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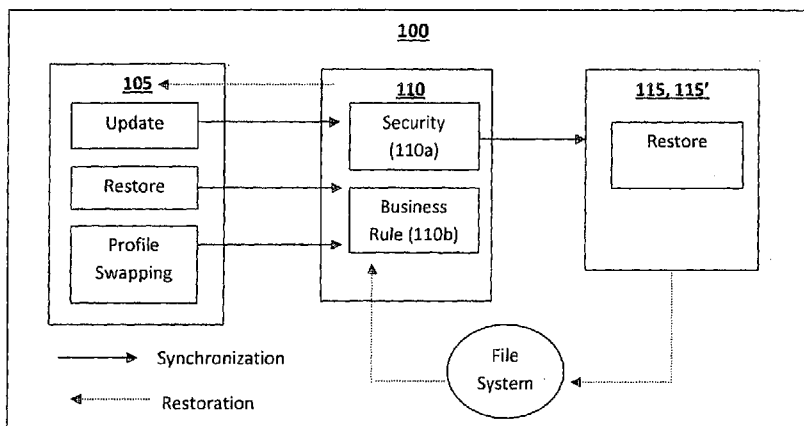
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(54) **Title:** A CONFIGURATION PROFILE MANAGEMENT SYSTEM FOR MOBILE



(57) **Abstract:** The present invention provides a versioning manager that is to be implemented into a mobile computing device (105) and is configured to enable the mobile computing device (105) to perform the following tasks, including: backing-up multiple versioned configuration profiles thereof into a remote repository (115'), selecting one of stored multiple versioned configuration profiles in the remote repository (115') using a rollback mechanism for configuration profile restoration, and mutually exchanging the configuration profile thereof with at least one another mobile device (105). The mobile computing device (105) is operatively communicated with the remote repository (115') via a network (100).

WO 2014/027881 A1

A CONFIGURATION PROFILE MANAGEMENT SYSTEM FOR MOBILE DEVICES

FIELD OF INVENTION

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The present invention relates to a configuration profile management system for mobile devices. More particularly, relates to a versioning manager to be implemented in mobile devices and which is configured to allow user to perform rollback for selection of a specific version of configuration profiles to be restored on the mobile devices from a remote repository and a local storage device of the mobile device, and also to initiate a mutual exchange of configuration profiles between the mobile devices.

BACKGROUND

15 Modern mobile devices, such as smart phone, tablet, personal digital assistant and etc. are becoming more programmable and are able to provide users as many services and functions as generally performed by conventional computing devices. As such, today's users are getting dependent on such mobile device as part of their daily life and/or business. Preservation of settings or configuration profiles in the mobile device has also
20 becoming increasingly important, especially in the event if the mobile device is lost, stolen or malfunction.

Traditionally, in case the configuration setting of a mobile phone is wiped out or deleted or corrupted, the users may have to manually re-customize their mobile device so that they are fully functioning again as before. Such a re-customization process is not an easy task. It is generally time-consuming and rather burdensome if the users are not
5 technologically sophisticated.

There thus have developed some systems and methods to permit users to handle the restoration process for the mobile devices with simple procedures. Nevertheless, these restoration systems and methods are associated with some limitations. A large storage
10 capacity is often required to back up a configuration profile from the mobile devices. The resource-restrained mobile devices may not be able to backup multiple versions of configuration profiles in their storage device. Restoring a complete configuration profile from their storage device at once would also be unlikely. Further, different communication platforms between the mobile devices may also render the restoration
15 process difficult. For example, the preserved configuration profile in a mobile device cannot be easily transported and be re-installed on another mobile device.

U.S Patent Publication no. US 2007/0140108 has disclosed a method of switching a network access configuration associated with a first electronic system to a second
20 electronic system via a network. This switching method is invoked when the first electronic system is found to be inoperable or malfunction. The service provider may update its database with the inoperability information of the first electronic system and subsequently allows the network access configuration of the first electronic system to be

associated with a second electronic system. Accordingly, the user may continue to access the network resources using the second electronic system instead of the inoperable first electronic system.

- 5 Another example relating to restoration system includes PCT Patent Publication No. WO2005/022357, which teaches the use of a backup system that stores a custom configuration profile that to be installed in a new device or a device that has suffered system failure and needs reconfiguration of the system. Such a configuration profile installation is implemented by wireless or wired connection between the target device and
10 the backup device.

In view of above, there exist a need for a configuration profile management system for mobile devices that allows multiple configuration profiles to be backed up in a remote repository, enables users to select which configuration profiles to be restored from the
15 remote repository and also facilitates mutual exchange of configuration profiles between the mobile devices for a convenient restoration operation.

SUMMARY

- 20 The present invention provides a configuration profile management system. The system comprises a remote repository and a plurality of mobile computing devices that is operatively coupled with the remote repository via a network. Each mobile computing device is implemented with a versioning manager that is operatively coupled to a

processing unit of the mobile device for configuration profile management. The versioning manager, preferably, comprises a configuration restoration module having a rollback mechanism that enables that a user to select which versioned configuration profiles to be restored from the remote repository. Further, the rollback mechanism is also configured to assist the user to perform a simple rollback so that one previous versioned configuration that is maintained in the mobile device can be restored in a more efficient manner.

