504062092 10/21/2016

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
ELLI ANDROULAKI	10/13/2016
ANGELO DE CARO	10/13/2016
THORSTEN KRAMP	10/18/2016
DAVID W. KRAVITZ	10/19/2016
ALESSANDRO SORNIOTTI	10/20/2016
MARKO VUKOLIC	10/19/2016

RECEIVING PARTY DATA

Name:	INTERNATIONAL BUSINESS MACHINES CORPORATION
Street Address:	NEW ORCHARD ROAD
City:	ARMONK
State/Country:	NEW YORK
Postal Code:	10504

PROPERTY NUMBERS Total: 1

Property Type	Number	
Application Number:	15331385	

CORRESPONDENCE DATA

Fax Number: (860)286-0115

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using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

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ATTORNEY DOCKET NUMBER:	CH920150118US2
NAME OF SUBMITTER:	KARL A. VICK
SIGNATURE:	/KARL A. VICK/
DATE SIGNED:	10/21/2016
	This document serves as an Oath/Declaration (37 CFR 1.63).

PATENT

REEL: 040464 FRAME: 0803

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PATENT REEL: 040464 FRAME: 0804

Title of Invention: RESISTING REPLAY ATTACKS EFFICIENTLY IN A PERMISSIONED AND PRIVACY- PRESERVING BLOCKCHAIN NETWORK

As a below named and undersigned inventor, I hereby declare that:
This declaration is directed to the attached application, or (if following box is checked):
[] United States application or PCT international application numberfiled on
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 have reviewed and understand the contents of the application, including the claims.
I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR Section 1.56.
Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred

IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a

to as the "Invention") disclosed in the above-identified patent application and further identified by the

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made; and I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

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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.

(1) Legal Name of Inventor: Elli Androulaki	
Signature: 1/1809/R4	Date: <u>Och 13th 2016</u>
(2) Legal Name of Inventor: Angelo De Caro	
Signature: 44 De Co	Date: 13 Oct 701
(3) Legal Name of Inventor: Thorsten Kramp	
Signature:	Date:
(4) Legal Name of Inventor: David W. Kravitz	
Signature:	Date:

(5)	Legal Name of Inventor: Alessandro Sorniotti		
	Signature:	Date:	
(6)	Legal Name of Inventor: Marko Vukolic		
	Signature:	Date:	

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Signature:	Date:
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Signature:	Date:
(3) Legal Name of Inventor: Thorsten Kramp	
Signature: <u>Ala Ala</u>	<u>0</u> Date: <u>[]/10/2016</u>
(4) Legal Name of Inventor: David W. Kravitz	
Sionatura	: Thata-

Page 2 of 3

(5)	Legal Name of Inventor: Alessandro Sorniotti		
	Signature:	Date:	
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	Signature: David W. Kravity	Date: October 19, 2016

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	Ci ana atau ana	Data

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(6) Legal Name of inventor; Marko Vukolie

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Page 3 of 3

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RECORDED: 10/21/2016