



Controlling Spreadsheets Motivation & Methodology

EuroCACS 2011

Manchester

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sysmod.com



Learning objectives

1. Explain the real incidence of spreadsheet errors
2. Embrace good practice in spreadsheet development and control, and certification standards
3. Conduct risk assessments and audit/control scoping, formulate questions to ask, and identify indicators of good practice
4. Apply spreadsheet management processes and a maturity model
5. Understand the use of software tools for spreadsheet audit efficiency





What we will cover

This session :

- outlines concerns about risks from the uncontrolled use of spreadsheet-based information systems.
- presents real statistics on error rates to help you make the case for better control.
- describes good practices for error detection, correction, and prevention.
- covers how to assess risk in the context of spreadsheet criticality, and a process of high level and detailed reviews.
- reviews software tools on the market to facilitate the audit process.



Introduction

- Patrick O’Beirne BSc MA FICS
- Systems Modelling Ltd. Ireland,
<http://www.sysmod.com>
- Current focus: spreadsheet control projects, development best practices
- Author of ‘Spreadsheet Check and Control’, ScanXLS and XLTest software and other IT books and articles.
- Professional affiliations:
 - Sometime Chair of the European Spreadsheet Risk Interest Group (EuSpRIG)
 - Member of the Software Testing Interest Group in Ireland (SoftTest)





Contents

1. Current concerns – spreadsheet hell
2. First steps in a control project
3. Top 10 questions
4. Case studies
5. Remediation: Rework Statistics
6. Risk assessment, scoping, maturity model
7. High level & detailed review and testing
8. Good practice: Prevention & Detection
9. Software tools, some product screenshots
10. Useful links



Spreadsheet Hell

How well does <i>spreadsheet hell</i> describe your organization's reliance on spreadsheets?	Small companies	Large companies
Completely	7%	12%
Fairly well	26%	47%
Not very well	46%	35%
Not at all	20%	6%

How do you rate electronic spreadsheets in the following areas?

	Excellent	Good	Neutral	Fair	Poor
Accuracy	51%	37%	7%	4%	2%
Ease of use	50%	44%	6%	0%	1%
Capabilities/power	46%	49%	5%	1%	0%
Labor saving potential	29%	47%	13%	9%	3%
Integration with other systems	10%	46%	23%	15%	7%

CFO IT June 15, 2004





What's the problem?

- Spreadsheets are everywhere, used in a range from quick scratchpads to planning decisions, operational processes, valuations, financial reporting and analysis
- So they are not taken seriously and not controlled
- Programming logic and data structuring by “near experts”
- Unmeasured error rates lead to unjustified overconfidence
- <http://www.eusprig.org/horror-stories.htm> from the European Spreadsheet Risks Interest Group (EuSpRIG)



EuSpRIG horror stories

- **Many tens of millions of pounds adverse effect, Telegraph, 30 June 2005**
In "The importance and criticality of spreadsheets in the City of London", Grenville Croll of Frontline Systems (UK) Ltd. reported on a survey of 23 professionals in the £13Bn financial services sector. The interviewees said that spreadsheets were pervasive, and many were key and critical. There is almost no spreadsheet software quality assurance and people who create or modify spreadsheets are almost entirely self-taught. Two each disclosed a recent instance where *material spreadsheet error had led to adverse effects involving many tens of millions of pounds.*
- **File Save As \$1Bn error 17 June 2005**
A Federal Energy Regulatory Commission investigation found an artificial inflation of natural gas prices. The lawsuit estimates that consumer prices were hiked by between \$200 million and \$1 billion. "The investigation concluded that it was not deliberate, but when I hear the words clerical error, I think of negligence," plaintiff's attorney W. Coleman Allen Jr., of Richmond, Va., said Friday. "Consumers were harmed the same as if it was intentional." One explanation for the error was that the company had used the same computer file name for each week's storage balance spreadsheet report, making it easy for the wrong one to be sent.





