

# Spreadsheet Auditing for Free

Ray Butler, CISA, MIRM

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## Ray Butler...

- IS Auditor in HM Customs & Excise for 25 years
- Trained VAT inspectors in Spreadsheet Audit
- Co-Founder of European Spreadsheet Risk Interest Group
- Past President of ISACA Northern England

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## Impact of Errors

- **Critical**  
Material error could compromise a government, a regulator, a financial market, or other significant public entity and cause a breach of the law and/or individual or collective fiduciary duty. May place those responsible at significant risk of criminal and/or civil legal proceedings and/or disciplinary action.
- **Key**  
Material error could cause significant business impact in terms of incorrectly stated assets, liabilities, costs, revenues, profits or taxation etc. May place those responsible at risk of adverse publicity and at risk of civil proceedings for negligence or breach of duty and/or internal disciplinary action,
- **Important**  
Material error could cause significant impact on the individual in terms of job performance and career progression without directly, greatly, immediately or irreversibly affecting business or the organization.
- **Store & Retrieve**  
Spreadsheets used as databases, with few issues other than data correctness and information security and where the impact of error is low.
- **Expired**  
Spreadsheets over three years old no longer required in the active management of the business, but may be required to be archived by statute or good practice. Present impact of error is low.
- **Personal**  
Other spreadsheets used by the individual in the day-to-day performance of their duties, where the impact of material error is low.

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## Auditing Excel for Free

- Checking the set-up
- Auditing Tools
- Data Validation
- Conditional Formatting
- GOTO Tools
- A Keyboard Shortcut or two..

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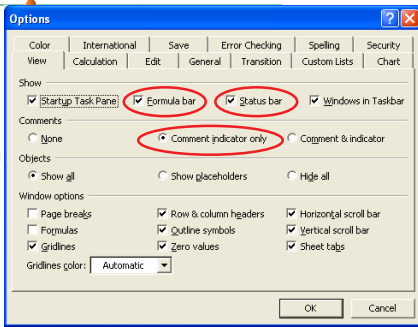
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## Checking the Set-up

- Tools, Options, View
- User Information Risks



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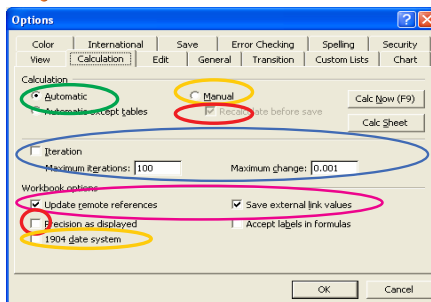
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## Checking the Set-up

- Tools, Options, Calculation
- Find Calculation rules risks



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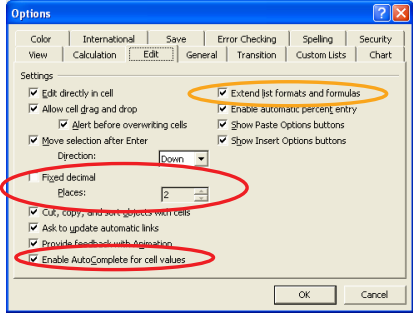
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## Checking the Set-up

- Tools, Options, Edit
- Risks in Data Entry



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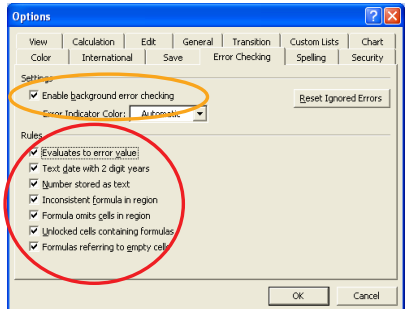
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## Checking the Set-up

- Tools, Options, Error Checking
- Are Excel's Error Checking Tools used?