The versioning manager further includes a profile-swapping module that allows the mobile device to mutually exchange its configuration profile with at least one another mobile device through the remote repository. An incremental synchronization module and an update mechanism are also provided in the versioning manager. Both of the incremental synchronization module and the update mechanism may be operatively coupled with each other so that the mobile device is able to perform incremental synchronization process with the remote repository, and thereby updating the remote repository with any detected incremental changes or modifications made to the configuration.

BRIEF DESCRIPTION OF THE DRAWINGS

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Other objects, features, and advantages of the invention will be apparent from the following description when read with reference to the accompanying drawings. In the

drawings, wherein like reference numerals denote corresponding parts throughout the several views:

Figure 1 is an exemplary network architecture in which embodiments according to the present invention operates;

Figure 2 is a versioning manager in accordance with a preferred embodiment of the present invention for facilitating mobile devices to perform configuration profile management.

10

Figure 3A is a flow chart depicting a restoration process that operates at the client site of the exemplary network system of the **Figure 1**, more suitably at the mobile devices;

Figure 3B is a flow chart depicting a restoration process that operates at the server site of the exemplary network system of the **Figure 1**, more suitably at the remote repository;

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Figure 4 is a flow chart depicting the operation of the profile-swapping module of the versioning manager that is implemented in a mobile device; and

Figure 5 illustrates how the updating mechanism of the versioning manager is operated in accordance with one preferred embodiment of the present invention.

20

DETAILED DESCRIPTION

The present invention will now be described in detail with reference to the accompanying in drawings.

5

Figure 1 is an exemplary network architecture (100) at which embodiments in accordance with one embodiment of the present invention. The embodiments are directed to a system and method configured for facilitating a mobile computing device to perform the following tasks, including: backing-up multiple versioned configuration profiles
10 thereof into a remote repository, restoring one of stored multiple versioned configuration profiles in the remote repository using a rollback mechanism, and mutually exchanging the configuration profile thereof with another mobile devices, irrespective of the type of the mobile device. These aforementioned configuration profiles management tasks, in particular, are carried out by means of a versioning manager that is implemented in each
15 of a plurality of mobile computing devices (105). The plurality of mobile computing devices (105), as shown in Figure 1, is operatively communicating with a server via a network (110)

The plurality of mobile computing devices (105) (or hereinafter referred as mobile
20 devices) may include laptop computers, hand-held computers, and mobile communication devices. The plurality of mobile computing devices (105) is configured in such a manner that it allows synchronization of data with the server (115) over the network. With such a configuration, any changes or updates of the data stored in the

mobile computing devices (105) will be reflected in the server (115) in a simultaneous manner. The server, however, upon being prompted or requested by the mobile computing devices, may forward its stored data to the mobile computing devices through the network for restoration. Suitably, the server (115) may correspond to any remote
5 computing devices having a repository (hereinafter referred to a remote repository (115')). The remote repository (115') is adapted to store at least one versioned configuration profile of each mobile device (105).

The network (110) can be a local area network (LAN), a wireless network, a mobile
10 communications network, a wide area network (WAN) or similar communication system. As shown, the network is implemented with a security module (110a) and a business rule module (110b). The business rule logic (110b) intends to assert a business structure to an online application that is provided by the server (115). The security module (110a) is configured in such a manner that it establishes a secure business transaction and
15 communication between the mobile services and the server (115) over the network.

The versioning manager (200), as shown in **Figure 2**, includes a configuration restoration module (205), a profile-swapping module (210), an incremental synchronization module (215) and an update mechanism (220). As will be noted, such a versioning manager is
20 operatively coupled and executed by a processing unit of the mobile computing devices according to a set of computer executable instructions stored in its local memory device. The configuration restoration module (215) of the versioning manager (200) is configured to allow the mobile device (105) to store and to maintain at least one

versioned configuration profiles in the remote repository (115'). As such, multiple versions of configuration profiles of a mobile device (105) may thus be backed-up in the remote repository (115') for any future configuration profile recovery attempts. In addition to the remote repository (115'), the configuration restoration module may also
5 facilitate the mobile device (105) to store the most recent version of archived configuration profile in a local storage device of the mobile device (105). With such a local backup, the mobile device (105) may be able to restore the configuration profile to its previous version in a faster and easier manner.

10 In one preferred embodiment, the configuration restoration module (205) may include a rollback mechanism. The roll back mechanism enables a user to select which versioned configuration profiles in the remote repository to be restored on the mobile device (105). Likewise, such a rollback mechanism may also assist the user to perform a simple
15 rollback within the mobile device so that allow transition of the current configuration profile to its previous version. Understandably, the previous version of the configuration profile is compressed in to a smaller memory size and locally stored on the storage device of the mobile device (105).

Further to the preferred embodiment, the configuration restoration module (205) may
20 include an interactive merger. The interactive merger is adapted to facilitate merging of at least two versioned configuration profiles that have been stored in the remote repository into a single versioned configuration profile. In the merging operation, the interactive merger may initially identify and extract at least one portion of the information of one

configuration profile that is closely matched with respect to another configuration profile that to be merged with. The interactive merger may thereby merge both of these versioned configuration profiles into a single versioned configuration profile based on this closely matched portion.

