

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT6041931

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
Name		Execution Date
INTERNATIONAL BUSINESS MACHINES CORPORATION		06/11/2019
RECEIVING PARTY DATA		
Name:	PURE STORAGE, INC.	
Street Address:	650 CASTRO STREET	
Internal Address:	SUITE 400	
City:	MOUNTAIN VIEW	
State/Country:	CALIFORNIA	
Postal Code:	94041	
PROPERTY NUMBERS Total: 1		
Property Type	Number	
Application Number:	16836451	
CORRESPONDENCE DATA		
Fax Number:	(888)456-7824	
<i>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.</i>		
Phone:	(512)480-2220	
Email:	ktaylor@texaspatents.com	
Correspondent Name:	GARLICK & MARKISON	
Address Line 1:	100 CONGRESS AVENUE, SUITE 2000	
Address Line 4:	AUSTIN, TEXAS 78701	
ATTORNEY DOCKET NUMBER:	CS01626C1	
NAME OF SUBMITTER:	KAREN TAYLOR	
SIGNATURE:	/Karen Taylor/	
DATE SIGNED:	04/01/2020	
Total Attachments: 39		
source=IBM to Purestorage assignment#page1.tif		
source=IBM to Purestorage assignment#page2.tif		
source=IBM to Purestorage assignment#page3.tif		
source=IBM to Purestorage assignment#page4.tif		
source=IBM to Purestorage assignment#page5.tif		

source=IBM to Purestorage assignment#page6.tif
source=IBM to Purestorage assignment#page7.tif
source=IBM to Purestorage assignment#page8.tif
source=IBM to Purestorage assignment#page9.tif
source=IBM to Purestorage assignment#page10.tif
source=IBM to Purestorage assignment#page11.tif
source=IBM to Purestorage assignment#page12.tif
source=IBM to Purestorage assignment#page13.tif
source=IBM to Purestorage assignment#page14.tif
source=IBM to Purestorage assignment#page15.tif
source=IBM to Purestorage assignment#page16.tif
source=IBM to Purestorage assignment#page17.tif
source=IBM to Purestorage assignment#page18.tif
source=IBM to Purestorage assignment#page19.tif
source=IBM to Purestorage assignment#page20.tif
source=IBM to Purestorage assignment#page21.tif
source=IBM to Purestorage assignment#page22.tif
source=IBM to Purestorage assignment#page23.tif
source=IBM to Purestorage assignment#page24.tif
source=IBM to Purestorage assignment#page25.tif
source=IBM to Purestorage assignment#page26.tif
source=IBM to Purestorage assignment#page27.tif
source=IBM to Purestorage assignment#page28.tif
source=IBM to Purestorage assignment#page29.tif
source=IBM to Purestorage assignment#page30.tif
source=IBM to Purestorage assignment#page31.tif
source=IBM to Purestorage assignment#page32.tif
source=IBM to Purestorage assignment#page33.tif
source=IBM to Purestorage assignment#page34.tif
source=IBM to Purestorage assignment#page35.tif
source=IBM to Purestorage assignment#page36.tif
source=IBM to Purestorage assignment#page37.tif
source=IBM to Purestorage assignment#page38.tif
source=IBM to Purestorage assignment#page39.tif

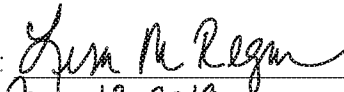
Form of Recordable Patent Assignment and Reservation

For good and valuable consideration, the receipt of which is hereby acknowledged, and subject to the reservations stated in the Patent Assignment Agreement Reference No. L190238 between the parties with an effective time and date of 11:59pm United States Eastern Time on June 11, 2019 ("Effective Time and Date") ("Patent Assignment Agreement"), International Business Machines Corporation, a New York corporation having a place of business at Armonk, New York (hereinafter "ASSIGNOR"), hereby grants and assigns to Pure Storage, Inc., a Delaware corporation having a place of business at Mountain View, California (hereinafter "ASSIGNEE"), all of IBM's right, title and interest in and to the patents and patent applications identified in Exhibits A-I, A-II, C-I and C-II, attached hereto, (hereinafter, collectively, "ASSIGNED PATENTS"), to have and to hold the same, unto ASSIGNEE for its own use and enjoyment and for the use and enjoyment of its successors and assigns, including all damages for infringement of any of the Assigned Patents and the sole right to sue therefore under such Assigned Patents, for the full term or terms of all such ASSIGNED PATENTS, subject to all rights granted under the ASSIGNED PATENTS to third parties prior to said Effective Time & Date.

ASSIGNOR hereby reserves and retains, for the benefit of itself and its subsidiaries and its and their successors and assigns, the rights and licenses set forth in the Patent Assignment Agreement.

IN WITNESS WHEREOF, ASSIGNOR has caused this Patent Assignment and Reservation to be duly signed on its behalf.

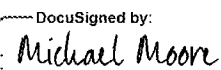
ASSIGNOR: INTERNATIONAL BUSINESS MACHINES CORPORATION

Signature: 
Date: June 13, 2019

Name: Lisa M. Regan
Title: Director, Research and Intellectual Property Finance

ASSIGNEE hereby accepts and acknowledges the assignment of ASSIGNED PATENTS as stated above.

ASSIGNEE: PURE STORAGE, INC.

DocuSigned by:
Signature: 
Date: 6/19/2019

Name: Michael Moore
Title: VP & AGC

EXHIBIT A-I
LISTED PATENTS (United States)

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165001US2	US	10078472	14/984024	12/30/2015	9/18/2018
END920165002US2	US	10079887	15/006735	1/26/2016	9/18/2018
END920165005US10	US	10168904	15/457408	3/13/2017	1/1/2019
END920165005US2	US	10037171	15/058408	3/2/2016	7/31/2018
END920165005US3	US	10055170	15/262654	9/12/2016	8/21/2018
END920165005US4	US	10254992	15/262985	9/12/2016	4/9/2019
END920165005US5	US	10078561	15/266103	9/15/2016	9/18/2018
END920165005US6	US	10157094	15/262808	9/12/2016	12/18/2018
END920165005US7	US	10067998	15/418909	1/30/2017	9/4/2018
END920165005US8	US	10216594	15/424978	2/6/2017	2/26/2019
END920165005US9	US	10268376	15/436983	2/20/2017	4/23/2019
END920165007US2	US	10169125	15/075946	3/21/2016	1/1/2019
END920165007US3	US	10296404	15/343820	11/4/2016	5/21/2019
END920165007US4	US	10203999	15/343658	11/4/2016	2/12/2019
END920165008US10	US	10061648	15/195252	6/28/2016	8/8/2018
END920165008US2	US	10055291	15/191146	6/23/2016	8/21/2018
END920165008US4	US	10303546	15/170404	6/1/2016	5/28/2019
END920165008US5	US	10025665	15/184614	6/16/2016	7/17/2018
END920165008US6	US	10055290	15/187923	6/21/2016	8/21/2018
END920165008US7	US	10248504	15/194721	6/28/2016	4/2/2019
END920165008US9	US	10223201	15/194946	6/28/2016	3/5/2019
END920165009US10	US	10073736	15/220983	7/27/2016	9/11/2018
END920165009US2	US	10248506	15/219741	7/26/2016	4/2/2019
END920165009US4	US	10127110	15/143815	5/2/2016	11/13/2018
END920165009US5	US	10229004	15/143885	5/2/2016	3/12/2019
END920165009US8	US	10089180	15/144189	5/2/2016	10/2/2018
END920165009US9	US	10042704	15/144243	5/2/2016	8/7/2018
END920165010US10	US	10289319	15/252444	8/31/2016	5/14/2019
END920165010US2	US	9996283	15/224118	7/29/2016	6/12/2018
END920165010US4	US	10013191	15/221198	7/27/2016	7/3/2018
END920165010US5	US	10126961	15/221299	7/27/2016	11/13/2018
END920165010US7	US	10241692	15/248939	8/26/2016	3/26/2019
END920165010US8	US	10120596	15/249084	8/26/2016	11/6/2018
END920165010US9	US	10042566	15/249187	8/26/2016	8/7/2018
END920165011US10	US	10168950	15/263564	9/13/2016	1/1/2019

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165011US2	US	10157018	15/248493	8/26/2016	12/18/2018
END920165011US3	US	10073652	15/218743	7/25/2016	9/11/2018
END920165011US4	US	10095441	15/237874	8/16/2016	10/9/2018
END920165011US6	US	10171111	15/249130	8/26/2016	1/1/2019
END920165011US7	US	10209921	15/249353	8/27/2016	2/19/2019
END920165011US8	US	10013207	15/272968	9/22/2016	7/3/2018
END920165012US2	US	10169147	15/238106	8/16/2016	1/1/2019
END920165012US3	US	10133631	15/264160	9/13/2016	11/20/2018
END920165012US7	US	10176044	15/334604	10/26/2016	1/8/2019
END920165013US10	US	10042708	15/331214	10/21/2016	8/7/2018
END920165013US11	US	9952930	15/331484	10/21/2016	4/24/2018
END920165013US12	US	10169153	15/881366	1/26/2018	1/1/2019
END920165013US2	US	9971649	15/283196	9/30/2016	5/15/2018
END920165013US4	US	10169151	15/249630	8/29/2016	1/1/2019
END920165013US5	US	10042706	15/281728	9/30/2016	8/7/2018
END920165013US6	US	10042707	15/282127	9/30/2016	8/7/2018
END920165013US7	US	10241864	15/282888	9/30/2016	3/26/2019
END920165013US8	US	9959169	15/282999	9/30/2016	5/1/2018
END920165013US9	US	10067832	15/283241	9/30/2016	9/4/2018
END920165520US1	US	10031809	15/215418	7/20/2016	7/24/2018
END920165575US1	US	10061649	15/243378	8/22/2016	8/28/2018
END920165653US03	US	10275185	15/839720	12/12/2017	4/30/2019
END920165653US2	US	10069915	14/986279	12/31/2015	9/4/2018
END920165654US06	US	10169123	15/816721	11/17/2017	1/1/2019
END920165654US2	US	9826038	14/956818	12/2/2015	11/21/2017
END920165655US08	US	10289342	15/843637	12/15/2017	5/14/2019
END920165655US2	US	9740547	14/955200	12/1/2015	8/22/2017
END920165656US2	US	9727427	14/927446	10/29/2015	8/8/2017
END920165657US2	US	10126974	14/926891	10/29/2015	11/13/2018
END920165659US2	US	9727275	14/869240	9/29/2015	8/8/2017
END920165659US3	US	10120739	15/642875	7/6/2017	11/6/2018
END920165660US04	US	10095582	15/846880	12/19/2017	10/9/2018
END920165660US05	US	10223033	15/844064	12/15/2017	3/5/2019
END920165660US08	US	10282135	15/840230	12/13/2017	5/7/2019
END920165660US2	US	9916114	14/847855	9/8/2015	3/13/2018
END920165661US04	US	10146622	15/836805	12/8/2017	12/4/2018
END920165661US05	US	10268545	15/841070	12/13/2017	4/23/2019
END920165661US2	US	9591076	14/805637	7/22/2015	3/7/2017
END920165661US3	US	9910732	15/399579	1/5/2017	3/6/2018
END920165662US03	US	10176191	15/837979	12/11/2017	1/8/2019

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165662US2	US	10049120	14/794723	7/8/2015	8/14/2018
END920165665US2	US	10042564	14/707999	5/8/2015	8/7/2018
END920165666US10	US	10225205	15/903992	2/23/2018	3/5/2019
END920165666US2	US	9923838	14/707943	5/8/2015	3/20/2018
END920165666US3	US	9690520	14/721615	5/26/2015	6/27/2017
END920165666US4	US	9838478	14/721723	5/26/2015	12/5/2017
END920165666US5	US	9841925	14/721838	5/26/2015	12/12/2017
END920165666US8	US	10205783	15/805085	11/6/2017	2/12/2019
END920165666US9	US	10089036	15/827073	11/30/2017	10/2/2018
END920165667US2	US	9606867	14/680459	4/7/2015	3/28/2017
END920165667US3	US	10140178	14/680575	4/7/2015	11/27/2018
END920165667US4	US	10102069	15/400767	1/6/2017	10/16/2018
END920165668US3	US	10095872	14/675183	3/31/2015	10/9/2018
END920165668US4	US	10152601	14/675360	3/31/2015	12/11/2018
END920165669US2	US	9762395	14/636860	3/3/2015	9/12/2017
END920165669US3	US	9735967	14/637348	3/3/2015	8/15/2017
END920165669US4	US	10171243	15/612885	6/2/2017	1/1/2019
END920165670US06	US	10296263	15/902083	2/22/2018	5/21/2019
END920165670US2	US	9612882	14/638175	3/4/2015	4/4/2017
END920165670US3	US	9965336	14/638575	3/4/2015	5/8/2018
END920165670US4	US	9542239	14/638654	3/4/2015	1/10/2017
END920165670US5	US	9817611	15/352188	11/15/2016	11/14/2017
END920165671US3	US	10015152	15/217242	7/22/2016	7/3/2018
END920165671US4	US	9390283	14/610331	1/30/2015	7/12/2016
END920165672US2	US	10020826	14/613899	2/4/2015	7/10/2018
END920165673US2	US	9529834	14/589391	1/5/2015	12/27/2016
END920165673US3	US	9798619	15/351628	11/15/2016	10/24/2017
END920165673US4	US	10169150	15/679569	8/17/2017	1/1/2019
END920165674US04	US	10140182	15/841759	12/14/2017	11/27/2018
END920165674US2	US	9665429	14/589639	1/5/2015	5/30/2017
END920165674US3	US	9891829	15/450470	3/6/2017	2/13/2018
END920165675US2	US	9778987	14/570366	12/15/2014	10/3/2017
END920165675US3	US	10275313	15/705782	9/15/2017	4/30/2019
END920165676US2	US	9552261	14/549253	11/20/2014	1/24/2017
END920165677US2	US	9594639	14/527139	10/29/2014	3/14/2017
END920165678US2	US	9900316	14/502337	9/30/2014	2/20/2018
END920165679US2	US	9781208	14/468731	8/26/2014	10/3/2017
END920165679US3	US	10304096	15/675564	8/11/2017	5/28/2019
END920165679US4	US	10182115	15/719360	9/28/2017	1/15/2019
END920165680US2	US	9857974	14/450804	8/4/2014	1/2/2018