Financial Services Authority (UK)

FSA Final Notice to Credit Suisse,

http://www.fsa.gov.uk/pubs/final/credit_suisse.pdf

- The FSA imposed a financial penalty of £5.6 million on the UK operations of Credit Suisse in respect of a breach of Principles 2 and 3 of the FSA's Principles for Business in Sep'07-Feb'08
- 2.33.3. The booking structure relied upon by the UK operations of Credit Suisse for the CDO trading business was complex and **overly reliant on large spreadsheets with multiple entries**. This resulted in a lack of transparency and inhibited the effective supervision, risk management and control of the SCG
- 2.34.3. Certain traders in the SCG were able to circumvent controls by exploiting their technical knowledge and their expertise relative to certain control personnel. Such traders were treated with too much deference



Financial Services Authority (UK)

http://www.fsa.gov.uk/pubs/final/scottish_equitable_plc.pdf

- Penalty of £2.8 million on Scottish Equitable PLC
- The Firm believes it used an **incorrectly calibrated spreadsheet** between 1999 and 2007 which resulted in it making erroneous calculations.
- The customer detriment arising from this issue is in the region of £6-7 million of which £4.85 million has been paid out by the Firm as redress as at 13 December 2010.





FSA UK (2)

http://www.fsa.gov.uk/pubs/final/cgml_28jun05.pdf

- During July 2004, the European government bond desk at CGML was encouraged to increase profits through increased proprietary trading and the development of new trading strategies.
- The functionality of the spreadsheet would enable CGML to **sell a very large quantity of bonds rapidly** and close to the midmarket price. In an electronic message sent between the Traders the trading strategy, utilising the spreadsheet, was nicknamed "Dr Evil" after a fictional character.
- the trading strategy was not considered by Compliance, Legal or independent Risk Management before it was executed... insufficient weight and attention was given to ... **the execution risk arising from, amongst other things, the use of a spreadsheet that was not fully testable**
- 7.5. The FSA further considers that CGML's execution of the trading strategy based on **presumptions about the spreadsheet's functioning that were not supported by scientific analysis constituted a serious failure of skill, care and diligence.**



FSA UK (3)

http://www.fsa.gov.uk/pubs/final/wdeb_15jan07.pdf

- Financial penalty of £560,000
- The current [reconciliation] procedure was a complex manual process, requiring formatting and visual investigation of spreadsheets, which increased the risk of human error, especially in the event of the absence of the reconciliation clerk.
- **no formal testing of the spreadsheet** had been performed.





Not everybody loses money...

UK Revenue audits of VAT spreadsheets	Averages for 2003–2005
Sample size	257
Total tax throughput on all spreadsheets audited	£4.56 billion
Time spent on audits in hours	1,546
Tax assured per audit hour	£2.95 million
No. workbooks audited	255
No. worksheets audited	1,332
Average hours spent per audit	31.7
Average % error rate per audit (audits producing additional revenue)	14%



Why does it go wrong?

- Ubiquity
- Manual and automated data input (links, queries)
- Poor man's database (integration, mashups)
- Automation → misplaced trust
- Complexity (size, nested logic, too-clever formulas, VBA)
- Initial creator vs end user
- Don't find errors because don't look for them
- Normal human error, unchecked
- No audit trail
- No change control
- Multiple versions of 'the truth'
- Not scalable
- Summing errors
- Data incomplete, mismatched, duplication
- Hard coding, values not updated
- Mismatched units of measure
- Comments & instructions out of date
- Assumptions out of date
- Pressure of deadlines
- No 2nd pair of eyes
- No reconciliation
- No sign off
- Unseen / hidden structure
- Unknown content
- Fraud, manipulation





So why use spreadsheets?

- Agile, respond rapidly
- Fast
- Familiar
- Accessible, easy to use
- No delays from IT controls(!)
- Customisable solution
- Low cost
- Throwaway solution (and yet...)