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In a preferred embodiment of the present invention, the interactive merger may allow the merge of at least two versioned configuration profiles by selecting at least a portion of information from a previous configuration profile and at least one portion of information that comes from a latest configuration profile. The selected portions of information may
10 then be merged through a point where the both configurations profiles do have at least one portion of information that is closely related to one another. The merged versioned configuration profile may then be restored onto the mobile device (105) As will be apparent to one skilled in the art, with the use of this interactive merger, the user also may be able to incorporate their preference settings into at least one selected versioned
15 configuration profile for restoration in the mobile device.

The profile-swapping module (210) is configured to allow transportation/migration of a configuration profile of one mobile device (105) to another. The transportation/migration configuration profiles between the mobile devices (105) may be carried out irrespective
20 the type and the operating system that is running on the mobile devices. In other words, configuration profile of a mobile device (105) can be forwarded to another mobile device, which may not necessarily be the same device type or using the same operating system. According to the present invention, transporting a configuration profile of one source

mobile device to another destination mobile device, however, is depending on the settings that are written on a file stored in the filesystem of the mobile devices. In operation, if the settings of a source device and a destination device are found to be sufficiently compatible, the transportation of configuration profile may be performed in a direct
5 manner. Or else, the setting of a source mode may be restructured in a manner such that it is matched with the setting that is written on the filesystem of the destination device. Nevertheless, if the restructured setting of the source device fails to match with the destination device, the configuration profile transportation operation may be cancelled.

10 Further to a preferred embodiment, the profile-swapping module (210) also allows more than two mobile devices (105) to have a mutual exchange of their configuration profiles. It should be noted that the mutual exchange of configuration profiles is performed through the remote repository (115') where the configuration profiles to be swapped between the mobile devices (105) are stored.

15

The incremental synchronization module (215) allows the plurality of mobile devices (105) to perform synchronization process with the remote repository (115'). With the use of the incremental synchronization module (215), the incremental changes or modifications made to the current configuration profiles of the mobile devices (105) can
20 be simultaneously backed up or saved in the remote repository (115'). As will be noted, the incremental synchronization module (215) is operatively coupled with the update mechanism (220) of the versioning manager (200). The update mechanism (220) may receive incremental changes to a particular configuration profile from the incremental

synchronization module (215). The received incremental changes may then be processed and thus incorporated into a corresponding versioned configuration profile stored in the remote repository (115').

- 5 The update mechanism (220) preferably includes a single map file that is configured to autonomously keep track of all changes or modifications to the configuration profiles. The detected changes or modifications to the configuration profile may then be compressed to smaller file size prior to being transmitted to the remote repository (115') via the network (110) for updating. The single map file, as be apparent to one skilled in
10 the art, may record metadata such as files name, changes to the files and the difference between a current file and a last modified file.

Figure 3A and **Figure 3B** illustrate how restoration process is carried out within the versioning system according to the preferred embodiment of the present invention in
15 detailed. As shown in **Figure 3A**, at step 301, a quick restoration process is initiated when a user has activated the configuration restoration module to perform a simple rollback at the client side. Prior to a simple rollback operation at the client side, a
C confirmation request may be displayed on the display unit of the mobile device (105). The confirmation request is to determine if the user confirms to proceed with transition of
20 the current configuration profile of the mobile device (105) to its most recent versioned configuration profile by means of the simple rollback mechanism, at step 302. As will be noted, the user may be requested to input a confirmation code or a termination code to proceed or to reject the operation of the simple rollback, at step 303. Upon receipt a

confirmation code, the mobile device may store its current configuration profile in the remote repository at step 304 and thereafter perform rollback to restore its most recent versioned configuration profile that is retained in its local storage device at step 305.

- 5 In accordance with one preferred embodiment, at step 306, the user may otherwise send the remote repository (115') a request through the mobile device (105) to retrieve a versioned configuration profile from the remote repository (115') for restoration. As shown in **Figure 3B**, the user may trigger the mobile device (105) to restore a specific versioned configuration profile that has been stored in the remote repository (115'). Or
- 10 else, the mobile device (105) may be initiated to perform an interactive reversion by which at least two versioned configuration profiles are applied and merged into a single versioned configuration profile that best fits the restoration of the current configuration profile on the mobile device at step 308. Prior to merging of the versioned configuration profiles, the mobile device may be triggered to identify the information resided in each of
- 15 versioned configuration profiles that is stored in remote repository and compares the each of these identified information with one another. The acquired comparison result may allow the user to choose the best possible settings from these stored versioned configurations to be merged and recovered on the mobile device.
- 20 To retrieve a specific versioned configuration profile, at step 309, the user may send a request to the remote repository (115') so that a list of versioned configuration profiles of the mobile devices that has been backed-up in the remote repository (115') is presented to the user. At step 310, the user may therefore select which versioned configuration profile

to be restored in the mobile device from the list using the rollback mechanism. It should be noted that each versioned configuration profile is stamped with the date and time at when the versioned configuration profile is created and backed-up in the remote repository. The user may therefore be allowed to select the relevant versioned
5 configuration profile for restoration based on the date stamps.

In an alternative embodiment, the user may send a request message having the creation date and time of the versioned configuration profile the user selected to the remote repository (115'), for restoration. Upon receipt instruction of the user of which versioned
10 configuration profile to be retrieved and restored in the mobile device (105), the remote repository (115') may transmit the selected versioned configuration profile to the mobile device (105) at steps 311-313. The restoration process is deemed complete when the selected versioned configuration profile is successfully restored on the mobile device (105) at step 314.