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165680US3	US	9841899	14/451610	8/5/2014	12/12/2017
END920165680US4	US	9594507	14/451911	8/5/2014	3/14/2017
END920165680US6	US	9588686	14/452475	8/5/2014	3/7/2017
END920165680US7	US	10037140	14/452483	8/5/2014	7/31/2018
END920165680US8	US	10120569	14/457907	8/12/2014	11/6/2018
END920165681US2	US	9749414	14/320518	6/30/2014	8/29/2017
END920165681US3	US	9661074	14/320547	6/30/2014	5/23/2017
END920165681US4	US	9661075	14/328861	7/11/2014	5/23/2017
END920165681US5	US	9774679	14/328919	7/11/2014	9/26/2017
END920165682US3	US	9781207	14/315925	6/26/2014	10/3/2017
END920165682US4	US	9438675	14/315981	6/26/2014	9/6/2016
END920165682US5	US	9998538	14/316061	6/26/2014	6/12/2018
END920165683US2	US	9626125	14/292009	5/30/2014	4/18/2017
END920165683US4	US	9495118	14/307625	6/18/2014	11/15/2016
END920165683US5	US	9639298	14/307672	6/18/2014	5/2/2017
END920165683US6	US	9927976	15/345172	11/7/2016	3/27/2018
END920165684US2	US	9451025	14/287401	5/27/2014	9/20/2016
END920165684US3	US	9565252	14/287464	5/27/2014	2/7/2017
END920165684US4	US	9848044	14/287499	5/27/2014	12/19/2017
END920165684US5	US	9894157	14/287534	5/27/2014	2/13/2018
END920165684US6	US	10180880	15/686980	8/25/2017	1/15/2019
END920165685US05	US	10303548	15/920843	3/14/2018	5/28/2019
END920165685US2	US	9652470	14/306335	6/17/2014	5/16/2017
END920165685US3	US	9921907	15/428390	2/9/2017	3/20/2018
END920165685US4	US	10169369	15/810426	11/13/2017	1/1/2019
END920165686US2	US	9501360	14/306312	6/17/2014	11/22/2016
END920165686US3	US	10095580	15/352292	11/15/2016	10/9/2018
END920165686US4	US	10133635	15/817427	11/20/2017	11/20/2018
END920165687US2	US	9432341	14/256472	4/18/2014	8/30/2016
END920165688US2	US	9424132	14/256205	4/18/2014	8/23/2016
END920165688US3	US	10108493	15/242858	8/22/2016	10/23/2018
END920165689US2	US	9405609	14/256536	4/18/2014	8/2/2016
END920165689US3	US	10162705	15/224863	8/1/2016	12/25/2018
END920165690US2	US	9456035	14/215542	3/17/2014	9/27/2016
END920165690US3	US	10083097	15/276077	9/26/2016	9/25/2018
END920165690US4	US	10223213	15/804081	11/6/2017	3/5/2019
END920165691US2	US	9898373	14/215335	3/17/2014	2/20/2018
END920165693US2	US	10075523	14/172140	2/4/2014	9/11/2018
END920165694US2	US	9274908	14/153366	1/13/2014	3/1/2016
END920165694US3	US	9766810	15/011807	2/1/2016	9/19/2017

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165695US2	US	9774678	14/153319	1/13/2014	9/26/2017
END920165696US2	US	9043499	14/103141	12/11/2013	5/26/2015
END920165696US3	US	9223653	14/704069	5/5/2015	12/29/2015
END920165696US4	US	9348698	14/954873	11/30/2015	5/24/2016
END920165696US6	US	10310763	15/822472	11/27/2017	6/4/2019
END920165697US2	US	10055441	14/102987	12/11/2013	8/21/2018
END920165697US7	US	10268554	15/823811	11/28/2017	4/23/2019
END920165698US2	US	9558067	14/088897	11/25/2013	1/31/2017
END920165699US2	US	9311187	14/088794	11/25/2013	4/12/2016
END920165699US3	US	10013203	15/095558	4/11/2016	7/3/2018
END920165699US4	US	10042577	15/342238	11/3/2016	8/7/2018
END920165699US5	US	10204009	15/403869	1/11/2017	2/12/2019
END920165699US6	US	10229002	15/432642	2/14/2017	3/12/2019
END920165699US7	US	10241866	15/439383	2/22/2017	3/26/2019
END920165700US2	US	9521197	14/056015	10/17/2013	12/13/2016
END920165701US2	US	9811533	14/055174	10/16/2013	11/7/2017
END920165702US2	US	9311179	14/027538	9/16/2013	4/12/2016
END920165702US3	US	9223723	14/027694	9/16/2013	12/29/2015
END920165702US4	US	9298542	14/027823	9/16/2013	3/29/2016
END920165703US2	US	9794337	14/028881	9/17/2013	10/17/2017
END920165703US3	US	9936020	14/029006	9/17/2013	4/3/2018
END920165703US4	US	9277011	14/029124	9/17/2013	3/1/2016
END920165704US2	US	9648087	13/959006	8/5/2013	5/9/2017
END920165704US3	US	9503513	13/959077	8/5/2013	11/22/2016
END920165704US4	US	9667701	13/959262	8/5/2013	5/30/2017
END920165704US5	US	10042705	15/347605	11/9/2016	8/7/2018
END920165704US6	US	9813501	15/427934	2/8/2017	11/7/2017
END920165704US7	US	9772904	15/442273	2/24/2017	9/26/2017
END920165704US8	US	10073737	15/688030	8/28/2017	9/11/2018
END920165704US9	US	10127111	15/719259	9/28/2017	11/13/2018
END920165706US2	US	9154298	13/944277	7/17/2013	10/6/2015
END920165706US3	US	9747160	14/844328	9/3/2015	8/29/2017
*END920165706US4	US	9021263	13/944118	7/17/2013	4/28/2015
END920165706US5	US	9176822	13/944342	7/17/2013	11/3/2015
END920165706US6	US	9875158	15/266011	9/15/2016	1/23/2018
END920165706US7	US	10241863	15/255748	9/2/2016	3/26/2019
END920165709US2	US	9537609	13/919566	6/17/2013	1/3/2017
END920165709US3	US	10200156	15/213329	7/18/2016	2/5/2019
END920165709US4	US	9258177	13/919673	6/17/2013	2/9/2016
END920165709US5	US	9819447	15/017991	2/8/2016	11/14/2017

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165710US2	US	9110833	13/889557	5/8/2013	8/18/2015
END920165710US3	US	9407292	14/792898	7/7/2015	8/2/2016
END920165710US4	US	10102068	15/224839	8/1/2016	10/16/2018
END920165710US5	US	8935761	13/889942	5/8/2013	1/13/2015
END920165711US2	US	9292212	13/890438	5/9/2013	3/22/2016
END920165711US3	US	9547548	15/012555	2/1/2016	1/17/2017
END920165711US4	US	9141297	13/890510	5/9/2013	9/22/2015
END920165711US5	US	10108484	15/346486	11/8/2016	10/23/2018
END920165711US6	US	10157011	15/350904	11/14/2016	12/18/2018
END920165711US7	US	10114697	15/357814	11/21/2016	10/30/2018
END920165711US8	US	10120574	15/357622	11/21/2016	11/6/2018
END920165712US2	US	9619487	13/921095	6/18/2013	4/11/2017
END920165713US2	US	9632872	13/866457	4/19/2013	4/25/2017
END920165713US3	US	9164841	13/866631	4/19/2013	10/20/2015
END920165713US4	US	10002047	15/282920	9/30/2016	6/19/2018
END920165713US5	US	10169229	15/347132	11/9/2016	1/1/2019
END920165713US6	US	10073638	15/400529	1/6/2017	9/11/2018
END920165714US2	US	9613052	13/868988	4/23/2013	4/4/2017
END920165714US3	US	10178083	13/869655	4/24/2013	1/8/2019
END920165714US4	US	9838382	15/400769	1/6/2017	12/5/2017
END920165714US5	US	10015161	15/707226	9/18/2017	7/3/2018
END920165715US2	US	9380032	13/868311	4/23/2013	6/28/2016
END920165715US3	US	10042703	15/193335	6/27/2016	8/7/2018
END920165719US2	US	9195684	13/753404	1/29/2013	11/24/2015
END920165719US3	US	9588994	13/753418	1/29/2013	3/7/2017
END920165720US2	US	10089344	13/775491	2/25/2013	10/2/2018
END920165720US3	US	10157051	15/217052	7/22/2016	12/18/2018
END920165720US5	US	10013444	13/775555	2/25/2013	7/3/2018
END920165720US6	US	9171031	13/775701	2/25/2013	10/27/2015
END920165720US7	US	8930375	13/775734	2/25/2013	1/6/2015
END920165720US8	US	8935256	13/775769	2/25/2013	1/13/2015
END920165721US2	US	10140177	13/706991	12/6/2012	11/27/2018
END920165721US3	US	9203901	13/707118	12/6/2012	12/1/2015
END920165721US4	US	9354972	14/953579	11/30/2015	5/31/2016
END920165721US5	US	9203902	13/707153	12/6/2012	12/1/2015
END920165722US10	US	9891995	15/283091	9/30/2016	2/13/2018
*END920165722US2	US	8990664	13/718897	12/18/2012	3/24/2015
END920165722US3	US	9146810	14/615966	2/6/2015	9/29/2015
END920165722US4	US	9507786	13/718961	12/18/2012	11/29/2016
END920165722US5	US	9465861	13/943352	7/16/2013	10/11/2016

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165722US7	US	9715504	15/213343	7/18/2016	7/25/2017
END920165722US8	US	9514132	13/718985	12/18/2012	12/6/2016
END920165722US9	US	9767109	15/215614	7/21/2016	9/19/2017
END920165723US10	US	9430286	13/865659	4/18/2013	8/30/2016
END920165723US11	US	9141468	13/865679	4/18/2013	9/22/2015
END920165723US12	US	10120755	14/843092	9/2/2015	11/6/2018
END920165723US13	US	8898542	13/707502	12/6/2012	11/25/2014
END920165723US14	US	9304858	13/707525	12/6/2012	4/5/2016
END920165723US15	US	9015556	13/707542	12/6/2012	4/21/2015
END920165723US16	US	9292385	14/635178	3/2/2015	3/22/2016
END920165723US17	US	9740730	15/249800	8/29/2016	8/22/2017
END920165723US19	US	10104168	15/281430	9/30/2016	10/16/2018
END920165723US2	US	9298548	13/707428	12/6/2012	3/29/2016
END920165723US20	US	10303521	15/341722	11/2/2016	5/28/2019
END920165723US22	US	9998540	15/403671	1/11/2017	6/12/2018
END920165723US25	US	10146621	15/405130	1/12/2017	12/4/2018
END920165723US26	US	9817701	15/405203	1/12/2017	11/14/2017
END920165723US28	US	10176045	15/437862	2/21/2017	1/8/2019
*END920165723US3	US	9009567	13/916980	6/13/2013	4/14/2015
END920165723US34	US	10133609	15/794865	10/26/2017	11/20/2018
END920165723US4	US	9674155	13/917017	6/13/2013	6/6/2017
END920165723US5	US	9584359	13/917058	6/13/2013	2/28/2017
*END920165723US6	US	9009564	13/707471	12/6/2012	4/14/2015
END920165723US7	US	9268639	14/492602	9/22/2014	2/23/2016
END920165723US8	US	9304857	13/707490	12/6/2012	4/5/2016
END920165724US2	US	8848906	13/686827	11/27/2012	9/30/2014
END920165724US3	US	9495240	14/499570	9/29/2014	11/15/2016
END920165724US4	US	9842063	15/345262	11/7/2016	12/12/2017
END920165724US6	US	10055283	15/799943	10/31/2017	8/21/2018
END920165725US3	US	9203625	13/683964	11/21/2012	12/1/2015
END920165725US4	US	9584326	13/683998	11/21/2012	2/28/2017
END920165725US5	US	8856549	13/684009	11/21/2012	10/7/2014
END920165725US6	US	9509514	14/482320	9/10/2014	11/29/2016
END920165725US9	US	10305988	15/341571	11/2/2016	5/28/2019
END920165726US3	US	9304843	13/611622	9/12/2012	4/5/2016
END920165726US4	US	8683286	13/611803	9/12/2012	3/25/2014
END920165726US5	US	9483337	14/223406	3/24/2014	11/1/2016
END920165726US6	US	8607122	13/611866	9/12/2012	12/10/2013
END920165726US7	US	9208009	14/100368	12/9/2013	12/8/2015
END920165727US2	US	9798616	13/647518	10/9/2012	10/24/2017

