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POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS	Application Number	12/222.751
	Filing Date	08-15-2008
	First Named Inventor	Russell T. Davis
	Title	Reusable data markup language
	Art Unit	2144
	Examiner Name	AMIN, MUSTAFA A
	Attorney Docket Number	07643.0002-01000

I hereby revoke all previous powers of attorney given in the above-identified application.

 A Power of Attorney is submitted herewith.

OR

 I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

112117

OR

 I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified application to:

 The address associated with the above-mentioned Customer Number.

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State:

Zip:

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I am the:

 Applicant/Inventor.

OR

 Assignee of record of the entire interest. See 37 CFR 3.71.

Statement under 37 CFR 3.73(b) (Form PTO/SB/98) submitted herewith or filed on _____.

SIGNATURE of Applicant or Assignee of Record

Signature:

Date:

3/25/2015

Name:

William M. Dislanderfer

Telephone:

409-283-2811

Title and Company:

CEO of E-Numerate Solutions, Inc.

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

 Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

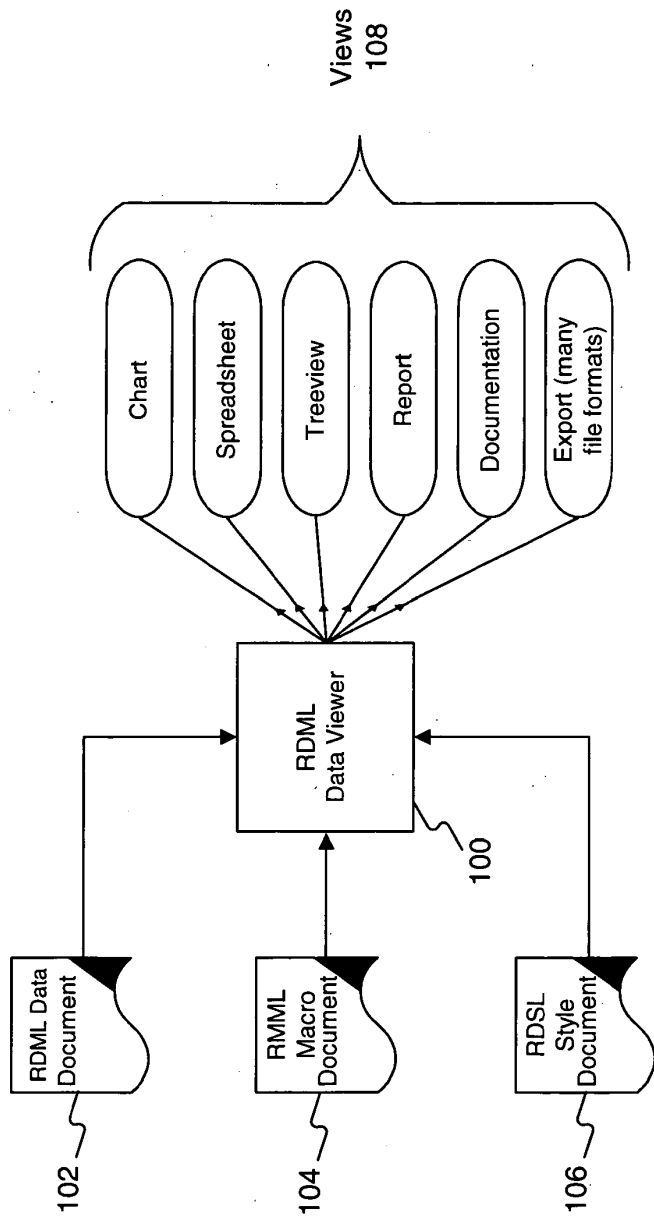


FIG. 1

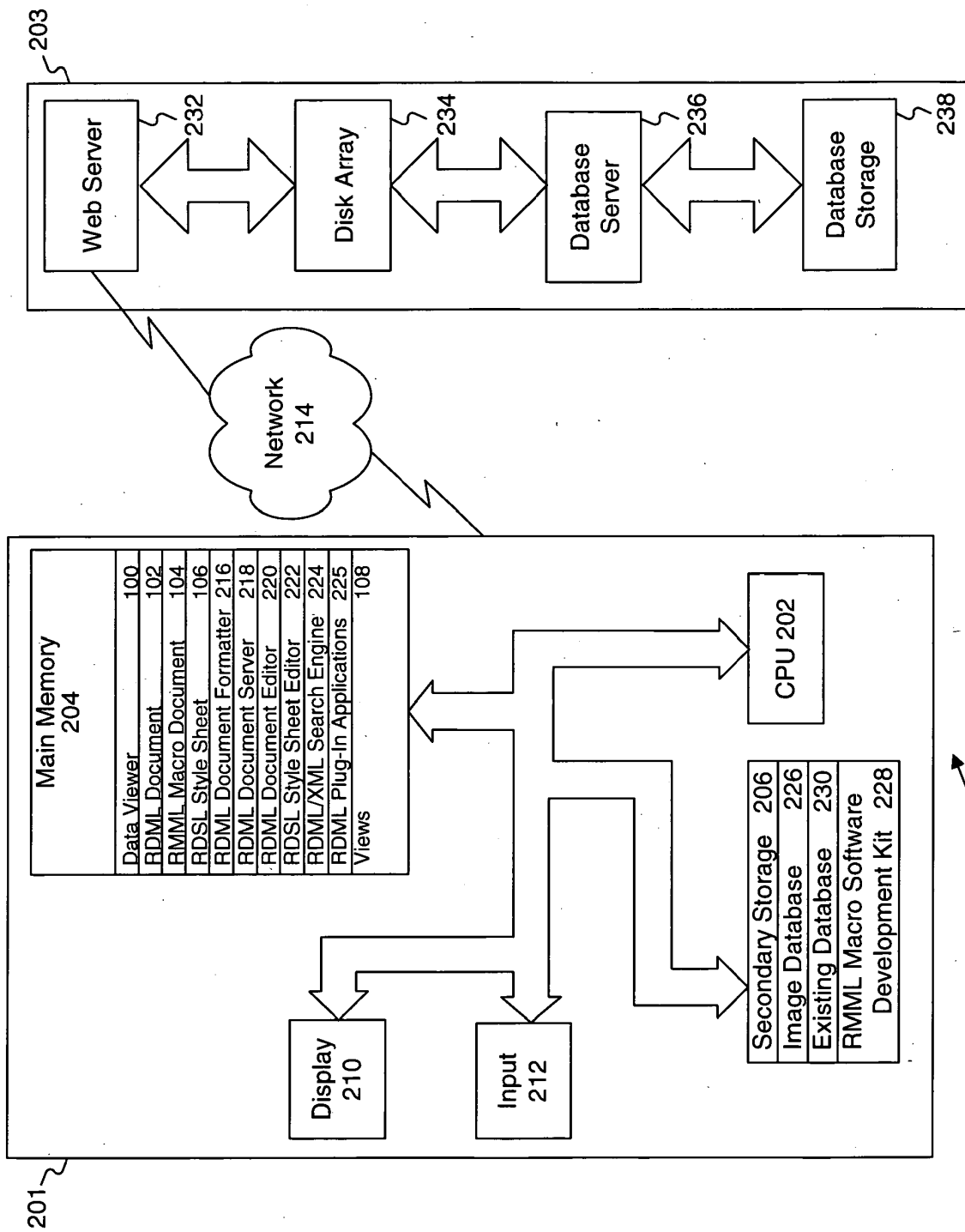


FIG. 2

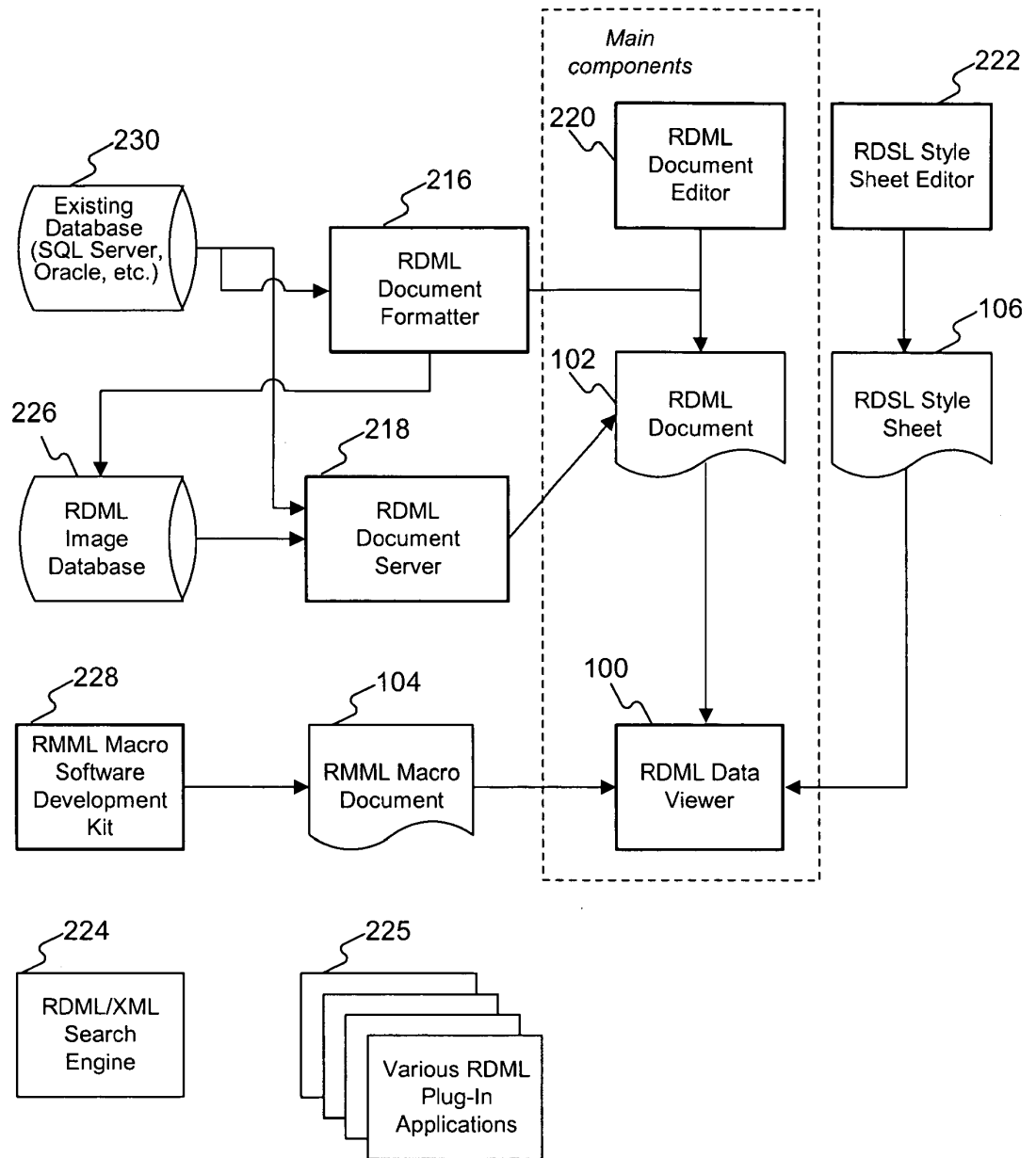


FIG. 3

FIG. 4 RDML Data Formatter

File View Tools Help

Open File Fill All Defaults Fill Column Defaults Copy Down

Select an Att/Element:

- LI Title
- LI Category
- Y Axis Title
- Level
- Format
- Relation to Parent
- LI Footnotes
- LI Description
- Precision
- Unit
- Magnitude
- Modifier
- Measure
- Scale

402

Select an Option:

#,##0;(##0)

[#,##0;(##0)]

[0.0]

[(0.00)]

[0.0]

[%,(0.00%)]

[0.0]

[%,(0%)]

408

Mark up the Table:

li ID	li title	format	y axis title
2.0	Environmental Protection Ag...	#,##0;(##0)	\$ in Thousands
4.0	Pollution control and abate...	#,##0;(##0)	\$ in Thousands
6.0	Discretionary	#,##0;(##0)	\$ in Thousands
8.0	Nongrant	#,##0;(##0)	\$ in Thousands
10.0	Science and technology	#,##0;(##0)	\$ in Thousands
12.0	Pollution control and abate...	#,##0;(##0)	\$ in Thousands
14.0	Grant	#,##0;(##0)	\$ in Thousands
16.0	Office of the Inspector Gener...	#,##0;(##0)	\$ in Thousands
18.0	Nongrant	#,##0;(##0)	\$ in Thousands
20.0	Payment to the hazardous s...	#,##0;(##0)	\$ in Thousands
22.0	Revolving fund for certificatio...	#,##0;(##0)	\$ in Thousands
24.0	Mandatory	#,##0;(##0)	\$ in Thousands
26.0	Hazardous substance supe...	#,##0;(##0)	\$ in Thousands
28.0	Nongrant	#,##0;(##0)	\$ in Thousands
30.0	Leaking underground stora...	#,##0;(##0)	\$ in Thousands
32.0	Oil spill response	#,##0;(##0)	\$ in Thousands
34.0	Inspector General (trust fun...	#,##0;(##0)	\$ in Thousands
36.0	Licensing fees for pesticide...	#,##0;(##0)	\$ in Thousands
38.0	Discretionary	#,##0;(##0)	\$ in Thousands
40.0	Recoveries, Hazardous sub...	#,##0;(##0)	\$ in Thousands
42.0	Miscellaneous contributed f...	#,##0;(##0)	\$ in Thousands

404

Format Template for how this line items numbers will appear in treeview, reports, spreadsheets. Also y-axis label formatting. Required

Databases LineltemSet Lineltems

Left Status Middle Status

406

216

FIG. 5

Documentation URL: 506

Documentation Table: 508

LI Data URL: 510

doc title	status	RDMLDoc ID
Sallie Mae - Income Statement	Done	rdml_sima_is1
Dept. of Energy	Done	rdml_omb_energy_1
Peak Mortgage Company	Done	rdml_mf_1
Des Moines Water & Sewer	Done	rdml_desmoines_1
University Business Office - Cash Flow	Done	rdml_sima_bursar1
Sallie Mae - Asset Management Stratification	Done	rdml_sima_asset1
Dept. of Commerce	Done	rdml_omb_commerce_1
Executive Office of the President	Done	rdml_omb_eop_1
General Services Administration	Done	rdml_omb_gsa_1
Dept. of Housing and Urban Development	Done	rdml_omb_hud_1
Judicial Branch	Done	rdml_omb_judicial_1
Dept. of Labor	Done	rdml_omb_labor_1
National Aeronautic and Space Administrati...	Done	rdml_omb_nasa_1
Governmental Receipts	Done	rdml_omb_receipts_1
Social Security Administration	Done	rdml_omb_ssa_1
Dept. of Energy	Done	rdml_omb_transportation_1
Dept. of Veteran's Administration	Done	rdml_omb_va_1

504

Databases LineItemSet LineItems

Left Status Middle Status Right Status

502 216

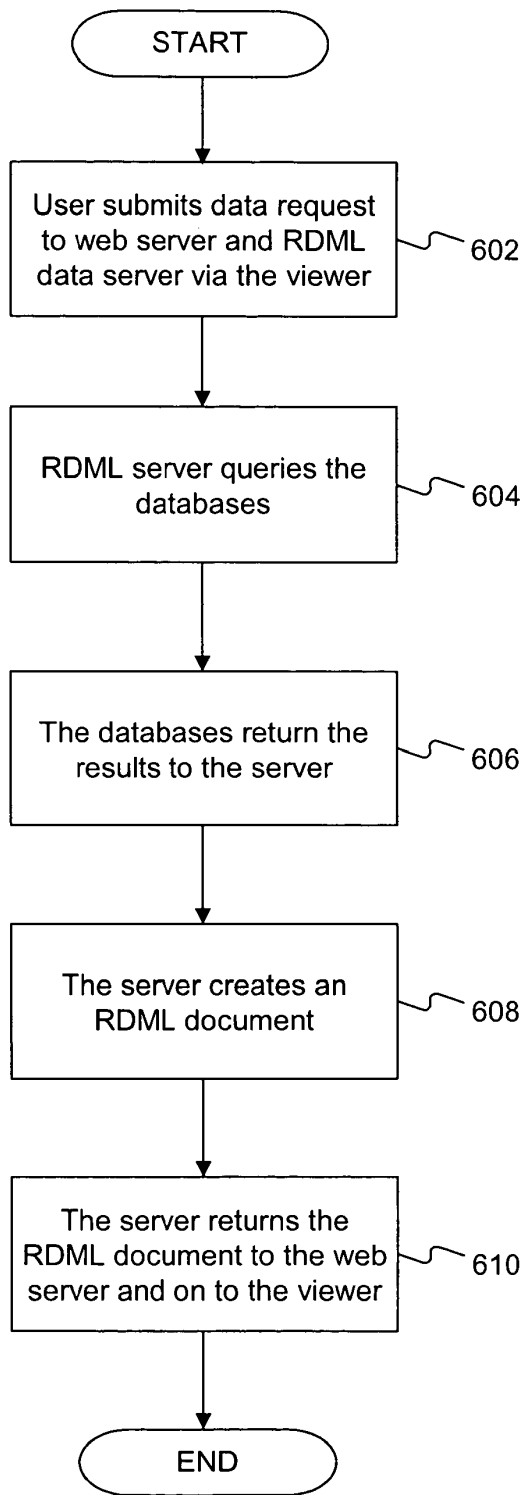
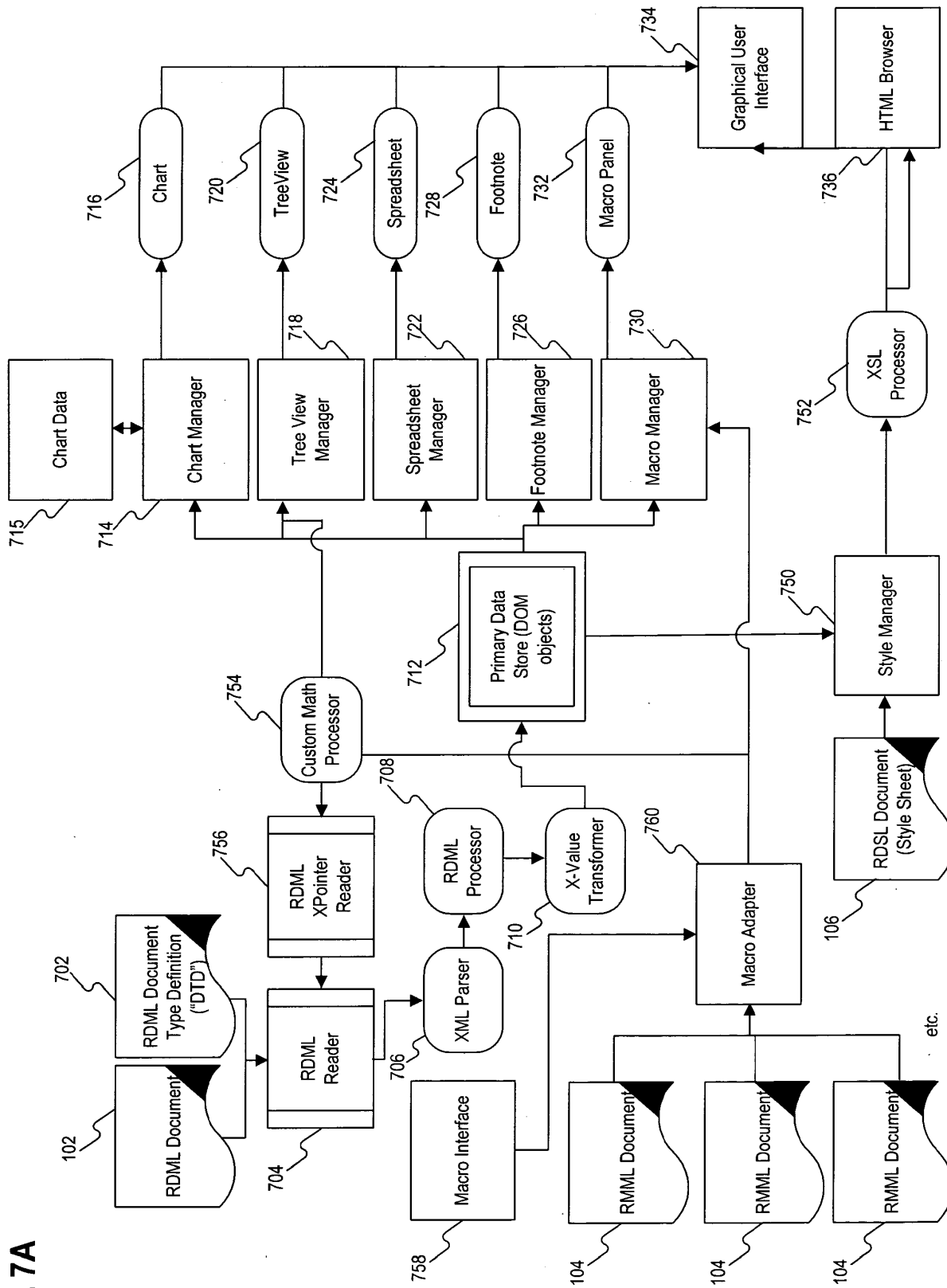


FIG. 6

FIG. 7A



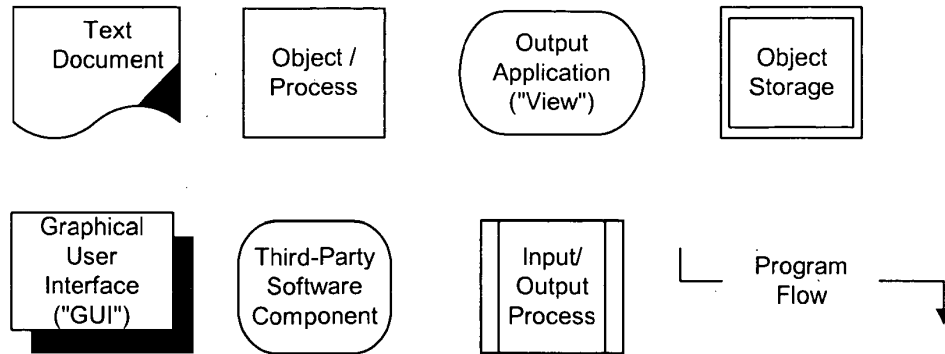


FIG. 7B

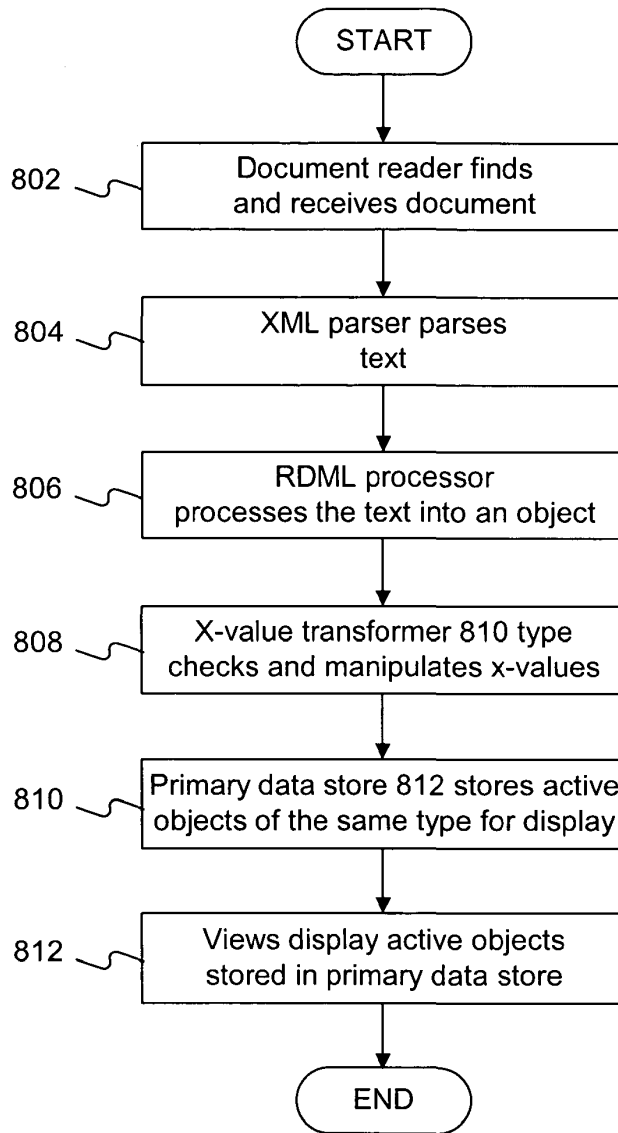
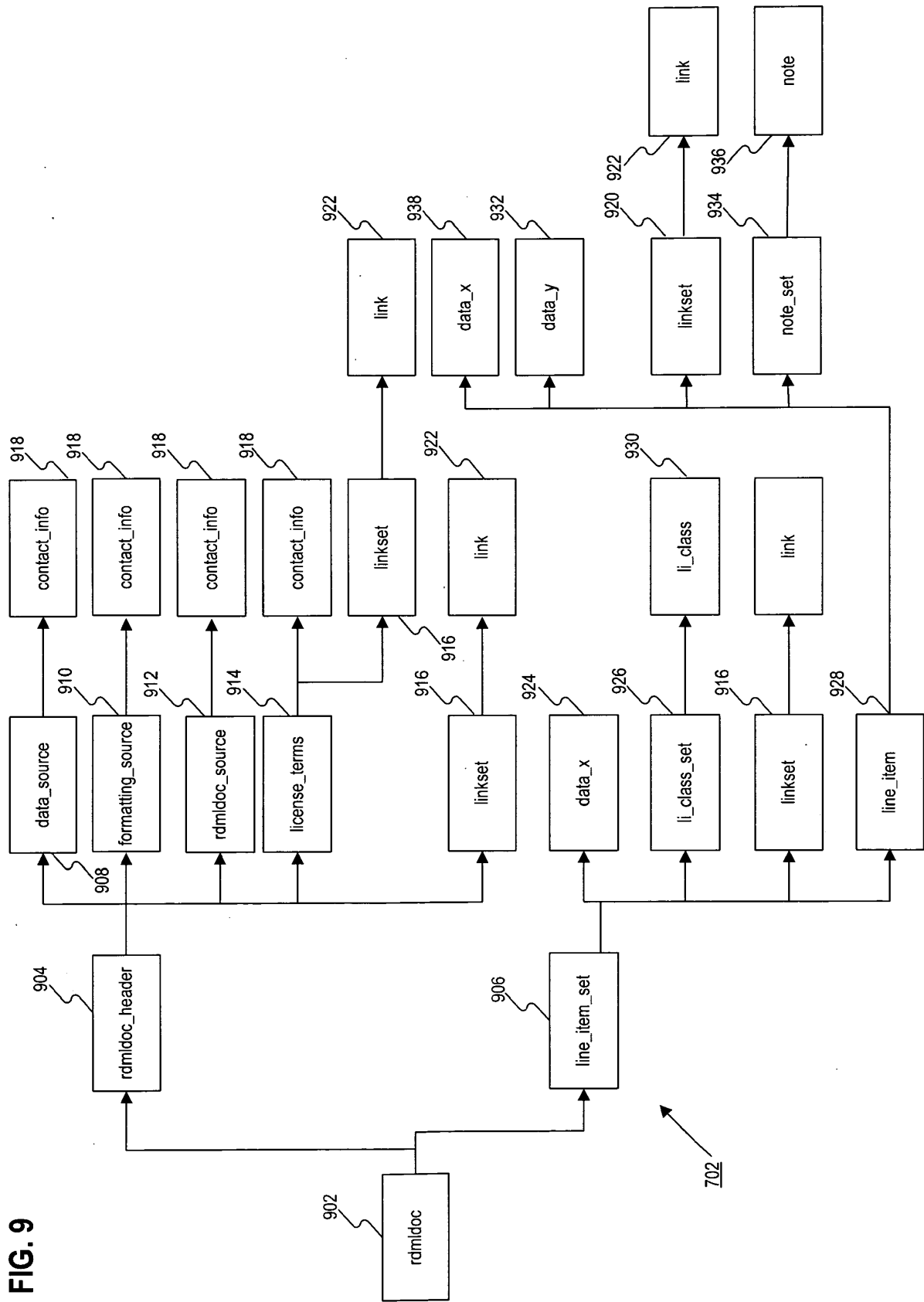


FIG. 8

FIG. 9



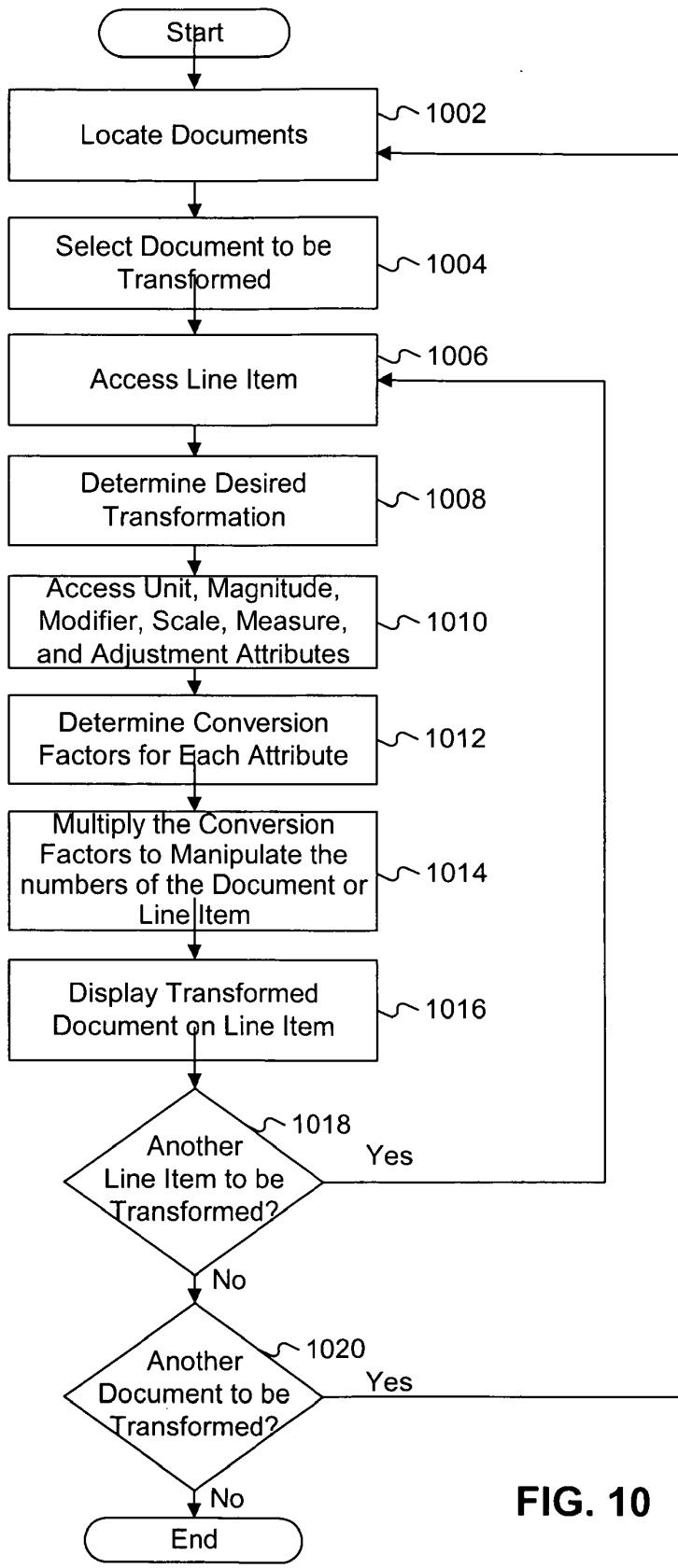


FIG. 10

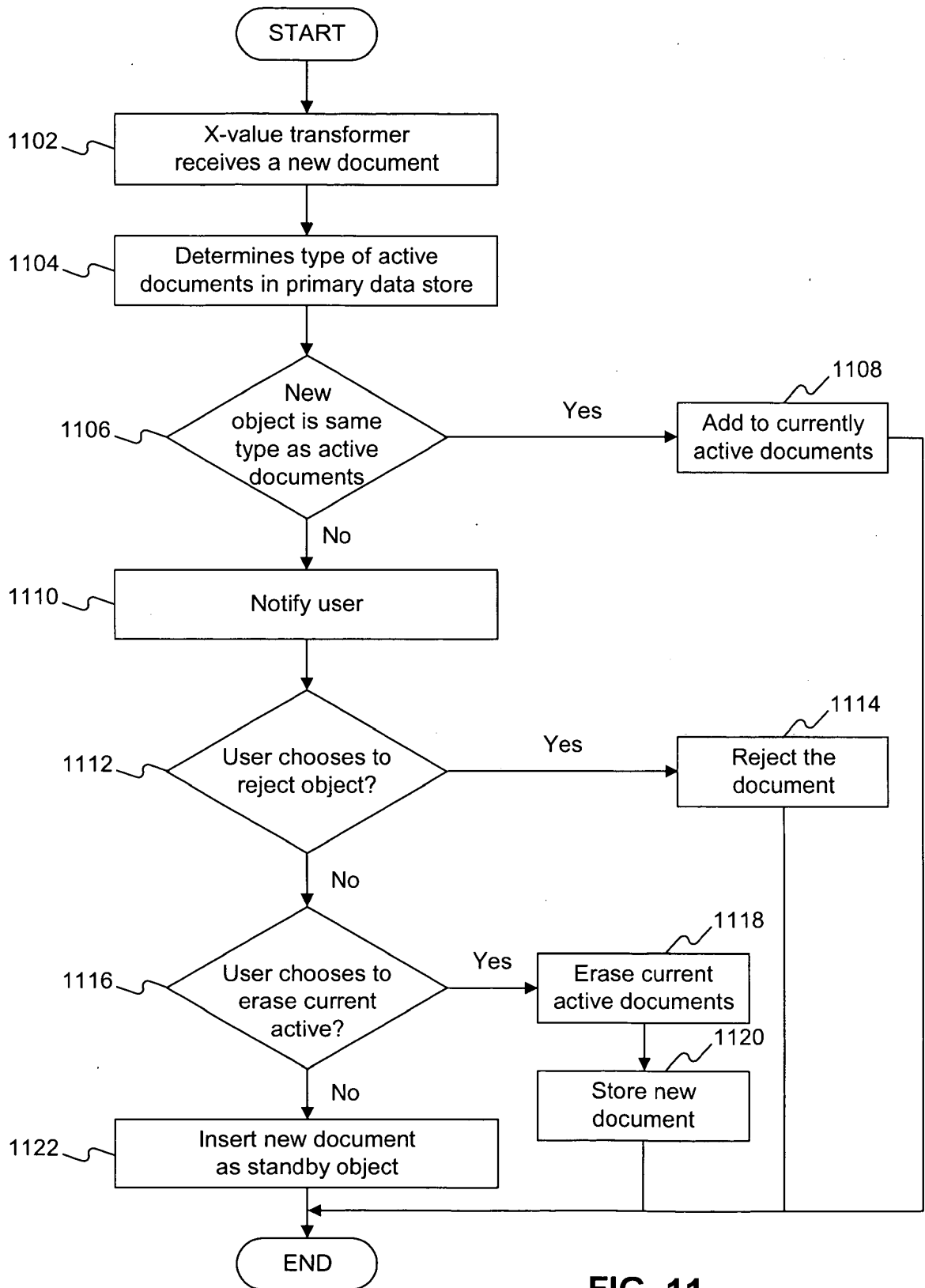


FIG. 11

FIG. 12A

RDMML Data Viewer

File Edit View Chart Favorites Tools Window Help

XY Maximum

Open Close Copy Screen Add Remove Erase Type Back Forward Stop Home

URL of Data Document [File:\C:\Rdml\RdmlBrowsers\files\xy_test1.rdm] As of 10/1/1999

Global Warming

Humidity

Temperature

1204

1206

XY Test1

Line Item	Units	Point 0	Point 1	Point 2	Links	Sum	Average	Row
Table Name XY Test1								
As of 10/1/1999	Humidity	25.40	26.60	26.64	2	276.41	27.64	27
As of 10/1/1999	Pounds per sq inch	235.40	226.60	236.64	2	2,486.41	248.64	28
Clarity Index	Index	235.40	226.60	236.64	2	2,486.41	248.64	29

HTML Browser Chart/Tree Footnotes Spreadsheet

Done

0:3

XY Plot

1202

720

FIG. 12B

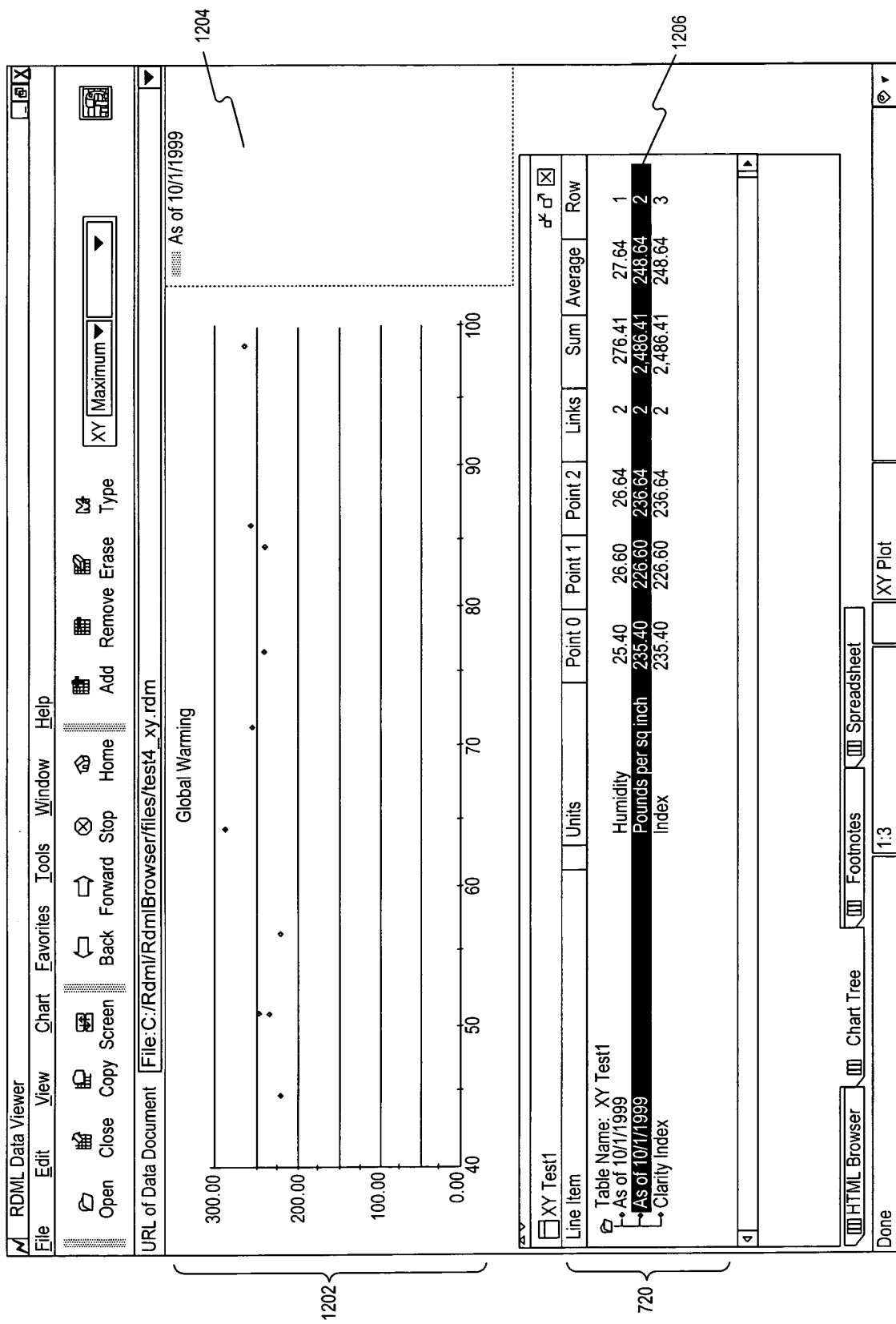
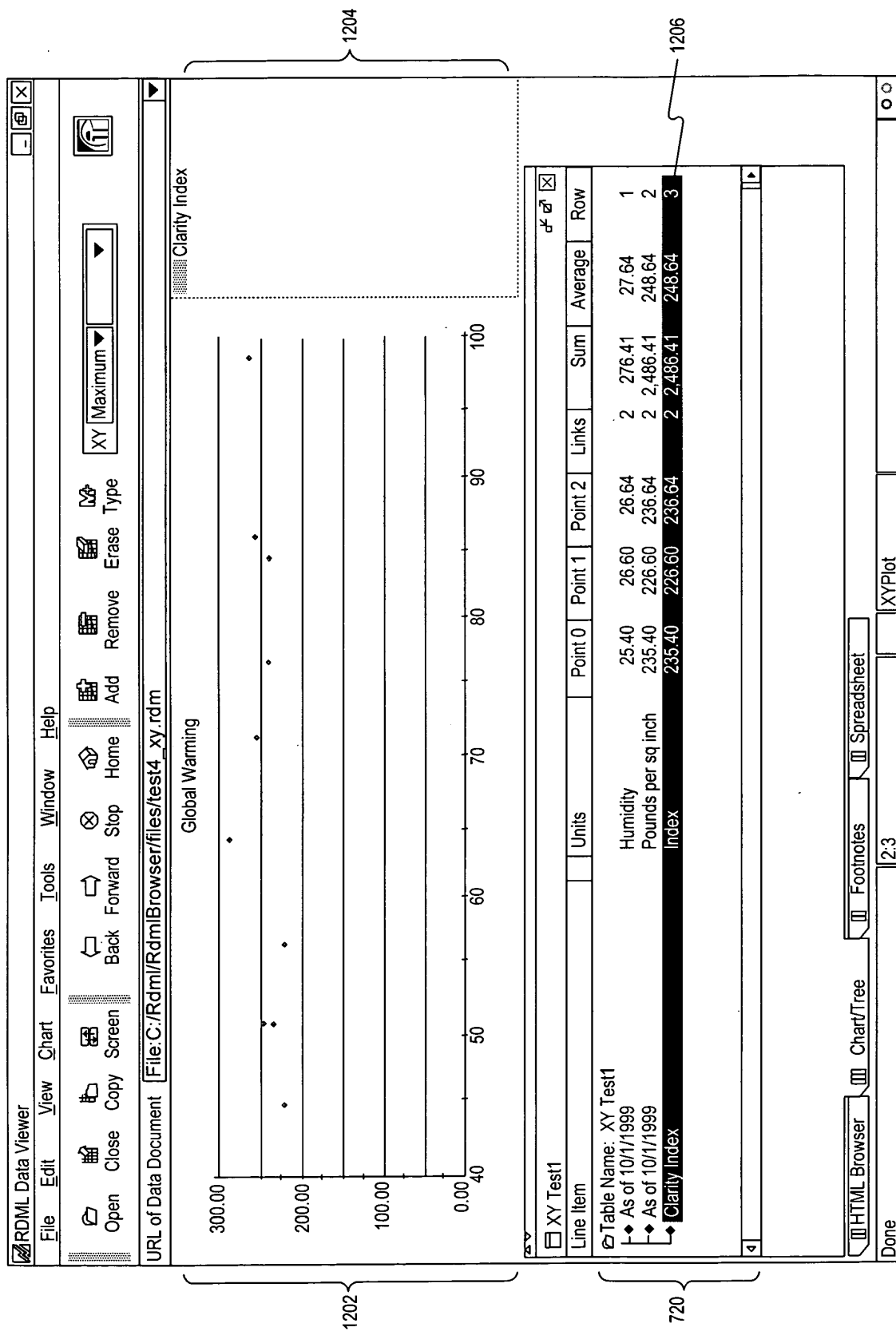


FIG. 12C



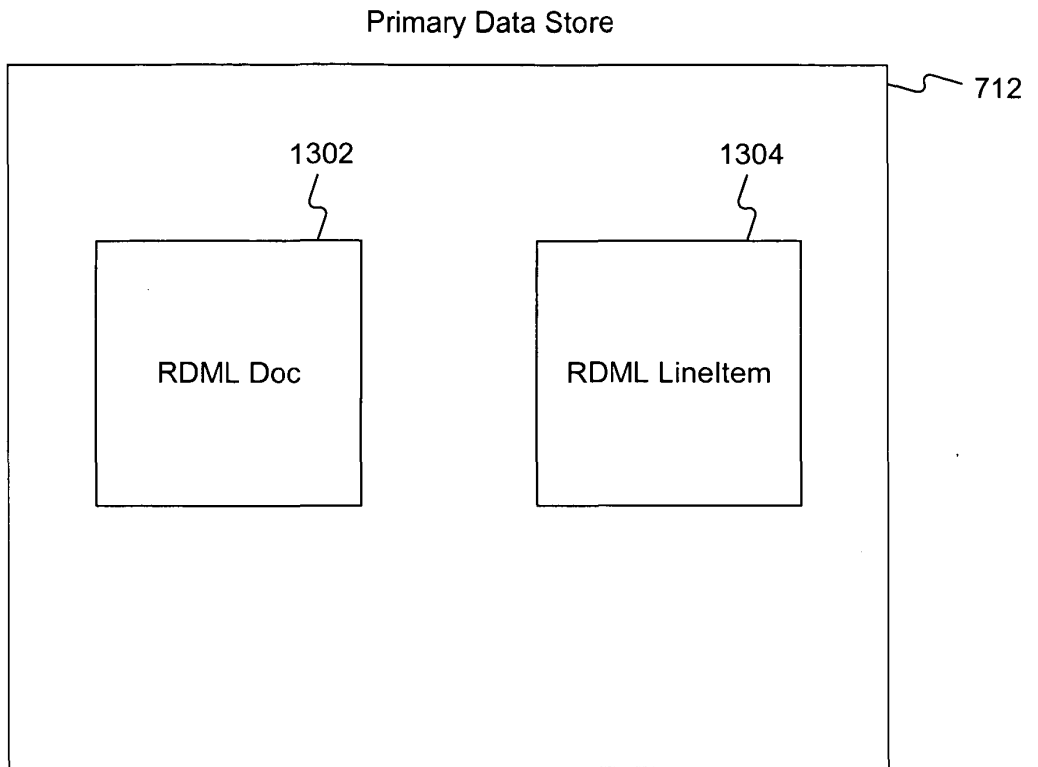


FIG. 13

FIG. 14A

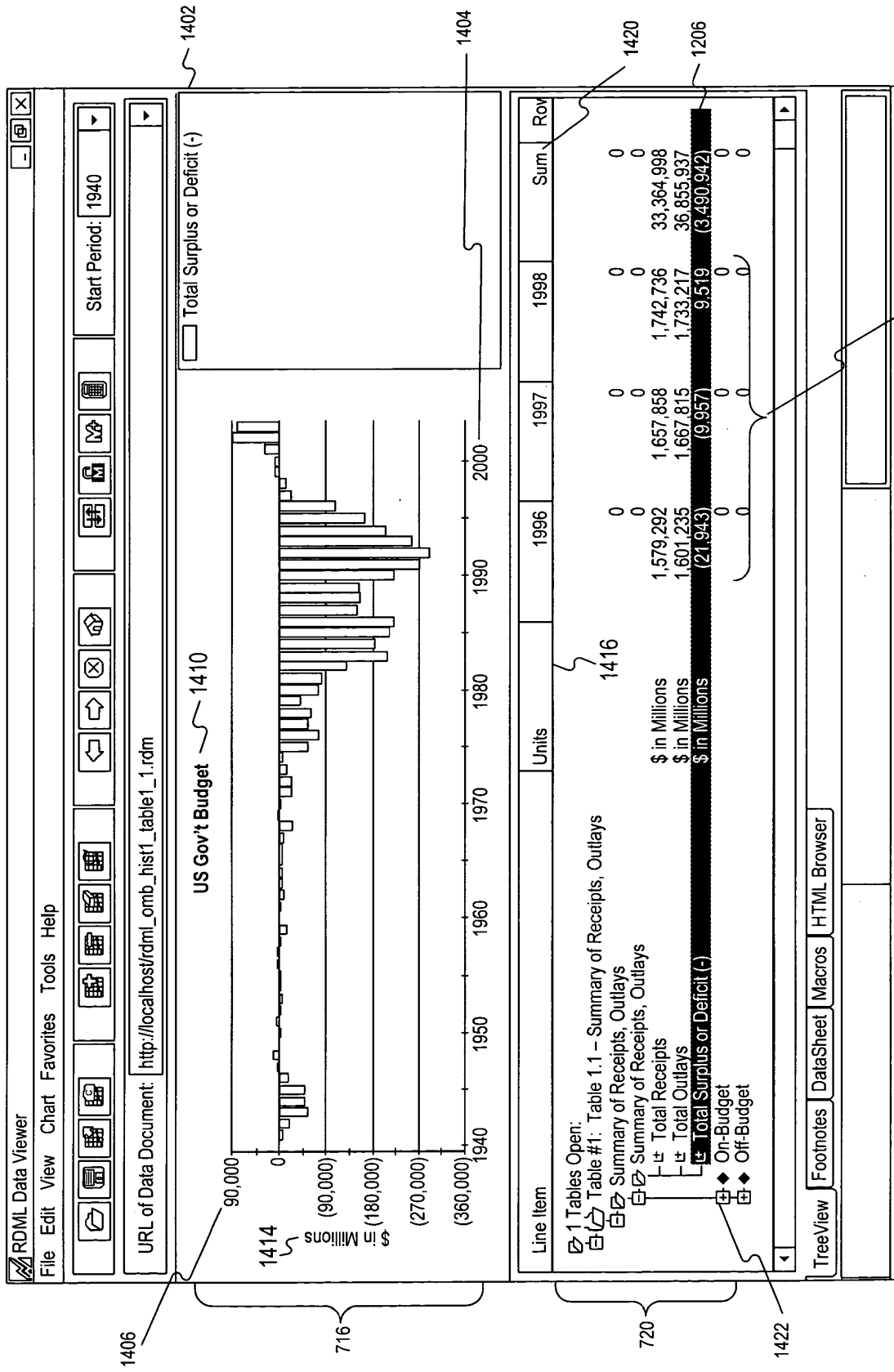


FIG. 14B

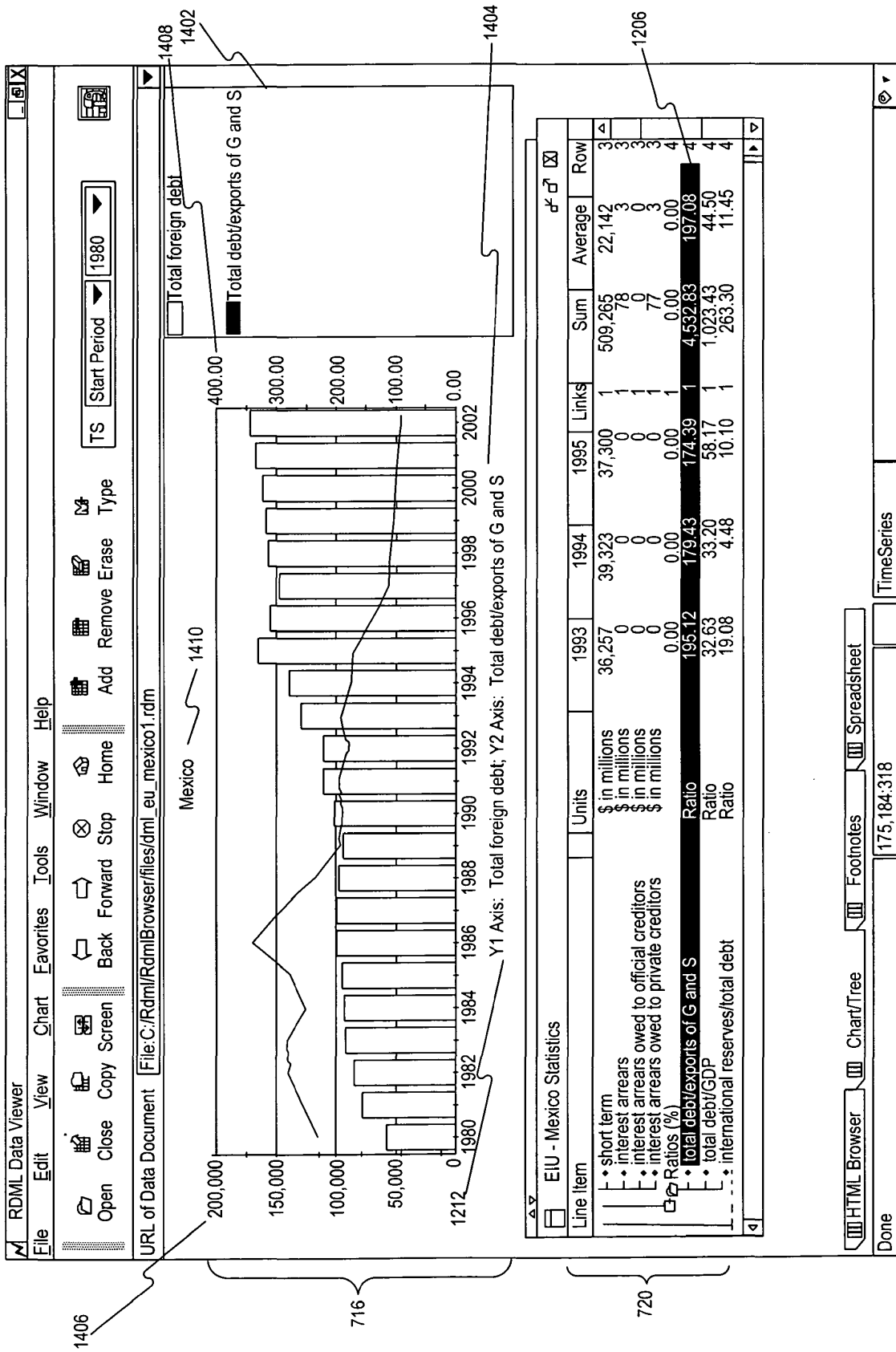


FIG. 14C

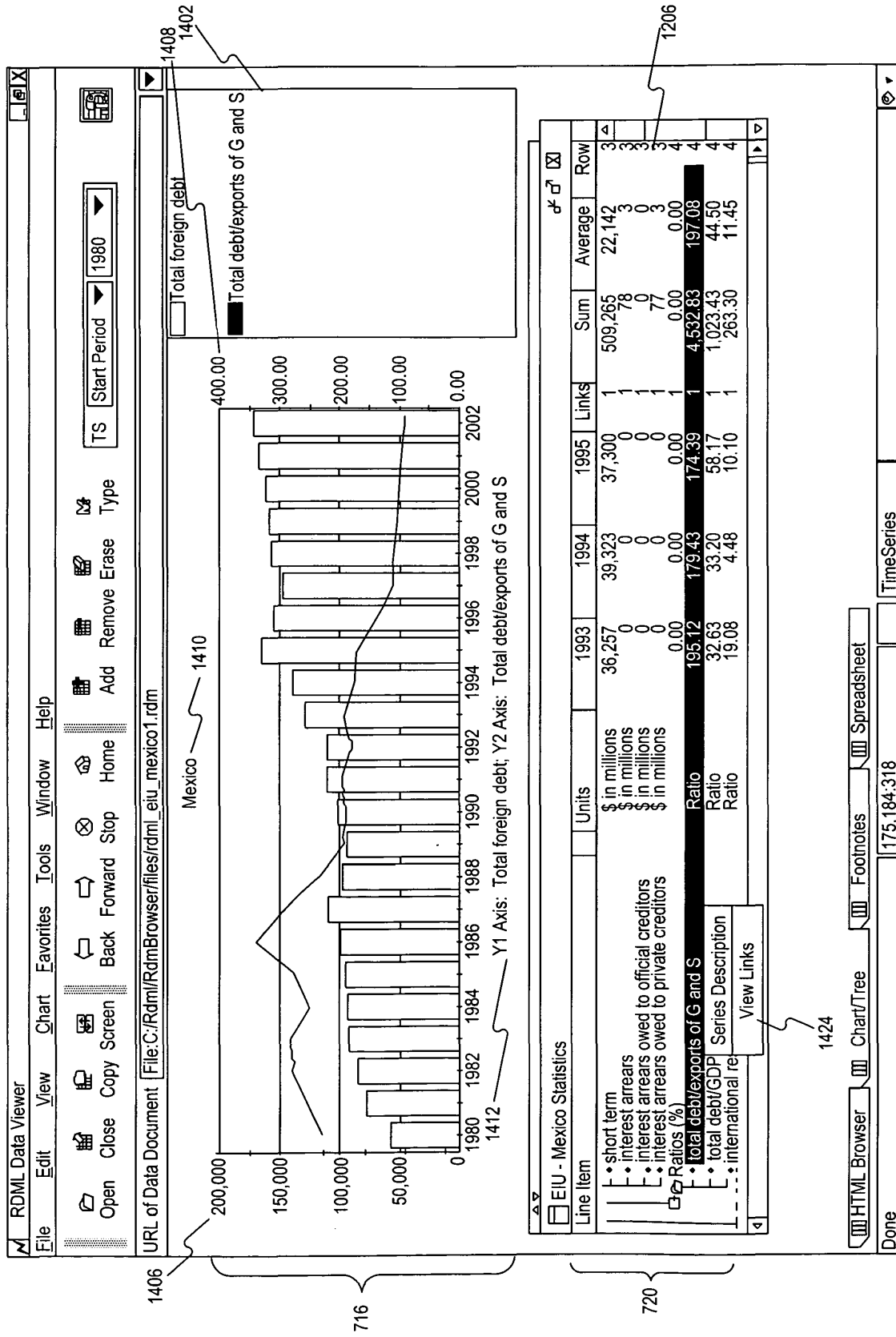


FIG. 14D

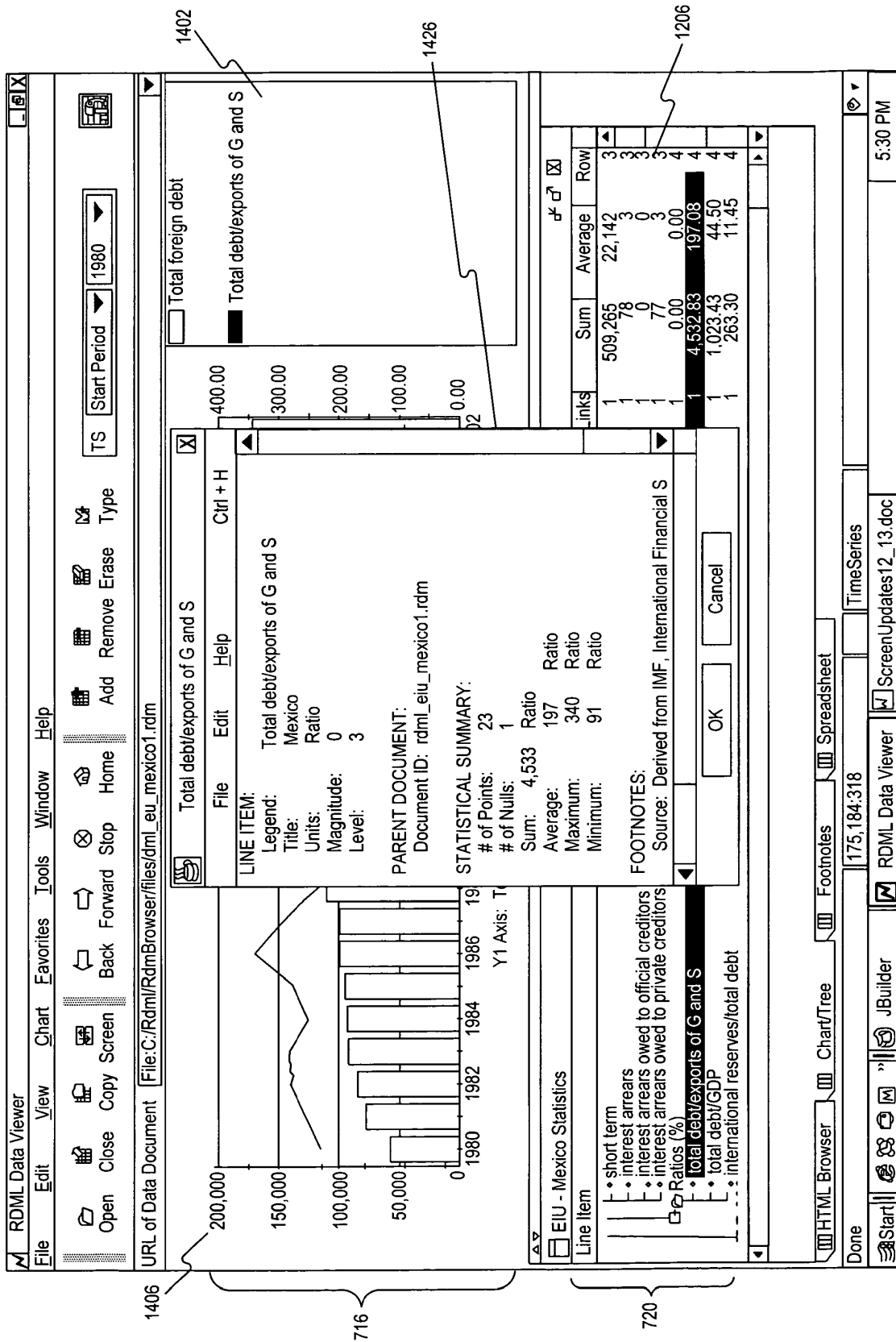
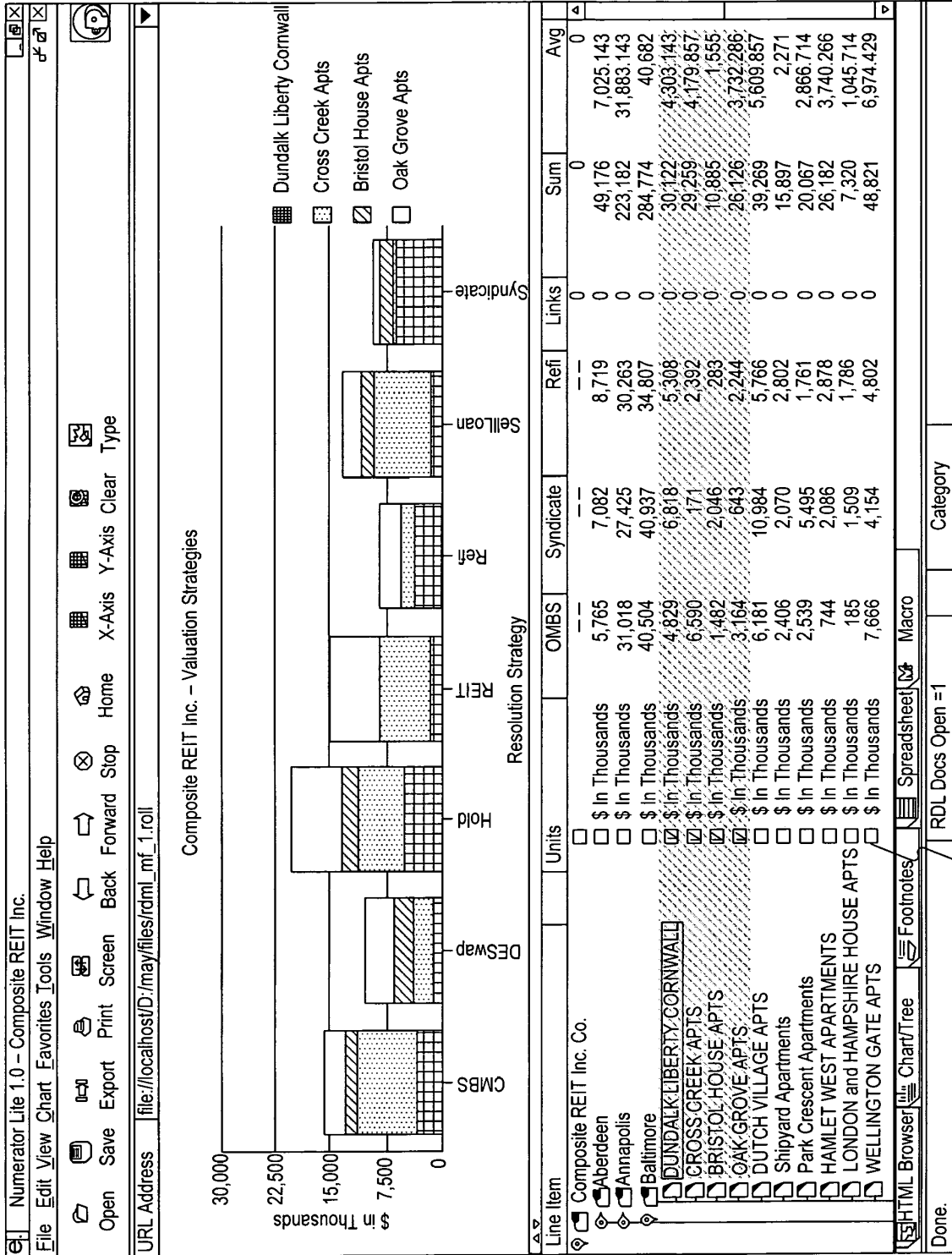


