	
Attorney Docket # (if applicable)	Payment Date (mm/dd/yyyy)	Refund Request Amount	
6982-2-CON-1	12/10/2019	\$ 200.00	
Refund Option (Select one)			
☒ If approved, issue the refund to the account associated with the original payment.			
☐ If approved, and the original payment was a check, issue the refund to deposit account # _____.			
☐ If approved, and the original payment was a check, issue the refund as a U.S. Treasury check.			
Reason for Refund Request Refund requests must generally be filed within 2 years of payment date (37 CFR 1.26 and 2.209)			
☐ Duplicate Payment		☐ No Fee Due	
☐ Office Error		☐ Small Entity Later Established*	
☒ Other Rule 312 Amendment not entered		☐ Other Rule 312 Amendment not entered	
<small>(*must be filed within 3 months of payment date, 37 CFR 1.28)</small>			
Rationale (Supporting documentation may be submitted with this form)			
Applicant filed an Amendment under 37 CFR §1.312 on 12/10/2019 and paid extra claim fees of \$200. The examiner did not enter the Amendment; therefore, Applicant requests to have those fees refunded.			

Requester's Information

Company or Firm Name (if applicable)		
IP Authority, LLC		
Address Line 1	City	State/Region
9435 Lorton Market St, #801	Lorton	VA
Address Line 2 (if applicable)	Country	Zip/Postal Code
	US	22079
Email Address (You will receive an acknowledgment of receipt only if you provide a valid email address)		Phone Number
brandi@ip-authority.com		571-403-9437
Requester's Name		Registration Number (if applicable)
Ramraj Soundararajan		53832
Signature		Date (mm/dd/yyyy)
/Ramraj Soundararajan/		01/31/2020

Submit online: EFS-Web (registered users only; select "Request for Refund" from the document description menu), or

Fax to: 571-273-6500, or

Mail to: Director of the U.S. Patent and Trademark Office, Attn: Refunds, 2051 Jamieson Avenue, Suite 300, Alexandria, VA 22314

Electronic Acknowledgement Receipt

EFS ID:	38456799
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	150773
Filer:	Ramraj Soundararajan/Brandi Franklin
Filer Authorized By:	Ramraj Soundararajan
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	31-JAN-2020
Filing Date:	15-DEC-2015
Time Stamp:	12:06:55
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Refund Request	6982-2- CON-1_PTO2326_RefundReque st.pdf	682826 2039b9ba2535f63479f6c6134468484bfaac e487	no	1

Warnings:

Information:	
Total Files Size (in bytes):	682826
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>	



APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/970,044	03/10/2020	10585850	6982-2-CON-1	8673

150773 7590 02/19/2020

DATANET, LLC
110 BOARDMOOR HILLS DR
SUITE 100
COLORADO SPRINGS, CO 80906

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 1008 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

DATANET, LLC, Colorado Springs, CO
Warren Roach, Colorado Springs, CO;
Steven R. Williams, Colorado Springs, CO;
Troy J. Reiber, Colorado Springs, CO;
Steven C. Burdine, Middleton, WI;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

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PATENT - POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS	Patent Number	10585850 B2
	Issue Date	3-10-2020
	First Named Inventor	Warren Roach
	Title	Automatic Real-time File Management Method and Apparatus
	Attorney Docket No.	6982-2-CON-1

I hereby revoke all previous powers of attorney given in the above-identified patent.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the Customer Number identified in the box at right as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

26381

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified patent to:

☒ The address associated with the above-identified Customer Number.

OR

☐ The address associated with the Customer Number identified in the box at right:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

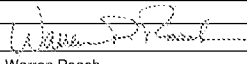
☐ Applicant.

OR

☒ Patent owner.

Statement under 37 CFR 3.73(c) (Form PTO/AIA/96) submitted herewith or filed on _____.

SIGNATURE of Applicant or Patent Owner

Signature		Date	June 7, 2021
Name	Warren Roach	Telephone	719-579-9734
Title and Company	Partner Datanet LLC		

NOTE: Signatures of all the applicants or patent owners of the entire interest or their representative(s) are required. If more than one signature is required, submit multiple forms, check the box below, and identify the total number of forms submitted in the blank below.