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The interactive reversion, on the other hand, is carried out by selecting at least two versioned configuration profiles from the remote repository (115'), at step 315. The selected versioned configuration profiles may thereafter be branched out and transmitted to the mobile device (105), more particularly to the interactive merger of the mobile
20 device at step 316. Upon receipt of the versioned configuration profiles, the interactive merger may analyze and compare the versioned configurations profiles and thus merging the configuration profiles into a single version based on the comparison result at step 317.

The resultant single versioned configurations profile may thereafter be restored in the mobile device (105) at step 318 until the restoration process is deemed successful.

Figure 4 is a flow chart depicting the operation of the profile-swapping module (210) of the versioning manager (200) that is implemented in a mobile device (105). Initially, at step 400, users may trigger the mobile device (105) to activate the profile-swapping module (210). Upon activation, at step 401, the user may select which mobile devices (105) to be swapped with for mutual transition of the configuration profiles there between. The device compatibility of the mobile devices (105) may be determined prior to initiating profile swapping at step 402.

If the mobile devices (105) are found to be compatible with another, the mobile devices (105) may give the user an option whether to proceed to continue or to quit the profile swapping operation at step 403. However, if the mobile devices (105) are found not to be compatible with one another, an incompatibility rating may therefore be determined at step 404. For example, if the incompatibility problem between the mobile devices (105) is considered minor, the mobile device may provide an option to the user to proceed or to terminate the profile swapping operation at step 405. The profile swapping operation may otherwise be cancelled if the mobile devices (105) are found to be severely incompatible for a mutual exchange of configuration profiles at step 406. Such a cancellation may subsequently be notified to the user through the mobile devices (105) at step 407.

In the event if the profile swapping modules (210) of the mobile devices (105) have received confirmation from the user to proceed with mutual switching of configuration profiles at step 408, the mobile devices (105) may be prompted to branch out and back up their configuration profiles into the remote repository (115') at step 409. Through the
5 remote repository (115'), the mobile devices (105) may then mutually swap their configuration profile with one another at step 410. The swapping operation is deemed accomplished at step 411 if each of the mobile devices (105) has transitioned to a configuration profile that has been previously employed by the other mobile devices (105).

10

Figure 5 illustrates how the updating mechanism of the versioning manager (200) is operated to update and reflect changes or modifications between the current configuration profile of the mobile device and a corresponding versioned configuration profiles that has been previously stored in the remote repository (115'). To begin the updating mechanism,
15 at step 500, the mobile device (105) may be prompted to generate a map structure layout. The map structure layout is generated at step 501 based on the data storage including all data and configuration profiles of the mobile device (105). The generated map structure layout may therefore be employed as a base layout at step 502. The data and configuration profiles in the mobile device (105) may thereafter be split from the map
20 structure layout and organized in a hierarchical to form a directory tree-like structure at step 503. The resultant map file in the form of directory tree-like structure may then be compressed and stored in the local storage device of the mobile device (105) at steps 504-

505. A copy of the map file may also be replicated and retained in the remote repository (115').

The map file generated and stored in the mobile device may thereafter detect if the
5 current configuration profiles has been modified or changed. If changes or modifications
to the configuration profile are detected, the map file may be decompressed at step 506.
At the same time, the changes or medications to the configuration profiles may be
formatted to form a map structure layout and thus organized in a directory tree-like
structure. Both map files may then be compared and the discrepancies there between may
10 be gathered and analyzed to update the remote repository (115') at steps 507-509. After
updating the remote repository (115'), both map files may be compressed and stored in
the mobile device (105) at step 510.

As will be readily apparent to those skilled in the art, the present invention may easily be
15 produced in other specific forms without departing from its essential characteristics. The
present embodiments is, therefore, to be considered as merely illustrative and not
restrictive, the scope of the invention being indicated by the claims rather than the
foregoing description, and all changes which come within therefore intended to be
embraced therein.

CLAIMS

1. A configuration profile management system (100) for managing a plurality of configuration profiles of a mobile device over a network, the configuration profile management system (100) having a remote repository (115') for storing one or more versioned configuration profiles of a mobile device remotely, each versioned configuration profile is stamped with a creation date and time; and a versioning manager (200) resided on the mobile device, characterized in that the versioning manager includes a rollback mechanism for retrieving the desired versioned configuration profiles that are stored in the remote repository (115') and rollback the retrieved previous versioned configuration profile on the mobile device (105); and a profile swapping module (210) that allows the mobile device (105) to mutually exchange a selected configuration profile of the mobile device with another mobile device (105) through the remote repository (115').

15

2. A configuration profile management system (100) as claimed in Claim 1, wherein the configuration restoration module (205) further includes an interactive merger for merging at least two versioned configuration profiles that have been stored in the remote repository (115') into a single versioned configuration profile.

20

3. A configuration profile management system (100) as claimed in Claim 2, wherein the merging operation includes the steps of identifying and extracting at least one portion of the information of one configuration profile that is closely matched with respect to

another configuration profile that to be merged, and combining these configuration profiles through this identified closely-matched-portion.