“Sorcerer’s apprentice”

- [EUC gives] many who have little training or expertise in how to avoid or detect high-risk defects tremendous power to create high-risk defects.
- Adapted from: “Software Defect Reduction Top 10 List” by Barry Boehm, University of Southern California, Victor R. Basili, University of Maryland





First steps in a control project

- External audit finding or observation?
- Embarrassing or expensive mistake?
- Multi-phase project
- Awareness: prepare the ground
- Develop EUC Policy and Standards
- Cultural change; expect resistance
- Establish contacts & responsibilities
- Inventory – define Critical
- Training and Certification of users
- Tools: user-level and enterprise-level
- Mitigation / Remediation



Anon. Case study, EuSpRIG 2008

Controlling End User Computing Applications – a case study

<http://arxiv.org/abs/0809.3595> Jamie Chambers and John Hamill

The criteria for an EUCA to be in the business critical inventory:

- Be used in financial or regulatory reporting functions, or
- Have the potential to impact financial statements by a material amount, or
- Be used to make decisions on significant investments or expenditures, or
- Be used to operate a core business function, or
- Support decisions in actual or potential revenue generation, or
- Be transmitted externally.

Minimum requirements for controls :

- Version control
- Change control
- Access control
- Business Recovery
- Documentation
- Testing

The responsibility for implementing these standards was assigned to the business managers. The Policy was owned by Operational Risk, while the Control Standards document was owned by IT. Enforcement lay with Internal Audit. All of these groups were heavily involved in the development of both policy and standards.





AIB CM Case Study, EuSpRIG 2008

End User Computing in AIB Capital Markets

<http://arxiv.org/abs/0909.2455> Andrew McGeady, Joseph McGouran

- The integrity of an end-user-developed application will always remain the ultimate responsibility of the business owner of that application.
- Operational Risk is now responsible for permitting a business area to develop critical EUC applications.
- Where IT provides a technical framework to better assist in the control of such applications, IT is responsible for the integrity of that framework while the Business remains responsible for each application contained within.
- The key to avoiding confusion is to ensure that divisions of ownership and responsibility are both straightforward and logical and set out clearly in an organisation's EUC policy



Remediation Plan Categories

Document	The application requires procedural and/or technical documentation
Test	The application requires testing to ensure it performs the stated function
Control	The application will be migrated to a controlled IT environment
Minor Enhance	The application requires minor enhancement without the need for significant involvement from business users
Enhance	The application requires enhancements to its functionality. These would include building interfaces to other systems, automating report generation etc
Migrate	The application should be migrated to a different platform as the current platform cannot support the required functionality
Replace	The platform is unsuitable for the required task. The application should be replaced either by extending the functionality of an existing IT-supported system or by a new development on a more robust platform





Remediation: Rework statistics

Financial Modelling of Project Financing Transactions

(Robert J Lawrence MSc Jasmine Lee FIAA MCom, Institute of Actuaries of Australia
Financial Services Forum 26-27 August 2004)

Based on the thirty most financially significant projects that Mercer Finance &
Risk Consulting reviewed y/e 30 June 2004.

- Average 2,182 unique formulae per model
- Average **151 issues raised** during the initial review
- Average six versions required to produce a model that could be “signed-off”.
- One spreadsheet needed **17 revisions to resolve 239 issues**

www.actuaries.asn.au/PublicSite/pdf/fsfpaper2004-jasminandlee.pdf



IPPF GTAG 14

International Professional Practices Framework by The Institute of Internal Auditors

<http://www.theiia.org/guidance/technology/gtag-14/>

3. Scoping a User-developed Application Audit
 - 3.1 Defining What Constitutes a Key User-developed Application
 - 3.2 Determining and Defining the User-developed Application Population
 - 3.3 Defining Risk Factors
 - 3.4 Risk Ranking
4. Considerations in Performing User-developed Application Audits
 - 4.1 Tool Attributes and Capabilities
 - 4.2 Best Practices for Controls Over User-developed Applications
5. Developing the Audit Program
 - A. System Security and Access
 - B. Audit Trails
 - C. Inputs, Edits, and Interfaces
 - D. Data Processing and Data Integrity
 - E. Reports and Output
 - F. Retention
 - G. Backup and Recovery
 - H. Change Management





Top 10 Questions (1)

- **1. What is the purpose of the spreadsheet?**
 - Criticality – what if it were lost or corrupted?
 - Is it the sole or primary source for a decision?
- **2. Where is it kept – network location, set of files**
 - How do we know which is the current version?
 - Backups, Archives?
 - Complete list of data sources it depends upon
 - What depends on this spreadsheet?
- **3. How is it used?**
 - Process documentation
 - instructions
- **4. Is it for one person or is it re-used by others?**
 - Security of access?