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165727US3	US	8839368	13/647533	10/9/2012	9/16/2014
END920165727US4	US	9158625	14/480882	9/9/2014	10/13/2015
END920165728US2	US	8776186	13/588259	8/17/2012	7/8/2014
END920165728US3	US	9104541	14/325604	7/8/2014	8/11/2015
END920165728US4	US	9785491	13/588286	8/17/2012	10/10/2017
END920165728US5	US	8782492	13/588350	8/17/2012	7/15/2014
END920165728US6	US	9262247	14/331596	7/15/2014	2/16/2016
END920165729US2	US	8677214	13/611962	9/12/2012	3/18/2014
END920165729US3	US	10216576	14/217662	3/18/2014	2/26/2019
END920165729US4	US	8782494	13/612043	9/12/2012	7/15/2014
END920165729US5	US	8856617	13/612116	9/12/2012	10/7/2014
END920165729US6	US	9128870	14/480139	9/8/2014	9/8/2015
END920165729US7	US	9471426	14/819113	8/5/2015	10/18/2016
*END920165730US2	US	8930649	13/565562	8/2/2012	1/6/2015
END920165730US3	US	8751894	13/565607	8/2/2012	6/10/2014
END920165730US4	US	9213742	13/565636	8/2/2012	12/15/2015
END920165730US5	US	9715425	14/954836	11/30/2015	7/25/2017
END920165730US6	US	10235237	15/629134	6/21/2017	3/19/2019
END920165731US2	US	9092385	13/587224	8/16/2012	7/28/2015
END920165731US3	US	9229823	13/587277	8/16/2012	1/5/2016
END920165731US4	US	9992019	14/954527	11/30/2015	6/5/2018
END920165731US5	US	9971802	15/215274	7/20/2016	5/15/2018
END920165731US6	US	10120756	15/217585	7/22/2016	11/6/2018
END920165731US7	US	8782491	13/587802	8/16/2012	7/15/2014
END920165731US8	US	9087016	14/330194	7/14/2014	7/21/2015
END920165732US2	US	9852017	13/547769	7/12/2012	12/26/2017
END920165732US3	US	8914667	13/547887	7/12/2012	12/16/2014
END920165732US4	US	9170868	13/547941	7/12/2012	10/27/2015
END920165732US5	US	9135098	13/548033	7/12/2012	9/15/2015
END920165734US2	US	9244770	13/527881	6/20/2012	1/26/2016
END920165734US3	US	10083081	15/005306	1/25/2016	9/25/2018
END920165734US4	US	8924770	13/527929	6/20/2012	12/30/2014
END920165734US5	US	8966311	13/527959	6/20/2012	2/24/2015
END920165735US10	US	10042709	15/414338	1/24/2017	8/7/2018
END920165735US2	US	8762479	13/464166	5/4/2012	6/24/2014
END920165735US3	US	9400714	13/647528	10/9/2012	7/26/2016
END920165735US4	US	9094428	14/312823	6/24/2014	7/28/2015
END920165735US5	US	9934091	15/190925	6/23/2016	4/3/2018
END920165735US6	US	9560133	13/464272	5/4/2012	1/31/2017
END920165735US7	US	8756480	13/464846	5/4/2012	6/17/2014

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
*END920165735US8	US	8984371	14/305880	6/16/2014	3/17/2015
END920165735US9	US	10061650	15/414452	1/24/2017	8/28/2018
END920165736US10	US	10255135	15/824340	11/28/2017	4/9/2019
END920165736US2	US	9842222	13/463991	5/4/2012	12/12/2017
END920165736US4	US	8656253	13/464048	5/4/2012	2/18/2014
*END920165736US5	US	8965939	14/182482	2/18/2014	2/24/2015
END920165736US6	US	8782439	13/464082	5/4/2012	7/15/2014
END920165736US7	US	9110593	14/331676	7/15/2014	8/18/2015
END920165736US8	US	10127402	15/341456	11/2/2016	11/13/2018
END920165736US9	US	9940195	15/718200	9/28/2017	4/10/2018
END920165737US3	US	9292682	13/450034	4/18/2012	3/22/2016
END920165737US4	US	8707393	13/450055	4/18/2012	4/22/2014
END920165738US2	US	9141458	13/450186	4/18/2012	9/22/2015
END920165738US3	US	9830222	14/844145	9/3/2015	11/28/2017
*END920165738US4	US	8996910	13/450198	4/18/2012	3/31/2015
END920165738US5	US	9298550	14/658725	3/16/2015	3/29/2016
*END920165738US6	US	8954787	13/450212	4/18/2012	2/10/2015
END920165739US2	US	9219604	13/449950	4/18/2012	12/22/2015
END920165740US2	US	8627091	13/413232	3/6/2012	1/7/2014
END920165740US3	US	9894151	14/147982	1/6/2014	2/13/2018
END920165740US4	US	8874990	13/413261	3/6/2012	10/28/2014
END920165740US5	US	9137303	14/524037	10/27/2014	9/15/2015
END920165740US6	US	8874991	13/413302	3/6/2012	10/28/2014
*END920165740US7	US	8949688	13/413320	3/6/2012	2/3/2015
END920165740US8	US	9591068	14/587948	12/31/2014	3/7/2017
END920165740US9	US	10298684	15/435692	2/17/2017	5/21/2019
END920165741US2	US	8843803	13/413436	3/6/2012	9/23/2014
END920165741US3	US	9110834	14/480945	9/9/2014	8/18/2015
END920165741US4	US	8843804	13/413452	3/6/2012	9/23/2014
END920165741US5	US	9135114	14/481245	9/9/2014	9/15/2015
END920165741US6	US	9501358	14/842129	9/1/2015	11/22/2016
END920165741US7	US	8880978	13/413469	3/6/2012	11/4/2014
END920165741US8	US	9208026	14/505835	10/3/2014	12/8/2015
END920165741US9	US	9471427	14/929925	11/2/2015	10/18/2016
END920165742US06	US	10169129	16/047637	7/27/2018	1/1/2019
END920165742US2	US	9183073	13/372677	2/14/2012	11/10/2015
END920165742US4	US	9658911	13/372715	2/14/2012	5/23/2017
END920165743US2	US	8868695	13/372611	2/14/2012	10/21/2014
END920165743US3	US	9727418	14/482509	9/10/2014	8/8/2017
END920165743US4	US	10102063	13/372628	2/14/2012	10/16/2018

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165743US5	US	8910022	13/372650	2/14/2012	12/9/2014
END920165744US2	US	8694752	13/343353	1/4/2012	4/8/2014
END920165744US3	US	8688949	13/343405	1/4/2012	4/1/2014
END920165744US4	US	8914609	14/230446	3/31/2014	12/16/2014
END920165744US5	US	8909858	13/343449	1/4/2012	12/9/2014
END920165745US2	US	9081714	13/347140	1/10/2012	7/14/2015
END920165745US3	US	9081715	13/347204	1/10/2012	7/14/2015
END920165745US4	US	8726127	13/347266	1/10/2012	5/13/2014
END920165745US5	US	8966341	14/276006	5/13/2014	2/24/2015
END920165746US2	US	8897443	13/309353	12/1/2011	11/25/2014
END920165746US3	US	8683231	13/309432	12/1/2011	3/25/2014
END920165746US4	US	9319463	13/309469	12/1/2011	4/19/2016
END920165746US5	US	10169146	15/131488	4/18/2016	1/1/2019
END920165747US2	US	8832493	13/308724	2/1/2011	9/9/2014
END920165747US3	US	9037904	14/479905	9/8/2014	5/19/2015
END920165747US4	US	9170882	13/308777	12/1/2011	10/27/2015
END920165747US5	US	9606869	14/875079	10/5/2015	3/28/2017
END920165747US6	US	8892845	13/308889	12/1/2011	11/18/2014
END920165747US8	US	9927977	15/426698	2/7/2017	3/27/2018
END920165748US2	US	8914669	13/291009	11/7/2011	12/16/2014
END920165748US3	US	9483398	13/291030	11/7/2011	11/1/2016
END920165748US4	US	9336139	13/291042	11/7/2011	5/10/2016
END920165748US5	US	9454431	14/035433	9/24/2013	9/27/2016
END920165749US4	US	10084770	13/289200	11/4/2011	9/25/2018
END920165749US5	US	9590838	14/029347	9/17/2013	3/7/2017
END920165750US4	US	9274977	13/270654	10/11/2011	3/1/2016
END920165750US5	US	9098441	13/937400	7/9/2013	8/4/2015
*END920165750US6	US	9015499	13/959688	8/5/2013	4/21/2015
END920165750US7	US	10007575	15/237773	8/16/2016	6/26/2018
END920165750US8	US	10146645	15/238031	8/16/2016	12/4/2018
END920165750US9	US	10289318	15/238165	8/16/2016	5/14/2019
END920165751US2	US	8707105	13/252410	10/4/2011	4/22/2014
END920165751US3	US	9122596	14/257398	4/21/2014	9/1/2015
END920165752US10	US	10298957	15/817104	11/17/2017	5/21/2019
END920165752US2	US	9112535	13/251566	10/3/2011	8/18/2015
END920165752US3	US	8612821	13/251587	10/3/2011	12/17/2013
END920165752US4	US	8839068	14/107204	12/16/2013	9/16/2014
END920165752US5	US	9037937	13/251603	10/3/2011	5/19/2015
END920165752US6	US	9843412	14/615655	2/6/2015	12/12/2017
END920165752US7	US	9571230	14/615701	2/6/2015	2/14/2017

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165752US8	US	8918693	13/251618	10/3/2011	12/23/2014
END920165753US2	US	9116831	13/231332	9/13/2011	8/25/2015
END920165753US3	US	8656138	13/231375	9/13/2011	2/18/2014
END920165753US4	US	9141307	14/182755	2/18/2014	9/22/2015
END920165753US5	US	9424130	14/843049	9/2/2015	8/23/2016
END920165754US2	US	8621271	13/204039	8/5/2011	12/31/2013
END920165754US3	US	8762793	13/204050	8/5/2011	6/24/2014
END920165754US5	US	8904226	13/204057	8/5/2011	12/2/2014
END920165754US6	US	10157002	13/204061	8/5/2011	12/18/2018
END920165756US2	US	8627114	13/180675	7/12/2011	1/7/2014
END920165756US3	US	9063968	13/943520	7/16/2013	6/23/2015
END920165756US4	US	9143499	14/148198	1/6/2014	9/22/2015
END920165756US5	US	9602496	14/843022	9/2/2015	3/21/2017
*END920165756US6	US	8966194	13/180677	7/12/2011	2/24/2015
END920165756US7	US	8842746	13/180680	7/12/2011	9/23/2014
END920165756US8	US	10162524	15/427860	2/8/2017	12/25/2018
END920165758US10	US	9231768	13/154740	6/7/2011	1/5/2016
END920165758US11	US	8892598	13/154744	6/7/2011	11/18/2014
END920165758US2	US	8782227	13/154708	6/7/2011	7/15/2014
END920165758US3	US	9300477	14/331526	7/15/2014	3/29/2016
END920165758US4	US	10289688	13/154725	6/7/2011	5/14/2019
END920165758US6	US	10095578	14/452774	8/6/2014	10/9/2018
END920165758US8	US	8621269	13/154735	6/7/2011	12/31/2013
END920165758US9	US	9137022	14/143471	12/30/2013	9/15/2015
END920165759US2	US	8612831	13/154167	6/6/2011	12/17/2013
END920165759US3	US	9684558	14/107157	12/16/2013	6/20/2017
END920165759US4	US	8555142	13/154181	6/6/2011	10/8/2013
END920165760US10	US	8683205	13/105136	5/11/2011	3/25/2014
END920165760US2	US	8898513	13/105074	5/11/2011	11/25/2014
END920165760US3	US	8521697	13/105094	5/11/2011	8/27/2013
END920165760US4	US	8683259	13/105103	5/11/2011	3/25/2014
END920165760US5	US	8707088	13/105118	5/11/2011	4/22/2014
END920165760US6	US	8626871	13/105127	5/11/2011	1/7/2014
*END920165760US7	US	8959597	13/105135	5/11/2011	2/17/2015
END920165760US8	US	9357009	14/587781	12/31/2014	5/31/2016
END920165761US10	US	8621580	13/197998	8/4/2011	12/31/2013
END920165761US11	US	9094402	14/143583	12/30/2013	7/28/2015
END920165761US12	US	10193689	13/198078	8/4/2011	1/29/2019
END920165761US13	US	9323603	14/481885	9/9/2014	4/26/2016
END920165761US2	US	9026758	13/097305	4/29/2011	5/5/2015

