

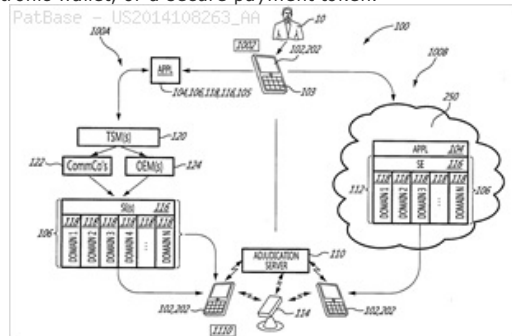
1) Family number: 56255212 (US2014108263A)

Title: VIRTUALIZATION AND SECURE PROCESSING OF DATA

Abstract: Source: US2014108263A [EN] Systems, methods, and non-transient machine-interpretable data representing executable instruction sets and/or other products for the processing of data for the secure creation, administration, manipulation, processing, and storage of electronic data useful in the processing of payment transactions and other secure data processes. In various aspects and embodiments the disclosure provides secure means for the authorization of sensitive and other data processes subject to controlled access. Such processes include, for example the creation, administration, authorization, virtualization, storage, and other manipulation or processing of electronic data representing characteristics of, instructions for, and information associated with consumer, business, and other payment accounts, and other forms of secure payment elements, such as payment tokens; and data useful in processing transactions using such accounts and elements. Information associated with particular payment means, such as accounts or payment tokens, can be stored, for example, in a data set, usually secure, sometimes referred to as a virtual or electronic wallet, or a secure payment token.

Classifications:

International (IPC 8-9): G06F3/0484 G06Q20/02 G06Q20/08
G06Q20/28 G06Q20/32 G06Q20/36 G06Q20/38 G06Q20/40
G06Q30/02 G06Q99/00 H04L12/14 H04L29/06 H04L9/08 H04L9/32
H04W12/04 H04W4/24 (Advanced/Invention);
G06Q20/36 (Advanced/Non-invention)
IPC: G06Q20/3278 G06Q20/3221 G06Q20/36 G06Q20/385
G06Q20/322 G06Q20/382 G06Q20/12 G06Q20/3227 G06Q20/367
G06Q20/3672 G06Q20/38215 G06Q20/3821 G06Q20/027
G06Q20/227 G06Q20/3229 H04L63/0435 H04W12/02 H04W12/04
G06Q20/3223 G06Q2220/00 G06Q20/3829 G06Q20/3823
H04L63/0428 H04L2209/56 H04L2209/80 G06Q30/0226 G06Q20/023
G06Q20/363 G06Q20/02 G06Q20/32 G06Q20/40 G06Q20/4037
G06Q20/327
US: 1/1 705/40 755/44 705/65 705/67 705/71 705/76



Family:

Publication number	Publication date	Application number	Application date
AU2015327722 AA	20160407	AU20150327722	20150929
AU2016208989 AA	20160728	AU20160208989	20160119
AU2016287789 AA	20170105	AU20160287789	20160704
CA2830260 AA	20140417	CA20132830260	20131017
CA2961916 AA	20170321	CA20152961916	20150929
CA2974151 AA	20170718	CA20162974151	20160119
CA2991073 AA	20171229	CA20162991073	20160704
CN107004195 A	20170801	CN201580064986	20150929
CN107408253 A	20171128	CN201680016674	20160119
EP3201856 A1	20170809	EP20150846067	20150929
EP3248159 A1	20171129	EP20160739695	20160119
KR20180026498 A	20180312	KR20187003235	20160704
US2014108263 AA	20140417	US20130056440	20131017
US2014279552 AA	20140918	US20140287134	20140526
US2015186879 AA	20150702	US20130142072	20131227
US2015235212 AA	20150820	US20150705477	20150506
US2016019536 AA	20160121	US20150869186	20150929
US2016210626 AA	20160721	US20160000685	20160119
US2017017958 AA	20170119	US20160201428	20160702
US2017161735 AA	20170608	US20170414065	20170124
US2017249622 AA	20170831	US20170453193	20170308
US2017330181 AA	20171116	US20170648942	20170713
US9082119 BB	20150714	US20130056440	20131017
WO16049745 A1	20160407	WO2015CA00519	20150929
WO16115620 A1	20160728	WO2016CA00014	20160119
WO17000061 A1	20170105	WO2016CA000186	20160704
WO17152265 A1	20170914	WO2017CA00050	20170309
WO18010009 A1	20180118	WO2017CA000173	20170713

