#### revisions (Revisions)

This element represents the root node of a list of revisions made in this shared workbook. This root node shows up at the beginning of every log file that contains specific revisions made to the workbook.

When multiple [users](users.docx) are sharing, and editing, a [workbook](workbook.docx) at the same time, there may be conflicting changes. The spreadsheet application should have logic to resolve such conflicts, and the file [format](format.docx) should only contain enough information so that the spreadsheet application can restore the [workbook](workbook.docx) to the correct state after conflict resolution. Revisions can also be tracked by the spreadsheet application for review by the user at a later time (as opposed to only dealing with conflicts on a save event.) Some edits to workbooks will be made as a result of this conflict resolution. So, there will be cases where a revision is effectively undone by another user, and as a result that undoing is itself a revision that adds or changes data in the file. These types of operations are tracked by the ua and ra attributes of many different elements.

[Example:

Step 1:

User 1 inserts Column A. So the XML in the revision log would look like this:

<revisions xmlns="…" xmlns:r="…">  
 <[rrc](rrc.docx) rId="1" sId="1" ref="A1:A1048576" action="insertCol"/>  
</revisions>

Step 2:

User 2 synchronizes the file to pick up that change, but then activates the Track Changes feature, and rejects that change. This effectively performs an [undo](undo.docx) on User 1's insertion. This is denoted in the file with the ua attribute meaning that this change happened as the result of an undo. The XML for the revision log would look like this:

<revisions xmlns="…" xmlns:r="…">  
 <[rrc](rrc.docx) rId="2" ua="1" sId="1" ref="A1:A1048576" action="deleteCol"/>  
 <[rcft](rcft.docx) rId="1" ua="1" [sheetId](sheetId.docx)="1"/>  
</revisions>

Step 3:

User 1 types "foo" in A1, and saves the file. A conflict resolution dialog is shown since User 2's version of the file removed the inserted Column A. User 1 chooses to accept their own changes. This undoes the change that User 2 made. So, in effect, it performed an [undo](undo.docx) on a previous [undo](undo.docx) operation. This is denoted in the file [format](format.docx) by the ra attribute meaning that a the change occurred because a previous [undo](undo.docx) was undone. So the resulting XML for the newest log file looks like this:

<revisions xmlns="…" xmlns:r="…">  
 <[rrc](rrc.docx) rId="3" ua="1" ra="1" sId="1" ref="A1:A1048576" action="insertCol"/>  
 <[rcft](rcft.docx) rId="2" ua="1" [sheetId](sheetId.docx)="1"/>  
 <[rcc](rcc.docx) rId="4" sId="1">  
 <[nc](nc.docx) [r](r.docx)="A1" [t](t.docx)="inlineStr">  
 <is>  
 <[t](t.docx)>foo</[t](t.docx)>  
 </is>  
 </[nc](nc.docx)>  
 </[rcc](rcc.docx)>  
 <[rcft](rcft.docx) rId="2" [sheetId](sheetId.docx)="1"/>

</revisions>

end example]

|  |
| --- |
| Parent Elements |
| Root element of SpreadsheetML Shared [Workbook](Workbook.docx) Revision Log part |

|  |  |
| --- | --- |
| Child Elements | Subclause |
| [raf](raf.docx) (Revision AutoFormat) | § |
| [rcc](rcc.docx) (Revision Cell Change) | § |
| [rcft](rcft.docx) (Revision Merge Conflict) | § |
| [rcmt](rcmt.docx) (Revision Cell Comment) | § |
| [rcv](rcv.docx) (Revision Custom View) | § |
| [rdn](rdn.docx) (Revision Defined Name) | § |
| [rfmt](rfmt.docx) (Revision Format) | § |
| [ris](ris.docx) (Revision Insert Sheet) | § |
| [rm](rm.docx) (Revision Cell Move) | § |
| [rqt](rqt.docx) (Revision Query Table) | § |
| [rrc](rrc.docx) (Revision Row Column Insert Delete) | § |
| [rsnm](rsnm.docx) (Revision Sheet Name) | § |

The following XML [Schema](Schema.docx) fragment defines the contents of this element:

<complexType [name](name.docx)="CT\_Revisions">

<choice maxOccurs="unbounded">

<element name="[rrc](rrc.docx)" type="CT\_RevisionRowColumn" minOccurs="0" maxOccurs="unbounded"/>

<element name="[rm](rm.docx)" type="CT\_RevisionMove" minOccurs="0" maxOccurs="unbounded"/>

<element name="[rcv](rcv.docx)" type="CT\_RevisionCustomView" minOccurs="0" maxOccurs="unbounded"/>

<element name="[rsnm](rsnm.docx)" type="CT\_RevisionSheetRename" minOccurs="0" maxOccurs="unbounded"/>

<element name="[ris](ris.docx)" type="CT\_RevisionInsertSheet" minOccurs="0" maxOccurs="unbounded"/>

<element name="[rcc](rcc.docx)" type="CT\_RevisionCellChange" minOccurs="0" maxOccurs="unbounded"/>

<element name="[rfmt](rfmt.docx)" type="CT\_RevisionFormatting" minOccurs="0" maxOccurs="unbounded"/>

<element name="[raf](raf.docx)" type="CT\_RevisionAutoFormatting" minOccurs="0" maxOccurs="unbounded"/>

<element name="[rdn](rdn.docx)" type="CT\_RevisionDefinedName" minOccurs="0" maxOccurs="unbounded"/>

<element name="[rcmt](rcmt.docx)" type="CT\_RevisionComment" minOccurs="0" maxOccurs="unbounded"/>

<element name="[rqt](rqt.docx)" type="CT\_RevisionQueryTableField" minOccurs="0" maxOccurs="unbounded"/>

<element name="[rcft](rcft.docx)" type="CT\_RevisionConflict" minOccurs="0" maxOccurs="unbounded"/>

</choice>

</complexType>