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165761US3	US	9009575	13/920766	6/18/2013	4/14/2015
END920165761US4	US	9563507	14/679578	4/6/2015	2/7/2017
END920165761US5	US	9632722	14/458969	8/13/2014	4/25/2017
END920165761US6	US	8874868	13/097338	4/29/2011	10/28/2014
END920165761US7	US	8448044	13/097357	4/29/2011	5/21/2013
END920165761US8	US	8627177	13/897567	5/20/2013	1/7/2014
END920165761US9	US	8861727	13/097396	4/29/2011	10/14/2014
END920165762US10	US	8761167	13/080312	4/5/2011	6/24/2014
END920165762US11	US	9235549	14/312163	6/23/2014	1/12/2016
END920165762US12	US	9047242	13/080431	4/5/2011	6/2/2015
*END920165762US13	US	8938552	13/180669	7/12/2011	1/20/2015
END920165762US15	US	9092386	13/920708	6/18/2013	7/28/2015
END920165762US16	US	9495117	14/454942	8/8/2014	11/15/2016
END920165762US17	US	9077734	13/180673	7/12/2011	7/7/2015
END920165762US18	US	8649399	13/080446	4/5/2011	2/11/2014
END920165762US19	US	9524267	14/176807	2/10/2014	12/20/2016
END920165762US2	US	8625635	13/073948	3/28/2011	1/7/2014
END920165762US20	US	8654789	13/080490	4/5/2011	2/18/2014
END920165762US21	US	9244879	14/182528	2/18/2014	1/26/2016
END920165762US22	US	9563598	14/148286	1/6/2014	2/7/2017
END920165762US23	US	10146620	15/345309	11/7/2016	12/4/2018
END920165762US24	US	9807171	15/346375	11/8/2016	10/31/2017
END920165762US25	US	9749419	15/348099	11/10/2016	8/29/2017
END920165762US3	US	8681790	13/080177	4/5/2011	3/25/2014
END920165762US4	US	9582459	14/223138	3/24/2014	2/28/2017
END920165762US5	US	8625636	13/080200	4/5/2011	1/7/2014
END920165762US6	US	8681787	13/080234	4/5/2011	3/25/2014
END920165762US7	US	9256571	14/223020	3/24/2014	2/9/2016
END920165762US8	US	8625637	13/080286	4/5/2011	1/7/2014
END920165762US9	US	9514090	14/148380	1/6/2014	12/6/2016
END920165763US10	US	10154034	14/454013	8/7/2014	12/11/2018
END920165763US2	US	9047218	13/021510	2/4/2011	6/2/2015
END920165763US3	US	9606858	13/887662	5/6/2013	3/28/2017
END920165763US4	US	8769379	13/887560	5/6/2013	7/1/2014
END920165763US5	US	9043689	14/319372	6/30/2014	5/26/2015
END920165763US6	US	9342406	14/461824	8/18/2014	5/17/2016
END920165763US7	US	9311186	14/726699	6/1/2015	4/12/2016
END920165763US8	US	8566354	13/021537	2/4/2011	10/22/2013
END920165763US9	US	9063881	13/021552	2/4/2011	6/23/2015
END920165764US10	US	9442800	14/482633	9/10/2014	9/13/2016

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
*END920165764US11	US	8938013	12/983209	12/31/2010	1/20/2015
END920165764US12	US	8495466	12/983214	12/31/2010	7/23/2013
END920165764US13	US	8627178	13/946136	7/19/2013	1/7/2014
END920165764US14	US	9110819	14/148652	1/6/2014	8/18/2015
END920165764US15	US	9229824	14/453176	8/6/2014	1/5/2016
END920165764US16	US	9170884	14/453241	8/6/2014	10/27/2015
END920165764US17	US	8527705	12/983221	12/31/2010	9/3/2013
END920165764US18	US	10268374	15/276903	9/27/2016	4/23/2019
END920165764US2	US	9311184	12/983226	12/31/2010	4/12/2016
END920165764US3	US	9116832	14/458686	8/13/2014	8/25/2015
END920165764US4	US	9158624	14/458721	8/13/2014	10/13/2015
END920165764US5	US	10049008	15/095637	4/11/2016	8/14/2018
END920165764US6	US	8725940	12/983232	12/31/2010	5/13/2014
END920165764US7	US	9122628	14/275814	5/12/2014	9/1/2015
END920165764US8	US	8850113	12/983235	12/31/2010	9/30/2014
END920165764US9	US	9135115	14/454852	8/8/2014	9/15/2015
END920165765US2	US	8683119	13/021589	2/4/2011	3/25/2014
END920165765US3	US	9092148	14/223219	3/24/2014	7/28/2015
END920165765US4	US	8707091	13/021657	2/4/2011	4/22/2014
END920165765US5	US	9116626	14/257341	4/21/2014	8/25/2015
END920165765US7	US	8578205	13/021664	2/4/2011	11/5/2013
END920165765US8	US	8886992	14/048659	10/8/2013	11/11/2014
END920165766US10	US	8560794	12/779721	5/13/2010	10/15/2013
END920165766US11	US	8972684	14/025215	9/12/2013	3/3/2015
END920165766US2	US	9244768	12/779640	5/13/2010	1/26/2016
END920165766US4	US	8281182	12/779658	5/13/2010	10/2/2012
END920165766US5	US	8516299	13/593997	8/24/2012	8/20/2013
END920165766US6	US	8370600	12/779675	5/13/2010	2/5/2013
END920165766US7	US	9043574	13/730223	12/28/2012	5/26/2015
END920165766US8	US	8566552	12/779709	5/13/2010	10/22/2013
END920165766US9	US	8812812	14/032776	9/20/2013	8/19/2014
END920165768US10	US	9576018	14/449487	8/1/2014	2/21/2017
END920165768US11	US	9881043	14/450943	8/4/2014	1/30/2018
END920165768US12	US	9092140	13/863475	4/16/2013	7/28/2015
END920165768US13	US	9354974	14/792577	7/6/2015	5/31/2016
END920165768US14	US	9774684	14/876154	10/6/2015	9/26/2017
END920165768US15	US	9880902	15/460958	3/16/2017	1/30/2018
END920165768US16	US	10015255	15/673978	8/10/2017	7/3/2018
END920165768US17	US	10044807	15/839457	12/12/2017	8/7/2018
END920165768US18	US	10051057	15/839814	12/12/2017	8/14/2018

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165768US2	US	8572429	12/954025	11/24/2010	10/29/2013
END920165768US22	US	10250686	15/846489	12/19/2017	4/2/2019
END920165768US23	US	10257276	16/048011	7/27/2018	4/9/2019
END920165768US25	US	10270858	16/024669	6/29/2018	4/23/2019
END920165768US26	US	10305989	16/170817	10/25/2018	5/28/2019
END920165768US27	US	10305990	16/205780	11/30/2018	5/28/2019
END920165768US3	US	8826067	14/062478	10/24/2013	9/2/2014
END920165768US4	US	8595435	12/797025	6/9/2010	11/26/2013
END920165768US5	US	8549351	12/954137	11/24/2010	10/1/2013
END920165768US6	US	8880940	14/042844	10/1/2013	11/4/2014
END920165768US7	US	8819179	12/954232	11/24/2010	8/26/2014
END920165768US8	US	9697171	14/335915	7/20/2014	7/4/2017
END920165768US9	US	10027478	15/208790	7/13/2016	7/17/2018
END920165769US2	US	8885821	12/954875	11/28/2010	11/11/2014
END920165769US3	US	8959366	12/954880	11/28/2010	2/17/2015
END920165769US4	US	10282564	14/452182	8/5/2014	5/7/2019
END920165769US5	US	8649521	12/954884	11/28/2010	2/11/2014
END920165770US07	US	9900387	15/681026	8/18/2017	2/20/2018
END920165770US2	US	8954667	12/943826	11/10/2010	2/10/2015
END920165770US3	US	9201732	14/446703	7/30/2014	12/1/2015
END920165770US4	US	9774680	14/447909	7/31/2014	9/26/2017
END920165770US5	US	9760440	15/213811	7/19/2016	9/12/2017
END920165770US6	US	9043548	14/449549	8/1/2014	5/26/2015
END920165771US2	US	8352501	12/942990	11/9/2010	1/8/2013
END920165771US3	US	8918674	12/942992	11/9/2010	12/23/2014
END920165771US4	US	9329940	14/444058	7/28/2014	5/3/2016
END920165771US5	US	9354980	14/444134	7/28/2014	5/31/2016
END920165771US6	US	9558071	14/444183	7/28/2014	1/31/2017
END920165772US2	US	8522113	12/942692	11/9/2010	8/27/2013
END920165773US2	US	8856552	12/903205	10/13/2010	10/7/2014
END920165773US3	US	9501341	14/481892	9/9/2014	11/22/2016
END920165773US4	US	9152489	12/903209	10/13/2010	10/6/2015
END920165773US5	US	9811405	14/325425	7/8/2014	11/7/2017
END920165773US6	US	10067831	14/325433	7/8/2014	9/4/2018
END920165774US2	US	8990585	12/886368	9/20/2010	3/24/2015
END920165774US3	US	9369526	14/319159	6/30/2014	6/14/2016
END920165774US4	US	9344500	14/319282	6/30/2014	5/17/2016
END920165774US5	US	9571577	14/612422	2/3/2015	2/14/2017
END920165774US6	US	10158648	15/221344	7/27/2016	12/18/2018
END920165774US7	US	10237281	15/221731	7/28/2016	3/19/2019

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165774US9	US	9866595	15/220944	7/27/2016	1/9/2018
END920165775US2	US	8468368	12/885160	9/17/2010	6/18/2013
END920165775US3	US	9922063	13/888324	5/6/2013	3/20/2018
END920165775US4	US	10097518	13/919210	6/17/2013	10/9/2018
END920165775US5	US	9697244	14/307883	6/18/2014	7/4/2017
END920165776US2	US	8762343	12/902684	10/12/2010	6/24/2014
END920165776US3	US	9679153	14/312532	6/23/2014	6/13/2017
END920165776US4	US	9489533	14/312550	6/23/2014	11/8/2016
END920165777US10	US	9760286	15/451906	3/7/2017	9/12/2017
END920165777US11	US	9823845	15/612750	6/2/2017	11/21/2017
END920165777US2	US	8819452	12/885124	9/17/2010	8/26/2014
*END920165777US3	US	9021273	14/316336	6/26/2014	4/28/2015
END920165777US4	US	9208331	14/680298	4/7/2015	12/8/2015
END920165777US5	US	9043616	14/336189	7/21/2014	5/26/2015
END920165777US6	US	9747457	14/705752	5/6/2015	8/29/2017
END920165777US7	US	8458233	12/885244	9/17/2010	6/4/2013
END920165777US8	US	8762346	13/908516	6/3/2013	6/24/2014
END920165777US9	US	9672109	15/250013	8/29/2016	6/6/2017
END920165778US2	US	8621268	12/862871	8/25/2010	12/31/2013
END920165779US2	US	8688907	12/862878	8/25/2010	4/1/2014
END920165779US3	US	9268641	14/230253	3/31/2014	2/23/2016
END920165779US4	US	10015141	14/328311	7/10/2014	7/3/2018
END920165779US5	US	9996548	14/328904	7/11/2014	6/12/2018
END920165780US2	US	8527807	12/845590	7/28/2010	9/3/2013
END920165780US3	US	8726071	13/779452	2/27/2013	5/13/2014
END920165780US4	US	9431055	14/275560	5/12/2014	8/30/2016
END920165780US5	US	9626248	14/327582	7/10/2014	4/18/2017
END920165780US6	US	9836352	14/327585	7/10/2014	12/5/2017
END920165780US7	US	9489264	14/327615	7/10/2014	11/8/2016
END920165780US8	US	9870795	15/085648	3/30/2016	1/16/2018
END920165781US2	US	9027080	12/886389	9/20/2010	5/5/2015
END920165781US3	US	9501366	14/315716	6/26/2014	11/22/2016
END920165781US5	US	10176054	14/789968	7/1/2015	1/8/2019
END920165781US6	US	10180884	14/315775	6/26/2014	1/15/2019
END920165781US7	US	9430336	14/315842	6/26/2014	8/30/2016
END920165782US2	US	8918897	12/862887	8/25/2010	12/23/2014
END920165782US3	US	9152514	13/866224	4/19/2013	10/6/2015
END920165782US4	US	9270298	14/335912	7/20/2014	2/23/2016
END920165782US5	US	9501349	14/336195	7/21/2014	11/22/2016
END920165782US6	US	9465824	13/874088	4/30/2013	10/11/2016