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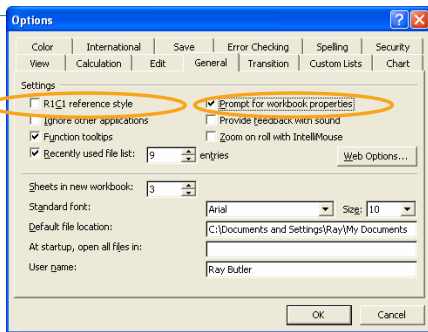
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## Checking the Set-up

- Tools, Options, General
- Display / User Interaction Risks



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## The Auditing Toolbar

- Show by Tools, (Formula) Auditing, Show (Formula) Auditing Toolbar

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## The Auditing Toolbar

- What does it do?
  - Allows various checking actions
  - Only on the current worksheet
  - Doesn't work on multiple selections
- Details....

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## Formula Auditing Tools

- Trace Precedents
  - Cells that feed into the selected cell
  - 1<sup>st</sup> Click – Direct
  - 2<sup>nd</sup> Click – Indirect
  - 3<sup>rd</sup> Click – Indirect – next level
  - Etc....
  - Click the arrow to select cell at end

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Formula Auditing Tools

- Remove Precedent Arrows
  - Clears display in order of setting
  - 1<sup>st</sup> Click – Last displayed
  - 2<sup>nd</sup> Click – 2<sup>nd</sup> Last displayed
  - Etc.....

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Formula Auditing Tools

- Trace Dependents
  - Cells that USE the selected cell
  - 1<sup>st</sup> Click – Direct
  - 2<sup>nd</sup> Click – Indirect
  - 3<sup>rd</sup> Click – Indirect – next level
  - Etc....
  - Click the arrow to select cell at end

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Formula Auditing Tools

- Remove Dependent Arrows
  - Clears display in order of setting
  - 1<sup>st</sup> Click – Last displayed
  - 2<sup>nd</sup> Click – 2<sup>nd</sup> Last displayed
  - Etc.....

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Formula Auditing Tools

- Remove all arrows



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Formula Auditing Tools

- Trace Error
  - Trace Precedents BUT limited to cells with Errors, e.g #VALUE
  - 1<sup>st</sup> Click – Direct
  - 2<sup>nd</sup> Click – Indirect
  - 3<sup>rd</sup> Click – Indirect – next level
  - Etc...
  - Click the arrow to select cell at end



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Formula Auditing Tools

- New Comment
  - Adds a new comment to the selected cell
  - Handy for documenting "on-the-fly"
  - How do we spot cells with comments?



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**Formula Auditing Tools**

- Circle Invalid Data
  - Puts a red circle around cells that break the rules set with Data, Validation
  - Instant
    - Range test
    - High Value test
    - Data Type test
  - Limited to 255 "Hits"

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**Formula Auditing Tools**

- Clear Validation Circles

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**Extra Formula Auditing Tools in XP**

- 3 Extra Audit Tools
  - Formula Error Checker
  - Watch Window
  - Evaluate Formula

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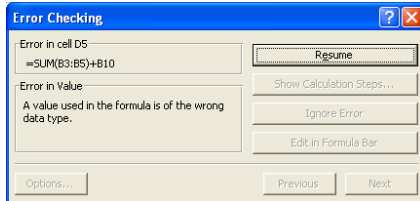
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## Formula Error Checker



- Finds all errors
- Explains and helps debug them



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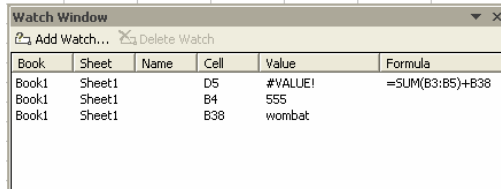
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## Watch Window



- Watch cell values and formulas even when target cell is out of view



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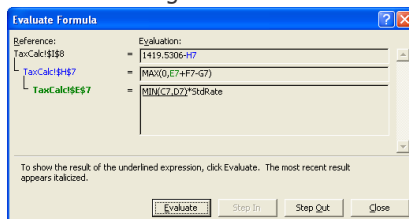
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## Evaluate Formula



