

<b>PATENT ASSIGNMENT COVER SHEET</b>
--------------------------------------

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT3942416

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
JEFFREY NORTON	06/29/2016
MARK D MALAMUT	06/29/2016
ERIK S HANSEN	06/29/2016
JENNIFER STARLING	06/29/2016
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	EMC CORPORATION
<b>Street Address:</b>	176 SOUTH STREET
<b>City:</b>	HOPKINTON
<b>State/Country:</b>	MASSACHUSETTS
<b>Postal Code:</b>	01748
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	15197580
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(415)386-4623
<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>	
<b>Phone:</b>	510-295-9328
<b>Email:</b>	lana@st-ip.com
<b>Correspondent Name:</b>	EMC CORPORATION OUTSIDE COUNSEL STANIFOR
<b>Address Line 1:</b>	P.O. BOX 591838
<b>Address Line 4:</b>	SAN FRANCISCO, CALIFORNIA 94159
<b>ATTORNEY DOCKET NUMBER:</b>	EMC-15-0703 (EM1.103U)
<b>NAME OF SUBMITTER:</b>	GEOFFREY T. STANIFORD
<b>SIGNATURE:</b>	/GEOFFREY T. STANIFORD/
<b>DATE SIGNED:</b>	06/29/2016
<b>Total Attachments: 12</b>	
source=EMC_15_0703_EM1_103U_Assignment#page1.tif	
source=EMC_15_0703_EM1_103U_Assignment#page2.tif	
source=EMC_15_0703_EM1_103U_Assignment#page3.tif	

source=EMC\_15\_0703\_EM1\_103U\_Assignment#page4.tif  
source=EMC\_15\_0703\_EM1\_103U\_Assignment#page5.tif  
source=EMC\_15\_0703\_EM1\_103U\_Assignment#page6.tif  
source=EMC\_15\_0703\_EM1\_103U\_Assignment#page7.tif  
source=EMC\_15\_0703\_EM1\_103U\_Assignment#page8.tif  
source=EMC\_15\_0703\_EM1\_103U\_Assignment#page9.tif  
source=EMC\_15\_0703\_EM1\_103U\_Assignment#page10.tif  
source=EMC\_15\_0703\_EM1\_103U\_Assignment#page11.tif  
source=EMC\_15\_0703\_EM1\_103U\_Assignment#page12.tif

**ASSIGNMENT**

**WHEREAS**, we, Jeffrey Norton, Mark D. Malamut, Erik S. Hansen, Jennifer Starling and Adam Brenner have invented an invention comprising and/or embodying certain improvements or discoveries or both as described in an application for Letters Patent of the United States entitled DATABASE VIEWS FOR GRAPHS USING DYNAMIC SUBGRAPHS, the specification of which:

- is being executed on even date herewith and is about to be filed in the United States Patent Office;
- was filed on \_\_\_\_\_ as U.S. Application No. \_\_\_\_\_;
- was patented under U.S. Patent No. \_\_\_\_\_ on \_\_\_\_\_.

**WHEREAS**, EMC Corporation (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the Commonwealth of Massachusetts and having a usual place of business at 176 South Street, Hopkinton, Massachusetts 01748 desires to acquire an interest therein in accordance with agreements duly entered into with us;

**NOW, THEREFORE**, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey to ASSIGNEE all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein;

**AND**, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including

the execution of applications for patents in foreign countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

**AND**, we do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives.

**IN TESTIMONY WHEREOF**, we have hereunto set our hands and affixed our seals as set forth below:

Date: June 29, 2016

Jeffrey Norton  
Inventor's Signature

Print full name of first inventor:

Jeffrey Norton

Residence:

24691 Monita Circle

Laguna Niguel, CA 92677

Citizenship:

US

Mailing Address:

Same as above

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me appeared \_\_\_\_\_ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

\_\_\_\_\_  
Notary Public  
Print Name: \_\_\_\_\_  
My Commission expires \_\_\_/\_\_\_/\_\_\_