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165782US7	US	9703812	13/874560	5/1/2013	7/11/2017
END920165783US10	US	9098376	14/291205	5/30/2014	8/4/2015
END920165783US11	US	9304759	14/792846	7/7/2015	4/5/2016
END920165783US12	US	9965354	15/089943	4/4/2016	5/8/2018
END920165783US13	US	8630987	12/839220	7/19/2010	1/14/2014
END920165783US14	US	9378091	14/142206	12/27/2013	6/28/2016
END920165783US15	US	9858143	15/230108	8/5/2016	1/2/2018
END920165783US16	US	10275161	15/627529	10/10/2017	4/30/2019
END920165783US2	US	8819011	12/839209	7/19/2010	8/26/2014
END920165783US3	US	9411818	14/338504	7/23/2014	8/9/2016
END920165783US4	US	8769035	12/839181	7/19/2010	7/1/2014
END920165783US5	US	9785351	14/318790	6/30/2014	10/10/2017
END920165783US6	US	8479078	12/839197	7/19/2010	7/2/2013
END920165783US7	US	8631303	13/932320	7/1/2013	1/14/2014
END920165783US8	US	8914707	14/132020	12/18/2013	12/16/2014
END920165783US9	US	9063658	14/288453	5/28/2014	6/23/2015
END920165784US2	US	8589637	12/817171	6/16/2010	11/19/2013
END920165784US3	US	9645967	14/083724	11/19/2013	5/9/2017
END920165784US4	US	8522022	12/817201	6/17/2010	8/27/2013
END920165785US2	US	8351600	12/814467	6/13/2010	1/8/2013
END920165785US3	US	9009491	13/736848	1/8/2013	4/14/2015
END920165785US4	US	9413529	14/292727	5/30/2014	8/9/2016
END920165785US5	US	9088407	14/292772	5/30/2014	7/21/2015
END920165785US6	US	9900150	12/814474	6/13/2010	2/20/2018
END920165785US7	US	9692593	12/816126	6/15/2010	6/27/2017
END920165785US8	US	8468137	12/818137	6/17/2010	6/18/2013
END920165785US9	US	9819484	15/230145	8/5/2016	11/14/2017
END920165786US10	US	8572282	12/850611	8/4/2010	10/29/2013
*END920165786US11	US	8966009	14/062974	10/25/2013	2/24/2015
END920165786US3	US	9195408	14/290549	5/29/2014	11/24/2015
END920165786US4	US	9311185	14/294131	6/2/2014	4/12/2016
END920165786US5	US	9262288	14/302772	6/12/2014	2/16/2016
END920165786US8	US	8464133	12/850609	8/4/2010	6/11/2013
END920165786US9	US	9043489	12/850610	8/4/2010	5/26/2015
END920165787US2	US	10142115	12/837961	7/16/2010	11/27/2018
END920165787US3	US	9501355	14/302974	6/12/2014	11/22/2016
END920165787US4	US	8732206	12/838080	7/16/2010	5/20/2014
*END920165787US5	US	9015431	12/838407	7/16/2010	4/21/2015
END920165788US2	US	8402344	12/797208	6/9/2010	3/19/2013
END920165788US3	US	8438456	12/797339	6/9/2010	5/7/2013

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165788US4	US	8595596	13/870194	4/25/2013	11/26/2013
END920165788US5	US	8307263	12/814470	6/13/2010	11/6/2012
END920165789US2	US	8281181	12/778647	5/12/2010	10/2/2012
END920165789US3	US	8381025	12/778663	5/12/2010	2/19/2013
END920165789US4	US	8448020	13/524346	6/15/2012	5/21/2013
END920165789US5	US	8478937	12/778680	5/12/2010	7/2/2013
END920165789US6	US	10209903	13/779469	2/27/2013	2/19/2019
END920165789US7	US	9448730	12/778701	5/12/2010	9/20/2016
END920165789US8	US	9823861	14/292585	5/30/2014	11/21/2017
END920165790US3	US	8862800	13/529052	6/21/2012	10/14/2014
END920165790US4	US	8918534	12/777864	5/11/2010	12/23/2014
END920165790US5	US	8554994	12/777887	5/11/2010	10/8/2013
END920165790US6	US	8473677	12/777904	5/11/2010	6/25/2013
END920165790US7	US	9274890	13/925270	6/24/2013	3/1/2016
END920165791US2	US	8924387	12/789459	5/28/2010	12/30/2014
END920165791US3	US	9313293	14/540305	11/13/2014	4/12/2016
END920165791US4	US	10031804	15/095402	4/11/2016	7/24/2018
END920165791US5	US	8357048	12/789461	5/28/2010	1/22/2013
END920165791US6	US	8882599	13/711295	12/11/2012	11/11/2014
END920165792US2	US	8689354	12/797165	6/9/2010	4/1/2014
END920165792US3	US	9443099	14/230169	3/31/2014	9/13/2016
END920165792US4	US	8548913	12/797228	6/9/2010	10/1/2013
END920165792US5	US	9076138	12/817165	6/16/2010	7/7/2015
END920165792US6	US	9607168	14/292318	5/30/2014	3/28/2017
END920165793US2	US	8949695	12/712773	2/25/2010	2/3/2015
*END920165793US3	US	8977931	14/287340	5/27/2014	3/10/2015
END920165793US4	US	9189336	14/612059	2/2/2015	11/17/2015
END920165793US5	US	9047217	12/712842	2/25/2010	6/2/2015
END920165794US2	US	9411810	12/753569	4/2/2010	8/9/2016
END920165794US3	US	10268712	15/230113	8/5/2016	4/23/2019
END920165795US09	US	10303549	15/912305	3/5/2018	5/28/2019
END920165795US2	US	8560855	12/759701	4/14/2010	10/15/2013
END920165795US3	US	9086994	14/051588	10/11/2013	7/21/2015
END920165795US4	US	8782086	12/759703	4/14/2010	7/15/2014
END920165795US6	US	9798621	14/292285	5/30/2014	10/24/2017
END920165795US7	US	8468609	12/759948	4/14/2010	6/18/2013
END920165795US8	US	8813204	13/917922	6/14/2013	8/19/2014
END920165797US2	US	9235350	12/749583	3/20/2010	1/12/2016
END920165797US3	US	9690513	12/749606	3/30/2010	6/27/2017
END920165797US4	US	9772791	12/749625	3/30/2010	9/26/2017

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165798US2	US	9167277	12/776098	5/7/2010	10/20/2015
END920165799US10	US	8612796	13/753432	1/29/2013	12/17/2013
END920165799US11	US	8621265	13/753444	1/29/2013	12/31/2013
*END920165799US12	US	8972774	14/143524	12/30/2013	3/3/2015
END920165799US13	US	8527838	12/755232	4/6/2010	9/3/2013
END920165799US14	US	9405607	14/014692	8/30/2013	8/2/2016
END920165799US15	US	10007574	15/224784	8/1/2016	6/26/2018
END920165799US2	US	8533424	12/755181	4/6/2010	9/10/2013
END920165799US3	US	8977801	14/021098	9/9/2013	3/10/2015
END920165799US4	US	9081675	14/302377	6/11/2014	7/14/2015
END920165799US5	US	9098409	14/302390	6/11/2014	8/4/2015
END920165799US6	US	9086964	14/302397	6/11/2014	7/21/2015
END920165799US7	US	8352719	12/755200	4/6/2010	1/8/2013
END920165799US8	US	8578147	13/645703	10/5/2012	11/5/2013
END920165799US9	US	8448016	12/755225	4/6/2010	5/21/2013
END920165802US10	US	9734014	14/930128	11/2/2015	8/15/2017
END920165802US2	US	8560798	12/764275	4/21/2010	10/15/2013
END920165802US3	US	8972692	14/026202	9/13/2013	3/3/2015
END920165802US4	US	8275744	12/764873	4/21/2010	9/25/2012
END920165802US5	US	9201805	13/588111	8/17/2012	12/1/2015
END920165802US6	US	8275966	12/764930	4/21/2010	9/25/2012
END920165802US7	US	8886905	13/594199	8/24/2012	11/11/2014
END920165802US8	US	9207870	14/303956	6/13/2014	12/8/2015
END920165802US9	US	9208025	14/304054	6/13/2014	12/8/2015
END920165805US2	US	8185614	12/648497	12/29/2009	5/22/2012
END920165805US3	US	8200788	12/817140	6/16/2010	6/12/2012
END920165807US10	US	8706980	12/767390	4/26/2010	4/22/2014
END920165807US11	US	9940197	14/192098	2/27/2014	4/10/2018
END920165807US12	US	8489915	12/767404	4/26/2010	7/16/2013
END920165807US13	US	8819516	13/916138	6/12/2013	8/26/2014
END920165807US14	US	10108492	14/302582	6/12/2014	10/23/2018
END920165807US15	US	9558059	14/302664	6/12/2014	1/31/2017
END920165807US2	US	8352782	12/648691	12/29/2009	1/8/2013
END920165807US3	US	8560882	12/716106	3/2/2010	10/15/2013
END920165807US4	US	8464096	13/558008	7/25/2012	6/11/2013
END920165807US5	US	8868969	13/914228	6/10/2013	10/21/2014
END920165807US6	US	8713358	13/914232	6/10/2013	4/29/2014
END920165807US7	US	8555109	12/767364	4/26/2010	10/8/2013
END920165807US8	US	8819482	14/047661	10/7/2013	8/26/2014
END920165807US9	US	9785503	14/331997	7/15/2014	10/10/2017

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165809US2	US	7636724	10/234636	9/3/2002	12/22/2009
*END920165809US3	US	7933876	12/623234	11/20/2009	4/26/2011
END920165809US4	US	8805792	13/051897	3/18/2011	8/12/2014
END920165809US5	US	10083083	14/321629	7/1/2014	9/25/2018
END920165809US6	US	9830225	14/556657	12/1/2014	11/28/2017
END920165809US7	US	9846615	14/556703	12/1/2014	12/19/2017
END920165809US8	US	10169154	14/557078	12/1/2014	1/1/2019
END920165809US9	US	10185625	14/557136	12/1/2014	1/22/2019
END920165811US1	US	8819781	12/426807	4/20/2009	8/26/2014
END920165811US2	US	9537951	14/467273	8/25/2014	1/3/2017
END920165812US1	US	9483656	12/426727	4/20/2009	11/1/2016
END920165812US10	US	8504847	12/762352	4/18/2010	8/6/2013
END920165812US11	US	9104691	13/742577	1/16/2013	8/11/2015
END920165812US2	US	8656187	12/547753	8/26/2009	2/18/2014
END920165812US3	US	8744071	12/551117	8/31/2009	6/3/2014
END920165812US6	US	8601259	12/760066	4/14/2010	12/3/2013
END920165812US7	US	10104045	12/762350	4/18/2010	10/16/2018
END920165812US8	US	9203812	14/292132	5/30/2014	12/1/2015
END920165812US9	US	9276912	14/292344	5/30/2014	3/1/2016
END920165813US1	US	9092294	12/426623	4/20/2009	7/28/2015
END920165814US1	US	7904475	11/973621	10/9/2007	3/8/2011
END920165814US2	US	7953771	12/633779	12/8/2009	5/31/2011
END920165814US3	US	8190662	13/094375	4/26/2011	5/29/2012
END920165814US4	US	9092439	13/106577	5/12/2011	7/28/2015
END920165815US1	US	8285878	11/973613	10/9/2007	10/9/2012
END920165815US10	US	10270855	14/628817	2/23/2015	4/23/2019
END920165815US11	US	8886711	12/947941	11/17/2010	11/11/2014
END920165815US12	US	9888076	14/182393	2/18/2014	2/6/2018
END920165815US13	US	9959076	14/292206	5/30/2014	5/1/2018
END920165815US14	US	9578097	12/950755	11/19/2010	2/21/2017
END920165815US15	US	7962641	12/218594	7/16/2008	6/14/2011
*END920165815US16	US	8938591	12/749592	3/30/2010	1/20/2015
END920165815US2	US	8209363	12/218200	7/14/2008	6/26/2012
END920165815US4	US	8533256	12/648528	12/29/2009	9/10/2013
END920165815US5	US	8892698	14/021037	9/9/2013	11/18/2014
END920165815US7	US	8478865	12/648669	12/29/2009	7/2/2013
*END920165815US9	US	8965956	12/649099	12/29/2009	2/24/2015
END920165816US1	US	9996413	11/973542	10/9/2007	6/12/2018
END920165816US2	US	8880799	12/080042	3/31/2008	11/4/2014
END920165817US1	US	7953937	11/241555	9/30/2005	5/31/2011

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165817US10	US	8244991	12/575577	10/8/2009	8/14/2012
END920165817US11	US	8468311	13/488650	6/5/2012	6/18/2013
END920165817US12	US	8694668	13/107040	5/13/2011	4/8/2014
END920165817US2	US	7546427	11/403391	4/13/2006	6/9/2009
END920165817US3	US	7818518	12/431166	4/28/2009	10/19/2010
END920165817US4	US	7574570	11/403684	4/13/2006	8/11/2009
END920165817US5	US	8140777	12/499489	7/8/2009	3/20/2012
END920165817US6	US	7574579	11/404071	4/13/2006	8/11/2009
END920165817US7	US	8019960	12/499013	7/7/2009	9/13/2011
END920165817US8	US	8171101	11/973622	10/9/2007	5/1/2012
END920165817US9	US	8171102	12/684085	1/7/2010	5/1/2012
END920165900US10	US	10289505	15/203909	7/7/2016	5/14/2019
END920165900US11	US	9672108	15/214970	7/20/2016	6/6/2017
END920165900US12	US	9798467	15/259764	9/8/2016	10/24/2017
END920165900US13	US	9733853	15/343925	11/4/2016	8/15/2017
END920165900US14	US	9817597	15/345597	11/8/2016	11/14/2017
END920165900US15	US	10282118	15/342633	11/3/2016	5/7/2019
END920165900US16	US	9927978	15/444104	2/27/2017	3/27/2018
END920165900US17	US	10001923	15/448148	3/2/2017	6/19/2018
END920165900US18	US	10031669	15/445056	2/28/2017	7/24/2018
END920165900US19	US	10133632	15/485160	4/11/2017	11/20/2018
END920165900US2	US	8352831	12/903781	10/13/2010	1/8/2013
END920165900US20	US	10148788	15/614019	6/5/2017	12/4/2018
END920165900US21	US	10203877	15/721402	9/29/2017	2/12/2019
END920165900US3	US	8612827	13/736856	1/8/2013	12/17/2013
END920165900US4	US	9462316	12/903212	10/13/2010	10/4/2016
END920165900US5	US	9305597	14/334051	7/17/2014	4/5/2016
END920165900US6	US	9330241	14/333834	7/17/2014	5/3/2016
END920165900US7	US	9507735	14/318347	6/27/2014	11/29/2016
END920165900US8	US	9413393	14/333968	7/17/2014	8/9/2016
END920165900US9	US	9727266	15/056517	2/29/2016	8/8/2017
END920165901US2	US	8694545	13/527778	6/20/2012	4/8/2014
END920165901US3	US	8762770	13/527819	6/20/2012	6/24/2014
END920165901US4	US	9104719	14/246253	4/7/2014	8/11/2015
END920165901US5	US	9460148	13/527785	6/20/2012	10/4/2016
END920165902US10	US	8291277	12/842949	7/23/2010	10/16/2012
END920165902US11	US	8527828	13/540289	7/2/2012	9/3/2013
END920165902US2	US	8433978	12/842942	7/23/2010	4/30/2013
END920165902US3	US	8667371	13/870138	4/25/2013	3/4/2014
END920165902US4	US	9049463	14/194961	3/3/2014	6/2/2015