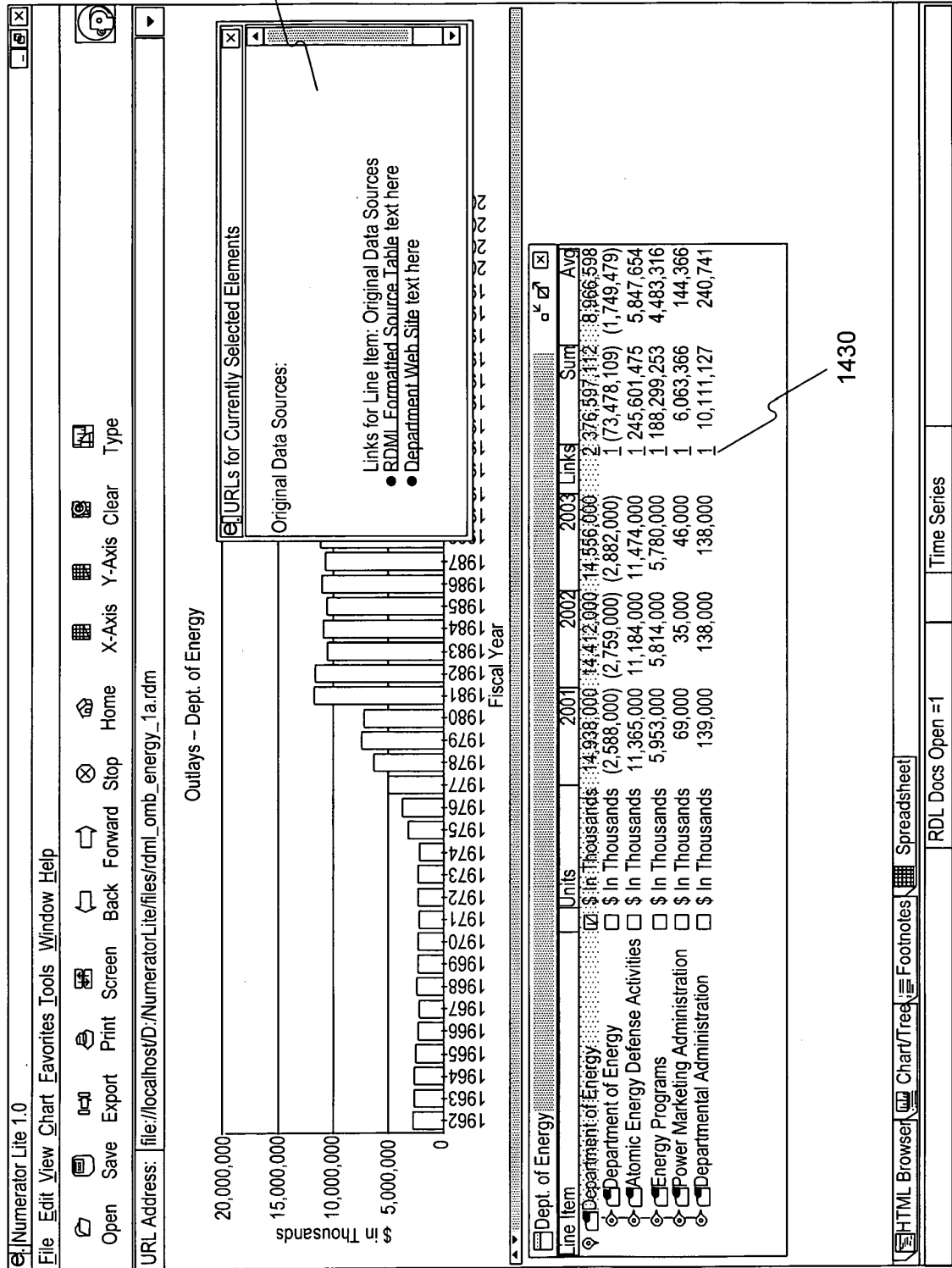
FIG. 14E



720

1450

FIG. 14F



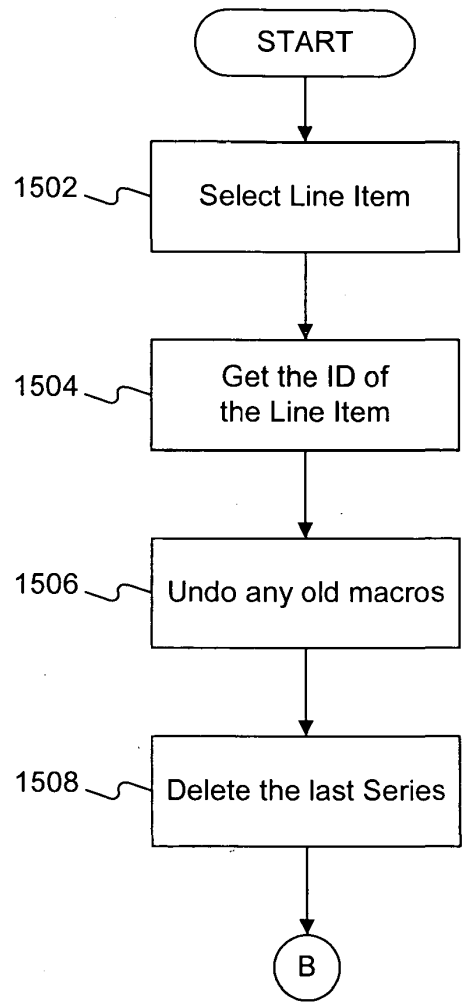


FIG. 15A

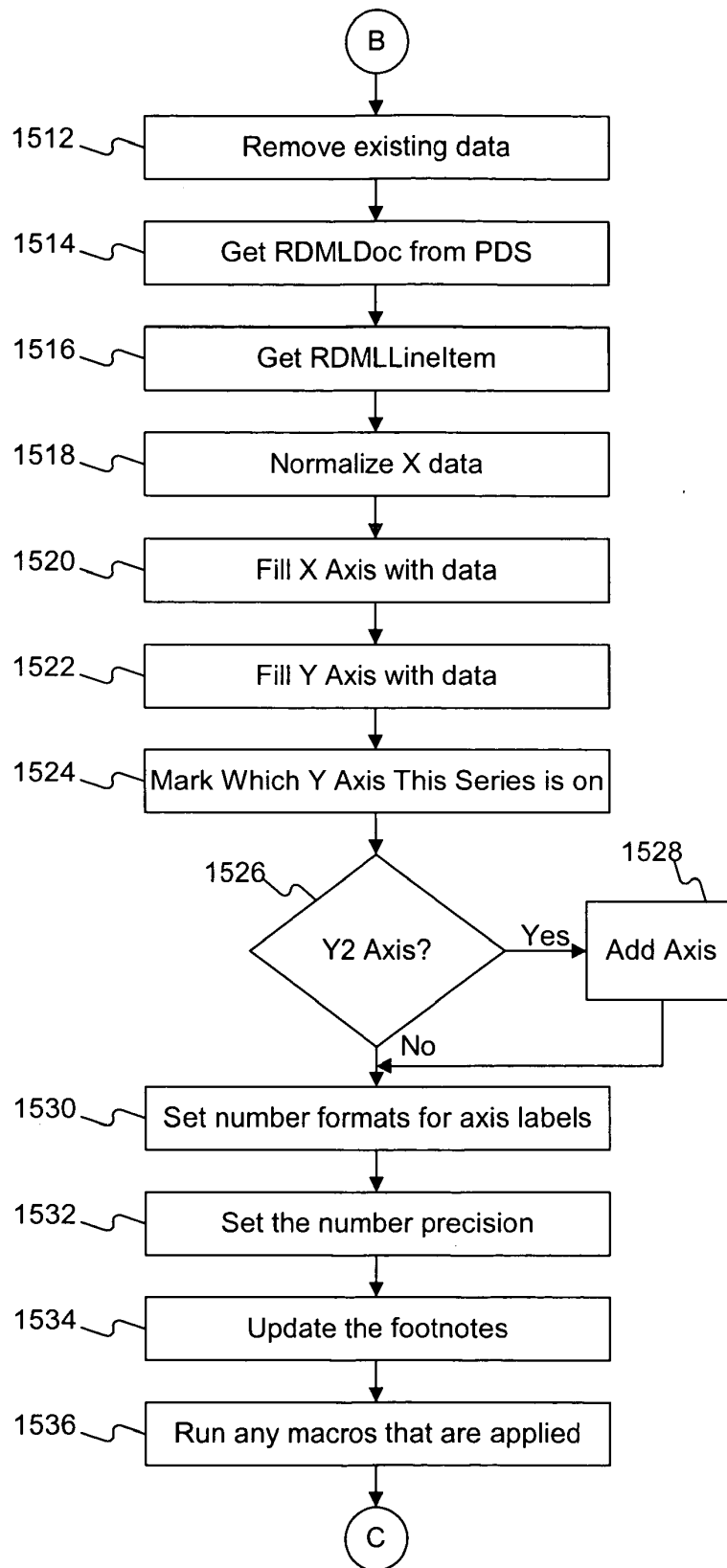


FIG. 15B

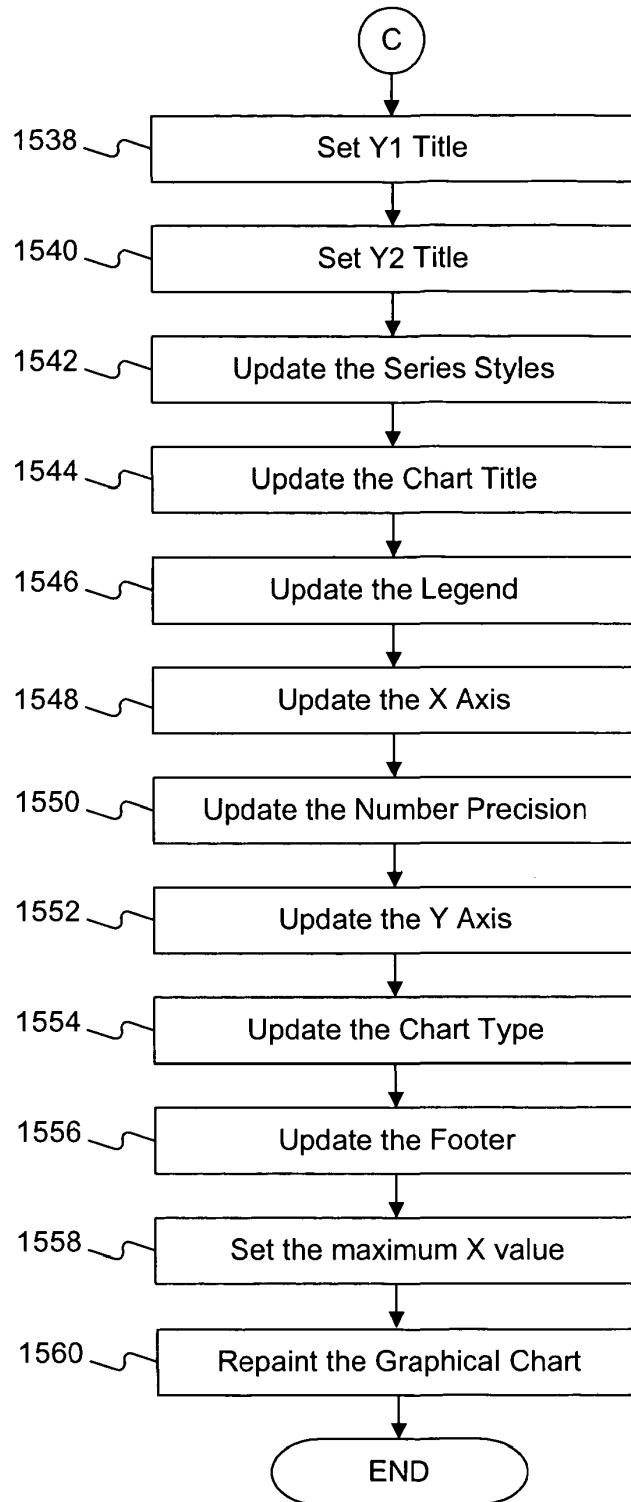
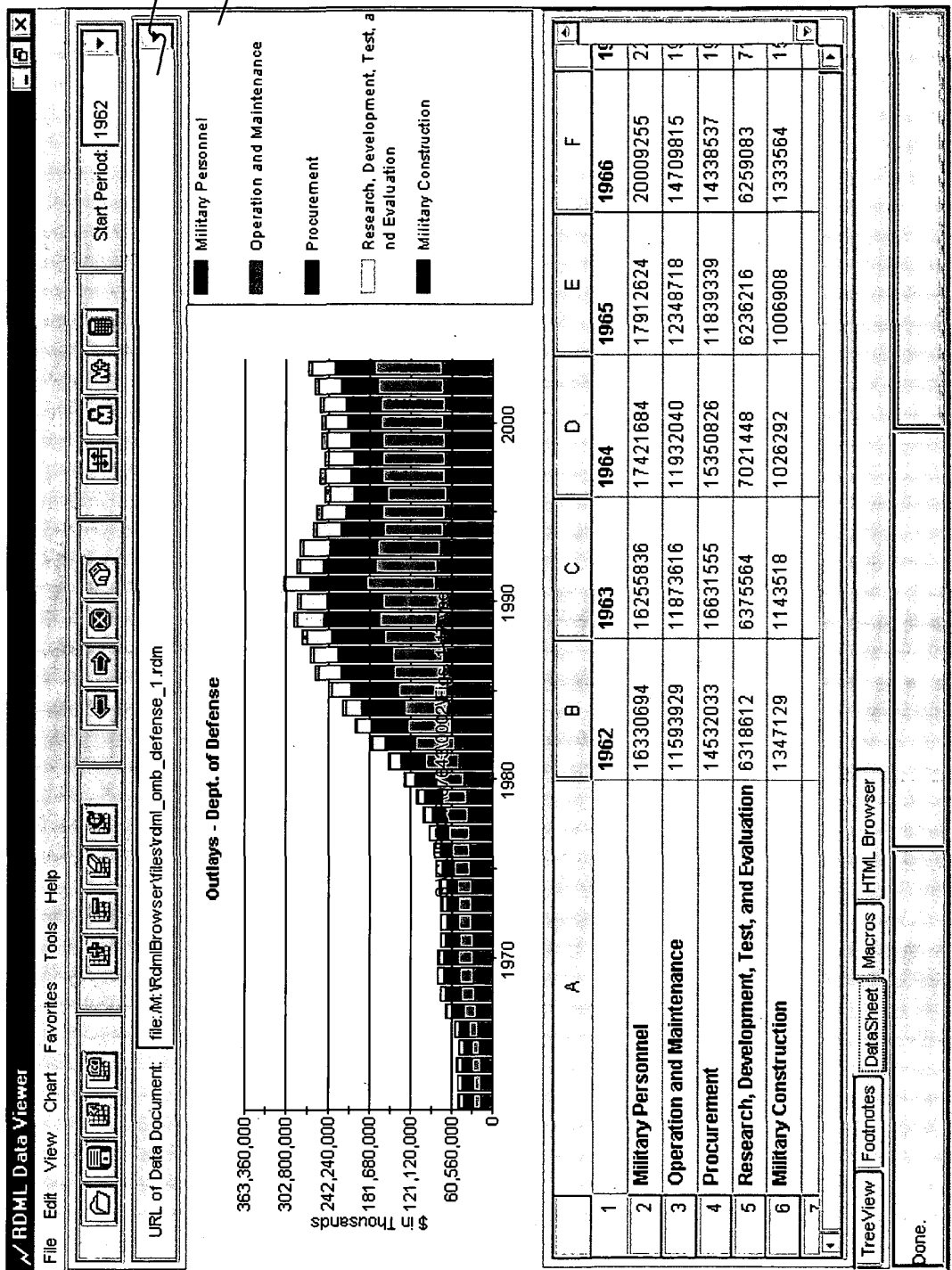


FIG. 15C



1602

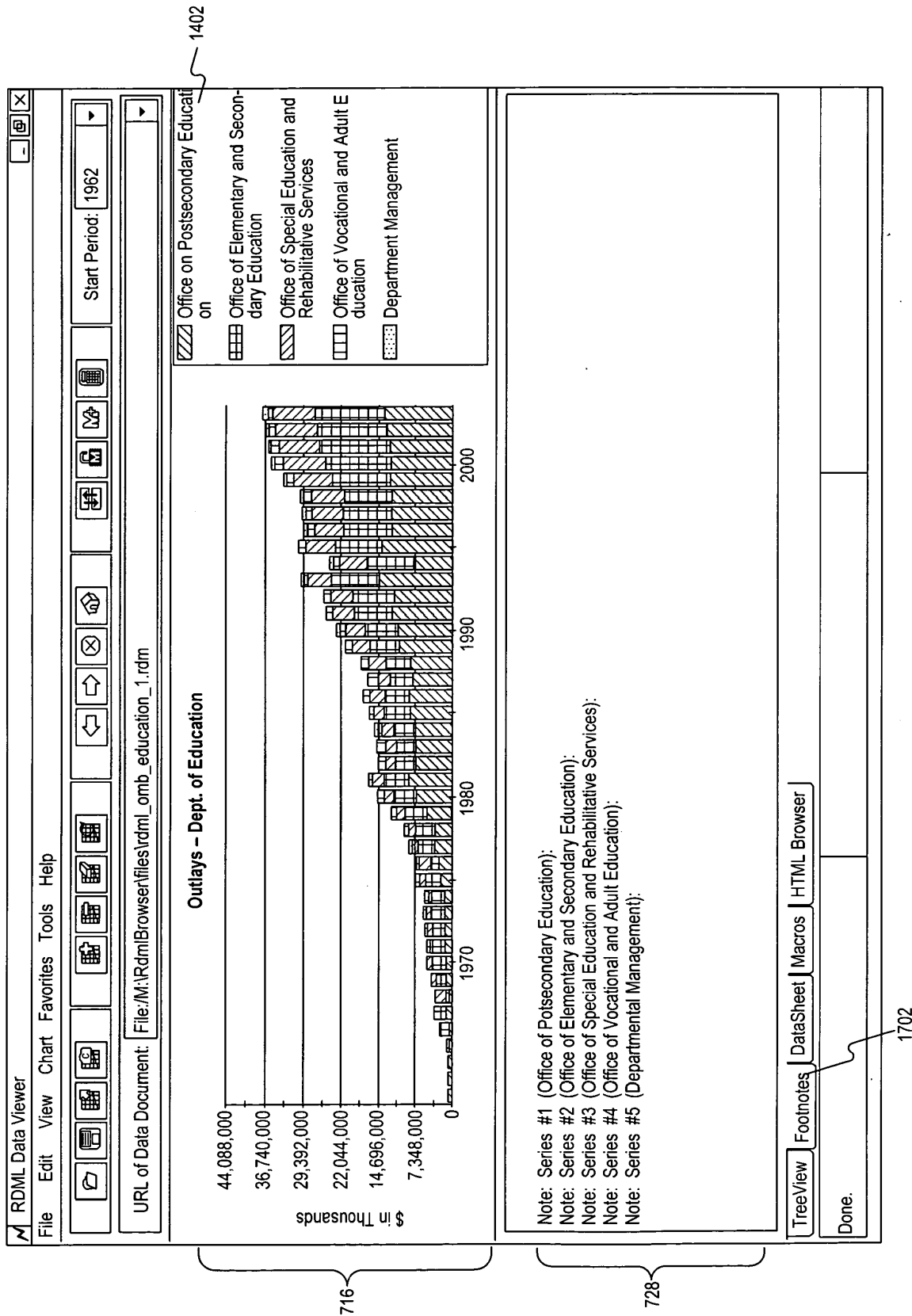
1402

716

724

FIG. 16

FIG. 17



RMML Document Type Definition

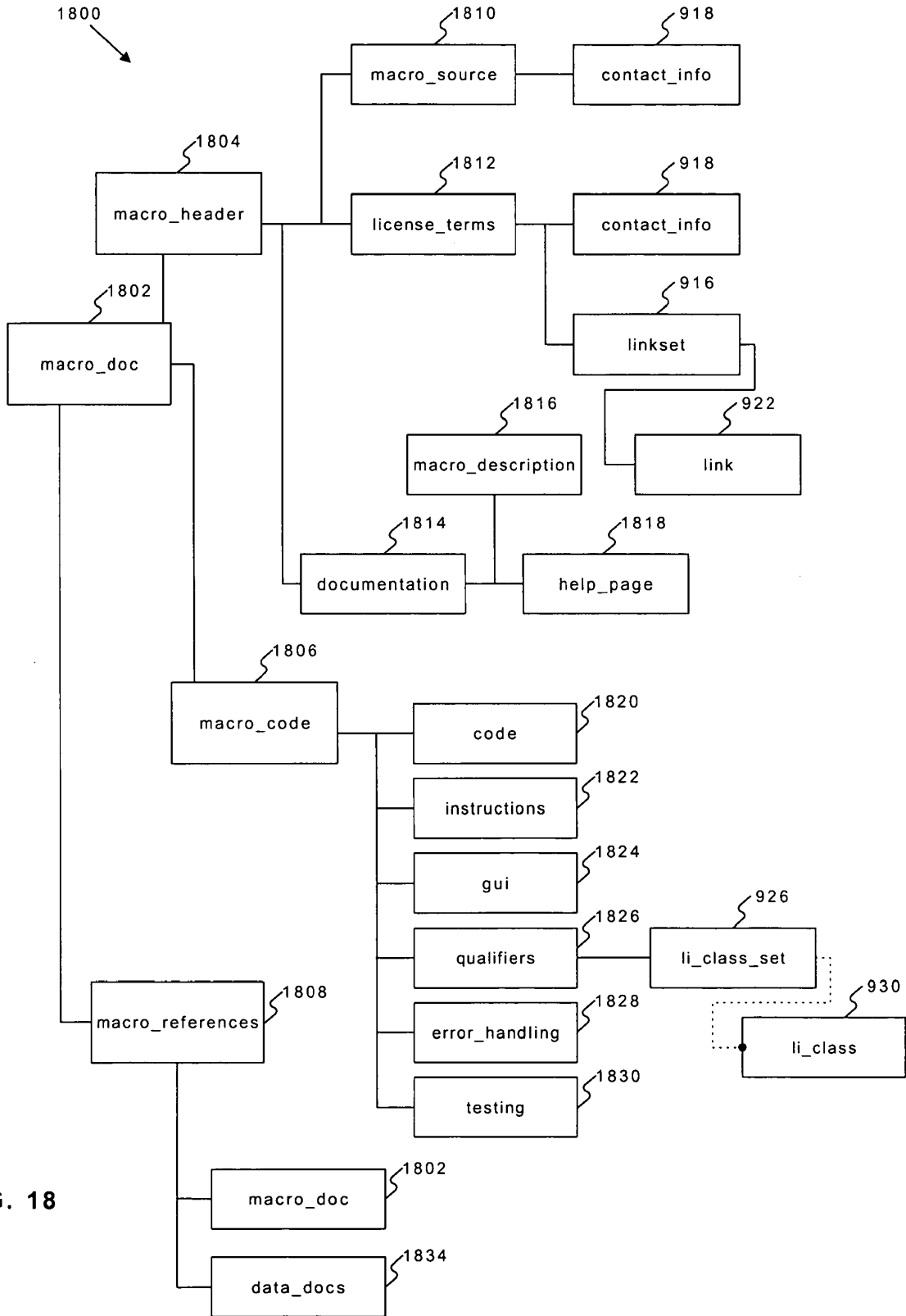


FIG. 18

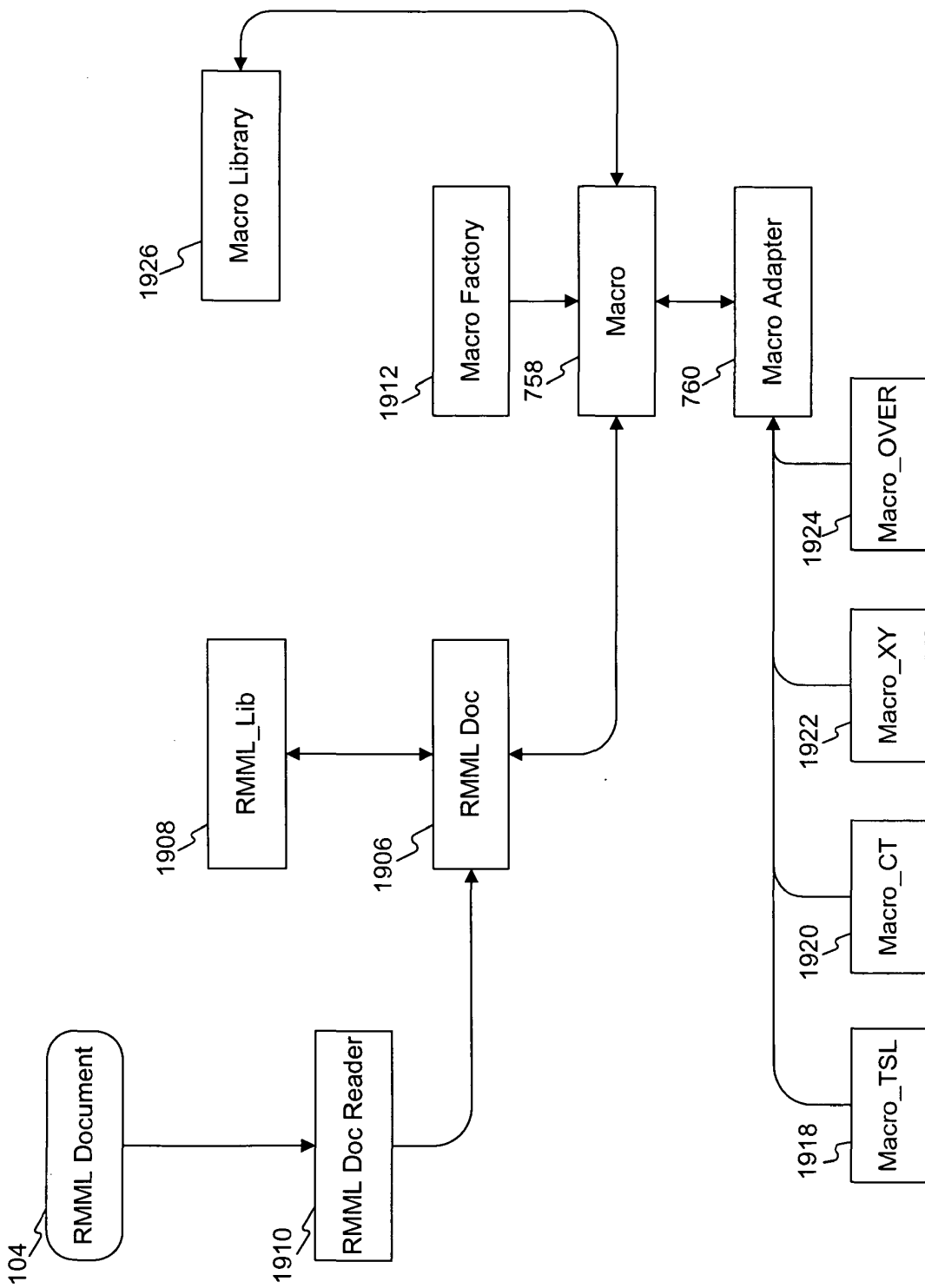


FIG. 19A

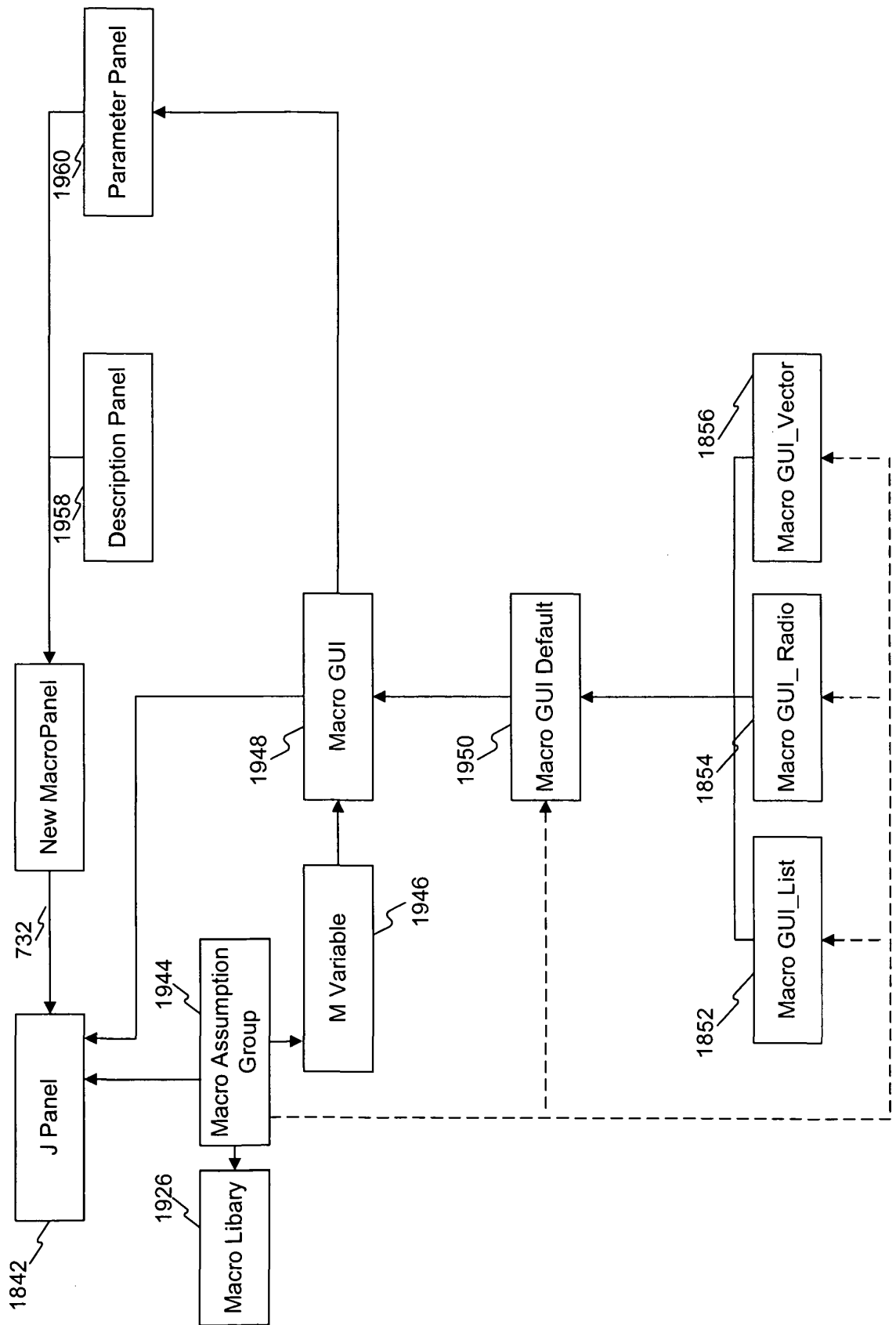


FIG. 19B

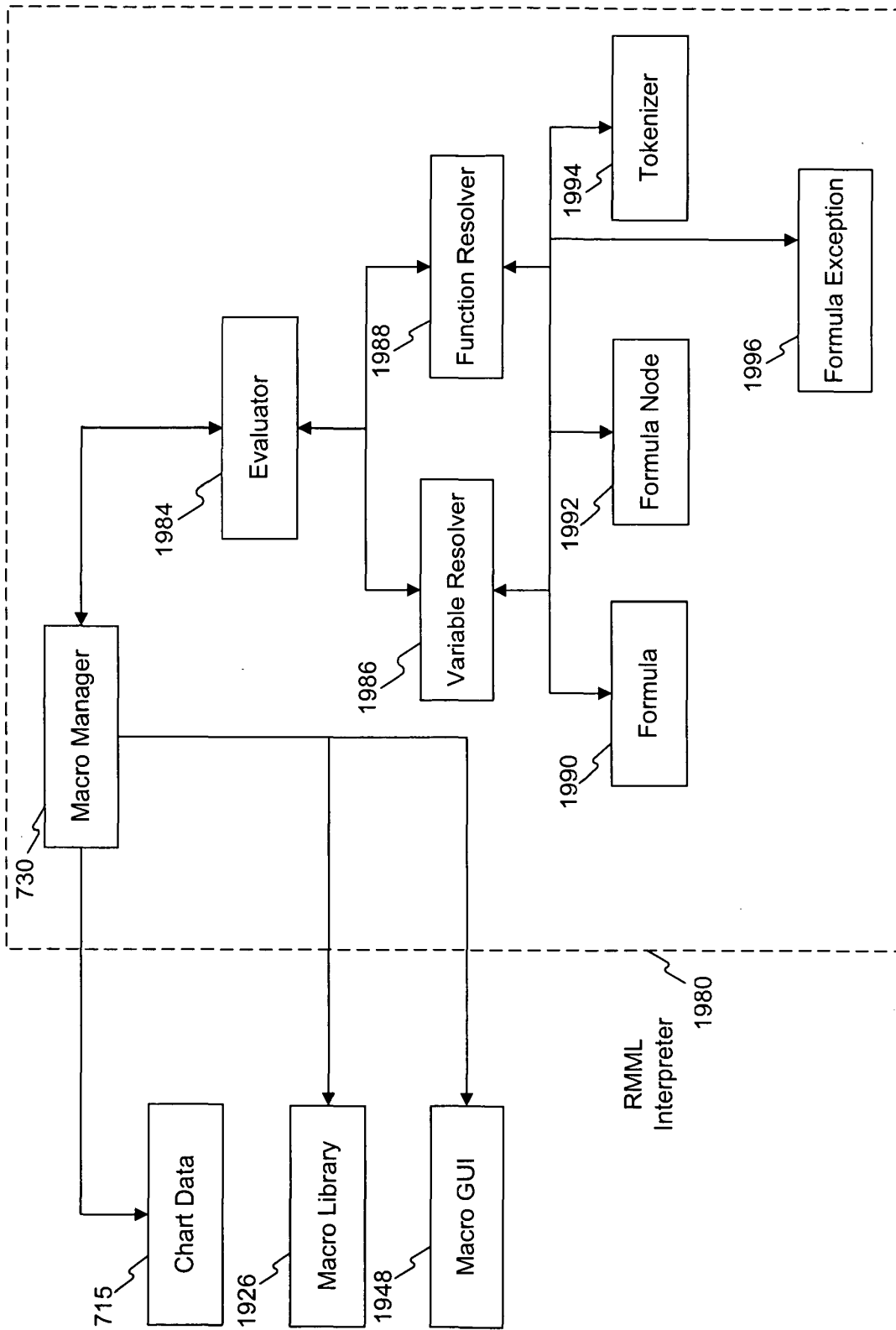


FIG. 19C

FIG. 20A

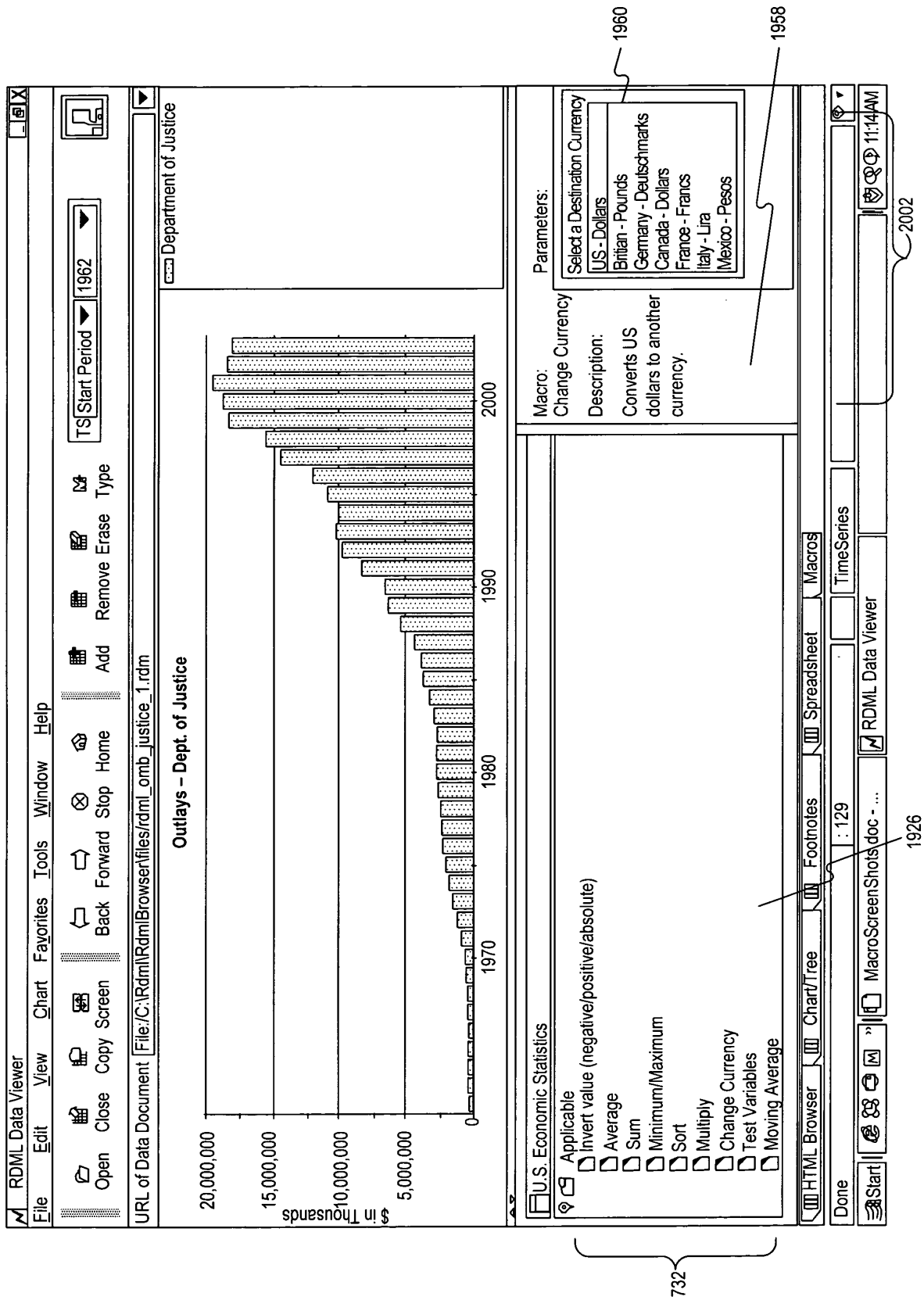
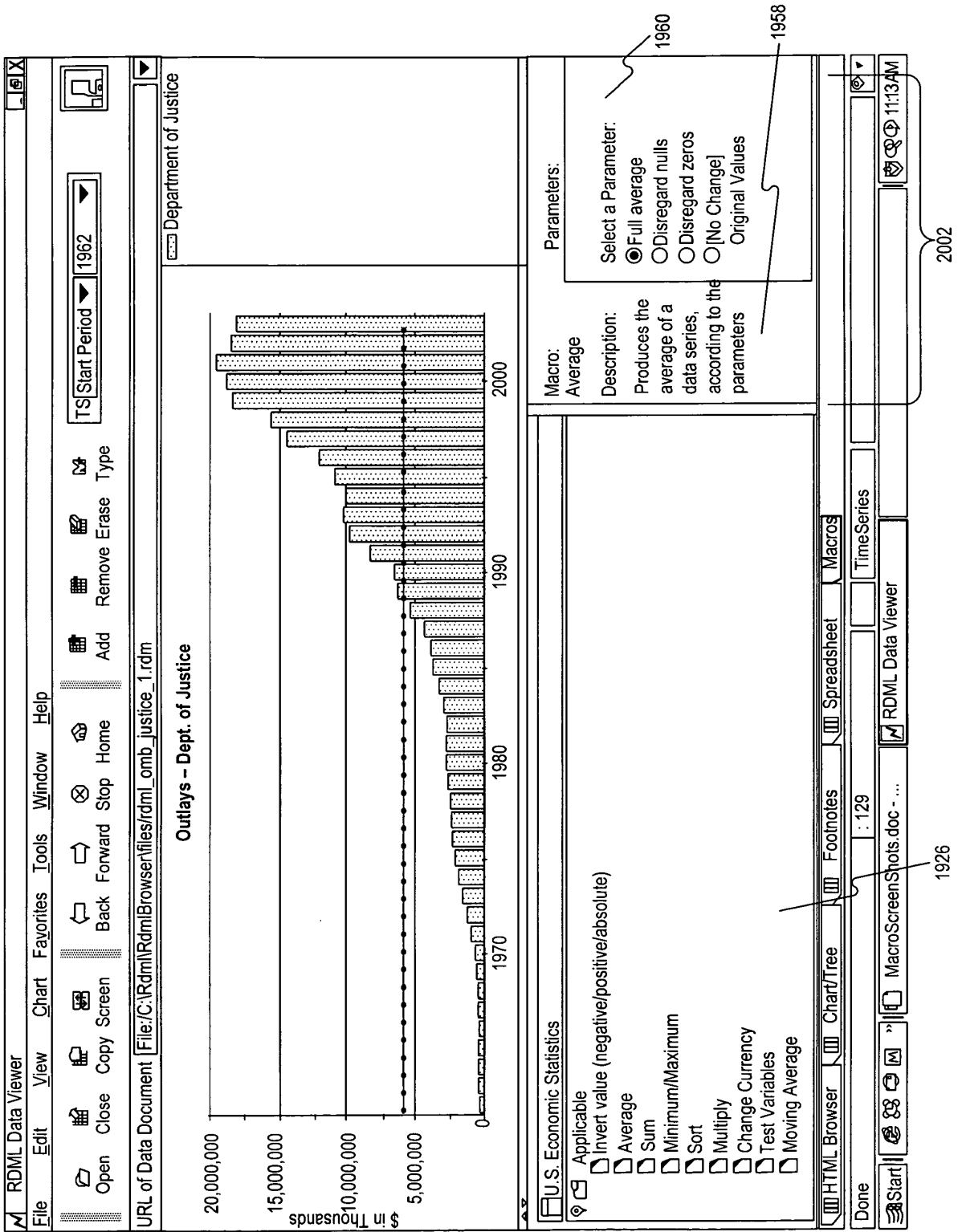


FIG. 20B

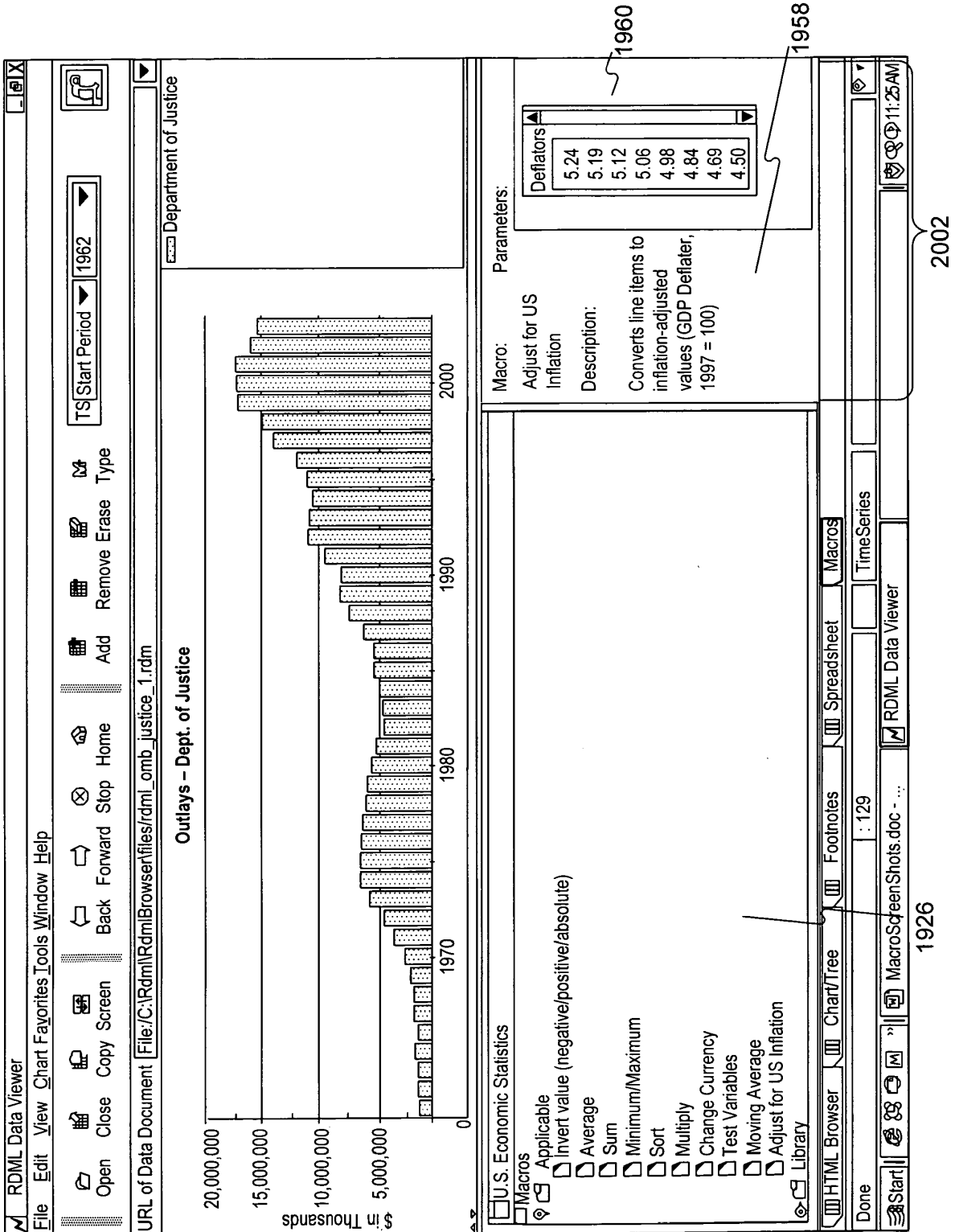


732

1926

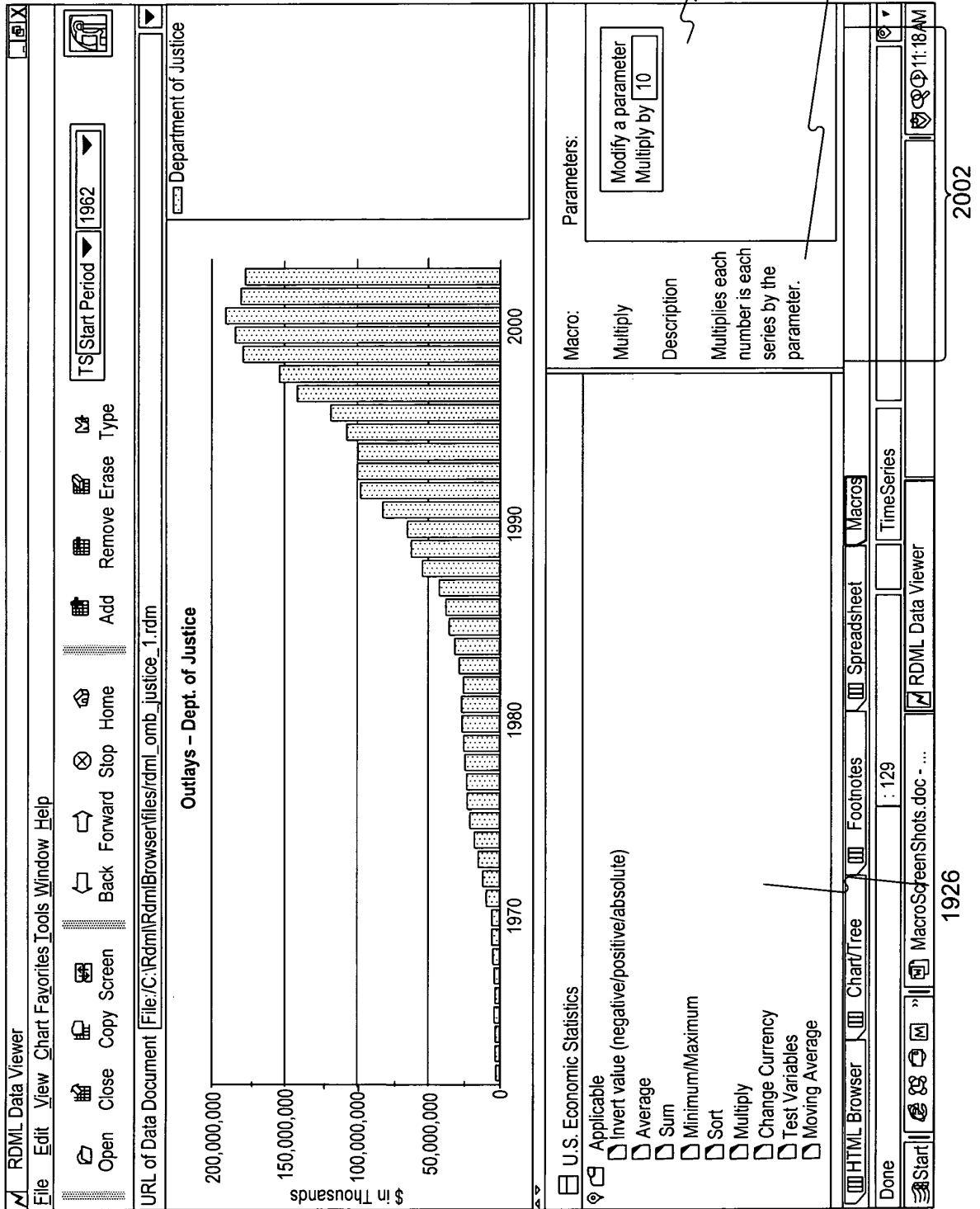
2002

FIG. 20C



732

FIG. 20D



732

1960

1958

2002

1926

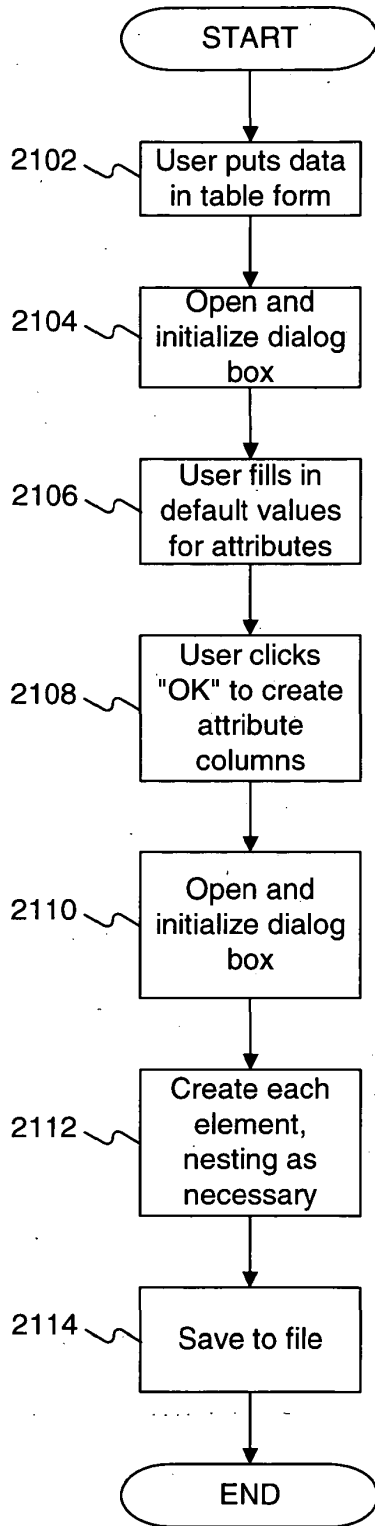


FIG. 21

FIG. 22B

Microsoft Excel - b_84.xls

File Edit View Insert Format Tools Data Window Help

A13 All others

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	ll Legend	1927	1932	1934	1936	1938	1940	1942	1944	1946	1948	1950	1952
2	Total general revenues by source	7271	7267	7678	8395	9228	9609	10418	10908	12356	17250	20911	25181
3	Property taxes	4	RDL Tagging - Add Default Attribute Columns										
4	Sales and gross receipts taxes												
5	Individual income taxes												
6	Corporation net income taxes												
7	Revenue from Federal Govern-me												
8	All other ³												
9	Total general expenditures by fur	7											
10	Education	2											
11	Highways	1											
12	Public welfare												
13	All other ⁴	3											
14													
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Staging / Sheet 1 / Sheet 2 /

Ready

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NUM

History of Government Budgets

Y Axis Title

Format

Footnote

Unit

Magnitude

Source: www.whitehouse.gov

Select One: (Default is blank)

- Currency
- \$US
- Pounds UK
- Yen Japanese
- Length

Millions

OK Cancel Help

2206

FIG. 22C

Microsoft Excel - b_84.xls												
File Edit View Insert Format Tools Data Window Help												
R1 = li_legend												
A	B	C	D	E	F	G	H	I	J	K	L	M
li_ID	li_legend	li_title	li_cat	y_axis_title	level	format	relation	li_notes	li_desc	li_p		
1	Total general revenues by source	History of Government Budgets		\$ in Millions	1	###0;(# ##0)	Parent	Source: www.whitehous				
2	Property taxes	History of Government Budgets		\$ in Millions	1	###0;(# ##0)	Parent	Source: www.whitehous				
3	Sales and gross receipts taxes	History of Government Budgets		\$ in Millions	1	###0;(# ##0)	Parent	Source: www.whitehous				
4	Individual income taxes	History of Government Budgets		\$ in Millions	1	###0;(# ##0)	Parent	Source: www.whitehous				
5	Corporation net income taxes	History of Government Budgets		\$ in Millions	1	###0;(# ##0)	Parent	Source: www.whitehous				
6	Revenue from Federal Government	History of Government Budgets		\$ in Millions	1	###0;(# ##0)	Parent	Source: www.whitehous				
7	All other ³	History of Government Budgets		\$ in Millions	1	###0;(# ##0)	Parent	Source: www.whitehous				
8	Total general expenditures by function	History of Government Budgets		\$ in Millions	1	###0;(# ##0)	Parent	Source: www.whitehous				
9	Education	History of Government Budgets		\$ in Millions	1	###0;(# ##0)	Parent	Source: www.whitehous				
10	Highways	History of Government Budgets		\$ in Millions	1	###0;(# ##0)	Parent	Source: www.whitehous				
11	Public welfare	History of Government Budgets		\$ in Millions	1	###0;(# ##0)	Parent	Source: www.whitehous				
12	All other ⁴	History of Government Budgets		\$ in Millions	1	###0;(# ##0)	Parent	Source: www.whitehous				
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Staging / Sheet 1 / Sheet 2 /												
Ready												
Start Microsoft Visual Basic-Ta... b_84.xls Microsoft Visual Basic-Ta... ScreenShots_Wizard.doc - ... NUM 11:45AM												

Doc Code: PET.GLOSSARY

Document Description: Petition for Glossary Pilot

PTO/SB/436 (05-14)

CERTIFICATION AND PETITION TO MAKE SPECIAL UNDER THE GLOSSARY PILOT PROGRAM		
Attorney Docket Number: ENUM018	Application Number (if known):	Filing date: 2015-05-28
First Named Inventor: Russell T. Davis		
Title: SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT		
APPLICANT HEREBY CERTIFIES THE FOLLOWING AND PETITIONS TO PARTICIPATE IN THE GLOSSARY PILOT PROGRAM FOR THE ABOVE-IDENTIFIED APPLICATION.		
<p>1. This certification and petition is being electronically filed with the non-provisional application using the USPTO electronic filing system (EFS-Web).</p> <p>2. The application is an original non-provisional utility application filed under 35 U.S.C. 111(a) within the duration of the pilot program. The following are excluded from the program: design applications, national stage applications, plant applications, PCT international applications, provisional applications, reissue applications, and reexamination proceedings.</p> <p>3. The application cannot claim the benefit of a prior U.S. application except a provisional application, unless the application is a continuation-in-part application. All benefit claims are included in an application data sheet (see 37 CFR 1.76 and 1.78), and the applicable box is checked below:</p> <p><input type="checkbox"/> a. This application does not directly claim the benefit of any prior U.S. application. --- OR ---</p> <p><input type="checkbox"/> b. This application directly claims the benefit of a provisional application filed within the previous 12 months. --- OR ---</p> <p><input checked="" type="checkbox"/> c. This application is a continuation-in-part application claiming the benefit of one or more prior U.S. or PCT international applications.</p> <p>4. The application can claim priority to a foreign application, and all priority claims are included in an application data sheet (see 37 CFR 1.76 and 1.78). The applicable box is checked below:</p> <p><input checked="" type="checkbox"/> a. This application does not claim priority to a foreign application. --- OR ---</p> <p><input type="checkbox"/> b. This application claims priority to one or more foreign applications. Copies of the foreign applications are being submitted herewith. If any of the foreign applications is not in the English language, an English-language translation of such foreign application is submitted herewith.</p> <p>5. The application contains, or is amended to contain, at least one claim but no more than four (4) independent claims and thirty (30) total claims.</p> <p>6. The application does not contain any multiple dependent claims.</p> <p>7. By filing this certification and petition, applicant certifies that the application contains a glossary section in the Detailed Description, and that the glossary section meets all of the eligibility requirements for expedited examination until the first Office action under the Glossary Pilot Program. See Instruction Sheet.</p>		
Signature /Thomas D. Fortenberry/	Date 05-28-2015	
Name (Print/Typed) Thomas Fortenberry	Registration Number 56537	
Note: This form must be signed in accordance with 37 CFR 1.33. Please see 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required - see below*.		
*Total of <u>1</u> forms are submitted.		