4. A configuration profile management system (100) as claimed in Claim 1, wherein the
5 profile swapping module (210) operationally performs mutual exchange of configuration profiles between the mobile devices (105) when the settings of both configuration profiles that are written in the filesystem of the respective mobile device (105) are found to be sufficiently compatible with one another, wherein the mutual exchange of configuration profiles includes determining severity of settings incompatibility, and user
10 selection of either proceeding with the mutual exchange of the configuration profiles, fully or partially, or cancelling the mutual exchange of the configuration profiles.

5. A configuration profile management system (100) as claimed in Claim 1, wherein the versioning manager (200) further comprising an incremental synchronization module
15 (215) coupled with an update mechanism (220) so that enables the mobile device (105) to perform incremental synchronization process with the remote repository (115'), and thereby updating the remote repository (115') with any detected incremental changes or modification made to the configuration.

20 6. A configuration profile management system as claimed in Claim 5, wherein the update mechanism (210) includes a single map file that is configured to autonomously keep track of all changes or modifications to the configuration profiles.

7. A configuration profile management system as claimed in Claim 6, wherein the single map file includes metadata such as files name, changes to the configuration profiles and the difference between a current configuration profile and a last modified configuration file.

5

8. A configuration profile management system as claimed in Claim 6, wherein the single map file is being compressed to a smaller file size for transmitting to the remote repository for updating.