- Steps through calculation in selected cell
- Follows Excel's Logic



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## Data Validation

- Restrict cell entries to numbers, dates, or times within specified limits
- Just like "Real program" validation
  - Range tests (Min / Max values allowed)
  - Type Tests
    - Whole Numbers
    - Decimals
    - Dates
    - Times

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## Data Validation

- Type Tests
  - Whole Numbers
  - Decimals
  - Dates
  - Times
- All with range tests
- Text Length
- List

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## Data Validation

- Types of Validation
  - ⊗ Stop
    - Will not allow input of values that break the rules
  - ⚠ Warning
    - Warns user but allows input of values that break the rules
  - ℹ Information
    - Warns user but allows input of values that break the rules

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## Setting Data Validation

- Select Cells you want to validate
- Click Data, Validation
- Choose what you want to allow
- Set Maximum & Minimum Values
- Choose the input message / help text
- Set the severity (Stop, Warning, Information)

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## Conditional Formatting

- Makes Cell Appearance depend on content
  - Background Colour / Pattern
  - Font
  - Borders
- Up to 3 conditions (4 with default)
- Makes odd values **SHOUT!**

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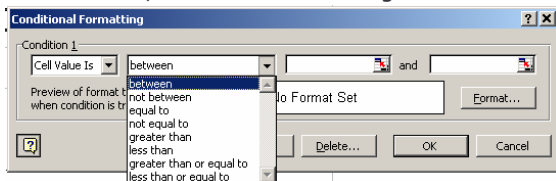
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## Conditional Formatting

- Set from Excel Menu
  - Select Cell(s)
  - Format, Conditional formatting



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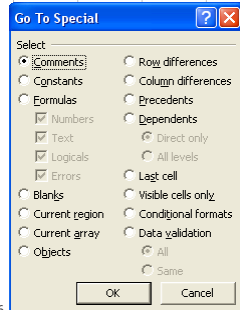
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## Go To Special

- A Very useful feature
- Selective selection of interesting cells
- Edit, Go To (or F5)
- Click **Special...** button
- When selections made, **↵**(enter) moves between them



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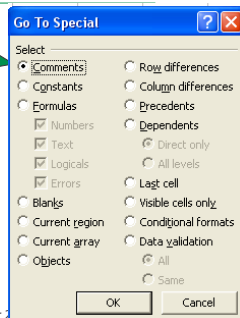
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## Go To, Special

- Why ?
  - Comments can tell you
    - What a formula does,
    - What assumptions lie behind the calculations,
    - The source of key numbers
  - If they are used Properly

Select All Cells With Comments



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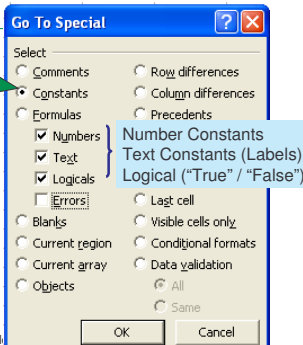
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## Go To, Special

- Why ?
  - Finds and lets you check
    - Numbers
    - Labels
    - Logic (may be precedents to complex formulas)

Select All Cells With Constants



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## Go To, Special

- Why ?
  - Finds and lets you check the different classes of formulas

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## Go To, Special

- Highlights a physical area of the spreadsheet
- Equivalent to
- Why ?
  - Lets you restrict next selections

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## Go To, Special

- Why ?
  - Finds and lets you check differences in numbers
  - Easier than adding formulas, conditional formats or validations

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
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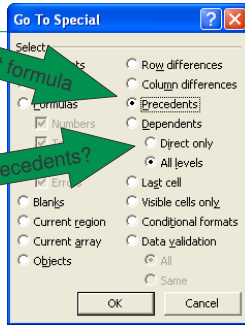
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## Go To, Special