Doc Code: FAI.REQ

Document Description: Request First Action Interview

PTO/SB/413C (05-11)

Approved for use through 01/31/2013. OMB 0651-0031

U.S. Patent and Trademark Office; U. S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REQUEST FOR FIRST ACTION INTERVIEW (FULL PILOT PROGRAM)

Attorney Docket Number: ENUM018	Application Number (if known):	Filing date: 2015-05-28
--	--------------------------------	--------------------------------

First Named Inventor: Russell T. Davis	Title: SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
---	---

APPLICANT HEREBY REQUESTS A FIRST ACTION INTERVIEW IN THE ABOVE-IDENTIFIED APPLICATION. See Instruction Sheet on page 2.

1. The application must contain three (3) or fewer independent claims and twenty (20) or fewer total claims.

2. The application must not contain any multiple dependent claims.

3. By filing this request:

Applicant is agreeing to make an election without traverse if the Office determines that the claims are not obviously directed to a single invention; and

Applicant is agreeing not to request for a refund of the search fee and any excess claims fee paid in the application after the mailing or notification of the pre-interview communication prepared by the examiner.

4. Other attachments: _____

Signature /Thomas D. Fortenberry/	Date 05-28-2015
--	------------------------

Name (Print/Typed) Thomas D. Fortenberry	Registration Number 56537
---	----------------------------------

Note: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

*Total of 1 forms are submitted.

The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Instruction Sheet for Request for First Action Interview (Full Pilot Program)
(Not to be Submitted to the USPTO)

A grantable request must meet the following conditions:

1. The application must be a new non-reissue utility application filed under 35 U.S.C. 111(a) or an international application that has entered the national stage in compliance with 35 U.S.C. 371(c).
2. The application must contain three (3) or fewer independent claims and twenty (20) or fewer total claims. The application may not contain any multiple dependent claims.
3. The request must be filed electronically using the Office's electronic filing system, EFS-Web.
4. The claims must be directed to a single invention. If the Office determines that the claims are directed to multiple inventions (e.g., in a restriction requirement), the applicant must make an election without traverse.
5. The request must be filed at least one day before a first Office action on the merits of the application appears in the Patent Application Information Retrieval (PAIR) system (i.e., at least one day prior to the date when a first Office action on the merits, notice of allowability or allowance, or action under Ex parte Quayle, 1935 Dec. Comm'r Pat. 11 (1935) appears in the PAIR system). Applicant may check the status of the application using the PAIR system.
6. The request for a first action interview must include a statement that applicant agrees not to file a request for a refund of the search fee and any excess claims fees paid in the application after the mailing or notification of the Pre-Interview Communication. Any petition for express abandonment under 37 CFR 1.138(d), and request for a refund of the search fee and any excess claims fees, filed after the mailing or notification of the Pre-Interview Communication will not be granted.

For more information, see notice "Full First Action Interview Pilot Program" available on the USPTO web site at http://www.uspto.gov/patents/init_events/faipp_full.jsp

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Doc Code: FAI.REQ

Document Description: Request First Action Interview

PTO/SB/413C (05-11)

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U.S. Patent and Trademark Office; U. S. DEPARTMENT OF COMMERCE

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REQUEST FOR FIRST ACTION INTERVIEW (FULL PILOT PROGRAM)

Attorney Docket
Number:

ENUM018

Application Number
(if known):

Filing date:

2015-05-28

First Named
Inventor:

Russell T. Davis

Title: SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT

APPLICANT HEREBY REQUESTS A FIRST ACTION INTERVIEW IN THE ABOVE-IDENTIFIED APPLICATION. See Instruction Sheet on page 2.

1. The application must contain three (3) or fewer independent claims and twenty (20) or fewer total claims.
2. The application must not contain any multiple dependent claims.
3. By filing this request:

Applicant is agreeing to make an election without traverse if the Office determines that the claims are not obviously directed to a single invention; and

Applicant is agreeing not to request for a refund of the search fee and any excess claims fee paid in the application after the mailing or notification of the pre-interview communication prepared by the examiner.

4. Other attachments: _____

Signature /Thomas D. Fortenberry/

Date 05-28-2015

Name
(Print/Typed) Thomas D. Fortenberry

Registration Number 56537

Note: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.



*Total of 1 forms are submitted.

The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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UNITED STATES PATENT APPLICATION

OF

RUSSELL T. DAVIS

FOR

**SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR
PROCESSING A MARKUP DOCUMENT**

**SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR
PROCESSING A MARKUP DOCUMENT**

RELATED APPLICATIONS

This application is a continuation-in-part (for the purposes of providing a glossary in accordance with the Glossary Pilot Program) of application Ser. No. 12/222,751, filed August 15, 2008 which, in turn, is a divisional of application Ser. No. 09/573,778, filed May 18, 2000, now U.S. Pat. No. 7,421,648, which, in turn, claims priority to Provisional U.S. Patent Application No. 60/135,525, filed on May 21, 1999, and Provisional U.S. Patent Application No. 60/183,152, filed on Feb. 17, 2000, which are all incorporated herein by reference.

The following identified U.S. patent applications are also relied upon and are incorporated by reference in this application.

U.S. patent application Ser. No. 09/573,780 (now U.S. Pat. No. 7,650,355) entitled "Reusable Macro Markup Language," filed on May 18, 2000.

U.S. patent application Ser. No. 09/573,419 (now U.S. Pat. No. 7,249,328), entitled "Tree View for Reusable Data Markup Language," filed on May 18, 2000.

U.S. patent application Ser. No. 09/573,413 (now U.S. Pat. No. 6,920,608), entitled "Chart View for Reusable Data Markup Language," filed on May 18, 2000.

FIELD OF THE INVENTION

The present invention relates generally to data processing systems and, more particularly, to a computer markup language for use in a data browser and manipulator.

SUMMARY

A system, method, and computer program product are provided for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure. The first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure. At least a portion of the numerical values of at least one of the first markup document or the second markup document are automatically transformed, so that the at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure. Further, at least a part of the first markup document and at least a part of the second markup document are processed, resulting in a single markup document, for display.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 depicts a high level diagram of a Reusable Data Markup Language (RDML) data viewer, its inputs and outputs in accordance with methods and systems consistent with the present invention;

FIG. 2 depicts a data processing system suitable for use with methods and systems consistent with the present invention;

FIG. 3 depicts a diagram of the interrelation of various RDML software and hardware components shown in FIG. 2;

FIG. 4 depicts the use of an RDML formatter shown on FIGS. 2 and 3 to add markup tags to data;

FIG. 5 depicts a screen shot of a database/document tab and management screen of the RDML formatter depicted in FIGS. 2 and 3;

FIG. 6 depicts a flowchart of the steps performed when accessing the RDML document server depicted in FIGS. 2 and 3;

FIG. 7A depicts internal architecture of the RDML data viewer depicted in FIGS. 2 and 3;

FIG. 7B depicts a legend of the meaning of the symbols depicted in FIG. 7A;

FIG. 8 depicts a flowchart of the steps performed by the RDML data viewer in a method for downloading, processing and displaying an RDML document in accordance with methods and systems consistent with the present invention;

FIG. 9 illustrates elements of an RDML Document Type Definition in accordance with

methods and systems consistent with the present invention;

FIG. 10 depicts a flowchart of steps used to automatically manipulate an RDML document for display using line item attributes in accordance with methods and systems consistent with the present invention;

FIG. 11 depicts a flowchart of the steps performed by the x-value transformer depicted in FIG. 7A to store a new document in the primary data store;

FIGS. 12A-12C depicts X-Y plots and tree views in accordance with methods and systems consistent with the present invention;

FIG. 13 depicts a primary data store of the RDML data viewer as shown in FIG. 7A;

FIGS. 14A-14F depict a chart view and tree view of the RDML data viewer as depicted in FIG. 7A in accordance with methods and systems consistent with the present invention;

FIGS. 15A-15C depict flowcharts of the steps performed by a graphical user interface, chart manager and chart data object for adding a line item to a chart view upon selection of the line item in a tree view in accordance with methods and systems consistent with the present invention;

FIG. 16 depicts a spreadsheet view and a chart view of the data viewer in accordance with methods and systems consistent with the present invention; and

FIG. 17 depicts a footnote view of the data viewer and a chart view in accordance with methods and systems consistent with the present invention;

FIG. 18 illustrates elements of a Reusable Macro Markup Language (RMML) Document Type Definition in accordance with the present invention;

FIGS. 19A-19C depict RMML document handling, an RMML graphical interface, and an RMML macro interpreter, respectively, in accordance with the present invention;

FIGS. 20A-20D illustrates screen shots of RMML macro panels in accordance with the present invention.

FIG. 21 shows a flowchart illustrating steps used in a method for tagging information from spreadsheets in accordance with the present invention; and

FIGS. 22A-22D depicts exemplary screen shots of the tagging of spreadsheet information tagging to create a document in accordance with the present invention.

DETAILED DESCRIPTION

GLOSSARY

HTML = HyperText Markup Language

Measurement = characteristics necessary to describe the measurement aspects of the domain the number is taken from

Structure = structuring of the data in within a table

Tagging = adding metadata

RDML = Reusable Data Markup Language

XML = Extensible Markup Language

Methods and systems in accordance with the present invention provide a markup language, referred to as Reusable Data Markup Language ("RDML"), that permits the browsing and manipulation of numbers and provide a related data viewer that acts as a combination Web browser and spreadsheet/analytic application that may automatically read numbers from multiple online sources and manipulate them without human intervention. Using the markup language, users may browse online sources using numerical-based queries, and the data viewer may automatically combine and manipulate multiple documents on a single display.

In accordance with an implementation consistent with the present invention, a method in a data processing system is provided that receives a first markup document and a second markup document, both the first markup document and the second markup document containing numerical values and tags reflecting characteristics of the numerical

values. The method automatically combines the first markup document and the second markup document into a single data set and displays the single data set.

In accordance with another implementation, a method in a data processing system is provided that receives a document containing numerical values, and receives indications of characteristics of the numerical values, the characteristics including a unit and a magnitude. Further, it adds the received indications into the document as tags associated with the numerical values to create a markup document.

In accordance with yet another implementation, a method in a data processing system is provided that receives a markup document having a set of numerical values and tags indicating characteristics of the numerical values and determines a transformation for the set of numerical values to reflect new characteristics. The method then accesses a plurality of the tags of the set of numerical values, the plurality of the tags indicating magnitude, scale, modifier, units, measure, adjustment and aggregation. Furthermore, the method determines conversion factors for the magnitude, scale, modifier, units, measure, adjustment and aggregation tags to accomplish the transformation to the new characteristics and multiplies the set of numerical values by the determined conversion factors to transform the set of numerical values to reflect the new characteristics.

Methods and systems in accordance with the present invention provide a chart view that automatically manipulates and graphically displays numerical data. The manipulation and display is based on attributes associated with the numerical data describing characteristics of the numerical data. The chart view facilitates the simultaneous display of different series of numerical values of different types on a single chart and automatically displays appropriate descriptive textual components (e.g., axis

labels, axis titles, chart titles, number precision, legends, footnotes, axis scales, etc.) The chart view allows single click transformations of series of numerical values and provides automatic formatting of descriptive textual components in response.

In accordance with an implementation of the present invention, a method in a data processing system having a display showing a chart is provided that receives a series of numerical values with tags indicating characteristics of the numerical values and displays the numerical values on the chart. Further, the method automatically determines a title for the numerical values based at least one of the tags and displays the determined title on the chart.

In accordance with another implementation of the present invention, a method in a data processing system having a display showing a chart is provided that receives a first series of numerical values having tags indicating characteristics of the numerical values and displays the first series of numerical values on the chart, the first series of numerical values corresponding to a first axis on the chart. The method further receives a second series to be added to the chart, the second series of numerical values having tags indicating characteristics of the second series of numerical values and automatically generates a second axis on the chart. Finally, the method displays the second series of numerical values on the chart corresponding to the second axis while the first series is displayed on the chart.

In accordance with yet another implementation of the present invention, a method in a data processing system having a display showing a chart is provided that receives an instruction to display a series of numerical values on the chart on the display, the numerical values having tags indicating characteristics of the numerical values, and

displays the series of numerical values on the chart in response to the received instruction. The method then automatically formats the chart based on at least one of the tags in response to the received instruction.

In accordance with another implementation of the present invention, a data processing system is provided comprising a memory storing a charting application configured to manipulate and display numerical data, the memory having a selected series of numerical values having a tag indicating text information associated with the numerical values. The data processing system further comprises a display showing a chart having a legend that displays the text information associated with the selected series of numerical values. The legend word-wraps and scrolls the text information associated with the series of numerical data when the text information does not fit on the legend on the chart. The system further comprises a processor for running the charting application.

Methods and systems in accordance with the present invention provide a tree view that automatically manipulates and graphically displays numerical data. The tree view facilitates the simultaneous display of different series of numerical values of different types on a single display and automatically displays descriptive textual components. The tree view allows single click transformations of series of numerical values and provides automatic formatting of descriptive textual components in response. It further visually displays the relationship between series of numerical data for a user while supplying the user with hyperlinks associated with a given series of numerical data.

In accordance with an implementation of the present invention, a method in a data processing system is provided that receives a first and a second series of numerical values, and determines the relationship between the first and second series of numerical

values. The method then displays an icon depicting the relationship between the first and second series of numerical values based on the determined relationship.

In accordance with another implementation of the present invention, a method in a data processing system is provided that receives a series of numerical values and a link associated with the series of numerical values, the link having a list of associated hyperlinks. The method displays the series of numerical values and the associated link, and receives an instruction to activate the link. Further, the method displays the list of hyperlinks associated with the link in response to the received instruction.

In accordance with yet another implementation of the present invention, a method in a data processing system having a display showing a chart is provided that receives a series of numerical values having associated metadata documentation. The method further receives an instruction to select the series of numbers and displays the series of numerical values on the chart while displaying the metadata documentation associated with the series of numerical values.

In accordance with another implementation of the present invention, a data processing system is provided that comprises a memory having a program for manipulating numerical values, and storing a first series of numerical values and a second series of numerical values. The data processing system further comprises a display that displays the first and second series of numerical values and a relationship icon depicting the relationship between the first series of numerical values and the second series of numerical values. Finally, the data processing system further comprises a processor for running the program.

Methods and systems in accordance with the present invention provide a markup language, referred to as Reusable Macro Markup Language ("RMML"), for producing and utilizing macros which are reusable numerical analysis routines which can be written quickly, cheaply, and in a form usable by a broad range of data documents in RDML, the platform upon which the macros are run.

RMML allows reusable spreadsheet type macros to be posted as web documents, to be searched by search engines, to be combined into more complex programs, and to be reused with many data documents. RMML brings to spreadsheet manipulation routines the economic and productivity benefits of (1) standardization, (2) interchangeable parts, (3) specialization and assembly-line techniques in creation, and (4) economies of scale in creation and deployment. In addition, RMML brings to spreadsheet macros and numerical programming, some of the benefits of the World Wide Web: (1) widespread accessibility on demand, (2) ability to search for documents (in this case, search for capabilities and behavior of routines instead of text or data), and (3) the ability to hyperlink documents (including the ability of macros to call each other remotely).

In accordance with an implementation of the present invention, a data processing system method is provided that receives a macro defined to perform an operation on a series of numerical values and receives a series of numerical values having tags indicating characteristics of the numerical values. The method then performs an operation defined by the macro on the series of numerical values using the indicated characteristics.

In accordance with another implementation of the present invention, a data processing system method is provided that receives a macro defining an operation on a set of numerical values and receives a vector or matrix of numerical values. The method

then performs an operation defined by the macro using the vector or matrix as a variable in the operation.

In accordance with yet another implementation of the present invention, a data processing system is provided that includes a memory containing a numerical analysis program having a macro defined to perform an operation on a series of numerical values, and a series of numerical values having tags indicating characteristics of the numerical values. It further comprises a processor for running the program such that the program performs an operation defined by the macro on the series of numerical values using the indicated characteristics, and a display for displaying results of the operation.

Because of the length of the detailed description, the following table of contents is provided.

<u>Topic</u>	<u>Section</u>
Reusable Data Markup Language Overview	I
Reusable Macro Markup Language Overview	I.A
System Hardware Components	II
System Overview	III
System Details	IV
Internal Data Viewer Architecture	IV.A
Document Type Definition	IV.A.1
Reader, Parser and Processor	IV.A.2
X-value Transformer and Line Item Set Types	IV.A.3
Primary Data Store	IV.A.4
Chart View	IV.A.5
Tree View	IV.A.6
Spreadsheet View	IV.A.7
Footnote View	IV.A.8
Tagging Wizard	IV.A.9
Aspects of RDML Documents	IV.A.IO
Graphical User Interface and HTML browser	IV.B
Reusable Macro Markup Language	IV.C
RMML Macro Package	IV.CI

I. RDML Overview

Methods and systems consistent with the present invention provide a markup language, referred to as Reusable Data Markup Language ("RDML"), and a data viewer referred to as the RDML data viewer that is used to retrieve, manipulate and view documents in the RDML format. Generally, RDML permits the browsing and manipulation of numbers, and allows the viewer to act as a combination Web browser and spreadsheet/analytic application that may automatically read numbers from multiple online sources, understand their meaning, and manipulate them without human intervention. The RDML data viewer may use the Internet to obtain requested sets of numbers like HTML does for text. Using RDML, it is possible to form a search on the Internet that is a true query of numbers. One such request is the creation of a list of quarterly revenues from 1996 to 1997 pertaining to companies with sales growth greater than 10 percent and no taxable income. After receiving any requested sets of numerical data, the data viewer may automatically transform and combine them even if they are in different formats (i.e., one in thousands of U.S. dollars and another in hundreds of French francs) on a single graphical display without requiring the user to make manual adjustments. The user may then make single-click adjustments to the display (e.g., adjust for inflation, currencies, time periods, number precision, etc.) to see different aspects of the

received information. RDML generally facilitates numerical browsing by associating numbers with attributes describing the meaning of the numbers.

Although the preferred embodiment of RDML is a markup language that is a fully compliant implementation of XML version 1.0, other implementations are possible. XML is described in detail in "XML Bible," Elliotte Rusty Harold, IDG Books Worldwide, 1999, which is incorporated herein by reference. The RDML data viewer is a data browser, data manipulator, data viewer (in the form of charts, spreadsheets, etc.) and general user interface for data documents. It greatly extends the capabilities provided by current spreadsheet and database management programs. In addition to extended capabilities, it lowers costs to businesses by permitting efficient reuse of data, functions, and report formats.

The RDML data viewer works with RDML-formatted data documents, which are files that may be stored locally, over a network, including the Internet, or in any combination of sources. The structure of the RDML data files allows the RDML data viewer to act as a combination browser and analytic program, such as a spreadsheet, which can automatically read, interpret and manipulate numbers in its integrated analytic program. The RDML data viewer also provides a "macro" development and management scheme which allows users to create custom routines for the manipulation, transformation and display of RDML-formatted data. Macros and related aspects are described in greater detail below.

Figure 1 depicts a high-level diagram of an RDML data viewer 100, its inputs and its outputs in accordance with methods and systems consistent with the present invention. Generally, data viewer 100 may be software that resides in the memory of a computer and accepts several types of input 102, 104 and 106, one of which is the RDML data document 102. The RDML data document 102 may be an ASCII text document formatted with RDML tags which are compliant with XML

version 1.0. In one implementation consistent with the present invention, the tags of an RDML data document 102 are advantageously structured to include documentation of the data and arrange data in "line items," a collection of data values that is similar to a "record" or "row" in a relational database (discussed below). In RDML, the line item is generally the basic unit of calculation, as opposed to a single data value or cell as is typical with most conventional databases or spreadsheets. RDML documents 102 contain sets of line items, such sets being analogous to "tables" in relational databases, and documentation ("metadata") regarding the "line item sets." The RDML data document 102 is read by the RDML data viewer 100 which stores the data internally, making it available to a number of "views" 108, which present the data in different ways (charts, tables, etc.) to a user (not shown). The views 108 are also referred to as programs or applications, as they can be standalone software programs that receive their data from the RDML data viewer 100.

Analysis routines can be developed for data and placed in their own documents referred to as Reusable Macro Markup Language ("RMML") Macro Documents 104 which are another input to the data viewer 100 and are optional. These routines are reusable; they can be applied to virtually any data document meeting the requirements set forth in the RMML document 104. For example, an RMML document 104 may contain routines for converting RDML data to different currencies, and any data denominated in currency can use the RMML currency conversion macro. The preferred embodiment of RMML is also a fully compliant implementation of XML version 1.0, although other embodiments are possible.

Similarly, Reusable Data Style Language ("RDSL") style sheets 106, another optional input to the data viewer 100, can be applied to data documents to create specially-formatted output reports. A RDSL is a fully compliant implementation of Extensible Style Language ("XSL") which is described in detail in "XML Bible," Elliotte Rusty Harold, IDG Books Worldwide, 1999. These

RDSL documents 106 are XSL-compliant style sheets which essentially act as report writers for RDML data documents 102. A typical use would be for data documents containing corporate financial statements. A single RDML data document 102 may contain a set of financial statements, but several different style sheets could be applied: one to show the data in annual columns, one to show it in a quarterly breakdown, one to show it in European format, and so forth. The RDML data viewer 100 automatically combines data documents 102 and style documents 106 to create reports.

RDML dramatically reduces the expense, time, and complexity of data manipulation by addressing the aforementioned problems of documentation of data, non-standardization of analytic routines, and low conceptual-level calculations of data. RDML addresses the problem of the separation of data and its documentation by encapsulating data and its documentation together in machine-readable form that can be used interactively. This differs from the approach of conventional relational databases in which data is kept in the computer and the documentation typically kept in a three-ring binder or other printed document. The separation of data and its documentation often ensures the need for high-priced database programmers every time the data must be accessed, used or transferred. Documentation in RDML also differs from that of spreadsheets, which tend to be personal in that the documentation is in the head and personal notes of the creator. In one implementation consistent with the present invention, RDML encapsulates machine-readable documentation with the data. The data and its documentation (metadata) are used together by the data viewer 100 to interpret what the numbers mean, how they are to be used, and how they are to be displayed. The small up-front investment in refining the raw data pays off in the lessened need for human labor to access and reuse the data in the future. RDML incorporates several important types of metadata: sources, contacts, license requirements, expirations and update information, data types, data classes, handling instructions (*e.g.*, what to do with nulls, missing

values, etc.), units and measurements, and other information needed to produce the various presentations.

Use of RDML addresses the problem of non-standardization by defining standards for both data characteristics and analytic routine interfaces. Standardization leads to component reuse, automation of production, and more rapid development of product enhancements. While the computer industry has developed standards for file formats and function-level interfaces, it has not developed general data format or content-analysis standards. For example, once data is input to an application (whether spreadsheet, database or other), the user may want to manipulate the data and see basic statistics for the different line items (sums, averages, % changes, variances, and so forth), adjustments for standard changes (adjustments for inflation, conformance to industry indexes, % of stock market averages, etc.), or standard ratios (debt/equity, price/earnings, etc.) Because there is neither a standard general data format, nor a standard analytic routine interface, users currently create each of these manipulation routines from primitive coding. In spreadsheets, they must input formulas and conversion factors number by number, and in databases, they must write SQL queries or other programming routines to manipulate the data.

RDML provides both the data standard and the function interface for manipulation routines. This means that a routine can be written to apply to any line item that meets the conditions it imposes, and these routines are reusable. Currently, conventional spreadsheet macros (one analogue to RDML macros 104) are typically only used in the spreadsheet for which they were designed. The macros cannot typically be used in another spreadsheet where the numbers may be in different cells or in different units. RDML macros 104 are not dependent on cell position, or human intervention to conform data: they can be directly used by others for other data sets. If a user writes a routine

which, for instance, calculates and graphs a moving average of a time series, it can be used by any time series in any RDML document 102.

While solving documentation and standardization problems, use of RDML also addresses the problem of calculations occurring at too low a conceptual level by creating data "objects" at the line item and document levels, whereas conventional spreadsheets operate only at the cell (single number) level. For instance, calculations that may be common to a set of data, *i.e.*, a line item, may operate more efficiently because they can be applied once, as opposed to being applied individually to many different single numbers or cells. Furthermore, analytic routines (macros) can be combined, applied successively, or used by inheritance to create new routines. The line item orientation dramatically reduces the number of formulas that need to be written (one per line instead of one per number). It also increases the readability of program code, because the user can review the logic at a higher level of abstraction.

In addition to solving these problems, RDML reduces costs, time, and complexity for operations on the side of the data consumer, the data publisher and the program developer. To utilize and manipulate data, typically, a user retrieving data over the Internet views a text version of the data, prints the data (in HTML, ASCII or PDF format), and then types the numbers into a spreadsheet or database program. The RDML data viewer 100 automates this process by making the data immediately available to other programs as interpretable data: the user does not need to retype it. Upon locating numerical sets of data from multiple online sources, the data viewer 100 automatically normalizes, collates, transforms, and formats the data.

Some conventional systems make data available for download as data in either a common spreadsheet format (such as Lotus or Excel), or in a comma-delimited or other common text format. This at least saves the user the necessity of retyping certain numbers, but creates a new problem of manipulating the data to get it into a more usable form (*e.g.*, normalized, standardized).

As such, RDML (and its related data viewer) "normalizes" data for added efficiency. Normalizing data is primarily a matter of conforming key fields, including matching dissimilar fields, resolving conflicts in categories, resolving the handling of duplicates, etc. In order to be useful, data should be conformed to a format that can be read by an application (such as a graphing routine, or calculation routine). For example, the application may expect data aggregated by year, whereas the incoming data may be aggregated by month. The user must manipulate the input to make it conform to the form expected by the application. RDML performs these tasks automatically, using embedded documentation regarding the input data to make any necessary conforming changes to the input. In the time series example above, RDML would aggregate the monthly data into yearly data, using embedded documentation to determine whether the aggregation should be a sum, an average, etc.

Additionally, comparing data is a primary use of spreadsheets. Examples include comparing the financial statements of different companies, comparing the statistics from different states, and comparing different economic time series. When these data categories come from different sources, they are usually not directly compatible: the user must lay out the data items on a spreadsheet or similar program in a manner similar to assembling a jigsaw puzzle. As with normalization, RDML uses documentation embedded in the various input files to determine how different line items and values should be collated.

Once data is normalized and collated, the RDML data viewer 100 transforms the data automatically. Conventionally, users typically make a series of adjustments to the numbers in the data set. The input data may be, for example, denominated in "millions of dollars," while output is desired in "billions of yen." RDML provides a set of indicators for the most common transformations, permitting automatic machine translation of the numbers from their input state to the state desired by the user.

A conventional method of formatting data for output on a PC is to cut-and-paste the data to a formatting application (word processor, graph generator, spreadsheet or other), and then mark up the data to change the format to the desired output. This is time consuming and not repeatable - if the data is input again with a slight change, the whole formatting process must be repeated. The RDML data viewer 100 avoids the cut-and-paste approach by saving the original data in a central storage object (described below) in the data viewer 100 and applying separate formatting instructions to create different views 108. The user can switch among views 108 with a single mouse click and the program handles all format and numerical conversions for the user.

In some of the more advanced database management systems, a "report-writer" approach is used. Like the RDML data viewer 100, this approach applies a template to a centrally stored dataset. The problem is that the data sets are not standardized; a report writer template written for one dataset cannot typically be used for another. RDML, however, provides for reuse of style sheets in the same manner it provides reuse of data and macros.

In addition to the above-mentioned problems, RDML solves problems relating to "live" connections of numerical data involving multiple sources that typically require programming expertise. Whether the aim is to draw numbers from multiple sources over a wide area network (*e.g.*, the Internet) or over a corporate LAN, incorporating remote data is complicated by many issues:

connection protocols, programming language dependencies, data type inconsistencies, error handling, data transformations, etc. Programmers can surmount these problems at a certain expense, but not in a flexible way that permits reuse, and users again rely on custom programming. In response to the cost, time requirements, and inflexibility of the custom programming approaches, casual users resort to labor-based solutions. In a typical case, a financial spreadsheet is created with, for example, ten assumptions related to interest rates. Every time the spreadsheet is used, the creator looks the numbers up in the newspaper and types the results into the appropriate cells, and any necessary transformations are made by hand. RDML removes the need for custom programming and manual input by providing a way to include numbers from remote RDML documents 102 in normal formulas. The RDML data viewer 100 automatically looks to the specified address on the web to retrieve the numbers, makes any necessary transformations (for example, from yen to current dollars) and places the result in the correct formula. In this way, an RDML document 102 or macro 104 can draw on multiple documents at once. Because its documentation is machine-readable, it can be read by multiple systems, none of which need be aware of the physical layout or data types of the others.

Lastly, the use of RDML enables client-side processing using Internet-supplied data thereby realizing a number of advantages. After data is retrieved, analytic routines (macros) are performed on the client side, as opposed to the conventional approach in web-based data analysis, in which the analytic routines are performed on the server side. Whereas sensitive data and calculations can remain local in the RDML data viewer 100, the user need not fear that sensitive data is being misused by a company running a server, or that data is being misappropriated over the web. Additionally, it increases speed because updates to graphs, reports and spreadsheets can be near instantaneous because there is no need for the round-trip Internet transmission, or the loading and

execution of a routine on a busy server. Users may also prefer local copies of data that they control and to which they have immediate access.

I.A. RMML Overview

Methods and systems in accordance with the present invention provide macros and RMML, which allow numerical analysis routines to be written quickly, cheaply, and in a form that is usable by a broad range of data documents in RDML. RMML macros provide reusable user-defined calculations for use in conjunction with RDML that automatically manipulate and display numerical data contained in RDML markup documents. RMML also allows spreadsheet type macros to be posted as web documents, to be searched by search engines, to be combined into more complex programs, and to be reused with many data documents.

For example, a user viewing a chart having a series of data in an RDML data viewer may apply, with one mouse click, a macro to that chart and see an instantaneous (or nearly instantaneous) transformation of the charted series of data. Not only is the data changed, but the titles, legends, footnotes, axis scales and other properties are also changed. As a further example, a user may be looking at a time series trend of automobile sales in millions of dollars. By clicking on a macro entitled "% change", the chart recalculates itself according the percentage change from period to period. The y-axis title changes from "\$ millions" to "% annual change", etc. Table manipulation macros may perform such functions as combining two tables into one, sorting a table, searching for certain line items and other database-like tasks. Other transformation macros may perform other functions such as word translation, data format translation, and report-writing.

RMML macros are highly reusable because they are made available in a cross-platform, text-based, searchable, XML-compliant format. Because the macros are portable, they have much greater

marketability. RMML also builds into its language tags for many types of documentation so that a macro may be reused and understood by the original macro writer as well as other users.

Conventional spreadsheet programs typically base references on physical locations, a problem RMML avoids by referring to numbers by their position in a chart or formula, or by tag names, thus allowing the numbers themselves to be anywhere in a document. RMML macros also use the measurement and the meaning of numbers because RDML tags contain standard vocabularies to identify the measure, magnitude, scale, unit, precision, class, etc. of the numbers, and the RMML interpreter handles differences for the user.

Additionally, RMML builds error handling into its interpreter and makes available automated testing tools to help increase the quality of the code. Users may also graphically change parameters for the macros using check boxes, slider bars, input boxes, and selection lists, and RMML makes it easy for the author of a macro to add those visual components.

Below is a detailed description of RDML, the platform upon which RMML macros run, followed by a detailed description of RMML.

II. System Hardware Components

Figure 2 depicts a data processing system 200 that is suitable for use with methods and systems consistent with the present invention. Data processing system 200 comprises a computer 201 and a server computer 203 interconnected via a network 214, such as the Internet, where the server computer 203 may provide RDML documents 102 to computer 201. Computer 201 includes a central processing unit (CPU) 202, a main memory 204, a secondary storage device 206, a display 210 and an input device 212.

The main memory 204 may include the RDML data viewer 100 which may be a personal computer-based program, although one skilled in the art will appreciate that the data viewer may reside elsewhere. In addition to the data viewer 100 which includes views 108 for display, the main memory 204 includes related software components that may be used to input RDML documents 102, macro documents 104, and style sheets 106 to the data viewer. It may include the RDML document formatter 216 which a user uses to apply tags to numerical data, and/or an RDML document server 218 which provides RDML documents 102 to the data viewer 100. The main memory 204 may also comprise an RDML document editor 220 used to edit the files of RDML documents 102 and RDSL style sheet editor 222 for creating style sheets 106. The RDML/XML search engine 224, which searches RDML documents in response to queries, may also reside in memory 204 along with any additional plug-in applications 225. Each of these components and their interactions are described below in greater detail.

The memory 204 may include various software components of the data viewer 100 and related components which may be programmed in object-oriented languages such as the Java™ programming language. The Java™ programming language is described in further detail in "The Java Programming Language," 2nd Ed., Ken Arnold, James Gosling, Addison-Wesley, 1998, which is incorporated herein by reference. For further description of the Java Language, reference should be made to "The Java Language Specification," James Gosling, Bill Joy, Guy Steele, Addison-Wesley, 1996 which is also incorporated herein by reference. However, one skilled in the art will appreciate that other programming languages may be used. The RDML data viewer 100 may download RDML data documents 102 from many different sources such as a local storage disk or from a server over network 214.

The secondary storage 206 may include the RDML image database 226 which stores documentation tag data regarding RDML document 102, and the RMML macro software development kit 228 for developing macros. The secondary storage may also store existing databases 230 for holding original data from which RDML documents 102 are created. These components may also be stored in main memory or on another remote computer and are also described in greater detail below.

Figure 2 also depicts a web server 232 on computer 203 that interacts with the computer 201 via network 214. In one system consistent with the present invention, the web server 232 sends RDML documents 102 over the network 214 and may be connected to a disk array 234 which holds RDML data documents 102. This disk array 234 may receive data documents 102 from the database server 236 which may receive data from database storage 238. Protocols used in the transmission of information between the server 232 and the computer 201 include, but are not limited to, HTTP and FTP.

One skilled in the art will appreciate that aspects of methods and systems consistent with the present invention may be stored on or read from other computer readable media besides memory like secondary devices, such as hard disks, floppy disks, and CD ROM, or a carrier wave from a network (such as the Internet). Additionally, one skilled in the art will also appreciate that the data processing system may contain additional or different components.

III. System Overview

Figure 3 illustrates an RDML system consistent with the present invention and the relationships between the various components. These various components may reside in a memory 204 on a computer such as computer 201. Existing databases 230 store data that can be used to create RDML documents 102, and generally the data is extracted into either a "flat file" format (*e.g.*,

comma-delimited, or fixed-width fields) or a form readable by Java Database Connectivity ("JDBC"). RDML documents 102 may be structured to model flat files so that a single RDML document 102 encapsulates a set of rows and columns. Examples of databases include SQL server by Microsoft and Oracle 8 server.

The RDML document formatter 216 is a graphical tool used by the user to reduce the amount of manual labor required to combine data and its documentation. The contents of an existing database 230 may not be enough to create an RDML document 102, because in one system consistent with the present invention, RDML uses documentation of the contents. Such documentation often may be found in a printed volume and hence must be manually input and manually combined with the data. The RDML formatter 216 allows a user (or data publisher) to map data fields from a relational database, flat file, spreadsheet file or text document to RDML data documents 102. It also allows a data publisher to add documentation to the data file (RDML data document 102) itself.

The RDML image database 226 is a relatively small database maintained by the RDML formatter 216 to hold information necessary to recreate an RDML document 102 should the underlying data change. It eliminates the need for the user to manually input the documentation again because the RDML image database 226 stores it.

An RDML document server 218 functions when RDML documents 102 are being created dynamically. The server 218 queries the existing database 230 for the desired line items, queries the image database 226 for documentation items and instructions for constructing the RDML document 102, and finally creates a valid, well-formed RDML document.

The RDML document editor 220 allows users to edit RDML documents 102 which typically are ASCII text files (which may contain UNICODE data). As such, they may be edited by any text-oriented editor or word processor. This is, however, a time-consuming and error-prone approach to marking up an RDML (or any XML) file. A specialized RDML document editor 220 allows a user to quickly make changes, check for errors, and view information on the data and metadata. The document editor 220 may operate over the Internet: users possessing the correct permissions to modify a file can make updates or changes to the underlying RDML data document 102 by issuing commands from the RDML data viewer 100.

An RDML document 102 may be an ASCII / UNICODE text file used to transmit data and metadata to the RDML Data Viewer 100. It can be stored locally, or can be transmitted over network 214 such as a corporate LAN or the Internet (using HTTP, FTP, email, etc.). To be a valid RDML document 102, the file conforms to the RDML Document Type Definition ("DTD") which is described in detail below. The DTD describes required and optional data elements, their ordering, syntax, and the controlled vocabulary for use in certain data elements. DTDs in general are also described in "XML: Extensible Markup Language," Elliotte Rusty Harold, IDG Books Worldwide, 1998.

The RDML data viewer 100 functions as a combination RDML and HTML browser, object-oriented spreadsheet, report-writer, and application platform. The browser functions read HTML or RDML documents 102; HTML documents are rendered immediately in a browser window, while RDML documents are first cached in an internal data object (conforming to the DOM - "Document Object Model" - standard discussed below) and then rendered in views 108 selected by the user. The default view is typically a chart and a tree listing, although several other default views are available. The RDML data viewer 100 uses the cached RDML data objects to create views 108, employing a

variety of transformation and manipulation objects to get the data to match either the form expected by the view, or to match the form of other data objects with which it is being combined.

The RDML Macro Software Development Kit ("SDK") 228 allows a function designer to create functions that can be applied generally to any data document that contains the types of data necessary for the function. The SDK is a collection of macro-writing tools, including an IDE ("Integrated Development Environment"), an editor, an object browser, and a validation tester.

RDML generally separates the form of data from general calculation routines that operate on that data. By separating format from functions, both the data and the functions can be made reusable. In conventional spreadsheets, for example, numbers can be placed in arbitrary cells selected by the creator. If a second developer decides to create an analytic function, that developer must know what row and column each number is in. That routine will then not work with another spreadsheet unless the exact same row and column structure is followed.

Applying functions generally creates one form of software reuse: users need not tell the function where their data is (the approach of "wizards" in traditional spreadsheets). A second form of reuse is that gained by inheritance: function developers can choose the existing function that most closely matches what they are trying to do, and simply make the necessary edits to create the desired new function. The SDK 228 permits a third type of reuse in the ability to attach to remote data documents and remote macros on the web to take advantage of these extra resources and to provide real-time updating of data and functions.

RMML macro documents 104 are text documents that contain routines just as RDML data is contained in a text document. This document contains the heart of the calculation: the specification of operations on numbers, such as a formula, an ordered list of other macros to perform, or list of instructions.

RDSL style sheets 106 act as templates for output reports. The RDML data object (discussed below) in the RDML data viewer 100 can be placed into a report using one or more different style sheets. RDSL, a fully compliant implementation of XSL, allows a data publisher to provide multiple report formats for its data. They are reusable in that a style sheet written for one RDML data document 102 can be used for another if the specified restrictions are met. For example, a style sheet for a time-series data set can be used for another time series data set. The style sheet editor 222 is basically a report-writer because the user can graphically compose a report from a sample document, specify the types of RDML data documents 102 that this report can apply to, automatically create a style sheet 106 when the result is acceptable, and then use the resulting style sheet to create a report from any qualifying RDML data document 102.

The RDML search engine 224 searches RDML documents 102 similarly to the way HTML search engines search HTML documents. HTML search engines pick up key words, but can only tell a user that a particular document contains the requested word(s). They cannot, however, provide query services. For example, a user may wish to search the Internet for "all financial statements of computer services companies which have revenue growth > 10%," and the RDML search engine 224 provides this capacity. The RDML Search Engine 224, however, does not index only keywords like the HTML approach, but also the element names and key attributes. This permits searching for numerical values, or posing complex queries regarding the content and/or context of the data. The RDML search engine 224 thus acts as a generalized query processor for RDML data document 102, RMML macros 104, and RDSL stylesheets 106. Some aspects of the search engine 224 are described in greater detail in co-pending U.S. Provisional Patent Application Serial No. 60/183,152, filed on February 17, 2000.

As mentioned earlier, each view 108 in the RDML data viewer 100 is essentially a separate application denoted on Figure 3 as various RDML Plug-in applications 225. The chart view, for example, is a separate charting application that has been "plugged in" to the RDML data viewer's basic infrastructure of Internet browser, XML parser/processor, RDML transformation and manipulation objects, internal object management architecture, interfaces to other applications, and graphical user interface (described below). For example, a mapping component can be plugged into the panel in which the chart is seen. Subsequently, when a user clicks on a line item, the colors of the different countries or states will change to show a thematic map, or different dots will appear, etc. The RDML data viewer 100 may be designed in modular fashion to permit changing or adding component applications to leverage off the common components.

IV. System Details

With further reference to Figure 3, several of the components (excluding RMML and RDSL components) are described in greater detail below. The existing databases 230 may be relational databases, object-oriented databases, or any other type of database. RDML tags in RDML documents 102 add documentation to the types of pure data found in relational databases. Since the data that already exists in relational databases can be used to create RDML documents 102, the data may be made available to either the RDML formatter 216 or the RDML server 218 and be in a flat file format (rows and columns).

For connections, both the RDML formatter 216 and the RDML server 218 read Open Database Connectivity ("ODBC") and JDBC database sources. The flat file aspect is based on the idea that RDML documents 102 effectively model a basic row and column matrix. To produce an RDML document 102, therefore, the original data source may provide a single table, or create one with a query. Relational linking is possible with RDML documents 102, through a server to a

relational database, or indirectly through hyperlinks to other RDML documents or hyperlinks to RDML document servers 218. This is similar to many database applications: data is collected from various underlying tables to create a single table or screen to show the user. The data table to be used as a source for an RDML document 102 may be oriented to have the fields be one of three basic exemplary RDML data table types: time series, category, or X-Y plot described below.

With reference to the RDML formatter 216, once there is a flat file data table of data points in the existing database 230, an RDML document 102 can be created by adding tags that contain documentation regarding the data table. The information contained in these tags are maintained in a separate data table from the original data points. The RDML formatter 216 is an application that assists a user in selecting the proper documentation tags, saves the tags in a separate database (the RDML image database 226), and creates the actual RDML document 102.

Figure 4 is a screen shot that shows how the RDML formatter 216 assists the user in "tagging" data, *i.e.*, adding metadata that applies to the line items. In one implementation consistent with the present invention, for each line item of data, there are at least 18 different potential attributes (described in detail below) applied using the radio buttons 402. When a user selects a radio button 402, the formatter 216 supplies a description 404 of the selected attribute. Upon selection of a radio button 402 from the left-most box, the user is presented with a list of the possible values in the middle option box 406. The user may either double click one of the options to add it as an attribute of the selected line item, or type in a new value in the text box at the top of the middle option box 406. The formatter 216 automatically updates the line item table 408 which, in this instance, displays the line items' ID, title, format and Y-axis title (attributes which are discussed below).

Figure 5 shows a screen shot of the database tab and document management screen accessed by a tab 502 on the RDML formatter 216. This screen manages RDML documents 102 that can be created from a relational database 230. The user can specify a list 504 of data tables in a relational database and have the RDML formatter 216 create RDML documents 102 for each using default properties. From that point, the RDML formatter 216 is used to modify the defaults. The user may use the RDML formatter 216 to select tags from scratch (as shown in Figure 4) for a document 102, but this puts an unnecessary burden on the user to remember which properties are appropriate.

The formatter 216 references a database 230 (shown on Figure 3) specified by the documentation URL 506. The database 230 holds a list of data tables, and the formatter 216 inserts a table 504 that holds stores information regarding the data tables into the database 230 for later reference. This table 504 is referenced by the documentation table name 508. Similarly, the formatter 216 stores a list of line item attributes 408 for the database 230 in the database which are referenced by the li_data URL 510.

The RDML image database 226 contains documentation that relates to a separate set of data records in the existing database 230. The RDML formatter 216 creates and maintains the RDML image database 226. The RDML image database 226 standardizes the process of documenting data documents, and provides a controlled vocabulary for the metadata. The RDML image database 226 also performs document management and tracking, update and version control, error checking, input validation, and the creation of status reports.

The image database 226 contains a list of RDML documents 102 that it can produce. The original data may be in flat files, relational tables, or a table that results from a query on a relational database. The image database 226 contains document metadata that references the original document table or flat file in the original database 230. Documentation information contained in the

image database 226 is added to this data. It further includes line item set metadata for the set of line items, documentation that is typically of a more technical nature and applies to the line item set as a whole. Examples of such information is table types, field definitions ("x values") and hyperlinks that apply to the line item set as a whole. (A line item set may be generally analogous to a table; it is a collection of line items, which are analogous to records in the database world.)

The image database 226 also includes line item metadata that references the individual records of the original document table or flat file in the original database 230. There may be a pointer from each line item's metadata record to the corresponding record in the original data table. Each line item includes the fields of the original record, plus, in one implementation consistent with the present invention, at least 18 additional fields that contain "attribute" documentation: object types, unit designators, hyperlinks, footnotes, and so forth. A listing of exemplary attributes of a line item is described below.

Figure 6 illustrates steps used by the data viewer 100 when accessing the RDML document server 218. The RDML server 218 occupies a middle position between a database server 230 and a user's data viewer 100 or web browser. Although one architecture for RDML is to have RDML documents 102 served from disk-based text files, users may sometimes wish to create RDML documents dynamically in response to queries. The tasks of executing the query and delivering a result in RDML document form are performed by the RDML server 218. To do so, a user submits the data request to the server 218 via the data viewer 100 (step 602). The RDML Server 218 is a server application called by a web server (not shown) which fields the user's request. The RDML server 218 queries the database 230 using known techniques (step 604), and the database returns the results to the RDML server (step 606). The server 218 then creates an RDML document 102 (step

608) and returns the RDML document to the web server which transmits the results to the viewer 100 (step 610).

The RDML document editor 220 permits users to edit the actual elements and attributes of an RDML, RMML, or RDSL document (102, 104 and 106). The documents may be presented in a tree view for selection and direct editing. A text-based window may display the contents of the selected document for editing. Besides basic editing, it performs a number of utility functions: (1) search and replace, (2) validation, (3) well-formedness testing, (4) hyperlink validation, (5) cut-and-paste of elements, and (6) replacement of elements with defaults.

IV.A. Internal Data Viewer Architecture

Figure 7A depicts a schematic diagram of the internal architecture and program flow of the RDML data viewer 100, and Figure 7B depicts the meaning of each symbol type in Figure 7A. For each numbered component, a description is given which provides further details on that component's input and output, internal decision process, storage format, object architecture, and program flow.

Before fully describing Figure 7A, however, it is important to understand an overview of the steps involved, which is depicted in Figure 8 and discussed in conjunction with Figure 7A. Figure 8 is a flowchart describing steps in a method for downloading, processing and displaying a RDML document 102 in accordance with the present invention. Figure 8 describes an overview of the steps involved, and each related component is subsequently described in further detail with relation to Figure 7A. First, the RDML reader 704 finds and receives an RDML document 102 in text form formatted according to the structure of the RDML DTD 702 (step 802). The RDML Reader 704 may be a class that runs in a separate thread and has methods for checking the RDML document 102 type (Time Series, Category, XY) and handling errors. The RDML Reader 704 then calls the XML parser 706 which parses the text (step 804). The RDML processor 708 receives the parsed text from the

XML parser 706, error checks it and creates an object based on the data and structure in the received text. (step 806).

The RDML processor 708 transfers the resulting object to the X-value transformer 710 which performs type-checking and manipulates the fields (x-values) of the data so that it may be displayed and stored coherently and simultaneously with other active objects of the same type (step 808). The X-value transformer 710 makes sure that the data values to be graphed against the x-axis are in common units. For example, if document A is an annual time series and document B is a quarterly time series, the X-value transformer 710 in this case would use the "li_aggregation" attributes of the line items in document B to aggregate four quarters at a time into annual data. As a second example, if document A is a category document with x-values equal to stock ticker symbols (F, IBM, XON, etc.), and document B contains x-values denominated in company names (Ford, International Business Machines, Exxon, etc.), then the x-value transformer 710 will use the "li_class" attributes in the line items of each document to match them up. The X-value transformer 710 sends the object to the primary data store 712 ("PDS") for storage with other active objects of the same type (step 810). The views (716, 720, 724 and 725) then display and present information using data from the active objects in the PDS 712 (step 812).

Details of the steps and components involved are now discussed in conjunction with Figure 7A. Described first is an RDML document 102 defined by the RDML Document Type Definition. Description of the various software components of the data viewer 102 follows.

The data and metadata of an RDML document 102 may be formatted inside tags which denote the beginning and ending points of each data element. The element tags may also include attributes to be applied to the data elements, a description of what sub-elements may be found within an element, and vocabulary choices for different attribute values.

A full sample RDML data document 102 is shown at Appendix B. Shown below is a fragment of an RDML document 102 that supplies the data for one line item in the document. Note that element tags are designated within angle brackets ("<" and ">"), and that attributes are listed that can be applied to the data.

```

<line_item
  li_ID = "1"
  li_legend = "Department of Energy"
  li_title = "Outlays - Dept. of Energy"
  li_cat = ""
  y_axis_title = "$ in Thousands"
  level = "1"
  format = "#,##0;(#,##0)"
  relation = "Parent"
  li_notes = ""
  li_desc = ""
  li_prec = "-3"
  li_unit = "$"
  li_mag = "3"
  li_mod = "in"
  li_measure = ""
  li_scale = ""
  li_adjustment = ""
  li_aggregation = "">
  <data_y>
2754567,2699717,2726457,2578954,2343297,2252927,2474440,2392904,2392536,2200326,
2298612,2303643,2233062,3229510,3840973,5049308,6412986,7441295,7261157,11756883,
11657178,10590471,10991261,10587245,11026443,10692802,11166039,11386923,12083898,
12478820,15522633,16941547,17839298,17617000,16203000,14467000,14366000,15240000,
15190000,14938000,14412000,14556000
  </data_y>
</line_item>

```

In this example, the 18 lines with an "=" are "attributes" of the <line_item> element, and essentially, the attributes provide machine-readable documentation for the data values specified in the sub-element <y-values>. This particular line item describes "Department of Energy outlays in thousands of dollars," but the specifics of the set of attributes are described below in conjunction with the

RDML Document Type Definition 702 which describes the structure and elements of a RDML document 102.

RDML documents 102 may be produced by an ordinary text editor, by the RDML data formatter 216, or by the RDML data server 226. (XML browsers other than the RDML data viewer 100 are able to do little more than echo the text input to the user's screen since they cannot interpret the RDML tags.)

IV.A.1. Document Type Definition

Figure 9 graphically shows elements of the RDML Document Type Definition 702. In one implementation consistent with the present invention, RDML documents 102 conform to the rules provided by the DTD 702 (also shown on Figure 7). In accordance with one implementation of the present invention, an RDML DTD 702 is shown at Appendix A. Attributes and elements of the DTD 702 may also be seen in the full sample RDML document 102 in Appendix B. Those two Appendices A and B are useful for examining specific attributes and elements of the DTD 702.

The DTD 702 data structure is optimized to provide information that is needed in order in which it is required, to reduce the learning required on the part of new users to RDML formatting, and to avoid unnecessary duplication. The first line of the DTD 702 in Appendix A starts with "<?xml encoding = \"UTF-8\"?>" because all XML documents start with a line that tells the client application, in this case the data viewer 100, what type of document it is and the version of XML.

With further reference to Figure 9, the DTD 702 used to define RDML data documents 102 is structured in a hierarchical tree structure of elements. Each element may include a list of attributes (displayed in Appendix A, but not shown on figure 9) and/or an association with one or more sub-elements. The DTD 702 specifies which attributes are required and which are optional for any embodiment of the DTD. Depending on design constraints, the required and optional elements may

vary. At the highest level, the DTD 702 has two elements descending from a root element, <rdmldoc> 902. The first element, <rdmldoc_header> 904, contains the metadata for the document as a whole and the second, <line_item_set> 906, contains the set of the line items.

In one implementation consistent with the present invention, the <rdmldoc_header> element 904 contains several attributes itself, and the optional sub-elements <data_source> 908, <formatting_source> 910, <rdml_source> 912, <license_terms> 914, and <link_set> 916, each describing some aspect of the source of the data. In this implementation, the <rdmldoc_header> 904 element may include ten attributes describing document information as a whole. These attributes are "rdml_doc_ID," "doc_title," "timestamp," "version," "expiration," "freq_of_update," "num_line items," "num_datapoints," "x_indexes," and "first_li_with data."

The rdml_doc_ID attribute is the unique identification of the RDML document 102 and is typically a file name or URL. The doc_title is a plain language description of the document that will appear at the top of reports and views for the document for use by a user. The timestamp is typically generated by the application that created the document and may denote the time that the document was created or the time the data was accessed for creation of the document. The version describes which variant of the RDML document 102 it is and may be named by the creator. The expiration describes the date and time that the data in the document 102 may no longer be relied upon, typically when the next update is expected to be released. Freq_of_update describes how frequently the document is updated and may be used by applications that want to schedule updates to the data. The next two attributes, num_line items and num_datapoints, are integers describing the total number of line items and number of data values respectively. These attributes are optional and may be used as a "checksum" by a receiving application to ensure that the data has not been accidentally changed or corrupted.

The next field, `x_indexes`, denotes three data fields to use as representative data fields in the tree view 720 (described in detail below). `X_indexes` is a comma-delimited string of three integers, each of which is an index to a selected field. For efficiency, the indexes may denote the end of the list of fields so that, for example, "-3,-2,-1" shows the last three fields in the tree view 720. Indexes based on the end are useful because most people reading a time series want to see the most recent data. Along, similar lines, the `first_li_withdata` attribute is an integer index that points out which line item is to be displayed on the chart when the document 102 is loaded into the data viewer 100.

The `<data_source>` 908, `<formatting_source>` 910, `<rdml_source>` 912, `<license_terms>` 914 elements, sub-elements of `<rdmldoc_header>` element 904, may optionally contain one or more of sub-elements of `<contact_info>` 918 which contains contact information. This element can be used by the target application to create an email letter, update a contact list, or populate a database of information sources. The same element structure is used for all contact information sub-elements 918 so that the application that created the document 102 only has to create one structure.

In one implementation, this contact information is represented by eleven attributes: "role," "name," "company," "address," "city," "state," "zip," "country," "email," "form," and "comments." Role is the role played by the party in the creation of the document, *i.e.*, "data source" for the `<data_source>` 908, "formatting source" for the `<formatting_source>` element 910, etc. "Form" determines whether the hyperlink is a "simple" link or "extended" link. Under the Xlink specification, a language designed to implement links between XML documents and resources, hyperlinks may be simple or extended. Xlink is described in "XML IE5 Programmer's Reference," Alex Homer, Wrox Press, 1999, which is incorporated herein by reference. Simple links are traditional "jump" hyperlinks in which clicking on that link will close the current page and open the target page.

Extended links are application-specific and can identify different types of resources, such as multimedia files and other non-document resources.

The contact information in the <data_source> 908 describes who or what collected the data to create the original database, while the same attributes in <formatting_source> 910 describe who or what added the RDML tags to the original data to create the RDML document 102. The same information in <rdml_source> 912 describes the person or company that created this particular document and made it available to the outside world.

In addition to the <contact_info> 918 sub-element in <license_terms> 914 which describes the contact information regarding the licensing of the information, the <license_terms> element has its own set of licensing-related attributes. These attributes include: "copyright_cite," "holder," "license_type," "warranty," "disclaimer," "terms," "date," "email," "state," and "country." The copyright_cite is a string that may appear on reports regarding ownership of the particular data set in the RDML document 102. A typical example might be "Copyright 2000, e-Numerate Solutions, Inc. All Rights Reserved." The holder attribute lists the full legal name of the owner of the copyright. License_type lists the type of license, such as "none - proprietary and confidential," "public domain," "pay per use," etc., and terms lists the payment terms, if any, such as "\$1 per download." The information in these attributes may be used by routines associated with the RDML processor 708 to automatically track and implement licenses and payments.

Another sub-element of the <license_terms> element 914 is the <linkset> element 916 which, in one implementation, has two attributes and its own sub-element <link> 922. A <linkset> 916 is a collection of hyperlinks. These hyperlinks may be either HTML files or RDML files. The individual <link> elements 922 hold the actual links and attributes. The <linkset> element's two attributes are form, described above, and href, a standard string for URL or web address, and they

designate the HTML or RDML page where a page of hyperlinks may be found. This is useful when the creator does not want to list all of the hyperlinks in the document 102 itself.

The <link> element 922 describes hyperlinks to other documents and contains, in one implementation, nine attributes: "form," "href," "behavior," "content-role," "content-title," "role," "title," "show," and "actuate." These link related attributes are described in the XML IE5 Programmer's Reference, pp 95-97. The title is a string that appears in the application as a hyperlink title. For example, in an HTML browser, it will appear as highlighted, underlined text. Actuate specifies when the link should be traversed – when the resource that the link points to is retrieved or accessed, and show specifies how the target resource will be displayed. Behavior specifies instructions that control the behavior of the link in the way that the content is displayed or the link is traversed, and role describes what role the target resource plays in the link. Content-role and content-title are alternative places for the title and role, but are not specified in Xlink standards.

Finally, <rdmldoc_header> 904 may have its own <linkset> 916 having <link> elements 922. RDML allows users to attach hyperlinks to different elements such as an entire document, a particular line item, or other element in the RDML document 102. The reason for the multiple places that hyperlinks may be placed is so that the user can view in one place all the links that apply only to the element under consideration. For example, an RDML document 102 may contain the data for a company's financial statement. The creator of the document may decide that certain links apply to the whole company (links to product lines, competitors, etc.) and that others only apply to single line items (such as a link attached to the "Equipment Leasing" line item that points to the footnote for that line item or an accounting regulation applicable to that account). Even though they are attached to different elements, the links may have the same form. Another reason for multiple linkset elements is to facilitate keeping links together with their logical owners.

Continuing to refer to Figure 9, on the line item side of the <rdmldoc> 902, the <line_item_set> 906 which contains information on the collection of line items in the RDML document 102 also contains several attributes and several elements. These attributes include: "line_item_set_type," "time_period," "character_set," "missing_values," "null_values," "zero_values," "dates_values," and "percentages."

The first attribute, the line_item_set_type, is, in one implementation, an important attribute which classifies the line item set into one of three types: time series, category (or cross tab), and x-y plot. Generally, the "type" in this context is the characterization of the x-axis values and whether they represent a time series, a categorization, a x-y plot or other. These line item set types are described in detail below in connection with the x-value transformer 710 which manipulates line items of the same set type. Generally, line item sets of different line item set types may not be actively manipulated together. If the line item is a time series, valid lengths in the time_period attribute may be years, quarter, months, days, etc.