Top 10 Questions (2)

- **5. Is it once-off (project) or has it a periodic operation?**
- **6. Who peer reviews its structure and version changes?**
 - If none, likelihood of key-person risk?
 - Evidence of logic review, analytics
 - Execution test (with results) and acceptance
- **7. What controls are around it?**
 - Segregation of duties: who reviews & signs off its output?
 - Reconciliation with data sources
- **8. What checks are included within it?**
 - Input data validation
 - Cross-foot, balance checks
 - Reasonableness tests





Top 10 Questions (3)

- **9. What evidence is there of conformity to good design practices?**
 - a. Potential long list,
 - b. Clear block layout, formats, print output header/footer
 - c. Formula integrity, protection, no errors, no external links
 - d. Use of timesaving formulas and features
 - e. No unnecessary complexity
- **10. What are the pain points?**
 - a. Quality of input data; duplication, update
 - b. Grunt work transforming data
 - c. Effort maintaining & updating formulas
 - d. Training in more productive Excel skills
 - e. Possible to replace with controlled IT system?



Risk Assessment questions

- Organisation maturity – standards?
- Domain knowledge of developer
- Excel knowledge of the maintainer
- Design quality
- Testing and change control – any?
- Documentation, instructions – useful?
- Complexity of the application
- Controls eg compensating controls
- Security, Access, Backup, Archive





Control Quality - CobiT Maturity Model

Stage 0— Nonexistent	Stage 1— Initial/Ad Hoc	Stage 2— Repeatable but Intuitive	Stage 3— Defined Process	Stage 4— Managed and Measurable	Stage 5— Optimized
At this level, there is a complete lack of any recognizable control process or the existence of any related procedures. The organization has not even acknowledged there is an issue to be addressed, therefore, no communication about the issue is generated.	There is some evidence the organization recognizes that controls and related procedures are important and need to be addressed. However, controls and related policies and procedures are not in place and documented. An event and disclosure process does not exist. Employees are not aware of their responsibility for control activities. The operating effectiveness of control activities is not evaluated on a regular basis. Control deficiencies are not identified.	Controls and related policies and procedures are in place but not always fully documented. An event and disclosure process is in place but not documented. Employees may not be aware of their responsibility for control activities. The operating effectiveness of control activities is not adequately evaluated on a regular basis and the process is not documented. Control deficiencies may be identified but are not remedied in a timely manner.	Controls and related policies and procedures are in place and adequately documented. An event and disclosure process is in place and adequately documented. Employees are aware of their responsibility for control activities. The operating effectiveness of control activities is evaluated on a periodic basis (e.g., quarterly), however, the process is not fully documented. Control deficiencies are identified and remedied in a timely manner.	Controls and related policies and procedures are in place and adequately documented, and employees are aware of their responsibility for control activities. An event and disclosure process is in place, adequately documented and monitored, but not always reevaluated to reflect major process or organizational changes. The operating effectiveness of control activities is evaluated on a periodic basis (e.g., weekly), and the process is adequately documented. There is limited, primarily tactical, use of technology to document processes, control objectives and activities.	Stage 5 meets all of the characteristics of stage 4. An enterprise-wide control and risk management program exists such that controls and procedures are well documented and continuously reevaluated to reflect major process or organizational changes. A self-assessment process is used to evaluate the design and effectiveness of controls. Technology is leveraged to its fullest extent to document processes, control objectives and activities, identify gaps, and evaluate the effectiveness of controls.



Manage Operations

- **Control:** EUC/user-developed programs, including spreadsheets, are
 - documented;
 - regularly reviewed for integrity, incl. sort, summarize and report accurately;
 - backed up regularly and securely;
 - protected from unauthorized access;
 - inputs, processing, outputs indep. verified for completeness and accuracy;
- **Test:** Inquire as to management's knowledge of EUC.
 - Sample & review approaches followed to review EUC for processing integrity, access protection.
 - Review user-developed systems and test their ability to sort, summarize and report in accordance with management intentions.
 - Inquire who reviews and approves outputs from user-developed systems prior to their submission.
 - Reperform or review the logic used in EUC and conclude on its ability to process completely and accurately.
 - *See also: Manage Changes:* changes of financial reporting significance are authorized and appropriately tested before being moved to production.