- Why ?
  - Finds and lets you check what feeds the current formula
  - Equivalent of 
- Less control than the audit tool



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
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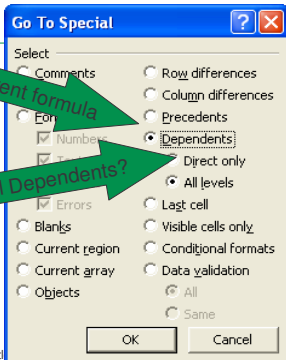
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## Go To, Special

- Why ?
  - Finds and lets you check what the current formula feeds
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- Less control than the audit tool



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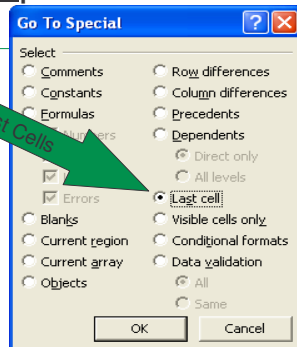
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## Go To, Special

- Why ?
  - Finds the bottom right cell with content of formatting
  - Empty formatted cells take up space and confuse audit tools
  - It looks empty. Is it?



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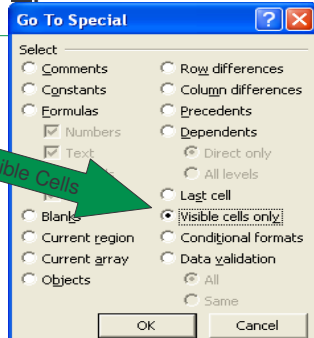
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## Go To, Special

### Why ?

- Lets you check only visible cells
- Don't check / change hidden cells, rows, columns



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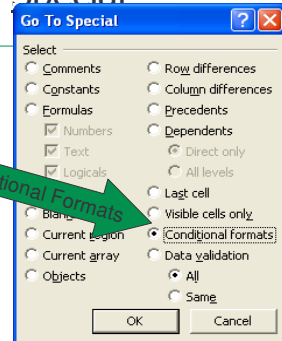
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## Go To, Special

### Why ?

- Lets you Find & check conditional formats
- These can mislead if incorrectly used



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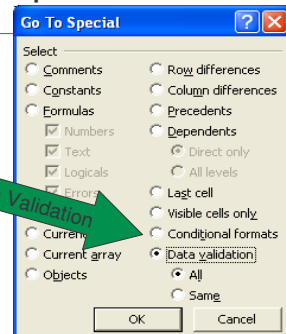
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## Go To, Special

### Why ?

- Lets you Find & check all the Data Validations
- These can mislead if incorrectly used



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## Some Useful Keyboard Shortcuts

- Ctrl+  (just to the left of !1)
- Toggle between displaying values and formulas

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## Some Useful Keyboard Shortcuts

- Ctrl + [
  - Select all DIRECT precedents of current formula
- Ctrl + Shift + {
  - Select all DIRECT and INDIRECT precedents of the current formula
- Less control than the  button

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## Some Useful Keyboard Shortcuts

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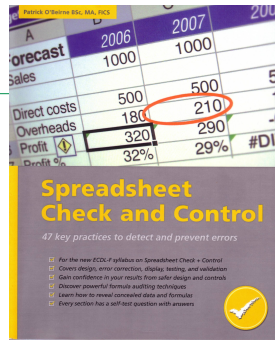
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## A Small Plug

- *Spreadsheet Check & Control*  
Patrick O'Beirne
- €29.95
- Free Shipping if ordered Jan 06



<http://sysmod.buy.ie>

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## More Resources

- Workshop at EuroCACS – Sunday 19 March  

- European Spreadsheet Risks Interest Group
  - [www.EuSpRIG.org](http://www.EuSpRIG.org)
  - 7th EuSpRIG Annual Conference 'Managing Spreadsheets: Improving corporate performance, compliance and governance'
  - July 6/7 2006, Fitzwilliam College, University of Cambridge, Cambridge UK

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