Please See Attached For  
California Compliant Acknowledgment  
(CA Civil Code Section 1169)

6/29/16

# CALIFORNIA CERTIFICATE OF ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California )

County of Orange )

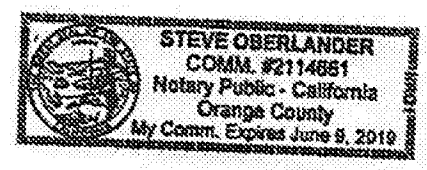
On 29 June 2016 before me, Steve Oberlander, Notary Public  
(here insert name and title of the officer)

personally appeared Jeffrey Ronald Norton

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



Signature Steve Oberlander

(Seal)

## Optional Information

Although the information in this section is not required by law, it could prevent fraudulent removal and reattachment of this acknowledgment to an unauthorized document and may prove useful to persons relying on the attached document.

### Description of Attached Document

The preceding Certificate of Acknowledgment is attached to a document titled/for the purpose of Assignment - EMC-15-0703

containing \_\_\_\_\_ pages, and dated \_\_\_\_\_

The signer(s) capacity or authority is/are as:

- Individual(s)
- Attorney-in-Fact
- Corporate Officer(s) \_\_\_\_\_  
Title(s)
- Guardians/Conservator
- Partner - Limited/General
- Trustee(s)
- Other: \_\_\_\_\_

representing: \_\_\_\_\_  
Name(s) of Person(s) or Entity(ies) Signer is Representing

Additional Information	
<b>Method of Signer Identification</b>	
Proved to me on the basis of satisfactory evidence:	
<input type="radio"/> form(s) of identification	<input type="radio"/> credible witness(es)
Notarial event is detailed in notary journal on:	
Page # _____	Entry # _____
Notary contact: _____	
<b>Other</b>	
<input type="checkbox"/> Additional Signer(s)	<input type="checkbox"/> Signer(s) Thumbprint(s)
_____	

Date: 6/29/16

Mark D. Malamut  
Inventor's Signature

Print full name of second inventor: **Mark D. Malamut**  
Residence: **24822 Pointe Stanhope  
Dana Point, CA 92629**  
Citizenship: **US**  
Mailing Address: **Same as above**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me appeared \_\_\_\_\_ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Please See Attached For  
California Compliant Acknowledgement  
(CA Civil Code Section 1189)

*no*  
*6/29/16*

\_\_\_\_\_  
Notary Public  
Print Name: \_\_\_\_\_  
My Commission expires \_\_\_ / \_\_\_ / \_\_\_

# CALIFORNIA CERTIFICATE OF ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California )

County of Orange )

on 29 June 2016 before me, Steve Oberlander, Notary Public  
(here insert name and title of the officer)

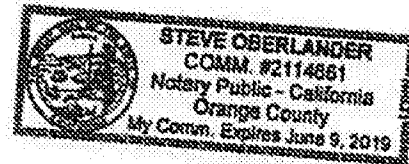
personally appeared Mark David Malamut

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Steve Oberlander



(Seal)

## Optional Information

Although the information in this section is not required by law, it could prevent fraudulent removal and reattachment of this acknowledgment to an unauthorized document and may prove useful to persons relying on the attached document.

### Description of Attached Document

The preceding Certificate of Acknowledgment is attached to a document titled/for the purpose of Assignment — EMC-15-0703

containing \_\_\_\_\_ pages, and dated \_\_\_\_\_

The signer(s) capacity or authority is/are as:

- Individual(s)
- Attorney-in-Fact
- Corporate Officer(s) \_\_\_\_\_  
(Title)
- Guardian/Conservator
- Partner - Limited/General
- Trustee(s)
- Other: \_\_\_\_\_

representing: \_\_\_\_\_  
Name(s) of Person(s) or Entity(ies) Signer is Representing