Source: IT Governance Institute (www.ITGI.org) guidance for IT professionals on how to address Sarbanes-Oxley from an IT perspective – 2004





High level review

- Get an authorised read-only working copy
- Interview owner to learn how it is used
- What are the known risks and current controls?
- Auditing tools provide a static analysis and overview
- Look for evidence of correct use of cell/sheet protection.
- Create a diagram of the sheet and data structures to aid understanding.
- Form an opinion of the need for detailed review
- Prioritize risk given your time and resources



Detailed review & test

- Check formulas, and their copies across ranges, for arithmetic and semantic correctness.
- Excel commands: select errors, precedents, dependents
- Auditing toolbar, formula evaluation
- Known error-prone functions: LOOKUP(), INDIRECT(), ...
- Does the model work as expected and as required?
- Checklist includes data links, corruption, calculation mode, precision, circular references, blank inputs, range name usage, array formulas, complexity, hard-coded constants, incomplete structure, mixed units, hidden data, VBA ...





Prioritize

What if there isn't enough time to test?

- Which functionality is most important to the intended purpose?
- Which functionality has the largest financial impact on users?
- Which aspects are most important to the customer?
- Which aspects can be tested early in development?
- Which parts are most complex, most subject to errors?
- Which parts were developed in rush or panic mode?
- Which aspects of similar/related previous projects caused problems?
- What do the developers think are the highest-risk aspects?
- What kinds of problems would cause the worst publicity?
- What kinds of problems would cause the most end-customer complaints?

Adapted from the FAQ at www.softwareqatest.com



Software tools

- [Prodiance](#) (control, remediation)
- [ClusterSeven](#) (CCTV for ss)
- [Lyquidity](#) (change monitor)
- [ScanXLS](#) (Inventory, Links)
- [XLTest](#) (audit, test)
- [SpACE 3 \(Finsbury\)](#)
- [Spreadsheet Detective](#)
- [Spreadsheet Professional](#)
- [RedRover error-finding audit](#)
- [ExSafe](#)
- [Operis Analysis Kit](#)
- [Rainbow Analyst](#)
- [XLAnalyst](#)
- [XLSior test runner](#)
- [Code Tracer](#)
- [XLSpell style checker](#)
- [Navigator Utilities](#)
- [ActiveData data analysis](#)

This list maintained at: <http://www.sysmod.com/sslinks.htm>



ActiveData for Excel from www.informationactive.com

ISACA
Trust, and value from information systems

Formula highlighting

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
41	Electric switch	371	960	517	95	575	622	420	322	463	298	193	206	5042
42	Electronic medi	810	966	603	989	462	262	554	174	137	625	231	753	6486
43	Engines	469	374	921	890	968	791	230	663	923	718	426	516	7889
44	Environmental	925	292	289	40	536	561	787	467	771	388	403	489	5948
45	Events	859	46	600	214	88	378	268	655	354	946	695	192	5295
46	Expenses	203	949	497	964	660	18	586	660	64	687	468	311	6067
47	Extractors	251	871	215	536	162	234	574	5	46	952	170	436	4452
48	Total	4502	5273	4402	4484	3488	3281	4102	2960	3581	4951	2864	2628	
49														
50	Dept F													
51	Factory cleaning	755	116	680	408	128	458	622	336	827	202	406	349	5287
52	Fast food	254	205	459	312	565	123	764	786	325	166	279	627	4865
53	Fastenings	559	698	423	723	262	351	696	405	603	767	896	820	7203
54	Fibre optics	192	407	104	287	870	848	378	673	181	990	309	654	5893
55	Fish bait	395	222	663	342	862	512	53	470	701	422	735	792	6169
56	Flags	685	484	701	506	961	140	7	177	50	594	459	597	5361
57	Flavourings	461	690	190	744	255	788	664	826	765	990	736	323	7432
58	Floor polish	147	878	494	223	666	376	788	546	478	660	256	320	5832
59	Flowers	893	135	244	986	117	268	449	633	685	696	11	452	5569
60	Fluid mixing	704	968	272	638	890	295	29	610	680	899	631	81	6697
61	Foam plastic	515	901	694	49	386	66	240	821	199	966	42	13	4792
62	Footwear	436	796	632	507	680	616	171	24	261	954	555	939	6571
64	Franking	686	254	430	977	366	375	336	621	264	979	631	132	6051
65	Fuel	91	88	615	156	148	466	128	550	434	349	85	444	3554
66	Furnishings	333	742	198	242	568	900	750	569	526	888	802	930	7438
67	Total	7177		6986	7730	8466	6950	6640	8588	7075	10974	6914	7676	93046
68														
69	Grand total	22933	16965	23852	23734	25996	20515	20774	23163	21156	28318	21471	20964	230614
70														Grand total check
71														269841

