

The XLSX Reader

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Mapping, omissions, and round-trip expectations for the XLSX reader	
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Status of This Memo

This document is an internal Zen discussion record authored in Typst and tracked in git. It intentionally follows RFC-style structure so the design scope, rationale, trade-offs, and operational constraints remain explicit. Documents that still use the placeholder number XXXXX are provisional drafts. Numbered ZDS documents are part of the project record.

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53. Abstract

The format record for `zenfmt_xlsx` (`ai.insan.zenfmt.xlsx`). A workbook is a set of grids; the projection is direct: each sheet becomes a level-two heading naming it, followed by one table with the sheet's first row as its header. The interesting decisions are about numbers, because a spreadsheet's raw storage lies to humans: serial dates and percentage fractions are formatted, everything else passes through verbatim.

54. Mapping

Every non-empty cell also carries a `GridFacet` (ZDS 0013): sheet name, zero-based row and column, value type, the formula source when present, and the cached value exactly as the source spelled it. Markdown ignores the facet; a future spreadsheet writer re-emits the formula from it.

Source	Tree result	Facets
xl/workbook.xml sheet list	One heading (level 2) per sheet, in workbook order, resolved through the workbook relationships.	none.
Sheet rows and cells	One table per sheet; the first row is <code>table_head</code> , the rest <code>table_body</code> . Sparse rows are materialized: skipped cells become empty cells, and short rows pad to the sheet's widest row.	<code>GridFacet</code> per non-empty cell; padding cells carry none.
t="s" cells	The shared string from xl/sharedStrings.xml.	<code>GridFacet</code> with value type <code>text</code> .
t="inlineStr", t="str" cells	Their text.	<code>GridFacet</code> with value type <code>text</code> .
t="b" cells	TRUE or FALSE.	<code>GridFacet</code> with value type <code>boolean</code> ; t="e" cells carry <code>error_value</code> .
Number cells with a date format	ISO yyyy-mm-dd, from the serial through Hinnant's civil-from-days. Built-in format ids 14–22 and 45–47 count as dates; serials below 60 inherit Excel's fictional 1900-02-29 and land one day early, which real spreadsheets never exercise.	<code>GridFacet</code> with value type <code>date</code> ; the cached field keeps the raw serial.
Number cells with a percentage format	The fraction times one hundred with a % sign; ids 9 and 10.	<code>GridFacet</code> with value type <code>number</code> and the raw fraction cached.
Other number cells	The raw value, verbatim.	<code>GridFacet</code> with value type <code>number</code> .
<f> formulas	Never evaluated; the cached <v> is used. <code>xlsx.formula-</code>	<code>GridFacet.formula</code> carries the formula source text verbatim.

Source	Tree result	Facets
	without-cached-value when there is none.	

55. Deliberate omissions

What	Why
Cell styling, colors, borders, widths	A GFM table has none of it.
Charts, images, pivot tables, defined names	No tree node exists, and inventing one is a ZDS 0002 amendment, not a reader's decision.
Custom number formats beyond dates and percentages	Format-string interpretation is a rendering engine; the raw value is honest, a wrong rendering is not.
Hidden rows, columns, and sheets	Hiding is presentation; the data is the content. Everything converts.

56. Round-trip expectations

None: XLSX is read-only and no preservation namespace is written. A spreadsheet round trip would need cell-level typing that Markdown cannot carry; the honest form of that feature is a CSV writer, not a promise here.

57. Security

The shared `zenfmt_ooxml` archive limits and the DTD-free XML parser apply unchanged. Sheet materialization is bounded: cells beyond the widest declared reference cap at 1,024 columns per row, so a hostile dimension string cannot inflate output quadratically.

58. References

- ZDS 0002, *Reading the Office Formats*.
- ECMA-376 Part 1, SpreadsheetML.