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165902US6	US	9215476	13/919746	6/17/2013	12/15/2015
END920165902US7	US	9661356	14/289064	5/28/2014	5/23/2017
END920165902US8	US	9681156	14/290389	5/29/2014	6/13/2017
END920165902US9	US	8522074	12/842932	7/23/2010	8/27/2013
END920165907US2	US	9424326	13/959702	8/5/2013	8/23/2016
END920165907US3	US	10013471	15/223707	7/29/2016	7/3/2018
END920165907US4	US	9483539	13/959727	8/5/2013	11/1/2016
END920165907US6	US	10057351	15/400092	1/6/2017	8/21/2018

* Lapsed

END OF EXHIBIT A-I

EXHIBIT A-II
LISTED PATENTS (United States)

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
END920165001US2	US	10078472	14/984024	12/30/2015	9/18/2018
END920165667US2	US	9606867	14/680459	4/7/2015	3/28/2017
END920165667US4	US	10102069	15/400767	1/6/2017	10/16/2018
END920165668US3	US	10095872	14/675183	3/31/2015	10/9/2018
END920165668US4	US	10152601	14/675360	3/31/2015	12/11/2018
END920165674US04	US	10140182	15/841759	12/14/2017	11/27/2018
END920165675US2	US	9778987	14/570366	12/15/2014	10/3/2017
END920165675US3	US	10275313	15/705782	9/15/2017	4/30/2019
END920165736US7	US	9110593	14/331676	7/15/2014	8/18/2015
END920165738US3	US	9830222	14/844145	9/3/2015	11/28/2017
END920165740US5	US	9137303	14/524037	10/27/2014	9/15/2015
END920165741US3	US	9110834	14/480945	9/9/2014	8/18/2015
END920165741US5	US	9135114	14/481245	9/9/2014	9/15/2015
END920165741US6	US	9501358	14/842129	9/1/2015	11/22/2016
END920165741US8	US	9208026	14/505835	10/3/2014	12/8/2015
END920165741US9	US	9471427	14/929925	11/2/2015	10/18/2016
END920165744US4	US	8914609	14/230446	3/31/2014	12/16/2014
END920165745US5	US	8966341	14/276006	5/13/2014	2/24/2015
END920165747US3	US	9037904	14/479905	9/8/2014	5/19/2015
END920165747US5	US	9606869	14/875079	10/5/2015	3/28/2017
END920165750US5	US	9098441	13/937400	7/9/2013	8/4/2015
*END920165750US6	US	9015499	13/959688	8/5/2013	4/21/2015
END920165765US8	US	8886992	14/048659	10/8/2013	11/11/2014
END920165797US3	US	9690513	12/749606	3/30/2010	6/27/2017
END920165799US3	US	8977801	14/021098	9/9/2013	3/10/2015
END920165799US8	US	8578147	13/645703	10/5/2012	11/5/2013
END920165802US3	US	8972692	14/026202	9/13/2013	3/3/2015
END920165802US5	US	9201805	13/588111	8/17/2012	12/1/2015
END920165811US2	US	9537951	14/467273	8/25/2014	1/3/2017
END920165814US2	US	7953771	12/633779	12/8/2009	5/31/2011
END920165814US3	US	8190662	13/094375	4/26/2011	5/29/2012
END920165814US4	US	9092439	13/106577	5/12/2011	7/28/2015
END920165815US5	US	8892698	14/021037	9/9/2013	11/18/2017
END920165817US5	US	8140777	12/499489	7/8/2009	3/20/2012

* Lapsed

END OF EXHIBIT A-II

EXHIBIT C-I
ASSIGNED US PATENT APPLICATIONS

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
END920165001US03	US	15/818633	11/20/2017	2018-0077240
END920165001US04	US	15/838983	12/12/2017	20180103104
END920165001US05	US	15/832316	12/5/2017	2018-0095825
END920165001US06	US	15/832391	12/5/2017	2018-0095826
END920165001US07	US	15/822302	11/27/2017	2018-0075047
END920165001US08	US	15/839426	12/12/2017	20180101439
END920165001US09	US	15/841990	12/14/2017	20180107422
*END920165001US1	US	62/121736	2/27/2015	
END920165001US10	US	15/839192	12/12/2017	20180101437
END920165002US03	US	15/837705	12/11/2017	20180101325
END920165002US04	US	15/841863	12/14/2017	20180107427
END920165002US05	US	15/843804	12/15/2017	20180107424
END920165002US06	US	15/845137	12/18/2017	20180107837
END920165002US07	US	15/843390	12/15/2017	20180107544
END920165002US08	US	15/840151	12/13/2017	20180101308
END920165002US09	US	15/839248	12/12/2017	20180101306
*END920165002US1	US	62/140861	3/31/2015	
END920165002US10	US	15/842596	12/14/2017	20180107423
END920165002US11	US	16/298150	3/11/2019	
*END920165005US1	US	62/154886	4/30/2015	
END920165005US11	US	16/001671	6/6/2018	2018029314 1
END920165005US12	US	16/145481	9/28/2018	20190050712
END920165005US13	US	16/193194	11/16/2018	20190087270
END920165005US14	US	16/237903	1/2/2019	20190155706
END920165005US15	US	16/259361	1/28/2019	20190155506
*END920165006US1	US	62/168145	5/29/2015	
END920165006US10	US	15/660635	7/26/2017	20170322743
END920165006US2	US	15/082887	3/28/2016	US20160350329A1
END920165006US3	US	15/353486	11/16/2016	US20170060481A1
END920165006US4	US	15/354034	11/17/2016	US20170068691A1
END920165006US5	US	15/399426	1/5/2017	20170116080
END920165006US6	US	15/408035	1/17/2017	US20170123706A1
END920165006US7	US	15/411188	1/20/2017	20170132079
END920165006US8	US	15/411468	1/20/2017	2017-0132272
END920165006US9	US	15/416120	1/26/2017	2017-0131922
END920165007US08	US	15/445404	2/28/2017	20170168899
END920165007US09	US	15/445573	2/28/2017	20170168724

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
*END920165007US1	US	62/168114	5/29/2015	
END920165007US10	US	15/445033	2/28/2017	20170168719
END920165007US5	US	15/345947	11/8/2016	US20170052837A1
END920165007US6	US	15/402443	1/10/2017	US20170123719A1
END920165007US7	US	15/405811	1/13/2017	US20170123717A1
*END920165008US1	US	62/186590	6/30/2015	
END920165008US11	US	16/031488	7/10/2018	20180322009
END920165008US12	US	16/255181	1/23/2019	20190155689
END920165008US13	US	16/255942	1/24/2019	20190155690
END920165008US14	US	16/399215	4/30/2019	
END920165008US3	US	15/164357	5/25/2016	US20170004055A1
END920165008US8	US	15/194781	6/28/2016	US20170006099A1
*END920165009US1	US	62/199816	7/31/2015	
END920165009US11	US	16/001686	6/6/2018	20180285193
END920165009US12	US	16/106548	8/21/2018	20180357122
END920165009US13	US	16/262286	1/30/2019	
END920165009US14	US	16/273552	2/12/2019	
END920165009US15	US	16/374297	4/3/2019	
END920165009US3	US	15/143793	5/2/2016	US20170034184A1
END920165009US6	US	15/143988	5/2/2016	US20170034273A1
END920165009US7	US	15/144080	5/2/2016	US20170032139A1
*END920165010US1	US	62/211975	8/31/2015	
END920165010US11	US	15/976341	5/10/2018	20180260150
END920165010US12	US	16/102940	8/14/2018	20180356999
END920165010US13	US	16/143744	9/27/2018	20190026036
END920165010US14	US	16/255986	1/24/2019	20190155525
END920165010US3	US	15/218967	7/25/2016	US20170060459A1
END920165010US6	US	15/225203	8/1/2016	US20170063991A1
*END920165011US1	US	62/222819	9/24/2015	
END920165011US11	US	16/192217	11/15/2018	20190087120
END920165011US12	US	16/185738	11/9/2018	20190095127
END920165011US13	US	16/203262	11/28/2018	20190095128
END920165011US5	US	15/248716	8/26/2016	US20170090824A1
END920165011US9	US	15/262169	9/12/2016	US20170093978A1
*END920165012US1	US	62/248636	10/30/2015	
END920165012US10	US	16/145290	9/28/2018	20190026183
END920165012US11	US	16/160170	10/15/2018	20190050290
END920165012US12	US	16/171248	10/25/2018	US20190065312A1
END920165012US4	US	15/334433	10/26/2016	US20170123911A1

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
END920165012US5	US	15/334502	10/26/2016	US20170126804A1
END920165012US6	US	15/334549	10/26/2016	US20170126805A1
END920165012US8	US	15/334848	10/26/2016	US20170123848A1
END920165012US9	US	15/331504	10/21/2016	20170123976
*END920165013US1	US	62/248752	10/30/2015	
END920165013US13	US	16/172112	10/26/2018	20190065316
END920165013US14	US	16/378652	4/9/2019	
END920165013US3	US	15/244354	8/23/2016	20170126794
END920165653US04	US	15/839639	12/12/2017	20180102874
END920165653US05	US	15/842298	12/14/2017	20180107548
END920165653US06	US	15/844779	12/18/2017	20180107567
END920165653US07	US	15/846300	12/19/2017	20180121278
END920165653US08	US	15/842730	12/14/2017	20180109617
END920165653US09	US	15/842768	12/14/2017	20180107549
*END920165653US1	US	62/121667	2/27/2015	
END920165653US10	US	16/049731	7/30/2018	20180336363
END920165654US04	US	15/841936	12/14/2017	20180109615
END920165654US05	US	15/831965	12/5/2017	2018-0109614
END920165654US07	US	15/837401	12/11/2017	20180103102
END920165654US08	US	15/836450	12/8/2017	20180103101
END920165654US09	US	15/838725	12/12/2017	20180103103
*END920165654US1	US	62/109712	1/30/2015	
END920165654US10	US	15/848196	12/20/2017	20180115606
END920165654US11	US	15/842972	12/15/2017	20180109618
END920165654US12	US	16/189203	11/13/2018	20190079822
END920165654US3	US	15/812706	11/14/2017	2018-0077238
END920165655US04	US	15/838874	12/12/2017	20180101436
END920165655US05	US	15/833760	12/6/2017	2018-0095827
END920165655US06	US	15/845473	12/18/2017	20180107416
END920165655US07	US	15/843220	12/15/2017	20180107543
END920165655US09	US	15/843834	12/15/2017	20180107429
*END920165655US1	US	62/109700	1/30/2015	
END920165655US10	US	16/392126	4/23/2019	
END920165655US3	US	15/671746	8/8/2017	20170337108
END920165656US04	US	15/830252	12/4/2017	20180101451
END920165656US05	US	15/831477	12/5/2017	2018-0095891
END920165656US06	US	15/830321	12/4/2017	2018-0091595
END920165656US07	US	15/830443	12/4/2017	2018-0089026
END920165656US08	US	15/830596	12/4/2017	2018-0089027

