505074167 08/31/2018

PATENT ASSIGNMENT COVER SHEET

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| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|------------------------|----------------|
| BARTHOLOMEW BLANER | 08/17/2018 |
| JAY G. HEASLIP | 08/19/2018 |
| BENJAMIN HERRENSCHMIDT | 08/20/2018 |
| ROBERT D. HERZL | 08/17/2018 |
| JODY JOYNER | 08/20/2018 |
| JON J. KRIEGEL | 08/30/2018 |
| CHARLES D. WAIT | 08/30/2018 |

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: | 16119013 |

CORRESPONDENCE DATA

Fax Number: (609)896-1469

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

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Email: ipdocket@foxrothschild.com

Correspondent Name: IBM (AUS) / FOX ROTHSCHILD LLP

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Address Line 2: 997 LENOX DRIVE, BLDG. #3

Address Line 4: LAWRENCEVILLE, NEW JERSEY 08648

| ATTORNEY DOCKET NUMBER: | ROC820150367US01/05201 |
|-------------------------|------------------------|
| NAME OF SUBMITTER: | MARY P. MCDERMOTT |
| SIGNATURE: | /Mary P. McDermott/ |
| DATE SIGNED: | 08/31/2018 |

This document serves as an Oath/Declaration (37 CFR 1.63).

source=ROC820150367US01 Declaration Assignment#page1.tif source=ROC820150367US01 Declaration Assignment#page2.tif source=ROC820150367US01 Declaration Assignment#page3.tif source=ROC820150367US01_Declaration_Assignment#page4.tif source=ROC820150367US01 Declaration Assignment#page5.tif source=ROC820150367US01 Declaration Assignment#page6.tif source=ROC820150367US01 Declaration Assignment#page7.tif source=ROC820150367US01_Declaration_Assignment#page8.tif source=ROC820150367US01_Declaration_Assignment#page9.tif source=ROC820150367US01 Declaration Assignment#page10.tif source=ROC820150367US01 Declaration Assignment#page11.tif source=ROC820150367US01_Declaration_Assignment#page12.tif source=ROC820150367US01 Declaration Assignment#page13.tif source=ROC820150367US01 Declaration Assignment#page14.tif source=ROC820150367US01 Declaration Assignment#page15.tif source=ROC820150367US01_Declaration_Assignment#page16.tif source=ROC820150367US01 Declaration Assignment#page17.tif

source=ROC820150367US01 Declaration Assignment#page18.tif

Total Attachments: 18

Title of Invention: PROMOTION OF ERAT CACHE ENTRIES

| 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): | |
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| 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 C.F.R. § 1.56. | |
| Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application further identified by the IBM Docket Number provided above in the header of this docum | and |

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,

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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: Bartholomew Blaner | |
|--|-----------------|
| Signature: Buttol 3a | Date: 8/17/2018 |
| | |
| (2) Legal Name of Inventor: Jay G. Heaslip | • |
| Signature: | Date: |

| (3) | Legal Name of Inventor: | Benjamin Herrenschmidt | |
|-----|-------------------------|------------------------|--------|
| | Signature: | | _Date: |
| (4) | Legal Name of Inventor: | Robert D. Herzl | |
| | Signature: | | _Date: |
| (5) | Legal Name of Inventor: | Jody Joyner | |
| | Signature: | | _Date: |
| (6) | Legal Name of Inventor: | Jon K. Kriegel | |
| | Signature: | *** | _Date: |
| (7) | Legal Name of Inventor: | Charles D. Wait | |
| | Signature: | | Date: |

Title of Invention: PROMOTION OF ERAT CACHE ENTRIES

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| The above-identified application was made or authorized to be made by me. | |
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| Whereas I ("ASSIGNOR") have made certain inventions improvements and discoverie | es. |

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| (1) | Legal Name of Inventor: | Bartholomew Blaner | | |
|-----|-------------------------|--------------------|-------|---------|
| | Signature: | | Date: | |
| (2) | Legal Name of Inventor: | Jay G. Heaslip | | |
| | Signatures Jay C | Herry | Date: | 8/19/18 |

| (3) Legal Name o | f Inventor: Benjamin Herrenso | chmidt | |
|------------------|-------------------------------|--------|--|
| Signature: | | Date: | |
| (4) Legal Name o | f Inventor: Robert D. Herzl | | |
| Signature: | | Date: | |
| (5) Legal Name o | of Inventor: Jody Joyner | | |
| Signature: | | Date: | |
| (6) Legal Name (| of Inventor: Jon K. Kriegel | | |
| Signature: | | Date: | |
| (7) Legal Name | of Inventor: Charles D. Wait | | |
| Signature: | | Date: | |

Title of Invention: PROMOTION OF ERAT CACHE ENTRIES

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|--|-------|--|
| Signature: | Date: | |
| (2) Legal Name of Inventor: Jay G. Heaslip | | |
| Signature: | Date: | |

| (3) | Legal Name of Inventor: Benjamin Herrenschmidt | |
|-----|--|------------------------|
| | Signature: | Date: August 20th 7018 |
| (4) | Legal Name of Inventor: Robert D. Herzl | |
| | Signature: | _Date: |
| (5) | Legal Name of Inventor: Jody Joyner | |
| | Signature: | Date: |
| (6) | Legal Name of Inventor: Jon K. Kriegel | |
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|---------------------------------|---------------------|-----------|
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| (4) Legal Name of Inventor: Rol | oert D. Herzl | |
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| Signature: | Date: | |
| (6) Legal Name of Inventor: Jon | ı K. Kriegel | |
| Signature: An h | Date: | 8/30/2018 |
| (7) Legal Name of Inventor: Ch | arles D. Wait | |
| Signature: | Date: | 8/30/2018 |

RECORDED: 08/31/2018