

The RTF Reader

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DISCUSSION

Mapping, omissions, and round-trip expectations for the RTF reader

LABELS

formats, rtf, reader

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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47. Abstract

The format record for `zenfmt_rtf` (`ai.insan.zenfmt.rtf`). RTF is neither XML nor a container: one brace-delimited group language, read by one explicit group stack. RTF in the wild comes from dozens of producers with incompatible habits, so this reader is error-tolerant by design — an unknown control word is skipped with a note, never a failure.

48. Mapping

Source	Tree result	Facets
Document text	paragraph runs, closed by \par.	StyleFacet when the paragraph declares \sN and the stylesheet names it (ZDS 0013): the style's name.
\b, \i, \strike, \super, \sub, \scaps, \ul/\ulnone	Nested style containers in the canonical order, inherited into nested groups, cleared by \plain, with the common prefix of consecutive text shared. Toggle values of zero clear.	None.
\line	hard_break.	None.
\tab, \~	A space.	None.
\'hh	The byte decoded in the \ansicpg code page; Windows-1252 is the default and the fallback for pages zenfmt does not carry.	None.
\uN	The Unicode scalar, with the \uc skip-count convention for the fallback characters that follow.	None.
\emdash, \endash, quotes, \bullet	Their Unicode characters.	None.
{*\...} and known destinations	Skipped wholesale: fonttbl, colortbl, info, headers and footers, list tables, revision tables. The stylesheet group's content is likewise skipped, but its \sN style names are harvested first (bounded at 256 entries).	The harvested names feed the paragraph StyleFacet above.
\trowd / \cellx / \cell / \row	table with one column per \cellx of the first row definition; \trhdr rows open table_head, the rest table_body. Cells open lazily when their content arrives and close at \cell. A paragraph without \intbl closes the table.	None.
\ls + \ilvl, {*\pn}	list/list_item synthesized by the same inference machine as the DOCX reader: open on rising level, close on falling level or a changed kind. \pnlvblt is a bullet, \pndec/\pnlvbody ordered; a bare \ls decides by its \listtext marker — a digit means ordered. Marker fallback text never reaches the output.	None.

Source	Tree result	Facets
\outlinelevelN	heading at level N+1 (clamped to six), the producing word processor's own outline signal.	StyleFacet as for paragraphs, when \sN applies.
{\field{*\fldinst HYPERLINK ...} {\fldrslt ...}}	link around the field result, with the quoted or bare URL from the instruction. Non-hyperlink fields keep their cached result as plain text.	None.
{\footnote ...}	note reference at the site; the group's raw RTF is replayed after the body as the note's block content.	None.

49. Deliberate omissions

Report code	What is recognized and dropped
rtf.unknown-control-words	Every control word outside the mapping: layout (\qc, \li, \sa), fonts and colors (\f, \fs, \cf), sections, and anything a producer invented. Skipped, text kept, said once.
rtf.images-dropped	\pict groups. RTF embeds image bytes hex-encoded with no file name; zenfmt does not extract image bytes in this release.
rtf.objects-dropped	\object OLE embeddings — spreadsheets, drawings, equations only their producing applications can render.
rtf.nested-table-flattened	Tables inside table cells (\itap above one, \nestcell). Markdown cells hold only inline content; the nested table's text folds into its parent cell.

50. Round-trip expectations

None. RTF is read-only, its projection keeps character styling and paragraph breaks, and no preservation namespace is written in this release.

51. Security

The group stack is fixed at 128 deep; deeper nesting is `rtf.groups-too-deep`, a limit-class refusal — no real producer nests near that. A file not beginning `{\rtf` is `rtf.not-rtf`. All content-following refusals from ZDS 0002 apply: nothing in an RTF file causes zenfmt to open another file.

52. References

- ZDS 0002, *Reading the Office Formats*.
- Microsoft Rich Text Format Specification v1.9.1.