Additional Information	
<b>Method of Signer Identification</b>	
Proved to me on the basis of satisfactory evidence:	
<input type="radio"/> form(s) of identification <input type="radio"/> credible witness(es)	
Notarial event is detailed in notary journal on:	
Page # _____	Entry # _____
Notary contact: _____	
<b>Other</b>	
<input type="checkbox"/> Additional Signer(s)	<input type="checkbox"/> Signer(s) Thumbprint(s)
<input type="checkbox"/> _____ _____	



Date: 06/29/2016

Erik S. Hansen  
Inventor's Signature

Print full name of third inventor:

Erik S. Hansen

Residence:

25857 Cangas  
Mission Viejo, CA 92692

Citizenship:

US

Mailing Address:

Same as above

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me appeared \_\_\_\_\_ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

\_\_\_\_\_  
Notary Public  
Print Name: \_\_\_\_\_  
My Commission expires \_\_\_/\_\_\_/\_\_\_

Please See Attached For  
California Compliant Acknowledgement  
(CA Civil Code Section 1189) *WS 6/29/16*

# CALIFORNIA CERTIFICATE OF ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California )

County of Orange )

On 29 June 2016 before me, Steve Oberlander, Notary Public  
(here insert name and title of the officer)

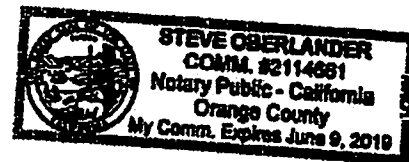
personally appeared Erik Shawn Hansen

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Steve Oberlander



(Seal)

## Optional Information

Although the information in this section is not required by law, it could prevent fraudulent removal and reattachment of this acknowledgment to an unauthorized document and may prove useful to persons relying on the attached document.

### Description of Attached Document

The preceding Certificate of Acknowledgment is attached to a document titled/for the purpose of Assignment - EMC-15-0703

containing \_\_\_\_\_ pages, and dated \_\_\_\_\_

The signer(s) capacity or authority is/are as:

- Individual(s)  
 Attorney-in-Fact  
 Corporate Officer(s) \_\_\_\_\_  
Title(s)

- Guardian/Conservator  
 Partner - Limited/General  
 Trustee(s)  
 Other: \_\_\_\_\_

representing: \_\_\_\_\_  
Name(s) of Person(s) or Entity(ies) Signer is Representing

### Additional Information

#### Method of Signer Identification

Proved to me on the basis of satisfactory evidence:  
 form(s) of identification  credible witness(es)

Notarial event is detailed in notary journal on:  
Page # \_\_\_\_\_ Entry # \_\_\_\_\_

Notary contact: \_\_\_\_\_

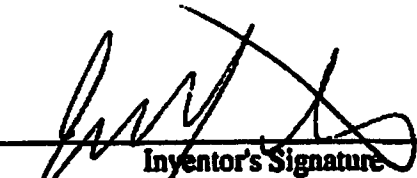
#### Other

Additional Signer(s)  Signer(s) Thumbprint(s)

PATENT

REEL: 039047 FRAME: 0395

Date: 6/29/16

  
\_\_\_\_\_  
Inventor's Signature

Print full name of fourth inventor:

**Jennifer Starling**

Residence:

26301 Loch Glen  
Lake Forest, CA 92630

Citizenship:

US

Mailing Address:

Same as above

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CA  
COUNTY OF USA

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me appeared \_\_\_\_\_ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Please See Attached For  
California Compliant Acknowledgement  
(CA Civil Code Section 1189)

\_\_\_\_\_  
Notary Public  
Print Name: \_\_\_\_\_  
My Commission expires \_\_\_/\_\_\_/\_\_\_

*160*  
*6/29/16*

# CALIFORNIA CERTIFICATE OF ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California )

County of Orange )

On 29 June 2016 before me, Steve Oberlander, Notary Public,  
(here insert name and title of the officer)

personally appeared Jennifer Lea Starling

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

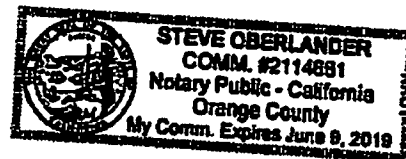
I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature

Steve Oberlander

(Seal)



## Optional Information

Although the information in this section is not required by law, it could prevent fraudulent removal and reattachment of this acknowledgment to an unauthorized document and may prove useful to persons relying on the attached document.