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
END920165656US09	US	15/837759	12/11/2017	20180101327
*END920165656US1	US	62/098449	12/31/2014	
END920165656US3	US	15/661332	7/27/2017	20170322846
END920165657US03	US	15/844121	12/15/2017	20180107431
END920165657US04	US	15/844180	12/15/2017	20180107398
END920165657US05	US	15/844255	12/15/2017	20180107535
END920165657US06	US	15/844299	12/15/2017	20180107545
END920165657US07	US	15/843978	12/15/2017	20180107397
END920165657US08	US	15/843534	12/15/2017	20180107728
END920165657US09	US	15/837868	12/11/2017	20180101434
*END920165657US1	US	62/098414	12/31/2014	
END920165657US10	US	16/112377	8/24/2018	20180373459
END920165659US04	US	15/837455	12/11/2017	20180101433
END920165659US05	US	15/840887	12/13/2017	20180101435
END920165659US06	US	15/840999	12/13/2017	20180101440
END920165659US07	US	15/838005	12/11/2017	20180101328
END920165659US08	US	15/839254	12/12/2017	20180101438
END920165659US09	US	15/842844	12/14/2017	20180107421
*END920165659US1	US	62/086542	12/2/2014	
END920165659US10	US	16/136106	9/19/2018	20190018725
END920165660US03	US	15/840070	12/13/2017	20180101457
END920165660US06	US	15/848137	12/20/2017	20180113747
END920165660US07	US	15/850127	12/21/2017	20180113651
END920165660US09	US	15/903628	2/23/2018	20180189139
*END920165660US1	US	62/072123	10/29/2014	
END920165660US10	US	15/901036	2/21/2018	20180181332
END920165660US11	US	16/284102	2/25/2019	
END920165661US06	US	16/144909	9/27/2018	20190034275
END920165661US07	US	16/256193	1/24/2019	20190155691
*END920165661US1	US	62/047458	9/8/2014	
END920165662US04	US	15/978596	5/14/2018	20180260434
END920165662US05	US	16/185443	11/9/2018	20190079951
*END920165662US1	US	62/046444	9/5/2014	
END920165665US03	US	16/036999	7/17/2018	20180324246
END920165665US04	US	16/050236	7/31/2018	20180336101
*END920165665US1	US	62/019126	6/30/2014	
*END920165666US1	US	62/019074	6/30/2014	
END920165666US11	US	16/053395	8/2/2018	20180341550
END920165666US12	US	16/053466	8/2/2018	20180343107

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
END920165666US13	US	16/256649	1/24/2019	20190158596
END920165666US14	US	16/271370	2/8/2019	
END920165666US6	US	14/707974	5/8/2015	20150378625
END920165666US7	US	15/443065	2/27/2017	20170168749
END920165667US05	US	16/108905	8/22/2018	20180365105
*END920165667US1	US	62/008207	6/5/2014	
END920165668US05	US	16/032288	7/11/2018	20180341417
END920165668US06	US	16/151513	10/4/2018	20190042768
*END920165668US1	US	62/008182	6/5/2014	
END920165668US2	US	14/675070	3/31/2015	20150356305
END920165669US06	US	16/412167	5/14/2019	
*END920165669US1	US	61/986399	4/30/2014	
END920165669US5	US	15/671670	8/8/2017	20170351454
END920165670US07	US	16/122949	9/6/2018	2019000473
END920165670US08	US	16/139219	9/24/2018	2019002614 7
END920165670US09	US	16/284248	2/25/2019	
*END920165670US1	US	61/986361	4/30/2014	
END920165671US06	US	16/197235	11/20/2018	20190087599
*END920165671US1	US	61/974142	4/2/2014	
*END920165671US2	US	14/610220	1/30/2015	20150288680
END920165671US5	US	15/721093	9/29/2017	20180039788
END920165672US03	US	16/029898	7/9/2018	20180316569
END920165672US04	US	16/192058	11/15/2018	20190087269
END920165672US05	US	16/204278	11/29/2018	20190095344
*END920165672US1	US	61/974110	4/2/2014	
END920165673US05	US	16/145305	9/28/2018	20190034276
END920165673US06	US	16/145427	9/28/2018	20190034277
END920165673US07	US	16/171794	10/26/2018	20190065313
*END920165673US1	US	61/944742	2/26/2014	
END920165674US05	US	16/151632	10/4/2018	20190034086
END920165674US06	US	16/165608	10/19/2018	20190056868
END920165674US07	US	16/121068	9/4/2018	20180373595
*END920165674US1	US	61/944722	2/26/2014	
END920165675US04	US	16/150841	10/3/2018	20190034278
END920165675US05	US	16/171585	10/26/2018	20190065315
*END920165675US1	US	61/934036	1/31/2014	
END920165676US04	US	16/166437	10/22/2018	20190056996
END920165676US05	US	16/166331	10/22/2018	20190056995
*END920165676US1	US	61/933953	1/31/2014	

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
END920165676US3	US	15/398163	1/4/2017	20170116079
END920165677US04	US	16/158645	10/12/2018	20190042370
END920165677US05	US	16/138459	9/21/2018	20190026186
*END920165677US1	US	61/924196	1/6/2014	
END920165677US3	US	15/350672	11/14/2016	US20170063402A1
END920165678US04	US	16/145940	9/28/2018	20190050280
END920165678US05	US	16/146447	9/28/2018	20190036824
*END920165678US1	US	61/911544	12/4/2013	
END920165678US3	US	15/822972	11/27/2017	2018-0081749
END920165679US05	US	16/190742	11/14/2018	20190082014
END920165679US06	US	16/359221	3/20/2019	
*END920165679US1	US	61/898934	11/1/2013	
*END920165680US1	US	61/886452	10/3/2013	
END920165680US10	US	15/789473	10/20/2017	20180039421
END920165680US11	US	15/821566	11/22/2017	2018-0095669
END920165680US5	US	14/452136	8/5/2014	20150100726
END920165680US9	US	14/475772	9/3/2014	20150100662
*END920165681US1	US	61/871833	8/29/2013	
END920165681US6	US	15/425128	2/6/2017	20170147611
END920165681US7	US	15/642660	7/6/2017	20170300259
END920165681US8	US	15/809584	11/10/2017	2018-0069926
END920165681US9	US	15/820102	11/21/2017	2018-0097881
END920165682US07	US	15/984920	5/21/2018	20180267734
*END920165682US1	US	61/871649	8/29/2013	
END920165682US2	US	14/315893	6/26/2014	20150067100
END920165682US6	US	15/651161	7/17/2017	20170315871
END920165683US08	US	15/900525	2/20/2018	20180188964
*END920165683US1	US	61/860498	7/31/2013	
END920165683US3	US	14/292662	5/30/2014	20150039660
END920165683US7	US	15/415236	1/25/2017	2017-0132082
END920165684US09	US	16/239219	1/3/2019	20190141130
*END920165684US1	US	61/860456	7/31/2013	
END920165684US10	US	16/174412	10/30/2018	20190065317
END920165684US8	US	15/823931	11/28/2017	20180109613
END920165685US06	US	16/171480	10/26/2018	20190065312
*END920165685US1	US	61/841625	7/1/2013	
END920165686US05	US	16/151108	10/3/2018	20190034279
*END920165686US1	US	61/841603	7/1/2013	
*END920165687US1	US	61/828905	5/30/2013	

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
END920165687US3	US	15/249905	8/29/2016	20160371143
END920165687US4	US	15/824496	11/28/2017	2018-0089020
*END920165688US1	US	61/828883	5/30/2013	
END920165688US4	US	15/816824	11/17/2017	2018-0074903
END920165688US5	US	15/805464	11/7/2017	2018-0060174
END920165689US04	US	16/128730	9/12/2018	20190012233
*END920165689US1	US	61/826316	5/22/2013	
END920165690US05	US	16/136681	9/20/2018	20190018741
END920165690US06	US	16/254789	1/23/2019	20190155701
*END920165690US1	US	61/819039	5/3/2013	
*END920165691US1	US	61/819025	5/3/2013	
END920165691US3	US	15/795636	10/27/2017	20180046537
END920165691US4	US	15/803113	11/3/2017	2018-0052735
END920165693US03	US	16/049778	7/30/2018	20180365261
END920165693US04	US	16/124666	9/7/2018	20190007380
END920165693US05	US	16/124789	9/7/2018	20190004727
END920165693US06	US	16/125043	9/7/2018	20190005261
*END920165693US1	US	61/807288	4/1/2013	
*END920165694US1	US	61/769595	2/26/2013	
END920165694US4	US	15/656245	7/21/2017	20170322733
END920165694US5	US	15/837536	12/11/2017	20180101305
*END920165695US1	US	61/769588	2/26/2013	
END920165695US3	US	15/688162	8/28/2017	20170359438
END920165695US4	US	15/802633	11/3/2017	2018-0054486
END920165695US5	US	15/823171	11/27/2017	20180103100
*END920165696US1	US	61/761005	2/5/2013	
END920165696US5	US	15/161383	5/23/2016	20160266839
END920165697US08	US	16/159469	10/12/2018	20190050303
*END920165697US1	US	61/760962	2/5/2013	
END920165697US3	US	15/823877	11/28/2017	2018-0081764
END920165697US4	US	15/823400	11/27/2017	2018-0081560
END920165697US5	US	15/823865	11/28/2017	2018-0081546
END920165697US6	US	15/824783	11/28/2017	2018-0081750
END920165698US06	US	16/396399	4/26/2019	
*END920165698US1	US	61/748916	1/4/2013	
END920165698US3	US	15/405004	1/12/2017	20170123669
END920165698US4	US	15/804424	11/6/2017	2018-0060173
END920165698US5	US	15/805280	11/7/2017	2018-0067808
END920165699US08	US	15/967245	4/30/2018	20180247071

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
END920165699US09	US	16/237793	1/2/2019	20190138394
*END920165699US1	US	61/748891	1/4/2013	
END920165699US10	US	16/244615	1/10/2019	20190146877
*END920165700US1	US	61/733698	12/5/2012	
END920165700US3	US	15/216494	7/21/2016	20160328297
END920165700US4	US	15/816934	11/17/2017	2018-0077239
END920165701US05	US	15/670900	8/7/2017	20170357666
END920165701US06	US	15/804069	11/6/2017	2018-0060351
*END920165701US1	US	61/733686	12/5/2012	
END920165701US3	US	15/432751	2/14/2017	2017-0160941
END920165701US4	US	15/660135	7/26/2017	20170322734
*END920165702US1	US	61/720274	10/30/2012	
END920165703US05	US	15/901686	2/21/2018	20180183800
*END920165703US1	US	61/720204	10/30/2012	
*END920165704US1	US	61/711106	10/8/2012	
END920165704US10	US	15/804147	11/6/2017	2018-0074890
END920165704US11	US	15/804090	11/6/2017	2018-0074889
END920165704US12	US	16/002638	6/7/2018	20180285194
END920165704US13	US	16/143854	9/27/2018	20190034267
*END920165706US1	US	61/696018	8/31/2012	
END920165706US10	US	15/823251	11/27/2017	2018-0081758
END920165706US11	US	15/824291	11/28/2017	2018-0081759
END920165706US12	US	15/818641	11/20/2017	2018-0074899
END920165706US13	US	16/244528	1/10/2019	20190146876
END920165706US14	US	16/297890	3/11/2019	
END920165706US8	US	15/612082	6/2/2017	20170269999
END920165706US9	US	15/817012	11/17/2017	2018-0074897
END920165709US07	US	16/239651	1/4/2019	20190140777
*END920165709US1	US	61/679000	8/2/2012	
END920165709US6	US	15/805811	11/7/2017	2018-0076931
END920165710US06	US	16/047942	7/27/2018	20180336097
END920165710US07	US	16/048471	7/30/2018	20180336098
*END920165710US1	US	61/663836	6/25/2012	
END920165711US09	US	16/165332	10/19/2018	2019-0050292
*END920165711US1	US	61/663796	6/25/2012	
*END920165712US1	US	61/661075	6/18/2012	
END920165713US07	US	15/439229	2/22/2017	2017-0161205
END920165713US09	US	15/958402	4/20/2018	20180239538
*END920165713US1	US	61/655753	6/5/2012	

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
END920165713US10	US	16/039742	7/19/2018	20180321872
END920165713US11	US	16/188942	11/13/2018	20190079862
END920165713US8	US	15/821664	11/22/2017	2018-0076953
END920165714US07	US	16/149667	10/2/2018	20190034272
END920165714US08	US	16/152636	10/5/2018	20190036912
*END920165714US1	US	61/655736	6/5/2012	
END920165714US6	US	15/819810	11/21/2017	2018-0095696
END920165715US04	US	16/045813	7/26/2018	20180357126
END920165715US05	US	16/045850	7/26/2018	20180336095
*END920165715US1	US	61/637940	4/25/2012	
*END920165719US1	US	61/605869	3/2/2012	
END920165719US4	US	15/402346	1/10/2017	20170116044
*END920165720US1	US	61/605856	3/2/2012	
END920165720US10	US	15/995484	6/1/2018	20180275903
END920165720US11	US	16/143754	9/27/2018	20190026102
END920165720US12	US	16/411424	5/14/2019	
END920165720US4	US	15/225476	8/1/2016	US20160335308A1
END920165720US9	US	15/806241	11/7/2017	2018-0062791
END920165721US06	US	16/128792	9/12/2018	20190012234
*END920165721US1	US	61/593126	1/31/2012	
*END920165722US1	US	61/593116	1/31/2012	
END920165722US11	US	15/882013	1/29/2018	20180152298
END920165722US6	US	13/943456	7/16/2013	20130304745
*END920165723US1	US	61/569387	12/12/2011	
END920165723US18	US	15/281317	9/30/2016	US20170019253A1
END920165723US21	US	15/346948	11/9/2016	US20170052858A1
END920165723US23	US	15/418164	1/27/2017	21070139843
END920165723US27	US	15/409386	1/18/2017	US20170123920A1
END920165723US29	US	15/444952	2/28/2017	20170168874
END920165723US30	US	15/445152	2/28/2017	20170171105
END920165723US31	US	15/795651	10/27/2017	20180046627
END920165723US32	US	15/822333	11/27/2017	2018-0074858
END920165723US33	US	15/824433	11/28/2017	2018-0083930
END920165723US35	US	16/113437	8/27/2018	20190012213
END920165723US36	US	16/167443	10/22/2018	20190056997
END920165723US37	US	16/183644	11/7/2018	20190073267
END920165723US38	US	16/407894	5/9/2019	
END920165723US39	US	16/378724	4/9/2019	
END920165723US40	US	16/378703	4/9/2019	