Priority:

CA20132830260	20131017	US20120715142P	20121017	US20130056440	20131017
US20130811783P	20130414	US20130825865P	20130521	US20130142072	20131227
US20130833188P	20130610	US20130863593P	20130808	US20140056688P	20140929
US20140058799P	20141002	US20140065280P	20141017	US20140078683P	20141112
US20140084549P	20141125	US20140062467P	20141010	US20140287134	20140526
US20150705477	20150506	US20150869186	20150929	US20140089210P	20141208
US20150118990P	20150220	US20170414065	20170124	US20160201428	20160702
US20160000685	20160119	US20150879913	20151009	US20150105061P	20150119
US20150188067P	20150702	US20150200859P	20150804	US20160305429P	20160308
US20170453193	20170308	US20170648942	20170713	US20160361919P	20160713
WO20159CA00519	20150929	WO2016CA00014	20160119	WO2016CA00186	20160704

Probable Assignee: ROYAL BANK OF CANADA

Assignee(s): (std): LEE TERRY W ; ROYAL BANK OF CANADA ; MANTIA LINDA ; ORTIZ EDISON U

Assignee(s): ROYAL BANK OF CANADA1 PLACE VILLE MARIE4TH FLOOR, EAST WINGMONTREALQ1H3C 3A9CA ; LEE TERRY W1 PLACE VILLE-MARIE4TH FLOOR EAST WINGMONTREALQ1H3C 3A9CA ; MANTIA LINDA1

PLACE VILLE-MARIE4TH FLOOR - EAST WINGMONTREALQ1H3C 3A9CA ; ORTIZ EDISON U1 PLACE VILLE-MARIE4TH FLOOR EAST WINGMONTREALQ1H3C 3A9CA ; SCOTT STEPHEN JAMES ; YIN WEIQIANG ; WOO GABRIEL Y ; YIN WEIQIANG ; DINN JUDY ; KHANDAVILLI PAWAN ; LAM CHAI

Inventor(s): (std): YIN WEIQIANG ; YIN WEIQIANG ; WOO GABRIEL Y ; SCOTT STEPHEN JAMES ; PAVLOVIC MARKO ; ORTIZ EDISON U ; MANTIA LINDA ; LEE TERRY W ; LAM CHAI ; DINN JUDY ; BADAL BADALIAN AMOLD ; BADAL BADALIAN ARNOLD ; KHANDAVILLI PAWAN

Inventor(s): LEE TERRY W1 PLACE VILLE-MARIE4TH FLOOR EAST WINGMONTREALQ1H3C 3A9CA ; MANTIA LINDA1 PLACE VILLE-MARIE4TH FLOOR - EAST WINGMONTREALQ1H3C 3A9CA ; ORTIZ EDISON U1 PLACE VILLE-MARIE4TH FLOOR EAST WINGMONTREALQ1H3C 3A9CA

Agent(s): FB RICE; FB RICE PTY LTD; NORTON ROSE FULBRIGHT CANADA LLP SENCRL SRL; DICKINSON WRIGHT LLP; PATEL BINESH; MATTHEW J; ERIC D

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

2) Family number: 54913616 (US2013262317A)

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Title: SYSTEMS AND METHODS FOR PROCESSING MOBILE PAYMENTS BY PROVISIONING CREDENTIALS TO MOBILE DEVICES WITHOUT SECURE ELEMENTS

Abstract: Source: US2013262317A [EN] A method for generating and provisioning payment credentials to a mobile device lacking a secure element includes: generating a card profile associated with a payment account, wherein the card profile includes at least payment credentials corresponding to the associated payment account and a profile identifier; provisioning, to a mobile device lacking a secure element, the generated card profile; receiving, from the mobile device, a key request, wherein the key request includes at least a mobile identification number (PIN) and the profile identifier; using the mobile PIN; generating a single use key, wherein the single use key includes at least the profile identifier, an application transaction counter, and a generating key for use in generating a payment cryptogram valid for a single financial transaction; and transmitting the generated single use key to the mobile device.