Character_set designates which standard character set is represented, thereby allowing for support for foreign languages. Missing values holds a designator for the numerical value that represents a missing value, because many views of the data, in particular chart views, need to know which numbers represent blanks. Otherwise, a blank might be interpreted as "0." Null_values designates the character to be treated as null so that it is not confused with "not applicable," or "missing" or "0." Finally, zero_values designates characters that should be interpreted as "0," and not "null," "missing," "not applicable," etc.

The <line_item_set> 906 has, in one implementation, several sub-elements including <data_x> 924, <li_class_set> 926, <linkset> 916, and one or more <line_item> elements 928. At the line item set level, metadata regarding line items as a set is shared among all the line items so

that the data need not be repeated. In particular, the <data_x> element 924 contains field information common to all line items in the line item set. The <data_x> element 924 includes the x-values and information regarding the x-values of the line items in the set of line items in the RDML document 102. For example, if the line item set is a time series, the x-values may represent the years, months or other timelines (*e.g.*, 1990, 1991, etc.) listed across the bottom of a chart with which all of the data is associated. Because this information is the same for each line item in the line item set, it is only included once in the RDML document 102. In one implementation, in addition to the actual x-values, <data_x> 924 also contains the following attributes: "x_title," "format," "x_notes," "x_desc," "x_prec," "x_unit," "x_mag," "x_mod," "x_measure," "x_scale," "x_adjustment," and "x_links."

In <data_x>924, x_title is the title displayed on the x-axis as the data is displayed on a chart. Format is a string providing a template for the default representation of the x-axis values. The strings are those familiar from spreadsheet programs (examples may also be seen on Figure 4):

- digit(s), zeros suppressed

0 - digit(s), zeros displayed

. - decimal point

, - separator

A - z, other characters - displayed literally.

Other formatting codes can also be used (*e.g.*, codes used in scripting languages). X_notes may contain miscellaneous footnotes regarding x-values of the line item set, while x_desc may describe additional description regarding the x-axis values.

The `x_prec` attribute describes the precision or number of significant digits for purposes of axis label display. In this attribute, negative numbers cause rounding of amounts greater than zero. For example, a precision of "2" will display a number as "8,254.43". That same number with a precision of "-2" will be displayed as "8,300." The underlying representation of the number will be the full value; only the formatting and representation on the screen will change. The data viewer 100 uses this primarily for formatting the axis labels, but the attribute is available for default formatting as well in other uses such as reports, footnotes, etc.

The subsequent attributes, `x_unit`, `x_mag`, `x_mod`, `x_measure`, `x_scale`, and `x_adjustment`, represent the meaning of the x-values and are used by the data viewer 100 for manipulation, reconciliation and display with other RDML documents 102. In RDML, numbers are collectively described by these attributes which describe the numbers' units. They are as follows:

- Unit: the physical unit of the numerator
- Magnitude: the size of the numerator
- Modifier: relation of the numerator to the denominator
- Scale: the size of the denominator
- Measure: the physical unit of the denominator
- Adjustment: special qualifier (*i.e.*, inflation adjusted)

For example, a line item reported to represent "\$ in thousands per million people" can be represented as:

[1 \$US] * (1,000)

[1 person] * (1,000,000)

Therefore, the attributes of the line item are:

Unit: \$US
Magnitude: 1,000
Modifier: /
Measure: 1 person
Scale: 1,000,000

Access to these attributes for line items provides enormous power to the data viewer 100. It facilitates the interpretation and transformation of the numbers. It allows multiple lines to be placed on a single chart without conflict and allows macros to be applied without the requirement of human intervention to answer questions about the units. It further allows reporting templates to make automatic adjustments to provide the most readable reports. In particular, the data viewer 100 uses these attributes to construct y-axis labels and descriptors when the user has made a transformation and the "y_axis_label" attribute is no longer appropriate.

A standard vocabulary for units and measures may be used for efficiency, and magnitude and scale may be more simply represented as a power of 10, *e.g.*, 3 for thousands, 6 for millions, etc. This permits more rapid transformations and eliminates potential confusion of variant usages and spellings (*e.g.*, million, mille, MM, etc.)

For an example of the use of these attributes, suppose the RDML data viewer 100 has plotted the following value/measurement:

426 US Dollars (in thousands) per Hour, adjusted for inflation (1996 = 100).

The user now wants to convert this to:

"X" Italian Lira (in billions) per Day, in nominal lira

where "X" is the value to be calculated and the rest of the line is the measurement. The data viewer 100 makes this transformation automatically for the user because it has conversion factors for the following:

RDML Attribute:	Begin:	End:	Conversion factor:
Unit	US Dollar	Italian Lira	A* 0.0000234
Mag	Thousands	Billions	A* 1,000,000
Mod	per	per	A* 1
Scale	Hour	Day	A* 24
Measure	1	1	A* 1
Adjustment	Adjusted for infl.	Not adjusted	A* annual factor
Value	426	1.189	

The data viewer 100 multiplies the conversion factors (or performs any other appropriate mathematical operations) to manipulate the display. The user does not have to look up each of the conversion factors, marshal them into the correct sequence, do the arithmetic, and make corrections such as rounding adjustments. The user may simply select a new unit, magnitude, etc. from a drop-down box and make a selection.

Figure 10 illustrates steps used by the data viewer 100 to manipulate the numerical information in an RDML document 102 to produce a desired transformed display. First, the data viewer 100 locates the RDML document 102 (step 1002). The document may be located either locally or online using a URL, the search engine 224 or any other technique. Next, the data viewer 100 selects and accesses the desired document 102 (step 1004). The data viewer 100 then accesses

the line item that needs to be transformed (step 1006) and determines the desired transformations (step 1008). The desired transformations may be received from a user or may be determined by the data viewer 100 automatically to, for example, accommodate the addition of a new document 102 to a display of a current one. The data viewer 100 accesses the unit, magnitude, modifier, scale, measure and adjustment attributes of the document or line item to be transformed (step 1010). Using these attributes, the data viewer 100 determines the conversion factors, if any, for each (step 1012). These conversion factors may be stored locally or retrieved online over a network 214. The data viewer 100 then multiplies the conversion factors to transform the numerical data into the desired display (step 1014) and displays the transformed line item or document (step 1016). If more than one line item is to be displayed, the data viewer 100 may repeat these steps so that all appropriate line items may be transformed to the desired display format (step 1018). Similarly, if more than one document 102 needs to be transformed, the steps may be repeated for each document. In this way, documents 102 having different numerical sets may be automatically manipulated for simultaneous display or quick transformation of display format without human intervention. The system automatically resolves conflicts between different documents in different formats by transforming them into one desired form.

In one implementation, when the system converts one unit to another unit, it converts the original source unit to a base unit known by the system, and then converts the base unit to the target unit. The system stores conversion factors from base units to other units in a unit list XML file, a portion of which is shown at Appendix C. For instance, suppose the base unit used by the system for length is "meters," and numerical values are to be converted from "yards" to "miles." The viewer 100 converts the yards to meters using the stored conversion factor, and then from the meters to miles using the appropriate stored conversion factor. In this way, the unit list file need only contain

conversion factors from the base unit to various other units, and need not list a conversion factor for every possible combination between various units.

The structure of the unit list file is as follows: a <unitlist> element is the root, and it has one level of child nodes, each of which is a <unit> element. The unit elements each have a number of attributes and elements that describe the characteristics of that unit necessary to convert it into another unit or set of units.

The conversion element contains the attributes necessary for making a conversion where the source unit and the destination unit are both of the same type. For example, converting “miles” to “inches” is simply a matter of finding the correct multiplier to apply to the number of miles, because both units are measures of type “length.”

The conversion element contains six elements: (1) “conv_target” describes the target unit of measurement that the following conversion factors will bring you to, (2) “conv_factor” is the number to multiply by the source value to arrive at the destination value, (3) “conv_constant” is the constant to be added to the product of the source value and the conversion factor. For example, in the conversion formula for Fahrenheit to Centigrade ($F = 32 + 9/5C$), 32 is the “conv_constant”, (4) similarly, if the conversion involves a logarithmic conversion, the necessary factors are included in “conv_log”, (5) “conv_source” is a description of the standards body that set forth this particular conversion factor, and (6) “conv_href” contains the URL for the approving standards body.

The type element contains one of the following text strings: (1) Length (base unit = meter), (2) Area (base unit = square meter), (3) Volume (base unit = cubic meter), (4) Mass (base unit = gram), (5) Time (base unit = second), (6) Temperature (base unit = centigrade), (7) Energy (base unit = joule), (8) Currency (base unit = \$US), (9) Compound (no base unit), (10) Diverse (no base unit), (11) Collection (no base unit), and (12) Occurrences (no base unit).

The Compound and Diverse types are constructed from one or more of the basic units. Compound types are simple combinations of others. Example: “miles per hour” is a combination of a length unit and time unit. In order to convert a Compound type into another type, it is necessary to be able to make the necessary conversions of the decomposed units.

Diverse types are those that are constructed of descriptions. For example, an “ohm” is an electrical unit described as “the resistance offered to an unvarying electrical current by a column of mercury at the temperature of melting ice, 14.4521 grams in mass, of a constant cross-sectional area, and 106.3 centimeters in length.”

A Collection type is a collection of persons, places, things, etc. For example, a data series denominated in “people in millions” means that one unit of this type is a collection of one million people. Collection types can use any of the conversion elements. For a simple conversion example, suppose there are 2.4 people per family in a sample. Then “people” could be converted to “families” by a simple division by the 2.4 conversion factor.

An Occurrence type is a collection of events. “Cycle” would be an Occurrence type that could be divided by “seconds” to produce a compound “cycles per second” unit of measurement.

The “subtype” element is for finer distinctions among types. The “plural” element is for constructing new titles, legends and labels at the completion of a conversion operation. An “alias” element is provided for enabling conversions where data has been entered in a common, but nonstandard form. For example, tables often use “in” instead of “inches.” The “desc” element is provided so that a plain language description can be given the user. The “icon” element provides a place for giving the unit an icon to be used in lists, drop-down boxes, etc.

Referring back to the elements and attributes of Figure 9, in <x_data>924, there is an x_links attribute which may be a comma-delimited string of URL's for linking to other sources.

In addition to this element, the `<li_class_set> 926` element represents the set of line item class elements and, in one implementation, has no attributes but has one or more sub-elements representing line item class, `<li_class> 930`. These line item class tags specify categories in various classification systems to which the numbers belong, such as "`<US Dollars>`" or "`<Total Revenues>`". The data viewer 100 uses these class tags to select which macros can apply, to adjust report formats, and to make the correct selections of assumptions in analytic processing. The class designations permit validation and conforming of different data sets, thereby allowing the data viewer 100 to combine documents from unrelated sources into a single unified source. Class tags may be used by macros that look at the class tag list to see if it qualifies to act on the particular line item. For example, if a line item in a financial statement is tagged as of the class "debt," the macro knows that it can use this line in calculating "debt-to-equity" ratios. But if the line item is tagged "piano," for instance, the macro will not be applied. Note that, in this implementation, the element names for the classes are entered as comma-delimited strings.

The `<li_class> 930`, in one implementation, has five attributes. These are "class_name," "parent_class," "form," "href," and "description." Class_name is the name of the class to which the line item set belongs, and parent_class denotes the name of the parent class. These attributes may be used by more advanced features of the data viewer 100 such as the macros.

The `<line_item_set> 906` further contains a `<linkset> 916` similar to the previously described `<linkset>`. As before, this `<linkset> 916` further has a `<link> 922` previously described.

The `<line_item> 928` element may have, in one implementation in accordance with the present invention, four sub-elements and 18 attributes. The elements are `<data_x> 938`, which contains the x-values for this line item if they are different from the default x-value in the

line_item_set element <data_y> 932 which contains the y-data values, the data numbers or values of the line item, a <linkset> 916 having a <link> 922 as previously described, and a <note_set> element 934. The <noteset> 934 contains one or more < note> elements 936 which have user readable, plain language notes regarding the line item.

The attributes of the line item include: "li_ID," "li_legend," "li_title," "li_cat," "y_axis_title," "level," "format," "relation," "li_notes," "li_desc," "li_prec," "li_unit," "li_mag," "li_mod," "li_measure," "li_scale," "li_adjustment," and "li_aggregation." Several of those attributes have the same meaning as attributes previously described except that they specifically describe only the line item and y-values to which they are attached.

The li_ID is a unique identification number for the <line_item> element 928 and may be numbered from 0 to n (where n is the number of line_item elements). In one implementation consistent with the present invention, the numbers are unique and in order.

The li_legend attribute is a plain language string describing the line item that does not need to be unique. Generally, it appears in the leftmost column of the views. The li_title is a string defining the general subject of the line item. In the data viewer 100, this may be used as the title of the chart and as titles in reports. Typically, titles are the same for line items grouped together, but they are not required to be.

The li_cat attribute represents a line item category. As opposed to the li_legend and the li_title, which are displayed on the chart in the data viewer 100, the li_cat is not normally displayed. It is generally a non-printing designator for a category that the line item might belong to. Often, this may be a table name, or a primary key in a database, or some other organizing identifier. It may be used to group line items for reports.

The `y_axis_title` attribute is a string which will appear on the y-axis as the title of that axis. However, if the user applies a transformation to any variable in the descriptor, this hard-coded y-axis title will be replaced by one generated by the data viewer 100 using other attributes.

The `level` attribute and `relationship` attribute specify hierarchical relationships between line items. Conventional links in relational databases are maintained by matching records on the basis of "key fields." One drawback of this approach is that nothing is known about the character of the relationship except that it exists, and there is no way to tell, absent specific documentation elsewhere, that one record is a child or parent of the other, and whether that nature is a containment, a derivation, and inheritance, etc. In RDML, the creator of the data may specify the hierarchical level of each line item and the nature of that hierarchical relationship. The data viewer 100 uses the `level` attribute and the `relationship` attribute to create a hierarchical tree, to place icons representing the relationship in front of each line item to summarize the derivation of numbers and describe their context, and to assist macros and updating data tables. The `level` attribute specifies how many levels down from the parent node a line item is, while the `relationship` attribute specifies the nature of the relationship, such as whether the line item is a child of another line item or contained by another. It may also determine whether the line item is an additive or subtractive subcomponent of a parent, or a subtotal that is dependent on other child line items. These previously mentioned attributes and elements make up a DTD 702 in accordance with methods and systems consistent with the present invention.

`Li_aggregation` is an attribute useful if a user wants to "aggregate" or "deaggregate" data based on differing x-axis transformations. This attribute explains to the data viewer 100 how to handle this particular line item when such transformations are attempted. For example, if a line item set presents bank account information, each line item may be a time series and presents quarterly

data, but the user may wish to see the data on an annual basis. For some line items in the set, it is simply a matter of summing up four quarters worth of data (*e.g.*, deposits) in which case the attribute value would be "sum," but for other line items (*e.g.*, closing balance), only the last quarter's value need be shown, in which case the attribute value would be "last." Similarly, if a minimum annual balance is desired for four quarters of minimum balances, only the lowest balance for all four quarters would be needed. Such a line item's *li_aggregation* attribute value would be "minimum." Possible accepted values include: "sum," "average," "minimum," "maximum," "first," "last," and "none."

IV.A.2. Reader, Parser and Processor

With reference back to Figure 7A, the RDML reader 704 may be an object within the RDML data viewer 100 which manages the process of finding an RDML document 102 (locally, on a LAN, or on a Wide Area Network such as the Internet), passes it to the XML parser 706, relays error notices to the user, and coordinates the updating of other components states to reflect a rejected or damaged RDML document 102. The user of the RDML data viewer 100 may initiate the download of an RDML document 102 in many different ways including: clicking on an RDML hyperlink (these are like any other hyperlink, except that the target document may end in ".rdm"), typing a ".rdm" URL into the "Address" box of RDML data viewer, or requesting the loading of the document in a macro. Also, while conventional HTML browsers have a cache of only HTML documents represented as the "history" of the browser, the browsers may only display one of these documents at a time. Given an URL address, the RDML reader 704 reads in Document Object Model ("DOM") compliant documents (*e.g.*, RDML documents 102), discussed below. The XML reader 704 may be implemented by a third-party set of Java classes, such as the XML4J parser developed and licensed by IBM, but others may also be used. The RDML reader 704 may cache multiple

documents in RAM if they are compatible with the active data set. Not only are these documents immediately available, but sub-elements of the documents are available immediately because the data viewer 100 may maintain indexes of important data and metadata in the documents. Additionally, macros may be used to find specific elements in the document that is read in by the RDML reader 704.

The XML parser 706 takes a serial stream of text characters from the RDML data document 102, performs basic functions such as eliminating white space, dividing input into words and groups of words and searching for opening and closing characters (primarily "<" and ">"). The XML parser 706 used in the RDML data viewer 100 may also be a third-party set of Java classes, such as the XML4J parser developed and licensed by IBM, but other parsers may also be used.

The processor 708 receives the parsed text and creates a tree-shaped data structure of the data elements, matching the structure of the RDML DTD 702 hierarchy. The hierarchical structure conforms to the DOM Model, meaning that data is available in a standard form, and that a standard library of methods and functions are available for accessing data, editing elements, searching through nodes to find certain elements, and so forth. The XML DOM standard is controlled by the World Wide Web Consortium, and can be found at "<http://www.w3.org/TR/REC-DOM-Level-1/>".

The RDML Processor 708 generally performs three primary functions on the incoming parsed text to create an internal software object: error checking, structuring, and adding functionality. The error checking functions of the processor 708 simply compare the output of the parser 706 against the text expected as defined by the DTD 702. If the incoming document does not conform, the processor 708 determines whether the defect is: (1) not critical, in which case a warning is sent to a log and work continues, or (2) critical, in which case work stops and an error message is sent to the routine that called the parser 706.

The structuring function is a matter of assembling the text into a hierarchical data structure matching the hierarchy described in the DTD 702. The target data structure may be a vector of vectors, or other collection of collections. When the data structure is created, it is "wrapped" in a software object (an "RDMLDoc" object) that adds an interface to the data so that other software objects can communicate with it. Most of the added functions ("methods") provide access to specific subsets of the data or particular elements or attributes.

The functions of the RDML processor 708 can be performed by the same class as the RDML Reader 704, where the RDML reader 704 has been set up on a "callback" relationship with the XML Parser 706. In that way, when the parser 706 gets a new element from the RDML document 102, it informs the RDML reader 704 that it found the element and returns it to the reader. In such a way, the RDML reader 704 acts as a processor as well as reader (even though it may hand off the actual element handling to another class).

IV.A.3. X-value Transformer and Line Item Set Types

Regarding the X-value transformer 710, the term "X-value" refers to the fact that the fields of the input data records are plotted along the x-axis of the chart view 716 by default. (The values of each record for each field are plotted on the Y axis.) For example, a time series will, by default, be plotted in the chart year with the time periods plotted on the x-axis. When more than one data document is input, their data fields must be correlated before they can be presented together in a common view. The X-value transformer 710 determines what adjustments have to be made, and then accomplishes them.

Generally, the RDML data viewer 100 recognizes three different types of line item sets (*i.e.*, (1) "time series," (2) "category," and (3) "X-Y Plot") which account for the majority of end user tables. The X-value transformer 710, by recognizing these types, can automatically provide the

correct display and transformation routines, saving the user the time and expense of changing a broad range of details. To give an example of this, when a times series table is encountered, the data viewer 100 can recognize that the x-values must fit the permissible types of dates, check them, conform them, and format them, thus sparing the user the work. In one implementation consistent with the present invention, a line item set type is a required attribute of the line item set element 906.

Figure 11 shows the steps used by the X-value transformer 710 to store a new document in the primary data store ("PDS") 712 described below. Generally, the X-value transformer 710 determines whether a newly input data document is of the same type as the one(s) currently stored in the "active documents" list of the PDS 712. Active documents are available for display in the tree view 720, to be charted, to be added to the spreadsheet view 724, and so forth.

First, the X-value transformer 710 receives a new document 102 (step 1102). It then determines the type of the active documents in the PDS 712 (step 1104). If the newly arrived document is the same line item set type as the active documents (step 1106), it is added to them in the PDS 712 (step 1108). If it is of a different type than the currently active documents in the PDS 712, the user is notified that it does not match the currently active documents (step 1110). The user may choose to reject the new document 102 (step 1112), in which case the object is not added to the PDS 712 (step 1114). If the user chooses to erase the currently active documents (step 1116), the currently active documents are erased (step 1118) and the new one is loaded (step 1120). Otherwise, the new document 102 is placed in the PDS 712 as a "standby" document (step 1122). Standby documents are available for providing data to scripts and macros, but do not interfere with the active document views. Optionally, if the x-value transformer 710 need not perform any transformations, the RDML reader 704 may store the document in the PDS 712.

If the newly arriving document is of the same line item set type as the active documents, the X-value transformer 710 matches the data_x fields of the new document to the existing documents. They may be in a different order, may be spelled differently, be in a different form, or otherwise not immediately compatible. The X-value transformer 710 makes the necessary adjustment according to the type of line item set. For example, time series line item sets have elements which are ordered in time. One obvious incompatibility is that periods may be different. Often, one set of data is in years and the other in, for example, months. The X-value transformer 710 uses attributes of the line items to handle each correctly. However, monthly data cannot just be added up to produce a yearly value, for example, because the number might represent a non-additive value. For example, a line item might be "Ending Bank Balance," but adding up 12 monthly ending balances does not produce a year-ending balance. The line item provides a period-length attribute that specifies that it is a "period-end" value, and the X-value transformer 710 uses the last month only to create a yearly value. In another example, monthly "deposits" would be added together, and monthly "average interest rate" might be a "period-average." Each line item provides instructions on how it is to be handled in conversion to other periods; this is provided by the li_aggregation attribute.

Another change that might be made is in the date format. Some data sets might simply display the year ("YYYY"), others might use a standard date format ("YYYY-MMDD:HHMMSS.MSS"), or some other variant. The X-value transformer 710 puts these all into a common form.

The data viewer 100 additionally provides tags describing how it is to be handled in the event of a period widening/shortening, or a period shift. Numbers may be tagged as "sum," "median," "average," "last value," "first value" or a specified formula. The X-value transformer 710 and the data viewer 100 may also handle "period shifts," a related type of conformance. For example, a first

data source may be based on a calendar year ending on December 31 while a second data source is based on a fiscal year ending on September 30. The RDML data viewer 100 may use the period_length attribute of the x_data element 924 to designate the period length of the data, in conjunction with the li_aggregation attribute of the y_data element. The latter attribute is used to estimate a conforming transformation.

Y-values, the data values in a line item, may change when the x-values have been conformed. For instance, if twelve months of "average interest rate" is aggregated to produce "annual average interest rate," the updated designation of the number that will appear in legends or axis titles changes. The data viewer 100 recognizes that the resulting values may possibly undergo a transformation based on unit, magnitude, modifier, scale, measure, and adjustment attributes. These attributes allow efficient and automatic interpretation, translation, manipulation and presenting of data in a line items. They further facilitate the automatic changing of text descriptions in charts and reports to be automatically changed by macros.

Additionally, to conform differing time periods in separate documents, the X-value transformer 710 and the data viewer 100 may prompt user assistance if needed. For example, a first data source may be denominated by fields such as "Week 1," "Week 2," etc., while a second data source is denominated by "April 4, 1999," "April 11, 1999," and so forth. The X-value transformer 710 recognizes this problem (and a broad set of similar circumstances), and presents a dialog box asking the user for the actual date that "Week 1" begins on.

The Category line item set type is a common type of line item set that is often referred to as a "crosstab." In this line item set type, the x-values are categories. On a chart, for instance, the x-axis may be divided into eight categories for eight companies, with the y-axis showing the values of revenues or profits. Sometimes matching the fields of different source documents by name is too

dependent on wording, spelling, or language to permit efficient matching. The challenge for categories line item sets is to handle these differences in usage. For example, company income statements may start with a concept of "sales," but the actual words used may be "revenues," "total revenues," "gross income," or any other designation used in different languages, dialects, or industry-specific terms. To handle these line item sets, the X-value transformer 710 lines up categories from multiple data sets by first matching up any actual matches in spelling (ignoring cases in the default). Second, it looks at the class elements 930 to see if there are standard vocabulary tags; these standards may be different for different industries or uses. When dealing with companies, for example, the ticker symbol may be used as the matching tag. For instance, one data set may have a category for "Ford" another for "Ford Motor Company," and another for "F." All would be matched by the common presence of a tag <"F"> (Ford's ticker symbol) in the class element 930. If this fails to provide matches, the data viewer 100 presents the user with a dialog box with two lists of fields. Using "drag and drop" techniques, the user can quickly match the two sets of fields, and fields with no match are simply appended as new fields. In addition to creating a mapping dictionary based on text, class sets, and user input, the data viewer 100 can use a mapping file specified by a user or an input document to combine files automatically.

Figures 12A, 12B and 12C depict screenshots of an X-Y plot 1202 in accordance with the present invention. Most commonly found in scientific statistical series, an X-Y plot 1202 by its nature treats every x-value as distinct. This display plots individual data points on the graph. The X-value transformer 710 is only required for collating only exact matches. The screenshot also displays a tree view 720 that corresponds to the data in the X-Y plot 1202 and a legend 1204. As shown on Figure 12A, the X-Y plot 1202 displays the selected line item 1206, and the legend 1204

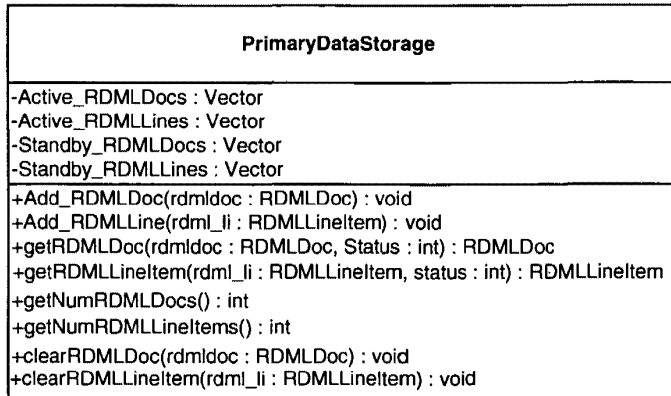
changes as the line item selection changes. The Figures 12B and 12C show the X-Y plots 1202 resulting from the selection of different line items 1206 in the tree view 720.

IV.A.4. Primary Data Store

Figure 13 depicts a primary data store 712 and some objects which it stores. The primary data store 712 is a cache of loaded RDML documents 102 that may be implemented in a number of ways (*e.g.*, as a vector, as a dictionary or hash table, or as some other collection of objects).

Once the X-value transformer 710 has determined an active or standby status for a newly arrived data document 102, and made any necessary modifications to the x-values, it passes a new RDMLDoc object 1302 to the PDS 712, which manages its communications with the various views or plug-in applications. This PDS 712 central storage allows the different views (716, 720, 724, and 728) to have access to an object 1302 representing the original source data. The individual views (described below) make their own copies of the portions of the data that they need, and in whatever transformed form they require. The PDS object 712 generally does not perform transformations on data; it simply holds them, adds and removes them, and makes them available in a public interface to other objects. Table 1 below shows an exemplary class diagram of the PDS object 712. Note that vectors are used to hold the RDML documents 102 in this implementation; it would also be possible to use a hash table or collection data structure.

Table 1



In the class diagram, the upper section lists the object's variable names followed by their types. The lower section lists the method names with the argument name and type in parentheses followed by the method output type. As shown, the PDS 712 provides variables and methods for storing active and standby RDMLDocs 1302 and RDMLLineItems 1304. The PDS 712 object includes methods to add, retrieve and clear documents and line items, in addition to methods for determining the number of documents and line items.

An RDMLDoc object 1302 is a full internal representation of the RDML document 102. It contains as its central attribute the tree-structured data elements contained in the document's original tags and implements the DOM interface. Applications that work with DOM objects may also work with RDMLDoc objects 1302. The RDMLDoc object 1302 provides a higher level interface for the different views of the RDML data viewer 100. The Table 2 below shows a class diagram of an exemplary RDMLDoc object 1302 in accordance with the present invention.

Table 2

RDMLDoc
<pre> -txDoc1 : txDocument +RDMLDoc() : RDMLDoc +createDoc(filename : String) : TXDocument +getAttributeValue(elementname : String, attributeName : String) : String +getAttValue(lev1_tag : String, lev2_tag : String, lev3_tag : String, att_name : String) : String +getData_xDefaults() : JCVector +getLinkAttValue(element : String, index : int, attname : String) : Atring +getLinkText(element : String, index : int) : String +getNumLinItems() : int +getNumLinksForElement(elementname : String) : int +getRDMLLinItem(att_name : String, att_value : String) : RDMLLinItem +getTXDoc() : TXDocument +makeRDMLLinItem(li : Node) : RDMLLinItem +parseCommaDelimString(in : String) : JCVector +setTXDoc(txDoc_in : TXDocument) : void +traverseDOMBranch(node : Node) : void </pre>

Described below are class methods shown in Table 2 of an RDMLDoc object 1302 in accordance with one implementation consistent with the present invention. First, RDMLDoc() is a constructor for creating an internal RDMLDoc object 1302. The method "createDoc" reads in the file indicated by an input URL, parses it, and creates a new TXDocument which the user then usually assigns to this RDMLDoc object 1302. A TXDocument is an object which implements the Document Object Model (DOM) interface. The TXDocument creates the DOM structure for the file and "wraps" it with various access and administrative methods. It is the DOM-compliant original representation of the document. The "setTXDoc" method sets the underlying TXDocument, and initializes object properties such as the number of line items, and "getTXDoc" returns the underlying TXDocument.

Whereas an RDML document 102 forms a tree of elements having attributes with values, the "getAttributeValue" method returns the attribute values for the named element, and "getAttVal" returns as a string the attribute value found at an inputted element name and attribute name. The

“getLinkAttValue” method gets the attribute value of a hyperlink element, according to the element name and attribute specified and “getLinkText” gets the corresponding hyperlink text.

When called, “getNumLineItems” returns the number of line items in the RDMLDoc 1302 and similarly “getNumLinksForElement” returns the number of links for an element.

The “getRDMLLineItem” method supplies the first RDMLLineItem 1304 (described below) based on the value of a particular attribute. For example, specifying "li-ID" and "3" will return the RDML Line item in which the "li-ID" attribute equals "3." The method called “makeRDMLLineItem” takes the indicated node, assigns it to a new RDMLLineItem object 1304 and initializes the object.

The method “getData_Defaults” returns a vector of the default x-values. Furthermore, “parseCommaDelimString” takes a comma-delimited string as input and returns the values between commas as elements of a vector and returns a vector of the strings. Finally, “traverseDOMBranch” takes an input node as a parameter and then traverses from that node downwards, and at each node, an operation, such as finding an element with a particular name, may occur.

Similar to the RDMLDoc object 1302, the "RDMLLineItem" 1304 is an object that provides high-level methods for retrieving data on a line item, any associated links or notes, and the attributes. The views of the RDML data viewer 100 work with RDMLDocs 1302 and RDMLLineItems 1304 to create their presentations. Table 3 shows a class diagram for an exemplary RDMLLineItem object 1304.

Table 3

RDMLLineItem
-data_x : TXElement -data_y : TXElement -jcvdata_x : JCVector -jcvdata_y : JCVector -li : TXElement -line_item_set_att : NamedNodeMap
+RDMLLineItem() : void +get_jcvData_X() : JCVector +get_jcvData_Y() : JCVector +get_strX_Value(index : int) : String +get_strY_Value(index : int) : String +getAttributeValue(attributeName : String) : String +getLinkAttribute(index : int, attName : String) : String +getLinkText(index : int) : String +getNumDataPoints() : int +getNumLinks() : int +initLineItem(doc : RDMLDoc, lineitem : Node) : void +set_li(input : TXElement) : void

Described below are class methods shown on Table 3 of an RDMLLineItem 1304 in accordance with one implementation consistent with the present invention. Methods with the same name as described above in connection with the RDMLDoc object 1302 have the same general function although, since a line item is already specific to an element, the methods take different arguments because they typically do not need an element specified in the given arguments.

RDMLLineItem() is a constructor that creates an RDMLLineItem object, and “initLineItem” initializes the line item to the values found in the RDMLDocument. The method “get_jcvData_X” and “get_jcvData_Y” return the x- and y-value vector for the indicated number of the line item. The “get_strX_Value” method and “get_strY_Value” return the x- and y-value at the number of the line item in the x_values vector as a string.

The “getNumDataPoints” method is called to receive the number of data points, *i.e.*, the number of x-values, in a line item. The method “set_li” allows the calling routine to set the line item in the RDML document 102 that this particular RDMLLineItem is to represent.

Referring back to Figure 7A, in one implementation consistent with the present invention, the chart manager object 714 takes up to six RDMLLineItems 1304 from the PDS 712 and displays them on a chart displayed on the graphical user interface 734 and is typically used in conjunction with the tree view 720 and the macro panel 732. When a user clicks a mouse on a line item in the tree view 720, that line item is added to the chart. When the user clicks the mouse on a macro line in the macro panel 732, the selected line items that are charted are transformed according to the programming of the macro. The chart manager 714 may be separated from the graphical chart view 716 to allow the ability to change chart software components easily should different or better graphic chart components become desirable.

Views

The data viewer 100 presents the user with a number of different views (716, 720, 724, and 728 as shown on Figure 7A) which the user may use to view the information in RDML documents 102 stored in the PDS 712. These views include a chart view 716, which shows graphical charts and graphs of the data, and a tree view 720 showing hierarchical representations of line items. Additionally, the data viewer 100 presents a spreadsheet view 724 which shows a data sheet similar to a spreadsheet, and a footnote view 728 which shows the text of footnotes associated with RDML documents 100. The views are discussed in detail below.

IV.A.5. Chart View

Upon receiving RDML markup documents, the chart view transforms, formats, manipulates and displays data stored in the markup documents using the attributes describing the meaning of the data. The chart view uses the attributes of the numbers to, for example, facilitate the simultaneous display of different series of numbers of different types on a single chart and automatically display appropriate descriptive textual components.

As an example, the chart view automatically determines when a first series is in the "U.S. dollars" and the second series is in "French francs"; it may automatically place them on separate axes or automatically translate the units. It can also determine the titles for these axes and set the labels on the axes. The chart constructs itself automatically using the attributes of the individual elements of the markup document, and these actions may be initiated with a single mouse click.

Figures 14A-F depict the chart view 716 in the top half of the screen, and the tree view 720 in the lower half. The chart view 716 has two primary components: the chart itself and the chart legend 1402. The line item 1206 that has been selected in the tree view 720 is automatically graphed in the chart 716. The chart manager 714 generally has three primary responsibilities: (1) collecting messages from the tree view 720, macro panel 732 and main menu (not shown) regarding changes to make to the chart 716, (2) obtaining the correct line items or macros from the PDS 712 or the macro manager 732, and coordinating transformations to the data, and (3) managing the chart's data object (the "chart data" object 715), which contains the data in the form in which it will be used in the chart, and the attributes of those line items.

Generally, the chart manager 714 handles updates and manipulations to the chart itself (*e.g.*, axes, labels, etc.) while the chart data object 715 handles the plotting of the data on the chart 716. The chart manager object 714 provides the information the chart data object 715 needs to update its

internal data structures. Chart data 715 is a data model that is used by the central graphical chart 716 to paint itself, but other components also use the data: the footnotes, the chart legends and titles, and any macros that are operating on the data.

One way to visualize the role of the chart manager 714 (and its data partner, the chart data object 715) is to view the steps of a method of a complete sample scenario: the user has selected a line item 1206 in the tree view 720 and the chart manager 714 is notified that this line item is to be added to the chart 716. There are various ways to set up the chart data/chart manager architecture. One way described in detail below is to create the chart up front and then feed it changes in data (initialization, clearing, updating data series, etc.) A second general approach is to use the data to create a new chart upon every request for a change.

Figures 14A-F will now be described in greater detail, and in particular, Figures 14A and 14B will be described in connection with Figures 15A, 15B, and 15C, which illustrate steps of a method for updating a chart view 716 upon the selection of a line item 1206 in the tree view 720 in an exemplary scenario in accordance with the present invention. Figure 15A illustrates steps mainly involving the tree view 720 and graphical interface 734, while Figures 15B and 15C illustrate steps mainly involving the chart data object 715 and chart manager 714 respectively.

As illustrated in Figure 15A, a user selects a line item 1206 in the tree view 720 on the graphical interface 734 (step 1502). The tree view 720 obtains the ID of the selected line item 1206 (step 1504) and removes any old macros that are applied (step 1506). The chart manager 714 then deletes the last series (displayed data of a line item) from the chart view 716 to make way for the newly selected line item (step 1508).

Referring now to Figure 15B, the chart data object 715 removes existing data from the chart 716 (step 1512). It then obtains the RDMLDoc object 1302 from the PDS 712 (step 1514) and the RDMLLineItem object 1304 from the RDMLDoc object (step 1516). After doing this, the chart data object 715 normalizes the x-value data (step 1518). For example, if one charted series displays data from 1961 to 1998, and the new one displays data from 1973 to 2005, the chart data object 715 ensures that the chart displays data from 1961 to 2005. The chart data object 715 then fills the x-axis 1404 with data (step 1520) and fills the y-axis 1406 with data (step 1522).

As shown in Figure 14B, a chart may have more than one y-axis 1406 charted at a time, (*i.e.*, a different y-axis on either side of the chart) to display multiple line items simultaneously. Thus, the chart data object 715 further marks which y-axis the series is on (step 1524), and if it is on a Y2 axis 1408 (a second y axis) (step 1526), it adds that axis (step 1528). The chart data object 715 sets the number formats for the axis labels 1406 and 1408 (step 1530) and sets the number precision (step 1532). Finally, it updates the footnotes (step 1534) and runs any macros that are applied (step 1536).

Referring now to Figure 15C, the chart manager 714 then sets the Y1 title (step 1538) and the Y2 title (step 1540) using line item attributes. After that, it updates the series styles (step 1542), the chart title 1410 (step 1544), the legend 1402 (step 1546), and the x-axis 1404 (step 1548). After these updates, and the chart manager 714 updates the number precision (step 1550), the y-axis 1406 (step 1552) and the chart types (*i.e.*, area, bar, stacked bar, line, pies, points, etc.) (step 1554). Subsequently, it updates the footer 1412 (step 1556) and sets the maximum x-value to the extent of the last used value, disposing of blanks on the right side of the chart 716 (step 1558). Finally, the graphical interface 734 repaints the graphical chart 716 with the newly created updates (step 1560).

The chart manager 714 and chart view 716 can chart different series types on a single chart and handle transformations automatically. Because two (or more) data series may be placed on the chart 716 from different source documents 102, they are synchronized for purposes of placing them on the common graph. The chart manager 714 uses data_x elements or the metadata tags to automatically transform data to permit different series types to appear together on a chart. It recognizes, for example, when a first series is in "US Dollars" and a second series is in "French Francs"; it makes arrangements automatically to place them on separate axes. There is no need for the user to go through a charting "wizard" or to find, understand, and translate the various units, titles, and adjustments. One click on each of the series' lines in the tree view 720 (potentially with a modifier key (*e.g.*, the CTRL key) depressed) instructs the chart view 716 to construct itself given the metadata of the individual elements. The chart manager 714 and chart data object 715 consider and take into account the following in updating the chart: the unit type, magnitude, scale, modifier, measure, y-axis title, chart title, chart footnote, precision, number format, chart type (line, bar, etc.), legend and colors of the various components.

The data viewer 100 also permits the adding of a series to a chart using a single click or command. Adding a series to a chart increases the number of series displayed on the chart. In conventional spreadsheets, charting programs, and data graphical interfaces, this task requires the user to either rebuild the whole chart through the wizard, fill in a dialog box with information on the new series, or add the numbers by custom programming. When the data viewer 100 adds the new series to the chart with a single mouse click. The existing data is maintained as it was, and any necessary changes to the chart's type, format, scale, etc. is made automatically by the chart manager 714 and chart view 716 to accommodate the new series.

Just as a series can be added with one mouse click (or one command from the menu), so can it be removed. There is no need for the user to worry about accidentally deleting something, as no actual information is lost from the data viewer 100. It can always be added back to the chart 716 with a simple mouse click.

The chart view 716 also supplies an expandable legend 1402 as shown on Figure 14A. A significant problem for most users of spreadsheet programs has been the inability of the user to control the size, format, and handling of the legend 1402. The result is that charts usually end up with legends such as "MSFT" and "SUNW," rather than longer descriptions with multiple colors and fonts, word-wrapping and other readability enhancements. The chart view 716 chart provides legends that (1) can grow to unlimited sizes, (2) support word-wrapping, (3) can contain multiple fonts, (4) can contain multiple font types (bold, italics, normal), and (5) can contain varying colors for emphasis. If the legend information (typically stored in the li_legend attribute) for a line item is too long for the legend box on the chart, the information may word-wrap and scroll to accommodate the additional information.

The chart view 716 permits further convenience by automatically specifying the y-axis title 1414. Current spreadsheet and charting programs require the user to provide a y-axis title, usually through a chart wizard or by specifying a location to look up a title. The RDML shifts this burden to the data originator, who is in a better position to accurately specify the description of the y-axis values. The y-axis title 1414 specified by the data originator is placed in an attribute field (y_axis_title) of the line item element tag and is used by the chart view 716 as the default y-axis title 1414 when the line item is added to the chart view 716.

Often, however, the user wants to make a change to the numbers and display the transformed series on the chart 716. In this case, the default y-axis title 1414 may no longer be correct. Rather than require the user to manually figure out what the new value description is (a process that could take several minutes or longer with current analytic programs), the chart manager 714 and chart view 716 data automatically generates a new y-axis title 1414 upon transformation of values using the information provided in the modified unit, magnitude, modifier, scale, measurement, and adjustment attributes of the line item 1206.

For example, suppose a first series is charted as "\$ in Millions," and the user applies a macro that divides every number in the series by 1,000. The chart manager 714 automatically creates a new y-axis title 1414 of "\$ in Billions." Number transformations can lead to quite complicated transformations of the y-axis title 1414. A user may multiply a first series ("Gallons in Millions") by a second series ("US \$ per Gallon"); the result will be a series of numbers, a third series ("US \$ in Millions"). If there are ambiguities, the data viewer 100 presents the user with a dialog box displaying all the known information regarding the quantities involved and requests that the user supply a title.

Similarly, the chart manager 714 and chart view 716 can automatically generate the x-axis title and chart titles 1410 using the metadata attributes. In addition to generating y-axis and x-axis titles, the data viewer 100 automatically performs the task of creating a new chart title 1410 when the charted series are changed or when multiple series are added to the same chart. For example, a first series has a default chart title of "Total Sales," a second series has a default chart title of "Total Expenses," and a third series has a default chart title of "Total Sales." The data viewer 100 will create a combined chart title of "Total Sales; Total Expenditures" by combining the dissimilar elements, and eliminating the duplicate elements.

Three examples illustrate other types of automatic title manipulation. In the first example, suppose a chart has two series placed on it: Series A has a title of “GDP” and a legend of “China”, and Series B has a title of “GDP” and a legend of “Malaysia”. If both are put on the chart, the titles will duplicate each other. In one implementation consistent with the present invention, duplicate titles are removed such that the title for this chart will be simply “GDP”. Because the series legends are different, the legend on the side of the chart will have two entries: “China” and “Malaysia”.

As a second example, suppose the legends are duplicative: Series A has a title of “China” and a legend of “GDP”, and Series B has a title of “Malaysia” and a legend of “GDP”. Because both legend entries would be “GDP”, there may be confusion about which legend applies to which line on the chart. In this case, the data viewer 100 transposes the legend and chart title entries such that the result is the same as in the first example above; the title of the chart is “GDP” (the duplicate is removed) and the legend entries are “China” and “Malaysia”.

Finally, in a third example, suppose the series have different titles and different legends. Series A has a title of “GDP” and a legend of “China”, and Series B has a title of “National Savings” and a legend of “Malaysia”. The legends are left as is, and a new chart title is created by appending one to the other separated by a “;”. The chart title on the display thus becomes “GDP; National Savings”, and the first legend becomes “GDP - China” and the second legend becomes “National Savings - Malaysia”. All three of these changes are string manipulations (selecting and/or appending).

The chart manager 714 and chart view 716 can also automatically trim beginning and ending x-values 1404, thus relieving the user of the need to trim null leading and trailing values from charts. In conventional spreadsheet and charting programs, chart pointers must be recreated or manually adjusted when the underlying data is enlarged or shortened. For example, if a series is charted that

runs from 1990 to 1998 and it is replaced by data from 1990 to 1996, there would be two blank spaces at the right side of the chart. The data viewer 100 and chart manger 714 avoid this and similar problems by handling missing or null values at the front or back of line items as indications that the chart should be automatically restructured.

The chart manager 714 also automatically formats the x- and y-axis labels 1404 and 1406. RDML shifts the burden of formatting the numbers on the x-axis 1404 and y-axis 1406 from the user (of which there may be thousands or millions, each reformatting the numbers manually one or more times) to the data originator (of which there is one, who only has to do it once.) The format templates are regular expression strings found in current spreadsheets and programming languages. The data viewer 100 uses the formatting strings for the axis labels on the chart view 716, for the numbers in the tree view 720, and as defaults for the numbers in reports. The formatting templates are automatically changed if a macro moves the numbers outside of the precision range that is legible on the chart 716, or out of a format that makes sense in the tree view 720 or in a report.

As stated previously, one of the RDML line item element attributes is the precision of the number, the number of significant digits to be displayed in a chart. Unlike conventional products, which leave this entirely up to the user to figure out, the data viewer 100 uses the specified precision to set the scale of the y-axis 1406, and the format and precision of its labels and tick marks.

Additionally, the chart manager 714 automatically creates and removes a second y-axis 1408 as shown on Figure 14B. A chart with two dissimilar series plotted on it will require two axes. The y-values may not be of the same units, measures or scales. A user might, for example, have plotted a series denominated "\$ in Millions" and then want to add to the same chart 716 a series denominated "% of GDP," and these two series cannot share a common y-axis. Chart manager 714 recognizes this incompatibility, creates a new y-axis 1408, and directs all subsequent formatting,

macros, etc., to the proper axis. Current spreadsheets and charting programs require that the user restructure the chart with a charting wizard (entailing many directives to be entered, and much trial and error to get the various scales, colors, etc., correct), or by custom programming. The data viewer 100 automates this process, creating and formatting a new axis if required by the specifics of the unit and scale attributes of the line items. If the series is removed from the chart, the associated axis is removed and the various scales, colors, etc., of the remaining series are updated to make the chart readable immediately.

Table 4 shows a class diagram of the chart manager 714.

Table 4

ChartManager
<pre> -chart1 : JCChartComponent -chart_data : ChartData -chart_legend : ChartLegend -chart_title : JCTitle -CDV1 : ChartDataView -CDV2 : ChartDataView -DS : DataStore -LineColors : JCVector -mainFrame : MainFrame -series1 : ChartDataViewSeries -series2 : ChartDataViewSeries -x_value_labels : JCVector -xaxis : JCAxis -xtitle : JCTitle -y1axis : JCAxis -y1title : JCTitle -y2axis : JCAxis -y2title : JCTitle -yLabelGenerator1 : YLabelGenerator -yLabelGenerator2 : YLabelGenerator </pre>
<pre> +addSeries(key : String) : void +addY2Axis() : void +ChartManager(mainFrame : MainFrame, chart_comp : JCChartComponent, legend : ChartLegend) : void +checkYAxisTitle(series : int, y1title : JCAxisTitle, y2title : JCAxisTitle) : int +deleteLastSeries() : void +deleteSeriesAfterFirst() : void +getAddSeriesFlag() : boolean +getChartData() : ChartData +getYAxisTitle(series : int) : String +initChart() : void +markWhichYAxis(num_series : int) : void +replotChart() : void +replotSeries() : void +resetChart() : void +setAddSeriesFlag(flag : boolean) : void +setChartType(type : int) : void +setDataStore(ds : DataStore) : void +setStartPeriod(sp : String) : void +updateChartTitle() : void +updateChartTypes() : void +updateFooter(num_series : int) : void +updateFootnotes() : void +updateLegend() : void +updatePrecision() : void +updateSeriesStyles(num_series_local : int) : void +updateXAxis() : void +updateYAxis(num_series_local : int) : void </pre>

Class methods of a chart manager object in accordance with one implementation consistent with the present invention are described below. ChartManager() is a constructor for the chart manager object 714, and "initChart" initializes the chart to be empty, and "getChartData" gets the chart data object 715.

The method "addSeries" adds a series to the chart while "deleteLastSeries" removes the last added series. Similarly, "deleteSeriesAfterFirst" deletes all series beyond the first series.

A series flag is set to "true" if the next series is to be added in addition to the already charted series. A "false" flag tells the chart to erase the last current series and replace it with the new series. The methods "getAddSeriesFlag" and "setAddSeriesFlag" retrieve and set this flag.

The method "getYAxisTitle" returns the y-axis title, and "checkYaxisTitle" checks the current y-axis title to see if the newly plotted series is to be on the current axis, or if a new axis is to be created. "AddY2Axis" adds a second y-axis to the chart if needed. The method "markWhichYAxis" tells the ChartData object which axis the new line item has been plotted on.

The method "resetChart" resets the chart to the state it was in when the data viewer 100 started while "replotChart" updates the physical aspects of the chart. Similarly, "replotSeries" replots a series due to changes.

The "setChartType" method tells the chart manager what chart type to display upon calling replotChart, and "setDataStore" tells the chart manager what data store object 712 it will be dealing with. If the data is a time series, "setStartPeriod" sets the internal variable for the starting period of the chart. Finally, the update methods each update the corresponding aspect of the chart in response to potential manipulations or changes, *e.g.*, "updatePrecision" updates the precision of the chart.

Table 5 shows a class diagram of the chart data object 715.

Table 5

ChartData
<pre> -chtData : JCVector -chtHeader : JCVector -cm : ChartManager -originalPlottedYear : String -start_period : String -zeroData : String[][] +addSeriesToChart(ds : DStore, key : String) : void +decrementNumSeries() : void +deleteLastSeries() : void +deleteSeriesAfterFirst() : void +fillXAxis_CT(rdml_li : RDMLLineItem) : void +fillXAxis_TS(rdml_li : RDMLLineItem, yearsDiff : int, sizeDiff : int) : void +fillYAxis_CT() : void +fillYAxis_TS(rdml_li : RDMLLineItem, start : int, yearsDiff : int, sizeDiff : int) : void +getAddSeriesFlag() : boolean +getChtData() : JCVector +getChtHeader() : JCVector +getChtHeaderElement(series : int, element : String) : String +getDataInterpretation() : int +getDataItem(row : int, column : int) : Object +getDifferencesInX(rdml_li : RDMLLineItem, yearsDiff : int[], sizeDiff : int[]) : void +getName(series : int) : String +getNumRows() : int +getNumSeries() : int +getPointLabels() : String[] +getRow(row : int) : Vector +getSeriesLabel(series : int) : String +getSeriesName(series : int) : String +getStartPeriod() : String +incrementNumSeries() : void +normalizeValues(rdml_li : RDMLLineItem, xory : int, yearsDiff : int, sizeDiff : int) : JCVector +setAddSeriesFlag(input : boolean) : void +setChtData(jcvIn : JCVector) : void +setChtHeader(jcvIn : JCVector) : void +setChtHeaderElement(series : int, element : String, value : String) : void +setDataItem(row : int, column : int, c : Object) : boolean +setNumSeries(new_num : int) : void +setOriginalPlottedPeriod(in : String) : void +setStartPeriod(in : String) : void +zeroChtData() : void </pre>

Below are class methods shown in Table 5 of a chart data object in accordance with one implementation consistent with the present invention. Methods having names that are the same as methods in the chart manager are not described because they perform the same function on the data alone.

The chart data object uses the methods “fillXAxis_CT,” “fillXAxis_TS,” “fillYAxis_CT,” and “fillYAxis_TS” to fill the x- and y-axes of time series and chart data sets. The methods “decrementNumSeries” and “incrementNumSeries” change a counter storing the number of series on the chart.

The method “getChtData” returns a vector of chtData, which is a vector of vectors: each element of the outer vector is a vector of data for one line item. The “getChtHeader” method returns a vector of chtHeader, which contains a vector of header information for each line item. This vector is a list of the values of the attributes of a line item, *e.g.*, magnitude, title, etc., and “getChtHeaderElement” gets the value of a particular element from chtHeader for the indicated series.

Operating on data sets, “getName” returns the data set name, and “getNumRows” returns the number of rows in the data set. The method “getRow” returns one row of a series while “getSeriesLabel” returns the label. The “getDifferencesInX” method aligns the time periods for time series charts, and “getNumSeries” returns the number of series in the num_series variable. Many of the get methods have corresponding set methods that set the value instead of receiving it.

The chtData variable is a vector of vectors (each sub-vector is the data for one series), and “getDataItem” returns the data value in a particular row and column of chtData. Used by the constructor, “zeroChtData” posts an empty chart. The “getPointLabels” method returns an array of strings, each of which is a point label of chtData

For a time series, “getStartPeriod” retrieves the start period of the time series, and “normalizeValues” normalizes values upon the addition of a series to the chart. The method “getDataInterpretation” returns either “array” or “general” to describe what form the data source structure is in. (A returned value of “array” is for Times Series and Category data -- which share x

values --, and a returned value of "general" is for XY data, in which X values are generally independent.)

IV.A.6. Tree View

Referring back to Figure 14A, this screen shot further contains the tree view 720 on the lower half of the screen. The tree view 720 presents a hierarchical view of the data. The tree view 720 serves a different purpose than "datasheet view" of conventional spreadsheets and database management systems. It shows the numbers in their context visually. The user can see the dependency relationships, identify from icons and visual clues how the different line items are related to their parents, peers, and children. The "Units" column 1416 prominently displays the units, scales, magnitudes, etc., of each line item, an important display in mixed data sets, where the unit context changes from line item to line item.

Each line item in the various active RDML documents 102 is displayed in the original order. In the tree view 720, each RDML document 102 begins a new top level node. The information displayed in the tree view 720 is a summary of important data from and about the line item, not a display of all the data points as would be found in a typical spreadsheet view. Instead of presenting a potentially confusing matrix of raw data digits that make the discerning of patterns difficult, the tree view 720 shows, in one implementation, the following information for each line item: legend 1402, units 1416, three user-selectable representative data points 1418, and one or more summary columns 1420. In the example on Figure 14A, there is some important documentation 1416 (description, units), some representative data 1418 (in this case, three year's worth), and a summary data column 1420 (in this case, the sum of all the data points). The first column 1416 displays the legend of the line item. This is the plain language description; it is repeated in each view where identification of the line item must be made by a human.

The representative data columns 1418 in the tree view 720 give the user visual clues as the relative importance, the types, and the format of the line items. The RDML data viewer 100 permits the user to select different fields to be displayed. For example, one user might want to see "1940, 1970, 2000" to get a sense of the long term trends, while another might only wish to see "1998, 1999, 2000" to see the recent trends.

The summary column 1420 allows the user to choose a statistic that is either desired to understand the lines and their context better, or that is desired for purposes of sorting the columns from greatest to least or vice versa. Any of the columns can be sorted simply by clicking on them. The summary column provides much easier statistics for the user than database or spreadsheet formulas because the RDML data viewer 100 provides one-click selection of statistical methods, thus removing the need to write formulas, adjust for missing values, handle nulls in the denominators, etc. Some examples of summary statistics include: (1) sum, (2) average (3), median, (4) minimum, (5) maximum, (6) moving average, (7) variance/standard deviation, (8) % difference (selected periods or categories), (9) % of parent, (10) % of specified line item, (11) correlation with parent, and (12) custom formulas. For each of these statistical measures, the RDML data viewer 100 provides a dialog box in which the user can adjust the assumptions. For example, the "moving average" can be for one period, five periods, ten periods, and so forth.

The tree view 720 emphasizes that line items are the primary data unit in the RDML data viewer 100, as opposed to single numbers as are found in spreadsheets as cells. Since each line item 1206 is an object, the RDML data viewer 100 may be thought of as an object-oriented spreadsheet. The icons 1422 for each line item identifies that line item's context. For example, a "+" icon 1422 indicates that adding that line item to its peers will produce the parent line item. This feature

addresses a shortcoming of spreadsheets and database datasheet views: the inability to view formulas and data at the same time. It shows the user how the numbers are related to one another.

Conventional database management systems, spreadsheet and numerical analysis tools have no built-in indication of how one record is related to another. In relational databases, the position or row may have no relevance to its data. RDML and the tree view 720 changes this by making the position of a line item in a set a usable piece of information by a user, and icons 1422 may visually designate the relationship of a line item to its parent node.

In one implementation consistent with the present invention, the following values are used for relationship icons: (1) plus, (2) minus, (3) times, (4) divide, (5) equals, (6) computed at, (7) member, (8) collection, (9) child, (10) parent, (11) memo, (12) general, (13) note, (14) none, and (15) root.

Sub-line items may add up to the parent line item (or may be modified by other relationships of their sibling line items.) "Plus" may add to siblings while "minus" subtracts from them. For example, a line item called "Net Sales" may have two children: "Total Revenues" and "Cost of Goods Sold." If "Total Revenues" has an li_relationship attribute of "PLUS", and "Cost of Goods Sold" has one of "MINUS", then the treeview 720 can show that Net Sales is equal to Total Revenues minus Cost of Goods Sold. "TIMES" and "DIVIDE" show multiplication and division of line items respectively.

"EQUALS" is the same as "plus," but shows the result of calculations of line items above it in order. "COMPUTED AT" is used for assumptions, such as percentages, interest rates, etc., while "MEMBER" denotes that the line item is simply a member of a collection of line items denoted by the parent line item. In this case, no assumption is made regarding arithmetic relationship, if any.

“COLLECTION” denotes that the line item has child members one level directly below it and denotes the concepts of sets or collections. “CHILD” illustrates that the line item is simply a “child” of the “parent” line item. It implies a sort of descent, derivation, or inheritance. No assumption is made regarding arithmetic relationship, if any.

“MEMO” is a line item that might be of interest to those looking at the sibling line items, but which is not necessarily related to the siblings, while “GENERAL” is a generic designator. “NOTE” is usually used for line items with text values, and “NONE” denotes that no relationship is implied. “ROOT” states that the line item is the root line item.

The tree view 720 also provides other capabilities. It allows the user to chart multiple line items 1206 by holding down the "shift" key. Although number browsing can be done in the data viewer 100 with a mouse, it is also possible for users to graph line items using arrow keys. When the focus is on the tree view 720, navigating up and down with the arrow keys automatically chart the selected line item 1206. If the "shift" key is held down, the succeeding data series will be added to the chart, rather than just replacing the previously selected series.

Figure 14C shows that, in one implementation consistent with the present invention, when a user right-clicks on a selected series, a pop-up menu 1424 is displayed showing the different types of documentation available. As shown in Figure 14D, selecting "description" shows a window 1426 containing information about the particular series, with the information being transferred from the tag form to a plain language, user-friendly format.

Figure 14E shows that, in one implementation consistent with the present invention, the user may graph multiple line items simply by selecting different "checkboxes" 1450 in line items in the tree view 720. In this implementation, the collection of selected line items is passed to the chart data object, which is then charted by the chart manager 714.

In one embodiment of the present invention, the selection of a contiguous set of lines that is less than all the lines in the tree view 720 is facilitated through a series of mouse events. First, a mouse down event is performed over a line (e.g., Bristol Center). The mouse is then dragged down (highlighting lines in the process) to the last line to be included in the group (e.g., Hamlet West Center). By delaying the mouse up event while retaining the cursor over the last line to be included, the user is able to signal the system (and the system is able to detect) that all elements in the selected/highlighted group are to be added. Accordingly, the system checks their corresponding check boxes.

The tree view 720 further provides an easy way of creating an RDML document 102 through drag-and-drop techniques. In conventional spreadsheet and DBMS applications, it is possible to create new tables from existing ones by selecting the data rows and cutting and pasting them, or by writing a SQL query. In the tree view 720, creating a new RDML document 102 complete with necessary documentation can be performed by dragging and dropping the desired line items to an icon that represents the new document. Macros may also be created and manipulated in the same manner.

The data viewer 100 may also set macros to be executed automatically as the selected line items are changed. Known as "locking" of macros, this permits browsing through data in a transformed state.

Figure 14F shows that a line item may have a visual link associated with it that can be activated by a user. Upon activation of the link 1430, a list of associated hyperlinks 1432 is displayed for selection by the user. The link 1430 itself may indicate the number of associated hyperlinks 1432. The user may then select any of the hyperlinks to access the corresponding web site.