XLTest from Sysmod.com

ISACA
Trust, and value from information systems



Example scan & assessment

Path	Link	Source	Assessment	Score	Notes		
C:\VLStest\	linkthree.xls	1	TRUE	C:\VLStest\	linkthree.xls	TRUE	Old (Not Upd)Sheet'1:1.D3
C:\VLStest\	linkthree.xls	2	TRUE	C:\VLStest\Topdir1\	test1.xls	TRUE	Old (Not Upd)Sheet'1:1.D5
C:\VLStest\	linkone.xls	1	TRUE	C:\VLStest\lastyear\	linktwo.xls	TRUE	Old (Not Upd)One'1.B3
C:\VLStest\	exampleleft.xls	1	TRUE	C:\VLStest\	linkone.xls	FALSE	Missing File: Access Data!Extract=C:\V
C:\VLStest\	Backup of linkthree .xlk	1	TRUE	C:\VLStest\	linkone.xls	TRUE	Old (Not Upd)Sheet'1:1.D3
C:\VLStest\	Backup of linkthree .xlk	2	TRUE	C:\VLStest\Topdir1\	test2.xls	TRUE	Old (Not Upd)Sheet'1:1.D5
C:\VLStest\	AUTOOPEN.XLM	1	FALSE	C:\VLStest\	linkone.xls	FALSE	Missing File: !C=AUTOC!g=AUTOC!g=A
C:\VLStest\Topdir1\	testlinks.xls	1	TRUE	C:\VLStest\Topdir1\	source1.xls	FALSE	Missing File!Sheet'1:1.A4
C:\VLStest\Topdir1\	test1.xls	1	TRUE	C:\VLStest\Topdir1\	source1.xls	FALSE	Missing File!Sheet'1:1.A4
C:\VLStest\Topdir1\	test2.xls	2	TRUE	C:\VLStest\Topdir1\	source2.xls	TRUE	Old (Not Upd)Sheet'1:1.A7
C:\VLStest\Topdir1\	test2.xls	3	FALSE	Y:\Topdir1\	source2.xls	FALSE	Missing File!Sheet'1:1.A7
C:\VLStest\lastyear\	linktwo (version 1) xls	1	FALSE	C:\DOCS\stest\	linkthree.xls	FALSE	Missing File!Two'1.C7