Classifications:

International (IPC 8-9): G06Q20/32 G06Q20/38 H04W12/04

H04W12/06 (Advanced/Invention);

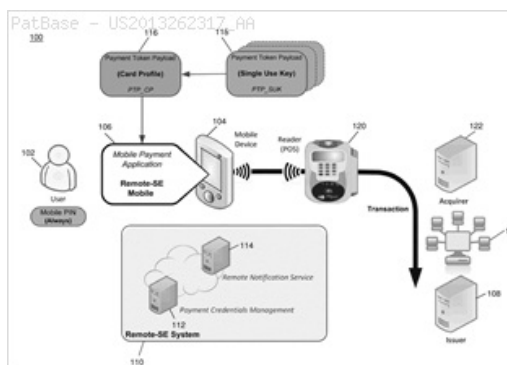
G06Q20/34 (Advanced/Non-invention);

H04W (Subclass/Invention)

CPC: G06Q20/3823 G06Q20/385 G06Q20/4012 H04W12/04

H04W12/06 G06Q20/322 G06Q20/405 G06Q20/3223 G06Q20/3552

US: 705/71 705/72



Family:

Publication number	Publication date	Application number	Application date
AU2013243805 AA	20131010	AU20130243805	20130321
AU2013243805 BB	20170518	AU20130243805	20130321
AU2017216488 AA	20170831	AU20170216488	20170816
EP2835004 A1	20150211	EP20130772978	20130321
EP2835004 A4	20151202	EP20130772978	20130321
HK1206900 A1	20160115	HK20150107229	20150728
US2013262317 AA	20131003	US20130827042	20130314
WO13151797 A1	20131010	WO2013US33322	20130321

Priority:

AU20130243805	20130321	AU20170216488	20170816	US20120619095P	20120402
US20120639248P	20120427	US20120735383P	20121210	US20120635248P	20120418
US20130827042	20130314	US20130762098P	20130207	WO2013US33322	20130321

Probable Assignee: MASTERCARD INT INC

Assignee(s): (std): MASTERCARD INT INC

Inventor(s): (std): COLLINGE MEHDI ; ROBERTS DAVID ANTHONY ; SMETS PATRIK ; THOMPSON SUSAN ; WARD MICHAEL CHRISTOPHER

Agent(s): PHILLIPS ORMONDE FITZPATRICK; EKSTEDT MANS; WIELAND CHARLES F III

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

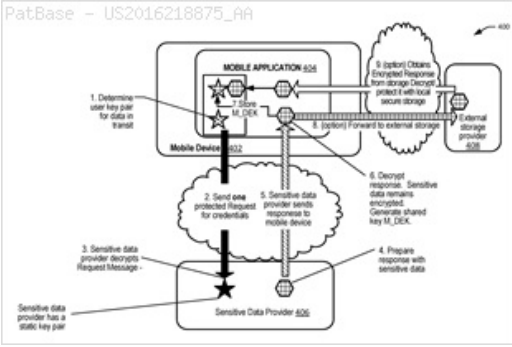
3) Family number: 62995058 (US2016218875A)

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Title: METHODS FOR SECURE CREDENTIAL PROVISIONING

Abstract: Source: US2016218875A [EN] Embodiments can provide methods for securely provisioning sensitive credential data, such as a limited use key (LUK) onto a user device. In some embodiments, the credential data can be encrypted using a separate storage protection key and decrypted only at the time of a transaction to generate a cryptogram for the transaction. Thus, end-to-end protection can be provided during the transit and storage of the credential data, limiting the exposure of the credential data only when the credential data is required, thereby reducing the risk of compromise of the

credential data.
Classifications:
International (IPC 8-9): H04L9/08 H04L9/30
H04L9/32 (Advanced/Invention)
CPC: H04L9/3226 H04L9/321 H04L9/0894 H04L9/0861 H04L9/0822
H04L9/0825 H04L9/0891 H04L2209/56
US: 713/155



Family:

Publication number	Publication date	Application number	Application date
AU2016211551 AA	20160804	AU20160211551	20160127
BR112017014632 A2	20180206	BR20171114632	20160127
CN107210914 A	20170926	CN201680007305	20160127
EP3251284 A1	20171206	EP20160744062	20160127
SG11201704984S A1	20170728	SG20171104984	20160127
US2016218875 AA	20160728	US20160008388	20160127
WO16123264 A1	20160804	WO2016US15218	20160127

Priority:

US20150108468P 20150127 US20150841589 20150831 US20160008388 20160127
WO2016US15218 20160127

Probable Assignee: VISA INT SERVICE ASSOCIATION

Assignee(s): (std): BHATTACHARYA SOUMENDRA ; LE SAINT ERIC ; VISA INT SERVICE ASS

Assignee(s): VISA INT SERVICE ASSOCIATION

Inventor(s): (std): LE SAINT ERIC ; BHATTACHARYA SOUMENDRA

Inventor(s): ERIC LE SAINT ; SOUMENDRA BHATTACHARYA

Agent(s): SPRUSON AND FERGUSON; EISENFUEHR SPEISER; CHEUNG YIN ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

4) Family number: 54110066 (US2014310182A)

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Title: SYSTEMS AND METHODS FOR OUTPUTTING INFORMATION ON A DISPLAY OF A MOBILE DEVICE

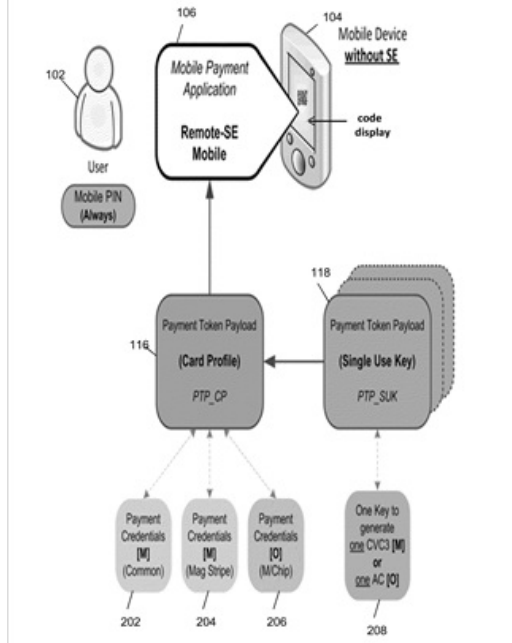
Abstract: Source: US2014310182A [EN] Disclosed herein is a method for outputting information on a display of a mobile device 104, the method comprising: transmitting, by the mobile device 104, a request to a server for one or more tokens; receiving, by the mobile device 104, one or more tokens from the server; generating, by the mobile device 104, a single use code in dependence on a received token; generating, by the mobile device 104, code data by encoding information, wherein said information is for use in a transaction and comprises the generated single use code, an identification number and/or expiry information; and displaying, by the mobile device 104, an image corresponding to the code data on a display of the mobile device 104. Advantageously, the mobile device securely obtains and generates information for outputting on a display of the mobile device. The information can be transferred from the mobile device by reading an image, corresponding to the information, that is displayed by the mobile device. A user can easily ensure that information is transferred from the mobile device to the intended reading terminal only.

Classifications:

International (IPC 8-9): G06Q20/20 G06Q20/32 G06Q20/38
G06Q20/40 H04W12/00 (Advanced/Invention)

CPC: G06Q20/3274 G06Q20/20 G06Q20/3829 G06Q20/4012
H04W12/04 H04W12/06 H04W12/00

US: 705/71 705/72

**Family:**

Publication number	Publication date	Application number	Application date
GB201306741 A0	20130529	GB20130006741	20130412
GB2512944 A1	20141015	GB20130006741	20130412
US2014310182 AA	20141016	US20140249874	20140410

Priority:

GB20130006741 20130412

Probable Assignee:

MASTERCARD INT INC

Assignee(s): (std):

MASTERCARD INT INC

Inventor(s): (std):

CUMMINS ORAN

Inventor(s):

ORAN CUMMINS

5) Family number: 68242519 (US2018018663A)

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Title: SYSTEMS AND METHODS FOR INITIALIZATION AND ACTIVATION OF SECURE ELEMENTS

Abstract: Source: US2018018663A [EN] Disclosed herein are secure transaction systems having secure elements that are initialized and activated independent from each other. The secure element is first initialized to make the secure element turn to a state in which the secure element can be packaged, sold within retail stores, and then injected with encryption keys. The initialization process of the secure element formulates the secure element to ensure trust between the secure elements and secure element activation servers. The process of independently initializing and activating the secure elements while still addressing the security protocols allows the secure element to be packaged and sold within retail stores after initialization, and then activating the secure element at a later date and time when the secure element is ready to be used by a merchant.