IV.A.7. Spreadsheet View

Figure 16 depicts a screen shot that shows the spreadsheet view 724 in the lower half and the chart view 716 in the top half. The ultimate goal of many users is to get a set of numbers arranged into a format that will fit into an existing spreadsheet of theirs. While many programs offer cut and paste transfer of numbers from a source application to a target spreadsheet, such an approach still leaves the user with the task of manipulating, normalizing, aligning and transforming the data. A cut-and-paste operation is therefore usually followed by the manual recalculation and retyping of every number. The RDML data viewer 100, by contrast, allows the user to make the necessary data transforms with mouse-driven operations before loading the numbers into a spreadsheet.

Referring to Figure 16, as line items 1206 are added to and subtracted from the chart view 716 or tree view 724, they are added to and subtracted from the spreadsheet 724. In addition, any changes to the lines plotted on the chart view 716 (as the result of applying a macro or combination of macros) are immediately reflected in the numbers in the spreadsheet 724. This provides one-click addition of information to the spreadsheet view 724. Therefore, the way to copy data into the spreadsheet is simply to add them to the chart 716. It is also possible to copy an entire data document 102 or collection of data documents from the tree view 720 to the spreadsheet view 724, making any desired macro changes in the process.

Furthermore, RDML documents 102 may be created directly from the spreadsheet view 724. Whereas a data table is shown in the spreadsheet 724 (either created from another RDML document 102 or typed in from scratch), an RDML document may be created from that data in from the default specified by the user. This performs a task similar to an XML editor, but does so in a table format for the data, which is a more natural way to enter tabular data, not in the tree structure of current XML editors.

The spreadsheet view 724 may also directly read Internet data using a URL 1602. It will except formulas that use Xpointers (used by Xlink to specify destination of a link) to read in data from remote RDML documents 102. In this manner, data may be incorporated into a single spreadsheet from a number of sources with no need to prepare query or provide custom programming code.

As shown in the class diagram below in Table 6, the spreadsheet manager 722 may be a simple object; the chart manager/chart data 714 and 716 combination may be the actual repositories of the data. The chart manager 714 feeds data to the spreadsheet manager 722, which places the data in the correct cells. The spreadsheet manager 722 communicates directly with a graphical spreadsheet object 724, which in the case of the RDML data viewer 100 may be a third-party component.

Table 6

SpreadSheetManager
-gridControl : GridDataSheet
-chartmanager : ChartManager
+fillFromChart() : void

IV.A.8. Footnote View

Figure 17 is a screenshot which shows the footnote view 728 in the lower half. Generally, footnotes are a type of extended documentation that often get lost in transmitting and displaying numbers. Each line item has, as an attribute, a text string providing short footnotes which may be accessed by a mouse click (that is, by clicking the "Footnotes" tab 1702 at the bottom of the data viewer 100). As with the spreadsheet view 724, the default value is for only the plotted series to

have their footnotes displayed. However, it is possible to display all of the footnotes of an RDML document 102 in the spreadsheet or style sheet report views.

The footnotes in the footnotes view 728 are intended to be simple, important reminders about the data. Typically these include usual periods (a fiscal year), adjustments, special problems and so forth. By default, the footnotes view 728 also shows the source of the RDML document 102 and the original underlying data. In one implementation consistent with the present invention, anything requiring more than 255 bytes is represented in an HTML page for which there is a hyperlink in the line item. These longer footnotes may be displayed in the HTML window as HTML documents.

Furthermore, as the user adds and subtracts series from a chart, the footnotes are automatically updated from the source data, even if there are multiple source documents. The footnotes in the RDML "Footnotes" tab also automatically update their numbers and labels to match the chart. This is in contrast to current spreadsheet and charting programs, which require that the user, not an automated lookup routine, supply the footnotes.

The macro manager 730 manipulates and implements macros in the data viewer 100. Macros allow a user to apply transformations or calculations to line items on a one-click basis, instead of having to write formulas or queries.

IV.A.9 Tagging Wizard

The data viewer 100 may also create XML and RDML documents 102 from spreadsheet files. To this end, it may use a spreadsheet "wizard" to create tagged documents from a table of data in a spreadsheet. In one implementation consistent with the present invention, a wizard (using at least one dialog box) is created in a scripting language (*e.g.*, Excel Visual Basic for Applications) allowing tabular data in a spreadsheet (*e.g.*, Excel) to be used as the source for creating a tagged text document in the RDML format.

Figure 21 shows a flowchart illustrating steps used in a method for tagging information from spreadsheets in accordance with the present invention. Figures 22A-D depict exemplary screen shots for different stages in the document creation process.

Figure 22A shows that the user makes the data ready in tabular form (step 2102). Each row will become one line item; the first row 2202 will become the data for the “data_x” element 924. The first column 2204 will populate the “li-legend” attributes of the respective line items. Note that most tabular data is already essentially in this form: the category (or time period) descriptions run across the top, the plain-language line item descriptions run down the left, and the values themselves fill the table.

The user then highlights the legends in the left most column 2204 and opens the first dialog box 2206 (step 2104), shown on Figure 22B, which will insert new columns for information in front of the data table, each column containing one type of attribute (step 2106).

Figure 22C shows that pressing “OK” on the dialog box 2206 creates the column and fills in the default data (step 2108). The wizard inputs the desired default values, saving most of the tedious typing, and the user checks the columns 2208 to see if changes need to be made. Appendix F shows exemplary code for routines that perform those functions. For each attribute, a column is added to the spreadsheet, the correct value of the attribute is selected (*e.g.*, blank, hand-worded, or taken from the appropriate field in the dialog box), and the correct number of cells are filled with that value in the appropriate column 2208.

Figure 22D shows that the user then brings up the document creation dialog 2210 (step 2110). The user first uses the first entry field 2212 to specify the range of the data table (including the attribute columns). The “default” data file will be used to provide defaults for the rdmldoc-header element 904 values, as well as other elements and attribute values in the line_item_set

element 906 (step 2112). Finally, the user fills out the remaining fields and presses “OK”, which causes the tagged RDML document 102 to be created and saved (step 2114). As would be appreciated by one of ordinary skill in the art from this disclosure, the information gathered in the exemplary dialog boxes could instead be gathered in a single dialog box before creating RDML-compliant data.

Appendix G provides code used in one implementation to create an RDML document 102. Generally, the process comprises steps of: (1) opening file and buffers for writing, (2) calling an element-creation method for each element in the DTD 702 which can be nested within others, and (3) saving and closing the files when finished.

IV.A.10. Aspects of RMDL Markup Documents

RDML is designed to be used to describe numbers across industries and domains. To do so, it provides a basic set of tags and a matching vocabulary to describe six aspects of a table of numbers: (1) value, (2) structure, (3) format, (4) semantics, (5) provenance, and (6) measurement.

Value denotes that numbers are transmitted as strings, with additional tags to define their data type, degrees of precision, handling of missing values, handling of nulls, and other directives to the end application.

Structure refers to a structuring of the data in within a table. RDML permits records to be arranged hierarchically within a table. Although not a standard approach for relational tables, this permits multiple levels of information to be placed in a single two-dimensional table. Users desire this, for example, when viewing financial statements, where a single line item (*e.g.*, “Equipment leasing”) may have several sub-components (“Autos,” “Trucks,” “Office Equipment.”)

Format allows the application to present users with numbers in human readable form. The tags specify default formats for numbers, internationalization issues such as comma/decimal point handling, and default legends and chart titles. These formats may be changed by the users at run time.

Semantics refers to the fact that RDML provides generic tags in which indicators of the “meaning” of the numbers, including the vocabularies of other SGML and XML markup languages, can be placed. This allows RDML to act as a “wrapper” for data from other markup language documents. Semantic meaning is also conveyed in text-based attributes: legends, titles, labels, footnotes, etc.

Provenance is the documentation of various elements. RDML elements include information on the source of the data, who marked it up, timestamps and link addresses, and licensing information, etc.

Finally, in the context of generic numbers, “Measurement” refers to the characteristics necessary to describe the measurement aspects of the domain the number is taken from: units (“meters”, “feet”), magnitude (“millions”, “billions”), modifiers (“Adjusted for inflation, 1997 index”), and so forth. This permits macros to ensure the results of any calculation are adequately derived and described to the end user.

IV.B. Graphical User Interface and HTML Browser

The screen shots of Figures 14A-D, 16 and 17 have been of the graphical user interface (“GUI”) 734 which has several responsibilities. Generally, it creates itself and other visual components upon start-up of the application, and provides a central storage place for a minimal number of global variables of the application (such as file directories, etc.). Further, it responds to

user actions, such as mouse clicks and keyboard shortcuts, and repaints the screen, or portions of the screen, at appropriate moments.

The HTML browser 736 may be a third party component which displays HTML files. Although this browser has been designated as an HTML browser, one of ordinary skill in the art would appreciate from this disclosure that other browsers (*e.g.*, an XML browser) can likewise be used. This component provides basic web-browsing capabilities and a way to view hyperlinks for RDML documents 102. Additionally, it acts as a display window for certain pages generated by the RDML data viewer 100 (such as RDML document source code, chart documentation, etc.)

IV.C. Reusable Macro Markup Language

Figure 18 graphically shows elements of the RMML Document Type Definition 1800. In one implementation consistent with the present invention, RMML documents 104 conform to the rules provided by the DTD 1800. In accordance with one implementation of the present invention, an RMML DTD 1800 is shown at Appendix D. Attributes and elements of the DTD 1800 may also be seen in the full sample RMML document 104 in Appendix E. These two Appendices D and E are useful for examining specific attributes and elements of the RMML DTD 1800.

The RMML DTD 1800 data structure is optimized to provide information needed in the order in which it is required, to reduce the learning on the part of new users to RMML Macro development, and to avoid unnecessary duplication. The first line of the DTD 1800 in Appendix D starts with '<?xml encoding = "UTF-8"?>' because XML documents start with a line that tells the client application, in this case, the RMML Interpreter 1980 (described below) and the data viewer 100, what type of document it is and the version of XML.

With further reference to Figure 18, the DTD 1800 used to define RMML macro documents 104 is structured in a hierarchical tree structure of elements. Each element may include a list of attributes (displayed in Appendix D, but not shown on Figure 18) and/or an association with one or more sub-elements. As with the RDML DTD described above, some attributes may be required while others may be optional, depending on design parameters. At the highest level, the DTD 1800 has three elements descending from a root element, <macrodoc> 1802. The first element, <macro_header> 1804, contains the metadata for the document as a whole. The second, <macro_code> 1806 contains the source code expression to be evaluated, related variables, and instructions to the application regarding the graphical user interfaces for any parameters. The third, <macro_references> 1808 contains elements related to remote data (RDML documents 102) or other macros (RMML documents 104).

The macro_header element 1804 is designed to match, as closely as possible, the rdmldoc_header element of RDML documents 102. This saves learning time for developers and end users, and allows reusable code modules to be built for both purposes.

Nevertheless, in one implementation consistent with the present invention, the <macro_header> element 1804 contains several attributes that are unique. In this implementation, there are 8 unique attributes in the <macro_header> element 1804. The first of these is "macro_type." This attribute tells the application which general capability this particular macro requires within the context of that application. The application uses this attribute in a factory class 1912 to create the correct type of macro object for internal use. Two example types consistent with this implementation are: (1) "TSL" (time series line, a macro that works with time series to create a new line or lines on the chart), and (2) "TSO" (time series overlay, a macro that works with time

series to create a new overlay on the chart 716, such as gray backgrounds behind certain time periods.)

The `result_type` attribute tells the RDML data viewer 100 how to display the results of any transformation created by the macro. There are, in one implementation, five permissible values for this string: "Replace Each," "Replace All," "Replace AB," "Add New," "Add Annotation," and "Add Overlay." Replace Each removes every line on the chart 716 in the RDML data viewer 100, and replaces it with the transformed version. For example, if there are four series on the chart, all denominated in "miles", and user selects a macro "to kilometers", then every line will be converted to kilometers, the miles lines erased, and the kilometers lines placed on the chart in their place.

Replace All is used where all current lines are being replaced by one line. For example, if A and B are charted, a macro called "B as % of A" would replace them with a single line. Replace AB is a special case of Replace All where there are only two lines charted. Add New adds a line to whatever is plotted. For example, a macro called "Average" might draw a line through the existing line at the average level. Add Annotation adds a label with a pointer to a certain value on a chart (e.g., "2-3 Stock Split"). Add Overlay adds a shaded area behind certain regions of the chart.

The attribute "`rdmldoc_type`" designates the type of RDML Document 102 with which the macro is designed to work. Valid strings for this attribute are TS, CT and XY, corresponding to the types of RDML Documents 102.

The elements `<macro_source>` 1810 and `<license_terms>` 1812 are identical to, and play the same role as, `<data_source>` 908 and `<license_terms>` 914 in the RDML Document Type Definition 702. The `<documentation>` 1814 element is a container for two sub-elements: `<macro_description>` 1816 and `<help_page>` 1818. The `<macro_description>` element contains a short string (e.g., under 50 characters) which describes the basic functionality of the macro. It appears in the description

label of the parameters panel 1960 (shown in Figures 20A-D and described below) For users desiring a more detailed description of the macro, the <help_page> 1818 element contains a text block that provides this information. This text block can be read by the data viewer 100 in an HTML pane as part of the regular help system. This text block is intended to provide information on all aspects of the macro that might be of interest to the user: its use, its code, its parameters, and its inputs:

The second top-level element is <macro_code> 1806. This section contains the actual source code and related variables. The <code> 1820 element contains one or more expressions which evaluate to a transformation of certain numbers in the RDML data viewer 100. In one implementation consistent with this invention, the transformations apply to the chart view 716 in the RDML data viewer 102. But transformations may also be applied to the treeview 720 or other views.

The expression(s) in this element are formulas similar to those seen in spreadsheet formulas: the expression is a series of (1) operators, (2) literals, (3) variables, (4) functions, and (5) miscellaneous expression delimiters. The main difference from traditional spreadsheet formulas is that the variables may stand for either scalars or vectors, depending on the source or the context. A sample expression follows:

$A * (B + 2000) - IF(A > 3, 12, 45)$

Operators are: addition (+), subtraction (-), multiplication(*), division(/), less than (<), greater than (>), or (!), and (&). The operators have different meanings based on the types of the sub-expressions they work on. Operating on two vectors is interpreted as element-by-element operation on the two vectors. Thus, $A * B$, where A and B are vectors, is $C = \{a_1 * b_1, \dots, a_n * b_n\}$.

Literals are defined either directly in the expression (e.g., "46"), or assigned to a variable (e.g., "pi = 3.14156").

Variables can come from one of six different places in RMML. First, they can be defined as variables directly in the RMML document 104. This is done by creating a <variable> element and assigning it a default value. Second, variables can be associated with graphical components in the parameters panel 1960 in the RDML data viewer 102. In one implementation consistent with this invention, there are four different types of “gui components.” These are listed and described below under <gui> element 1824. Third, a variable can be defined from a line item element identical to those found in an RDML document 102. Because they are identical, a line item can be simply cut and pasted from an RDML document 102 to an RMML document 104. Fourth, a variable can be drawn from a remote source. In one implementation consistent with the present invention, that remote source can be a hyperlink to a line item in an RDML document 102. This is accomplished by using an Xpointer hyperlink in the “href” attribute of a variable element. Fifth, a variable can be defined as one of the series of data that is currently plotted on the chart. In one implementation in accordance with the present invention, there can be a maximum of six series on the chart; each can be accessed by using the reserved words A, B, C, D, E, and F. As would be appreciated by one of ordinary skill in the art, any number of uniquely definable series may be used. If the result type attribute of a macro is “Replace All”, then the expression is evaluated once for each series, with A being the series currently being transformed. Sixth, variables can be taken from an RDML document 102 that is already loaded in the RDML data viewer 100. In this case, the expression indicates the URL and a class string that can be found in one of the li_class elements of a line item element. The expression then uses that line item as the variable value.

Functions that are built in are provided by the interpreter 1980 in one implementation consistent with the present invention and are a principal means of extending the language. These

are in the form "FUNCTION_NAME(expression)". Functions include: IF(x,y,z); SUM(x); AVERAGE(x); COUNT(x); MIN(x); MAX(x) and so forth.

Miscellaneous delimiters are implemented by separating expressions by a semi-colon (;). This indicates that the expressions are to be evaluated in order. Expressions can also be grouped in parentheses to tell the interpreter 1980 how to evaluate sub-expressions.

Any string appearing in the <instructions> element 1822 will be displayed in the parameters panel 1960 to give the user any last minute instructions or suggestions. The <gui> element 1824 contains any number of elements that describe graphical components. These graphical components will appear in the parameters panel 1960 to give the user the ability to make changes to the macro's parameters. Four gui components (not shown) may be: <comp_vector>, <comp_list>, <comp_rbutton>, and <comp_ipanel>. The <comp_vector> is a vector variable, where the individual values of the vector can be viewed in a scrolling list box. A <comp_list> element is a scrolling list; each time the user clicks on a different item, the value of the variable attached to that component is changed to the value associated with that item. A <comp_rbutton> is a collection of radio buttons; each is associated with a different value. As the user clicks on different buttons, the value associated with the component itself is changed, and the macro is re-run. A <comp_ipanel> is an input field that allows the user directly to input changes to the macro.

Generally, macros are not meant to run blindly on all data. First, the interpreter 1980 checks if the macro has any "qualifiers" that must be checked against the data. If there are any strings in the <qualifiers> element 1826 of the RMML document 104, these are checked against strings in the <li_class> element 930 or other elements or attributes of the data. If the data is qualified, the interpreter 1980 will proceed with running the macro. For example, if the <qualifiers> element 1826

of the macro specifies “li_unit==currency”, then the macro will only be run if the li_unit attribute of the data being operated on is a currency value.

The <error_handling> element 1828 holds error messages that can be displayed by the RDML data viewer 100 if there are problems of an indicated type. The <testing> element 1830 holds instructions to testing applications regarding automated testing routines. These applications undertake basic unit testing such as checking for out-of-bounds problems, missing value problems, divide-by-zero issues, etc.

The third major section of the RMML document 104, the <macro_references> element 1808 holds references to outside macros and data sets that might be incorporated into the macro by reference. The two sub-elements are, accordingly, the <rmmldocs> element 1832 and the <data_docs> element 1834.

IV.C.1. RMML Macro Package

Generally, there are three major areas of the RMML Macro Package: the RMML document handling classes (Figure 19A), the graphical interface (Figure 19B), and the macro interpreter (Figure 19C). In one implementation consistent with the present invention, this package of software classes connects to the RDML data viewer 100 in only a few places: it gets data from the ChartManager 714/ChartData 715 objects, posts its graphical components through the GUI 734 object, and can access the loaded RDML documents 102 in the Primary Data Store 712.

RMML Document Handling

Figure 19A shows objects responsible for managing the process of RMML document handling: loading documents, creating internal macro objects from them, cataloging them and caching them, and making them ready for use as objects. The RMMLDoc Reader 1910 locates an RMML Document 104 (either locally or over the internet) passes it to an XML Parser 706 (which

may be a third-party component), relays error messages if any to the RDML data viewer 100, creates an internal representation of the RMML Document 104 as an RMMLDoc 1906 object, and places a reference to the RMMLDoc 1906 in the RMML_Lib 1908.

The RMMLDoc 1906 can be structured in two ways: either wrapping a TXDocument object to arrive at an RMMLDoc 1906, or creating a new RMMLDoc 1906 object with the data from the TXDocument.

The RMMLDoc 1906 object contains methods for accessing individual elements and attributes of the document in a way that is easy to comprehend in the context of the macro package. The RMML_Lib 1908 object is a cache for loaded and active RMMLDoc objects 1906.

The RMMLDoc 1906 is a raw collection of data about a macro -- its formula, its help text, etc. -- and generally does not act on data sets to transform them. The macro's capabilities first have to be used to create an internal object (macro interface 758) that is capable of doing the calculations. This internal macro object 758 is created by a collaboration between the MacroLibrary 1926 object (which is a cache of the graphic objects for the active macros) and the MacroFactory 1912 (which determines which type of internal macro to create.)

There are four types of internal macros: time series (TS), category (CT), xy plot (XY) and overlay (OVERLAY). The macro_type attribute is used by the MacroFactory 1912 to create the correct type of internal macro: Macro_TSL 1918, Macro_CT 1920, Macro_XY 1922, and Macro_OVER 1924 respectively. The MacroAdapter 1916 class performs the work of the macros.

Table 7

MacroAdapter
-mm : MacroManager -mem : Memento -rmmldoc : RMMLDoc -eval : Evaluator -mag : MacroAssumptionGroup -desc : MacroDescription -isChangedFlag : boolean -result_type : int -curr_li : int -series_label_modifier : String -series_label_type : String
+createMemento() : void +evaluateFormula(strExpr : String, index : int) : Vector +initMacro() : void +performTransformation(result_type : int) : void +replaceVariable(strExpr : String, index : int) : String +resetMemento(mem : MacroMemento) : void +undoTransformation() : void +updateChartTitle() : void +updateLabels() : void +updateLegend() : void +updateYAxisTitle() : void

Described below are class methods shown in Table 7 of a MacroAdapter object 760 in accordance with one implementation consistent with the present invention. First, MacroAdapter() is the constructor that creates a MacroAdapter 760 object. Before a macro is run, it has a chance to make a copy of the data that it is about to transform so that undo operations can be performed. The createMemento() method takes a snapshot of the data plotted on the chart by copying the ChartData object 715 to a Memento object.

Also, before a macro is run, the method initMacro() is run and gives the macro a chance to load any remote data or macro code. The replaceVariable() method runs the macro on multiple series on a chart. For example, if the result_type is "Replace Each" and there are four series charted on the chart, the macro will be run four times. The first time, A in the formula represents the first series, the second time it represents the second series and so forth. The method

performTransformation() evaluates the transformation string, and updates the various titles and legends. An important part of performTransformation()'s code is to determine the result_type of the macro and call the evaluateFormula() method in the correct manner. For "Replace Each," it is called once for each series, while for "Replace All," it is run only once.

The performTransformation() method also calls the four update methods: updateChartTitle(), updateLabels(), updateLegend() and updateYAxisTitle(). Each of these modifies the relevant strings in the ChartData object 715 so it can be passed on to the chart.

RMML Graphical Interface

Figure 19B illustrates objects responsible for managing the process of creating, managing, and handling events from the graphical user interface 734. Figure 20A shows a screen shot of the RDML data viewer 100; the NewMacroPanel 732 is displayed in the lower half of the screen. The available macros are displayed in individual windows in the MacroLibrary panel 1926 on the left side of the lower panel. The right side of the macro panel 732 is the macro information panel 2002 which holds the macro description panel 1958 and the parameter panel 1960.

The NewMacroPanel 732 may be a subclass of a JPanel 1942 in Java's Swing set of classes. Those skilled in the art will be able to chose the appropriate class to use for other major platforms. The left side of the NewMacroPanel 732 is a frame for a multiple document interface (in this case, a Desktop for JinternalFrame objects from Java's Swing Set). Each MacroLibrary 1926 that is opened created a new internal frame, which allows users to select macros from multiple libraries at the same time.

When a MacroLibrary 1926 is opened, all macros within it are loaded and registered. "Registration" is a series of methods wherein the macro's variables are found in various elements

of the RMMLDoc 104, and graphical representations of these variables are built for inclusion in the parameter panel 1960.

The graphical components for all of the variables associated with a set of macros are created in the MacroAssumptionGroup 1944 class. This class has a factory method that examines the attributes of the variables reported by the RMMLDoc 104 (variable name, variable value, gui type, default value, etc.) and creates the appropriate MacroGUI class: MacroGUI_List 1952 (see Figure 20A), MacroGUI_RadioButton 1954 (see Figure 20B), MacroGUI_Vector 1956 (see Figure 20C), or MacroGUI_Default 1950 (see Figure 20D). Each of these graphical compents appears differently in the parameter panel 1960 as shown in the screen shots noted.

The registration of macros by the MacroLibrary 1926 also involves creating an MVariable 1946 object to go with each variable, and adding these to a cache of available Mvariables 1946. These Mvariable 1946 objects are used in the actual evaluation of expressions. The registration process also involves registering the MacroGUI 1948 objects as sources for events that the MacroManager 1980 object can use to trigger the running of a macro. Mvariables 1946 encapsulate the various characteristics of a variable: its value, default, and source.

The description panel 1958 and the parameter panel 1960 are populated with graphical components and text when a particular macro is selected in the treeview 720 listing of a MacroLibrary1926 internal frame. The macro that is selected provides the description text, the various labels and the MacroGUI 1948 components.

RMML Interpreter

The MacroManager object 730 is responsible for detecting that a macro has been selected or a parameter changed, getting the various data sets and variables called up and made available to an

Evaluator object 1984, and that the data set charted (or showing on the treeview 720) is obtained and transformed and sent back to be recharted on the chart 716 or relisted on the treeview.

ChartData 715 contains the data from the current chart 716 (or active treeview 720, depending on the type of the macro). It makes this data available as just another variable to the Evaluator object 1984, and takes the final result of the Evaluator object 1984.

The Evaluator 1984 evaluates the string expression(s) in the <code> element 1920 of the RMML document 104, or the various expressions from the macros that have been selected. The expression is broken up into tokens by the Tokenizer classes 1994. These tokens are the various operators, variables, literals, functions and other control symbols used in the RMML expression language detailed above. From these tokens, the Formula object 1990 builds a parse tree, by recursive descent, made up of FormulaNode 1992 objects created from the tokens. The FormulaNode 1992 objects evaluate themselves using the resolver objects VariableResolver 1986 and FunctionResolver 1988. These resolvers in turn call the Evaluator objects 1984 to give them the current value of a variable or a function. For example, the FormulaNode 1982 evaluation process may have an "A" token; the Evaluator object 1984 knows that this means series A on the chart, and uses the vector of data (it could be an array or other data structure) currently found in the chart 716. The formula exception 1996 relays errors associated with the processing of a function.

The foregoing description of an implementation of the present invention has been presented for purposes of illustration and description. It is not exhaustive and does not limit the present invention to the precise form disclosed. Modifications and variations are possible in light of the above teaching or may be acquired from practicing of the present invention. The scope of the present invention is defined by the claims and their equivalents.

APPENDIX A: RDML Document Type Definition ("DTD")

```

<?xml encoding="UTF-8"?>

<!-- The root element: a whole portfolio of data is an "rdmldoc" -->
<!ELEMENT rdmldoc (rdmldoc_header, line_item_set)>

<!-- RDMLDOC_HEADER -->

<!-- Information about the rdmldoc. An rdmldoc consists of an rdmldoc_header
and a line_item_set. Line items in the line_item_set share a
common data structure.
-->

<!ELEMENT rdmldoc_header (data_source?, formatting_source?, rdmldoc_source?,
license_terms?, linkset?)>
<!ATTLIST rdmldoc_header
    rdmldoc_ID          CDATA          #REQUIRED
    doc_title           CDATA          #REQUIRED
    timestamp           CDATA          #REQUIRED
    version             CDATA          #IMPLIED
    expiration          CDATA          #IMPLIED
    freq_of_update      CDATA          #IMPLIED
    num_line_items      CDATA          #IMPLIED
    num_datapoints      CDATA          #IMPLIED
    x_indexes           CDATA          #IMPLIED
    first_li_withdata   CDATA          #IMPLIED >

<!ELEMENT data_source (contact_info+)>

<!ELEMENT formatting_source (contact_info+)>

<!ELEMENT rdmldoc_source (contact_info+)>

<!ELEMENT license_terms (contact_info?, linkset?)>
<!ATTLIST license_terms
    copyright_cite     CDATA          #REQUIRED
    holder             CDATA          #REQUIRED
    license_type       CDATA          #IMPLIED
    warranty           CDATA          #IMPLIED
    disclaimer         CDATA          #IMPLIED
    terms             CDATA          #IMPLIED
    date              CDATA          #IMPLIED
    email             CDATA          #IMPLIED
    state             CDATA          #IMPLIED

```

country	CDATA	#IMPLIED >
---------	-------	------------

<!ELEMENT contact_info (#PCDATA)>
<!ATTLIST contact_info

| | | |
|----------|-------|------------|
| role | CDATA | #REQUIRED |
| name | CDATA | #IMPLIED |
| company | CDATA | #IMPLIED |
| address | CDATA | #IMPLIED |
| city | CDATA | #IMPLIED |
| state | CDATA | #IMPLIED |
| zip | CDATA | #IMPLIED |
| country | CDATA | #IMPLIED |
| email | CDATA | #IMPLIED |
| form | CDATA | #IMPLIED |
| href | CDATA | #IMPLIED |
| comments | CDATA | #IMPLIED > |

<!ELEMENT linkset (link*)>
<!ATTLIST linkset

| | | |
|------|-------|-------------------|
| form | CDATA | #FIXED 'extended' |
| href | CDATA | #IMPLIED > |

<!ELEMENT link (#PCDATA) >
<!ATTLIST link

| | | |
|---------------|-------|-----------------|
| form | CDATA | #FIXED 'simple' |
| href | CDATA | #REQUIRED |
| behavior | CDATA | #IMPLIED |
| content-role | CDATA | #IMPLIED |
| content-title | CDATA | #IMPLIED |
| role | CDATA | #IMPLIED |
| title | CDATA | #IMPLIED |
| show | CDATA | #FIXED 'new' |
| actuate | CDATA | #FIXED 'user' > |

<!-- LINE_ITEM_SET -->

<!-- Information about the collection of line items -->

<!ELEMENT line_item_set (data_x, li_class_set?, linkset?, line_item+) >
<!ATTLIST line_item_set

| | | |
|--------------------|-------|-----------|
| line_item_set_type | CDATA | #REQUIRED |
| time_period | CDATA | #REQUIRED |
| character_set | CDATA | #IMPLIED |
| missing_values | CDATA | #IMPLIED |

| | | |
|--------------|-------|------------|
| null_values | CDATA | #IMPLIED |
| zero_values | CDATA | #IMPLIED |
| dates_values | CDATA | #IMPLIED |
| percentages | CDATA | #IMPLIED > |

<!ELEMENT data_x (#PCDATA) >

<!ATTLIST data_x

| | | |
|--------------|-------|-------------|
| x_title | CDATA | #REQUIRED |
| format | CDATA | #REQUIRED |
| x_notes | CDATA | #IMPLIED |
| x_desc | CDATA | #IMPLIED |
| x_prec | CDATA | #REQUIRED |
| x_unit | CDATA | #REQUIRED |
| x_mag | CDATA | #REQUIRED |
| x_mod | CDATA | #REQUIRED |
| x_measure | CDATA | #REQUIRED |
| x_scale | CDATA | #REQUIRED |
| x_adjustment | CDATA | #REQUIRED |
| x_links | CDATA | #REQUIRED > |

<!ELEMENT li_class_set (li_class+)>

<!ELEMENT li_class (#PCDATA)>

<!ATTLIST li_class

| | | |
|--------------|-------|-----------------|
| class_name | CDATA | #REQUIRED |
| parent_class | CDATA | #REQUIRED |
| form | CDATA | #FIXED 'simple' |
| href | CDATA | #IMPLIED |
| description | CDATA | #IMPLIED > |

<!-- LINE_ITEM -->

<!-- Information about the Line Item -->

<!ELEMENT line_item (data_x?, data_y, linkset?, note_set?) >

<!ATTLIST line_item

| | | |
|--------------|-------|-----------|
| li_ID | CDATA | #REQUIRED |
| li_legend | CDATA | #REQUIRED |
| li_title | CDATA | #REQUIRED |
| li_cat | CDATA | #IMPLIED |
| y_axis_title | CDATA | #REQUIRED |
| level | CDATA | #REQUIRED |
| format | CDATA | #REQUIRED |
| relation | CDATA | #REQUIRED |

| | | |
|----------------|-------|------------|
| li_notes | CDATA | #REQUIRED |
| li_desc | CDATA | #REQUIRED |
| li_prec | CDATA | #REQUIRED |
| li_unit | CDATA | #REQUIRED |
| li_mag | CDATA | #REQUIRED |
| li_mod | CDATA | #REQUIRED |
| li_measure | CDATA | #REQUIRED |
| li_scale | CDATA | #REQUIRED |
| li_adjustment | CDATA | #REQUIRED |
| li_aggregation | CDATA | #IMPLIED > |

<!ELEMENT data_y (#PCDATA)>

<!ELEMENT analysis (linkset?)>

<!ELEMENT note_set (note+)>

<!ELEMENT note (#PCDATA)>

<!ATTLIST note

| | | |
|-----------|-------|------------|
| note_type | CDATA | #IMPLIED > |
|-----------|-------|------------|

APPENDIX B: Sample RDML Document

```
<rdmldoc>
  <rdmldoc_header
    rdmldoc_ID = "rdml_thomson_cs1"
    doc_title = "Computer Services Companies"
    timestamp = "1999-01-19T23:00:00"
    version = "1.0.0"
    expiration = "2000-01-19T23:00:00"
    freq_of_update = "Annual"
    num_line_items = "0"
    num_datapoints = "0"
    x_indexes = "-9, -8, -7"
    first_li_withdata = "3" >
```

```
<data_source>
  <contact_info
    role = "Data Source"
    name = "Russell T. Davis"
    company = "RDML, Inc."
    address = "2 Wisconsin Circle, Suite 700"
    city = "Chevy Chase"
    state = "MD"
    zip = "20815"
    country = "USA"
    email = "rt_davis@sprynet.com"
    xlink:form = "simple"
    href = "http://www.rdml.com"
    comments = "" >
```

```
</contact_info>
```

```
</data_source>
```

```
<formatting_source>
```

```
<contact_info
  role = "Formatting Source"
  name = "Russell T. Davis"
  company = "RDML, Inc."
  address = "2 Wisconsin Circle, Suite 700"
  city = "Chevy Chase"
  state = "MD"
  zip = "20815"
  country = "USA"
  email = "rt_davis@sprynet.com"
  xlink:form = "simple"
  href = "http://www.rdml.com"
  comments = "" >
```

```

</contact_info>
</formatting_source>
<rdmldoc_source>
  <contact_info
    role = "RDMLDoc Source"
    name = "Russell T. Davis"
    company = "RDML, Inc."
    address = "2 Wisconsin Circle, Suite 700"
    city = "Chevy Chase"
    state = "MD"
    zip = "20815"
    country = "USA"
    email = "rt_davis@sprynet.com"
    xlink:form = "simple"
    href = "http://www.rdml.com"
    comments = "" >
  </contact_info>
</rdmldoc_source>
<license_terms
  copyright_cite = "Copyright 1998, RDML, Inc. All Rights Reserved"
  holder = "RDML, Inc."
  license_type = "Payment Per Download"
  warranty = "No warranty is expressed or implied. Use this data at your own risk."
  disclaimer = "This data is provided 'as-is'. The provider assumes no
responsibility for its use or misuse."
  terms = "$1 per RDMLDoc download"
  date = "1999.0123000000.00"
  email = "license@rdml.com"
  href = "http://www.rdml.com"      state = "MD"      country = "USA" >

  <contact_info
    role = "RDMLDoc Source"
    name = "Russell T. Davis"
    company = "RDML, Inc."
    address = "2 Wisconsin Circle, Suite 700"
    city = "Chevy Chase"
    state = "MD"
    zip = "20815"
    country = "USA"
    email = "rt_davis@sprynet.com"
    xlink:form = "simple"
    href = "http://www.rdml.com"
    comments = "" >
  </contact_info>
</license_terms>

```

```

</rdmldoc_header>
<line_item_set
  line_item_set_type = "Category"
  time_period = ""
  character_set = ""
  missing_values = ""
  null_values = ""
  zero_values = ""
  dates_values = ""
  percentages = "" >

<data_x
  x_title = "Company"
  format = ""
  x_notes = ""
  x_desc = ""
  x_prec = ""
  x_unit = ""
  x_mag = ""
  x_mod = ""
  x_measure = ""
  x_scale = ""
  x_adjustment = ""
  x_links = "" >
AUD, BSYS, CEN, CSC, CVG, DST, EDS, FISV, GLC, PAYX, TSG, SDS </data_x>
<li_class_set>
  <li_class
    class_name = ""
    parent_class = ""
    xlink:form = "simple"
    href = ""
    description = "" >    </li_class>
</li_class set>
<linkset>
  <link
    xlink:form = "simple"
    href = "http://www.rdml.com"
    behavior = ""
    content-role = ""
    content-title = ""
    role = "Original Data Sources"
    title = "RDML Formatted Source Table"
    show = "new"
    actuate = "user" >    </link>

```



```
</linkset>

<line_item
  li_ID = "1"
  li_legend = "Computer Services Companies"
  li_title = ""
  li_cat = ""
  y_axis_title = ""
  level = "1"
  format = ""
  relation = "Parent"
  li_notes = ""
  li_desc = ""
  li_prec = ""
  li_unit = ""
  li_mag = ""
  li_mod = ""
  li_measure = ""
  li_scale = ""
  li_adjustment = "">
<data_y>
```

```
.....
</data_y>
<linkset>
<link
  xlink:form = "simple"
  href = "http://www.rdml.com"
  behavior = ""
  content-role = ""
  content-title = ""
  role = "Original Data Sources"
  title = "RDML Formatted Source Table"
  show = "new"
  actuate = "user" > </link>
</linkset>
```

```
</line_item>
<line_item
  li_ID = "2"
  li_legend = "Stock Performance"
  li_title = "Stock Overview"
  li_cat = ""
  y_axis_title = ""
  level = "2"
```

```

format = ""
relation = "Parent"
li_notes = ""
li_desc = ""
li_prec = ""
li_unit = ""
li_mag = ""
li_mod = ""
li_measure = ""
li_scale = ""
li_adjustment = "">
<data_y>
. . . . .
</data_y>
<linkset>
<link
  xlink:form = "simple"
  href = "http://www.rdml.com"
  behavior = ""
  content-role = ""
  content-title = ""
  role = "Original Data Sources"
  title = "RDML Formatted Source Table"
  show = "new"
  actuate = "user" > </link>

</linkset>

</line_item>
<line_item
  li_ID = "3"
  li_legend = "Stock Price (12/31/98)"
  li_title = "Stock Overview"
  li_cat = ""
  y_axis_title = "$ per share (12/31/98)"
  level = "3"
  format = "#, ##0.00; (#, ##0.00)"
  relation = "ChildStyle"
  li_notes = ""
  li_desc = ""
  li_prec = "2"
  li_unit = "$"
  li_mag = "0"
  li_mod = "per"

```

```

        li_measure = "share"
        li_scale = ""
        li_adjustment = "">
<data_y>
40.1, 51.63, 69.81, 64.44, 22.13, 67.06, 50.19, 51.44, 43.5, 51.44, 44.5, 39.69,
</data_y>
<linkset>
<link
  xlink:form = "simple"
  href = "http://www.rdml.com"
  behavior = ""
  content-role = ""
  content-title = ""
  role = "Original Data Sources"
  title = "RDML Formatted Source Table"
  show = "new"
  actuate = "user" > </link>

</linkset>

</line_item>
<line_item
  li_ID = "4"
  li_legend = "Shares Outstanding"
  li_title = "Stock Overview"
  li_cat = ""
  y_axis_title = "Shares outstanding"
  level = "3"
  format = "#, ##0; (#, ##0)"
  relation = "ChildStyle"
  li_notes = ""
  li_desc = ""
  li_prec = "0"
  li_unit = "shares"
  li_mag = "6"
  li_mod = ""
  li_measure = ""
  li_scale = ""
  li_adjustment = "">
<data_y>
627, 27, 74, 162, 145, 64, 494, 85, 105, 166, 131, 107,
</data_y>
<linkset>
<link
  xlink:form = "simple"

```

```
href = "http://www.rdml.com"
behavior = ""
content-role = ""
content-title = ""
role = "Original Data Sources"
title = "RDML Formatted Source Table"
show = "new"
actuate = "user" > </link>
```

</linkset>

</line_item>

<line_item

```
li_ID = "5"
li_legend = "% Institutional Holdings"
li_title = "Stock Overview"
li_cat = ""
y_axis_title = "% of outstanding shares"
level = "3"
format = "0.00%; (0.00%)"
relation = "ChildStyle"
li_notes = ""
li_desc = ""
li_prec = "2"
li_unit = "%"
li_mag = "0"
li_mod = "of"
li_measure = "outstanding shares"
li_scale = ""
li_adjustment = "">
```

<data_y>

0.65, 0.8, 0.75, 0.64, 0, 0.44, 0.49, 0.67, 0.25, 0.53, 0.13, 0.71,

</data_y>

<linkset>

<link

```
xlink:form = "simple"
href = "http://www.rdml.com"
behavior = ""
content-role = ""
content-title = ""
role = "Original Data Sources"
title = "RDML Formatted Source Table"
show = "new"
actuate = "user" > </link>
```

</linkset>

</line_item>

<line_item

li_ID = "6"
li_legend = "Market Capitalization"
li_title = "Stock Overview"
li_cat = ""
y_axis_title = "\$ in Millions"
level = "3"
format = "#, ##0; (#, ##0)"
relation = "ChildStyle"
li_notes = ""
li_desc = ""
li_prec = "0"
li_unit = "\$"
li_mag = "6"
li_mod = "in"
li_measure = ""
li_scale = ""
li_adjustment = "">

<data_y>

25142.7, 1394.01, 5165.94, 10439.28, 3208.85, 4291.84, 24793.86, 4372.4, 4567.5,
8539.04, 5829.5, 4246.83,

</data_y>

<linkset>

<link

xlink:form = "simple"
href = "http://www.rdml.com"
behavior = ""
content-role = ""
content-title = ""
role = "Original Data Sources"
title = "RDML Formatted Source Table"
show = "new"
actuate = "user" > </link>

</linkset>

</line_item>

<line_item

li_ID = "7"
li_legend = "Reported EPS"
li_title = "Stock Overview"
li_cat = ""

```

y_axis_title = "Earnings per share"
level = "3"
format = "#, ##0.00; (,##0.00)"
relation = "ChildStyle"
li_notes = ""
li_desc = ""
li_prec = "2"
li_unit = "$"
li_mag = "0"
li_mod = "per"
li_measure = "share"
li_scale = ""
li_adjustment = "">
<data_y>
1.13, 2.05, 1.9, 2.1, 0.71, 1.48, 1.7, 1.35, 1.86, 0.82, 1.72, 1.17,
</data_y>
<linkset>
<link
xlink:form = "simple"
href = "http://www.rdml.com"
behavior = ""
content-role = ""
content-title = ""
role = "Original Data Sources"
title = "RDML Formatted Source Table"
show = "new"
actuate = "user" > </link>

</linkset>

</line_item>
<line_item
li_ID = "8"
li_legend = "Earnings"
li_title = "Stock Overview"
li_cat = ""
y_axis_title = "$ in Millions"
level = "3"
format = "#, ##0; (,##0)"
relation = "ChildStyle"
li_notes = ""
li_desc = ""
li_prec = "0"
li_unit = "$"
li_mag = "6"

```

```

        li_mod = "in"
        li_measure = ""
        li_scale = ""
        li_adjustment = "">
    <data_y>
708.51, 55.35, 140.6, 340.2, 102.95, 94.72, 839.8, 114.75, 195.3, 136.12,
225.32, 125.19,
    </data_y>
    <linkset>
    <link
        xlink:form = "simple"
        href = "http://www.rdml.com"
        behavior = ""
        content-role = ""
        content-title =
        role = "Original Data Sources"
        title = "RDML Formatted Source Table"
        show = "new"
        actuate = "user" >    </link>

    </linkset>

</line_item>
<line_item
    li_ID = "9"
    li_legend = "Cash Flow per share"
    li_title = "Stock Overview"
    li_cat = ""
    y_axis_title = "$ per share"
    level = "3"
    format = "#, ##0; (#,##0)"
    relation = "ChildStyle"
    li_notes = ""
    li_desc = ""
    li_prec = "2"
    li_unit = "$"
    li_mag = "0"
    li_mod = "per"
    li_measure = "share"
    li_scale = ""
    li_adjustment = "">
<data_y>
1.41, 2.13, 3.71, 4.95, 1.39, 3.18, 4, 1.98, 3.44, 0.96, 3.2, 2.5,
    </data_y>
    <linkset>

```

```

<link
  xlink:form = "simple"
  href = "http://www.rdml.com"
  behavior = ""
  content-role = ""
  content-title = ""
  role = "Original Data Sources"
  title = "RDML Formatted Source Table"
  show = "new"
  actuate = "user" > </link>

</linkset>

</line_item>

<line_item
  li_ID = "10"
  li_legend = "Cash Flow"
  li_title = "Stock Overview"
  li_cat = ""
  y_axis_title = "$ in Millions"
  level = "3"
  format = "#, ##0; (#, ##0)"
  relation = "ChildStyle"
  li_notes = ""
  li_desc = ""
  li_prec = "0"
  li_unit = "$"
  li_mag = "6"
  li_mod = "in"
  li_measure = ""
  li_scale = ""
  li_adjustment = "">
<data_y>
884.07, 57.51, 274.54, 801.9, 201.55, 203.52, 1976, 168.3, 361.2, 159.36, 419.2,
267.5,
</data_y>
<linkset>
<link
  xlink:form = "simple"
  href = "http://www.rdml.com"
  behavior = ""
  content-role = ""
  content-title = ""
  role = "Original Data Sources"

```



```
title = "RDML Formatted Source Table"
show = "new"
actuate = "user" > </link>
```

```
</linkset>
```

```
</line_item>
```

```
<line_item
```

```
li_ID = "11"
li_legend = "Price/Earnings Ratio (PE)"
li_title = "Stock Overview"
li_cat = ""
y_axis_title = "P/E Ratio"
level = "3"
format = "#, ##0; (#,##0)"
relation = "ChildStyle"
li_notes = ""
li_desc = ""
li_prec = "2"
li_unit = "P/E Ratio"
li_mag = "0"
li_mod = ""
li_measure = ""
li_scale = ""
li_adjustment = "">
```

```
<data_y>
35.4867256637168, 25.1853658536585, 36.7421052631579, 30.6857142857143,
31.169014084507, 45.3108108108108, 29.5235294117647, 38.1037037037037,
23.3870967741935, 62.7317073170732, 25.8720930232558, 33.9230769230769,
```

```
</data_y>
```

```
<linkset>
```

```
<link
```

```
xlink:form = "simple"
href = "http://www.rdml.com"
behavior = ""
content-role = ""
content-title = ""
role = "Original Data Sources"
title = "RDML Formatted Source Table"
show = "new"
actuate = "user" > </link>
```

```
</linkset>
```

```

</line_item>
<line_item
  li_ID = "12"
  li_legend = "Estimated 5-year growth"
  li_title = "Stock Overview"
  li_cat = ""
  y_axis_title = "% growth"
  level = "3"
  format = "0.00%; (0.00%)"
  relation = "ChildStyle"
  li_notes = ""
  li_desc = ""
  li_prec = "2"
  li_unit = "%"
  li_mag = "0"
  lit_mod = ""
  li_measure = ""
  li_scale = ""
  li_adjustment = "">
<data_y>
0.15, 0.18, 0.2, 0.22, 0.23, 0.22, 0.15, 0.2, 0.15, 0.3, 0.13, 0.2,
</data_y>
<linkset>
<link
  xlink:form = "simple"
  href = "http://www.rdml.com"
  behavior = ""
  content-role = ""
  content-title = ""
  role = "Original Data Sources"
  title = "RDML Formatted Source Table"
  show = "new"
  actuate = "user" > </link>

</linkset>

```

```

</line_item>
<line_item
  li_ID = "13"
  li_legend = "Return on Equity"
  li_title = "Stock Overview"
  li_cat = ""
  y_axis_title = "Earnings as % of Book Value"
  level = "3"
  format = "0.00%; (0.00%)"
  relation = "ChildStyle"
  li_notes = ""
  li_desc = ""
  li_prec = "2"
  li_unit = "%"
  li_mag = "0"
  li_mod = ""
  li_measure = ""
  li_scale = ""
  li_adjustment = "">
<data_y>
. . . . .
</data_y>
<linkset>
<link
  xlink:form = "simple"
  href = "http://www.rdml.com"
  behavior = ""
  content-role = ""
  content-title = ""
  role = "Original Data Sources"
  title = "RDML Formatted Source Table"
  show = "new"
  actuate = "user" > </link>

</linkset>
</line_item>
</line_item_set>
</rdmldoc>

```

APPENDIX C: UnitList XML document

```
<?xml version="1.0" encoding="utf-8" ?>
<unitlist>
<unit name="inch">
  <conversion
    conv_target = "centimeter"
    conv_factor = "2.5400050"
    conv_constant = ""
    conv_log = ""
    conv_source = "FGM"
    conv_href = "">
  </conversion>
  <type>Length</type>
  <subtype>Linear</subtype>
  <plural>inches</plural>
  <alias>in</alias>
  <desc>Approximately the width of a man's thumb.</desc>
  <icon href="inch.gif"></icon>
</unit>

<unit name="foot">
  <conversion
    conv_target = "meter"
    conv_factor = "0.30480060"
    conv_constant = ""
    conv_log = ""
    conv_source = "ISO"
    conv_href = "">
  </conversion>
  <type>length</type>
  <subtype>Linear</subtype>
  <plural>feet</plural>
  <alias>ft</alias>
  <desc>Originally, the average length of a human foot</desc>
  <icon href="foot.gif"></icon>
</unit>

<unit name="yard">
  <conversion
    conv_target = "meter"
    conv_factor = "1.082"
    conv_constant = ""
    conv_log = ""
    conv_source = "ISO"
```

```
    conv_href = "">
</conversion>
<type>length</type>
<subtype>Linear</subtype>
<plural>yards</plural>
<alias></alias>
<desc>Three feet</desc>
<icon href="yard.gif"></icon>
</unit>
```

```
<unit name="meter">
  <conversion
    conv_target = "meter"
    conv_factor = "1.0"
    conv_constant = ""
    conv_log = ""
    conv_source = "ISO"
    conv_href = "">
  </conversion>
  <type>length</type>
  <subtype>Linear</subtype>
  <plural>meters</plural>
  <alias>m,mtr</alias>
  <desc>One thousandth of a kilometer</desc>
  <icon href="meter.gif"></icon>
</unit>
```

```
<unit name="mile">
  <conversion
    conv_target = "kilometer"
    conv_factor = "1.6093472"
    conv_constant = ""
    conv_log = ""
    conv_source = "FGM"
    conv_href = "">
  </conversion>
  <type>length</type>
  <subtype>Linear</subtype>
  <plural>miles</plural>
  <alias></alias>
  <desc>English surveying unit, set to be equal to 8 furlongs.</desc>
  <icon href="mile.gif"></icon>
</unit>
```

```
<unit name="dollar">
```

```
<conversion
  conv_target = "pound"
  conv_factor = "1.312"
  conv_constant = ""
  conv_log = ""
  conv_source = "ISO"
  conv_href = "">
</conversion>
<type>currency</type>
<plural>pounds</plural>
<alias>sterling</alias>
<desc>British pound sterling. </desc>
<icon href="pound.gif"></icon>
</unit>
```

```
<unit name="Deutschmark">
  <conversion
    conv_target = "dollar"
    conv_factor = "1.732"
    conv_constant = ""
    conv_log = ""
    conv_source = "ISO"
    conv_href = "">
  </conversion>
  <type>currency</type>
  <plural>Duetschmarks</plural>
  <alias>Marks</alias>
  <desc>German Deutschmarks</desc>
  <icon href="marks.gif"></icon>
</unit>
```

```
<unit name="Francs">
  <conversion
    conv_target = "dollar"
    conv_factor = "0.812"
    conv_constant = ""
    conv_log = ""
    conv_source = "ISO"
    conv_href = "">
  </conversion>
  <type>currency</type>
  <plural>francs</plural>
  <alias>ff</alias>
  <desc>French francs</desc>
  <icon href="francs.gif"></icon>
```

</unit>

<unit name="acres">

<conversion

conv_target = "square meter"

conv_factor = "5125"

conv_constant = ""

conv_log = ""

conv_source = "ISO"

conv_href = "">

</conversion>

<type>area</type>

<plural>acres</plural>

<alias>acr</alias>

<desc>In medieval times, the amount of land one man could plow in one day.</desc>

<icon href="acre.gif"></icon>

</unit>

<unit name="square foot">

<conversion

conv_target = "square meter"

conv_factor = "0.15"

conv_constant = ""

conv_log = ""

conv_source = "ISO"

conv_href = "">

</conversion>

<type>area</type>

<plural>square feet</plural>

<alias>sq ft</alias>

<desc>An area one foot by one foot.</desc>

<icon href="sqfoot.gif"></icon>

</unit>

</unitlist>

APPENDIX D: RMML Document Type Definition (“DTD”)

<?xml encoding="UTF-8"?>

<!-- The root element: a whole macro is a "macrodoc".

A macrodoc consists of three elements:

 a macro_header, a macro_code, and a macro_references element.

-->

<!ELEMENT macrodoc (macro_header, macro_code, macro_references)>

<!-- MACRO_HEADER -->

<!-- Information about the macro.