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
*END920165723US9	US	13/865641	4/18/2013	20130238900
END920165724US07	US	16/040786	7/20/2018	20180329834
*END920165724US1	US	61/564200	11/28/2011	
*END920165725US1	US	61/564185	11/28/2011	
END920165725US10	US	15/472458	3/29/2017	20170202174
END920165725US11	US	16/288848	2/28/2019	
END920165725US12	US	16/358943	3/20/2019	
END920165725US2	US	13/683951	11/21/2012	20130138756
END920165725US7	US	15/255540	9/2/2016	US20160371202A1
END920165725US8	US	15/282782	9/30/2016	US20170024282A1
END920165726US08	US	16/163788	10/18/2018	20190050293
END920165726US09	US	16/142479	9/26/2018	20190026196
*END920165726US1	US	61/554358	11/1/2011	
END920165726US2	US	13/611533	8/12/2012	20130111166
END920165727US06	US	16/391389	4/23/2019	
*END920165727US1	US	61/554152	11/1/2011	
END920165727US5	US	15/687338	8/25/2017	20170357548
*END920165728US1	US	61/542923	10/4/2011	
END920165728US8	US	15/728276	10/9/2017	20180034639
END920165729US08	US	16/240390	1/4/2019	20190138393
*END920165729US1	US	61/542914	10/4/2011	
END920165730US07	US	16/279172	2/19/2019	
*END920165730US1	US	61/531317	9/6/2011	
END920165731US09	US	15/952707	4/13/2018	20180234238A1
*END920165731US1	US	61/524521	8/17/2011	
END920165731US10	US	16/050920	7/31/2018	20180336100
END920165732US07	US	16/148012	10/1/2018	20190034123
*END920165732US1	US	61/512122	7/27/2011	
END920165732US6	US	15/716169	9/26/2017	20180018210
*END920165734US1	US	61/505010	7/6/2011	
END920165734US6	US	15/822682	11/27/2017	2018-0074905
END920165734US7	US	15/823698	11/28/2017	2018-0089028
END920165734US8	US	15/797745	10/30/2017	20180046547
*END920165735US1	US	61/493825	6/6/2011	
END920165735US11	US	15/874461	1/18/2018	20180150353
*END920165736US1	US	61/493820	6/6/2011	
END920165736US11	US	16/410419	5/13/2019	
END920165736US3	US	13/464015	5/4/2012	20120311557
END920165737US05	US	15/466322	3/22/2017	20170192684

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
END920165737US06	US	15/466566	3/22/2017	20170192705
*END920165737US1	US	61/483856	5/9/2011	
END920165737US2	US	13/450000	4/18/2012	20120290631
*END920165738US1	US	61/483852	5/9/2011	
*END920165739US1	US	61/483846	5/9/2011	
*END920165740US1	US	61/470524	4/1/2011	
END920165740US10	US	15/824651	11/28/2017	2018-0084035
END920165740US11	US	16/200103	11/26/2018	20190098078
*END920165741US1	US	61/470521	4/1/2011	
END920165741US10	US	15/350762	11/14/2016	US20170060457A1
END920165742US07	US	16/193328	11/16/2018	20190087262
*END920165742US1	US	61/448526	3/2/2011	
*END920165742US3	US	13/372689	2/14/2012	20120226667
*END920165742US5	US	13/372748	2/14/2012	20120226855
*END920165743US1	US	61/448518	3/2/2011	
END920165743US6	US	15/626807	6/19/2017	20170293528
*END920165744US1	US	61/438516	2/1/2011	
*END920165745US1	US	61/438490	2/1/2011	
END920165745US6	US	13/347334	1/10/2012	20120198066
*END920165746US1	US	61/427457	12/27/2010	
*END920165747US1	US	61/426237	12/22/2010	
END920165748US07	US	16/136362	9/20/2018	20190018619
*END920165748US1	US	61/417873	11/29/2010	
END920165748US6	US	15/285582	10/5/2016	US20170024155A1
END920165749US06	US	16/110580	8/23/2018	20180364933
END920165749US07	US	16/115235	8/28/2018	20180364940
*END920165749US1	US	61/411478	11/9/2010	
*END920165750US1	US	61/408980	11/1/2010	
END920165750US10	US	15/362460	11/28/2016	US20170075763A1
END920165750US11	US	15/433824	2/15/2017	2017-0163378
END920165750US13	US	15/819198	11/21/2017	2018-0095688
END920165750US14	US	16/247991	1/15/2019	
END920165750US15	US	16/271603	2/8/2019	
END920165750US16	US	16/366715	3/27/2019	
*END920165751US1	US	61/408971	11/1/2010	
END920165751US4	US	13/252418	10/4/2011	20120109885
*END920165752US1	US	61/390472	10/6/2010	
END920165752US11	US	16/378041	4/8/2019	
END920165752US9	US	15/718025	9/28/2017	20180018222

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
*END920165753US1	US	61/390368	10/6/2010	
END920165754US07	US	16/174504	10/30/2018	20190073143
*END920165754US1	US	61/377428	8/26/2010	
END920165754US4	US	14/312259	6/23/2014	20140304486
END920165756US09	US	16/201486	11/27/2018	20190095101
*END920165756US1	US	61/369812	8/2/2010	
END920165756US10	US	16/136761	9/20/2018	20190034085
*END920165758US1	US	61/357430	6/22/2010	
END920165758US12	US	14/445334	7/29/2014	20140337661
END920165758US13	US	16/262577	1/30/2019	
END920165758US14	US	16/390530	4/22/2019	
END920165758US5	US	14/447890	7/31/2014	20170185614
END920165758US7	US	14/452791	8/6/2014	20140351579
*END920165759US1	US	61/357390	6/22/2010	
*END920165760US1	US	61/346203	5/19/2010	
END920165760US9	US	15/167482	5/27/2016	20160277502
*END920165761US1	US	61/346173	5/19/2010	
END920165761US14	US	15/362180	11/28/2016	US20170075762A1
END920165761US15	US	16/202986	11/28/2018	20190109711
END920165761US16	US	16/171161	10/25/2018	20190081781
*END920165762US1	US	61/328000	4/26/2010	
END920165762US14	US	13/920635	6/18/2013	20130282865
END920165762US26	US	16/138753	9/21/2018	20190034274
*END920165763US1	US	61/327921	4/26/2010	
END920165763US11	US	16/137681	9/21/2018	20190026044
*END920165764US1	US	61/314166	3/16/2010	
*END920165765US1	US	61/313885	3/15/2010	
END920165765US6	US	14/471474	8/28/2014	20140372607
*END920165766US1	US	61/313582	3/12/2010	
END920165766US12	US	16/409234	5/10/2019	
END920165766US3	US	14/291199	5/30/2014	20140281815
*END920165768US1	US	61/308737	2/26/2010	
END920165768US19	US	15/840397	12/13/2017	20180103107
END920165768US20	US	15/840508	12/13/2017	20180115604
END920165768US21	US	15/842560	12/14/2017	20180109616
END920165768US28	US	16/256177	1/24/2019	20190158595
END920165768US29	US	16/390426	4/22/2019	
END920165768US30	US	16/416363	5/20/2019	
END920165769US08	US	16/201878	11/27/2018	20190108368

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
END920165769US09	US	16/197275	11/20/2018	20190108366
*END920165769US1	US	61/299245	1/28/2010	
END920165769US7	US	15/804453	11/7/2017	2018-0060612
*END920165770US1	US	61/299228	1/28/2010	
*END920165771US1	US	61/299197	1/28/2010	
*END920165772US1	US	61/299075	1/28/2010	
END920165772US3	US	12/942721	11/9/2010	20110184997
END920165772US4	US	14/319849	6/30/2014	20140137053
END920165773US07	US	16/050583	7/31/2018	20180335967
END920165773US08	US	16/048598	7/30/2018	20180337998
*END920165773US1	US	61/290775	12/29/2009	
*END920165774US1	US	61/290757	12/29/2009	
END920165774US10	US	16/128941	9/12/2018	20190014125
END920165774US11	US	16/244315	1/10/2019	20190149556
END920165774US12	US	16/386831	4/17/2019	
END920165774US8	US	15/222078	7/28/2016	US20160335202A1
*END920165775US1	US	61/290689	12/29/2009	
*END920165776US1	US	61/290662	12/29/2009	
*END920165777US1	US	61/264534	11/25/2009	
*END920165778US1	US	61/264516	11/25/2009	
END920165779US06	US	15/956984	4/19/2018	20180239673A1
END920165779US07	US	16/169571	10/24/2018	20190056998
*END920165779US1	US	61/264504	11/25/2009	
*END920165780US1	US	61/264316	11/25/2009	
END920165781US09	US	16/185573	11/9/2018	20190095290
*END920165781US1	US	61/264297	11/25/2009	
*END920165781US4	US	14/315748	6/26/2014	20140310491
END920165781US8	US	15/805308	11/7/2017	2018-0067820
*END920165782US1	US	61/264072	11/24/2009	
*END920165783US1	US	61/256436	10/30/2009	
*END920165784US1	US	61/256419	10/30/2009	
*END920165784US5	US	12/817208	6/17/2010	20110107078
*END920165785US1	US	61/256411	10/30/2009	
*END920165786US1	US	61/256314	10/30/2009	
END920165786US2	US	12/850606	8/4/2010	20110107182
END920165786US6	US	12/850607	8/4/2010	20110107027
END920165786US7	US	14/289738	5/29/2014	20140280682
END920165787US06	US	16/121290	9/4/2018	20180375671
*END920165787US1	US	61/256226	10/29/2009	

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
*END920165788US1	US	61/248548	10/5/2009	
*END920165789US1	US	61/247190	9/30/2009	
END920165789US10	US	16/239244	1/3/2019	20190138231
END920165789US9	US	15/427408	2/8/2017	20170147219
*END920165790US1	US	61/246876	9/29/2009	
*END920165790US2	US	12/777850	5/11/2010	20110078343
*END920165791US1	US	61/246818	9/29/2009	
*END920165792US1	US	61/246809	9/29/2009	
*END920165793US1	US	61/237652	8/27/2009	
END920165794US04	US	16/359318	3/20/2019	
*END920165794US1	US	61/237650	8/27/2009	
*END920165795US1	US	61/237645	8/27/2009	20140337932
*END920165795US5	US	14/292070	5/30/2014	20140337932
*END920165797US1	US	61/237624	8/27/2009	
*END920165798US1	US	61/230937	8/3/2009	
*END920165799US1	US	61/230304	7/31/2009	
*END920165802US1	US	61/230019	7/30/2009	
*END920165805US1	US	61/141494	12/30/2008	
*END920165807US1	US	61/141428	12/30/2008	
END920165807US16	US	15/612243	6/2/2017	20170270003
*END920165809US1	US	60/316601	8/31/2001	
*END920165812US12	US	14/633315	2/27/2015	20150169897
END920165812US4	US	12/551145	8/31/2009	20100269008
*END920165812US5	US	61/237634	8/27/2009	
*END920165815US3	US	61/141312	12/30/2008	
*END920165815US6	US	61/141478	12/30/2008	
*END920165815US8	US	61/141534	12/30/2008	
*END920165900US1	US	61/290632	12/29/2009	
END920165900US22	US	15/974345	5/8/2018	20180260122
END920165900US23	US	16/130431	9/13/2018	20190014192
END920165900US24	US	16/245988	1/11/2019	20190146676
*END920165901US1	US	61/505013	7/6/2011	
END920165901US6	US	13/527811	6/20/2012	20130013798
*END920165902US1	US	61/256193	10/29/2009	
*END920165902US5	US	12/842842	7/23/2010	20110107380
END920165907US09	US	15/962923	4/25/2018	20180239807A1
END920165907US10	US	15/982279	5/17/2018	20180268043
END920165907US11	US	16/297978	3/11/2019	
END920165907US5	US	15/338473	10/31/2016	US20170046417A1

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
END920165907US7	US	15/822873	11/27/2017	2018-0075123
END920165907US8	US	15/816813	11/17/2017	2018-0075121

* Abandoned or Expired

END OF EXHIBIT C-I

EXHIBIT C-II
ASSIGNED US PATENT APPLICATIONS

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
END920165667US05	US	16/108905	8/22/2018	20180365105
END920165668US05	US	16/032288	7/11/2018	20180341417
END920165668US06	US	16/151513	10/4/2018	20190042768
END920165668US2	US	14/675070	3/31/2015	20150356305
END920165669US06	US	16/412167	5/14/2019	
END920165674US07	US	16/121068	9/4/2018	20180373595
END920165675US04	US	16/150841	10/3/2018	20190034278
END920165675US05	US	16/171585	10/26/2018	20190065315
END920165690US05	US	16/136681	9/20/2018	20190018741
END920165690US06	US	16/254789	1/23/2019	20190155701
END920165709US07	US	16/239651	1/4/2019	20190140777
END920165714US08	US	16/152636	10/5/2018	20190036912
END920165720US12	US	16/411424	5/14/2019	
END920165736US11	US	16/410419	5/13/2019	
END920165766US12	US	16/409234	5/10/2019	
END920165768US29	US	16/390426	4/22/2019	
END920165768US30	US	16/416363	5/20/2019	

END OF EXHIBIT C-II