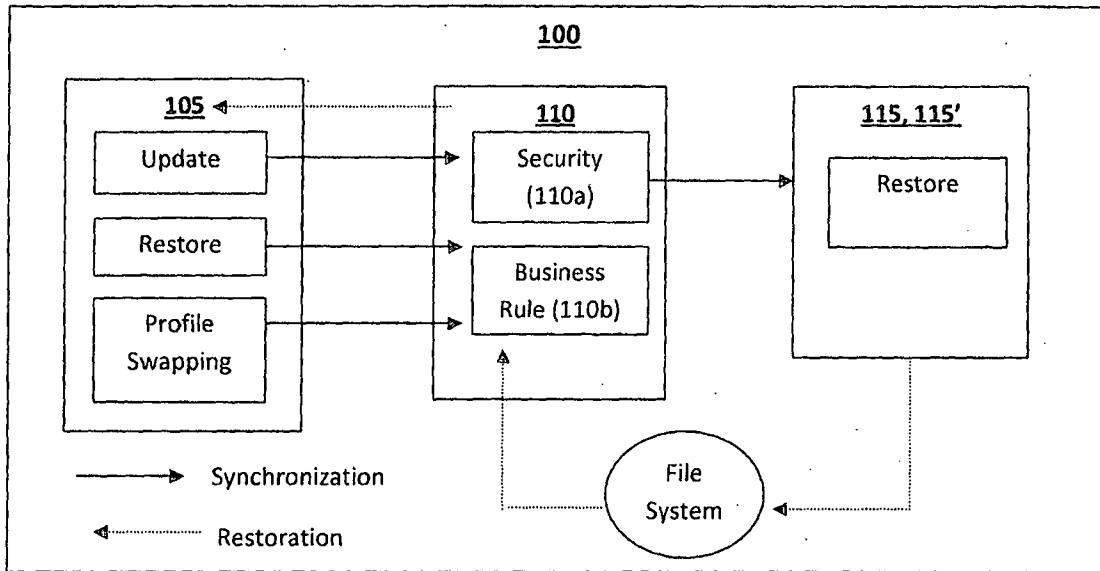


Figure 1

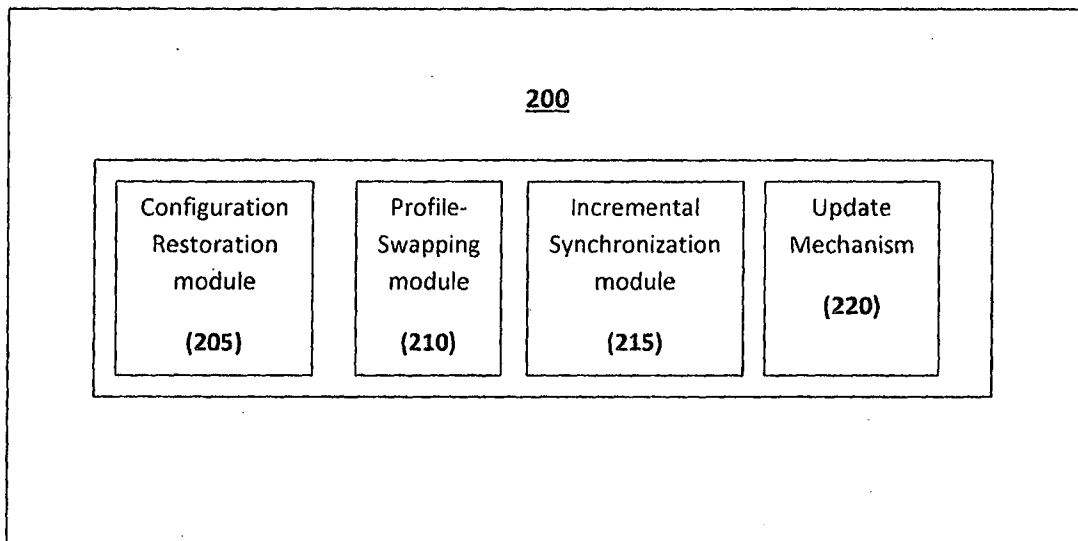


Figure 2

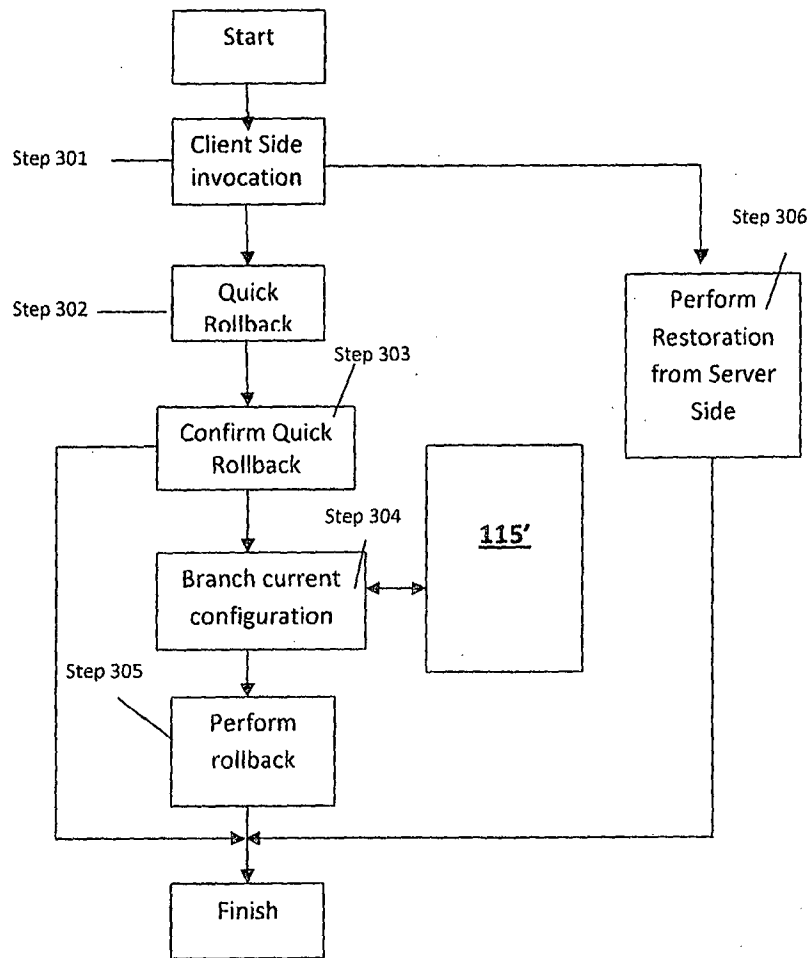


Figure 3A

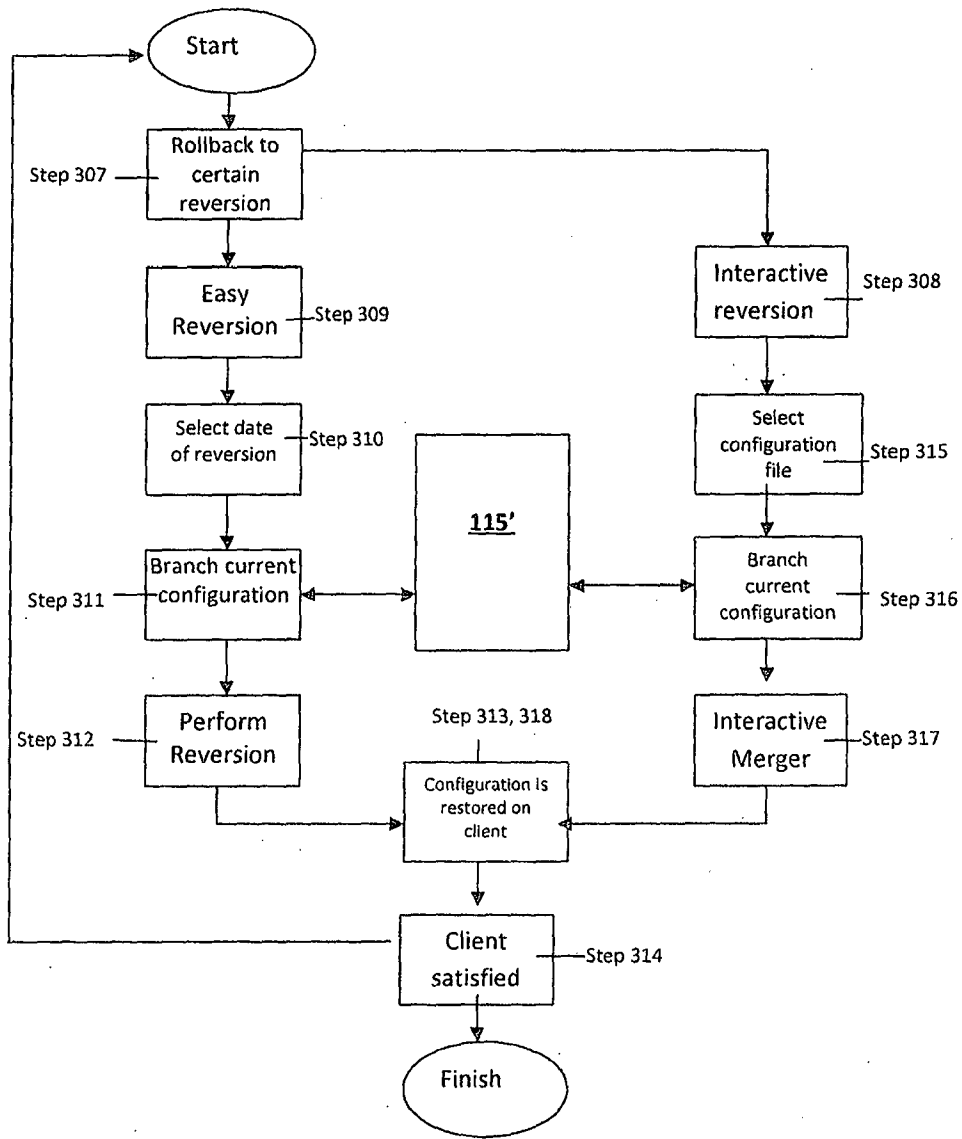


Figure 3B

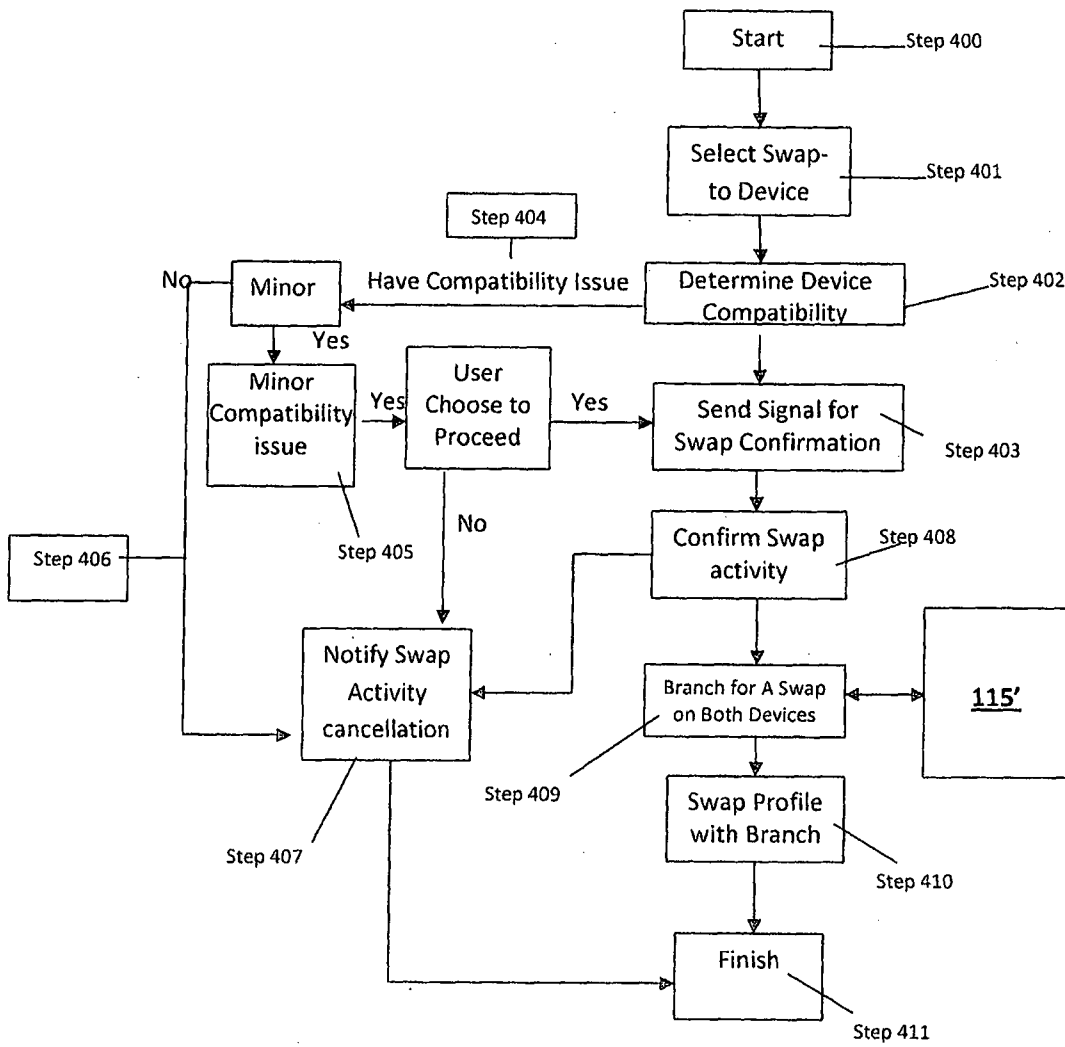


Figure 4

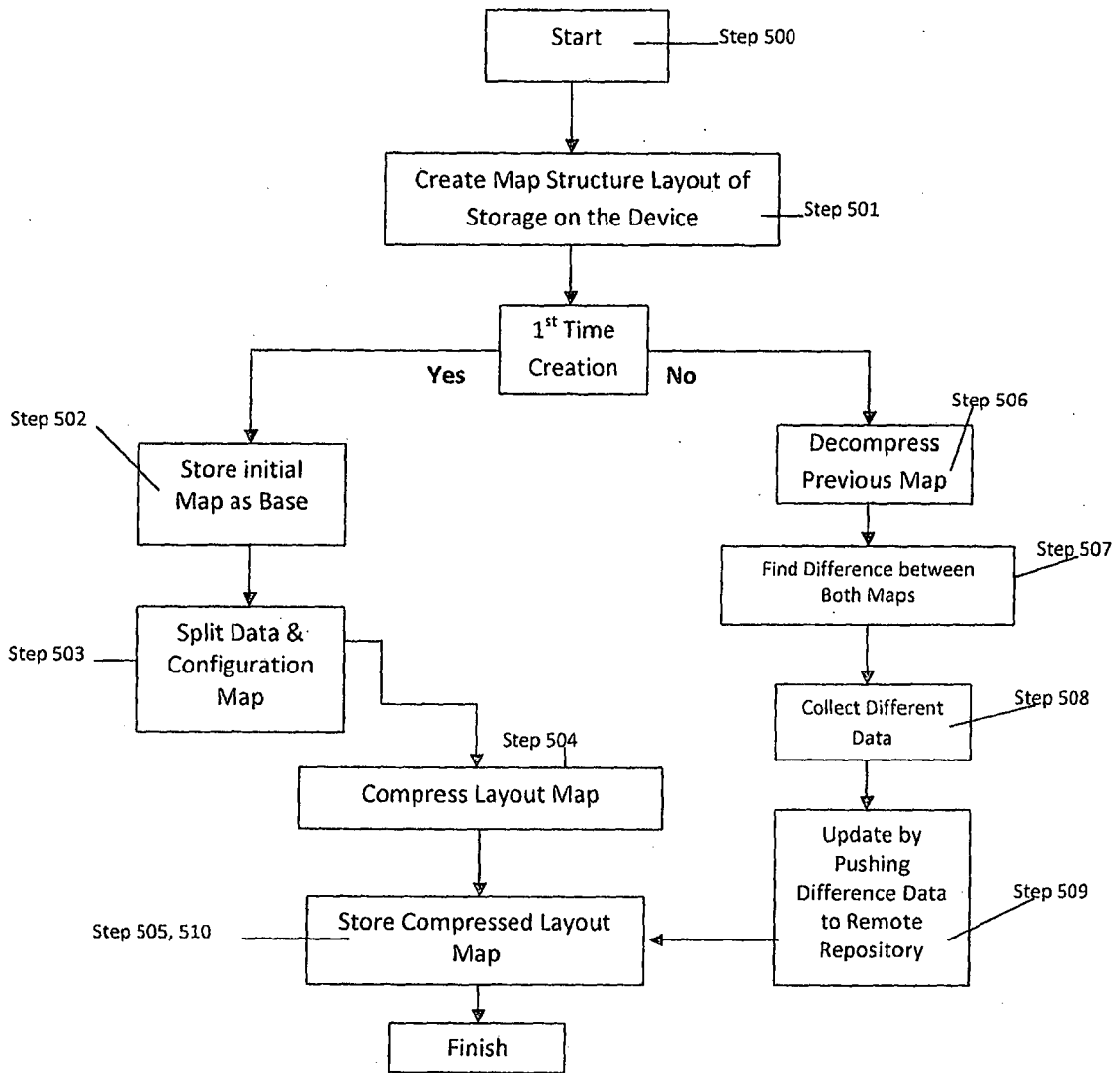


Figure 5

INTERNATIONAL SEARCH REPORT

International application No
PCT/MY2013/000146

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04W8/24
ADD.
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
H04W

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009/163140 A1 (PACKHAM DONALD L [US] ET AL) 25 June 2009 (2009-06-25) paragraphs [0113], [0118], [0155]; figures 34,35	1-8