### Description of Attached Document

The preceding Certificate of Acknowledgment is attached to a document titled/for the purpose of Assignment - EMC-15-0703

containing \_\_\_\_\_ pages, and dated \_\_\_\_\_

The signer(s) capacity or authority is/are as:

- Individual(s)  
 Attorney-in-Fact  
 Corporate Officer(s) \_\_\_\_\_  
Title(s)

- Guardian/Conservator  
 Partner - Limited/General  
 Trustee(s)  
 Other: \_\_\_\_\_

representing: \_\_\_\_\_  
Name(s) of Person(s) or Entity(ies) Signer is Representing

### Additional Information

#### Method of Signer Identification

Proved to me on the basis of satisfactory evidence:  
 form(s) of identification  credible witness(es)

Notarial event is detailed in notary journal on:  
Page # \_\_\_\_\_ Entry # \_\_\_\_\_

Notary contact: \_\_\_\_\_

#### Other

Additional Signer(s)  Signer(s) Thumbprint(s)

\_\_\_\_\_

Date: 06/29/16

*Adam Brenner*  
Inventor's Signature

Print full name of fifth inventor:

Adam Brenner

Residence:

26571 Normandale Drive, #1B

Lake Forest, CA 92630

Citizenship:

US

Mailing Address:

Same as above

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me appeared \_\_\_\_\_ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Please See Attached For  
California Compliant Acknowledgement  
(CA Civil Code Section 1189)

\_\_\_\_\_  
Notary Public  
Print Name: \_\_\_\_\_  
My Commission expires \_\_\_/\_\_\_/\_\_\_

*2018 6/29/16*

# CALIFORNIA CERTIFICATE OF ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California )

County of Orange )

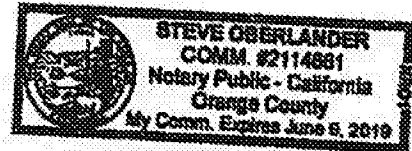
On 29 June 2016 before me, Steve Oberlander, Notary Public  
(here insert name and title of the officer)

personally appeared Adam Elton Brenner

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



Signature Steve Oberlander

(Seal)

## Optional Information

Although the information in this section is not required by law, it could prevent fraudulent removal and reattachment of this acknowledgment to an unauthorized document and may prove useful to persons relying on the attached document.

### Description of Attached Document

The preceding Certificate of Acknowledgment is attached to a document titled/for the purpose of Assignment — EMC-15-0703

containing \_\_\_\_\_ pages, and dated \_\_\_\_\_

The signer(s) capacity or authority is/are as:

- Individual(s)
- Attorney-in-Fact
- Corporate Officer(s) \_\_\_\_\_  
Title(s)
- Guardian/Conservator
- Partner - Limited/General
- Trustee(s)
- Other: \_\_\_\_\_

representing: \_\_\_\_\_  
Name(s) of Person(s) or Entity(ies) Signer is Representing

Additional Information	
<b>Method of Signer Identification</b>	
Proved to me on the basis of satisfactory evidence:	
<input type="radio"/> Form(s) of Identification <input type="radio"/> Credible Witness(es)	
Notarial event is detailed in notary journal on:	
Page # _____	Entry # _____
Notary contact: _____	
<b>Other</b>	
<input type="checkbox"/> Additional Signer(s)	<input type="checkbox"/> Signer(s) Thumbprint(s)
<input type="checkbox"/> _____ _____	

PATENT