Classifications:**International (IPC 8-9):** G06Q20/38 H04L9/14 H04L9/32

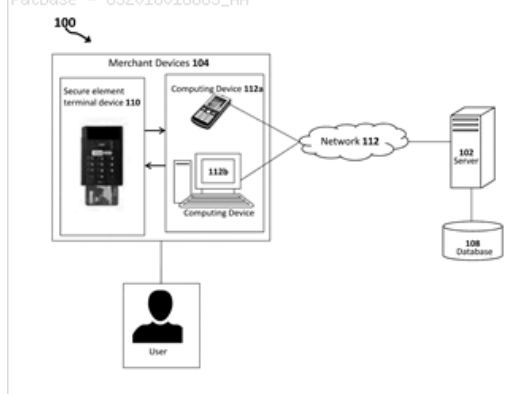
H04W12/04 (Advanced/Invention);

H04L29/06 H04L9/08 (Advanced/Non-invention)

CPC: G06Q20/3829 H04L9/3234 H04L9/3263 H04L9/08 H04L9/3213

H04L63/06 G06Q20/3552 G07F7/0873

PatBase - US2018018663_AA

**Family:**

Publication number	Publication date	Application number	Application date
US2018018663 AA	20180118	US20170652110	20170717
WO18014125 A1	20180125	WO2017CA50865	20170718

Priority:

US20160363746P 20160718

US20170652110 20170717

Probable Assignee: DREAM PAYMENTS CORP**Assignee(s):** (std): DREAM PAYMENTS CORP**Inventor(s):** (std): NEKIPELYY SERGEY ; VAN LONG

Agent(s): HAUGEN JAY

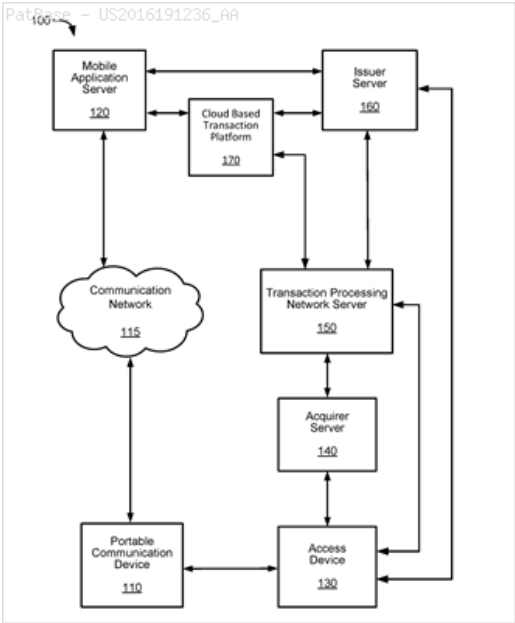
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6) Family number: 62794019 (US2016191236A) © PatBase

Title: HYBRID INTEGRATION OF SOFTWARE DEVELOPMENT KIT WITH SECURE EXECUTION ENVIRONMENT

Abstract: Source: US2016191236A [EN] A portable communication device may include a mobile application executing in an application execution environment and a secure application executing in a trusted execution environment. The secure application may receive, from the mobile application, a storage request to store sensitive data. The storage request may include an encrypted data type identifier and an encrypted sensitive data. The secure application may decrypt the encrypted data type identifier and the encrypted sensitive data using a transport key, and re-encrypt the sensitive data using a storage key. The re-encrypted sensitive data can then be stored in a memory of the portable communication device which is outside the trusted execution environment.