Y	EP 1 950 988 A1 (RESEARCH IN MOTION LTD [CA]) 30 July 2008 (2008-07-30) paragraphs [0026], [0022], [0028] - [0029], [0033] - [0034]; figures 1,6	1-8
Y	WO 03/073304 A1 (NOKIA CORP [FI]; NOKIA INC [US]) 4 September 2003 (2003-09-04) page 6, line 22 - line 1; figures 1,6,8 page 22, line 4 - line 23 claim 1	1-8
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

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- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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Date of the actual completion of the international search 31 January 2014	Date of mailing of the international search report 06/02/2014
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Dionisi, M

INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2006/055716 A1 (QUALCOMM INC [US]; JOTHIPRAGASAM PREMKUMAR [US]) 26 May 2006 (2006-05-26) paragraphs [0029], [0036], [0037]; figure 3 -----	1-8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/MY2013/000146

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009163140	A1	25-06-2009	US 2009163140 A1
			WO 2006081367 A2
EP 1950988	A1	30-07-2008	AT 541426 T
			CA 2618912 A1
			EP 1950988 A1
WO 03073304	A1	04-09-2003	AT 352069 T
			AU 2003248365 A1
			DE 60311237 T2
			EP 1483679 A1
			JP 4276083 B2
			JP 2005519372 A
			US 7249182 B1
			US 2005281237 A1
			WO 03073304 A1
WO 2006055716	A1	26-05-2006	AR 051498 A1
			CA 2588115 A1
			CN 101099401 A
			EP 1817929 A1
			JP 4571675 B2
			JP 2008521352 A
			KR 20070086208 A
			US 2006135144 A1
			WO 2006055716 A1