ScanXLS from Systems Modelling Ltd



Linked spreadsheets

PathFrom	LinkedFrom	LinkNr	Relative	PathTo	LinkedTo	FileExists	Link Status
C:\VLStest\	linkthree.xls	1	TRUE	C:\VLStest\	linkone.xls	TRUE	Old (Not Upd)Sheet'1:1.D3
C:\VLStest\	linkthree.xls	2	TRUE	C:\VLStest\Topdir1\	test1.xls	TRUE	Old (Not Upd)Sheet'1:1.D5
C:\VLStest\	linkone.xls	1	TRUE	C:\VLStest\lastyear\	linktwo.xls	TRUE	Old (Not Upd)One'1.B3
C:\VLStest\	exampleleft.xls	1	TRUE	C:\VLStest\	linkone.xls	FALSE	Missing File: Access Data!Extract=C:\V
C:\VLStest\	Backup of linkthree .xlk	1	TRUE	C:\VLStest\	linkone.xls	TRUE	Old (Not Upd)Sheet'1:1.D3
C:\VLStest\	Backup of linkthree .xlk	2	TRUE	C:\VLStest\Topdir1\	test2.xls	TRUE	Old (Not Upd)Sheet'1:1.D5
C:\VLStest\	AUTOOPEN.XLM	1	FALSE	C:\VLStest\	linkone.xls	FALSE	Missing File: !C=AUTOC!g=AUTOC!g=A
C:\VLStest\Topdir1\	testlinks.xls	1	TRUE	C:\VLStest\Topdir1\	source1.xls	FALSE	Missing File!Sheet'1:1.A4
C:\VLStest\Topdir1\	test1.xls	1	TRUE	C:\VLStest\Topdir1\	source1.xls	FALSE	Missing File!Sheet'1:1.A4
C:\VLStest\Topdir1\	test2.xls	2	TRUE	C:\VLStest\Topdir1\	source2.xls	TRUE	Old (Not Upd)Sheet'1:1.A7
C:\VLStest\Topdir1\	test2.xls	3	FALSE	Y:\Topdir1\	source2.xls	FALSE	Missing File!Sheet'1:1.A7
C:\VLStest\lastyear\	linktwo (version 1) xls	1	FALSE	C:\DOCS\stest\	linkthree.xls	FALSE	Missing File!Two'1.C7

ScanXLS from Systems Modelling Ltd





Examine VBA for file access

Target Row	Full Path	Module	Line	Matche	Code
820	F:\DOCS\Spreadsheet\sai\standardm		108	//	http://www.tumanov.com/projects/scripts/excelhttpost.asp
821	F:\DOCS\Spreadsheet\sai\standardm		182	//	strQuery = "http://feeds.feedburner.com/WorkBlog"
822	F:\DOCS\Spreadsheet\sai\standardm		252	//	strQuery = "http://www.indeed.com/opensearch?q=" & strSearch & "&l=" & strLo
823	F:\DOCS\16-DL2006\FluSu\Module1		58	XLS	Workbooks("FluSurge2.0.XLS").Close SaveChanges=True
824	F:\DOCS\16-DL2006\Copy Module1		58	XLS	Workbooks("FluSurge2.0.XLS").Close SaveChanges=True
825	F:\DOCS\16-DL2006\Comp mod\Compl		4	//	Company: Erlandsen Data Consulting http://www.erlandsendata.no
826	F:\DOCS\Lab\Compliance\Module1		139	\	ActiveWorkbook.SaveCopyAs "C:\TEMP\Factorial_temp.XLS" - FIXED save of ac
827	F:\DOCS\IACS\DaCS De mod\OD		13	\	Const PATH_WEDGE = "C:\Program Files\WinWedge Prol\winwedge.exe"
828	F:\DOCS\IACS\DaCS De mod\OD		14	\	Const PATH_SW3 = "C:\Program Files\WinWedge Prol"
829	F:\DOCS\IACS\DaCS De mod\OD		123	DDEInitiate	channel = DDEInitiate("DDE_APP_NAME, COM_SPEC")
830	F:\DOCS\SSTESTS\testn1\Module1		60	Open	Workbooks.Open m\j\Workbook.Value, False, True
831	F:\DOCS\SSTESTS\testn1\Module1		73	SaveAs	ActiveWorkbook.SaveAs mc_str\LA & "\ & "report" & wbTestWorkbookName
832	F:\DOCS\SSTEST3\testlinks\Module1		1	//	http://www.mrexcel.com/archive/2/63500/73537.htm
833	Purchase Order9	Macros	361	XLS	If UCase(Right(WorkbookName, 4)) = ".XLS" Or UCase(Right(WorkbookName, 4
834	Purchase Order9	Macros	658	SaveAs	SaveAs Filename = FileNm, FileFormat:=xlTemplate
835	Purchase Order9	Macros	1120	XLS	If UCase(Right(WorkbookName, 4)) = ".XLS" Or UCase(Right(WorkbookName, 4
836	Purchase Order9	Macros	1214	Open	Workbooks.Open Application.LibraryPath & Application.PathSeparator & Addin
837	F:\DOCS\ssstest\QueryMa mod\Progre		59	Open	adoConn.Open
838	F:\DOCS\ssstest\QueryMa mod\Progre		63	Open	adoRS.Open strSQL, adoConn
839	F:\DOCS\ssstest\1994SAN_VBAdvanc		70	DDEInitiate	Chan = DDEInitiate("MSQuery", "System")
840	F:\DOCS\ssstest\1994SAN_VBAdvanc		218	DDEInitiate	ddechannel = Application.DDEInitiate("Winword", "system")
841	F:\DOCS\ssstest\1994SAN_VBAdvanc		403	\	szFullFilename\$ = "c:\document\vb_lead\book2.xls"
842	F:\DOCS\ssstest\1994SAN_VBAdvanc		405	XLS	szFilename\$ = "book2.xls"
843	F:\DOCS\ssstest\1994SAN_VBAdvanc		413	DDEInitiate	channel = DDEInitiate("Excel", "System")
844	F:\DOCS\ssstest\2000SAN_ADOExam		30	Open	Open strConn
845	F:\DOCS\ssstest\2000SAN_ADOExam		40	Open	Open "SELECT * FROM customer"
846	F:\DOCS\ssstest\2000SAN_ADOExam		76	Open	Open Application.Path & "samples\northwind.mdb"
847	F:\DOCS\ssstest\2000SAN_ADOExam		89	Open	Open Nsql & Njoin & Ncriteria, conn, adOpenDynamic, adLockBatchOptimistic