☐ A total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: Warren Roach, Steven Williams, Troy Reiber, Steven BurdineApplication No./Patent No.: 10585850 Filed/Issue Date: 3-10-2020Titled: Automatic Real-Time File Management Method and ApparatusDatanet, LLC, a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Inventors To: Integrity PC Innovations, Inc.The document was recorded in the United States Patent and Trademark Office at
Reel 049191, Frame 0558, or for which a copy thereof is attached.2. From: Integrity PC Innovations, Inc. To: Datanet, LLCThe document was recorded in the United States Patent and Trademark Office at
Reel 049191, Frame 0577, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Ramraj Soundararajan/

5/06/2021

Signature

Date

RAMRAJ SOUNDARARAJAN

53832

Printed or Typed Name

Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	42937574
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	150773
Filer:	Ramraj Soundararajan/Brandi Franklin
Filer Authorized By:	Ramraj Soundararajan
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	09-JUN-2021
Filing Date:	15-DEC-2015
Time Stamp:	11:13:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	US10585850_POA.pdf	138434	no	2
			0878d193d8ded24b6e94d1bbe6565b5d70c1f3574		

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	850_Statement_373c_AIA96.pdf	124535	no	3
			0c29f228906776b22349a919020ef186c790b48		
Warnings:					
Information:					
Total Files Size (in bytes):				262969	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					



UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1

26381
IP AUTHORITY, LLC
Ramraj Soundararajan
9435 Lorton Market St, #801
Lorton, VA 22079

CONFIRMATION NO. 8673
POA ACCEPTANCE LETTER



Date Mailed: 06/16/2021

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/09/2021.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/sleutchit/



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/970,044	12/15/2015	Warren Roach	6982-2-CON-1

150773
DATANET, LLC
110 BOARDMOOR HILLS DR
SUITE 100
COLORADO SPRINGS, CO 80906

CONFIRMATION NO. 8673
POWER OF ATTORNEY NOTICE



Date Mailed: 06/16/2021

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/09/2021.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

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/sleutchit/

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14/970,044
Filing Date	December 15, 2015
First Named Inventor	Warren Roach
Title	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
Art Unit	2154
Examiner Name	BAOQUOC N TO
Attorney Docket Number	13527

SIGNATURE of Applicant or Patent Practitioner

Signature	/Rowan P. Smith/	Date (Optional)	
Name	Rowan P. Smith	Registration Number	64198
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐

*Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number

Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)



I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

168123

OR



I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:



The address associated with the above-mentioned Customer Number

OR



The address associated with Customer Number:

OR



Firm or
Individual Name

Address

City

State

Zip

Country

Telephone

Email

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Datanet, LLC



Inventor or Joint Inventor (title not required below)



Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)



Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)



Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature

Warren P. Roach

Date (Optional)

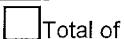
Name

Warren Roach

Title

Manager

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.



Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: DATANET, LLCApplication No./Patent No.: 10,585,850Filed/Issue Date: 03/10/2020Titled: AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUSDATANET, LLC, a limited liability company

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose one of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose one of options A or B below):

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Warren Roach, Steve R. Williams, Troy J. Reiber, Steven C. Burdine To: Integrity PC Innovations, Inc.The document was recorded in the United States Patent and Trademark Office at
Reel 049191, Frame 0558, or for which a copy thereof is attached.2. From: Integrity PC Innovations, Inc. To: DATANET, LLCThe document was recorded in the United States Patent and Trademark Office at
Reel 049191, Frame 0577, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Rowan P. Smith/

Signature

Rowan P. Smith

Printed or Typed Name

July 11, 2023

Date

64198

Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	48281308
Application Number:	14970044
International Application Number:	
Confirmation Number:	8673
Title of Invention:	AUTOMATIC REAL-TIME FILE MANAGEMENT METHOD AND APPARATUS
First Named Inventor/Applicant Name:	Warren Roach
Customer Number:	26381
Filer:	Rowan P. Smith/ANN SACHET
Filer Authorized By:	Rowan P. Smith
Attorney Docket Number:	6982-2-CON-1
Receipt Date:	11-JUL-2023
Filing Date:	15-DEC-2015
Time Stamp:	19:14:51
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	14970044_8673POA.pdf	353641	no	2
			5c5fad31d2d0d1c77915d9107a330cf4b408076a		

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	14970044-373Statement.pdf	97180	no	3
			ce1762f19cf783e5e5bf13b8f35743e14430e38		
Warnings:					
Information:					
Total Files Size (in bytes):				450821	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					



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14/970,044	12/15/2015	Warren Roach	6982-2-CON-1

CONFIRMATION NO. 8673

26381
IP AUTHORITY, LLC
Ramraj Soundararajan
5004 East Fowler Ave, Unit C#408
Tampa, FL 33617-2181

POWER OF ATTORNEY NOTICE



OC000000059268206

Date Mailed: 07/13/2023

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/11/2023.

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/tmbrooks/



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14/970,044	12/15/2015	Warren Roach	6982-2-CON-1

CONFIRMATION NO. 8673

POA ACCEPTANCE LETTER



OC000000059268226

168123
Messner Reeves LLP
7250 North 16th Street
Suite 410
Phoenix, AZ 85020

Date Mailed: 07/13/2023

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/tmbrooks/