-->

<!ELEMENT macro_header (macro_source, license_terms, linkset?, documentation)>

<!ATTLIST macro_header

| | | |
|----------------|-------|------------|
| macrodoc_ID | CDATA | #REQUIRED |
| macro_title | CDATA | #REQUIRED |
| macro_type | CDATA | #REQUIRED |
| result_type | CDATA | #REQUIRED |
| rdmldoc_type | CDATA | #REQUIRED |
| timestamp | CDATA | #IMPLIED |
| version | CDATA | #IMPLIED |
| expiration | CDATA | #IMPLIED |
| freq_of_update | CDATA | #IMPLIED > |

<!ELEMENT macro_source (contact_info+)>

<!ELEMENT license_terms (contact_info, linkset?)>

<!ATTLIST license_terms

| | | |
|----------------|-------|------------|
| copyright_cite | CDATA | #REQUIRED |
| holder | CDATA | #IMPLIED |
| license_type | CDATA | #IMPLIED |
| warranty | CDATA | #IMPLIED |
| disclaimer | CDATA | #IMPLIED |
| terms | CDATA | #IMPLIED |
| date | CDATA | #IMPLIED |
| email | CDATA | #IMPLIED |
| state | CDATA | #IMPLIED |
| country | CDATA | #IMPLIED > |

<!ELEMENT contact_info (#PCDATA)>

<!ATTLIST contact_info

| | | |
|------|-------|----------|
| role | CDATA | #IMPLIED |
| name | CDATA | #IMPLIED |

| | | |
|------------|-------|------------|
| company | CDATA | #IMPLIED |
| address | CDATA | #IMPLIED |
| city | CDATA | #IMPLIED |
| state | CDATA | #IMPLIED |
| zip | CDATA | #IMPLIED |
| country | CDATA | #IMPLIED |
| email | CDATA | #IMPLIED |
| xlink:form | CDATA | #IMPLIED |
| href | CDATA | #IMPLIED |
| comments | CDATA | #IMPLIED > |

<!ELEMENT linkset (link*)>

<!ATTLIST linkset

| | | |
|------------|-------|-------------------|
| xlink_form | CDATA | #FIXED 'extended' |
| href | CDATA | #IMPLIED > |

<!ELEMENT link (#PCDATA) >

<!ATTLIST link

| | | |
|---------------|-------|-----------------|
| xlink_form | CDATA | #FIXED 'simple' |
| href | CDATA | #REQUIRED |
| behavior | CDATA | #IMPLIED |
| content-role | CDATA | #IMPLIED |
| content-title | CDATA | #IMPLIED |
| role | CDATA | #IMPLIED |
| title | CDATA | #IMPLIED |
| show | CDATA | #FIXED 'new' |
| actuate | CDATA | #FIXED 'user' > |

<!ELEMENT documentation (macro_description, help_page*)>

<!ELEMENT macro_description (#PCDATA)>

<!ELEMENT help_page (#PCDATA)>

<!ELEMENT macro_code (code, instructions, gui, variable_set?, qualifiers, error_handling, testing)>

<!ELEMENT code (#PCDATA)>

<!ELEMENT instructions (#PCDATA)>

<!ELEMENT gui (comp_rpanel? | comp_ipanel? | comp_list? | comp_vector?)>

<!ELEMENT comp_rpanel (comp_rbutton*)>

<!ATTLIST comp_rpanel

| | | |
|---------------|-------|------------|
| variable_name | CDATA | #REQUIRED |
| intro_label | CDATA | #IMPLIED |
| visible | CDATA | #IMPLIED |
| legend | CDATA | #IMPLIED |
| legend_type | CDATA | #IMPLIED > |

<!ELEMENT comp_rbutton (#PCDATA)>

<!ATTLIST comp_rbutton		
label	CDATA	#REQUIRED
value	CDATA	#REQUIRED
isDefault	CDATA	#REQUIRED
icon	CDATA	#IMPLIED
desc	CDATA	#IMPLIED
legend	CDATA	#IMPLIED
legend_type	CDATA	#IMPLIED >

<!ELEMENT comp_ipanel (comp_ifield*)>

<!ELEMENT comp_ifield (#PCDATA)>

<!ATTLIST comp_ifield		
variable_name	CDATA	#REQUIRED
variable_label	CDATA	#REQUIRED
intro_label	CDATA	#REQUIRED
default_value	CDATA	#REQUIRED
desc	CDATA	#IMPLIED
legend	CDATA	#IMPLIED
legend_type	CDATA	#IMPLIED >

<!ELEMENT comp_list (comp_listitem*)>

<!ATTLIST comp_list		
variable_name	CDATA	#REQUIRED
intro_label	CDATA	#REQUIRED
default_item	CDATA	#REQUIRED
legend	CDATA	#IMPLIED
legend_type	CDATA	#IMPLIED >

<!ELEMENT comp_listitem (#PCDATA)>

<!ATTLIST comp_listitem		
label	CDATA	#REQUIRED
value	CDATA	#REQUIRED
icon	CDATA	#IMPLIED
desc	CDATA	#IMPLIED
legend	CDATA	#IMPLIED
legend_type	CDATA	#IMPLIED >

```

<!ELEMENT comp_vector (line_item)>
<!ATTLIST comp_vector
  variable_name  CDATA          #REQUIRED
  intro_label    CDATA          #REQUIRED
  default_item   CDATA          #REQUIRED
  desc           CDATA          #IMPLIED
  legend         CDATA          #IMPLIED
  legend_type    CDATA          #IMPLIED >

```

```

<!ELEMENT variable_set (variable*)>

```

```

<!ELEMENT variable (#PCDATA | line_item)*>
<!ATTLIST variable
  variable_name  CDATA          #REQUIRED
  variable_type  CDATA          #REQUIRED
  value          CDATA          #REQUIRED
  href           CDATA          #IMPLIED
  subref         CDATA          #IMPLIED >

```

```

<!ELEMENT qualifiers (#PCDATA)>

```

```

<!ELEMENT error_handling (#PCDATA)>

```

```

<!ELEMENT testing (#PCDATA)>

```

```

<!ELEMENT macro_references (macrodocs?, datadocs?)>

```

```

<!ELEMENT macrodocs (#PCDATA)>

```

```

<!ELEMENT datadocs (#PCDATA)>

```

```

<!ELEMENT line_item (data_x?, data_y, linkset?, note_set?) >
<!ATTLIST line_item
  li_ID          CDATA          #REQUIRED
  li_legend      CDATA          #REQUIRED
  li_title       CDATA          #REQUIRED
  li_cat         CDATA          #IMPLIED
  y_axis_title   CDATA          #REQUIRED
  level          CDATA          #REQUIRED
  format         CDATA          #REQUIRED
  relation       CDATA          #REQUIRED
  li_notes       CDATA          #REQUIRED
  li_desc        CDATA          #REQUIRED
  li_prec        CDATA          #REQUIRED
  li_unit        CDATA          #REQUIRED

```

li_mag	CDATA	#REQUIRED
li_mod	CDATA	#REQUIRED
li_measure	CDATA	#REQUIRED
li_scale	CDATA	#REQUIRED
li_adjustment	CDATA	#REQUIRED
li_aggregation	CDATA	#IMPLIED >

<!ELEMENT data_y (#PCDATA)>

<!ELEMENT note_set (note+)>

<!ELEMENT note (#PCDATA)>

<!ATTLIST note		
note_type	CDATA	#IMPLIED >

<!ELEMENT data_x (#PCDATA) >

<!ATTLIST data_x		
x_title	CDATA	#REQUIRED
format	CDATA	#REQUIRED
x_notes	CDATA	#IMPLIED
x_desc	CDATA	#IMPLIED
x_prec	CDATA	#REQUIRED
x_unit	CDATA	#REQUIRED
x_mag	CDATA	#REQUIRED
x_mod	CDATA	#REQUIRED
x_measure	CDATA	#REQUIRED
x_scale	CDATA	#REQUIRED
x_adjustment	CDATA	#REQUIRED
x_links	CDATA	#REQUIRED >

APPENDIX E: Sample RMML document

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<!DOCTYPE macrodoc PUBLIC "-//.. "RMML1.dtd" >

<macrodoc>
  <macro_header
    macrodoc_ID = "rmml_sort"
    macro_title = "Sort"
    macro_type = "TSL"
    result_type = "replace_each"
    rdmdoc_type = "TS"
    timestamp = "1999-01-19T23:00:00"
    version = "1.0.0"
    expiration = "2000-01-19T23:00:00"
    freq_of_update = "Annual" >

  <macro_source>
    <contact_info
      role = "Macro Source"
      name = "Russell T. Davis"
      company = "RDML, Inc."
      address = "2 Wisconsin Circle, Suite 700"
      city = "Chevy Chase"
      state = "MD"
      zip = "20815"
      country = "USA"
      email = "rt_davis@sprynet.com"
      href = "http://www.rdml.com"
      comments = "" >
    </contact_info>
  </macro_source>

  <license_terms
    copyright_cite = "Copyright 1998, RDML, Inc. All Rights Reserved"
    holder = "RDML, Inc."
    license_type = "Payment Per Download"
    warranty = "No warranty is expressed or implied. Use this data at your own risk."
    disclaimer = "This data is provided 'as-is'. The provider assumes no responsibility for its use
or misuse."
    terms = "$1 per RMMLDoc download"
    date = "1999.0123000000.00"
    email = "license@rdml.com"
    state = "MD"
    country = "USA" >
```

```
<contact_info
  role = "Licensee"
  name = "Russell T. Davis"
  company = "RDML, Inc."
  address = "2 Wisconsin Circle, Suite 700"
  city = "Chevy Chase"
  state = "MD"
  zip = "20815"
  country = "USA"
  email = "rt_davis@sprynet.com"
  href = "http://www.rdml.com"
  comments = "" >
</contact_info>
</license_terms>
```

```
<linkset
  xlink_form = "extended"
  href = "http://www.rdml.com" >
<link
  xlink_form = "simple"
  href = "http://www.rdml.com"
  behavior = ""
  content-role = ""
  content-title = ""
  role = ""
  title = ""
  show = "new"
  actuate = "user" >
</link>
</linkset>
```

```
<documentation>
  <macro_description>
Adds a line showing the minimum or maximum, according to the parameters
  </macro_description>
  <help_page>
  No Help Page is currently available
  </help_page>
</documentation>
```

```
</macro_header>
```

```
<macro_code>
```

```
<code>
```

```

IF(ichoice=0, SORT(A,0), IF(ichoice=1, SORT(A,1), A))
</code>

<instructions>
</instructions>

<gui>
  <comp_rpanel
    variable_name = "ichoice"
    intro_label = "Select a parameter:" >

    <comp_rbutton
      label = "Ascending"
      value = "0"
      isDefault = "true"
      icon = "" >
    </comp_rbutton>

    <comp_rbutton
      label = "Descending"
      value = "1"
      isDefault = "false"
      icon = "" >
    </comp_rbutton>

  </comp_rpanel>
</gui>

<qualifiers>
</qualifiers>
<error_handling>
</error_handling>
<testing>
</testing>
</macro_code>

<macro_references>
<macrodocs>
</macrodocs>
<datadocs>
</datadocs>
</macro_references>

</macrodoc>

```

Appendix F: MS Excel Visual Basic routine for adding "attribute value columns" to a data table

```
Private Sub UserForm_Initialize()
```

```
cmdOK.SetFocus
txtChartTitle.Text = ""
txtYAxisTitle.Text = ""
cboFormat.AddItem ("#,##0;(#,##0)")
cboFormat.AddItem ("#,##0.00;(#,##0.00)")
cboFormat.AddItem ("0.00%;(0.00%)")
cboFormat.ListIndex = 0
txtFootnote.Text = "Source: "
```

```
Dim NodeX As Node
```

```
Set NodeR = treeUnit.Nodes.Add(, , "r", "Select One: (Default is blank)")
'Currency
Set NodeA = treeUnit.Nodes.Add("r", tvwChild, "c", "Currency")
Set NodeX = treeUnit.Nodes.Add("c", tvwChild, "dus", "$ US")
Set NodeX = treeUnit.Nodes.Add("c", tvwChild, "puk", "Pounds UK")
Set NodeX = treeUnit.Nodes.Add("c", tvwChild, "yjp", "Yen Japanese")
```

```
'Length
```

```
Set NodeX = treeUnit.Nodes.Add("r", tvwChild, "l", "Length")
Set NodeX = treeUnit.Nodes.Add("l", tvwChild, "feet", "Feet")
Set NodeX = treeUnit.Nodes.Add("l", tvwChild, "meters", "Meters")
```

```
'Area
```

```
Set NodeX = treeUnit.Nodes.Add("r", tvwChild, "a", "Area")
Set NodeX = treeUnit.Nodes.Add("a", tvwChild, "sqfeet", "Square Feet")
Set NodeX = treeUnit.Nodes.Add("a", tvwChild, "sqmeters", "Square Meters")
```

```
'tree formatting
```

```
NodeA.EnsureVisible
```

```
'Magnitude ComboBox
```

```
cboMagnitude.AddItem ("As-Is")
cboMagnitude.AddItem ("Thousands")
cboMagnitude.AddItem ("Millions")
cboMagnitude.AddItem ("Billions")
cboMagnitude.ListIndex = 0
```

```
End Sub
```

```
Private Sub cmdCancel_Click()
```



```
End  
End Sub
```

```
Private Sub cmdOK_Click()
```

```
    rcount = Selection.Rows.Count
```

```
    'li_ID
```

```
    Selection.EntireColumn.Insert
```

```
    ActiveCell.Select
```

```
    ActiveCell.FormulaR1C1 = "li_ID"
```

```
    ActiveCell.Offset(1, 0).Range("A1").Select
```

```
    ActiveCell.FormulaR1C1 = "1"
```

```
    ActiveCell.Offset(1, 0).Range("A1").Select
```

```
    ActiveCell.FormulaR1C1 = "=R[-1]C+1"
```

```
    ActiveCell.Select
```

```
    Selection.Copy
```

```
    r = "A1:A" & (rcount - 3)
```

```
    ActiveCell.Offset(1, 0).Range(r).Select
```

```
    ActiveSheet.Paste
```

```
    Application.CutCopyMode = False
```

```
    'li_legend
```

```
    ActiveCell.Offset(-3, 1).Range("A1").Select
```

```
    ActiveCell.FormulaR1C1 = "li_legend"
```

```
    'li_title
```

```
    ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
```

```
    Selection.Insert Shift:=xlToRight
```

```
    ActiveCell.Select
```

```
    ActiveCell.FormulaR1C1 = "li_title"
```

```
    ActiveCell.Offset(1, 0).Range("A1").Select
```

```
    ActiveCell.FormulaR1C1 = txtChartTitle.Text
```

```
    ActiveCell.Select
```

```
    Selection.Copy
```

```
    r = "A1:A" & (rcount - 2)
```

```
    ActiveCell.Offset(1, 0).Range(r).Select
```

```
    ActiveSheet.Paste
```

```
    Application.CutCopyMode = False
```

```
    'li_cat
```

```
    ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
```

```
    Selection.Insert Shift:=xlToRight
```

```
    ActiveCell.Select
```

```
    ActiveCell.FormulaR1C1 = "li_cat"
```

```
'y_axis_title
ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select
ActiveCell.FormulaR1C1 = "y_axis_title"
ActiveCell.Offset(1, 0).Range("A1").Select
ActiveCell.FormulaR1C1 = txtYAxisTitle.Text
ActiveCell.Select
Selection.Copy
r = "A1:A" & (rcount - 2)
Selection.ColumnWidth = 8
ActiveCell.Offset(1, 0).Range(r).Select
ActiveSheet.Paste
Application.CutCopyMode = False
```

```
'level
ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select
ActiveCell.FormulaR1C1 = "level"
ActiveCell.Offset(1, 0).Range("A1").Select
ActiveCell.FormulaR1C1 = "1"
ActiveCell.Select
Selection.Copy
r = "A1:A" & (rcount - 2)
Selection.ColumnWidth = 8
ActiveCell.Offset(1, 0).Range(r).Select
ActiveSheet.Paste
Application.CutCopyMode = False
```

```
'format
ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select
ActiveCell.FormulaR1C1 = "format"
ActiveCell.Offset(1, 0).Range("A1").Select
ActiveCell.FormulaR1C1 = cboFormat.value
ActiveCell.Select
Selection.Copy
r = "A1:A" & (rcount - 2)
ActiveCell.Offset(1, 0).Range(r).Select
ActiveSheet.Paste
Application.CutCopyMode = False
```

```
'relation
ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select
ActiveCell.FormulaR1C1 = "relation"
ActiveCell.Offset(1, 0).Range("A1").Select
ActiveCell.FormulaR1C1 = "Parent"
ActiveCell.Select
Selection.Copy
r = "A1:A" & (rcount - 2)
ActiveCell.Offset(1, 0).Range(r).Select
ActiveSheet.Paste
Application.CutCopyMode = False
```

```
'li_notes
ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select
ActiveCell.FormulaR1C1 = "li_notes"
ActiveCell.Offset(1, 0).Range("A1").Select
ActiveCell.FormulaR1C1 = txtFootnote.Text
ActiveCell.Select
Selection.Copy
r = "A1:A" & (rcount - 2)
Selection.ColumnWidth = 8
ActiveCell.Offset(1, 0).Range(r).Select
ActiveSheet.Paste
Application.CutCopyMode = False
```

```
'li_desc
ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select
ActiveCell.FormulaR1C1 = "li_desc"
```

```
'li_prec
ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select
ActiveCell.FormulaR1C1 = "li_prec"
```

```
'li_unit
ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select
```

```

ActiveCell.FormulaR1C1 = "li_unit"
ActiveCell.Offset(1, 0).Range("A1").Select
u = ""
On Error Resume Next
u = treeUnit.SelectedItem.Text
ActiveCell.FormulaR1C1 = u
ActiveCell.Select
Selection.Copy
r = "A1:A" & (rcount - 2)
ActiveCell.Offset(1, 0).Range(r).Select
ActiveSheet.Paste
Application.CutCopyMode = False

'li_mag
'first calculate the value to put in
If (StrComp(cboMagnitude.value, "As-Is") = 0) Then
    m = 0
End If
If (StrComp(cboMagnitude.value, "Thousands") = 0) Then
    m = 3
End If
If (StrComp(cboMagnitude.value, "Millions") = 0) Then
    m = 6
End If
If (StrComp(cboMagnitude.value, "Billions") = 0) Then
    m = 9
End If

ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select
ActiveCell.FormulaR1C1 = "li_mag"
ActiveCell.Offset(1, 0).Range("A1").Select
ActiveCell.FormulaR1C1 = m
ActiveCell.Select
Selection.Copy
r = "A1:A" & (rcount - 2)
ActiveCell.Offset(1, 0).Range(r).Select
ActiveSheet.Paste
Application.CutCopyMode = False

'li_mod
ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select

```

```
ActiveCell.FormulaR1C1 = "li_mod"

'li_measure
ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select
ActiveCell.FormulaR1C1 = "li_measure"

'li_scale
ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select
ActiveCell.FormulaR1C1 = "li_scale"

'li_adjustment
ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select
ActiveCell.FormulaR1C1 = "li_adjustment"

'li_aggregation
ActiveCell.Offset(0, 1).Columns("A:A").EntireColumn.Select
Selection.Insert Shift:=xlToRight
ActiveCell.Select
ActiveCell.FormulaR1C1 = "li_aggregation"

End
End Sub
```

Appendix G: MS Excel Visual Basic routine creating a tagged document from a spreadsheet data table

```
Private Sub Frame1_Click()
```

```
End Sub
```

```
Private Sub UserForm_Initialize()
```

```
cmdOK.SetFocus  
RefEdit_data.value = "Sheet1!$A$1:$AB$51"  
txtDefaultFile.Text = "D:\default1.rdm"  
txtOutputDir.Text = "D:\"  
txtOutputFile.Text = "out.rdm"  
cboLineItemType.AddItem ("TimeSeries")  
cboLineItemType.AddItem ("Category")  
cboLineItemType.AddItem ("XYPlot")  
cboLineItemType.ListIndex = 0  
cbNonFileDefaults.value = False
```

```
End Sub
```

```
Private Sub cmdCancel_Click()
```

```
End
```

```
End Sub
```

```
Private Sub cmdOK_Click()
```

```
Dim buff As String  
buff = createIntro  
buff = buff & createHeader  
buff = buff & createLISet  
buff = buff & createLineItems  
buff = buff & "</line_item_set>" & Chr(10)  
buff = buff & createEnding  
replaceAttribute buff, "rdmldoc_header", "rdmldoc_ID", txtOutputFile.value  
replaceAttribute buff, "rdmldoc_header", "doc_title", txtDocTitle.value  
replaceAttribute buff, "line_item_set", "line_item_set_type", cboLineItemType.SelText  
replaceAttribute buff, "data_x", "x_title", txtXAxisTitle.value  
fillXData buff  
CreateFile (buff)  
End
```

```
End Sub
```

```
Private Sub cmdBrowseDefault_Click()
```

```

CommonDialog1.ShowOpen
txtDefaultFile.Text = CommonDialog1.FileName

End Sub

Private Sub cmdBrowseOutputDir_Click()
CommonDialog1.ShowOpen
txtOutputFile.Text = CommonDialog1.FileName

End Sub

Private Sub UserForm_Click()

End Sub

Private Sub getConfiguration()

End Sub

Private Function createHeader()

'buff will be the buffer that collects the string
Dim buff As String

'If user wants the program to create a default
If cbNonFileDefaults.value = True Then
buff = buff & defHeader
End If

'Or get the default header values from a file
buff = createDefHeader

'return
createHeader = buff

End Function

Private Function createDefHeader()

'Declarations
Dim h As String
Dim wholefile As String

'open the default file
Dim Def_file As String

```

```

Def_file = txtDefaultFile.Text
Open Def_file For Input As #2
wholefile = Input$(LOF(2), 2)
Close #2

'put the rdmdoc_header into a string
h = getElementByTagName(wholefile, "rdmdoc_header")
createDefHeader = h

```

End Function

Private Function createLISet()

```

'Declarations
Dim h As String
Dim wholefile As String

'open the default file
Dim Def_file As String
Def_file = txtDefaultFile.Text
Open Def_file For Input As #2
wholefile = Input$(LOF(2), 2)
Close #2

'put the the line item set overall tags into a string
h = getOpeningElementTag(wholefile, "line_item_set")
h = h & getElementByTagName(wholefile, "data_x")
h = h & getElementByTagName(wholefile, "li_class_set")
h = h & getElementByTagName(wholefile, "linkset")
createLISet = h

```

End Function

Public Function getElementByTagName(str As String, el As String)

```

startPos = InStr(1, str, "<" & el, 1)
endPos = InStr(1, str, "<" & el, 1)
element = Mid(str, startPos, endPos - startPos + Len(el) + 4)
getElementByTagName = element

```

End Function

Public Function getOpeningElementTag(str As String, el As String)

```

startPos = InStr(1, str, "<" & el, 1)

```



```
endPos = InStr(startPos, str, ">", 1)
element = Mid(str, startPos, endPos - startPos + 5)
getOpeningElementTag = element
```

End Function

Private Sub CreateFile(buff)

```
Dim Outfile As String
Outfile = txtOutputDir.Text & txtOutputFile.Text
```

```
Open Outfile For Output As #1
Print #1, buff
Close #1
```

End Sub

Private Function createIntro()

```
buff = ""
```

'Header Information

```
buff = buff & "<?xml version=" & Chr(34) & "1.0" & Chr(34)
buff = buff & " encoding=" & Chr(34) & "UTF-8" & Chr(34)
buff = buff & " standalone=" & Chr(34) & "no" & Chr(34)
buff = buff & "?>" & Chr(10)
```

'DTD Declaration

```
buff = buff & "<!DOCTYPE rdml doc PUBLIC "
buff = buff & Chr(34) & "-//.." & Chr(34) & " "
buff = buff & Chr(34) & "RDML1.dtd" & Chr(34)
buff = buff & ">" & Chr(10)
```

'begin rdml doc tag

```
buff = buff & "<rdml doc>" & Chr(10)
```

'return

```
createIntro = buff
```

End Function

Private Function createEnding()

```
buff = ""
```

```
buff = buff & "</rdmldoc>" & Chr(10)
```

```
'return  
createEnding = buff
```

End Function

Private Function defHeader()

```
buff = ""
```

```
'return  
defHeader = buff
```

End Function

Private Function createLineItems()

```
Dim data As Range  
t = RefEdit_data.value  
createLineItems = fillLineItems(Range(t), cboLineItemType.value)
```

End Function

```
'-----  
' Procedure:   Fill_line_item()  
'  
' Purpose:    Prepare the line_item element  
'            This element contains information about the line_item  
'  
' From DTD:  
'<!ELEMENT line_item (data_x?, data_y, li_class_set?, analysis?,  
'link_set?, note_set?) >  
'<!ATTLIST line_item  
'  li_ID          CDATA    #REQUIRED  
'  li_legend      CDATA    #REQUIRED  
'  li_title       CDATA    #REQUIRED  
'  li_table       CDATA    #IMPLIED  
'  y_axis_title   CDATA    #REQUIRED  
'  level          CDATA    #REQUIRED  
'  format         CDATA    #REQUIRED  
'  relation       CDATA    #REQUIRED  
'  li_notes       CDATA    #REQUIRED  
'  li_desc        CDATA    #REQUIRED
```

```
' li_prec          CDATA #REQUIRED
' li_unit          CDATA #REQUIRED
' li_mag           CDATA #REQUIRED
' li_mod           CDATA #REQUIRED
' li_measure       CDATA #REQUIRED
' li_scale         CDATA #REQUIRED
' li_adjustment    CDATA #REQUIRED >
```

Public Function fillLineItems(data As Range, litype As String)

'Declarations

Dim J, K As Integer

Dim Max As Integer

'If this is an XYPlot, use the other routine

If litype = "XYPlot" Then

 'Fill_line_item_xy

Else

'Initializations

K = 1

buff = ""

NumLI = data.Rows.Count

'Cycle through all the line items

For N = 2 To NumLI

 'Insert opening tag

 buff = buff & " <line_item" & Chr(10)

 'Insert the Attributes

 addAttribute buff, "li_ID", data.Cells(N, 1), 6, 0

 addAttribute buff, "li_legend", data.Cells(N, 2), 6, 0

 addAttribute buff, "li_title", data.Cells(N, 3), 6, 0

 addAttribute buff, "li_cat", data.Cells(N, 4), 6, 0

 addAttribute buff, "y_axis_title", data.Cells(N, 5), 6, 0

 addAttribute buff, "level", data.Cells(N, 6), 6, 0

 addAttribute buff, "format", data.Cells(N, 7), 6, 0

 addAttribute buff, "relation", data.Cells(N, 8), 6, 0

 addAttribute buff, "li_notes", data.Cells(N, 9), 6, 0

 addAttribute buff, "li_desc", data.Cells(N, 10), 6, 0

 addAttribute buff, "li_prec", data.Cells(N, 11), 6, 0

 addAttribute buff, "li_unit", data.Cells(N, 12), 6, 0

 addAttribute buff, "li_mag", data.Cells(N, 13), 6, 0

 addAttribute buff, "li_mod", data.Cells(N, 14), 6, 0

```

addAttribute buff, "li_measure", data.Cells(N, 15), 6, 0
addAttribute buff, "li_scale", data.Cells(N, 16), 6, 0
addAttribute buff, "li_adjustment", data.Cells(N, 17), 6, 1

```

'Fill the body of the tag with a comma-delimited string of the y-data numbers

```

buff = buff & " <data_y>" & Chr(10)
MaxLI = NumLI - 2
MaxDP = data.Columns.Count - 17
For K = 1 To MaxDP
    buff = buff & data.Cells(N, 18 + K) & ", "
    If (K Mod 10) = 0 Then
        buff = buff & Chr(10)
    End If
Next K
buff = buff & Chr(10) & " </data_y>" & Chr(10)

```

```

'Insert ELEMENT: analysis
'Insert ELEMENT: li_class_set
'Insert ELEMENT: 'linkset'
'Call FillTag("linkset")
'Insert ELEMENT: note_set

```

```

'Insert closing tag for that line item
buff = buff & Chr(10) & " </line_item>" & Chr(10)

```

'Every 10 line items, flush the buffer

```

'If N Mod 5 = 0 Then
' Call SaveToFile(buff)
'End If

```

Next N

```

'Closes the test for XYPlot at beginning of routine
End If

```

fillLineItems = buff

End Function

```

'-----
' Procedure:   addAttribute(name, value)
'
' Purpose:    Adds an attribute line to "buff"
'
'-----

```

```

Public Sub addAttribute(buff, name, value, indent, last)

```

```

' Build the indentation
Dim strIndent As String
strIndent = ""
For J = 1 To indent
    strIndent = strIndent & " "
Next J

' Build the string
buff = buff & strIndent & name & " = " & Chr(34) & value & Chr(34)

'Add an ending '>' tag if "last" is 1; else simple add a carriage return
If last = 1 Then
    buff = buff & ">" & Chr(10)
Else
    buff = buff & Chr(10)
End If

End Sub

Private Sub replaceAttribute(f As String, el As String, att As String, val As String)

    f = Replace(f, att & " = " & Chr(34) & Chr(34), att & " = " & Chr(34) & val & Chr(34))

End Sub

Private Sub fillXData(f As String)

    'build the string of X values
    'Dim data As Range
    Dim v As String
    t = RefEdit_data.value
    v = Chr(10) & Range(t).Cells(1, 19)
    For J = 20 To Range(t).Columns.Count
        v = v & ", " & Range(t).Cells(1, J)
    Next J
    v = v & Chr(10)

    'replace the current x data element text
    f = Replace(f, "></data_x>", ">" & v & " </data_x>")

End Sub

```

CLAIMS

1. A computer program product embodied on a non-transitory computer-readable medium comprising:

code for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

code for causing automatic transformation of at least a portion of the numerical values of at least one of the first markup document or the second markup document, so that the at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

code for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and

code for causing a display of at least a portion of the single markup document.

2. The computer program product of claim 1, wherein the computer program product is configured such that the first tags and the second tags each include computer-readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values, via a computer-readable tagging association therebetween.

3. The computer program product of claim 2, wherein the computer program product is configured for allowing a user to edit a mapping of one or more of the computer-readable semantic tags to a corresponding one of at least one of the first numerical values or the second numerical values.
4. The computer program product of claim 1, wherein the computer program product is operable such that the first unit of measure includes a first currency and the second unit of measure includes a second currency.
5. The computer program product of claim 1, and further comprising code for manipulating the display of the single markup document using at least one of the first tags reflecting the first characteristics of the first numerical values associated with the first unit of measure, or the second tags reflecting the second characteristics of second numerical values associated with the second unit of measure.
6. The computer program product of claim 1, wherein the computer program product is configured such that the first markup document and the second markup document each include a XML-compliant data document that includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including computer-readable semantic tags that each describe a semantic meaning of one or more of the corresponding numerical values.
7. The computer program product of claim 6, wherein the computer program product is configured such that the computer-readable semantic tags are each computer-readably coupled to the one or more of the corresponding numerical values.
8. The computer program product of claim 1, wherein the computer program product is configured such that the single markup document includes a XML-compliant data document that includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including computer-readable

semantic tags that each describe a semantic meaning of one or more of the corresponding numerical values.

9. The computer program product of claim 1, wherein the computer program product is operable such that the single markup document includes a XML-compliant data document that is capable of including at least one of: multiple hierarchical relationships between two line items of corresponding numerical values, or computer-readable semantic tags that each describe a semantic meaning of one or more of corresponding numerical values

10. The computer program product of claim 9, wherein the computer program product is configured for utilizing a plurality of computer-readable rules for processing the at least one XML-compliant data document, the computer-readable rules including:

a computer-readable datatype rule for validation of a value type,

a computer-readable calculation rule for validation of a value calculation, and

a computer-readable unit rule for validation of a value unit.

11. The computer program product of claim 9, wherein the computer program product is configured for validating the at least one XML-compliant data document by:

identifying at least a subset of the computer-readable rules including at least one of:

a computer-readable datatype rule for validation of a value type,

a computer-readable calculation rule for validation of a value calculation, or

a computer-readable unit rule for validation of a value unit;
and

processing at least a portion of the at least one XML-compliant data document, utilizing the at least subset of the rules.

12. The computer program product of claim 9, wherein the computer program product is configured such that the at least one XML-compliant data document includes an extensible semantic tag-equipped markup language component and a hypertext markup language (HTML) component.

13. The computer program product of claim 12, wherein the computer program product is configured such that at least one XML-compliant data document is capable of being displayed utilizing a network browser for allowing review of the HTML component in addition to access the extensible semantic tag-equipped markup language component.

14. The computer program product of claim 1, wherein the computer program product is configured for storing at least one object including at least one reference to an original value of at least one of at least one of the first numerical values or the second numerical values.

15. The computer program product of claim 14, wherein the computer program product is configured for outputting a presentation or report that is based on at least a portion of the at least one object, the presentation or report capable of including at least a portion of at least one of the first numerical values or the second numerical values,

including the at least one original value, such that, based on the at least one reference of the at least one object, a change to the at least one original value results in a corresponding change in an instance of the presentation or report.

16. The computer program product of claim 14, wherein the computer program product is configured such that the single markup document includes a XML-compliant data document that includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including computer-readable semantic tags that each describe a semantic meaning of one or more of the corresponding numerical values, wherein the computer program product is further configured for outputting the XML-compliant data document based on at least a portion of the at least one object, the XML-compliant data document capable of including at least a portion of at least one of the first numerical values or the second numerical values, including the at least one original value, such that, based on the at least one reference of the at least one object, a change to the at least one original value results in a corresponding change in an instance of the XML-compliant data document.

17. The computer program product of claim 1, wherein the computer program product is configured such that at least one of:

said code for causing the automatic transformation is capable of automatically transforming the at least portion of the numerical values of the first markup document the second markup document;

said identifying includes receiving;

said first tags or second tags result from tagging;

said characteristics include at least one of a magnitude, scale, modifier, unit, and measurement;

said tags reflect structure;

said processing includes merging or combining;

said processing results in a single data set, and said code for causing the display causes display of the single data set;

said single markup document is caused to be displayed on a single graphical display;

said single markup document includes an RDML document;

said single markup document is caused to be displayed without requiring a user to make manual adjustments; or

said at least portion of the single markup document includes the numerical values thereof.

18. A method comprising:

identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

automatically transforming at least a portion of the numerical values of at least one of the first markup document or the second markup document, so that the at least

some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and

causing a display of at least a portion of the single markup document.

19. An apparatus, comprising:

means for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

means for automatically transforming at least a portion of the numerical values of at least one of the first markup document or the second markup document, so that the at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

means for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and

means for causing a display of at least a portion of the single markup document.

ABSTRACT

A system, method, and computer program product are provided for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure. The first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure. At least a portion of the numerical values of at least one of the first markup document or the second markup document are automatically transformed, so that the at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure. Further, at least a part of the first markup document and at least a part of the second markup document are processed, resulting in a single markup document, for display.

Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT			
First Named Inventor/Applicant Name:	RUSSELL T DAVIS			
Filer:	THOMAS DONALD FORTENBERRY			
Attorney Docket Number:	ENUM018			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	70	70
Utility Search Fee	2111	1	300	300
Utility Examination Fee	2311	1	360	360
Pages:				
Utility Appl Size fee per 50 sheets >100	2081	1	200	200
Claims:				
Miscellaneous-Filing:				
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				930

Electronic Acknowledgement Receipt

EFS ID:	22478104
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	RUSSELL T DAVIS
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	28-MAY-2015
Filing Date:	
Time Stamp:	23:35:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$930
RAM confirmation Number	6947
Deposit Account	506056
Authorized User	FORTENBERRY, THOMAS D

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Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	20150528_ENUM018_ADS.pdf	1561483 d2913193a015d9d08cf33bc29c42e8dd612e28e0	no	7
Warnings:					
Information:					
2	Oath or Declaration filed	20150506_ENUM018_David_Decl_Post_AIA.pdf	753037 a39f497436cd98e7aa235b71bcb1e3252b26a2a2	no	1
Warnings:					
Information:					
3	Power of Attorney	20150528_ENUM016_POA.pdf	456504 038a479f6ccb693ed6f251ce8999aff9b662c131	no	1
Warnings:					
Information:					
4	Drawings-only black and white line drawings	20150528_ENUM018_drawings.pdf	1416091 fe3be1511c4394222fe9e62eab47f78d9d2654d1	no	40
Warnings:					
Information:					
5	Petition for Glossary Pilot	20150528_ENUM018_Glossary_Program.pdf	138168 61c4998e79285a2f4278251baf48c0809f8ad02	no	1
Warnings:					
Information:					
6	First Action Interview - Enrollment Request	20150528_ENUM018_Interview_Pilot.pdf	623363 42c8d77bc1eee89cedaa9db3b5486e04ed7c9f72	no	3
Warnings:					
Information:					
7		20150528_ENUM018_spec_claims_abstract.pdf	14628636 96af996c2b3f5ed2975229786aa8bdac48f93752	yes	156
Multipart Description/PDF files in .zip description					
	Document Description	Start	End		

	Specification		1	148
	Claims		149	155
	Abstract		156	156
Warnings:				
Information:				
8	Fee Worksheet (SB06)	fee-info.pdf	37084	no
			7a6a0d206e73777d5c5e668bcaf2d7243949c5	2
Warnings:				
Information:				
Total Files Size (in bytes):			19614366	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>				

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ENUM018
		Application Number	
Title of Invention	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2. (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1					<input type="button" value="Remove"/>
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Russell	T	Davis		
Residence Information (Select One) <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Bethesda	State/Province	MD	Country of Residence i	US
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Address 2					
City	Bethesda	State/Province	MD		
Postal Code	20816	Country i	US		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. <input type="button" value="Add"/>					

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).

An Address is being provided for the correspondence Information of this application.

Customer Number	112117		
Email Address	tom@tflawoffices.com	<input type="button" value="Add Email"/>	<input type="button" value="Remove Email"/>

Application Information:

Title of the Invention	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT		
Attorney Docket Number	ENUM018	Small Entity Status Claimed	<input checked="" type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	40	Suggested Figure for Publication (if any)	

Filing By Reference :

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ENUM018
	Application Number	
Title of Invention	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT	

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

Request Early Publication (Fee required at time of Request 37 CFR 1.219)

Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	<input checked="" type="radio"/> Customer Number	<input type="radio"/> US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)
Customer Number	112117		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the application number blank.

Prior Application Status	Pending		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
	Continuation in part of	12222751	2008-08-15		
Prior Application Status	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12222751	Division of	09573778	2000-05-18	7421648	2008-09-02
Prior Application Status	Expired		Remove		

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ENUM018
		Application Number	
Title of Invention	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
09573778	Claims benefit of provisional	60183152	2000-02-17
Prior Application Status	Expired	<input type="button" value="Remove"/>	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
09573778	Claims benefit of provisional	60135525	1999-05-21
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			<input type="button" value="Add"/>

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

<input type="button" value="Remove"/>			
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			<input type="button" value="Add"/>

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

Authorization to Permit Access to the Instant Application by the Participating Offices

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ENUM018
		Application Number	
Title of Invention	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT		

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

- Assignee
 Legal Representative under 35 U.S.C. 117
 Joint Inventor
- Person to whom the inventor is obligated to assign.
 Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here.

Organization Name

Mailing Address Information:

Address 1	125 Yarnick Road		
Address 2			
City	Great Falls	State/Province	VA
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ENUM018
		Application Number	
Title of Invention	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT		
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			<input type="button" value="Add"/>

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.				
Assignee 1				
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
				<input type="button" value="Remove"/>
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Mailing Address Information For Assignee including Non-Applicant Assignee:				
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Address 2				
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Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications				
Signature	/Thomas D. Fortenberry/		Date (YYYY-MM-DD)	2015-05-28
First Name	Thomas	Last Name	Fortenberry	Registration Number
				56537
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ENUM018
		Application Number	
Title of Invention	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The information provided by you in this form will be subject to the following routine uses:

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**COMBINED DECLARATION (37 C.F.R. 1.63) AND ASSIGNMENT FOR UTILITY APPLICATION
USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)**

Title of Invention: SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A
MARKUP DOCUMENT

As the below named inventor, I hereby declare that:

This declaration is directed to the attached application, or (if following box is checked)

United States application or PCT international application number _____, filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby state that I have reviewed and understand the contents of the above-identified application, including the claims.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, CFR § 1.56.

Whereas, I the undersigned inventor have invented certain new and useful improvements as set forth in the above-identified patent application and further identified by the Attorney Docket Number provided above in the header of this document.

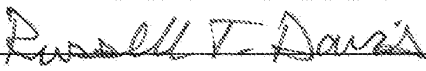
For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I the undersigned inventor hereby:

- 1) Sell(s), assign(s) and transfer(s) to e-Numerate Solutions, Inc., having a principal place of business at 125 Yarnick Road, Great Falls, VA 22066, (hereinafter referred to as ("ASSIGNEE"), the entire right title and interest in any and all improvements and inventions disclosed in, application(s) based upon, and Patent(s) (including foreign patents) granted upon the information which is disclosed in the above referenced application.
- 2) Authorize and request the Commissioner of Patents to issue any and all Letters Patents resulting from said application or any division(s), continuation(s), substitutes(s) or reissue(s) thereof to the ASSIGNEE.
- 3) Agree to execute all papers and documents and, entirely at the ASSIGNEE's expense, perform any acts which are reasonably necessary in connection with the prosecution of said application, as well as any derivative and applications thereof, foreign applications based thereon, and/or the enforcement of patents resulting from such applications.
- 4) Agree that the terms, covenants and conditions of this assignment shall inure to the benefit of the Assignee, its successors, assigns and other legal representative, and shall be binding upon the inventor(s), as well as the inventor's heirs, legal representatives and assigns.
- 5) Warrant and represent that I have not entered, and will not enter into any assignment, contract, or understanding that conflicts with this assignment.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Signed on the date indicated beside my signature.

Legal Name of Inventor: Russell T. Davis

Signature:  Date: 5/6/2015



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United States Patent and Trademark Office
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www.uspto.gov

Table with 7 columns: APPLICATION NUMBER, FILING or 371(c) DATE, GRP ART UNIT, FIL FEE REC'D, ATTY.DOCKET.NO, TOT CLAIMS, IND CLAIMS. Row 1: 14/724,792, 05/28/2015, 2144, 930, ENUM018, 19, 3

CONFIRMATION NO. 2157

FILING RECEIPT

112117
Thomas D. Fortenberry, Attorney at Law
P.O. Box 2099
Woodville, TX 75799



Date Mailed: 06/09/2015

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections

Inventor(s) Russell T. Davis, Bethesda, MD;
Applicant(s) e-Numerate Solutions, Inc., Great Falls, VA;

Power of Attorney: The patent practitioners associated with Customer Number 112117

Domestic Priority data as claimed by applicant
This application is a CIP of 12/222,751 08/15/2008
which is a DIV of 09/573,778 05/18/2000 PAT 7421648
which claims benefit of 60/183,152 02/17/2000
and claims benefit of 60/135,525 05/21/1999

Foreign Applications for which priority is claimed (You may be eligible to benefit from the Patent Prosecution Highway program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 06/08/2015

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 14/724,792

Projected Publication Date: 09/17/2015

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT

Preliminary Class

715

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number
14/724,792

APPLICATION AS FILED - PART I

		(Column 1)	(Column 2)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
FOR		NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))		19	minus 20 = *	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))		3	minus 3 = *	x 210 =	0.00	OR		
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				200			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					0.00			
				TOTAL	930		TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED - PART II

		(Column 1)	(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
				TOTAL ADD'L FEE			OR	TOTAL ADD'L FEE		

		(Column 1)	(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY		
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
				TOTAL ADD'L FEE			OR	TOTAL ADD'L FEE		

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
 The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.



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CONFIRMATION NO. 2157

FILING RECEIPT

112117
Thomas D. Fortenberry, Attorney at Law
P.O. Box 2099
Woodville, TX 75979



Date Mailed: 06/10/2015

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Inventor(s) Russell T Davis, Bethesda, MD;
Applicant(s) e-Numerate Solutions, Inc., Great Falls, VA;

Power of Attorney: The patent practitioners associated with Customer Number 112117

Domestic Priority data as claimed by applicant
This application is a CIP of 12/222,751 08/15/2008
which is a DIV of 09/573,778 05/18/2000 PAT 7421648
which claims benefit of 60/183,152 02/17/2000
and claims benefit of 60/135,525 05/21/1999

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Projected Publication Date: 09/17/2015

Non-Publication Request: No

Early Publication Request: No

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Preliminary Class

715

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Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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SelectUSA

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number
14/724,792

APPLICATION AS FILED - PART I

		(Column 1)	(Column 2)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
FOR		NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))		19	minus 20 = *	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))		3	minus 3 = *	x 210 =	0.00	OR		
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MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					0.00			
				TOTAL	930		TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED - PART II

		(Column 1)	(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
				TOTAL ADD'L FEE			OR	TOTAL ADD'L FEE		

		(Column 1)	(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY		
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
				TOTAL ADD'L FEE			OR	TOTAL ADD'L FEE		

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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/724,792	05/28/2015	Russell T Davis	ENUM018

CONFIRMATION NO. 2157

WITHDRAWAL NOTICE



112117
Thomas D. Fortenberry, Attorney at Law
P.O. Box 2099
Woodville, TX 75979

Date Mailed: 06/10/2015

Letter Regarding a New Notice and/or the Status of the Application

If a new notice or Filing Receipt is enclosed, applicant may disregard the previous notice mailed on 06/09/2015. The time period for reply runs from the mail date of the new notice. Within the time period for reply, applicant is required to file a reply in compliance with the requirements set forth in the new notice to avoid abandonment of the application.

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.
<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at <http://www.uspto.gov/ebc>.

If the reply is not filed electronically via EFS-Web, the reply must be accompanied by a copy of the new notice.

If the Office previously granted a petition to withdraw the holding of abandonment or a petition to revive under 37 CFR 1.137, the status of the application has been returned to pending status.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/ldvan/

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14724792
Filing Date	28-MAY-2015
First Named Inventor	RUSSELL T DAVIS
Title	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
Art Unit	
Examiner Name	
Attorney Docket Number	ENUM018

SIGNATURE of Applicant or Patent Practitioner			
Signature	/Thomas D. Fortenberry/	Date (Optional)	
Name	Thomas D. Fortenberry	Registration Number	56537
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

*Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

- I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 112117
- OR
- I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

- The address associated with the above-mentioned Customer Number
- OR
- The address associated with Customer Number:
- OR

Firm or Individual Name				
Address				
City	State	Zip		
Country				
Telephone	Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

e-Numerate Solutions, Inc.

- Inventor or Joint Inventor (title not required below)
- Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)
Name	William M. Diefenderfer	
Title	CEO of e-Numerate Solutions, Inc.	

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	22596610
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	10-JUN-2015
Filing Date:	28-MAY-2015
Time Stamp:	21:04:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	20150602_ENUM018_sb0082_post_AIA.pdf	632289 <small>6495b1483e5086b122620c1b72f1fc26c501 aee8</small>	no	3

Warnings:

Information:

Total Files Size (in bytes):

632289

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/724,792	05/28/2015	Russell T Davis	ENUM018

CONFIRMATION NO. 2157

POA ACCEPTANCE LETTER



OC00000075715151

112117
Thomas D. Fortenberry, Attorney at Law
P.O. Box 2099
Woodville, TX 75979

Date Mailed: 06/15/2015

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/10/2015.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/stephanos/



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/724,792	05/28/2015	Russell T Davis	ENUM018	2157
112117 Thomas D. Fortenberry, Attorney at Law P.O. Box 2099 Woodville, TX 75979	7590 06/30/2015		EXAMINER STORK, KYLE R	
			ART UNIT 2144	PAPER NUMBER
			MAIL DATE 06/30/2015	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
14/724,792	28 May, 2015	DAVIS, RUSSELL T	ENUM018

Thomas D. Fortenberry, Attorney at Law P.O. Box 2099 Woodville, TX 75979	EXAMINER	
	Kavita Padmanabhan	
	ART UNIT	PAPER
	2176	20150626

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

This is a decision on the petition filed May 28, 2015 under 37 CFR 1.102 to make the above-identified application special until the issuance of the first Office action under the Glossary Pilot Program as set forth in 79 Federal Register 17137 (March 27, 2014).

The petition to make special is before Technology Center 2100 Glossary Point of Contact for decision. The requirement for a fee for consideration of the petition to make special for applications in the Glossary Pilot Program has been waived.

The instant petition complies with the requirements of the Glossary Pilot Program as set forth in 79 Federal Register 17137. Accordingly, the petition is GRANTED, and the above-identified application is accepted into the Glossary Pilot Program and will receive special status until the issuance of the first Office action.

Please note that as a condition of participation in this pilot program, any preliminary amendments that render the application non-compliant with the requirements of the Glossary Pilot Program will not be entered.

Telephone inquiries concerning this decision should be directed to Kavita Padmanabhan at 571-272-8352.

The application is being forwarded to Technology Center 2100 for action on the merits commensurate with this decision.

/Kavita Padmanabhan/
Supervisory Patent Examiner, Art Unit 2176



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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P. O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/724,792	05/28/2015	Russell T Davis	ENUM018	2157
112117 Thomas D. Fortenberry, Attorney at Law P.O. Box 2099 Woodville, TX 75979	7590 07/08/2015		EXAMINER STORK, KYLE R	
			ART UNIT 2144	PAPER NUMBER
			MAIL DATE 07/08/2015	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of References Cited	Application/Control No. 14/724,792	Applicant(s)/Patent Under Reexamination DAVIS, RUSSELL T	
	Examiner KYLE STORK	Art Unit 2144	Page 1 of 1

U.S. PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A US-6,199,046	03-2001	Heinzle et al.	705/39
*	B US-6,510,468	01-2003	Hayne, Mark N.	709/246
*	C US-5,548,749	08-1996	Kroenke et al.	1/1
*	D US-6,009,443	12-1999	Kawamura, Shuji	715/246
	E US-			
	F US-			
	G US-			
	H US-			
	I US-			
	J US-			
	K US-			
	L US-			
	M US-			

FOREIGN PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N				
	O				
	P				
	Q				
	R				
	S				
	T				

NON-PATENT DOCUMENTS

*	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U
	V
	W
	X

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

First Action Interview Pilot Program Pre-Interview Communication	Application No. 14/724,792	Applicant(s) DAVIS, RUSSELL T	
	Examiner KYLE STORK	Art Unit 2144	AIA (First Inventor to File) Status No

Notification of Rejection(s) and/or Objection(s)				
#	Claim(s)	Reference(s) (if applicable)	Rejection Statutory Basis	Brief Explanation of Rejection
1	1-19		101 (obvious type double patenting)	With respect to claims 1-19, the applicant recites limitations substantially similar to those contained within patent 7421648 (hereafter "the patent"). Those limitations not specifically disclosed within the patent
2	1-19	Heinzle et al. (US 6199046)	103	Claim 1: column 10, line 15-30; column 11, line 64- column 12, line 27; column 58, lines 50-63. Claim 2: column 58, lines 50-63. Claim 3: column 3, lines 4-10 (user selection is a user edit of currency).
3	1-19	Hayne (US 6510468)	103	Heinzle fails to specifically processing at least part of a first document and at least part of a second document to form a single markup document. However, Hayne discloses this limitation (column 13, lines 22-31).
4	6, 8, 12, 13			Heinzle fails to specifically disclose the limitations of claims 6, 8, 12, and 13, specifically that the markup documents include XML-compliant data documents that include hierarchical relationships and wherein the
5	10, 11	Kroenke et al. (US 5548749)	103	Heinzle fails to specifically disclose validation of a value type, a value calculation, and/or a value unit. However, Kroenke discloses validation of a value type, a value calculation, and/or a value unit (Figs 20E-20F).

Expanded Discussion/Commentary	
1	were notoriously well known in the art at the time of the applicant's invention. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have combined these well-known limitations with the limitations of the patent, thereby enabling the user to expand the functionality in known ways. As an example, it would have allowed a user to combine multiple documents into a single document, in order to provide a user means for comparing prices from various websites when shopping.
2	Claim 4: column 11, line 64- column 12, line 27. Claim 5: column 60, lines 5-28 (HTML tags define display characteristics). Claim 7: column 58, lines 51-63 (denomination tags). Claim 9: column 58, lines 57-63 and column 60, lines 20-24 (currency labels, such as AUD, are semantic tags of currency type). Claim 17: column 10, lines 15-30; column 11, line 64- column 12, line 27; column 58, lines 50-63. Claims 18 and 19: see Claim 1.
3	It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have combined Hayne with Heinzle, since it would have allowed a user to merge and display multiple document portions as a single merged document.
4	the document is extensible to allow review of the HTML components. However, the examiner takes official notice that these limitations were notoriously well known to the skilled artisan at the time of the applicant's invention. It would have been obvious to the skilled artisan at the time of the applicant's invention to have combined the well-known with Heinzle, since it would have allowed a user to take advantage of the flexible extensible nature of XML in order to extend the abilities of an HTML document.
5	It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have combined Kroenke with Heinzle, since it would have allowed a user to perform validation on various aspects of the invention, in order to ensure that the proper data and properly formatted data was presented to the user.
DATE: 01 July, 2015	/Kyle Stork/ Primary Examiner, AU 2144

U.S. Patent and Trademark Office
PTOL-413FP (Rev. 08-13)

First Action Interview Pilot Program - Pre-Interview Communication

Part of Paper No./Mail Date 20150701

First Action Interview Pilot Program Pre-Interview Communication				Application No. 14/724,792	Applicant(s) DAVIS, RUSSELL T	
				Examiner KYLE STORK	Art Unit 2144	AIA (First Inventor to File) Status No
Notification of Rejection(s) and/or Objection(s)						
#	Claim(s)	Reference(s) (if applicable)	Rejection Statutory Basis	Brief Explanation of Rejection		
6	14-16	Kawamura (US 6009443)	103	Heinzle fails to specifically disclose storing the original values and the capability to reproduce the display of original values. However, Kawamura discloses sotring the original values and the capability to reproduce		

Expanded Discussion/Commentary		
6		the display of the original values (Figure 4A; column 3, lines 1-16). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have combined Kawamura with Heinzle, since it would have allowed a user to display original values in conjunction with translated values.
DATE: 01 July, 2015		/Kyle Stork/ Primary Examiner, AU 2144

Notice of References Cited	Application/Control No. 14/724,792	Applicant(s)/Patent Under Reexamination DAVIS, RUSSELL T	
	Examiner KYLE STORK	Art Unit 2144	Page 1 of 1

U.S. PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
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*	B US-6,510,468	01-2003	Hayne, Mark N.	709/246
*	C US-5,548,749	08-1996	Kroenke et al.	1/1
*	D US-6,009,443	12-1999	Kawamura, Shuji	715/246
	E US-			
	F US-			
	G US-			
	H US-			
	I US-			
	J US-			
	K US-			
	L US-			
	M US-			

FOREIGN PATENT DOCUMENTS

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	N				
	O				
	P				
	Q				
	R				
	S				
	T				

NON-PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)				
	U				
	V				
	W				
	X				

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	19966	(store stores storing stored storage stor\$4) with (original) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:51
L2	7662	(display displays displaying displayed display\$4) with (original) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:51
L3	70723	(display displays displaying displayed display\$4) with (edit edited edit\$4 change changes changed changing chang\$4 modify modified modification modif\$4) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:52
L4	374	1 and 2 and 3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:53
L5	53137503	@ad < "19990217"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:53
L6	12729	3 and L5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:53
L7	76	4 and L5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:54
S2	891100	(convert conversion converting	US-PGPUB;	OR	OFF	2015/06/30

		converts converted convert\$4 transform transforms transformed transforming transformation transform\$4) with (currency currencies unit units)	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			15:06
S3	285	(convert conversion converting converts converted convert\$4 transform transforms transformed transforming transformation transform\$4) with (values measurements) with (currency currencies unit units) with (page pages webpage webpages document document)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 15:09
S4	53137503	@ad < "19990217"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 15:09
S5	39	S3 and S4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 15:10
S6	3	"7421648".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 15:19
S7	123	("20010018687" "20010020237" "20010049687" "20020023141" "20020052954" "20020091696" "20020198985" "20030041077" "20030078883" "20030167213" "20050086126" "20050182709" "20050198042" "4674043" "5276776" "5339392" "5423032" "5603021" "5737592" "5754939" "5822587" "5838906" "5838965" "5894311" "5913214" "5917485" "5920828" "5948113" "5950196" "5956737" "5974413" "5999944" "6014661" "6026388" "6026397" "6034676" "6058385" "6065026" "6092036" "6097888" "6108662" "6121924" "6134563" "6160549" "6167409" "6173284" "6195676" "6199046" "6199080" "6223189" "6240407" "6243698" "6256030" "6314562" "6317750" "6349307" "6351755" "6356920" "6366915" "6370537" "6370549" "6373504" "6374274" "6418433" "6421656" "6421822" "6446048" "6460059" "6470349" "6493717" "6505246"	US-PGPUB; USPAT; USOCR	OR	OFF	2015/06/30 15:19

		"6507856" "6581068" "6591272" "6594653" "6615258" "6629094" "6635089" "6667747" "6721736" "6745384" "6886005" "6912293" "6920608").PN. OR ("7421648").URPN.				
S8	55	S4 and S7	US-PGPUB; USPAT; USOCR	OR	OFF	2015/06/30 15:20
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S11	3083	S9 and S10	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:23
S12	1	((((compare compares comparing compared comparison compar\$4) with (cost costs price prices)) same S9) and S10	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:24
S13	891100	(convert conversion converting converts converted convert\$4 transform transforms transformed transforming transformation transform\$4) with (currency currencies unit units)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:26
S14	262	S11 and S13	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:26
S15	21	amazon.asn. and S10	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:27
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		merged combin\$4 concat\$4 merg\$4) with (two several multiple plural plurality) with (webpage webpages web-page web-pages (web adj (page pages)))	FPRS; EPO; JPO; DERWENT; IBM_TDB			
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S18	3	xhtml and S10	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:45
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EAST Search History

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EAST Search History (Interference)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	14724792
	Filing Date	2015-05-28
	First Named Inventor	RUSSELL T DAVIS
	Art Unit	2144
	Examiner Name	STORK, KYLE R
	Attorney Docket Number	ENUM018

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		14724792
Filing Date		2015-05-28
First Named Inventor	RUSSELL T DAVIS	
Art Unit	2144	
Examiner Name	STORK, KYLE R	
Attorney Docket Number	ENUM018	

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		14724792
Filing Date		2015-05-28
First Named Inventor	RUSSELL T DAVIS	
Art Unit	2144	
Examiner Name	STORK, KYLE R	
Attorney Docket Number	ENUM018	

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STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		14724792
Filing Date		2015-05-28
First Named Inventor	RUSSELL T DAVIS	
Art Unit	2144	
Examiner Name	STORK, KYLE R	
Attorney Docket Number	ENUM018	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792		
	Filing Date		2015-05-28		
	First Named Inventor	RUSSELL T DAVIS			
	Art Unit		2144		
	Examiner Name	STORK, KYLE R			
	Attorney Docket Number		ENUM018		

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792	
	Filing Date		2015-05-28	
	First Named Inventor		RUSSELL T DAVIS	
	Art Unit		2144	
	Examiner Name		STORK, KYLE R	
	Attorney Docket Number		ENUM018	

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	1	Bruce Hallberg et al., "Special Edition, Using Microsoft.RTM. Excell 97, Bestseller Edition, " Que.RTM. Corporation (1997).	<input type="checkbox"/>
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792
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	Art Unit	2144	
	Examiner Name	STORK, KYLE R	
	Attorney Docket Number	ENUM018	

6	Extensible Business Reporting Language (XBRL) 2.0 Specification, (Dec. 14, 2001), Editors: Luther Hampton, e-Numerate; David vun Kannon, KPMG LLP; pp. 1-42.	<input type="checkbox"/>
7	Information on Exchange Rates of Africa, Asia, and Australia, web site: http://eh.net/hmit/exchangerates/infoafr.htm , pp. 1-3, 2002 by EH.NET, downloaded Oct. 19, 2006.	<input type="checkbox"/>
8	Microsoft Press Computer Dictionary, Third Edition, Microsoft Press, p. 511 (1997) (3 pages).	<input type="checkbox"/>
9	Online Ohio CPA Newsletter, A Monthly Electronic Publication of the Ohio Society of Certified Public Accountants; Aug. 2000, vol. 1, No. 14 (7 pages).	<input type="checkbox"/>
10	Order of Magnitude (online Wikipedia article), http://en.wikipedia.org/wiki/Orders.sub.--of.sub.--magnitude , 2006 Wikimedia Foundation, Inc. pp. 1-4, downloaded Oct. 19, 2006.	<input type="checkbox"/>
11	Tools [online], extensible Business Reporting Language, [retrieved on Aug. 13, 2002]. Retrieved from the Internet <URL: http://www.xbrl.org/Tools.htm > (5 pages).	<input type="checkbox"/>
12	XBRL Essentials, (A nontechnical introduction to the extensible Business Reporting Language, the digital language of business), Jan. 2001, Charles Hoffman, CPA; Carolyn Strand, PhD, CPA, (AICPA), pp. 1-17.	<input type="checkbox"/>
13	XBRL Home Page [online], extensible Business Reporting Language, [retrieved on Aug. 13, 2002]. Retrieved from the Internet <URL: http://www.xbrl.org > (3 pages).	<input type="checkbox"/>
14	XBRL Technical Specification [online], extensible Business Reporting Language, [retrieved on Aug. 13, 2002]. Retrieved from the Internet <URL: http://www.xbrl.org/TR/2001/default.htm > (1 page).	<input type="checkbox"/>
15	The XML Cover Pages, Extensible Business Reporting Language (XBRL), (1994-2002), Robin Cover, pp. 1-18.	<input type="checkbox"/>
16	Berkley et al., The Road to Better Business Information Making a Case for XBRL, Winter 2000, Microsoft, pp. 1-13.	<input type="checkbox"/>

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	14724792
	Filing Date	2015-05-28
	First Named Inventor	RUSSELL T DAVIS
	Art Unit	2144
	Examiner Name	STORK, KYLE R
	Attorney Docket Number	ENUM018

17	Blattner, Special Edition Using Microsoft Excel (R), May 3, 1999 (C) Que Corporation "Adding a Secondary Axis to the Chart" (3 pages).	<input type="checkbox"/>
18	Gilster, Paul, Finding It On The Internet: The Internet Navigator's Guide to Search Tools & Techniques, 2.sup.nd edition (1996) (3 pages).	<input type="checkbox"/>
19	Hamscher et al., Extensible Business Reporting language (XBRL) Specification, Jul. 31, 2000, XBRL Organization, pp. 1-27.	<input type="checkbox"/>
20	Charles Hoffman and Carolyn Strand, "XBRL Essentials, A Nontechnical Introduction to eXtensible Business Reporting Language (XBRL), the Digital Language of Business Reporting," pp. 1-148 (2001).	<input type="checkbox"/>
21	Jon Rienstra, "Using Excel.RTM. in Chemistry," http://www.asa3.org/chemistry/computers.sub.--in.sub.--chemistry/excel.su- b.--tips.html (1995) (4 pages).	<input type="checkbox"/>
22	Simon St. Laurent, "Why XML?," http://www.simonstl.com/articles/whyxml.htm (1998) (5 pages).	<input type="checkbox"/>
23	Suzuki et al., "Managing the Software Design Documents With XML," ACM Proceedings of the 16th Annual International Conference on Computer Documentation, Sep. 1998, pp. 127-136.	<input type="checkbox"/>
24	Copending U.S. Appl. No. 11/819,125 entitled "Tree View for Reusable Data Markup Language," filed Jun. 25, 2007.	<input type="checkbox"/>
25	Copending U.S. Appl. No. 11/819,126 entitled "Reusable Data Markup Language," filed Jun. 25, 2007.	<input type="checkbox"/>
26	Information on Exchange Rates of Africa, Asia, and Australasia, web site: < http://eh.net/hmit/exchangerates/infoafr.htm >, pp. 1-3, 2002 by EH.NET, downloaded Oct. 19, 2006.	<input type="checkbox"/>
27	Bruce Halberg, "Special Edition, Using Microsoft.RTM. Excel 97, Bestseller Edition," Que.RTM. Corporation (1997).	<input type="checkbox"/>

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28	Bederson, et al., "Pad++: A Zooming Graphical Interface for Exploring Alternate Interface Physics", UIST 94, Nov. 2-4, 1994, 10 pages.	<input type="checkbox"/>
29	Davis, "The Information System Consultant's Handbook: Systems Analysis and Design", Chapter 51, copyright 1999 by CRC Press LLC, 12 pages.	<input type="checkbox"/>
30	"ProQuest Information and Learning--0789717298--Special Edition Using Microsoft.RTM. Excel 2000." Jan. 23, 2008 http://proquest.safaribooksonline.com/0789717298 , 3 pages.	<input type="checkbox"/>
31	Copending U.S. Appl. No. 09/573,780 entitled "Reusable Macro Markup Language", filed May 18, 2000.	<input type="checkbox"/>
32	Copending U.S. Appl. No. 11/819,126 entitled "Tree View for Reusable Date Markup Language", filed Jun. 25, 2007.	<input type="checkbox"/>
33	Rienstra, Jon, "Using Excel.RTM.in Chemistry" Oct. 1995, http://www.asa3.org/chemistry/computers_in_chemistry/excel_tips.html .	<input type="checkbox"/>
34	Microsoft Press Computer Dictionary, Third Edition, (C) 1997 Microsoft Press, p. 511..	<input type="checkbox"/>
35	St. Laurent, Simon, "Why XML?" (C) 1998 http://www.simonstl.com/articles/whyxml.htm .	<input type="checkbox"/>
36	Gilster, Paul, "Finding It On The Internet: The Internet Navigator's Guide to Search Tools & Techniques," 2.sup.nd edition (1996), 379 pages. cited byother.	<input type="checkbox"/>
37	Halberg, Bruce, et al., "Special Edition, Using Microsoft.RTM. Excel 97, Bestseller Edition," Que.RTM. Corporation (1997).	<input type="checkbox"/>
38	Harold, Elliotte Rusty, "XML.TM. Bible," IDG Books Worldwide, Inc., An International Data Group Company (1999).	<input type="checkbox"/>

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39	Megginson, David, "Structuring XML Documents," Prentice Hall PTR, Upper Saddle River, NJ (1998).	<input type="checkbox"/>
40	Glister, Paul, Finding It On The Internet: The Internet Navigator's Guide to Search Tools & Techniques, 2.sup.nd edition (1996), 379 pages..	<input type="checkbox"/>
41	U.S. Provisional Application No. 60/135,525, filed May 21, 1999	<input type="checkbox"/>
42	U.S. Provisional Application No. 60/183,152, filed February 17, 2000	<input type="checkbox"/>
43	Notice of Allowance from U.S. Application No. 09/573,780, dated October 29, 2009	<input type="checkbox"/>
44	Non-Final Office Action from U.S. Application No. 09/573,780, dated April 1, 2009	<input type="checkbox"/>
45	Non-Final Office Action from U.S. Application No. 09/573,780, dated September 25, 2008	<input type="checkbox"/>
46	Final Office Action from U.S. Application No. 09/573,780, dated February 7, 2008	<input type="checkbox"/>
47	Non-Final Office Action from U.S. Application No. 09/573,780, dated August 17, 2007	<input type="checkbox"/>
48	Final Office Action from U.S. Application No. 09/573,780, dated March 2, 2007	<input type="checkbox"/>
49	Non-Final Office Action from U.S. Application No. 09/573,780, dated September 21, 2006	<input type="checkbox"/>

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	Art Unit	2144	
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	Attorney Docket Number	ENUM018	

	50	Final Office Action from U.S. Application No. 09/573,780, dated June 13, 2006	<input type="checkbox"/>
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	Art Unit	2144
	Examiner Name	STORK, KYLE R
	Attorney Docket Number	ENUM018

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- See attached certification statement.
- The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas D. Fortenberry/	Date (YYYY-MM-DD)	2015-07-23
Name/Print	Thomas D. Fortenberry	Registration Number	56,537

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The information provided by you in this form will be subject to the following routine uses:

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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	Filing Date		2015-05-28	
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	Art Unit	2144		
	Examiner Name	STORK, KYLE R		
	Attorney Docket Number	ENUM018		

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

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Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

1	Non-Final Office Action from U.S. Application No. 09/573,780, dated December 28, 2005	<input type="checkbox"/>
2	Advisory Action from U.S. Application No. 09/573,780, dated July 7, 2005	<input type="checkbox"/>
3	Final Office Action from U.S. Application No. 09/573,780, dated March 28, 2005	<input type="checkbox"/>
4	Non-Final Office Action from U.S. Application No. 09/573,780, dated April 23, 2004	<input type="checkbox"/>
5	Notice of Allowance from U.S. Application No. 09/573,778, dated May 1, 2008	<input type="checkbox"/>
6	Final Office Action from U.S. Application No. 09/573,778, dated October 3, 2007	<input type="checkbox"/>
7	Non-Final Office Action from U.S. Application No. 09/573,778, dated April 13, 2007	<input type="checkbox"/>
8	Final Office Action from U.S. Application No. 09/573,778, dated October 24, 2006	<input type="checkbox"/>
9	Non-Final Office Action from U.S. Application No. 09/573,778, dated May 31, 2006	<input type="checkbox"/>
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	Art Unit	2144	
	Examiner Name	STORK, KYLE R	
	Attorney Docket Number	ENUM018	

12	Final Office Action from U.S. Application No. 09/573,778, dated June 2, 2005	<input type="checkbox"/>
13	Non-Final Office Action from U.S. Application No. 09/573,778, dated January 5, 2005	<input type="checkbox"/>
14	Restriction Requirement from U.S. Application No. 09/573,778, dated September 16, 2004	<input type="checkbox"/>
15	Final Office Action from U.S. Application No. 12/222,751, dated March 31, 2014	<input type="checkbox"/>
16	Advisory Action from U.S. Application No. 12/222,751, dated May 15, 2013	<input type="checkbox"/>
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18	Final Office Action from U.S. Application No. 12/222,751, dated January 7, 2013	<input type="checkbox"/>
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21	Non-Final Office Action from U.S. Application No. 12/222,751, dated August 11, 2011	<input type="checkbox"/>
22	Notice of Allowance from U.S. Application No. 12/222,750, dated March 15, 2013	<input type="checkbox"/>

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	Attorney Docket Number	ENUM018	

23	Final Office Action from U.S. Application No. 12/222,750, dated August 11, 2011	<input type="checkbox"/>
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34	Advisory Action from U.S. Application No. 09/573,419, dated February 20, 2007	<input type="checkbox"/>
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47	Non-Final Office Action from U.S. Application No. 11/819,126, dated February 27, 2013	<input type="checkbox"/>
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49	Non-Final Office Action from U.S. Application No. 11/819,126, dated June 9, 2010	<input type="checkbox"/>
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CERTIFICATION STATEMENT

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See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas D. Fortenberry/	Date (YYYY-MM-DD)	2015-07-23
Name/Print	Thomas D. Fortenberry	Registration Number	56,537

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792	
	Filing Date		2015-05-28	
	First Named Inventor	RUSSELL T DAVIS		
	Art Unit	2144		
	Examiner Name	STORK, KYLE R		
	Attorney Docket Number	ENUM018		

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Attorney Docket Number	ENUM018

1	Non-Final Office Action from U.S. Application No. 11/819,125, dated March 25, 2014	<input type="checkbox"/>
2	Advisory Action from U.S. Application No. 11/819,125, dated September 3, 2013	<input type="checkbox"/>
3	Final Office Action from U.S. Application No. 11/819,125, dated March 14, 2013	<input type="checkbox"/>
4	Non-Final Office Action from U.S. Application No. 11/819,125, dated September 28, 2012	<input type="checkbox"/>
5	Advisory Action from U.S. Application No. 11/819,125, dated August 2, 2011	<input type="checkbox"/>
6	Final Office Action from U.S. Application No. 11/819,125, dated April 12, 2011	<input type="checkbox"/>
7	Final Office Action from U.S. Application No. 11/819,125, dated december 14, 2010	<input type="checkbox"/>
8	Non-Final Office Action from U.S. Application No. 11/819,125, dated July 14, 2010	<input type="checkbox"/>
9	Notice of Allowance from U.S. Application No. 10/980,266, dated March 17, 2008	<input type="checkbox"/>
10	Non-Final Office Action from U.S. Application No. 10/980,266, dated September 12, 2007	<input type="checkbox"/>
11	Final Office Action from U.S. Application No. 10/980,266, dated March 19, 2007	<input type="checkbox"/>

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12	Non-Final Office Action from U.S. Application No. 10/980,266, dated September 5, 2006	<input type="checkbox"/>
13	Non-Final Office Action from U.S. Application No. 10/052,250, dated October 2, 2014	<input type="checkbox"/>
14	Final Office Action from U.S. Application No. 10/052,250, dated February 20, 2014	<input type="checkbox"/>
15	Non-Final Office Action from U.S. Application No. 10/052,250, dated May 22, 2013	<input type="checkbox"/>
16	Decision on Appeal from U.S. Application No. 10/052,250, dated May 1, 2012	<input type="checkbox"/>
17	Examiner's Answer from U.S. Application No. 10/052,250, dated November 24, 2008	<input type="checkbox"/>
18	Final Office Action from U.S. Application No. 10/052,250, dated November 1, 2007	<input type="checkbox"/>
19	Non-Final Office Action from U.S. Application No. 10/052,250, dated June 11, 2007	<input type="checkbox"/>
20	Final Office Action from U.S. Application No. 10/052,250, dated November 2, 2006	<input type="checkbox"/>
21	Non-Final Office Action from U.S. Application No. 10/052,250, dated May 18, 2006	<input type="checkbox"/>
22	Advisory Action from U.S. Application No. 10/052,250, dated December 19, 2005	<input type="checkbox"/>

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	Art Unit	2144	
	Examiner Name	STORK, KYLE R	
	Attorney Docket Number	ENUM018	

23	Final Office Action from U.S. Application No. 10/052,250, dated August 23, 2005	<input type="checkbox"/>
24	Non-Final Office Action from U.S. Application No. 10/052,250, dated March 22, 2005	<input type="checkbox"/>
25	FULTON, "Ten Minute Guide to Excel 97," December 12, 1996; http://techbus.safaribooksonline.com/print?xmlid=0-7897-1020-X%2Fch17lev1sec1 >	<input type="checkbox"/>
26	HOFFMAN et al., "XBRL Taxonomy Financial Reporting for Commercial and Industrial Companies, US GAAP, July 31, 2000, pp. 1-12	<input type="checkbox"/>
27	XBLR for Financial Statements Questions and Answers, April 26, 2000, 6 pages	<input type="checkbox"/>
28	HARDING, W. E., "Finally, Business Talks the same Language," August 2000, 5 pages	<input type="checkbox"/>
29	ARNOLD, K. et al., "The Java Programming Language, Second Edition," The Java Series, 3rd Printing, September 1998, pp. 466 pages	<input type="checkbox"/>
30	GOSLING, J. et al., "The Java Language Specification," The Java Series, First printing, August 1996, 853 pages	<input type="checkbox"/>
31	HAROLD, E. R., "XML: Extensible Markup Language," IDG Books Worldwide, Inc., 1998, 458 pages	<input type="checkbox"/>

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**INFORMATION DISCLOSURE
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CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

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That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas D. Fortenberry/	Date (YYYY-MM-DD)	2015-07-23
Name/Print	Thomas D. Fortenberry	Registration Number	56,537

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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	1	8959196	B2	2015-02-17	Meltzer et al.	
	2	6542912	B2	2003-04-01	Meltzer et al.	
	3	8370362	B2	2013-02-05	Szabo	
	4	8375116	B2	2013-02-12	Meltzer et al.	
	5	8006177	B1	2011-08-23	Meltzer et al.	
	6	7801896	B2	2010-09-21	Szabo	
	7	7660874	B1	2010-02-09	Meltzer et al.	
	8	7565397	B2	2009-07-21	Hodjat et al.	

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9	7181438	B1	2007-02-20	Szabo	
10	6993527	B1	2006-01-31	Raman et al.	
11	6862710	B1	2005-03-01	Marchisio	
12	6876930	B2	2005-04-05	Murray et al.	
13	6789252	B1	2004-09-07	Burke et al.	
14	6772139	B1	2004-08-03	Smith, III	
15	6308179	B1	2001-10-23	Petersen et al.	
16	6269380	B1	2001-07-31	Terry et al.	
17	6266670	B1	2001-07-24	LaMarca et al.	
18	6226675	B1	2001-05-01	Meltzer et al.	
19	6125391	A	2000-09-26	Meltzer et al.	

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	20	6038574	A	2000-03-14	Pitkow et al.	
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	2	20100332583	A1	2010-12-30	Szabo	
	3	20100100814	A1	2010-04-22	Meltzer et al.	
	4	20100004874	A1	2010-01-07	Rzhetsky et al.	
	5	20070219933	A1	2007-09-20	Datig	
	6	20070156677	A1	2007-07-05	Szabo	
	7	20060168335	A1	2006-07-27	Hodjat et al.	
	8	20050187954	A1	2005-08-25	Raman et al.	

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	9	20050005266	A1	2005-01-06	Datig	
	10	20030217047	A1	2003-11-20	Marchisio	
	11	20020165872	A1	2002-11-07	Meltzer et al.	
	12	20020168664	A1	2002-11-14	Murray et al.	
	13	20020062451	A1	2002-05-23	Scheidt et al.	

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Electronic Acknowledgement Receipt

EFS ID:	23008666
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	23-JUL-2015
Filing Date:	28-MAY-2015
Time Stamp:	17:34:08
Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	20150723_IDS_A_1_of_3.pdf	619509 <small>329bf1ccc02c1c323f2f180c3d637683115ad1a6</small>	no	25

Warnings:

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2	Information Disclosure Statement (IDS) Form (SB08)	20150723_IDS_A_2_of_3.pdf	613065 71a86c6e50265cfa932135fcb26328f80b14b9c	no	8
Warnings:					
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A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
3	Information Disclosure Statement (IDS) Form (SB08)	20150723_IDS_A_3_of_3.pdf	613192 082c3b83b02045aa4b61363906ab62dd6729cb3	no	7
Warnings:					
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A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
4	Information Disclosure Statement (IDS) Form (SB08)	20150723_IDS_B.pdf	613019 b236494f5c8fb9ac6aff3a9ce873f984cc3ea60b	no	7
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Information:					
Total Files Size (in bytes):				2458785	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792	
	Filing Date		2015-05-28	
	First Named Inventor	Russell T. DAVIS		
	Art Unit	2144		
	Examiner Name	STORK, KYLE R		
	Attorney Docket Number	ENUM018		

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Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792
	Filing Date		2015-05-28
	First Named Inventor	Russell T. DAVIS	
	Art Unit	2144	
	Examiner Name	STORK, KYLE R	
	Attorney Docket Number	ENUM018	

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¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792
	Filing Date		2015-05-28
	First Named Inventor	Russell T. DAVIS	
	Art Unit	2144	
	Examiner Name	STORK, KYLE R	
	Attorney Docket Number	ENUM018	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

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That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas D. Fortenberry/	Date (YYYY-MM-DD)	2015-07-25
Name/Print	Thomas D. Fortenberry	Registration Number	56,537

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Electronic Acknowledgement Receipt

EFS ID:	23023506
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	25-JUL-2015
Filing Date:	28-MAY-2015
Time Stamp:	10:39:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	20150725_IDS_C.pdf	611964 <small>ace650d98aeb890c33a658cf59979aa7e1fd1d9</small>	no	4

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Total Files Size (in bytes):

611964

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National Stage of an International Application under 35 U.S.C. 371

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New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Acknowledgement Receipt

EFS ID:	23023562
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	25-JUL-2015
Filing Date:	28-MAY-2015
Time Stamp:	12:12:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

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3	Non Patent Literature	NPL_A1_03_Megginson_David_Structuring_XML_Documents.pdf	161860 5b05e00253310f7ba5fe8a5a6fc327836f5a05	no	2
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7	Non Patent Literature	NPL_A1_07_Information_on_Exchange_Rates_of_Africa_Asia_and_Australia.pdf	221088 f697ec2ddab9fcc66388844eca710c6094629123	no	3
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8	Non Patent Literature	NPL_A1_08_Microsoft_Press_Computer_Dictionary_Third_Edition.pdf	202517 12f98e4333d62161aec9786a2778a788ef6bcf45	no	3
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17	Non Patent Literature	NPL_A1_17_Blattner_Special_Edition_Using_Microsoft_Excel.pdf	242361 d6c1a97676f5e69a18d47bda72fb8699cb876b16	no	3
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18	Non Patent Literature	NPL_A1_18_Gilster_Paul_Finding_It_On_The_Internet.pdf	176054 5b28b60864e3ce28ab8e8fe057a4e89fb96acbab	no	3
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19	Non Patent Literature	NPL_A1_19_Hamscher_et_al_Extensible_Business_Reporting_language.pdf	3875320 6113aa88e7386895d122b659a5750984fe7a47b4	no	27
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<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Electronic Acknowledgement Receipt

EFS ID:	23023571
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	25-JUL-2015
Filing Date:	28-MAY-2015
Time Stamp:	12:25:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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Warnings:

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2	Non Patent Literature	NPL_A1_22_Simon_St_Laurent_Why_XML.pdf	412373 23dc9cbef9c3ebddd8456bb76838538b7921cbl1a	no	5
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4	Non Patent Literature	NPL_A1_24_Copending_Application_11819125.pdf	9051530 86d395e4c5d3f5648cf0238d4489e9189953d8c	no	199
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6	Non Patent Literature	NPL_A1_26_Information_on_Exchange_Rates_of_Africa_Asia_and_Australia.pdf	221088 f697ec2ddab9fcc66388844eca710c6094629123	no	3
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10	Non Patent Literature	NPL_A1_30_ProQuest_Information_and_Learning_0789717298.pdf	144016 4fc10d9a11808da2cddb1e78ebb11b2f05211d07	no	3
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13	Non Patent Literature	NPL_A1_33_Rienstra_Jon_Using_Excel_RTM_in_Chemistry.pdf	245385 cd6552dfa228a3c284674f84e1aaeb74e1dd671bb	no	4
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14	Non Patent Literature	NPL_A1_34_Microsoft_Press_Computer_Dictionary_Third_Edition.pdf	202517 12f98e4333d62161aec9786a2778a788ef6b6c945	no	3
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16	Non Patent Literature	NPL_A1_36_Gilster_Paul_Finding_It_On_The_Internet_The_Internet.pdf	176054 5b28b60864e3ce28ab8e8fe057a4e89bf96acbab	no	3
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17	Non Patent Literature	NPL_A1_37_Bruce_Halberg_Special_Edition_Using_Microsoft_RTM_Excel_97.pdf	283494 3ca01ede5b7915da2596dec0ab933469424fff64	no	2
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18	Non Patent Literature	NPL_A1_38_Elliotte_Rusty_Harold_XML_TM_Bible.pdf	204687 da4dbd9b578a293acf06b4846235e4af902f309f	no	2
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19	Non Patent Literature	NPL_A1_39_Megginson_David_Structuring_XML_Documents.pdf	161860 5b05e00253310f7fba5f68af5a6fc327836f5a05	no	2
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20	Non Patent Literature	NPL_A1_40_Gilster_Paul_Finding_It_On_The_Internet.pdf	176054 5b28b60864e3ce28ab8e8fe057a4e89b96acbab	no	3
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Information:					
Total Files Size (in bytes):				43809782	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Electronic Acknowledgement Receipt

EFS ID:	23023579
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	25-JUL-2015
Filing Date:	28-MAY-2015
Time Stamp:	12:33:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	NPL_A1_41_Provisional_App_6 0135525.pdf	24752315 8df23b53dea90941a30244980ee5136ffdd3 be09	no	240

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2	Non Patent Literature	NPL_A1_42_Provisional_App_60183152.pdf	19137562 4f75b99a359f534685e83b9b1ecc950484b30323	no	280
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3	Non Patent Literature	NPL_A1_43_09573780_NOA_10-29-2009.pdf	251501 0ede95bb3f835cf8f1356b7f4a3bba2345870028	no	4
Warnings:					
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4	Non Patent Literature	NPL_A1_44_09573780_OA_04-01-2009.pdf	990584 97350489fa87b8804359a0c5ab97037fe9e5f459	no	31
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5	Non Patent Literature	NPL_A1_45_09573780_OA_09-25-2008.pdf	692836 abb37711ad51ca06cf7b9d25fe13dc4419e2e6	no	23
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6	Non Patent Literature	NPL_A1_46_09573780_OA_02-07-2008.pdf	1269451 e35cbd20fa5d99f7d000612f60bdc2dd60465c78	no	39
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Information:					
7	Non Patent Literature	NPL_A1_47_09573780_OA_08-17-2007.pdf	1126057 207bc524d75806240c9e53ab88ef2da7172633a	no	34
Warnings:					
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8	Non Patent Literature	NPL_A1_48_09573780_OA_03-02-2007.pdf	620767 980ef3d23e950d3f77fa3dade98daa09eb15064b	no	18
Warnings:					
Information:					
9	Non Patent Literature	NPL_A1_49_09573780_OA_09-21-2006.pdf	583188 211f5e923b844e468b8feb2c79174771bba33e50	no	18
Warnings:					
Information:					
10	Non Patent Literature	NPL_A1_50_09573780_OA_06-13-2006.pdf	230193 7398bb51fe7e54bfc70cf255598ac69912054e72	no	7
Warnings:					
Information:					

Total Files Size (in bytes):

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Acknowledgement Receipt

EFS ID:	23023583
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	25-JUL-2015
Filing Date:	28-MAY-2015
Time Stamp:	12:42:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	NPL_A2_01_09573780_OA_12-28-2005.pdf	200311 <small>5d26c394f88e750d5f618dd38175d07808812ae5</small>	no	6

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3	Non Patent Literature	NPL_A2_03_09573780_OA_03-28-2005.pdf	651527 b64a5f61744e5462f669e8e58f848b09d511cc72	no	20
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4	Non Patent Literature	NPL_A2_04_09573780_OA_04-23-2004.pdf	553671 4c20bde433820bcc05b07ec068d9d10ab30be145	no	17
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5	Non Patent Literature	NPL_A2_05_09573778_NOA_05-01-2008.pdf	305254 42ebdd2880a312bf8dcb81e494991f976e4b092	no	6
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6	Non Patent Literature	NPL_A2_06_09573778_FOA_10-03-2007.pdf	153135 2fa3c2f34798c61a35eac2ba47561ae7b21014e1	no	5
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7	Non Patent Literature	NPL_A2_07_09573778_OA_04-13-2007.pdf	278290 bb1605998c059bcb9a2b1bb10d55af167b5cdd6	no	7
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8	Non Patent Literature	NPL_A2_08_09573778_OA_10-24-2006.pdf	302793 ba34ec62f5862886eeac4b182d41783aa2f161c9	no	8
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9	Non Patent Literature	NPL_A2_09_09573778_OA_05-31-2006.pdf	241281 3c50a50a603af7df598f556b9ad3d31912da1a08	no	7
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15	Non Patent Literature	NPL_A2_15_12222751_OA_03-31-2014.pdf	2244357 05e498f3aa7ead3f79a8159eb7f8057655b7 5b59	no	62
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20	Non Patent Literature	NPL_A2_20_12222751_OA_01-25-2012.pdf	1272670 <small>ee102c38a5f93c6f6e230a689c3f2109b50a4888</small>	no	43
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Total Files Size (in bytes):			12953538		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Electronic Acknowledgement Receipt

EFS ID:	23023587
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	25-JUL-2015
Filing Date:	28-MAY-2015
Time Stamp:	12:49:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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2	Non Patent Literature	NPL_A2_22_12222750_NOA_03-15-2013.pdf	462899 023ee785c1917e3535b2a763698d8a99564956	no	9
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7	Non Patent Literature	NPL_A2_27_09573413_NOA_02-08-2005.pdf	333935 ddb6f64f8c5533a6b3db2ac114b7c3e0bd6aecca5	no	7
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9	Non Patent Literature	NPL_A2_29_11119963_NOA_12-15-2008.pdf	319323 55c633686ee363ac11d8f03a90cb0385add0bcc3	no	6
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11	Non Patent Literature	NPL_A2_31_11119963_OA_02-05-2008.pdf	284971 8cb9935d10ec28f611a748bc281f9774377d228	no	8
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12	Non Patent Literature	NPL_A2_32_11119963_OA_05-29-2007.pdf	239532 654429b0700993b05cd3668acf3b75257145b22	no	7
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15	Non Patent Literature	NPL_A2_35_09573419_OA_10-19-2006.pdf	148268 0044207d00f6091dd16d2a755e4ae74b3cd91d74	no	5
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16	Non Patent Literature	NPL_A2_36_09573419_OA_05-10-2006.pdf	227691 27249474b504ffba86b0607ae019feaadd3da44	no	7
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20	Non Patent Literature	NPL_A2_40_09573419_AA_01-26-2005.pdf	106432 c51f9a5dddcefcbb24e8b05b5054350318db50aa	no	3
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Total Files Size (in bytes):				7462625	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Electronic Acknowledgement Receipt

EFS ID:	23023589
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	25-JUL-2015
Filing Date:	28-MAY-2015
Time Stamp:	12:53:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

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1	Non Patent Literature	NPL_A2_41_09573419_OA_10-26-2004.pdf	252917 <small>de41209c1bf4a9642983a9072c7398e001b90ff</small>	no	8

Warnings:

Information:

2	Non Patent Literature	NPL_A2_42_09573419_OA_03-11-2004.pdf	252204 3bfbe28bbcc9635ef4d6d52425130b203ab71ac1	no	7
Warnings:					
Information:					
3	Non Patent Literature	NPL_A2_43_09573419_OA_10-08-2003.pdf	222774 9e6ffca776e9eb32b77caccce9d1963469efbee	no	6
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Information:					
4	Non Patent Literature	NPL_A2_44_09573419_RR_06-18-2003.pdf	118450 c6e6d3b039e657ebdc67a8060f896504973cf7b5	no	3
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5	Non Patent Literature	NPL_A2_45_11819126_OA_03-24-2014.pdf	239473 2c92b8d56b9b8fab48084ef3812a766c703460cc	no	7
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6	Non Patent Literature	NPL_A2_46_11819126_OA_10-21-2013.pdf	257333 5274e12330147d4b73c0f5d22c9eee7950a1f6c2e	no	8
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7	Non Patent Literature	NPL_A2_47_11819126_OA_02-27-2013.pdf	229862 c8fe7fc119188f64bac84d2f25fd843fed9a17a	no	7
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8	Non Patent Literature	NPL_A2_48_11819126_OA_11-17-2010.pdf	325219 5079e9c39facb7f3e5d817b7c690dcb6675cd117	no	10
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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Electronic Acknowledgement Receipt

EFS ID:	23023593
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	25-JUL-2015
Filing Date:	28-MAY-2015
Time Stamp:	13:02:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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Information:

2	Non Patent Literature	NPL_A3_02_11819125_AA_09-03-2013.pdf	169845 b89af8854cbabba7020e5304ec995ace3ab0539	no	3
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4	Non Patent Literature	NPL_A3_04_11819125_OA_09-28-2012.pdf	266864 c0a0b0e50dc6f2b5a1e3c39d83ea86909ec3b5e0	no	8
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5	Non Patent Literature	NPL_A3_05_11819125_AA_08-02-2011.pdf	114834 89b1a0e3519795a91257d2a20ed6af69097b608	no	3
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7	Non Patent Literature	NPL_A3_07_11819125_OA_12-14-2010.pdf	196014 bd32303c6a3b77f09ccf6bda4b2f6f8a9895c6db	no	6
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8	Non Patent Literature	NPL_A3_08_11819125_OA_07-14-2010.pdf	232527 65bfd6951997f7f2c330c88de2595db8b7e6dbd	no	7
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9	Non Patent Literature	NPL_A3_09_10980266_NOA_03-17-2008.pdf	348340 fc12913890a0bbe6eba0ef04b4d61141a49505c3	no	7
Warnings:					
Information:					
10	Non Patent Literature	NPL_A3_10_10980266_OA_09-12-2007.pdf	559705 0ccd8ca3861cea5d5d0b453de77b2147a8d8113	no	15
Warnings:					
Information:					

11	Non Patent Literature	NPL_A3_11_10980266_OA_03-19-2007.pdf	658458 34efea1cc325136f5e68ac6530fb60e8585f18	no	18
Warnings:					
Information:					
12	Non Patent Literature	NPL_A3_12_10980266_OA_09-05-2006.pdf	452324 548972069762bb9d15c8fe51027303c7b9641fa8	no	13
Warnings:					
Information:					
13	Non Patent Literature	NPL_A3_13_10052250_OA_10-02-2014.pdf	935936 e76ee9ea373f677e9ec0ceedf2c216392352211b	no	27
Warnings:					
Information:					
14	Non Patent Literature	NPL_A3_14_10052250_OA_02-20-2014.pdf	813093 7cd152b85ba89f56fa2b0e68e0fcd6789ab17a91	no	25
Warnings:					
Information:					
15	Non Patent Literature	NPL_A3_15_10052250_OA_05-22-2013.pdf	799237 8c3b9d6a14c89f6bb86ef1f07ca38450593c57b	no	23
Warnings:					
Information:					
16	Non Patent Literature	NPL_A3_16_10052250_DeceisonOnAppeal_05-01-2012.pdf	188605 2ef651a1966d41b98b8e7ddec13a4878fd71f695	no	7
Warnings:					
Information:					
17	Non Patent Literature	NPL_A3_17_10052250_ExaminersAnswer_11-24-2008.pdf	698927 200d328d1727bd1f696445b5cc97154da36bce9	no	23
Warnings:					
Information:					
18	Non Patent Literature	NPL_A3_18_10052250_OA_11-01-2007.pdf	747722 ace48fcee7699f711a777e237c70530cb3acbf89	no	21
Warnings:					
Information:					
19	Non Patent Literature	NPL_A3_19_10052250_OA_06-11-2007.pdf	706368 7f34f16acb6965c50137bf1380a2262208fd9fcd	no	20
Warnings:					
Information:					

20	Non Patent Literature	NPL_A3_20_10052250_OA_11-02-2006.pdf	702739 aa37218d14d3ae28efa84f6b09fcc3656669b7c1	no	20
Warnings:					
Information:					
Total Files Size (in bytes):				9542609	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Electronic Acknowledgement Receipt

EFS ID:	23023612
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	25-JUL-2015
Filing Date:	28-MAY-2015
Time Stamp:	13:37:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	NPL_A3_21_10052250_OA_05-18-2006.pdf	583380 <small>22c2aed5d72ce11a1ce4d25f846d46a7b762f</small>	no	17

Warnings:

Information:

2	Non Patent Literature	NPL_A3_22_10052250_AA_12-19-2005.pdf	180751 9847bc5130965b13a49e202cb345e3bb7deb24a4	no	3
Warnings:					
Information:					
3	Non Patent Literature	NPL_A3_23_10052250_OA_08-23-2005.pdf	467457 3e4377e0c8fa3728012ebf273d737e816645554	no	14
Warnings:					
Information:					
4	Non Patent Literature	NPL_A3_24_10052250_OA_03-22-2005.pdf	369488 93d44b22c7fea1f34bc03df795320775e82b6a58	no	11
Warnings:					
Information:					
5	Non Patent Literature	NPL_A3_25_FULTON_Ten_Minute_Guide_to_Excel_97.pdf	138082 23797d5e009bbd0eeffea66682c49a5eda2a6729a	no	2
Warnings:					
Information:					
6	Non Patent Literature	NPL_A3_26_Hoffman_XBRL_Taxonomy_Financial_Reporting.pdf	274018 3449eb2b43fa42d12f2336638ebc990ac1ab6429	no	12
Warnings:					
Information:					
7	Non Patent Literature	NPL_A3_27_XBRL_for_Financial_Statements_Questions_and_Answers.pdf	478251 63ea65e4cfe7a8abde24ab6312b001daede367f	no	24
Warnings:					
Information:					
8	Non Patent Literature	NPL_A3_28_Harding_Finally_Business_Talks_the_Same_Language.pdf	632315 92b0a27b6bd35054bb78488a0468879a66723f29	no	5
Warnings:					
Information:					
9	Non Patent Literature	NPL_A3_29_Arnold.PDF	20302152 c03c0b7ba186cfa6febabb4ff242a42b47aaad51	no	466
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
10	Non Patent Literature	NPL_A3_30_Gosling_Part_1.PDF	20243552 90677e988b99281f0501b7fb18a7807e935a3fcb	no	500

Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
11	Non Patent Literature	NPL_A3_30_Gosling_Part_2.PDF	13653955 bc0258321c66ca759aed890e7aec062f08ad3369	no	353
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
12	Non Patent Literature	NPL_A3_31_Harold_Part_1.PDF	16954703 d327f2711e8bf25161d3a949b3e202ef4df4b855	no	250
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
13	Non Patent Literature	NPL_A3_31_Harold_Part_2.PDF	13525399 6b189eb78b906e3ab9a7847af1112d0cdc2722e	no	208
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
Total Files Size (in bytes):				87803503	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Doc Code: DIST.E.FILE Document Description: Electronic Terminal Disclaimer - Filed		PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce
Electronic Petition Request	TERMINAL DISCLAIMER TO OBTAIN A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	
Application Number	14724792	
Filing Date	28-May-2015	
First Named Inventor	Russell Davis	
Attorney Docket Number	ENUM018	
Title of Invention	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT	
<input checked="" type="checkbox"/> Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action <input checked="" type="checkbox"/> This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.		
Owner	Percent Interest	
e-Numerate Solutions, Inc.	100%	
The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s) 6920608 7249328 7421648 7650355 6886005 7401076 7512875 8489982 8185816		

as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:

- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.

Applicant claims the following fee status:

Small Entity

Micro Entity

Regular Undiscounted

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application

Registration Number 56537

A sole inventor

A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application

A joint inventor; all of whom are signing this request

Signature	/Thomas D. Fortenberry/
Name	Thomas D. Fortenberry

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	14724792			
Filing Date:	28-May-2015			
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT			
First Named Inventor/Applicant Name:	Russell T Davis			
Filer:	THOMAS DONALD FORTENBERRY			
Attorney Docket Number:	ENUM018			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Statutory or Terminal Disclaimer	1814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				160

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 14724792

Filing Date: 28-May-2015

Applicant/Patent under Reexamination: Davis et al.

Electronic Terminal Disclaimer filed on September 8, 2015

APPROVED

This patent is subject to a terminal disclaimer

DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	23430335
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	08-SEP-2015
Filing Date:	28-MAY-2015
Time Stamp:	17:10:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$160
RAM confirmation Number	4946
Deposit Account	506056
Authorized User	FORTENBERRY, THOMAS D

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Electronic Terminal Disclaimer-Filed	eTerminal-Disclaimer.pdf	36583 <small>7adc8976895a72dd2aff6c431b8115d13ac18f2c</small>	no	3

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30316 <small>c0e77e0072e08525279591cb05867f84a757ac0a</small>	no	2
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Warnings:

Information:

Total Files Size (in bytes): 66899

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Applicant Initiated Interview Request Form

Application No.: 14724792 First Named Applicant: RUSSELL T DAVIS
 Examiner: STORK, KYLE R Art Unit: 2144 Status of Application: Pending

Tentative Participants:

(1) Thomas D. Fortenberry (2) _____
 (3) _____ (4) _____

Proposed Date of Interview: 9/16/2015 Proposed Time: 3:00 PM EDT (AM/PM)

Type of Interview Requested:

(1) Telephonic (2) Personal (3) Video Conference

Exhibit To Be Shown or Demonstrated: YES NO

If yes, provide brief description: _____

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) <u>Rejection</u>	<u>Claims 1,18,19</u>	<u>Heinzle et al. (US 6199046)</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) <u>Rejection</u>	<u>Claims 1,18,19</u>	<u>Hayne (US 6510468)</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) <u>Rejection</u>	<u>Claims 1,18,19</u>	<u>Kroenke et al. (US 5548749)</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) _____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Continuation Sheet Attached Proposed Amendment or Arguments Attached

Brief Description of Arguments to be Presented: see proposed Amendment or Arguments attached.

An interview was conducted on the above-identified application on _____

NOTE: This form should be completed and filed by applicant in advance of the interview (see MPEP § 713.01). If this form is signed by a registered practitioner not of record, the Office will accept this as an indication that he or she is authorized to conduct an interview on behalf of the principal (37 CFR 1.32(a)(3)) pursuant to 37 CFR 1.34. This is not a power of attorney to any above named practitioner. See the Instruction Sheet for this form, which is incorporated by reference. By signing this form, applicant or practitioner is certifying that he or she has read the Instruction Sheet. After the interview is conducted, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible. This application will not be delayed from issue because of applicant's failure to submit a written record of this interview.

/Thomas D. Fortenberry/

Applicant/Applicant's Representative Signature

Thomas D. Fortenberry

Typed/Printed Name of Applicant or Representative

56,537

Registration Number, if applicable

Examiner/SPE Signature

This collection of information is required by 37 CFR 1.133. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 24 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Instruction Sheet for:
APPLICANT INITIATED INTERVIEW REQUEST FORM
(Not to be Submitted to the USPTO)

1. If this form is signed by a registered practitioner not of record, the authority to submit the Applicant Initiated Interview Request Form is pursuant to limited authority to act in a representative capacity under 37 CFR 1.34 and further proof of authority to act in a representative capacity may be required. See 37 CFR 1.34.

The Office will accept the signed form as an indication that the registered practitioner not of record is authorized to conduct an interview on behalf of the principal in pursuant to 37 CFR 1.34.

For more information, see the "Conducting an Interview with a Registered Practitioner Acting in a Representative Capacity" notice which is available on the USPTO Web site at: <http://www.uspto.gov/patents/law/notices/2010.jsp>.

2. This is not a power of attorney to any named practitioner. Accordingly, any registered practitioner not of record named on the form does not have authority to sign a request to change the correspondence address, a request for express abandonment, a disclaimer, a power of attorney, or other document requiring the signature of the applicant, assignee of the entire interest or an attorney of record. If appropriate, a separate power of attorney to the named practitioner should be executed and filed in the US Patent and Trademark Office.
3. Any interview concerning an unpublished application under 35 U.S.C. § 122(b) with a registered practitioner not of record, pursuant to 37 CFR 1.34, will be conducted based on the information and files supplied by the practitioner in view of the confidentiality requirements of 35 U.S.C. § 122(a).

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	14724792			
Filing Date:	28-May-2015			
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT			
First Named Inventor/Applicant Name:	Russell T Davis			
Filer:	THOMAS DONALD FORTENBERRY			
Attorney Docket Number:	ENUM018			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 1 month with \$0 paid	2251	1	100	100
Miscellaneous:				
Total in USD (\$)				100

Electronic Acknowledgement Receipt

EFS ID:	23431119
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	08-SEP-2015
Filing Date:	28-MAY-2015
Time Stamp:	17:29:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$100
RAM confirmation Number	5481
Deposit Account	506056
Authorized User	FORTENBERRY, THOMAS D

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Reply under 1.111 to Pre-Interview Communication	20150908_ENUM018_Respone.pdf	163113 edcdccb53ba4d32b46d7cb046dc3aac6b895fdbf	no	16
Warnings:					
Information:					
2	First Action Interview - Schedule Interview request	20150908_ENUM018_App_Initialized_Interview_Request_PTOL413A.pdf	422258 432dab9d24f6be9aa7e93c84511fc62ea4c36b7f	no	3
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30468 5304c1f994d7dfae107fd89f741b1efbaafe2b9d	no	2
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National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Russell T. Davis

Application No.: 14/724,792

Filed: 5/28/2015

For: SYSTEM, METHOD, AND COMPUTER
PROGRAM PRODUCT FOR PROCESSING
A MARKUP DOCUMENT

Confirmation No.: 2157

Examiner: STORK, KYLE R.

Art Unit: 2144

Atty. Docket No.: ENUM018

Date: 9/8/2015

**AMENDMENT(S)/ARGUMENT(S) IN RESPONSE TO FIRST ACTION INTERVIEW
PILOT PROGRAM PRE-INTERVIEW COMMUNICATION**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Following are amendment(s)/argument(s) in response to the First Action Interview Pilot Program Pre-Interview Communication mailed July 8, 2015.

AMENDMENT TO CLAIMS

1. (Previously Presented) A computer program product embodied on a non-transitory computer-readable medium comprising:

code for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

code for causing automatic transformation of at least a portion of the numerical values of at least one of the first markup document or the second markup document, so that the at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

code for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and

code for causing a display of at least a portion of the single markup document.

2. (Previously Presented) The computer program product of claim 1, wherein the computer program product is configured such that the first tags and the second tags each include computer-readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values, via a computer-readable tagging association therebetween.

3. (Previously Presented) The computer program product of claim 2, wherein the computer program product is configured for allowing a user to edit a mapping of one or more of the computer-readable semantic tags to a corresponding one of at least one of the first numerical values or the second numerical values.

4. (Previously Presented) The computer program product of claim 1, wherein the computer program product is operable such that the first unit of measure includes a first currency and the second unit of measure includes a second currency.

5. (Previously Presented) The computer program product of claim 1, and further comprising code for manipulating the display of the single markup document using at least one of the first tags reflecting the first characteristics of the first numerical values associated with the first unit of measure, or the second tags reflecting the second characteristics of second numerical values associated with the second unit of measure.

6. (Previously Presented) The computer program product of claim 1, wherein the computer program product is configured such that the first markup document and the second markup document each include a XML-compliant data document that includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including computer-readable semantic tags that each describe a semantic meaning of one or more of the corresponding numerical values.

7. (Previously Presented) The computer program product of claim 6, wherein the computer program product is configured such that the computer-readable semantic tags are each computer-readably coupled to the one or more of the corresponding numerical values.

8. (Previously Presented) The computer program product of claim 1, wherein the computer program product is configured such that the single markup document includes a XML-compliant data document that includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including

computer-readable semantic tags that each describe a semantic meaning of one or more of the corresponding numerical values.

9. (Currently Amended) The computer program product of claim 1, wherein the computer program product is operable such that the single markup document includes a XML-compliant data document that is capable of including at least one of: multiple hierarchical relationships between two line items of corresponding numerical values, or computer-readable semantic tags that each describe a semantic meaning of one or more of corresponding numerical values.

10. (Previously Presented) The computer program product of claim 9, wherein the computer program product is configured for utilizing a plurality of computer-readable rules for processing the at least one XML-compliant data document, the computer-readable rules including:

a computer-readable datatype rule for validation of a value type,

a computer-readable calculation rule for validation of a value calculation,

and

a computer-readable unit rule for validation of a value unit.

11. (Previously Presented) The computer program product of claim 9, wherein the computer program product is configured for validating the at least one XML-compliant data document by:

identifying at least a subset of the computer-readable rules including at least one of:

a computer-readable datatype rule for validation of a value type,

a computer-readable calculation rule for validation of a value calculation, or

a computer-readable unit rule for validation of a value unit; and

processing at least a portion of the at least one XML-compliant data document, utilizing the at least subset of the rules.

12. (Previously Presented) The computer program product of claim 9, wherein the computer program product is configured such that the at least one XML-compliant data document includes an extensible semantic tag-equipped markup language component and a hypertext markup language (HTML) component.

13. (Previously Presented) The computer program product of claim 12, wherein the computer program product is configured such that at least one XML-compliant data document is capable of being displayed utilizing a network browser for allowing review of the HTML component in addition to access the extensible semantic tag-equipped markup language component.

14. (Previously Presented) The computer program product of claim 1, wherein the computer program product is configured for storing at least one object including at least one reference to an original value of at least one of at least one of the first numerical values or the second numerical values.

15. (Previously Presented) The computer program product of claim 14, wherein the computer program product is configured for outputting a presentation or report that is based on at least a portion of the at least one object, the presentation or report capable of including at least a portion of at least one of the first numerical values or the second numerical values, including the at least one original value, such that, based on the at least one reference of the at least one object, a change to the at least one original value results in a corresponding change in an instance of the presentation or report.

16. (Previously Presented) The computer program product of claim 14, wherein the computer program product is configured such that the single markup document includes a XML-compliant data document that includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including computer-readable semantic tags that each describe a semantic meaning of one or more of the corresponding numerical values, wherein the computer program product is further configured for outputting the XML-compliant data document based on at least a portion of the at least one object, the XML-compliant data document capable of including at least a portion of at least one of the first numerical values or the second numerical values, including the at least one original value, such that, based on the at least one reference of the at least one object, a change to the at least one original value results in a corresponding change in an instance of the XML-compliant data document.

17. (Previously Presented) The computer program product of claim 1, wherein the computer program product is configured such that at least one of:

said code for causing the automatic transformation is capable of automatically transforming the at least portion of the numerical values of the first markup document the second markup document;

said identifying includes receiving;

said first tags or second tags result from tagging;

said characteristics include at least one of a magnitude, scale, modifier, unit, and measurement;

said tags reflect structure;

said processing includes merging or combining;

said processing results in a single data set, and said code for causing the display causes display of the single data set;

said single markup document is caused to be displayed on a single graphical display;

said single markup document includes an RDML document;

said single markup document is caused to be displayed without requiring a user to make manual adjustments; or

said at least portion of the single markup document includes the numerical values thereof.

18. (Previously Presented) A method comprising:

identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

automatically transforming at least a portion of the numerical values of at least one of the first markup document or the second markup document, so that the at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and

causing a display of at least a portion of the single markup document.

19. (Previously Presented) An apparatus, comprising:

means for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

means for automatically transforming at least a portion of the numerical values of at least one of the first markup document or the second markup document, so that the at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

means for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and

means for causing a display of at least a portion of the single markup document.

REMARKS

Under Obviousness Type Double Patenting, the Examiner has indicated that “[w]ith respect to claims 1-19, the applicant recites limitations substantially similar to those contained within patent 7421648.” Such rejection is deemed moot in view of the terminal disclaimer(s) submitted herewith.

Claims 1, 18 and 19

Under 35 U.S.C. 103(a), the Examiner has further indicated that, with respect to Claims 1, 18 and 19 and while citing Heinzle et al. US 6199046, “Claim 1: column 10, line 15-30; column 11, line 64- column 12, line 27; column 58, lines 50-63”

Such cited excerpt(s), however, merely disclose:

“Thus, through the development of frameworks for solutions to various problems and programming tasks, significant reductions in the design and development effort for software can be achieved. A preferred embodiment of the invention utilizes HyperText Markup Language (HTML) to implement documents on the Internet together with a general-purpose secure communication protocol for a transport medium between the client and the merchant. HTML is a simple data format used to create hypertext documents that are portable from one platform to another. HTML documents are SGML documents with generic semantics that are appropriate for representing information from a wide range of domains. HTML has been in use by the World-Wide Web global information initiative since 1990. HTML is an application of ISO Standard 8879:1986 Information Processing Text and Office Systems; Standard Generalized Markup Language (SGML). ...

The embodiment depicted in FIG. 4 need not necessarily duplicate the process of retrieval of exchange rate information by each of the currency selection, exchange rate retrieval and price display object (2a-2n) from the exchange rate information source (1). FIG. 5 depicts an arrangement whereby only the currency selection, exchange rate retrieval and price display object (2a) retrieves the exchange rate information from the exchange rate information source (1), and then passes this information onto the other the currency selection, exchange rate retrieval and price display object (2b). When (2a) and (2b) reside within close proximity of each other, such as when depicting prices within the same document, environment, or operating system, or a number of documents or environments being viewed together, the embodiment depicted in FIG. 5 is more efficient in terms of network traffic than that depicted in FIG. 3. The currency selection, exchange rate retrieval and price display object (2a) that accesses the exchange rate information source (1) would typically, but not necessarily, be the currency selection, exchange rate retrieval and price display object

with which the user interacts to change the currency.

FIG. 5 depicts an extension of the embodiment depicted in FIG. 4, where the initial currency selection, exchange rate retrieval and price display object (2a) broadcasts the information to all other local currency selection and price display objects (2b)-(2n). The currency selection, exchange rate retrieval and price display object (2a) that accesses the exchange rate information source (1) would typically, but not necessarily, be the currency selection, exchange rate retrieval and price display object with which the user interacts to change the currency."

```
50     value="-1"><param name="BaseDenom" value="AUD">
      <act denom = "AUD", amount = "35.00">AUD$35.00</act>
      </object></p>
      <p align="left"><object
        classid="clsid:B8189F14-CD0B-11D0-86E7-0000B43A75C9"
        align="baseline" border="0" width="83" height="23"><param
55     name="...Version" value="65536"><param name="...ExtentX"
        value="2187"><param
        name="...ExtentY" value="600"><param name="...StockProps"
        value="0"><param
        name="BaseValue" value="156"><param name="BaseDenom"
        value="AUD">
60     <act denom = "AUD", amount = "156.00">AUD$156.00</act>
      </object></p>
      <p align="left"><object
        classid="clsid:B8189F14-CD0B-11D0-86E7-0000B43A75C9"
```

However, such cited excerpt(s) fail to disclose applicant's claimed "**automatic transformation** of at least a portion of the numerical values of at least one of the first markup document or the second markup document, **so that the at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure**," in the full context claimed (emphasis added).

Dependent Claims

With respect to the subject matter of Claim 3, the Examiner has indicated that, while citing Heinze et al. US 6199046 under 35 U.S.C. 103(a), "Claim 3: column 3, lines 4-10 (user selection is a user edit of currency)." Such cited excerpt(s), however, merely discloses:

"Upon selecting the appropriate currency, exchange rate information is retrieved from an up to date source over a communications network, and is used to change the prices displayed in the selected currency. It follows that the consumer merely selects the desired currency, and then the prices that the consumer is viewing are converted to the chosen currency automatically."

However, such cited excerpt(s) fail to disclose applicant's claimed computer program product "configured for allowing a user to **edit a mapping of one or more of the computer-readable semantic tags to a corresponding one of at least one of the first numerical values or the second numerical values**," in the full context claimed (emphasis added).

With respect to Claims 6, 8, 12, and 13, the Examiner has further admitted that "Heinzle fails to specifically disclose the limitations of claims 6, 8, 12, and 13, specifically that the markup documents include XML-compliant data documents that include hierarchical relationships and wherein the document is extensible to allow review of the HTML components", but then indicates that "the examiner takes official notice that these limitations were notoriously well known to the skilled artisan at the time of the applicant's invention. It would have been obvious to the skilled artisan at the time of the applicant's invention to have combined the well-known with Heinzle, since it would have allowed a user to take advantage of the flexible extensible nature of XML in order to extend the abilities of an HTML document."

With respect to such claims, applicant contends that none of the relied-upon references disclose a computer program product:

"configured such that the first markup document and the second markup document each include a XML-compliant data document **that includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including computer-readable semantic tags that each describe a semantic meaning of one or more of the corresponding numerical values**" (see Claim 6);

"configured such that **the single markup document** includes a XML-compliant data document that includes **multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including computer-readable semantic tags that each describe a semantic meaning of one or more of the corresponding numerical values**" (see Claim 8);

“configured such that the at least one XML-compliant data document includes an **extensible semantic tag-equipped markup language component** and a hypertext markup language (HTML) component” (see Claim 12); and

“configured such that at least one XML-compliant data document is capable of being displayed utilizing a network browser for allowing review of the HTML component **in addition to access the extensible semantic tag-equipped markup language component**” (see Claim 13), in the full context claimed (emphasis added).

Applicant asserts that the remarks above clearly show the manner in which such claims further distinguish the relied-upon references. Applicant thus formally requests a specific showing of the subject matter in ALL of the claims in any future action. Note excerpt from MPEP below.

“If applicant adequately traverses the examiner’s assertion of official notice, the examiner must provide documentary evidence in the next Office action if the rejection is to be maintained.” See MPEP 2144.03.

Therefore, applicant has adequately traversed the Examiner’s assertion of Official Notice, and again thus formally requests a specific showing of the subject matter in ALL of the claims in any future action.

With respect to Claim 10, the Examiner has admitted that “Heinzle fails to specifically disclose validation of a value type, a value calculation, and/or value unit,” but then indicates that “Kroenke discloses validation of a value type, a value calculation, and/or a value unit (Figs 20E-20F).” Such cited excerpt(s) from Kroenke, however, merely disclose the following:

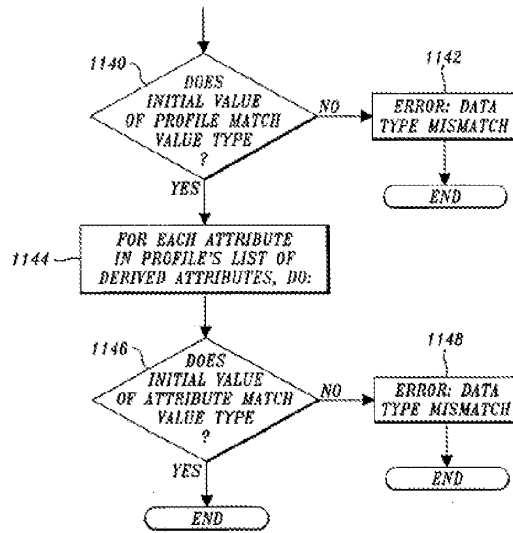


Fig. 20E.

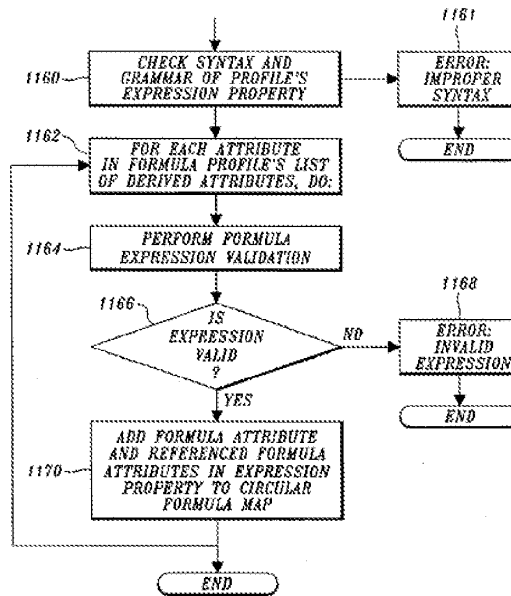


Fig. 20F.

Such cited excerpt(s) fail to disclose applicant's claimed computer program product:

“configured for utilizing a plurality of computer-readable rules for processing the at least one XML-compliant data document, the computer-readable rules including:

a computer-readable datatype rule for validation of a value type,

a computer-readable calculation rule for validation of a value calculation,

and

a computer-readable unit rule for validation of a value unit,” in the full context claimed (emphasis added).

With respect to Claims 15-16, the Examiner has admitted that “Heinzle fails to specifically disclose storing the original values and the capability to reproduce the display of original values,” but then indicates that “Kawamura discloses storing the original values and the capability to reproduce the display of the original values (Figure 4A; column 3, lines 1-16).” Such cited excerpt(s) from Kawamura, however, merely disclose the following:

“As the electronic dictionary has the original memory and the inflection memory for storage of the original data and the inflection data respectively, and means for switching and transferring these data to the display control means, i.e., switching means for switching the display of the original and the inflection, the switching means selects either the original data stored in the original memory or the inflection data stored in the inflection memory to provide the data display.”

FIG. 4 (A)

Pn	PRONOUN		PERSON	PERSON
P1	i	yo	1st Single Masc / Fem	1st Singular Number
P2	you	tú	2nd Single Familiar Masc&Fem	2nd Singular Number Familiar
P3	you	usted	2nd Single Formal Masc & Fem	2nd Singular Number Formal
P4	he	él	3rd Single Masc	3rd Singular Number Male
P5	she	ella	3rd Single Fem	3rd Singular Number Female
P6	it	él / ella	3rd Single Masc & Fem	3rd Singular Number
P7	we	nosotros	1st Plural Masc / Fem	1st Plural Number
P8	you	vosotros	2nd Plural Familiar Masc & Fem	2nd Plural Number Familiar
P9	you	ustedes	2nd Plural Formal Masc & Fem	2nd Plural Number Formal
P10	they	ellos	3rd Plural Masc	3rd Plural Number Male
P11	they	ellas	3rd Plural Fem	3rd Plural Number Female

Such cited excerpt(s), however, fail to disclose applicant's claimed computer program product:

“configured for outputting a presentation or report that is based on at least a portion of the at least one object, the presentation or report capable of including at least a portion of at least one of the first numerical values or the second numerical values, including the at least one original value, **such that, based on the at least one reference of the at least one object, a change to the at least one original value results in a corresponding change in an instance of the presentation or report**” (see Claim 15); and

configured such that the single markup document includes a XML-compliant data document that **includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including computer-readable semantic tags that each describe a semantic meaning of one or more of the corresponding numerical values**, wherein the computer program product is further configured for outputting the XML-compliant data document based on at least a portion of the at least one object, the XML-compliant data document capable of including at least a portion of at least one of the first numerical values or the second numerical values, including the at least one original value, **such that, based on the at least one reference of the at least one object, a change to the at least one original value results in a**

corresponding change in an instance of the XML-compliant data document” (see Claim 16), in the full context claimed (emphasis added).

It is believed that all of the pending issues have been addressed. However, the absence of a reply to a specific rejection, issue, or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Still yet, nothing in this reply should be construed as intention to concede any issue with regard to any claim, except as specifically stated in this reply. Finally, it should be noted that no claims are intended to be construed under 35 U.S.C. 112, paragraph 6, except the last claim.

Applicant does not believe that any fees are due other than those fees related to a one (1) month extension of time, which Applicant submits herewith. However, in the event that any other fees are due, the Director is hereby authorized to charge any required fees due (other than issue fees), and to credit any overpayment made, in connection with the filing of this paper to Deposit Account No. 50-6056 (Order No. ENUM018).

Should the Examiner deem that any further amendment is desirable to place this application in condition for allowance, applicant invites the Examiner to telephone the undersigned attorney at the number listed below.

Respectfully submitted,

Date: September 8, 2015

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/724,792	05/28/2015	Russell T Davis	ENUM018

CONFIRMATION NO. 2157

PUBLICATION NOTICE

112117
Thomas D. Fortenberry, Attorney at Law
P.O. Box 2099
Woodville, TX 75979



Title:SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT

Publication No.US-2015-0261727-A1

Publication Date:09/17/2015

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792	
	Filing Date		2015-05-28	
	First Named Inventor	Russell T Davis		
	Art Unit	2144		
	Examiner Name	STORK, KYLE R		
	Attorney Docket Number	ENUM018		

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792
	Filing Date		2015-05-28
	First Named Inventor	Russell T Davis	
	Art Unit	2144	
	Examiner Name	STORK, KYLE R	
	Attorney Docket Number	ENUM018	

	1	Final Office Action from U.S. Application No. 10/052,250, dated July 21, 2015	<input type="checkbox"/>
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	14724792
	Filing Date	2015-05-28
	First Named Inventor	Russell T Davis
	Art Unit	2144
	Examiner Name	STORK, KYLE R
	Attorney Docket Number	ENUM018

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- See attached certification statement.
- The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas D. Fortenberry/	Date (YYYY-MM-DD)	2015-10-13
Name/Print	Thomas D. Fortenberry	Registration Number	56,537

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	23774703
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	13-OCT-2015
Filing Date:	28-MAY-2015
Time Stamp:	20:40:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	20151013_ENUM018_IDS_2015-10-13.pdf	611969 <small>dbfd842f598b6aa0e3037339ab638728d6c8ec95</small>	no	4

Warnings:

Information:

A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.

2	Non Patent Literature	20151013_ENUM018_NPL_USP AN10052250_FOA_2015-07-21. pdf	311084 cf409e151c8719625a848f8eb28794e02539 9a52	no	10
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Warnings:

Information:

Total Files Size (in bytes):	923053
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

112117 7590 10/16/2015
Thomas D. Fortenberry, Attorney at Law
P.O. Box 2099
Woodville, TX 75979

EXAMINER

STORK, KYLE R

ART UNIT PAPER NUMBER

2144

DATE MAILED: 10/16/2015

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.

14/724,792 05/28/2015 Russell T Davis ENUM018 2157

TITLE OF INVENTION: SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT

Table with 7 columns: APPLN. TYPE, ENTITY STATUS, ISSUE FEE DUE, PUBLICATION FEE DUE, PREV. PAID ISSUE FEE, TOTAL FEE(S) DUE, DATE DUE

nonprovisional SMALL \$480 \$0 \$0 \$480 01/19/2016

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

112117 7590 10/16/2015
 Thomas D. Fortenberry, Attorney at Law
 P.O. Box 2099
 Woodville, TX 75979

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/724,792	05/28/2015	Russell T Davis	ENUM018	2157

TITLE OF INVENTION: SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	01/19/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
STORK, KYLE R	2144	715-249000

<p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). <input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached. <input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.</p>	<p>2. For printing on the patent front page, list (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____ (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____ 3 _____</p>
---	---

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE _____ (B) RESIDENCE: (CITY and STATE OR COUNTRY) _____

Please check the appropriate assignee category or categories (will not be printed on the patent): Individual Corporation or other private group entity Government

<p>4a. The following fee(s) are submitted: <input type="checkbox"/> Issue Fee <input type="checkbox"/> Publication Fee (No small entity discount permitted) <input type="checkbox"/> Advance Order - # of Copies _____</p>	<p>4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above) <input type="checkbox"/> A check is enclosed. <input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached. <input type="checkbox"/> The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).</p>
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5. **Change in Entity Status** (from status indicated above)

Applicant certifying micro entity status. See 37 CFR 1.29 NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

Applicant asserting small entity status. See 37 CFR 1.27 NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

Applicant changing to regular undiscounted fee status. NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____	Date _____
Typed or printed name _____	Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
Row 1: 14/724,792, 05/28/2015, Russell T Davis, ENUM018, 2157
Row 2: 112117, 7590, 10/16/2015, EXAMINER STORK, KYLE R
Row 3: Thomas D. Fortenberry, Attorney at Law, P.O. Box 2099, Woodville, TX 75979, ART UNIT 2144, PAPER NUMBER

DATE MAILED: 10/16/2015

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Examiner-Initiated Interview Summary	Application No. 14/724,792	Applicant(s) DAVIS, RUSSELL T	
	Examiner KYLE STORK	Art Unit 2144	

All participants (applicant, applicant's representative, PTO personnel):

(1) Kyle Stork.

(3) Thomas Fortenberry.

(2) _____.

(4) _____.

Date of Interview: 13 October 2015.

Type: Telephonic Video Conference
 Personal [copy given to: applicant applicant's representative]

Exhibit shown or demonstration conducted: Yes No.

If Yes, brief description: _____.

Issues Discussed 101 112 102 103 Others

(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: _____.

Identification of prior art discussed: _____.

Substance of Interview

(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Discussed examiner's amendments to place the application in condition for allowance.

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Attachment

/KYLE STORK/
Primary Examiner, Art Unit 2144

Notice of Allowability	Application No. 14/724,792	Applicant(s) DAVIS, RUSSELL T	
	Examiner KYLE STORK	Art Unit 2144	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to the remarks filed 8 September 2015.
 A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
2. An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. The allowed claim(s) is/are 1 and 3-19. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to FPHfeedback@uspto.gov.
4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) All b) Some *c) None of the:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 2. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>7.23.15 (4), 7.25.15</u> | 6. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 7. <input type="checkbox"/> Other _____. |
| 4. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>20151013</u> . | |

/KYLE STORK/
Primary Examiner, Art Unit 2144

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Thomas Fortenberry (Reg. No. 56537) on 13 October 2015.

The application has been amended as follows:

1. (currently amended) A computer program product embodied on a non-transitory computer-readable medium comprising:

code for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, wherein the first tags and the second tags each include computer-readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values, via a computer-readable tagging association therebetween, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

code for causing automatic transformation of at least a portion of the numerical values of at least one of the first markup document or the second markup document, so that the at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

code for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and
code for causing a display of at least a portion of the single markup document.

claim 2. (cancelled)

claim 3. (currently amended) The computer program product of claim [2] 1, wherein the computer program product is configured for allowing a user to edit a mapping of one or more of the computer-readable semantic tags to a corresponding one of the at least one of the first numerical values or the second numerical values.

claim 18. (currently amended) A method comprising:

identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, wherein the first tags and the second tags

each include computer-readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values, via a computer-readable tagging association therebetween, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

automatically transforming at least a portion of the numerical values of at least one of the first markup document or the second markup document, so that the at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and

causing a display of at least a portion of the single markup document.

claim 19. (currently amended) An apparatus, comprising:

means for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, wherein the first tags and the second tags each include computer-readable semantic tags that describe a semantic meaning

of a corresponding one of at least one of the first numerical values or the second numerical values, via a computer-readable tagging association therebetween, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

means for automatically transforming at least a portion of the numerical values of at least one of the first markup document or the second markup document, so that the at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

means for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document;

means for causing a display of at least a portion of the single markup document.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KYLE STORK whose telephone number is (571)272-4130. The examiner can normally be reached on Monday-Friday (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Scott Baderman can be reached on (571) 272-3644. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KYLE STORK/
Primary Examiner, Art Unit 2144

Examiner-Initiated Interview Summary	Application No. 14/724,792	Applicant(s) DAVIS, RUSSELL T	
	Examiner KYLE STORK	Art Unit 2144	

All participants (applicant, applicant's representative, PTO personnel):

(1) Kyle Stork.

(3) Thomas Fortenberry.

(2) _____.

(4) _____.

Date of Interview: 13 October 2015.

Type: Telephonic Video Conference
 Personal [copy given to: applicant applicant's representative]

Exhibit shown or demonstration conducted: Yes No.

If Yes, brief description: _____.

Issues Discussed 101 112 102 103 Others

(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: _____.

Identification of prior art discussed: _____.

Substance of Interview

(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Discussed examiner's amendments to place the application in condition for allowance.

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Attachment

/KYLE STORK/
Primary Examiner, Art Unit 2144

Receipt date: 10/13/2015

14724792 - GAU: 2144

Doc code: IDS

PTO/SB/08a (01-10)

Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792	
	Filing Date		2015-05-28	
	First Named Inventor	Russell T Davis		
	Art Unit	2144		
	Examiner Name	STORK, KYLE R		
	Attorney Docket Number	ENUM018		

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	Examiner Name	STORK, KYLE R	
	Attorney Docket Number	ENUM018	

	1	Final Office Action from U.S. Application No. 10/052,250, dated July 21, 2015	<input type="checkbox"/>
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Examiner Signature	/KYLE STORK/	Date Considered	10/13/2015
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	Attorney Docket Number		ENUM018

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- See attached certification statement.
- The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas D. Fortenberry/	Date (YYYY-MM-DD)	2015-10-13
Name/Print	Thomas D. Fortenberry	Registration Number	56,537

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792	
	Filing Date		2015-05-28	
	First Named Inventor	RUSSELL T DAVIS		
	Art Unit	2144		
	Examiner Name	STORK, KYLE R		
	Attorney Docket Number	ENUM018		

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		Art Unit	2144
		Examiner Name	STORK, KYLE R
		Attorney Docket Number	ENUM018

1	Non-Final Office Action from U.S. Application No. 11/819,125, dated March 25, 2014	<input type="checkbox"/>
2	Advisory Action from U.S. Application No. 11/819,125, dated September 3, 2013	<input type="checkbox"/>
3	Final Office Action from U.S. Application No. 11/819,125, dated March 14, 2013	<input type="checkbox"/>
4	Non-Final Office Action from U.S. Application No. 11/819,125, dated September 28, 2012	<input type="checkbox"/>
5	Advisory Action from U.S. Application No. 11/819,125, dated August 2, 2011	<input type="checkbox"/>
6	Final Office Action from U.S. Application No. 11/819,125, dated April 12, 2011	<input type="checkbox"/>
7	Final Office Action from U.S. Application No. 11/819,125, dated december 14, 2010	<input type="checkbox"/>
8	Non-Final Office Action from U.S. Application No. 11/819,125, dated July 14, 2010	<input type="checkbox"/>
9	Notice of Allowance from U.S. Application No. 10/980,266, dated March 17, 2008	<input type="checkbox"/>
10	Non-Final Office Action from U.S. Application No. 10/980,266, dated September 12, 2007	<input type="checkbox"/>
11	Final Office Action from U.S. Application No. 10/980,266, dated March 19, 2007	<input type="checkbox"/>

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	Examiner Name	STORK, KYLE R		
	Attorney Docket Number	ENUM018		

12	Non-Final Office Action from U.S. Application No. 10/980,266, dated September 5, 2006	<input type="checkbox"/>
13	Non-Final Office Action from U.S. Application No. 10/052,250, dated October 2, 2014	<input type="checkbox"/>
14	Final Office Action from U.S. Application No. 10/052,250, dated February 20, 2014	<input type="checkbox"/>
15	Non-Final Office Action from U.S. Application No. 10/052,250, dated May 22, 2013	<input type="checkbox"/>
16	Decision on Appeal from U.S. Application No. 10/052,250, dated May 1, 2012	<input type="checkbox"/>
17	Examiner's Answer from U.S. Application No. 10/052,250, dated November 24, 2008	<input type="checkbox"/>
18	Final Office Action from U.S. Application No. 10/052,250, dated November 1, 2007	<input type="checkbox"/>
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23	Final Office Action from U.S. Application No. 10/052,250, dated August 23, 2005	<input type="checkbox"/>
24	Non-Final Office Action from U.S. Application No. 10/052,250, dated March 22, 2005	<input type="checkbox"/>
25	FULTON, "Ten Minute Guide to Excel 97," December 12, 1996; http://techbus.safaribooksonline.com/print?xmlid=0-7897-1020-X%2Fch17lev1sec1 >	<input type="checkbox"/>
26	HOFFMAN et al., "XBRL Taxonomy Financial Reporting for Commercial and Industrial Companies, US GAAP, July 31, 2000, pp. 1-12	<input type="checkbox"/>
27	XBLR for Financial Statements Questions and Answers, April 26, 2000, 6 pages	<input type="checkbox"/>
28	HARDING, W. E., "Finally, Business Talks the same Language," August 2000, 5 pages	<input type="checkbox"/>
29	ARNOLD, K. et al., "The Java Programming Language, Second Edition," The Java Series, 3rd Printing, September 1998, pp. 466 pages	<input type="checkbox"/>
30	GOSLING, J. et al., "The Java Language Specification," The Java Series, First printing, August 1996, 853 pages	<input type="checkbox"/>
31	HAROLD, E. R., "XML: Extensible Markup Language," IDG Books Worldwide, Inc., 1998, 458 pages	<input type="checkbox"/>

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OR			
<input type="checkbox"/> That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).			
<input type="checkbox"/> See attached certification statement.			
<input type="checkbox"/> The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.			
<input checked="" type="checkbox"/> A certification statement is not submitted herewith.			
SIGNATURE			
A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.			
Signature	/Thomas D. Fortenberry/	Date (YYYY-MM-DD)	2015-07-23
Name/Print	Thomas D. Fortenberry	Registration Number	56,537
<p>This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.</p>			

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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BIB DATA SHEET

CONFIRMATION NO. 2157

SERIAL NUMBER 14/724,792	FILING or 371(c) DATE 05/28/2015	CLASS 715	GROUP ART UNIT 2144	ATTORNEY DOCKET NO. ENUM018		
APPLICANTS e-Numerate Solutions, Inc., Great Falls, VA; INVENTORS Russell T Davis, Bethesda, MD; ** CONTINUING DATA ***** This application is a CIP of 12/222,751 08/15/2008 which is a DIV of 09/573,778 05/18/2000 PAT 7421648 which claims benefit of 60/183,152 02/17/2000 and claims benefit of 60/135,525 05/21/1999 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 06/08/2015						
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and Acknowledged / Kyle Stork / Examiner's Signature		<input type="checkbox"/> Met after Allowance /ks/ Initials	STATE OR COUNTRY MD	SHEETS DRAWINGS 40	TOTAL CLAIMS 19	INDEPENDENT CLAIMS 3
ADDRESS Thomas D. Fortenberry, Attorney at Law P.O. Box 2099 Woodville, TX 75979 UNITED STATES						
TITLE SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT						
FILING FEE RECEIVED 930	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			<input type="checkbox"/> All Fees		
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14724792 - GAU: 2144

Receipt date: 07/23/2015

Doc code: IDS

PTO/SB/08a (01-10)

Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792	
	Filing Date		2015-05-28	
	First Named Inventor	RUSSELL T DAVIS		
	Art Unit	2144		
	Examiner Name	STORK, KYLE R		
	Attorney Docket Number	ENUM018		

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1	Non-Final Office Action from U.S. Application No. 11/819,125, dated March 25, 2014	<input type="checkbox"/>
2	Advisory Action from U.S. Application No. 11/819,125, dated September 3, 2013	<input type="checkbox"/>
3	Final Office Action from U.S. Application No. 11/819,125, dated March 14, 2013	<input type="checkbox"/>
4	Non-Final Office Action from U.S. Application No. 11/819,125, dated September 28, 2012	<input type="checkbox"/>
5	Advisory Action from U.S. Application No. 11/819,125, dated August 2, 2011	<input type="checkbox"/>
6	Final Office Action from U.S. Application No. 11/819,125, dated April 12, 2011	<input type="checkbox"/>
7	Final Office Action from U.S. Application No. 11/819,125, dated december 14, 2010	<input type="checkbox"/>
8	Non-Final Office Action from U.S. Application No. 11/819,125, dated July 14, 2010	<input type="checkbox"/>
9	Notice of Allowance from U.S. Application No. 10/980,266, dated March 17, 2008	<input type="checkbox"/>
10	Non-Final Office Action from U.S. Application No. 10/980,266, dated September 12, 2007	<input type="checkbox"/>
11	Final Office Action from U.S. Application No. 10/980,266, dated March 19, 2007	<input type="checkbox"/>

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12	Non-Final Office Action from U.S. Application No. 10/980,266, dated September 5, 2006	<input type="checkbox"/>
13	Non-Final Office Action from U.S. Application No. 10/052,250, dated October 2, 2014	<input type="checkbox"/>
14	Final Office Action from U.S. Application No. 10/052,250, dated February 20, 2014	<input type="checkbox"/>
15	Non-Final Office Action from U.S. Application No. 10/052,250, dated May 22, 2013	<input type="checkbox"/>
16	Decision on Appeal from U.S. Application No. 10/052,250, dated May 1, 2012	<input type="checkbox"/>
17	Examiner's Answer from U.S. Application No. 10/052,250, dated November 24, 2008	<input type="checkbox"/>
18	Final Office Action from U.S. Application No. 10/052,250, dated November 1, 2007	<input type="checkbox"/>
19	Non-Final Office Action from U.S. Application No. 10/052,250, dated June 11, 2007	<input type="checkbox"/>
20	Final Office Action from U.S. Application No. 10/052,250, dated November 2, 2006	<input type="checkbox"/>
21	Non-Final Office Action from U.S. Application No. 10/052,250, dated May 18, 2006	<input type="checkbox"/>
22	Advisory Action from U.S. Application No. 10/052,250, dated December 19, 2005	<input type="checkbox"/>

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23	Final Office Action from U.S. Application No. 10/052,250, dated August 23, 2005	<input type="checkbox"/>
24	Non-Final Office Action from U.S. Application No. 10/052,250, dated March 22, 2005	<input type="checkbox"/>
25	FULTON, "Ten Minute Guide to Excel 97," December 12, 1996; http://techbus.safaribooksonline.com/print?xmlid=0-7897-1020-X%2Fch17lev1sec1 >	<input type="checkbox"/>
26	HOFFMAN et al., "XBRL Taxonomy Financial Reporting for Commercial and Industrial Companies, US GAAP, July 31, 2000, pp. 1-12	<input type="checkbox"/>
27	XBLR for Financial Statements Questions and Answers, April 26, 2000, 6 pages	<input type="checkbox"/>
28	HARDING, W. E., "Finally, Business Talks the same Language," August 2000, 5 pages	<input type="checkbox"/>
29	ARNOLD, K. et al., "The Java Programming Language, Second Edition," The Java Series, 3rd Printing, September 1998, pp. 466 pages	<input type="checkbox"/>
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31	HAROLD, E. R., "XML: Extensible Markup Language," IDG Books Worldwide, Inc., 1998, 458 pages	<input type="checkbox"/>

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EXAMINER SIGNATURE

Examiner Signature	<i>/Kyle Stork/</i>	Date Considered	10/13/2015
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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	Examiner Name	STORK, KYLE R
	Attorney Docket Number	ENUM018

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas D. Fortenberry/	Date (YYYY-MM-DD)	2015-07-23
Name/Print	Thomas D. Fortenberry	Registration Number	56,537

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
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Doc code: IDS

PTO/SB/08a (01-10)

Doc description: Information Disclosure Statement (IDS) Filed

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	Examiner Name	STORK, KYLE R	
	Attorney Docket Number	ENUM018	

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Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	7650355		2010-01-19	Davis	
	2	7421648		2008-09-02	Davis	
	3	8489982		2013-07-16	Davis	
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	6	7512875		2009-03-31	Davis	
	7	7249328		2007-07-24	Davis	
	8	7401076		2008-07-15	Davis	

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Examiner Name	STORK, KYLE R		
Attorney Docket Number	ENUM018		

	9	6886005		2005-04-26	Davis	
	10	4674043		1987-06-16	Hernandez et al.	
	11	5008853		1991-04-16	Bly et al.	
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	14	5371675		1994-12-06	Greif et al.	
	15	5423032		1995-06-06	Byrd et al.	
	16	5603021		1997-02-11	Spencer et al.	
	17	5721847		1998-02-24	Johnson	
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	19	5754939		1998-05-19	Herz et al.	

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	20	5822587		1998-10-13	McDonald et al.	
	21	5838906		1998-11-17	Doyle et al.	
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	23	5894311		1999-04-13	Jackson	
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	31	5983247		1999-11-09	Yamanaka et al.	
	32	5999944		1999-12-07	Lipkin	
	33	6014661		2000-01-11	Ahlberg et al.	
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	37	6058385		2000-05-02	Koza et al.	
	38	6065026		2000-05-16	Cornelia et al.	
	39	6092036		2000-07-18	Hamann	
	40	6097888		2000-08-01	Simonyi	
	41	6108662		2000-08-22	Hoskins et al.	

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	42	6121924		2000-09-19	Meek et al.	
	43	6134563		2000-10-17	Clancey et al.	
	44	6160549		2000-12-12	Touma et al.	
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	46	6173284		2001-01-09	Brown	
	47	6195676		2001-02-27	Spix et al.	
	48	6199046		2001-03-06	Heinzle et al.	
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53	6256030		2001-07-03	Berry et al.	
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	64	6418433		2002-07-09	Chakrabarti et al.	
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	75	6594653		2003-07-15	Colby et al.	
	76	6615258		2003-09-02	Barry et al.	
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	82	6910017		2005-06-21	Woo et al.	
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	86	5530794		1996-06-25	Luebbert	
	87	5530942		1996-06-25	Tzou et al.	
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		14724792
Filing Date		2015-05-28
First Named Inventor	RUSSELL T DAVIS	
Art Unit	2144	
Examiner Name	STORK, KYLE R	
Attorney Docket Number	ENUM018	

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Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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**INFORMATION DISCLOSURE
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Art Unit	2144		
Examiner Name	STORK, KYLE R		
Attorney Docket Number	ENUM018		

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Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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**INFORMATION DISCLOSURE
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Application Number		14724792	
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Art Unit	2144		
Examiner Name	STORK, KYLE R		
Attorney Docket Number	ENUM018		

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Filing Date	2015-05-28
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Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

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14724792 - GAU: 2144

Receipt date: 07/23/2015
14724792**INFORMATION DISCLOSURE
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Attorney Docket Number	ENUM018		

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Examiner Name	STORK, KYLE R
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14724792 - GAU: 2144

Receipt date: 07/23/2015
14724792**INFORMATION DISCLOSURE
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(Not for submission under 37 CFR 1.99)

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Art Unit	2144	
Examiner Name	STORK, KYLE R	
Attorney Docket Number	ENUM018	

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Application Number	14724792
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Art Unit	2144
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	Art Unit	2144
	Examiner Name	STORK, KYLE R
	Attorney Docket Number	ENUM018

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		Receipt date: 07/23/2015 14724792
	Filing Date		2015-05-28
	First Named Inventor	RUSSELL T DAVIS	
	Art Unit	2144	
	Examiner Name	STORK, KYLE R	
	Attorney Docket Number	ENUM018	

1	Non-Final Office Action from U.S. Application No. 09/573,780, dated December 28, 2005	<input type="checkbox"/>
2	Advisory Action from U.S. Application No. 09/573,780, dated July 7, 2005	<input type="checkbox"/>
3	Final Office Action from U.S. Application No. 09/573,780, dated March 28, 2005	<input type="checkbox"/>
4	Non-Final Office Action from U.S. Application No. 09/573,780, dated April 23, 2004	<input type="checkbox"/>
5	Notice of Allowance from U.S. Application No. 09/573,778, dated May 1, 2008	<input type="checkbox"/>
6	Final Office Action from U.S. Application No. 09/573,778, dated October 3, 2007	<input type="checkbox"/>
7	Non-Final Office Action from U.S. Application No. 09/573,778, dated April 13, 2007	<input type="checkbox"/>
8	Final Office Action from U.S. Application No. 09/573,778, dated October 24, 2006	<input type="checkbox"/>
9	Non-Final Office Action from U.S. Application No. 09/573,778, dated May 31, 2006	<input type="checkbox"/>
10	Non-Final Office Action from U.S. Application No. 09/573,778, dated December 16, 2005	<input type="checkbox"/>
11	Advisory Action from U.S. Application No. 09/573,778, dated September 27, 2005	<input type="checkbox"/>

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

12	Final Office Action from U.S. Application No. 09/573,778, dated June 2, 2005	<input type="checkbox"/>
13	Non-Final Office Action from U.S. Application No. 09/573,778, dated January 5, 2005	<input type="checkbox"/>
14	Restriction Requirement from U.S. Application No. 09/573,778, dated September 16, 2004	<input type="checkbox"/>
15	Final Office Action from U.S. Application No. 12/222,751, dated March 31, 2014	<input type="checkbox"/>
16	Advisory Action from U.S. Application No. 12/222,751, dated May 15, 2013	<input type="checkbox"/>
17	Non-Final Office Action from U.S. Application No. 12/222,751, dated July 11, 2013	<input type="checkbox"/>
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20	Final Office Action from U.S. Application No. 12/222,751, dated January 25, 2012	<input type="checkbox"/>
21	Non-Final Office Action from U.S. Application No. 12/222,751, dated August 11, 2011	<input type="checkbox"/>
22	Notice of Allowance from U.S. Application No. 12/222,750, dated March 15, 2013	<input type="checkbox"/>

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**INFORMATION DISCLOSURE
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Application Number	14724792
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First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

23	Final Office Action from U.S. Application No. 12/222,750, dated August 11, 2011	<input type="checkbox"/>
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29	Notice of Allowance from U.S. Application No. 11/119,963, dated December 15, 2008	<input type="checkbox"/>
30	Non-Final Office Action from U.S. Application No. 11/119,963, dated June 27, 2008	<input type="checkbox"/>
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32	Non-Final Office Action from U.S. Application No. 11/119,963, dated May 29, 2007	<input type="checkbox"/>
33	Notice of Allowance from U.S. Application No. 09/573,419, dated March 26, 2007	<input type="checkbox"/>

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
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Application Number	14724792
Filing Date	2015-05-28
First Named Inventor	RUSSELL T DAVIS
Art Unit	2144
Examiner Name	STORK, KYLE R
Attorney Docket Number	ENUM018

34	Advisory Action from U.S. Application No. 09/573,419, dated February 20, 2007	<input type="checkbox"/>
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36	Non-Final Office Action from U.S. Application No. 09/573,419, dated May 10, 2006	<input type="checkbox"/>
37	Advisory Action from U.S. Application No. 09/573,419, dated January 5, 2006	<input type="checkbox"/>
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		Receipt date: 07/23/2015 14724792
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	Art Unit	2144	
	Examiner Name	STORK, KYLE R	
	Attorney Docket Number	ENUM018	

45	Final Office Action from U.S. Application No. 11/819,126, dated March 24, 2014	<input type="checkbox"/>
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47	Non-Final Office Action from U.S. Application No. 11/819,126, dated February 27, 2013	<input type="checkbox"/>
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49	Non-Final Office Action from U.S. Application No. 11/819,126, dated June 9, 2010	<input type="checkbox"/>
50	Final Office Action from U.S. Application No. 11/819,125, dated October 22, 2014	<input type="checkbox"/>

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EXAMINER SIGNATURE

Examiner Signature	/Kyle Stork/	Date Considered	10/13/2015
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¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

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	Filing Date	2015-05-28
	First Named Inventor	RUSSELL T DAVIS
	Art Unit	2144
	Examiner Name	STORK, KYLE R
	Attorney Docket Number	ENUM018

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas D. Fortenberry/	Date (YYYY-MM-DD)	2015-07-23
Name/Print	Thomas D. Fortenberry	Registration Number	56,537

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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L4	39	L2 and L3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
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L32	3	"7421648".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L33	124	("20010018687" "20010020237" "20010049687" "20020023141" "20020052954" "20020091696" "20020198985" "20030041077" "20030078883" "20030167213" "20050086126" "20050182709" "20050198042" "4674043" "5276776" "5339392" "5423032" "5603021" "5737592" "5754939" "5822587" "5838906" "5838965" "5894311" "5913214" "5917485" "5920828" "5948113" "5950196" "5956737" "5974413" "5999944" "6014661" "6026388" "6026397" "6034676" "6058385" "6065026" "6092036" "6097888" "6108662" "6121924" "6134563" "6160549" "6167409" "6173284" "6195676" "6199046" "6199080" "6223189" "6240407" "6243698" "6256030" "6314562" "6317750" "6349307" "6351755" "6356920" "6366915" "6370537" "6370549" "6373504" "6374274" "6418433" "6421656" "6421822" "6446048" "6460059" "6470349" "6493717" "6505246" "6507856" "6581068" "6591272" "6594653" "6615258" "6629094" "6635089" "6667747" "6721736" "6745384" "6886005" "6912293" "6920608").PN. OR ("7421648").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2015/10/13 21:24
L34	31655	(combine combining combination concatenate concatenates concatenation merge merging merges merged combin\$4 concat\$4 merg\$4) with (two several multiple plural plurality) with (document documents page pages)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24

L35	915259	(convert conversion converting converts converted convert\$4 transform transforms transformed transforming transformation transform\$4) with (currency currencies unit units)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L36	2934	(combine combining combination concatenate concatenates concatenation merge merging merges merged combin\$4 concat\$4 merg\$4) with (two several multiple plural plurality) with (webpage webpages web-page web-pages (web adj (page pages)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L37	1	"7421648".pn. and xml	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L38	63	rdml	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L39	1282	(validate validates validation validating validat\$4) with (datatype data-type (data adj type))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L40	4396	(validate validates validation validating validat\$4) with (calculation formula)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L41	40636	(validate validates validation validating validat\$4) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L42	98	L39 and L40 and L41	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L43	20420	(store stores storing stored storage stor\$4) with (original) with (value values)	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2015/10/13 21:24

			EPO; JPO; DERWENT; IBM_TDB			
L44	7845	(display displays displaying displayed display\$4) with (original) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L45	72797	(display displays displaying displayed display\$4) with (edit edited edit\$4 change changes changed changing chang\$4 modify modified modification modif\$4) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L46	382	L43 and L44 and L45	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L47	24	("6920608" "7249328" "7421648" "7650355" "6886005" "7401076" "7512875" "8489982" "8185816").pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L48	2	"6195668".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L49	2	"6195665".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L50	108	("8959196" "654912" "8370362" "8375116" "8006177" "7801896" "7660874" "7565397" "7181438" "6993527" "6862710" "6876930" "6789252" "6772139" "6308179" "6269380" "6266670" "6226675" "6125391" "6038574").pn. "20130159845" "20100332583" "20100100814" "20100004874" "20070219933" "20070156677" "20060168335" "20050187954" "20050005266" "20030217047" "20020165872" "20020168664" "20020062451"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L51	12457	(determine determines determining determined determination determin\$4	US-PGPUB; USPAT;	OR	OFF	2015/10/13 21:24

		detect detects detecting detected detection detect\$4) with (context contextual context\$4) with (value values)	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
L52	13880	(determine determines determining determined determination determin\$4 detect detects detecting detected detection detect\$4) with (context contextual context\$4 semantic) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L53	22653	(determine determines determining determined determination determin\$4 detect detects detecting detected detection detect\$4) with (context contextual context\$4 semantic) with (value values number numbers)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L54	224	(convert converstion converting converts converted convert\$4 transform transforms transformed transforming transformation transform\$4) with (number numbers value values) with (common "same") with (context context\$4 semantic semantic\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L55	98	L53 and L54	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
L56	1079	(g06f17/218 g06f17/2252 g06f17/30014 g06f17/30882).cpc.	USPAT	OR	OFF	2015/10/13 21:24
L57	5620	(g06f17/218 g06f17/2252 g06f17/30014 g06f17/30882).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 21:24
S2	891100	(convert converstion converting converts converted convert\$4 transform transforms transformed transforming transformation transform\$4) with (currency currencies unit units)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 15:06
S3	285	(convert converstion converting converts converted convert\$4 transform transforms transformed transforming transformation transform\$4) with (values measurements) with (currency currencies unit units) with (page pages webpage webpages document document)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 15:09
S4	53137503	@ad < "19990217"	US-PGPUB; USPAT;	OR	OFF	2015/06/30 15:09

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S5	39	S3 and S4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 15:10
S6	3	"7421648".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 15:19
S7	123	("20010018687" "20010020237" "20010049687" "20020023141" "20020052954" "20020091696" "20020198985" "20030041077" "20030078883" "20030167213" "20050086126" "20050182709" "20050198042" "4674043" "5276776" "5339392" "5423032" "5603021" "5737592" "5754939" "5822587" "5838906" "5838965" "5894311" "5913214" "5917485" "5920828" "5948113" "5950196" "5956737" "5974413" "5999944" "6014661" "6026388" "6026397" "6034676" "6058385" "6065026" "6092036" "6097888" "6108662" "6121924" "6134563" "6160549" "6167409" "6173284" "6195676" "6199046" "6199080" "6223189" "6240407" "6243698" "6256030" "6314562" "6317750" "6349307" "6351755" "6356920" "6366915" "6370537" "6370549" "6373504" "6374274" "6418433" "6421656" "6421822" "6446048" "6460059" "6470349" "6493717" "6505246" "6507856" "6581068" "6591272" "6594653" "6615258" "6629094" "6635089" "6667747" "6721736" "6745384" "6886005" "6912293" "6920608").PN. OR ("7421648").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2015/06/30 15:19
S8	55	S4 and S7	US-PGPUB; USPAT; USOCR	OR	OFF	2015/06/30 15:20
S9	30752	(combine combining combination concatenate concatenates concatenation merge merging merges merged combin\$4 concat\$4 merg\$4) with (two several multiple plural plurality) with (document documents page pages)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:23
S10	53137503	@ad < "19990217"	US-PGPUB;	OR	OFF	2015/06/30

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			23:23
S11	3083	S9 and S10	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:23
S12	1	((compare compares comparing compared comparison compar\$4) with (cost costs price prices) same S9) and S10	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:24
S13	891100	(convert conversion converting converts converted convert\$4 transform transforms transformed transforming transformation transform\$4) with (currency currencies unit units)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:26
S14	262	S11 and S13	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:26
S15	21	amazon.asn. and S10	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:27
S16	2818	(combine combining combination concatenate concatenates concatenation merge merging merges merged combin\$4 concat\$4 merg\$4) with (two several multiple plural plurality) with (webpage webpages web-page web-pages (web adj (page pages)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:30
S17	51	S16 and S10	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:30
S18	3	xhtml and S10	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2015/06/30 23:45

			DERWENT; IBM_TDB			
S19	464	xml and S10	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:49
S20	1	"7421648".pn. and xml	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:49
S21	60	rdml	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:51
S22	5	S10 and S21	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/06/30 23:51
S23	1246	(validate validates validation validating validat\$4) with (datatype data-type (data adj type))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 09:30
S24	4246	(validate validates validation validating validat\$4) with (calculation formula)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 09:30
S25	39422	(validate validates validation validating validat\$4) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 09:30
S26	95	S23 and S24 and S25	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 09:30
S27	53137503	@ad < "19990217"	US-PGPUB; USPAT; USOCR;	OR	OFF	2015/07/01 09:30

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S28	4	S26 and S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 09:30
S29	19966	(store stores storing stored storage stor\$4) with (original) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:51
S30	7662	(display displays displaying displayed display\$4) with (original) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:51
S31	70723	(display displays displaying displayed display\$4) with (edit edited edit\$4 change changes changed changing chang\$4 modify modified modification modif\$4) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:52
S32	374	S29 and S30 and S31	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:53
S33	53137503	@ad < "19990217"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:53
S34	12729	S31 and S33	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:53
S35	76	S32 and S33	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/07/01 14:54
S36	24	("6920608" "7249328" "7421648"	US-PGPUB;	OR	OFF	2015/10/09

		"7650355" "6886005" "7401076" "7512875" "8489982" "8185816").pn.	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			10:05
S37	2	"6195668".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/09 10:19
S38	2	"6195665".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/09 10:19
S39	108	("8959196" "654912" "8370362" "8375116" "8006177" "7801896" "7660874" "7565397" "7181438" "6993527" "6862710" "6876930" "6789252" "6772139" "6308179" "6269380" "6266670" "6226675" "6125391" "6038574").pn. "20130159845" "20100332583" "20100100814" "20100004874" "20070219933" "20070156677" "20060168335" "20050187954" "20050005266" "20030217047" "20020165872" "20020168664" "20020062451"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/09 10:47
S40	12436	(determine determines determining determined determination determin\$4 detect detects detecting detected detection detect\$4) with (context contextual context\$4) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/09 11:18
S41	13858	(determine determines determining determined determination determin\$4 detect detects detecting detected detection detect\$4) with (context contextual context\$4 semantic) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/09 11:18
S42	22616	(determine determines determining determined determination determin\$4 detect detects detecting detected detection detect\$4) with (context contextual context\$4 semantic) with (value values number numbers)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/09 11:18
S43	224	(convert conversion converting converts converted convert\$4 transform transforms transformed transforming transformation transform\$4) with (number numbers value values) with (common "same") with (context context\$4 semantic	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/09 11:19

		semantic\$4)				
S44	98	S42 and S43	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/09 11:19
S45	53200826	@ad < "19990217"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/09 11:19
S46	4	S44 and S45	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/09 11:19
S47	915259	(convert converstion converting converts converted convert\$4 transform transforms transformed transforming transformation transform\$4) with (currency currencies unit units)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S48	293	(convert converstion converting converts converted convert\$4 transform transforms transformed transforming transformation transform\$4) with (values measurements) with (currency currencies unit units) with (page pages webpage webpages document document)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S49	53200831	@ad < "19990217"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S50	39	S48 and S49	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S51	3	"7421648".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S52	124	("20010018687" "20010020237" "20010049687" "20020023141"	US-PGPUB; USPAT;	OR	OFF	2015/10/13 12:21

		"20020052954" "20020091696" "20020198985" "20030041077" "20030078883" "20030167213" "20050086126" "20050182709" "20050198042" "4674043" "5276776" "5339392" "5423032" "5603021" "5737592" "5754939" "5822587" "5838906" "5838965" "5894311" "5913214" "5917485" "5920828" "5948113" "5950196" "5956737" "5974413" "5999944" "6014661" "6026388" "6026397" "6034676" "6058385" "6065026" "6092036" "6097888" "6108662" "6121924" "6134563" "6160549" "6167409" "6173284" "6195676" "6199046" "6199080" "6223189" "6240407" "6243698" "6256030" "6314562" "6317750" "6349307" "6351755" "6356920" "6366915" "6370537" "6370549" "6373504" "6374274" "6418433" "6421656" "6421822" "6446048" "6460059" "6470349" "6493717" "6505246" "6507856" "6581068" "6591272" "6594653" "6615258" "6629094" "6635089" "6667747" "6721736" "6745384" "6886005" "6912293" "6920608").PN. OR ("7421648").URPN.	USOCR			
S53	55	S49 and S52	US-PGPUB; USPAT; USOCR	OR	OFF	2015/10/13 12:21
S54	31655	(combine combining combination concatenate concatenates concatenation merge merging merges merged combin\$4 concat\$4 merg\$4) with (two several multiple plural plurality) with (document documents page pages)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S55	915259	(convert conversion converting converts converted convert\$4 transform transforms transformed transforming transformation transform\$4) with (currency currencies unit units)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S56	2934	(combine combining combination concatenate concatenates concatenation merge merging merges merged combin\$4 concat\$4 merg\$4) with (two several multiple plural plurality) with (webpage webpages web-page web-pages (web adj (page pages)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S57	1	"7421648".pn. and xml	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21

S58	63	rdml	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S59	1282	(validate validates validation validating validat\$4) with (datatype data-type (data adj type))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S60	4396	(validate validates validation validating validat\$4) with (calculation formula)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S61	40636	(validate validates validation validating validat\$4) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S62	98	S59 and S60 and S61	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S63	20420	(store stores storing stored storage stor\$4) with (original) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S64	7845	(display displays displaying displayed display\$4) with (original) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S65	72797	(display displays displaying displayed display\$4) with (edit edited edit\$4 change changes changed changing chang\$4 modify modified modification modif\$4) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S66	382	S63 and S64 and S65	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2015/10/13 12:21

			DERWENT; IBM_TDB			
S67	24	("6920608" "7249328" "7421648" "7650355" "6886005" "7401076" "7512875" "8489982" "8185816").pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S68	2	"6195668".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S69	2	"6195665".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S70	108	("8959196" "654912" "8370362" "8375116" "8006177" "7801896" "7660874" "7565397" "7181438" "6993527" "6862710" "6876930" "6789252" "6772139" "6308179" "6269380" "6266670" "6226675" "6125391" "6038574").pn. "20130159845" "20100332583" "20100100814" "20100004874" "20070219933" "20070156677" "20060168335" "20050187954" "20050005266" "20030217047" "20020165872" "20020168664" "20020062451"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S71	12457	(determine determines determining determined determination determin\$4 detect detects detecting detected detection detect\$4) with (context contextual context\$4) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S72	13880	(determine determines determining determined determination determin\$4 detect detects detecting detected detection detect\$4) with (context contextual context\$4 semantic) with (value values)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S73	22653	(determine determines determining determined determination determin\$4 detect detects detecting detected detection detect\$4) with (context contextual context\$4 semantic) with (value values number numbers)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S74	224	(convert conversion converting converts converted convert\$4 transform transforms transformed	US-PGPUB; USPAT; USOCR;	OR	OFF	2015/10/13 12:21

EAST Search History


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S75	98	S73 and S74	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:21
S76	1079	(g06f17/218 g06f17/2252 g06f17/30014 g06f17/30882).cpc.	USPAT	OR	OFF	2015/10/13 12:46
S77	5620	(g06f17/218 g06f17/2252 g06f17/30014 g06f17/30882).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/10/13 12:46

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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L59	2806616	@ad < "19990217"	USPAT; UPAD	OR	OFF	2015/10/13 21:24
L60	7	L58 and L59	USPAT; UPAD	OR	OFF	2015/10/13 21:24
L61	1079	(g06f17/218 g06f17/2252 g06f17/30014 g06f17/30882).cpc.	USPAT; UPAD	OR	OFF	2015/10/13 21:24
S78	87	(convert conversion converting converts converted convert\$4 transform transforms transformed transforming transformation transform\$4) with (number numbers value values) with (common "same") with (context context\$4 semantic semantic\$4)	USPAT; UPAD	OR	OFF	2015/10/13 12:45
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S80	7	S78 and S79	USPAT; UPAD	OR	OFF	2015/10/13 12:46
S81	1079	(g06f17/218 g06f17/2252 g06f17/30014 g06f17/30882).cpc.	USPAT; UPAD	OR	OFF	2015/10/13 12:46

10/ 13/ 2015 9:30:37 PM

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Search Notes 	Application/Control No. 14724792	Applicant(s)/Patent Under Reexamination DAVIS, RUSSELL T
	Examiner KYLE STORK	Art Unit 2144

CPC- SEARCHED		
Symbol	Date	Examiner
G06F17/218, 2252, 30014, 30882	10/13/15	ks

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Search (USPat, USPG-Pub, USOCR, EPO, Derwent, IBM_TDB, FPRS, JPO)	10/13/15	
Inventor name search (eDAN)	10/13/15	
NPL Search (Google, Google Scholar)	10/13/15	

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
G06F17	218, 2252, 30014, 30882	10/13/15	ks

	/K.S./ Primary Examiner. Art Unit 2144
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Receipt date: 10/13/2015

14724792 - GAU: 2144

Doc code: IDS

PTO/SB/08a (01-10)

Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792	
	Filing Date		2015-05-28	
	First Named Inventor	Russell T Davis		
	Art Unit	2144		
	Examiner Name	STORK, KYLE R		
	Attorney Docket Number	ENUM018		

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14724792 -- GAU: 2144

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792
	Filing Date		2015-05-28
	First Named Inventor	Russell T Davis	
	Art Unit	2144	
	Examiner Name	STORK, KYLE R	
	Attorney Docket Number	ENUM018	

	1	Final Office Action from U.S. Application No. 10/052,250, dated July 21, 2015	<input type="checkbox"/>
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Examiner Signature	/KYLE STORK/	Date Considered	10/13/2015
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¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

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14724792 -- GAU: 2144

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792
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	First Named Inventor	Russell T Davis	
	Art Unit		2144
	Examiner Name	STORK, KYLE R	
	Attorney Docket Number		ENUM018

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- See attached certification statement.
- The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas D. Fortenberry/	Date (YYYY-MM-DD)	2015-10-13
Name/Print	Thomas D. Fortenberry	Registration Number	56,537


This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Issue Classification 	Application/Control No. 14724792	Applicant(s)/Patent Under Reexamination DAVIS, RUSSELL T	
	Examiner KYLE STORK	Art Unit 2144	

CPC						
Symbol				Type	Version	
G06F		17		218	F	2013-01-01
G06F		17		2252	I	2013-01-01
G06F		17		30014	I	2013-01-01
G06F		17		30882	I	2013-01-01


CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	18	
/KYLE STORK/ Primary Examiner.Art Unit 2144	10/13/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7

Issue Classification 	Application/Control No. 14724792	Applicant(s)/Patent Under Reexamination DAVIS, RUSSELL T	
	Examiner KYLE STORK	Art Unit 2144	

US ORIGINAL CLASSIFICATION					INTERNATIONAL CLASSIFICATION									
CLASS		SUBCLASS			CLAIMED				NON-CLAIMED					
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CROSS REFERENCE(S)														
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NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	18	
/KYLE STORK/ Primary Examiner. Art Unit 2144	10/13/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7

<i>Index of Claims</i> 	Application/Control No. 14724792	Applicant(s)/Patent Under Reexamination DAVIS, RUSSELL T
	Examiner KYLE STORK	Art Unit 2144

✓	Rejected
=	Allowed

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÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claims renumbered in the same order as presented by applicant
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14/724,792 05/28/2015 Russell T Davis ENUM018 2157

112117 7590 11/12/2015
Thomas D. Fortenberry, Attorney at Law
P.O. Box 2099
Woodville, TX 75979

Table with 1 column: EXAMINER

STORK, KYLE R

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2144

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
14/724,792	28 May, 2015	DAVIS, RUSSELL T	ENUM018

Thomas D. Fortenberry, Attorney at Law P.O. Box 2099 Woodville, TX 75979	EXAMINER	
	KYLE STORK	
	ART UNIT	PAPER
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The information disclosure statements (IDSs) submitted on 23 July 2015 and 25 July 2015 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the IDSs are being considered by the examiner.

/KYLE STORK/
Primary Examiner, Art Unit 2144

Receipt date: 07/23/2015

14724792 - GAU: 2144

Doc code: IDS

PTO/SB/08a (01-10)

Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792
	Filing Date		2015-05-28
	First Named Inventor	RUSSELL T DAVIS	
	Art Unit	2144	
	Examiner Name	STORK, KYLE R	
	Attorney Docket Number	ENUM018	

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Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	8959196	B2	2015-02-17	Meltzer et al.	
	2	6542912	B2	2003-04-01	Meltzer et al.	
	3	8370362	B2	2013-02-05	Szabo	
	4	8375116	B2	2013-02-12	Meltzer et al.	
	5	8006177	B1	2011-08-23	Meltzer et al.	
	6	7801896	B2	2010-09-21	Szabo	
	7	7660874	B1	2010-02-09	Meltzer et al.	
	8	7565397	B2	2009-07-21	Hodjat et al.	

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14724792 -- GAU: 2144

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	Art Unit	2144		
	Examiner Name	STORK, KYLE R		
	Attorney Docket Number	ENUM018		

	9	7181438	B1	2007-02-20	Szabo	
	10	6993527	B1	2006-01-31	Raman et al.	
	11	6862710	B1	2005-03-01	Marchisio	
	12	6876930	B2	2005-04-05	Murray et al.	
	13	6789252	B1	2004-09-07	Burke et al.	
	14	6772139	B1	2004-08-03	Smith, III	
	15	6308179	B1	2001-10-23	Petersen et al.	
	16	6269380	B1	2001-07-31	Terry et al.	
	17	6266670	B1	2001-07-24	LaMarca et al.	
	18	6226675	B1	2001-05-01	Meltzer et al.	
	19	6125391	A	2000-09-26	Meltzer et al.	

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14724792 -- GAU: 2144

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	Art Unit	2144		
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	20	6038574	A	2000-03-14	Pitkow et al.	
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	1	20130159845	A1	2013-06-20	Meltzer et al.	
	2	20100332583	A1	2010-12-30	Szabo	
	3	20100100814	A1	2010-04-22	Meltzer et al.	
	4	20100004874	A1	2010-01-07	Rzhetsky et al.	
	5	20070219933	A1	2007-09-20	Datig	
	6	20070156677	A1	2007-07-05	Szabo	
	7	20060168335	A1	2006-07-27	Hodjat et al.	
	8	20050187954	A1	2005-08-25	Raman et al.	

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	Art Unit	2144		
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	Attorney Docket Number	ENUM018		

	9	20050005266	A1	2005-01-06	Datig	
	10	20030217047	A1	2003-11-20	Marchisio	
	11	20020165872	A1	2002-11-07	Meltzer et al.	
	12	20020168664	A1	2002-11-14	Murray et al.	
	13	20020062451	A1	2002-05-23	Scheidt et al.	

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EXAMINER SIGNATURE			
Examiner Signature	/KYLE STORK/	Date Considered	11/07/2015
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>			
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CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- See attached certification statement.
- The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas D. Fortenberry/	Date (YYYY-MM-DD)	2015-07-23
Name/Print	Thomas D. Fortenberry	Registration Number	56,537

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Receipt date: 07/25/2015

14724792 - GAU: 2144

Doc code: IDS

PTO/SB/08a (01-10)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 07/31/2012. OMB 0851-0031

U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14724792	
	Filing Date		2015-05-28	
	First Named Inventor	Russell T. DAVIS		
	Art Unit		2144	
	Examiner Name	STORK, KYLE R		
	Attorney Docket Number		ENUM018	

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If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
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Receipt date: 07/25/2015

14724792 -- GAU: 2144

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	Attorney Docket Number	ENUM018	

	1		<input type="checkbox"/>
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If you wish to add additional non-patent literature document citation information please click the Add button **Add**

EXAMINER SIGNATURE

Examiner Signature	/KYLE STORK/	Date Considered	11/09/2015
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

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Receipt date: 07/25/2015

14724792 -- GAU: 2144

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /KS/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Davis

Application No.: 14/724,792

Filed: 5/28/2015

For: SYSTEM, METHOD, AND COMPUTER
PROGRAM PRODUCT FOR PROCESSING
A MARKUP DOCUMENT

Confirmation No.: 2157

Examiner: STORK, KYLE R.

Art Unit: 2144

Atty. Docket No.: ENUM018

Date: 12/21/2015

AMENDMENT AFTER NOTICE OF ALLOWANCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Notice of Allowance mailed 10/16/2015, please enter the following.

AMENDMENT TO CLAIMS

1. (Currently Amended) A computer program product embodied on a non-transitory computer-readable medium comprising:

code for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

code for causing automatic transformation of at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that ~~[[the]]~~at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

code for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and

code for causing a display of at least a portion of the single markup document.

2. (Previously Presented) The computer program product of claim 1, wherein the computer program product is configured such that the first tags and the second tags each include computer-readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values, via a computer-readable tagging association therebetween.

3. (Previously Presented) The computer program product of claim 2, wherein the computer program product is configured for allowing a user to edit a mapping of one or more of the computer-readable semantic tags to a corresponding one of at least one of the first numerical values or the second numerical values.

4. (Previously Presented) The computer program product of claim 1, wherein the computer program product is operable such that the first unit of measure includes a first currency and the second unit of measure includes a second currency.

5. (Currently Amended) The computer program product of claim 1, and further comprising code for manipulating the display of the single markup document using at least one of the first tags reflecting the first characteristics of the first numerical values associated with the first unit of measure, or the second tags reflecting the second characteristics of the second numerical values associated with the second unit of measure.

6. (Currently Amended) The computer program product of claim 1, wherein the computer program product is configured such that the first markup document and the second markup document each include a XML-compliant data document that includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including computer-readable semantic tags that each describe a semantic meaning of one or more of [[the]]corresponding numerical values.

7. (Previously Presented) The computer program product of claim 6, wherein the computer program product is configured such that the computer-readable semantic tags are each computer-readably coupled to the one or more of the corresponding numerical values.

8. (Currently Amended) The computer program product of claim 1, wherein the computer program product is configured such that the single markup document includes a XML-compliant data document that includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including

computer-readable semantic tags that each describe a semantic meaning of one or more of [[the]]corresponding numerical values.

9. (Previously Presented) The computer program product of claim 1, wherein the computer program product is operable such that the single markup document includes a XML-compliant data document that is capable of including at least one of: multiple hierarchical relationships between two line items of corresponding numerical values, or computer-readable semantic tags that each describe a semantic meaning of one or more of corresponding numerical values.

10. (Currently Amended) The computer program product of claim 9, wherein the computer program product is configured for utilizing a plurality of computer-readable rules for processing the ~~at least one~~ XML-compliant data document, the computer-readable rules including:

a computer-readable datatype rule for validation of a value type,

a computer-readable calculation rule for validation of a value calculation,

and

a computer-readable unit rule for validation of a value unit.

11. (Currently Amended) The computer program product of claim 9, wherein the computer program product is configured for validating the ~~at least one~~ XML-compliant data document by:

identifying at least a subset of [[the]] a plurality of computer-readable rules including at least one of:

a computer-readable datatype rule for validation of a value type,

a computer-readable calculation rule for validation of a value calculation, or

a computer-readable unit rule for validation of a value unit; and

processing at least a portion of the ~~at least one~~ XML-compliant data document, utilizing the at least subset of the computer-readable rules.

12. (Currently Amended) The computer program product of claim 9, wherein the computer program product is configured such that the ~~at least one~~ XML-compliant data document includes an extensible semantic tag-equipped markup language component and a hypertext markup language (HTML) component.

13. (Previously Presented) The computer program product of claim 12, wherein the computer program product is configured such that at least one XML-compliant data document is capable of being displayed utilizing a network browser for allowing review of the HTML component in addition to access the extensible semantic tag-equipped markup language component.

14. (Currently Amended) The computer program product of claim 1, wherein the computer program product is configured for storing at least one object including at least one reference to an original value of ~~at least one of~~ at least one of the first numerical values or the second numerical values.

15. (Currently Amended) The computer program product of claim 14, wherein the computer program product is configured for outputting a presentation or report that is based on at least a portion of the at least one object, the presentation or report capable of including ~~at least a portion of~~ at least one of the first numerical values or the second numerical values, including the ~~at least one~~ original value, such that, based on the at least one reference of the at least one object, a change to the ~~at least one~~ original value results in a corresponding change in an instance of the presentation or report.

16. (Currently Amended) The computer program product of claim 14, wherein the computer program product is configured such that the single markup document includes a XML-compliant data document that includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including computer-readable semantic tags that each describe a semantic meaning of one or more of the corresponding numerical values, wherein the computer program product is further configured for outputting the XML-compliant data document based on at least a portion of the at least one object, the XML-compliant data document capable of including at least a portion of at least one of the first numerical values or the second numerical values, including the ~~at least one~~ original value, such that, based on the at least one reference of the at least one object, a change to the ~~at least one~~ original value results in a corresponding change in an instance of the XML-compliant data document.

17. (Previously Presented) The computer program product of claim 1, wherein the computer program product is configured such that at least one of:

said code for causing the automatic transformation is capable of automatically transforming the at least portion of the numerical values of the first markup document the second markup document;

said identifying includes receiving;

said first tags or second tags result from tagging;

said characteristics include at least one of a magnitude, scale, modifier, unit, and measurement;

said tags reflect structure;

said processing includes merging or combining;

said processing results in a single data set, and said code for causing the display causes display of the single data set;

said single markup document is caused to be displayed on a single graphical display;

said single markup document includes an RDML document;

said single markup document is caused to be displayed without requiring a user to make manual adjustments; or

said at least portion of the single markup document includes the numerical values thereof.

18. (Currently Amended) A method comprising:

identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

automatically transforming at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that ~~[[the]]~~at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and

causing a display of at least a portion of the single markup document.

19. (Currently Amended) An apparatus, comprising:

means for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

means for automatically transforming at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that ~~[[the]]~~at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

means for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and

means for causing a display of at least a portion of the single markup document.

REMARKS

The claims have been clarified.

Should the Examiner have any questions regarding these amendments, applicant invites the Examiner to telephone the undersigned attorney at the number listed below.

Respectfully submitted,

Date: December 21, 2015

By: /Thomas D. Fortenberry/
THOMAS D. FORTENBERRY
Reg. No. 56,537
P.O. Box 2099
Woodville, Texas 75979
Tel. (409) 283-2811
Fax (409) 291-7042
ATTORNEY FOR APPLICANT

Electronic Acknowledgement Receipt

EFS ID:	24435040
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	21-DEC-2015
Filing Date:	28-MAY-2015
Time Stamp:	21:24:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment after Notice of Allowance (Rule 312)	20151221_ENUM018_Respons e_AMENDMENT_AFTER_NOA. pdf	41227 <small>1f7d3074373a9a347be44db3a612fa1edc47398d</small>	no	9

Warnings:

Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/724,792	Filing Date 05/28/2015	<input type="checkbox"/> To be Mailed
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ENTITY: LARGE SMALL MICRO

APPLICATION AS FILED – PART I

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	
<input type="checkbox"/> EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(j))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
<input type="checkbox"/> APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	(Column 1)	(Column 2)	(Column 3)	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	12/21/2015	CLAIMS REMAINING AFTER AMENDMENT					
	Total (37 CFR 1.16(i))	* 19	Minus	** 20	= 0	X \$40 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$210 =	0
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))						
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT	(Column 1)	(Column 2)	(Column 3)	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
		CLAIMS REMAINING AFTER AMENDMENT					
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =	
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))						
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/BRENDA TURNER/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

please enter.
/ks/
12/31/15.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Davis

Application No.: 14/724,792

Filed: 5/28/2015

For: SYSTEM, METHOD, AND COMPUTER
PROGRAM PRODUCT FOR PROCESSING
A MARKUP DOCUMENT

Confirmation No.: 2157

Examiner: STORK, KYLE R.

Art Unit: 2144

Atty. Docket No.: ENUM018

Date: 12/21/2015

AMENDMENT AFTER NOTICE OF ALLOWANCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Notice of Allowance mailed 10/16/2015, please enter the following.

AMENDMENT TO CLAIMS

1. (Currently Amended) A computer program product embodied on a non-transitory computer-readable medium comprising:

code for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

code for causing automatic transformation of at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that ~~[[the]]~~at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

code for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and

code for causing a display of at least a portion of the single markup document.

2. (Previously Presented) The computer program product of claim 1, wherein the computer program product is configured such that the first tags and the second tags each include computer-readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values, via a computer-readable tagging association therebetween.

3. (Previously Presented) The computer program product of claim 2, wherein the computer program product is configured for allowing a user to edit a mapping of one or more of the computer-readable semantic tags to a corresponding one of at least one of the first numerical values or the second numerical values.

4. (Previously Presented) The computer program product of claim 1, wherein the computer program product is operable such that the first unit of measure includes a first currency and the second unit of measure includes a second currency.

5. (Currently Amended) The computer program product of claim 1, and further comprising code for manipulating the display of the single markup document using at least one of the first tags reflecting the first characteristics of the first numerical values associated with the first unit of measure, or the second tags reflecting the second characteristics of the second numerical values associated with the second unit of measure.

6. (Currently Amended) The computer program product of claim 1, wherein the computer program product is configured such that the first markup document and the second markup document each include a XML-compliant data document that includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including computer-readable semantic tags that each describe a semantic meaning of one or more of [[the]]corresponding numerical values.

7. (Previously Presented) The computer program product of claim 6, wherein the computer program product is configured such that the computer-readable semantic tags are each computer-readably coupled to the one or more of the corresponding numerical values.

8. (Currently Amended) The computer program product of claim 1, wherein the computer program product is configured such that the single markup document includes a XML-compliant data document that includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including

computer-readable semantic tags that each describe a semantic meaning of one or more of [[the]]corresponding numerical values.

9. (Previously Presented) The computer program product of claim 1, wherein the computer program product is operable such that the single markup document includes a XML-compliant data document that is capable of including at least one of: multiple hierarchical relationships between two line items of corresponding numerical values, or computer-readable semantic tags that each describe a semantic meaning of one or more of corresponding numerical values.

10. (Currently Amended) The computer program product of claim 9, wherein the computer program product is configured for utilizing a plurality of computer-readable rules for processing the ~~at least one~~ XML-compliant data document, the computer-readable rules including:

a computer-readable datatype rule for validation of a value type,

a computer-readable calculation rule for validation of a value calculation,

and

a computer-readable unit rule for validation of a value unit.

11. (Currently Amended) The computer program product of claim 9, wherein the computer program product is configured for validating the ~~at least one~~ XML-compliant data document by:

identifying at least a subset of [[the]]a plurality of computer-readable rules including at least one of:

a computer-readable datatype rule for validation of a value type,

a computer-readable calculation rule for validation of a value calculation, or

a computer-readable unit rule for validation of a value unit; and

processing at least a portion of the ~~at least one~~ XML-compliant data document, utilizing the at least subset of the computer-readable rules.

12. (Currently Amended) The computer program product of claim 9, wherein the computer program product is configured such that the ~~at least one~~ XML-compliant data document includes an extensible semantic tag-equipped markup language component and a hypertext markup language (HTML) component.

13. (Previously Presented) The computer program product of claim 12, wherein the computer program product is configured such that at least one XML-compliant data document is capable of being displayed utilizing a network browser for allowing review of the HTML component in addition to access the extensible semantic tag-equipped markup language component.

14. (Currently Amended) The computer program product of claim 1, wherein the computer program product is configured for storing at least one object including at least one reference to an original value of ~~at least one of~~ at least one of the first numerical values or the second numerical values.

15. (Currently Amended) The computer program product of claim 14, wherein the computer program product is configured for outputting a presentation or report that is based on at least a portion of the at least one object, the presentation or report capable of including ~~at least a portion of~~ at least one of the first numerical values or the second numerical values, including the ~~at least one~~ original value, such that, based on the at least one reference of the at least one object, a change to the ~~at least one~~ original value results in a corresponding change in an instance of the presentation or report.

16. (Currently Amended) The computer program product of claim 14, wherein the computer program product is configured such that the single markup document includes a XML-compliant data document that includes multiple hierarchical relationships between two line items of corresponding numerical values, and is further capable of including computer-readable semantic tags that each describe a semantic meaning of one or more of the corresponding numerical values, wherein the computer program product is further configured for outputting the XML-compliant data document based on at least a portion of the at least one object, the XML-compliant data document capable of including at least a portion of at least one of the first numerical values or the second numerical values, including the ~~at least one~~ original value, such that, based on the at least one reference of the at least one object, a change to the ~~at least one~~ original value results in a corresponding change in an instance of the XML-compliant data document.

17. (Previously Presented) The computer program product of claim 1, wherein the computer program product is configured such that at least one of:

said code for causing the automatic transformation is capable of automatically transforming the at least portion of the numerical values of the first markup document the second markup document;

said identifying includes receiving;

said first tags or second tags result from tagging;

said characteristics include at least one of a magnitude, scale, modifier, unit, and measurement;

said tags reflect structure;

said processing includes merging or combining;

said processing results in a single data set, and said code for causing the display causes display of the single data set;

said single markup document is caused to be displayed on a single graphical display;

said single markup document includes an RDML document;

said single markup document is caused to be displayed without requiring a user to make manual adjustments; or

said at least portion of the single markup document includes the numerical values thereof.

18. (Currently Amended) A method comprising:

identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

automatically transforming at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that ~~[[the]]~~at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and

causing a display of at least a portion of the single markup document.

19. (Currently Amended) An apparatus, comprising:

means for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

means for automatically transforming at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that [[the]]at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

means for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document; and

means for causing a display of at least a portion of the single markup document.

REMARKS

The claims have been clarified.

Should the Examiner have any questions regarding these amendments, applicant invites the Examiner to telephone the undersigned attorney at the number listed below.

Respectfully submitted,

Date: December 21, 2015

By: /Thomas D. Fortenberry/
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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14/724,792	05/28/2015	Russell T Davis	ENUM018	2157
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112117 7590 01/04/2016
Thomas D. Fortenberry, Attorney at Law
P.O. Box 2099
Woodville, TX 75979

EXAMINER

STORK, KYLE R

ART UNIT	PAPER NUMBER
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2144

MAIL DATE	DELIVERY MODE
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01/04/2016 PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Response to Rule 312 Communication	Application No. 14/724,792	Applicant(s) DAVIS, RUSSELL T
	Examiner KYLE STORK	Art Unit 2144
<i>-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --</i>		
<p>1. <input checked="" type="checkbox"/> The amendment filed on <u>21 December 2015</u> under 37 CFR 1.312 has been considered, and has been:</p> <p>a) <input type="checkbox"/> entered.</p> <p>b) <input checked="" type="checkbox"/> entered as directed to matters of form not affecting the scope of the invention.</p> <p>c) <input type="checkbox"/> disapproved because the amendment was filed after the payment of the issue fee. Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.</p> <p>d) <input type="checkbox"/> disapproved. See explanation below.</p> <p>e) <input type="checkbox"/> entered in part. See explanation below.</p>		
		/KYLE STORK/ Primary Examiner, Art Unit 2144

Electronic Patent Application Fee Transmittal

Application Number:	14724792			
Filing Date:	28-May-2015			
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT			
First Named Inventor/Applicant Name:	Russell T Davis			
Filer:	THOMAS DONALD FORTENBERRY			
Attorney Docket Number:	ENUM018			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	2501	1	480	480

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				480

Electronic Acknowledgement Receipt

EFS ID:	24508987
Application Number:	14724792
International Application Number:	
Confirmation Number:	2157
Title of Invention:	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PROCESSING A MARKUP DOCUMENT
First Named Inventor/Applicant Name:	Russell T Davis
Customer Number:	112117
Filer:	THOMAS DONALD FORTENBERRY
Filer Authorized By:	
Attorney Docket Number:	ENUM018
Receipt Date:	04-JAN-2016
Filing Date:	28-MAY-2015
Time Stamp:	09:31:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$480
RAM confirmation Number	6717
Deposit Account	506056
Authorized User	FORTENBERRY, THOMAS D

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 CFR 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 CFR 1.19 (Document supply fees)
 Charge any Additional Fees required under 37 CFR 1.20 (Post Issuance fees)
 Charge any Additional Fees required under 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	20160104_ENUM018_Part_B_Is sue_Fee_Paid.pdf	85826 db5d71b8db4c7d62f9320a43a2ec09f83c4 21612	no	1

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30179 2cf722ef9bdfc694861ca296af6df27842d3 bf6	no	2
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Warnings:

Information:

Total Files Size (in bytes):			116005
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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/724,792	02/16/2016	9262383	ENUM018	2157

112117 7590 01/27/2016
Thomas D. Fortenberry, Attorney at Law
P.O. Box 2099
Woodville, TX 75979

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Russell T Davis, Bethesda, MD;
e-Numerate Solutions, Inc., Great Falls, VA;

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