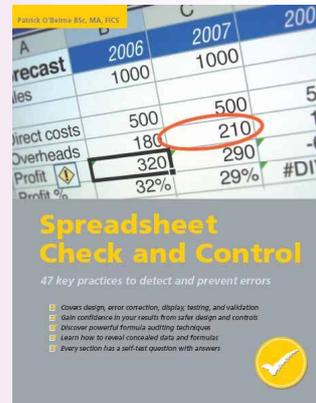
Good practice: Prevention

- Prevent errors through awareness and training
- Appropriate level of control for risk
- Build in self-checking and validation
- Change control, versions
- Access security, backup
- "Build the model for your checker, not for yourself. Make it easy to check (and maintain) and make it safe to use" (Dermot Balson, EuSpRIG 2010)



Learning objectives:

1. Appreciate responsibility for good spreadsheet design and use given their scope and significance in the contemporary workplace.
2. Appreciate the need for good spreadsheet specification
3. Be aware of the key security considerations
4. Appreciate the benefits of clearly organised, well presented and easy-to-use spreadsheets.
5. Be able to construct sound spreadsheets
6. Find and correct common errors
7. Test for input and output accuracy



1. Setup

1. Prepare (before you dive in)
2. Organise (structure, security)

2. Input

1. Controls (comprehension)

3. Calculate

1. Formulas (beware of traps)
2. Errors (find and fix)
3. Totals (self-checking)

4. Output

1. Data (formats)
2. Charts (presentation)

5. Audit

1. Review (Check, test)
2. Validation (prevent errors)
3. Laws & Guidelines (regulatory context)



Takeaways

This is a business project, not an IT project

- Policies give the rules of the road.
- IT can provide the users with the equivalent of headlights, seat belts and navigation aids.
- The business provides the driver.



Useful links

<http://endusercomputing.org/category/best-practices/>

Prodiance: best practices

<http://endusercomputing.org/2009/09/14>

Prodiance: EUC Policy template

<http://www.clusterseven.com/white-papers/2011/2/4/how-to-have-a-successful-eucuda-control-project.html>

ClusterSeven: How to Have a Successful EUC/UDA Control Project

http://www.iiabel.be/Uploads/Documents/M2_IPPF/GTAG/GTAG-14_edited_with_Ad_05-20-20101.pdf

IPPF: GTAG-14 Auditing User-developed Applications





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