Classifications:
International (IPC 8-9): H04L29/06 H04L9/08 (Advanced/Invention)
CPC: H04L9/0822 H04L9/0897 H04L63/062 H04L9/0861
US: 713/171



Family:

Publication number	Publication date	Application number	Application date
US2016191236 AA	20160630	US20150985853	20151231

Priority:
US20140098788P 20141231 US20150985853 20151231

Probable Assignee: VISA INT SERVICE ASSOCIATION

Assignee(s): (std): BHATTACHARYA SOUMENDRA ; SMIRNOFF SERGEY

Assignee(s): VISA INT SERVICE ASSOCIATION

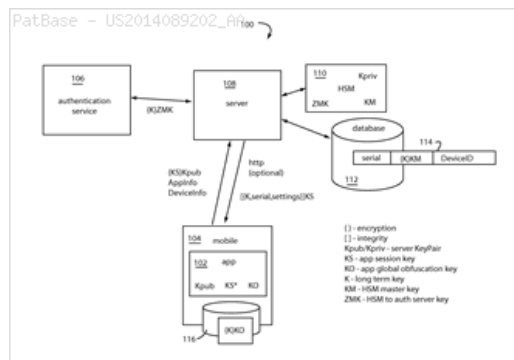
Inventor(s): (std): BHATTACHARYA SOUMENDRA ; SMIRNOFF SERGEY

7) Family number: 56036346 (US2014089202A) © PatBase

Title: CRM SECURITY CORE

Abstract: Source: US2014089202A [EN] A security core supports a networked banking app for a client application device communicating with a server, such as e.g. a smartphone. It provides a secured environment for the banking app to conduct registration, enrollment, and transaction workflows with corresponding back-end servers on the network. It includes defenses against static analysis, attempts at reverse engineering, and real-time transaction fraud. A principal defense employed is obfuscation of the protocols, APIs, algorithms, and program code. It actively detects, thwarts, misdirects, and reports reverse engineering attempts and malware activity it senses. A routing obfuscator is configured to operate at the outer layer. Previous core designs are retained as camouflage. An internal TLS library is used rather than the OS TLS layer. Cookies are managed internally in the core rather than in the webkit-browser layer.

Classifications:
International (IPC 8-9): G06F21/31 G06F21/62 G06Q20/10 G06Q20/32 G06Q20/38 G06Q20/40 G06Q40/02 H04L29/06 H04L9/08 H04L9/14 H04L9/32 H04W12/06 H04W12/10 (Advanced/Invention); G06Q20/10 G06Q20/32 (Advanced/Non-invention)
CPC: H04L63/168 H04W12/12 G06F21/31 G06F2221/2125 G06F21/6245 G06Q20/3829 G06Q20/4014 G06Q20/4016 H04L63/166 H04L63/145 H04L9/14 H04L9/3239 H04L9/0822 G06Q2220/00 G06Q20/3223 H04L67/02 H04W12/06 H04W12/10 G06Q40/02 H04W4/50
US: 705/71 713/166



Family:

Publication number	Publication date	Application number	Application date
AU2013403029 A1	20150423	AU20130403029	20131014
AU2013403029 AA	20150423	AU20130403029	20131014
CA2927547 AA	20160414	CA20132927547	20131014
EP3058498 A1	20160824	EP20130783625	20131014
GB201504898 A0	20150506	GB20150004898	20131014
GB2525742 A1	20151104	GB20150004898	20131014
US2014089202 AA	20140327	US20120628828	20120927
US2017243203 AA	20170824	US20160164458	20160525
WO15055972 A1	20150423	WO2013GB52669	20131014

Priority:

US20120628828 20120927 US20120702260P 20120918 WO2013GB52669 20131014
US20160164458 20160525

Probable Assignee: CRYPTOMATHIC LTD

Assignee(s): (std): BOND MICHAEL K ; CRYPTOMATHIC LTD ; LANDROCK PETER ; LANDROK MADS

Assignee(s): LANDROCK MATTHEW ; BOND MIKE

Inventor(s): (std): BOND MICHAEL K ; BOND MIKE ; LANDROCK MATTHEW ; LANDROCK PETER ; LANDROK MADS

Inventor(s): MATTHEW LANDROCK ; MIKE BOND ; PETER LANDROCK

Agent(s): FB RICE; FB RICE PTY LTD; MARKS AND CLERK; GWILT JULIA LOUISE; MARKS AND CLERK LLP

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW